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2%-9'3D,-\$': :43L-+:9'\$&Lk3+-:9'O-,%'&O'\$&Lk3D3,-M:',34"K3;3Q': "E+\$,-&#)" .+/O\$%0#%\$'&2&O&Lk3D:0",&'&\$&Lk3+-:9'
O-,%'%-%:D'\$&Lk3D3,-M:',34"K3;3Q': "E+\$,-&#)" .+/O\$%0#%\$'&2&O&Lk3D:0",&'&\$&Lk3+-:9'
O-((:D:+\$-9'-+D:303Q'-,; "3+0",&+:-+ ",%:-D"D:9K:\$,-M:"M&'*+,3D"; "34"D:K&D,9"Em2 j9Jp<+O&+."9&/,%"3*,&D9"K&9-, "%D: : " ^: ;"
&KK&D,*+,-:9"(&D'\$&Lk3+-:9",&'&\$&+,D&'",%"34"+3D3,-M:,"%D&*% ",&+:"3+0"D:303Q'-,; "E=J"3\$^&("3M3-'3Q': "34"+(&DL3,-&+I'EAJ"
'3\$^&("3'-+L: +, "Q:, O: :+, %:"3\$&\$&*+,-+."3+0",343,-&+9;9; :L9I'3+0'EBJ"3,-*0:"3M3-'3Q': "-+M&'*+,3D; "0-9'\$&9*D:9P"2%:"3+3'; 9-9"
D:M:3'9" &M:D3"" ,%3, "3"%-%. %'E'&OJ": ((:\$,-M: "34"D3, : "-9"399&\$-3, :0"O-,%"3" L&D:"E':99J"D:303Q': "m2 j"3+0"3"m2 j"O-,%"3" L&D:"
K&9,-M:"E+: .3,-M:J",&+:"P" 7 % :+, %:"\$&Lk3+-:9'3D:"9: .D: .3, :0"/-,"-9"+&, :0",%3, "+\$,-&#)" .+/O\$%0#%\$'&2&O&Lk3+-:9'3D:"
(&*+O",&'D:9&D,"&,"%:"&+:"-+,"34"D:K&D,+./O%:D:39",%&9:"O-,%'&O:"D'9SD*,-+;"D: "; "&+,"%:"D:303Q'-,; "&("D:K&D,9P"
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" m&'*+,3D; "D:K&D,+ .I" L3+03,&D; "34"D:K&D,+./" K*Q'-\$"9SD*,-+;/" K&'-, -\$3"" :4K&9*D:/ " \$&DK&D3, : "343,-&+I",&+:"I"
D:303Q'-,;I",34",D3+9K3D:+\$;/")*9,D3'-3/"34"\$&Lk3'-3+:\$:P
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(: :0Q3\$^&+,"%9" L3+*9SD-K,P"
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: '-5-!*G&)+*%('8!*(%+'-!&@! I 1 =!\$*!C+5%')\$(6!O&D-G-'6!%O-'-!(!-'(!7'&D\$*7!*+ . F-'!&@!
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, & . :)-96! 6!\$*%&' . (%\$&*M¹⁴!C5! / -+5-)\$* , N!(*#! , &2(+%O&'5!5(%-6! , & . :)-9\$8!
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&+%5\$#-'5!%&!F- , & . -! : '& : -')8!\$*%&' . -#0!\$5! '-W+\$' -#6!%O-'-F8!&F5 , +\$*7!%O-!(F)\$8!%&!
+*#-'5%(*#M¹⁵! !'-@-'5!%&!%O-!5-*\$. -*%!&@!%O-!#5\$,)&5+'-56!F-\$*7!%O-!-9%-*%!%&!DO\$,O!
'- : &'5! , &*%(\$*!%- ' . 5!D\$O!& : %\$. \$5\$, !&'! : -55\$. \$5\$, !5-*\$. -*%!%O(%! , (: %+'-!b!%O-!(@@- , %!
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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!-*%\$5-56!@(\$*'-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(%\$&*!
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C)%O&+70!(!@\$' . 05!@\$*(* , \$!)5%(%- . -*%5!('!5--*!(5!(*!\$. : &'%(%!5&+' , -!&@!\$*%&' . (%\$&*6!
%O-!+5-@+)*-55!&@!% (9!#5\$,)&5+'-5!O(5!F--*!&@! , &* , -*%!&@!15& . -!%\$. -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/"
% , ,K9Ykk03,3P . &MP3*k03,39 : ,k09@O . 3@(h=hFC3?@A : : Q@>cCA@30=(@>>B(h(cAF=?Gk0-9,D-Q* , -&k0-9,@O . 3@
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6³⁰!(*#!%O-'-&'-'!,&. :(*\$-5! . (8!+5-!#5\$,)5+ '-5! (5!\$*5%' + . - *%5!@&'!5&,\$()!
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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:&%O-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&-!< (!(*#!
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:&%O-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- (' , OM!

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"OO)/**\$B&G#&#&729&U-/3Q&M:"+=cI" \ : +D; /"3Q&M:"+=GI") K&9, &'9") "
83"39"d2% : "XD:3, -&+"&(" , % : ") *O, -+ . " aD&(:99-&+ "-+ nD : : \$: N" E=CC?J" ABE?J" E## / \$2' & 26:) W%6=2&X='&/2O)=23)
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0 \$ 7 0 2 : ' & @ \$) - ! , (5 - 5 M ! 1 0 \$ 5 ! (' 7 + (F) 8 ! F - 7 (* ! D \$ % 0 ! % 0 - ! % (9 ! % ' (* 5 : (' - * , 8 ! ' - : & ' % \$ * 7 ! ' - 7 \$. - ! % 0 (% !
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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!(*#!5-'G\$, -5%(9!Q f B 1 R!
:(8.-*\$5M⁴⁵!!

L \$%O!%O-5-!#-G-)&:.-*\$5!\$*!. \$*#6!%O-'!\$5!(15+F5%(*%\$()!'-7+)(%&'8!50\$@!\$*!C+5%')(\$(%O(%!
\$5!@&, +5-#!&*!. &'!-!:+F)\$,)8!%'(*5:(-'*%!(*#!5, '+%\$*5-#!%(9!(@(\$'5!D\$%O!'-5:-,%!%&!)('7-'
F+5\$*-55-5M!10-!:'-5-*%!5%+#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-!1 1 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:(-'*%!(*#!O-):-!#+, (%-!%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-!'-, -\$: %!
&@!_a!5+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!1 1 J 6!0\$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-! 1 1 J!, (*!&, , +'! D\$%0\$*! 5-G- ' (!, &*%-9%56! \$*,)+#\$*7! \$*!
%0-! 7- * -' (!: +': &5-! @ \$* (*, \$ (!) 5% (%- . - *%5! Q f S4B5R6! \$*! % (9-5!: (\$#! '- : &' %56! (*#!, &' : &' (%-!
5&, \$ (!) '-5: &*5\$F\$)\$%8! Q JB=R! '- : &' %56! @&'! -9 (. :)-6! (*#! ('-! * &'! -W+\$' -#! %&! F-! -9%- '* ()) 8!
(+#\$-#%⁴! A*) \$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% (%- . - *%5! 1 0-!
/ &' #! &@! 1 (9(%\$&*! \$56! * &*-%0-)-556! (D ('-! &@! %0-! # \$5, '- : (*, 8! F-%D-- *! \$%5!)\$5%! &@!
5\$7* (%&' \$-5! (*#! %0-! C 1 p! : +F)\$50-#! # (%! ('\$5\$*7! @' & . ! %0-! @)-9\$F\$)\$%8! +*#- '! %0-! 1 1 J 6!
D O\$, 0!+) %\$. (%-) 8! b . (N-5!, & . : ('\$5&*5!)-55! . - (*\$*7@+) 0! ! 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! '-@!\$*-#!%O-!7-*-'()2 : +' : &5-! E('G('#05!
f-*-'()!?*W+\$'-!'D&'#!)\$5%5!D0\$, O! 1-%)&, N!+%\$)\$5-#6¹⁰ !(*#!,) (55\$@!\$-#!D&'#5!\$*!)\$5%5!5&!
%O(%!%O-!D&'#5!\$*#-#!('!-6!@'& . !(!@!\$*(*, -! : -'5 : -, %\$G-6! : &5\$%G-!&'!*-7(%\$G-M!10-!(+%O&'5!
#-())!D\$%O!%O-!@!\$)*750!-@@-, %5!&*!5%&, N5!#++'\$*7!%O-!q2#(85!D\$*#&D! : '\$&'!(*#!5+F5-W+-*%!
%&!%O-!@!\$)*7!#(%-!&@!(!_^2 j M!!'

B\$. \$)('!%&%&*-6!(!7'&D\$*7!F!&@!@!\$*(*, -!(*#!(, , &+*\$*7!'!-5-(' , O!+5-5%9%+()!(*)85\$5!
%&! -9(. \$*-'! %O-! ! &@! ,&':&'(%-!'! - : &'%5! Q : '\$. ('\$)8! _^2 j !'- : &'%5R6! \$%5!
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G&)+ . -6¹¹ !(*#!\$*G-5% . -*%!-@@\$, \$-* , 86¹²⁰!D0\$)- !\$\$!\$5!*-7(%\$G-)8!(55&,\$(%-#!D\$%0!%0-!,&5%!
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'(*5(,%\$&*5!(##!' -: &'%\$*7!5%(*#('5M¹⁴³!4&'!-9(. :)-6!E&: -(##!,&2(+%0&'5¹⁴⁴!5+77-5%-#!
%O(%!%&!%O-!-9%-*%!. (* (7-'5!D&+)#!F-)\$-G-!%O(%!*%2#5\$,) &5+'-!&@!7-&7'(:0\$,!-('*\$*75!
'-#+,-5! : '&F(F)\$%8! &@! (+#\$%6! : '-G-*%5! (##\$%\$&*!) @&'-\$7*! 5(*,%\$&*5! &'! : -*%)\$-5! &'!
#-@)-,%5! : +F)\$,! , '\$%\$, \$5 . 6! G&)+*%('8! #5\$,) &5+'-5! D&+)#! F-! (G&\$#-#M! 10\$5! D(56!
%-%0-)-556! . \$\$7(%-#!D0-*!(!, -'%'(\$*!)-G-)!&@!#5\$,) &5+'-!F-, (. -! . (*#(%-#M! c 8-'6!>(*7!
(*#! B%\$, -2>(D'-*,-! Q]^_1R6¹⁴⁵! 0&D-G-'6! 0(G-!'(\$5-#! ,&*,-'!*! &G-'! %0-! (F)\$%8! %&!
! ! ! %0-!#5\$,) &5+'-!, 0&\$, -5!@&'& . !%0-!+*#-'!)8\$*7!-, &* & . \$, 5M!

L \$%O!%O\$5!\$*! . \$*#6! f +(8!(##!,&2(+%0&'5!O\$70)\$70%O-!&%O-'!#5\$,) &5+'-! . -#\$+ . 5!F-8&*#!
%O-!@\$*(,*,\$!)5(%- . -*%5!%O(%!, (*!b(, O\$-G-!(*!&:%\$. ()!\$*@&' . (%\$&*!-*G\$'&* . -*%O¹⁴!?*!
:('%\$, +)('6!(!*+ . F-!'!&@!5%+##\$-5!, &*5\$#-'!%O-!'\$*%-':)(8!F-%D--*! . (*#(%&'8!(*#!G&)+*%('8!
#\$5,) &5+'-56!@\$*#*7!%O(%!%O-!, &. :)-9\$8!Q'-@)-,%\$*7!)&D-!'\$*@&' . (%\$&*!(, , -55\$F\$)\$8R!\$5!
(55&,\$(%-#!D\$%O!\$*,'-(5-#!G&)+*%('8!#5\$,) &5+'-6!D0\$, O!\$5!, &*5\$5%-*%!D\$%O! . (*#(%&'8!(*#!
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L -!: &5\$%!%O(%!%O-!7'-(%-'!%O-!(F5-*,-!&@!%(9!\$*%&' . (%\$&*!7-*-'())8!(G(\$)(F)-6!%O-!7'-(%-'!
%O-! #-7'--! &@! ,& . :)-9\$%8! @&'! %O-! G&)+*%('8! #5\$,) &5+'-5M! / -8&*#! %O-!)\$. \$%-#! %(9!
#\$5,) &5+'-56!%O-!'-\$5!&: :&'%+*\$%8!&!&F@+5, (%-!#+-!%&!%O-!)(, N!&@!()\$7* . -*%!F-%D--*!%(9!
(*#!(, ,&+*\$%\$*76!(*#!%O-!)(%\$%+#!\$*!G&)+*%('8!' -: &'%\$*7M!!!

4&'!%O-!'-)-G(*%!C+5%'())\$(*!, &*%-9%6! : '\$&'!%&!%O-!\$*%&'&#+, %\$&*!&@!%O-! 1 1 J!(*#! I 1=56!%O-!
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)\$*N-#!%&!%0-!D&'N!F8! f'(O(!(*#!, &2(+%0&'56¹⁵!DO\$, O!@&+*#!'-: +%(%\$&*!%&!F-!%0-!
5-, &*#!. &5%!\$. :&'(%%!)@(%&'!\$*!%0-!#-, \$5\$&*!%&!%&!(&#: %!(! :&%- %\$(%)!%9!) :(*\$*7!
5%('78! 10\$5!\$%!\$5!&F5-'G-#6!\$. : (%5!%0-!#-7'--!%&!DO\$, O! I 1=!\$5!+5-#!(5!(!%&!)!@&'!
'-: +%(%\$&*! , &*%&!)! 10\$5! 5+77-5%5! %O(%!@'\$. 5! . (8! F-!) -55!)\$N-)8! %&! #5\$, &5-! %9!
\$*@&' . (%\$&*!&%0-!%0(*!DO(%!\$5! . (*#(%-#!@&'!@-('!&@!' - : +%(%\$&*!)#(. (7-!%&!%0-!@'\$. M!
<&' -&G-'6!%&: ! . (* (7- . - *%!D(5! , &*5\$#- '#!%&! , ('-!(%) - (5%!(5! . +, O!(F&+%!%0-! f CCS!
' 1=! (5! , (50!%9-5! : (\$#!@&'!%0-!5+F5%(*%\$!) . (P&'\$%8!&@!-9- , +%\$G-5!Qoq! : -'! , - *%RM!

=-+%*\$*7! %&! E&&: -5! (*#! , &2(+%0&'56¹⁰! DO&! ()5&! -9(. \$* -#! %0-! . (*#(%&'8! %9!
%('5: ('- * , 8! '- : &'5!\$*!C+5%')(\$6!%0-\$'!5%+#8!@&+*#!-G\$#- * , -!&@!@'\$. 5! (#P+5%\$*7!%0-\$'
\$* , & . -!%&! (G&\$#!#5\$, &5+'-6¹!%0+5! (*\$, \$: (%\$*7!%0-! , &5%&@!#5\$, &5+'-M!B\$. \$)(')86!%0-!
5%+#8!F8! J0- *¹ 2!\$*#\$, (%-5!%0(%!)%0&+70!\$*G-5%&'5! (*\$, \$: (%-#! (*!&G-'())! * - *%F- * - @5!
@&' !%0-!#5\$, &5+'-!('\$5\$*7!@&' !%0-! . (*#(%-#!%9!%('5: ('- * , 8! '- : &'5!Q\$* ,)+#\$*7!%0-!
F- * - @5!@&' &' !'-#+, -#!\$*@&' . (%\$&*!(58 . . -% '8!(*#! . &*\$%&'\$*7!@&'! , %\$G\$5-5R6!@'\$. 5!)\$N-)8!
%&! @ (, -! \$* , '-(5-#! 5 , +%\$*8! D- '-! @&+*#! %&! O(G-! 5 . ())! * -7(%\$G-! . ('N-%! '- (, %\$&*5!
J & . : ('(F)-!@5\$*#75!0(G-!)5&!F--*!-5(F)\$50-#!\$*! ; (: (*6!DO-'-!(*&*2!\$G\$!) * + . F- !
&@! %9: (8-5! DO&! D-'-! &%0-'D\$5-! ,)&5-! %&! %0-! %0-50&#! +*#-'2'- : &'% -#! %&! (G&\$#!
#5\$, &5+'-M³!!

C5!5+ , 06!%0-!)\$%-'(%+'-!5+77-5%5!%0(%!5 , '+%\$*8!(*#! : +F)\$, !-9: &5+'-!('!)\$*N-#!%&!\$. : (, %5!
\$*!%-' . 5!&@!#5\$,)&5+'-!(: ' & (, 0-5!(*#! . \$9-#! , &* , -' *!&G-'!\$* , '-(5-#15 , +%\$*8!10-!@& , +5!
&@!%0-! : '-5- *%15%+#8!\$5!%&! , &*5\$#-!%0-!)(%\$%+#-!(G(\$)(F)-!\$*!%0-! : '- : ('(\$&*!&@! I 1=5!(*#!
%0-!& : &'%+*\$*8!%&!5%('7-\$, ())8!&F@+5 , (%-!DO(%!\$5! (*-D!#5\$, &5+'-!'-7\$. -!&'!5-%!%0-!
%&*-!%&!%&!#&!5&M!C)%0&+70! J0- *¹ 4! 5+77-5%5! (*!&G-'())! : &5\$G-\$!\$. : (, %!@&'!\$*G-5%&'56!
, & . : (*\$-5!DO\$, O!('! : +F)\$,)8!-9: &5-#!h!#+-!%&!%0-!\$* , '-(5-#!(G- * + -5!@&'!5 , +%\$*8!F+!
(5&!F-\$*7! : ('\$, +)(')8! -9: &5-#!#+-!%&!%0-\$!' -5: - , %\$G-!) -G-)! &@! %9! : (8(F)-!h!O(G-!
: ('\$, +)('!\$. : -%+5!%&!+%\$)\$5-!%&*-! (*#! '- (#(F)\$%8!%&! : '&%- , %!%0-\$!' - : +%(%\$&*! A*)\$N-!
J0- *¹ 5!(5!D-))!(5!c-G&5!(*#!z (, N'\$55&*6¹ !O&D-G-'6!DO&!-9:)&' -!(77'-55\$G-* -556!%0-!
, +'- *%15%+#8!-9:)&' -5!%0-!) -G-)!&@!(% - %\$&*! , & . F\$* -#!D\$%0!%0-! : +F)\$, !-9: &5+'-!\$*!\$* -!
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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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10\$5! ('%\$,)-!-9(. \$*-5!%0-!(55&,\$(%\$&*!&@! < 1=5!D\$%0!%&*-*!(*#!'-(#(F\$)\$%8!&@! I 1=5!\$*!
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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!
@'& .!%0-!:&5\$%\$G-!(**#!*7(%\$G-!D&'#5!)\$5%5!\$*!%0-!C+5%')\$(*!,&*%-9%\$!*!>&+70'(*!(*#!
< ,c&*#)M¹ 1! 10-!D&'#5!b>&5506!b>&55-506!b? .:(\$' .-*%06!bC7(\$*5%0!(*#!bc\$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-#!%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!]j]k!:-'! ,-*%!&@!%0-!%&%(!)@'-W+-* ,8!
&@!:&5\$%\$G-!D&'#5!+5-#!C5!D&'#5!@'-W+-* ,8!\$!, (,) (%-#!F8!#G\$#5*7!%0-!%&%(!) *+ .F-'!
&@!D&'#5!F-)&*7\$*7!%&! (5:- , \$@, !D&'#5!\$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-#!\$! (!'-:&'M¹ 2! B+,O! (! .-(5+!-! , (: %+'-5!%0-!-*%+5-!&@!D&'#5!
,O' (, %-\$5\$*7!%0-!%&*-!F-%D--*!&: %\$. \$5\$, !Q\$-6!(!O\$70-'!-*%G()+-R!(*#!:-55\$. \$5\$, !Q\$-6!(!
)&D-'!-*%G()+-R!E-* , -6!%&*-\$!\$5!5-#!(5!%0-!#S@- '-* , -!F-%D--*!%0-! *+ .F-'!&@!:&5\$%\$G-!
D&'#5!(*#!*7(%\$G-!D&'#5!'- ,&'#-#!\$*!%0-!-:&'%6!5, ()-#!F8!%0-!%&%(!)D&'#5!'- ,&'#-#!\$*!
%0-!-:&'M¹ 10-!D&'#5!)\$5%\$!\$*!>&+70'(*!(*#!< ,c&*#)M³!\$5!+5-#!@&'! ,)(55\$@8\$*7!D&'#5!
F-%D--*!:&5\$%\$G-!(**#!*7(%\$G-!D&'#5M¹ 10-! .-(**%&*-!&@!%0-!-:&'%5!\$*!%0-!5-),%#-
5(.:)-!\$5! ^M^^16! D0\$,O!\$5!5)\$70%)8! .&'-!&: %\$. \$5\$, !%0(*!%0-! €^M^^]! '- ,&'#-#!&*!
C+5%')\$(*!(*#+!)!-:&'%5¹ 4!(*#!%0-!€^M^^1!'- ,&'#-#!&*!AB!(*#+!)!-:&'%5M¹ 5!!

4&'!%O\$5!5%+#86!%0-!(%\$,)-!+%\$)\$5-5!%0-!-(#(F\$)\$8!\$*#-9-5!&@!4&7!(**!4)-5, 02 j \$* , (\$#!(5!
:'&9\$-5!@&'!%0-!:(, %\$, -!&@!&F@+5, (%\$&*!\$*!'-:&'%5!Q-76! / (8-)-\$*!(*#!c (G\$#5&*¹ RM! 10-!
4&7!&'!4)-5, 02 j \$* , (\$#!('!'-(#(F\$)\$8!\$*#-9-56!(*#!%0-!O\$70-'!%0-5-!\$*#-9-56!%0-10('#-!
(!#& ,+ .-*%\$5!%&'!-(#!%O+5!'-#+, \$*7!%0-!@- , %G-* -55!&@!%0-!\$*%&' . (%\$&*!(G(\$)(F)-!%&!
5%(N-0&#)-'5M! 10-! ,&'-)(%\$&*5!F-%D--*!%0-!G('\$)(F)-5!('!-!50&D*\$*!1(F)-!^M!

!
!

1 1"#: "23Q:"A-+"U&* .%D3+"3+0" ` \$T&+3'O"/d 7 % : + -9'3"U-3Q-' , ; "6 & , "3"U-3Q-' , ; tN/"3Q&M:"+=FA"/>GP"
1 2" #: " . : +: D3'' ; "S : + . "U-/"d ` 3+3 . : D9" # : '@# : DM+ .) , D-Q* , -&+ "8-39"3+0" X&DK&D3 . "S+3+\$-3" a&'-\$: 9N"
E 7 &D^+ . "a3K:D"/#%3+ . %3-) OM3+\$: O'<+9, - , * : "&("S+3+\$: /"#%3+ . %3-"e-3& , &+ . "5+M:D9- ; /"e* ; "AF=FJP"# : : "
3'9&"X39,D&' : , "3'/"3Q&M:"+=CFP"
1 3"U&* .%D3+"3+0" ` \$T&+3'O"/d 7 % : + -9'3"U-3Q-' , ; "6 & , "3"U-3Q-' , ; tN/"3Q&M:"+=FA"/>B@>>P"
1 4"X39,D&' : , "3'/"3Q&M:"+=CF/"Bc?P"
1 5"U&* .%D3+"3+0" ` \$T&+3'O"/d 7 % : + -9'3"U-3Q-' , ; "6 & , "3"U-3Q-' , ; tN/"3Q&M:"+=FA"/>GP"
1 " #: " . : +: D3'' ; "83 ; : D' : -+"3+0" T3M-09&+/"3Q&M:"+=cP"

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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!

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

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K65! L&' .)+!)!*\$*-G:#:!

10-!(+%0&'5!('7+-!%0(%! " 1=!\$5! (*!\$*#- : -*#- *%!

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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!
: ('%\$, +)('!'&*-'! (*#! '- (#(F\$)\$%8!, 0(' (, %-'\$5\$, 5M!

?*!)\$*-!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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(*#!4)-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\$<A!^^^!N%>&%+%)5&*!5*!#\$!@A@]!<\$3\$<A!^!N%>&%+%)5&*!5*!#\$!
@AD@!<\$3\$<A!

!
!

pG-'())6!%0-!@\$\$*#\$\$*75!\$*#\$\$, (%-!%0(%!
!,& . : (*\$-5!'-5&'!%&!%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(%!
 \$*!% (9! ' - : & '%\$*76! DO\$)5% !%O&5- !D\$%O!)&D- ' !5, '+%\$*8! ' -)8! &*! %O-! ' - (#(F\$)\$%8! &@! ' - : & '%5M!
 L O\$)-! : '-5-*\$!)\$%- '(%+'-!, &* , - '*\$*7!G&)+*%('8!' - : & '%\$*7!*&%-5!%O(%!%&*- !\$* , '- (5-5!(5!@'\$. !
 : - '@&' . (* , - !\$* , '- (5-56²³⁰!%O-!(+%O&'5!@*\$*#!%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!@*\$*#!%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!@*\$*#!\$*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-! -!& : &'%+*\$5-5!%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(

)
)
)

\$. : (, %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!\$*%&' . (%\$&*!\$5!F- , & . \$*7!\$* , '- (5\$*7)8!
\$. : &'(%!%&!5(%\$5@8!F&%0!7&G- '* . - *%!(*#! , & . . + *%8!' - W + \$ - . - *%5M! 10-! (+%0&'5! *%&- 6!
0&D-G- '6!%0(%!%0-! (: : '&(, 0!\$*!D0\$, 0!%0\$5!\$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-!\$. : &'% (*%6!\$* ,)+ #5\$*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!@&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)-!\$5!D(' (*% - #6!\$-6! -9(. \$*\$*7!D0-%0- '! : &'9\$-5!@&'!% (9!(77' -55\$G- * -55!\$. : (, %!%0-!
(55& , %\$&*!\$5!\$#- *%\$@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! , &*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\$* -55!%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"/"3Q&M : "+"=>P"

