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_5! F%,!EHMb&%'\$-!0/-\$4'!/.!8,6%'86\$!*/,8.\$)!-8'()8&2(8/,!&\$!()%,'.\$))\$-!&\$(?\$\$,!'8(\$'!%,-!-/\$'!'8(\$!

%! +)\$*8'8/,! /.! r\SS[! 08*)/b! '()%8,! JF#%+(\$)! RQ5! "#\$! %**2)%*7! /.! (#\$! '+48((8,1! (\$'(! ?%'! .2)(#\$)! 8,6\$'(81%(\$-!8,!F#%+(\$)!`!2'8,1!%!*4%''8*%4! 0\$*#%,8*'! 0/-\$45! "#\$!\$...\$*(!/.!-8...\$)8,1!'2).%*\$!'()%8,! .8\$4-'!/,!(#\$!)\$'24('!/.!&/(#!(#\$!'+48((8,1!(\$'(!%,-!+/8,(!0\$%'2)\$0\$,('!'2*#!%'!'()%8,b1%21\$'9!8,-8*%(\$-! (#%(!(#\$!(#\$/)\$(8*%447!/&(%8,%&4\$!0%=8020!%**2)%*7!/.!(#\$!'+48((8,1!(\$'(!8'!%++)/=80%(\$47!r_d\!08*)/b'()%8,'5!"#8'!8'!'8084%)!(/!./2)!\$6\$,47!'+%*5-!'()%8,b1%21\$'5! I8,%4479! F#%+(\$)! e!)\$68\$?'!6\$)7b\$%)47!'\$4\$*(8/,!%,-!+)/68-\$'!128-\$48,\$'!./)!.2(2)\$!&)\$\$-8,1!+)/\$\$*('!?#\$)\$!)\$-2*\$-!*7*4\$!(80\$'!%)\$!-\$'8)\$-5!!

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%,-'+(0',5', /(&)0#,/+,-'1#30%&)'+,1!*(,3+,-',%,+,/*)0&+#!'2&+4#0('1%&()0'%7,(&)'/(3+)+%,)'+,'2!#,0+,-'#,/'5#&4()0+,-'0&(()'#'3#)(')0*/8'+,'5#+'-*8(,'&%4+,3('+(0,#\$

B,!(#\$!4%'(!.\$?!-\$*%-\$'9!(#\$!./)\$'(!0%,%1\$0\$,(!'7'(\$0!8,!M8\$(,%0!#%'!'?8(*#\$-!.)/0!&\$8,1!*\$,()%447b+4%,,\$-!%,-!#%'!&\$*/0\$!0%)>\$(b/)8\$,(\$-5!E,-\$)!(#\$!*2))\$,(!0%,%1\$0\$,(!0/-\$49!+)86%(\$!/?,\$)'#8+!8'!)\$*/1,8'\$-!%,-!./)\$'('!%,-!./)\$'(4%,-!%)\$!\%44/*%(\$-!(/!,/,b8,-2'()8%4!+)86%(\$!./)\$'(!/?,\$)'9!?#/!%)\$!/,\$!/.!(#\$!&811\$'(!1)/2+'!/.!./)\$'(!/?,\$)'!8,!(#\$!*/2,()75!H.(\$)!(#\$!()%,'./)0%(8/,!/.!(#\$!0%,%1\$0\$,(!0/-\$49!+)86%(\$!./)\$'(!/?,\$)'!8,!(#\$!*/2,()75!H.(\$)!(#\$!()%,'./)0%(8/,!/.!(#\$!0%,%1\$0\$,(!0/-\$49!(#\$!./)\$'(!*/6\$)!/.!(#\$!*/2,()7!'#8.(\$-!.)/0!,\$(!-\$./)\$'(%(8/,!(/!,\$(!)\$./)\$'(%(8/,5!Z/?\$6\$)9!(#\$!*/,()8&2(8/,!/.!./)\$'(4%,-!%44/*%(8/,!(/!(#8'!,\$(!)\$./)\$'(%(8/,!8'!'(844!%!(/+8*!/.!-\$&%(\$5!!

"#\$! *\$,()%4! %)12 0 \$,(!./)! -\$6\$4/+8, 1! (#8'!)\$'\$%)*#! 8'! (#%(! (#\$! 0 / '(! 80 +/)(%, (! %'+\$*(! /.!./)\$'(! 0 %, %1\$ 0 \$, (!8'!(#\$!2, -\$)'(%, -8, 1!/.!./)\$'(!/?, \$)'C!&\$#%68/2)!8,!+4%,(8, 1!%, -!#%)6\$'(8, 1!()\$\$'5! "#8'! +2)+/'\$!/.!(#8'!)\$'\$)*#!8'!(#\$)\$./)\$!(/!80+)/6\$!(#\$!2, -\$)'(%, -8, 1!/.!, /, b!8, -2'()8%4!+)86%(\$!./)\$'(!/?, \$)'C!-\$*8'8/, '!8,!+4%,(8, 1!%, -!#%)6\$'(8, 1!()\$\$'!&7!+\$)./)08, 1! %!*%'\$! '(2-7!8,! "#%8! L127\$,!+)/68,*\$9!M8\$(,% 05!!

%++)/%*#! -\$6\$4/+\$-! 8,! (#8'! */0+)\$#\$,'86\$! '(2-7! 8'! %++48*%&4\$! ./)! (#8'! +2)+/'\$! %, -! 8'! \$%'847! 1\$,\$)%48'%&4\$!(/!%!?8-\$!)%, 1\$!/.!)\$18/,'!/)!*/2,()8\$'5!!

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\$ 2&%4(\$(,0)'+,')0#.+!+08'/*&#.+!+08'#,/'\$(35#,+3#!'2&%2(&0+()'%1'&#/+#0#'2+,('7%%/'#10(&'5(#00&(#0\$(,0'+,'#'4(-(0#.!('%+!

 $N\% - 8\% (\%! + 8, \$! \ 8'! \ \%! \ 0 \% (\%!)! + 4\% , (\%(8/,! 1)/? ,! ?/-! 8,! (\#\$! 3/2(\#\$) ,! \#\$ 0 8' + \#\$)\$9! \&2(! \#\%'! 8, .\$)8/)! \\ - 80\$, '8/ , \%4!' (\%\&848(7!\% , -!4/?!-2)\%\&848(7!\%/0 + \%)\$-!(/!/(\#\$)!\%/0 0 \$)\%8\%4!' + \$\%\$'!\% , -!(\#\$!80 +)/6\$ 0 \$, (!/(\#\$'\$!. \$\%(2)\$'!8'!(\#\$!./\%2'!/.!(\#\$'8'5!))! + (\#\$'\$!. \%'8')! + (\#\$'\$!. \%'8')! + (\#\$'\$!. \%'8')! + (\#\$'\$!. \%'8')! + (\#\$'\$!. \%'8')! + (\#\$'\$!. \%'8')! + (\#\$'\$!. \%'8')! + (\#\$'\$!. \%'8')! + (\#\$'\$!. \%'8')! + (\#\$'\$!. \%'8')! + (\#\$'8')! + (\#\%$

"#\$!/84!#\$%(b

0 \$ # %, 8 % 4 ! +) / + \$)(8 \$'! - 2 \$! (/! # \$ (b() \$ (0 \$, (5!" # \$! # \$ (8, 1!/84! * %, !&\$!) \$ b 2'\$ - !8, !'2 &'\$: 2 \$, (!() \$ % (0 \$, ('! %, -!/84! 2 + (%) - !8, !'2 &' \$: 2 \$, (!() \$ % (0 \$, (!*/48, 1!(8 0 \$! ? 8(#/2(!%, 7!'81, 8.8*%, (! %, -!/84! 2 + (%) - 1/84! 2 + (%) -

(&&(&#)' %&(,%' #,*(!' %\$2*0#0+%,#!'#,#!8)+)'%1'\$%!(3*!#&'4+.�+%,#!')2(30&#

3+\$*()/'*/+8*!0\$%'2)\$0\$,('!%)\$!%!./2,-%(8/,%4!(//4!8,!*#\$08*%4!)\$'\$%)*#!(#%(!:2%,(8.7!(#\$!8,(\$)%*(8/,! &\$(?\$\$,!\$4\$*()/0%1,\$(8*!)%-8%(8/,!%,-!:2%,(20!'(%(\$'!/.!0%((\$)5!"#\$!-\$(%84'!/.!\$=+\$)80\$,(%4!'+\$*()%!%)\$!.2,-%0\$,(%447!-\$(\$)08,\$-!&7!(#\$!\$4\$*()/,8*!'()2*(2)\$!/.!(#\$!'7'(\$0!2,-\$)!'(2-79!?#8*#!8'!(#\$!24(80%(\$!&%'8'!/.!%4!8('!*#\$08*%4!+)/+\$)(8\$'5!"#\$!2(848(7!/.!%!'+\$*()20!48\$'!8,!&\$8,1!%&4\$!(/!\$=()%*(!-\$(%84\$-!8,./)0%(8/,!%&/2(!(#\$!?%7!8,!?#8*#!,2*4\$8!%,-!\$4\$*()/,'!%)\$!/)1%,8X\$-!?8(#8,!(#\$!'7'(\$05!!

 $A / 4\$^24\$)!' + \$^*() / *^* / + 7!* / 0 +) \$' \$'!\$!! \$(! / .!(\$^*\#, \$: 2\$'!. /)! / \&(\%8, \$, 1!8, .. /) 0 \%(8 / ,! / ,! (\#\$!\$4\$^*() / ,8^*!\% , -! 1\$ / 0 \$()8^*!' () 2^*(2)\$! / .! 0 / 4\$^*24\$' 9! \& / (\#!8' / 4\%(\$ - !\% , -!8 ,! - 8..\$)\$, (!\$, 68) / , 0\$, ('9! +) / 68 - 8 , 1!8 , . /) 0 \%(8 / ,! / .!(\#\$! '7' (\$ 0 '!' (2 - 8\$ - !2 , -\$)! (\#\$! 0 5\%' 2) \$ 0\$, (!* / , -8(8 / , '!8 ,! ? #8^*#! (#$7!#\6$!&\$$,!)\$* /) -\$ -5!H 0 / ,1! (#\$! 0 / '! ? 8 - $47!2' \$ -! ' + $*() / '* / +8^*! (\$*# , 8: 2\$'! ? $! #\6$! <math>5$ #(":\\$#14!!:\\$*\@#14!.\\$*\@#14!.\\$*\@#14.

"#\$!68&)%(8/, %4!'+\$*()20!8'!%!2,8:2\$!%, -!*#%)%*(\$)8'(8*!+#7'8*\%4!+)/+\$)(7!/.!\%!0 /4\$*24\\$!/)! 0 \%(\$)8\%4!'\\$12\\$1.\%, !&\\$12'\\$-!\%'!\\%\\%\\$1.\%, \\$1.\%\\$1

Z/?\$6\$)9!8.!)\$.\$)\$, *\$!'+\$*()%!%)\$!2, %6%84%&4\$9!8, (\$)+)\$(%(8/,!/.!68&)%(8/,%4!'+\$*()%!8'!02*#!#%)-\$)5!B,! $"/0\$!*\%'\$'9!68&)\%(8/,'!\%)8'8,1!.)/0!'+\$*8.8*!.2, *(8/,\%4!1)/2+'!*\%,!&\$!\%''81,\$-!2'8,1!#$2)8'(8*!)24\$'9-^!$ &2(!8,!1\$,\$)%49!*/0+2(%(8/,%4!'2++/)(!8'!)\$:28)\$-!(/!\$,'2)\$!68&)%(8/,%4!'+\$*()%!*%,!&\$!(#/)/21#47!%,-! 0\$%,8,1.2447!%''81,\$-5-e!

 $\begin{array}{l} x\ 2\%, (2\ 0!*\#\$\ 0\ 8*\%4!'\ /.\ (?\%)\$!+\%*>\%1\$'!+)\ /68-\$!\%**\$''!(\ /!\%!)\%, 1\$!\ /.\ !\$4\$*()\ /, 8*!'()2*(2)\$!\ 0\ /-\$4'!(\#\%(!*\%,!)) \\ \&\$!2'\$-!(\ /!-\$'*)8\&\$!\#\ /?!(\#\$!\$,\$)17!*\#\%, 1\$'!\%'!\%!.2, *(8/,!/.!\ 0\ /4\$*24\%)!*\ /, .812)\%(8/,!J85\$5!*\ /, '()2*(!+/(\$,(8\%4!\$,\$)17!'2).\%*\$'0!\%, -!*/, '\$:2\$, (47!'/46\$!(\#\$!,2*4\$\%)!\ 68\&)\%(8/,\%4!3*\#)y-8, 1\$)!\$:2\%(8/,!/!) \\ & + (10.3\%)$

+)\$-8*(!68&)%(8/,%4!'+\$*()%5!H!#8\$)%)*#7!/.!\$4\$*()/,8*!'()2*(2)\$!0/-\$4'!/.!-8..\$)\$,(!*/0+2(%(8/,%4!*/'(!%,-!%**2)%*7!%)\$!%6%84%&4\$9!%,-!(#\$'\$!0%7!&\$!*/0&8,\$-!?8(#!%!)%,1\$!/.!-8..\$)\$,(!0/-\$4'!./)!+)\$-8*(8,1!,2*4\$%)!68&)%(8/,%4!0/(8/,9!%'!?\$449!(/!78\$4-!/6\$)%44!+)\$-8*(8/,'!/.!6%)78,1!%**2)%*7!%,-!*/0+2(%(8/,%4!**/'(5!H!&)8\$.!-\$'*)8+(8/,!/.!%44!\$4\$*()/,8*!'()2*(2)\$!%,-!,2*4\$%)!68&)%(8/,%4!0/-\$4'!\$0+4/7\$-!8,!(#8'!(#8'!8'!*)468-\$-!8,!(#\$!A\$(#/-'!'\$*(8/,5!!

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$$\begin{split} &I/)! \ '0 \ \% 44! \ 0 \ /4 \$^2 4\$^! 9! \ 6\$) 7! \ \%^* *2) \% (\$! +) \$^{-8} (8/, '! / .! \ 68\&) \% (8/, \% 4! '+\$^*()\%! \%) \$! + / ' '8\& 4\$! \& 7! * / , ' () 2*(8, 1! + / (\$, (8\% 4!\$, \$) 17! '2) .\%^*\$'! \% (!#81 #! 4\$ 6\$ 4'! / .! ''@\& 66 4 \$ 8\& (\#\$ /) 7!\%, -!2'8, 1!, 2*4 \$\%)! 68\&) \% (8/, \% 4! 0 / -\$ 4'! (#\% !! \%) **/2, (!./)!%, #\%) 0 / , 8*8 (7\!-\d!(#\$!+)/+\$, '\8(7!/.!\%! 0 / 4\$*24\$! (/!'+\$, -!0 /) \$!(8 0 \$!\%(!4/, 1\$)!\&/, -!4\$, 1(#'! (/! \% 6/8-! (#\$!) \$+24'86\$! ./)*\$'! (#\%(!\%)\$! 0 \%1, 8.8\$-!2+/,!\&/, -!*/0+)\$''\8/, 9!\%, -!\%4'/! (#\$! ?\%7! (#\%(!\%)\$! (\% \%1, \%1) \$''\8, 1\\%!\0 / 4\$*24\$!\8, !/, \$!?\$7!\0 \\>\$'!\$(!\#\%)-\$)0\$\\"7!(/!'()\$(*\#0*/0+)\$''\$(!\8, \\%1-8..\$)\$, (!-8)\$*(8/, 5!!)$$$

"#\$!)\$0%8, -\$)! /.! (#8'! (#\$'8'! ./*2''\$'! / ,! 2'8, 1! 0 /)\$! %++)/=80%(\$! ,2*4\$%)! 68&)%(8/ ,%4! 0 / -\$4'! (/!

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%, 5#&4()0''
'2!#,0#0+%,)'1%&'1%&()0'&()0%�+%,'+,' (7' (#!#,/

 $L\$?! f\$\%4\%, -!\#\%'!4/'(!0''5!e\ T!/.!8('!./)0\$)!8, -81\$, /2'!./)\$'(!*/6\$)!\%, -!(\#\$'!\#\%'!*/, ()8\&2(\$-!(/!(\#\$!+)/./2, -!80+\%*('9!\%, -!-$*48,8,1!))\$, -'9!)\$+/)(\$-!./)! (\#\$!'(\%(\$!/.!L\$?!f\$\%4\%, -C'!8, -81\$, /2'!88/-86\$)'8(75!''/-\%7!0''5!e\ T!/.!(\#\$!4\%, -!\%)\$\%!8'!/**2+8\$-!&7!$=/(8*!+4\%, (\%(8/,!./)\$'(9!)\ T!/.!?#8*#!*/0+)8'$'!$$65*&(''7$''4''&0/, /*24(2)$'5!<$'+8(\$!8('!\$=/(8*!8-\$, (8(79!(\#\$'\$!B\$65*&+4\%, (\%(8/, '!\%)\$!>, /?,!(/!..\%*848(\(\$!, \#\$!)\$1\$, \$)\(8/, !./!"#\%-\$)$$

"#8'!)\$'\$%)*#!'#/?'!(#%!'#\$4(\$)\$-!*/,-8(8/,'!%,-!4/,1b(\$)0!'(%&848(7!/.!p,/,b!#%)6\$'(q!B,&("7\$"4"&

 $^*/\ , ' \ ' \ ' \ (\ , (!\ ?\ 8(\#!\ \&\ , -8\ , 1!/\ .!(\#\$!\ 147*/\ '8-8*!\ \&\ /\ , -5!\ D\ \$\ , -8\ , 1!(\$'('!'\#/\ ?\ \$-!(\#\%!\ \&\%\ , -!\%(!\%)/2\ , -!\ _d\ '!\ *0$

.)/O!)\$-\$6\$4/+\$-!+)/+\$)(8\$'!?\$)\$!O/)\$!48>\$47!(/!)\$O/6\$!%,-0/)!+4%,(!()\$\$'9!?#84\$!)\$'8-\$,('!.)/O!,/,b!
)\$-\$6\$4/+\$-!+)/+\$)(8\$'!?\$)\$!O/)\$!48>\$47!(/!)\$(%8,!\$=8'(8,1!()\$\$'5!H!+)8,*8+%4!*/O+/,\$,(!%,%47'8'!J;FHQ!
?%'!2'\$-!(/!\$=+4/)\$!)\$'8-\$,(!%((8(2-\$'!(/?%)-'!()\$\$!O%,%1\$O\$,(5!"#\$!)\$'24('!/.!(#\$!;FH!'#/?!(#%(!

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L/)(#!D\$,-9!3/2(#!D\$,-!%,-!D4/*>!8,!(#\$!D81#(5!"#\$!(\$,'8/,'!?\$)\$!*/0+%)\$-!&7!2'\$!/.!%!(?/b?%7!%,%47'8'!/.!6%)8%,*\$9!?#8*#!8,-8*%(\$-!*/,.812)%(8/,!%,-!*#/>\$)!4\$,1(#!?\$)\$!'81,8.8*%,(!6%)8%&4\$'!8,!'/0\$!&2(!,/(!%4!/.!(#\$!-7,%08*!4/%-!(\$'('5!N\$'24('!%4'/!'#/?\$-!(#%(!'/0\$!*/,.812)%(8/,'!+\$)./)0\$-!&\$((\$)!(#%,!/(#\$)'!8,!08,808X8,1!(#\$!'#/*>!4/%-'!-2\$!(/!-)/++8,1!8,(/!.244!'2'+\$,'8/,9!80+%*(!?&(#!)

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 $(/(\%4!/.!\e!*2(/6\$)'!?\$)\$!0\$'2)\$-!\%*)/''!'\$=!)\$18/,'!/.!L\$?!f\$\%4\%,-9!(/(\%44\$,1!\dR!+4/('5!;4/(!)\$'24('!./)!6/420\$'!/.!?//-7!)\$'8-2\$'!c_R!00!8,!-8\%0\$(\$)!)\%,1\$-!.)/0!$!(/!Rd$!00#\%9!?8(#!\%!0\$-8\%,!/.!dd!00#\%9!?8(#!\%!0\$-8\%,!/.!dd!100#\%9!?8(#!\%!0\$-8\%,!/.!dd!100#\%9!?8(#!\%!0\$-8\%,!/.!\%10\$-1.)/0!$!(/!Rd$!00\$-8\%,!/.)\$-1.)/0!$!(/!Rd$!00\$-8\%,!/.!\$-1.)/0!$!(/!Rd$!00\$-8\%,!/.!\$-1.)/0!$!(/!Rd$!00\$-8\%,!/.)\$-1.)/0!$!(/!Rd$!00\$-8\%,!/.!\$-1.)/0!$!(/!Rd$!00\$-8\%,!/.)\$-1.)/0!$!(/!\$-1.)/0!$!(/!\$-1.)/0!$!(/!\$-1.)/0!$!(/!\$-1.)/0!$!(/!\$-1.)/0!$!(/!\$-1.)/0!$!(/!\$-1.)/0!$!(/!\$-1.)/0!$!(/!\$-1.)/0!$!(/!\$-1.)/0!$!(/!\$-1.)/0!$!(/!\$-1.)/0!$!(/!\$-1.)/0!$!(/!\$-1.)/0!$!(/!\$-1.)/\$-1.)/\$-1.)/\$-1.)/\$-1.$

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'4/+\$'!'(\$\$+\$)!(#%,!\Rb_Sv9!?#\$(#\$)!/,!,%(2)%4!1)/2,-!/)!\$,18,\$\$)\$-!.844!?#8*#!186\$!%!0\$%'2)%&4\$!(%)1\$(!./)!.2(2)\$!/+\$)%(8/,'5!"#\$)\$!?%'!%!'()/,1!+)\$.\$)\$,*\$!./)!'8(\$b'+\$*8.8*!0%,%1\$0\$,(!/.!)\$'8-2\$'9!)%(#\$)!(#%,!h/,\$b'8X\$b.8('b%44C!%++)/%*#\$'5!H,!\$=%0+4\$!/.!(#8'!+#84/'/+#7!48\$'!8,!(#\$!0%,%1\$0\$,(!/.!0%(2)\$!*)/+!()\$\$'!?8(#8,!?%(\$)?%7!0%)18,'5!G\$%68,1!'(%,-8,1!()\$\$'!\$=+/'\$'!(#\$!)8+%)8%,!0%)18,!(/!(#\$!)8'>!/.!?8,-(#)/?9!?#84\$!)\$0/6%4!/.!(#\$!()\$\$'!)8'>'!'/84!-8'(2)&%,*\$!%,-!2,8,(\$,(8/,%4!4/%-8,1!/.!(#\$!?%(\$)?%7!?8(#!.\$44\$-!?//-7!)\$'8-2\$'5!B,!(#\$!<\$4+#8!+%,\$4C'!/+8,8/,9!4808(8,1!(#\$!,20&\$)!/.!0%,%1\$0\$,(!/+(8/,'!%6%84%&4\$!*/24-!)\$'24(!8,!%-6\$)'\$!\$,68)/,0\$,(%49!/)!\$*/,/08*!/2(*/0\$'5!!

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 $V //-7! \# \% 6\$' (!)\$'8-2\$'! *\%,!+)/68-\$! \%!,\$?!8,*/0\$!' ()\$'0\$!./)!' (\$+4\%,-!./)\$' (!/?,\$)'! \%,-!,\$?!'2++47! *\# \%,!+\%)(8*8+\%,('5!" \# \$8)!+)/-2*(86\$!2'\$! \%4'/!+)/08'\$'! (/!-)86\$! \&\$ ((\$)!\$,68)/,0\$,(\%4!/2(*/0\$'!./)! \$)/-8&4\$!' (\$\$+4\%,-!./)\$' ('5! V 8(\#!8 0+)/6\$-!>,/?4\$-1\$!/.!(\#\$!+)/-2*(8/,!/.!)\$'8-2\$'!8,!L\$?!f \$\%4,-!+4\%,(\%(8/,!./)\$'('9!8,6\$,(/)8\$'!\%,-!./)?)-!+)/(\$*(8/,'!*\%,!&\$!0\%-\$!2*!8,!L\$?!f \$\%4,-!+1/68-\$!*2\)((7!/.!'2++47!./)!,$?!&8/0%''!*2'(/0$)'!8,6$'(8,1!8,!&8/0%''b)$

)6#,/#&' */+'

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5 (' / (3+)+%, ' \$ # 6+, - '2&%3 ())'+, '0 5 (' # / %20+%, '%1' # - &%1%&()0&8' 0 (35, %!% - 8'.8') \$ #!! 5 %! / (&'&*.. (&'1#&\$ (&)'+,',',/%, ()+#

"#8'!'(2-7!\$=+4/)\$'!#/?!' 0 %44#/4-\$)!.%) 0 \$)'!8,!B,-/,\$'8%!%-/+(!,\$?!(\$*#,/4/175!N2&&\$)!H1)/./)\$'()7!
37'(\$0!JNH3Q!8,()/-2*\$-!0%8,47!&7!B,(\$),%(8/,%4!F\$,()\$!./)!N\$'\$%)*#!8,!H1)/./)\$'()7!JBFNHI!Q!8,!
g% 0 &8! %,-! V\$'(! o %48 0 %,(%,!+)/68,*\$'!8,!B,-/,\$'8%!8'!2'\$-!%'!%!*%'\$!'(2-75!H!*/0 &8,%(8/,!/.!
K(#,/1)%+#8*! <\$*8'8/,!")\$\$! A/-\$448,1! JK<" AQ!+)/+/'\$-!&7! U4%-?8,! J\]d]%Q!%,-!%!4/18'(8*!)\$1)\$''8/,!0/-\$4!?\$)\$!2'\$-!%'!(#\$!0%8,!0\$(#/-4/18\$'!(/!-\$(\$) 0 8,\$!(#\$!-\$*8'8/,!*)8(\$)8%!/.!)2&&\$)!
.%) 0 \$)'!)\$1%)-8,1!%-/+(8/,!/.!*4/,%4!)2&&\$)5!"#\$!K<" A!%'!:2%48(%(86\$!0\$(#/-!#\$4+\$-!(/!8-\$,(8.7!(#\$!0%8,!)\$%'/,'9!0/(86%(8/,'!%,-!*/,'()%8,('!(#%(!8,.42\$,*\$-!%!.%)0\$)C'!-\$*8'8/,!(/!%-/+(!/)!,/(!%-/+(!(#\$!,\$?!(\$*#,/4/17!%,-!%4'/!+)\$'\$,(!-\$(%84'!%&/2(!(#\$!+)/*\$''!/.!(#\$!.%)0\$)C'!-\$*8'8/,!0%>8,15!A\$%,?#84\$9!
4/18(!%'!(#\$!:2%,(8(%(86\$!0\$(#/-!?%'!2'\$.24!(/!8-\$,(8.7!(#\$!'81,8.8*%,(!6%)8%&4\$'!8,6/46\$-!8,!(#\$!-\$*8'8/,!0%>8,1!+)/*\$''5!

"#\$!)\$'24('!/.!(#8'!'(2-7!'#/?!(#%(!(#\$!-\$*8'8/,!0%>8,1!+)/*\$''!./)!%-/+(8/,!/.!*4/,%4!)2&&\$)!8'!
/0+4\$=!%,-!8,.42\$,\$-!&7!6%)8/2'!.%*(/)'5!"#\$!-\$*8'8/,!()\$\$!0/-\$4'!./)!g%0&8!%,-!V\$'(!o%480%,(%,!-8..\$)\$-!'#/?8,1!(#\$!80+/)(%,*\$!/.!'/*8%4!*/,(\$=(!%,-!8,.)%'()2*(2)\$5!"#\$!0%8,!)\$%'/,'!./)!%!.%)0\$)C'!

 $8,(\$), \%(8/,\%4!\ 0\%) > \$('9!\%, -!(\#\$)\$!8'!\%!, \$\$-!(/!1)/?!-2)\%&4\$!?//-!./)!\#\$\%67!'()2*(2)\%4!\%++48*\%(8/,'!'2*\#!\%'!+/'(!\%, -!+/4\$'5!3/0\$!\$2*\%47+('!+)/-2*\$!, \%(2)\%447!-2)\%&4\$!\#\$\%)(?//-5!!$

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(b) 1 ((l) *12)3

#!+ (&0<'0')

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1((/.#36)*0%'(3%)8)0(\$'1-,30+%,+,-'#,/'&()+!+(,3(

 $\label{eq:continuous} $$ '\%?,!\#\%)-?//-!(80\&\$)!\%,-!^[`!08448/,!/.!?//-\$,!.2),8(2)\$!?\$)\$!80+/)(\$-!\&7!L\$?!f\$\%4\%,-!8,!_S\e!\%'!\%!)\$'24(!/.!\%!4\pi*>8,1!'28(\pi&4\pi+2)\pi'(8*!)\pi'/2)\pi\pi!!$

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3/0\$!\$2*%47+(2'!'+\$*8\$'!#%6\$!#81#!,%(2)%4!-2)%&848(7!%,-!*/4/2)5!''#\$!,%(2)%4!-2)%&848(7!0%>\$'!(#\$0!8-\$%4!./)!?8-\$b)%,18,1!%1)8*24(2)%4!%,-!8,-2'()8%4!2'\$9!+%)(8*24%)47!./)!+/'('!%,-!+/4\$'5!

6%)8%&4\$! '\$4\$*(8/,9!&/(#9!H"NbBN!%,-!(#\$!LBN!'+\$*()/'*/+79!*%,!&\$!2'\$-!(/!:28*>47!+)\$-8*(!KF!8,! >,&0*8*\$*48"6"9!%!0\$%'2)\$!,\$\$-\$-!8,!()\$\$!&)\$\$-8,1!%,-!:2%48(7!*/,()/4!/.!./)!-2)%&4\$!(80 &\$)5!!

F#%+(\$)![\$!;)\$-8*(8,1!\$=()%*(86\$'!*/,(\$,(!/.!>50"#?245*&@8*\$*48"6%!I5!A2\$45!#\$%)(?//-!.)/0!'(\$0!*/)\$'!&7!,\$%)!8,.)%)\$-!'+\$*()/'*/+7!!

"80\$!%,-!)\$'/2)*\$!%)\$!(#\$!)\$'()8*(8,1!.%*(/)'!./)!(#\$!?8-\$)!2'\$!/.!*#\$08*%4!8,./)0%(8/,!/.!?//-!8,!()\$\$!
&)\$\$-8,1!+)/1)%00\$'5!LBN!'+\$*()/'*/+7!/..\$)'!%,!%-6%,(%1\$!/6\$)!?\$(b*#\$08*%4!%,%47'8'!8,!(#\$'\$!
%'+\$*('9!(#8'!?/)>!-\$'*)8&\$'!(#\$!-\$6\$4/+0\$,(!/.!%!LBNb&%'\$-!%''\$''0\$,(!/.!KF!8,!(#\$!#\$%)(?//-!/.!
>,&@8*\$*48"6"9!?#8*#!-/\$'!,/(!)\$:28)\$!08448,1!%,-!*/,-8(8/,8,1!/.!(#\$!!%0+4\$'5!"#8'!?%'!%*#8\$6\$-!&7!
%++478,1!'81,%4!+)/*\$''8,1!%41/)8(#0'!J\$=(\$),%4!+%)%0\$(\$)!/)(#/1/,%48'%(8/,!JK;PQ!%,-!'81,8.8*%,*\$!
024(86%)8%(\$!*/))\$4%(8/,!J'AFQQ!(/!'+\$*()%!/&(%8,\$-!.)/0!'/48-!?//-!*/)\$'9!?#8*#!?\$)\$!%&4\$!(/!*/))\$*(!./)!0/8'(2)\$!*/,(\$,(9!1)%8,!-8)\$*(8/,!%,-!'%0+4\$!./)05!"#\$!%**2)%*7!/.!KF!+)\$-8*(8/,'!?%'!.2)(#\$)!
80+)/6\$-!&7!6%)8%&4\$!'\$4\$*(8/,9!)\$'24(8,1!8,!%!)//(!0\$%,!':2%)\$!\$))/)!/.!\5_eT5!F/,'8-\$)8,1!(#\$!)%,1\$!
/.!KF!8,!>,&@8*\$*48"6"!#\$%)(?//-!/.!\5[!(/!\R5ST9!(#\$!-\$6\$4/+\$-!LBN!*%48&)%(8/,!#%'!(#\$!+/(\$,(8%4!(/!*8)!2)\$-!8,!%,!>,&@8*\$*48"6"!&)\$\$-8,1!+)/1)%00\$!/)!(/!%''\$''!(#\$!'+\$*8%4!6%)8%(8/,!8,!KF!(#)/21#/2(!%!'(\$05!!

 $\frac{F\#\%+(\$)!\ a\ \%!\ H++48\%(8/\ ,!\ /.!\ L\ \$\%)!\ B,\ .)\%)\$-!\ '+\$\%()/\ '*/+7!\ (/!\ \#\$\%)(\ ?\ //-!\ /.!\ (\#)\$\$!\ -2)\%\&4\$!\ \$2*\%47+('!\ ./)!}{:2\%\ ,(8.8\%(8/\ ,!/\ .!\$=()\%*(86\$'!\%\ ,-!'+\$*\$\$'!\$-\$\ ,(8.8\%(8/\ ,!!)$

"#8'!*#%+(\$)!-\$'*)8&\$'!(#\$!2'\$!/.!LBN!'+\$*()/'*/+7!(/!:28*>47!-\$(\$) 08,\$!(#\$!KF!8,!(#\$!,%(2)%4!-2)%&4\$!
#\$%)(?//-!/.!(#\$!(#)\$\$!\$2*%47+('9!>50"#?245*&@8*\$*48"6"9!>,&)#8@8\$71"!%,-!>,&"()82<#8\$"5!;G3N!
+)\$-8*(8/,!0/-\$4'!*/0&8,\$-!?8(#!6%)8%&4\$!'\$4\$*(8/,!*/,'8-\$)8,1!%4!'+\$*8\$'!+)\$-8*(\$-!(#\$!KF!?8(#!%!)\$'8-2%4!0\$%,!':2%)\$!\$))/)!JNA3KQ!/.!S5]\$\$T9!%!&\$((\$)!)\$'24(!(#%,!%*#8\$6\$-!./)!'0%44\$)!-%(%'\$('!.)/0!'8,14\$!'+\$*8\$'5!F/,'8-\$)8,1!(#\$!KF!)%,1\$!/.!S5[a!(/!\d5dRT9!(#8'!0\$(#/-!*%,!&\$!2'\$-!(/!'\$4\$*(!-2)%&4\$!\&)\$\$-'9!%,!/(#\$)?8'\$!(80\$!%,-!)\$'/2)*\$!*/,'208,1!+)/+\$)(7!(/!0\$%'2)\$5!o\$7!'81,%4'!8,!(#\$!LBN!'+\$*()%!./)!(#\$!;G3N!0/-\$4'!?\$)\$!'#%)\$-!&\$(?\$\$,!(#\$!'+\$*8\$'!%,-!)\$4%(\$-!(/!*/00/,!*#\$08*%4!'()2*(2)\$'!)\$+/)(\$-!.)/0!\$2*%47+(2'!#\$%)(?//-!\$=()%*('5!12)(#\$)0/)\$9!8(!?%'!+/''8&4\$!(/!-\$(\$)08,\$!(#\$!'+\$*8\$'!.)/0!LBN!'+\$*()%!'*/+7!*%,!&\$!2'\$-!%'!%!,/,b!-\$'()2*(86\$!0\$(#/-!(/!*\$1)\$1%(\$!(80&\$)!./)0!08=\$-b'+\$*8\$'!./)\$'(!+4%,(%(8/,'5!!

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"#\$!)%-8%4!%,-!6\$)(8*%4!/.!KF!-8'()8&2(8/,'!8,!)//('!%,-!()\$\$!'(\$0'!?\$)\$!'(2-8\$-5!B,!/4-\$)!()\$\$'9!(#\$!8,,\$)!
#\$%)(?//-!'#/?\$-!%!4/?\$)!KF!(#%,!(#\$!/2(\$)!+%)(!/.!#\$%)(?//-5!N//('!*/,(%8,\$-!#\$%)(?//-5!"#\$!
08--4\$!'\$*(8/,!/.!)//('!#%-!(#\$!4%)1\$'(!#\$%)(?//-!%)\$%!%,-!#81#\$'(!KF5!B,!'(\$0'!/.!/4-\$)!()\$\$'9!KF!?%'!
#81#\$'(!%(!0\$-820!#\$81#(5!1/2,1!()\$\$!'(\$0'!%,-!)//('!-8-!,/(!'#/?!%!0%)>\$-!)%-8%4!+)/.84\$!/.!KF!8,!
#\$%)(?//-5!!

 $\underline{F\#\%+(\$)!` \mathbb{V}!U\$,\$(8*!6\%)8\%(8/,!8,!\#\$\%)(?//-!+)/+\$)(8\$'!\%,-!1)/?(\#!()\%8('!/.!K2*\%47+(2'!\&/'8'(/\%,\%!!)))}$

I/)(7b/,\$!>,&@8*\$*48"6"!.% 0 848\$'!?\$)\$!\$6%42%(\$-!./)!(#\$!+)/-2*(8/,!/.!#\$%)(?//-!:2%,(8(7!%,-!:2%48(7!8,!(?/!'8(\$'5!Z81#!\$'(80%(\$-!#\$)8(%&848(8\$'!/.!#\$%)(?//-!-8%0\$(\$)!JZV <0!?\$)\$!./2,-!8,!&/(#!'8(\$'!J#!i!S5``!%,-!S5e\05!"#\$!\$'(80%(\$-!#\$)8(%&848(8\$'!/.!KF!?\$)\$!4/?\$)!?8(#!S5\`!%,-!S5_R5!V\$%>!1\$,\$(8*!*/))\$4%(8/,'!&\$(?\$\$,!ZV<!%,-!KF!?\$)\$!./2,-!8,!/,\$!'8(\$9!&2(!#81#47!,\$1%(86\$!JbS5d`Q!1\$,\$(8*!*/))\$4%(8/,'!?\$)\$!/&'\$)6\$-!8,!(#\$!/(#\$)5!"#\$!U!K!8,(\$)%*(8/,!#%-!,/!'81,8.8*%,(!8,.42\$,*\$!/,!1)/?(#!0)%('!&2(!%!'0%44!4\$6\$4!8,.42\$,*\$!/,!KF5!186\$!.%0848\$'!?\$)\$!'\$4\$*(\$-!./)!()\$\$!&)\$\$-8,1!%'!(#\$7!+)/-2*\$-!&/(#9!4%)1\$!ZV<!%,-!#81#!KF9!8,!&/(#!'8(\$'5!"#\$!-%(%!'211\$'(\$-!(#%(!1\$,\$(8*!&)\$\$-8,1!'\$4\$*(8/,!*/24-!80+)/6\$!(#\$!#\$%)(?//-!:2%,(8(7!%,-!:2%48(7!/.!>,&@8*\$*48"6"!+4%,(%(8/,'5!!

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+) 6' #, /' +\$ 2#30' %1' +,)(30' 5(&.+4%&()' %,' 05(' /(4(!%2\$(,0' %1' /&8!#,/'
'1%&()0&8'+,' (7' (#!#,/

>50"#?245*&+4%, (%(8/, '!8, !L\$?!f\$%4%, -!%)\$!/**2+8\$-!&7!%!, 20&\$)!/.!\$=/(8*!8, '\$*(!-\$./48%(/)'!%, -!#%6\$!8,*)\$%'8,1!)8'>'!/.!,\$?!+\$'(!8,*2)'8/, '5!;\$'(!/2(&)\$%>'!*%2'8,1!'81,8.8*%,(!-\$./48%(8/,!*%,!)\$-2*\$!()\$\$!1)/?(#!%,-!+)/-2*(868(75!B,(\$1)%(\$-!+\$'(!0%,%1\$0\$,(!JB;A0!'()%(\$17!8'!2'\$.24!(/!)\$-2*\$!+/(\$,(8%4!)8'>!/.8, '\$*(!/2(&)\$%>'!%, -!08,808'\$!+\$'(8*8-\$!2'\$!(#%(!#%'!,\$1%(86\$!80+%*('!/,'!#\$!\$,68)/,0\$,(5!Z/?\$6\$)9!8;A18,!./)\$'()7!+4%,(%(8/,'!8,!L\$?!f\$%4%,-!8'!'(844!8,!8('!8,.%,*75!H,!8,-2'()7!*\$,()\$-!/,!(#\$!+)/-2*(8/,!/.!,%(2)%447!-2)%&4\$!?//-!+)/-2*('!8'!&\$8,1!-\$6\$4/+\$-!8,!-)74%,-!%)\$\'!8,!L\$?!f\$%4%,-5!P,\$!/.!(#\$!+)/8/)8(7!'+\$*8\$'!8,!(#\$!\$0\$)1\$,(!8,-2'()7!8'!>50"#?245*&@8*\$*48"6"&?#8*#!8'!-)/21#(!(/4\$)%,(!%,-!*%,!+)/-2*\$!#81#47!-2)%&4\$!#\$%)(?//-5!I/)!-2)%&4\$!!+\$*8\$'9!8,*42-8,1!>,&@8*\$*48"6"&(/!&\$!*/,'8-\$)\$-!%'!%!**/00\$)*8%447!6%42%&4\$!/+(8/,!./)!+4%,(8,1!8,!(#\$!.2(2)\$9!?\$!,\$\$-!(/!2,-\$)'(%,-!(#\$!)8'>!%,-!80+%*(!/.!

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B,!*#%+(\$)!/,\$9!O7!48(\$)%(2)\$!)\$68\$?!8-\$,(8.8\$'!>,/?4\$-1\$!1%+'9!\$'+\$*8%447!?8(#!)\$1%)-!(/!

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#\$%)(?//-5! "#\$!+#7'8/4/18*%4!*#%, 1\$'!&\$(?\$\$,!'%+?//-!%, -!#\$%)(?//-!68'2%48'\$-!8,!+%)\$,*#70%!
\$44'!#\$4+\$-!(#\$!2,-\$)'(%,-8,1!/.!#\$%)(?//-!./)0%(8/,!8,!7/2,1!>,&@8\$*48"6"!()\$\$'5!!

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 $\begin{aligned} &H! > \$7!.\$\%(2)\$! / .!\#\$\%)(? / / - !8'!(\#\$!. /) 0 \%(8 / ,! / .!\$=()\%*(86\$'!(\#\%(!8 O + \%)(! ,\%(2)\%4! - 2)\%\&848(79!\%!' / 21\#(!\%.(\$)! ? / / - !+) / +\$)(75!''\#\$! - 2)\%\&848(7!\&\$(?\$\$,!()\$\$'!8'!\#81\#47!6\%)8\%\&4\$5!H+\%)(!.) / O !(\#\$! : 2\% ,(8(7! / .!\#\%)(? / / - !\$=()\%*(86\$'!8 ,!(\#\$!? / / - 9!(\#\$!*\#\$ O 8*\%4!* / O + / '8(8 / ,! / .!(\#\$!\$=()\%*('!6\%)8\$'5!'' \#\$)\$. /)\$9!(\#\$! / \&6\$*(86\$! / .! L f < IB! 8'! (/! '$4\$*(!7/2 ,1! > ,\& @8*$*48''6''! ()$$'! ? 8(#!(\#\$!O / '(!+/(\$,(!\$=()\%*('! ./)! ,\$=(!1\$,\$))(8/ ,! - 2)\%\&848(7!8 O +)/6\$ O \$,(5!!) \end{aligned}$

 $F\#\#+(\$)ba! -\$'*\\ 8\&\$'! (\#\$! -\$6\$4/+0\$, (! /.! \%, ! \%, (8.2, 1\%4! \%''\%7! (/! -\$(\$) 0 8, \$! (\#\$! \&8/\%*(868(7! /.! >, \&08*\$*48"6"! \#\$\%)(? //-! \$=()\%*('! \%1\%8, '(! \%! ?\#8(\$!)/(! JE("3 141*\& :1(*\$08\#8(Q! \%, -! \%! \&)/? ,!)/(! JA86\$82 < 8("&01(101#"'05! "#\$! 0 / '(! '28(%&4\$! +)/*\$-2)\$! ?\"!(! '! +)\$\"-! -80 \$(#74! '24./=8-\$! J < A 3 PQ! '/42(8/, '!/.!\$=()\%*(!/, (/!' /48-8.8\$-!\%1\%))\$!, *24\(\$! ? 8(#!.2, 18!\%, -!\%4*24\(\$!(#\$!1)/? (\#!)\(\$!J\$* 0 0\#Q!\&7! .8((8, 1!\%!48, \$\)!)\$1)\$''\$/, !./)!(#\$! -8\% 0 \$(\$)!/.!.2, 18!\%1\8, '(!(8 0 \$5!F/, ()/4'! ?\$)\$!, \$\$-\$-!(/!, /) 0 \%4\$'\$! (#\$!.2, 1\%4! 1)/? (#\$! \$\$5\$5! \\$\%4*24\(\$, 1!\%!)\$\$4\(\$6\$1)/? (#!)\(\$9! (/!\%**/2, (! ./)! (#\$! 6\%)8\(\$/, !\$, ! 1)/? (#! */, -8(8/, '!\&\$(?\$\$, !-8..\$)\$, (!)2, '5!!$

F#%+(\$)bR! -\$'*)8&\$'! (#\$! 6%)8%&848(7! 8,! &8/%*(868(7! %, -! *#\$ O 8*%4! */ O +/ '8(8/,! /.! >,& @8*\$*48"6"! #\$%)(?//-!\$=()%*('!&\$(?\$\$,!8,-868-2%4!()\$\$'!1)/?,!/,!(?/!-8..\$)\$,(!'8(\$'!JG%?'/,!%,-!F)%6\$,!N/%-05! 3(%(8'(8*%4!0\$(#/-'!*/0&8,8,1!(#\$!)\$'24('!/.!(#\$!.2,1%4!%''%7'!%,-!(#\$!:2%,(8(%(86\$!1%'!*#)/0%(/1)%+#7!))))JUFQ!/.!(#\$!\$=()%*('!%44/?\$-!(#\$!8,6\$'(81%(8/,!/.!&8/%*(86\$!*/0+/2,-'5!"#\$!&8/%*(868(7!/.!\$=()%*('!?%'! %''\$''\$-!%1%8,'(!?#8(\$!)/(!JE("3141%:1(*\$08#8(0!%,-!&)/?,!)/(!JA86\$82<8("&01(1@1##"05!K(#%,/4! \$=()\%*('!.)\0!>,\ellow\0*\\$*48"6"!\#\$\)(?\/-!?\$)\$!\4\$''!\\$..\$*(\86\\$!\/,!\(\#\\$,!\\$\)\/(!\(\#\\$,!\\$\1\\8, \'(!\(\#\\$\\)\/?,!)\/(5! M%)8%&848(7!8,!(#\$!&8/%*(868(7!/.!\$=()%*('!%1%8,'(!(#\$!(?/!.2,18!?%'!/&'\$)6\$-!&\$(?\$\$,!(#\$!()\$\$'5!H!'O%44! '8(\$!\$..\$*(!8,!(#\$!&8/%*(868(7!?%'!./2,-!./)!(#\$!?#8(\$!)/(!&2(!,/(!(#\$!&)/?,!)/(5!D8/%*(868(7!/.!(#\$!\$=()%*('! %1%8,'(!(#\$!?#8(\$!)/(!?%'!,/(!*/))\$4%(\$-!(/!(#\$(!%1%8,'(!(#\$!&)/?,!)/(5!"#\$!%&\\$,*\$!/.!'2*#!%!)\$4%(8/,'#8+! 8, -8*%(\$-!(#%!(!(#\$!(?/!.2,18!?\$)\$!%..\$*(\$-!&7!-8..\$)\$,(!#\$%)(?//-!*/0+/2, -'5!"#8)(7!(?/!*/0+/2, -'! ?\$)\$!:2%,(8.8\$-!8,!>,&@8*\$*48"6"!\$(#%,/4!\$=()%*('!&7!UF9!/.!?#8*#!'8=!J&\$,X/8*!%*8-9!#\$=%-\$*%,/8*! /*(%-\$*%, /8*! %*8-9! + /47+#\$, /4! %, -! &\$(%b! '8(/'(\$)/40! ?\$)\$!8-\$,(8.8\$-5! 381, 8.8*%,(!6%)8%&848(7!8,!\$81#(! */ 0+/2, -'!J/2(!/.!(#\$![_0!?%'!./2, -!&\$(?\$\$,!(#\$!(?/!'8(\$'5!A24(86%)8%(\$!J;G3N0!%,%47'8'!8-\$,(8.8\$-! */ O+/2,-'!%(!)\$(\$,(8/,!(80\$'!\S5 !%,-!\\SR! O8,!J#\$=%-\$*%,/8*!%*8-0!(/!&\$! O/'(!)\$4%(\$-!(/!(#\$! &8/%*(868(7!/.!(#\$!K5!&/'8'(/%,%!#\$%)(?//-!\$=()%*('!%1%8, '(!?#8(\$!)/(!%, -!&)/?,!)/(5!!

D)\$\$-8,1!+)/1)% O O\$'!&\$,\$.8(!.)/O!\$%)47!%''\$''O\$,(9!\$,%&48,1!'#/)(!&)\$\$-8,1!*7*4\$'5!V#84\$!()\$\$'!/,47!./)O!#\$%)(?//-!?#\$,!'\$6\$)%4!7\$%)'!/4-9!?/2,-'!*%,!&\$!8,-2*\$-!%(!%!7/2,1!%1\$5!H'!?/2,-!)\$%*(8/,!#%'!'/O\$!'8O84%)8(8\$'!(/!#\$%)(?//-!./)O%(8/,!(#\$!/&@\$*(86\$!/.!*#%+(\$)b`!?%'!(/!8,6\$'(81%(\$!8.!(#\$!?/2,-!)\$%*(8/,!*%,!&\$!2'\$-!%'!%!+)/=7!(/!%''\$''!()\$\$'!\$%)47!8,!%!&)\$\$-8,1!+)/1)% O O\$!./)!#\$%)(?//-!.\$%(2)\$'5!\5`b7\$%)b/4-18,-868-2%4'!.)/O!_e!>,&@8*\$*48"6"!.%O848\$'!?8(#b>,/?,!#\$%)(?//-!-8%O\$(\$)!%,-!\$=()%*(86\$!*/,(\$,(!?\$)\$!?/2,-\$-!%,-!(#\$!%=8%4!?/2,-!)\$%*(8/,!?%'!*/))\$4%(\$-!(/!(#\$!>,/?,!#\$%)(?//-!.\$%(2)\$'5!\L/!*/))\$4%(8/,!&\$(?\$\$,!?/2,-!)\$%*(8/,!%,-!#\$%)(?//-!.\$%(2)\$'18,!>,&@8*\$*48"6"!.%O848\$'!?%''!./2,-5!\V/2,-!)\$%*(8/,!?%'!2,-\$)!?\$%>!1\$,\$(8*!*/,()/45!"#\$)\$./)\$9!8(!'\$\$O'!(/!&\$!,/(!+/''8&4\$!(/!%''5''!

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12)(#\$) 0 /)\$9! (? /! .% 0 848\$'! ?8(#! '0 %44! %, -! 4%)1\$! ? /2, -!)\$%*(8/,! ?\$)\$! '\$4\$*(\$-! (/! *#%)%*(\$)8'\$! +#7'8/4/18*%4!%, -!*#\$ 0 8*%4!6%)8%(8/, '!8,!? /2, -? // -9!#\$%)(? // -!%, -!'%+? // -!&7!08*)/'*/+7!%, -!1%'! *#)/ 0 %(/1)%+#75! A 8*)/'*/+8*! /&'\$)6%(8/, '!)\$6\$%4\$-! (#\$! %&'\$,*\$! /.! '(%)*#! %, -! (#%(! 6\$''\$4'! ?\$)\$! /**42-\$-!?8(#!(74/'\$'!8,!?/2, -? // -!%, -!#\$%)(? // -5!A/)+#/4/18*%4!.\$%(2)\$'!?\$)\$!, /(!-8'*\$),8&4\$!&7!\$7\$!&\$(?\$\$,!(#\$!.% 0 848\$'!?8(#!4%)1\$!%, -!' 0 %44!?/2, -!)\$%*(8/,5!U%'!*#)/ 0 %(/1)%+#7!)\$6\$%4\$-!6%)8%(8/,!8,!(#\$!*#\$ 0 8*%4!*/0+/'8(8/,!/.!?/2, -? // -9!#\$%)(? // -!%, -!'%+? // -!\$=()%*('5!!

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 $E)\&\%, \$'\%(8/, !8'!*\#\%)\%^*(\$)\$'\$-!\&7!0\%''!0\$1)\%(8/, !/.!+\$/+4\$!(/!2)\&\%, !\%)\$\%'!\%, -!*/, 6\$)'8/, !/.!4\%, -!.)/0! \\)2)\%^4!(/!2)\&\%, !4\%, -!2'\$'5!F\#\, 1\$'!\$, !+/+24\\(8/, !-7, \%0\\8''!\#\\6\$!\$-!(/\\#\\4.!(\#\$!?/)4-C'!+/+24\\(8/, !486\8, 1!\) \\ \$,! 2)\&\%, !\%)\$\''\!\\\8,! -\$6\$4/+\$-! */2, ()8\$'9! 2)&\%,! -?\$4\$)'!**/2, (!./)!\(\#)\$\$5:2\%)(\$)'!\/.!\(\#\$!\(/\%4!\) +/+24\\(8/, !\#\6\$!'\#\8.(\$-!.)/0!)2)\\4!\(/!2)\&\%, !\%)\$\''\9!+\$/+1(/)1*/\(\#\8)-1\8\, .\%)\#1())2[(:2\%+\$\'')q0$

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&/(#!1\$, /(7+\$'!%, -!\$, 68)/, 0\$, ('9!%44/?8, 1!%!)\$b\$6%42%(8/,!/.!L\$?!f\$%4%, -!AK"!'\$4\$*(8/,!'()%(\$18\$'!%80\$-!%(!&)/%-!%-%+(%(8/,5!E'8,1!%!.%*(/)!%, %47(8*!08=\$-!0/-\$49!)\$'24('!8, -8*%(\$-!(#%(!(#\$!+)/1)%00\$C'!(?/!0%8,!()8%4!4/*%(8/, '!8,!(#\$!L/)(#%, -!(#\$!3/2(#B'4%, -'!/+(808'\$-!-8..\$)\$, (8%(8/,!&\$(?\$\$,!1\$, /(7+\$'!%8,!(\$)0'!/.!U‡K!\$...\$*('5!"#\$)\$!?%'!)\$%'/,%&4\$!+\$)./)0%,*\$!'(%&848(7!/.!1\$, /(7+\$'!%*)/''!(\$'(!4/*%(8/,'!%, -!\$68-\$,*\$!?%'!+)\$'\$,(\$-!./)!'/0\$9!&2(!4808(\$-9!1\$,\$(8*!+)/1)\$''!/.!*24(86%)'!%, -!%-6%,*\$-!*4/,%4!'\$4\$*(8/,'!./)!(2&\$)!0%)>\$(%&4\$!78\$4-!8,!L\$?!f\$%4%, -!/6\$)!)\$*\$,(!7\$%)'5!

"#\$! 0 / -\$4'!%, -!'\$4\$*(8/,!'()%(\$18\$'!8,6\$'(81%(\$-!%,-!-\$6\$4/+\$-!8,!(#8'!(#\$'8'!?844!%44/?!%,!80+)/6\$-!%, -!0 /)\$!'7'(\$0%(8*!%++48*%(8/,!/.!1\$,\$(8*!\$6%42%(8/,'!8,!+/(%(/!'\$4\$*(8/,!'*#\$0\$'5!"#8'!?844!+)/68-\$!(#\$!&%'8'!./)!?\$44!8,./)0\$-!-\$*8'8/,'!(/!&\$!0%-\$!/,!'\$4\$*(8/,!*%,-8-%(\$'!./)!(#\$!1\$,\$(8*!80+)/6\$0\$,(!/.!+/(%(/!8,!&)\$\$-8,1!+)/1)%00\$'5!

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N\$'24('!.)/0!(#\$!\$, '()20\$, (!6%48-%(8/, !'211\$'(!(#%(!(#\$!'*%((\$)\$, 1!*/))\$*(8/, !0/-\$4!+\$)./)0'!?\$44!\$, !0/-\$4!+\$).

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-\$)86\$-!.)/O!-818(%4!%,%47'8'!/.!.8'#\$7\$!4\$,'!+#/(/1)%+#75!"#\$!O/-\$4'!?\$)\$!>\$+(!'8O+4\$!(/!%6/8-!.*/O+2(%(8/,%4!*8)*24%)8(7!./)!+#7'8/4/18*%4!O/-\$448,1!%++48*%(8/,'5!...)

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"#8'!'(2-7!8,*42-\$-!%,!/&0\$*(86\$!*/0+%)8'/,!%,-!6%48-%(8/,!/.!%!)%,1\$!/.!0/-\$4!(7+\$'5!"#\$!0/-\$4'! FHL"1!JU/24-8,19!\]]RQ9!F%,3;DGJ\5_!J;8,0269!_SSRQ9!F%,3;DGb?%(\$)!J;8,0269!_SSRQ9!%,-![b;U!JG%,-'&\$)1!%,-!V%)8,19!\]]eQ!?\$)\$!*/0+%)\$-!%,-!6%48-%(\$-!?8(#!(#\$!0%8,!*)8(\$)8%!./)!*/0+%)8'/,!&\$8,1!\$%*#!0/-\$4C'!%&848(7!(/!0%(*#!%*(2%4!#8'(/)8*%4!0\$%'2)\$0\$,('!/.!./)\$'(!1)/?(#!8,!%,!8,-\$+\$,-\$,(!-%(%!'\$(5!P6\$)%449!(#\$!0/-\$4'!F%,3;DGJ?%(\$)Q9!%,-!F%,3;DGJ\5_Q!'#/?\$-!%!'481#(47!?/)'\$!.8(!8,!+)\$-8*(8/,'!/.!'(/*>8,1!(#%,!-8-!(#\$!0/-\$4!FHL"15!"#\$!#7&)8-!0/-\$4![b;U!"#/?\$-!%!&\$((\$)!.8(!./)!(#\$!+)\$-8*(8/,!/.!&%'%4!%)\$%!(#\$,!(#\$!'(%(8'(8*%447!&%'\$-!0/-\$4!FHL"19!&2(!'#/?\$-!%!?/)'\$!.8(!./)!(#\$!+)\$-8*(8/,!/.!.8,%4!'(/*>8,1!(#%,!%44!/(#\$)!0/-\$4'5!B,!(\$)0'!/.!-8'()8&2(8/,!/.!)\$'8-2%4'9!F%,3;DGJ\5_Q!#%-!/6\$)%44!(#\$!4/?\$'(!'>\$?,\$''9!>2)(/'8'9!%,-!%44!0/-\$4!+%)%0\$(\$)'!(\$'(\$-!'81,8.8*%,(!./)!,/)0%48(75!Kb;U!+\$)./)0\$-!(#\$!?/)'(!/,!%6\$)%1\$9!8,!(\$)0'!/.!(#\$!-8'()8&2(8/,!/.!)\$'8-2%4'9!%,-!%44!0/-\$4'!(\$'(\$-!'81,8.8*%,(!./)!,*)0\$-2%4!-8'()8&2(8/,!/.!)\$'8-2%4'9!%,-!%44!0/-\$4'!(\$'(\$-!'81,8.8*%,(!./)!,*)0\$-2%4!-8'()8&2(8/,!/.!)\$'8-2%4'9!%,-!%44!0/-\$4'!(\$'(\$-!'81,8.8*%,(!./)!,*)0\$-2%4!-8'()8&2(8/,!/.!)\$'8-2%4'9!%,-!%44!0/-\$4'!(\$'(\$-!'81,8.8*%,(!./)!,*)0\$-2%4!-8'()8&2(8/,!/.!)\$'8-2%4'9!%,-!%44!0/-\$4'!(\$'(\$-!'81,8.8*%,(!./)!,*)0\$-2%4!-8'()8&2(8/,!/.!)\$'8-2%4'9!%,-!%44!0/-\$4'!(\$'(\$-!'81,8.8*%,(!./)!,*)0\$-2%4!-8'()8&2(8/,!/.!)\$'8-2%4'9!%,-!%44!0/-\$4'!(\$'(\$-!'81,8.8*%,(!./)!,*)0\$-2%4!-8'()8&2(8/,!/.!)\$'8-2%4'9!%,-!%44!0/-\$4'!(\$'(\$-!'81,8.8*%,(!./)!,*)0\$-2%4!-8'()8&2(8/,!/.!)\$'8-2%4'9!%,-!%44!0/-\$4'!(\$'(\$-!'81,8.8*%,(!./)!,*)0\$-2%4!-8'()8&2(8/,!/.!)\$'8-2%4'9!%,-!%44!0/-\$4'!(\$'(\$-!'81,8.8*%,(!./)!,*)0\$-2%4!-8'()8&2(8/,!/.!)\$'8-2%4'9!%,-!%44!0/-\$4'!(\$'(\$-!'81,8.8*%,(!./)!,*)0\$-2%4!-8'()8&2(8/,!/.!)\$'8-2%4'9!%,-!%44!0/-\$4'!(\$'(\$-!'81,8.8*%,(!./)!,*)0\$-2%4!-8'()8&2(8/,!/.!)\$'8-2%4'9!%,-!%44!0/-\$4'!(\$'(\$-!'81,8.8*%,(!./)!)\$'8-2%4!-8'()8&2(8/,!/.!)\$'8-2%4'9!%,-!%4!0/-\$4'!(\$'(\$-!'81,8.8*%,(!./)!)\$'8-2%4!-8'()8&2(8/,!/.!)\$'8-2%4!-8'()8&2(8/,!/.!)\$'8-2%4!-8'()8&2(8/

%,0' #4+/' '!
))())\$(,0'%1'+,/+4+/*#!'0&(()'*)+,-'#(&+#!'!#)(&')3#,,+,-'+,' (7' (#!#,/'&#/+#0#'2+,('1%&()0)'

1/) 1 (1/)

\$=+/,\$,(8%4!8,*)\$%'\$'!8,!+24'\$!-\$,'8(7!?84!&\$!)\$:28)\$-!(/!'81,8.8*%,(47!80+)/6\$!\$'(80%(\$'5!!

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"#8'! '(2-7! #%'! '2**\$''.2447! %--)\$''\$-! (#\$!)\$'\$%)*#! :2\$'(8/, '! %, -! +)/-2*\$-! 80 +/)(%, (! .8, -8, 1'!)\$1%)-8, 1!()\$\$b&%'\$-!%, %47'8'!/.!)\$0 /(\$47!'\$, '\$-!HG3!-%(%5! A/)+#/4/18*%4!*)/?, !0\$()8*'!#%6\$!&\$\$,!\$-\$)86\$-9!)\$+)\$'\$, (8, 1!%44/0\$()8*!)\$4%(8/, '#8+'9!?#8*#!%)\$!(#\$)\$./)\$!%)\$!\$=+\$*(\$-!(/!#%6\$!1\$,\$)%4!2(848(7!8, !\$'(80%(8,1!)\$)\$!'8X\$!, %(()8&2(\$'5! L/6\$4! .\$%(2)\$'! /.! (#8'!)\$'\$%)*#! 8, *42-\$-\!" (#\$! ?8-\$!)%, 1\$! /.! /+\$)%(8/,%447!)\$4\$6%, (!()\$\$!%(()8&2(\$'18, *42-8, 1!()\$\$!'8X\$9!./)09!?//-!:2%48(7!%, -!-8'\$%'\$Y!:2%, (8.8*%(8/,!/.!\$, \$(8*!%, -!\$, 68)/, 0\$, (%4!.%*(/)'!.)/0!HG3Y!*/0+%)8'/,!/.!(#\$!\$..\$*('!/.!\$2(/0%(\$-!%, -!0%, 2%447!*/))\$*(\$-!()\$\$!-\$48,\$%(8/, 'Y!%, -!(#\$!:2%, (8.8*%(8/,!/.!(#\$!\$..\$*('!/.!+24'\$!-\$, '8(7!/,!()\$\$b&%'\$-!%, %47'\$'5!"#8'!)\$'\$%)*#!+)/68-\$'!'81,8.8*%, (!.8, -8, 1'!8,!'2++/)(!/.!(#\$!2'\$!/.!)\$0/(\$47!'\$, '\$-!HG3!-%(%!./)!+#\$,/(7+8,1!()\$\$'!8,!1\$,\$(8*'!%, -!)\$'\$%)*#!()8%4'9!%, -!(#\$!-\$6\$4/+0\$,(!+)\$*8'8/,!./)\$'()7! 0\$(#/-'9!, %(8/, %447!%, -!8,(\$),%(8/, %4475!!

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#35+/' #), #0+' (3+!+#' '
8.&+/' $ (,) *&#0+%, #! 258)+%!%-+3#!' $ %/(!)'1%&' '#,/'
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"#\$)\$!8'!%!*/, '\$, '2'!(#%(!+)\$-8*(8/,!'7'(\$0'!'#/24-!&\$!*/0+4\$=!\$, /21#!(/!+)\$-8*(!78\$4-9!%, -!(#\$!\$..\$*(!/.!6%)8/2'!*/0&8,%(8/,'!/.!/)\$'(!0%,%1\$0\$,(!+)**(8*\$'!/,!(#\$!.2,*(8/,8,1!/.!8,(\$))**(86\$!,%(2))*4!''(\$0'9!&2(!%(!(#\$!'%0\$!0%8,(%8,!%!4/?!4\$6\$4!/.!-\$(%84!8,!/)-\$)!(/!#%6\$!4/?!80+4\$0\$,(%(8/,!*/'('!%,-!.%*848(%(\$!(#\$8)!2'\$5! I/)!(#8'!)\$\%'/,!#7&)8-!0\$, '2)%(8/,%4b+#7'8/4/18*%4!0/-\$4'!#%6\$!1%8,\$-!80+/)(%,*\$!%,-!%((\$,(8/,9!%,-!8(!8'!\$=+\$*(\$-!(#%(!(#\$8)!%-/+(8/,!?84418,*)\$\%'\$!8,!(#\$!,\$\%)!.2(2)\$5!"#8'!'(2-7!%80\$-!(/!\$=+4/)\$!(#\$!+/(\$,(8\%4!%-6\%,(\%1\$'!/.!\%!#7&)8-!0\$, '2)\%(8/,\%4m!+#7'8/4/18*\%4!0/-\$4!**/0+\%)\$-!(/!\$-44/)\$!(#\$!+/\$,(8\%4!%-6\%,(\%1\$'!/.!\%!#7&)8-!0\$, '2)\%(8/,\%4m!+#7'8/4/18*\%4!0/-\$4!**/0+\%)\$-!(/!\$-44/)\$!(#\$8)!\%-4\%(\%(8/,!0\%,\%1\$0\$,(9!\%,-!+)/68-\$!\%!&\$((\$)!2,-\$)'(\%,-8,1!/.!(#\$8)!*\%+&848(7!(/!80+)/6\$!+)\$*8'8/,!\%,-!\$=+4\%,\%(8/,!0\%,(\%8,8,1!\%!*\$)(\%8,!4\$6\$4!/.!'80+48*8(7!\%'!)\$:28)\$-!./)!./)\$'(!0\%,\%1\$0\$,(5!"#8'!?/)>!\%4'/!\%80\$-!(/!+)/68-\$!2+-\%(\$-!(//4'!./)!0\%,\%18,1!\$\$65*\%4"17"\%,-!>50"\#?245*\&)("67\$*\%,!E)212\%75!

"#\$!-\$6\$4/+0\$,(!/.!%,!%++)/+)8%(\$!0\$(#/-!./)!/84!%,%47'8'!8'!-\$'*)8&\$-!8,!*#%+(\$)!_5!P.!(#\$!(#)\$\$!\$=()%*(86\$!0\$(#/-'!(\$'(\$-9!,%0\$47!%**\$4\$))%(\$-!'/46\$,(!\$=()%*(8/,!JH3KQ)!#7-)/b-8'(844%(8/,!%,-!08*)/?%6\$!'/46\$,(!\$=()%*(8/,!JA3KQ)!A3K!?%'!'\$4\$*(\$-!./)!(#8'!?/)>!-2\$!(/!8('!*/,6\$,\$\$,*\$5!"!

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 $3\%!\% - +3\#!'05\&()5\%!/)'\#)'3\%, \\)0\&\#+, \\ 0)'0\%'05('-&\%705'\#, \\ /')*&4+4\#!'\%1'7\%\%/8'\\ 0\&((')2(3+()'+,'/(-&\#/(/'-&\#))!\#, \\ /'+,'05('-\%*05'-)!\#, \\ /-)'/&8!\#, \\ /''\%, ($

"#\$!,%(86\$!-)74%, -!X/,\$!8,!L\$?!f\$%4%, -C'!3/2(#!B'4%, -!#%'!&\$\$,!-)%'(8*%447!%4(\$)\$-!&7!&2),8,19!
1)%X8,19!%, -!/(#\$)!%,(#)/+/1\$,8*!%*(868(8\$'!'8,*\$!#2 0%,!.8)'(!%))86\$-!'/0\$!eSS!7\$%)'!%1/5!P,47![ST!/.!8('!/)818,%4!,%(86\$!6\$1\$(%(8/,!)\$0%8,'9!?8(#!t_T!/.!8(!4\$1%

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'80+4\$! 0\$(#/-!./)!*)\$%(8,1!#81#b)\$'/42(8/,!<KA'5!"#8'!'(2-7!)\$+/)('!/,!%,!/+(808'%(8/,!+)/*\$-2)\$!
./)!+)/-2*8,1!<KA'!&7!*/0+%)8,1!(#)\$\$!,/,b1\$/'(%(8'(8*%4!8,(\$)+/4%(8/,!+)/*\$-2)\$'!*%))8\$-!/2(!?8(#!
.8\$4-!*/44\$*(\$-!UL33!-%(%5!N\$'24('!'#/?!(#%(!#\$!HLE<KA!8,(\$)+/4%(8/,!%41/)8(#0!+)/-2*\$-!<KA'!
?8(#!(#\$!#81#\$'(!%**2)%*75!"#\$!'(2-7!%4'/!)\$+/)('!(#%(!-%(%!-\$,'8(7!8,.42\$,*\$'!.8,%4!<KA!)\$'/42(8/,5!!

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 $V8(\#8,b'(\%,-!\#\$81\#(!1)/?(\#!\%,-!'2)686\%4!+)/+/)(8/,!0/-\$4'!8,-8*\%(\$!(\#\%(!(/+/1)\%+\#8*9!?8,-!\$=+/'2)\$9! 0/)+\#/0\$()8^*!+)/(\$^*(8/,9!+/'8(8/,!8,-\$=9!\%,-!-8'(\%,*\$!.)/0!)8-1\$!(/+!'81,8.8*\%,(47!8,.42\$,*\$-1026\$,84\$! \#\$81\#(!1)/?(\#!\%,-!'2)686\%4!+)/+/)(8/,5!'' \#\$'\$!(/+/1)\%+\#8^*!8,-8^*\$'!?\$)!\%4'/!./2,-!(/!&\$!'81,8.8^*\%,(!./)! &\$(?\$\$,b'8(\$!026\$,84\$!\#\$81\#(!1)/?(\#!\%,-!'2)686\%4!+)/+/)(8/,9!\%4/,1!?8(\#!(\$0+\$)\%(2)\$5!P6\$)\%449!\$\%^*\#!/.! (\#\$!.8,\%4!0/-\$4'!#%-!#81#!+)\$*8'8/,!%,-!08,80\%4!&8''9!(\#\$)\$./)\$!(\#\$7!*\%,!+)\$-8*(!026\$,84\$!()$\$!#$81#(!78$4-!%,-!'2)686%4!+)/+/)(8/,!?$445!!$

; /(\$, (8%447!2'\$%&4\$!481#(!'20!\$:2%(8/,'!J;EG3KQ!?8(#!%210\$,(\$-!(/+/1)%+#8*!8, -8*\$'!?\$)\$!&\$((\$)!(#%,!;EG3K!%4/,\$9!/)!()%-8(8/,%4!#7&)8-8'%(8/,!%++)/%*#\$'9!./)!\$=+4%8,8,1!&\$(?\$\$,b'8(\$!1)/?(#5!B,!%--8(8/,!%++)/8*81#(!1)/?(#!%,-!'2)686%4!+)\$-8*(8/,'9!(#\$'\$!#7&)8-!0/-\$4'!/..\$)!0%,7!/(#\$)!2'\$'9!8,*42-8,1!1\$,\$)%(8,1!2'\$.24!\$*/+#7'8/4/18*%4!8,./)0%(8/,9!%,-!(#\$7!/..\$)!%,!80+)/6\$-!2,-\$)'(%,-8,1!/.!()\$\$!1)/?(#!+)/*\$''\$'5!!

18,%4479!(#\$!+)\$48 0 8,%)7! 0 \$, '2)%(8/,%4!1)/?(#!%,-!78\$4-! 0 /-\$4'!./)!>,&)#8@8\$71"&?\$)\$!-\$6\$4/+\$-!(/!+)/@\$*(!1)/?(#!/6\$)!(80 \$!?8(#!#81#!+)\$*8'8/,!%,-!08,80%4!\$))/)5!"#\$'\$! 0 /-\$4'!*)\$%(\$!2'\$.24!1)/?(#!-7,%08*'!8,./)0%(8/,!./)!./)\$'(!0%,%1\$)'9!%'!?\$44!%'!'211\$'(8,1!.2(2)\$!)\$'\$%)*#!%6\$,2\$'!./)!1)/?8,1!>50"#?245*&8,!L\$?!f\$%4%,-5!!

35%&+' (,,+1(&' '5'+,'+%!%-8 \$2&%4+,-'05(')*33())'%1'+,)(30'3%,)(&4#0+%,'0&#,)!%3#0+%,)'#'3#)(')0*/8'%1' 05(',#0+%,#!!8'(,/#,-(&(/'%.*)0'&#))5%22(&' '+-(!%7

"#\$!*2)\$,(!)%(\$'!/.!'+\$*8\$'!4/''!%,-!-\$*48,\$!%)\$!'/!\$=()%/)-8,%)7!(#%(!(#\$!K%)(#!8'!'+\$*24%(\$-!(/!&\$!/,! (#\$!*2'+!/.!\$,(\$)8,1!%!'8=(#!0%''!\$=(8,*(8/,9!?8(#!(#\$!0%())8(7!/.!'+\$*8\$'!4/'(!\$=+\$*(\$-!(/!&\$!8,'\$*('5!B,'\$*('!0%)\$!2+!%++)/=80%(\$47!eS!T!/.!%44!'+\$*8\$'!/,!K%)(#!%,-!%)\$!+)/+/)(8/,%447!(#\$!0/'(!2,-\$)b!)\$+)\$'\$,(\$-!*4%''!/.!%,80%4!8,!*/,'\$)6%(8/,!&8/4/175!H,!80+/)(%,(!(//4!./)!'2&'(%,(8%447!)\$-2*8,1!(#\$!8'!/.!\$=(8,*(8/,!./)!*)8(*%447!)\$-2*8,1!(#\$!80+/)(%,(!(//4!./)!'2&'(%,(8%447!)\$-2*8,1!(#\$!8)*(*),%(8/,%4!E,8/,!./)!*)8(*%447!(#)\$%(\$,\$-!'+\$*8\$'!8'!*/,'\$)6%(8/,!0%,'4/*%(8/,9!?#8*#!8'!-\$.8,\$-!&7!(#\$B,(\$),%(8/,%4!E,8/,!./)!F/,'\$)6%(8/,!/.!L%(2)\$!%'!p(#\$!8,(\$,(8/,%4!0/6\$0\$,(!%,-!)\$4\$%'\$!/.!%4868,1!/)1%,8'0!?#\$)\$!(#\$!+)80%)7!/&@\$*(86\$!8'!%!*/,'\$)6%(8/,!&\$,\$.8(q5!Z/?\$6\$)9!(#\$)\$!#%'!&\$\$,!4808(\$-!%++48*%(8/,'!/.!()%,'4/*%(8/,!!%!*/,'\$)6%(8/,!(//4!./)!8,'\$*('9!%,-!/,47!R_!T!/.!(\$))\$'()8%4!8,'\$*(!

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"#\$! '\$*/, -!)\$'\$%)*#! /&0\$*(86\$! ?%'! (/! 2, -\$)'(%, -! (#\$! #%&8(%(!)\$:28)\$ 0\$, ('! /.! R,& (805*45*5! E '8, 1! 08,8%(2)8'\$-!)%-8/!()%, '0\$((\$)'9!(#\$!0 /6\$0\$, ('!/.!%-24(!.\$0%4\$!1)%''#/++\$)'!/**2+78, 1!%!48,\$%)!1)%6\$4!)/%-! ?\$)\$!*/0+%)\$-!(/!(#/'\$!/**2+78, 1!%!0 /)\$!,%(2)%4!/+\$,!&)%8-\$-!)86\$)!#%&8(%(5!<\$, '\$!6\$1\$(%(8/,!?*'!./2,-!(/!&\$!2,.%6/2)%&4\$!#%&8(%(9!8,-8*%(8,1!(#%(!0%,%1\$0\$,(!/.!6\$1\$(%(8/,!?*44!&\$!80+/)(%,(!./)!0%,(%8,8,1!#%&8(%(!:2%48(75! L/!-8..\$)\$,*\$!8,!#/0\$b)%,1\$! '8X\$! ?%'!./2,-!&\$(?\$\$,!(#\$!(?/!'8\!(*'!8,-8*%(8,1!(#%(!(#\$!%)\$%!/.!#%&8(%(!)\$:28)\$-!(/!'2++/)(!%,!%-24(!.\$0%4\$!8'!48>\$47!(/!&\$!c![SS!05!"#8'!#%'!%+48*%(8/,'!./)!0%,%1\$0\$,(!/.!?\$\$-!%,-!0%000%48%,!+)\$-%(/)'! '#/24-!&\$!80+4\$0\$,(\$-0!*)\$%(8,1!%)(8.8*8%4!#%&8(%(9!%,-!'4\$*(8,1!+/(\$,(8%4!**)))).

 $-8'+4\%*\$0\$, (!0\$(\#/-9!\%, -!4/, 18(2-8, \%4!\%, -!6/420\$()8*!'\#)8, >\%1\$!?\$)\$!0\$\%'2)\$-!.)/0!1)\$\$, !(/!fRT!0/8'(2)\$!*/, (\$, (5!"#\$!*/0+)\$''8/, !?//-!\%, -!/++/'8(\$!?//-!-8..\$)!'81, 8.8*%, (47!8, !%44!(#\$!0\$\%'2)\$-!+)/+\$)(8\$'5!F/0+)\$''8/, !?//-!?\%'!*#\\%\\(18(1-1)\)\(18$

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B,!*#%+(\$)![!)%,>8,1!/.!'\$4\$*(\$-!.%0848\$'!/.!*B\$65**&("7\$"4"!?%'!-/,\$!&%'\$-!/,!08*)/.8&)84!%,14\$9!?#8*#!8'!*/,'8-\$)\$-!%'!(#\$!0%8,!.%*(/)!8,.42\$,*8,1!&/(#!'(8..,\$''!%,-!4/,18(2-8,%4!'#)8,>%1\$5!"#\$!)%,>8,1!?%'!

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? 8(#!($, !)%-8%(%!+8,$!*4/,$'!8, !3$+($0&$)!\]][5!F4/,$'!?$)$!-$+4/7$-!8,!%!)%, -/08'$-!*/0+4$($!&4/*>!
+4/(!-$'81,!?8(#!(#)$$!)$+48*%(8/,'5!K%*#!)$+48*%(8/,!*/,(%8,$-!($,!()$%(O$,('!/.!O/,/*4/,%4!+4/('!%,-!
/,$!8,!?#8*#!%44!(#$!*4/,$'!?$)$!8,(80%($47!08=$-!8,!$:2%4!+)/+/)(8/,'5!
F4/,$'!'81,8.8*%,(47!-8..$)$-!8,!8,8(8%4! 0 /)+#/4/18$'9!'2)686%4!%,-!'($0!'4$,-$),$''5!3(2)-8,$''!%,-!
8,8(8%4!#$81#('!?$)$!./2,-!(/!&$!(#$!&$'(!+)$-8*(/)'!/.!8,8(8%4!'2)686%4'5!"#$!'(2-7!)$6$%4$-!(#%(!0/-$!
/.!-$+4/70$,(!-8-!,/(!%..$*(!/6$)%44!+)/-2*(868(79!&2(!8, -868-2%4!*4/,$!$=#8&8($-!'81,8.8*%,(47!-8..$)$,(!
+)/-2*(868(8$'!&$(?$$,!0/-$'!/.!-$+4/70$,(5!H4!*4/,$'!*/,()8&2($-!'8084%)47!(/!/6$)%4!+)/-2*(868(7!
8,!(#$!0/,/*4/,%4!0/-$!/.!-$+4/70$,(9!?#$)$%'!(#$!*/,()8&2(8/,!/.!*4/,$'!8,!(#$!*4/,%4!08=(2)$!0/-$!
/.!-$+4/70$,(!?%'!-8'+)/+/)(8/,%($5! H! 08,/)8(7!/.!(#$!*4/,$'!*/,()8&2($-!%! 0%!/)8(7!/.!/6$)%4!
+)/-2*(868(7!8,!(#$!*4/,%4!08=(2)$!0/-$!/.!-$+4/70$,(5!
"#\$!8, *42'8/, !/.!*/0+\$(8(8/, !8, -\$=!\%'!\%, !8, -\$+\$, -\$, (!6\%)8\%&4\$!8, !\%!-8'(\%, *\$b-\$+\$, -\$, (!8, -868-2\%4!()\$\$!
/.!%,!8,6$)'$b':2%)$-!-8'(%,*$!(/!,$81#&/2)8,1!+4%,('!8,!(#$!*/O+$(8(8/,!8,-$=!+)/68-$-!%!'481#(47!
'2+$)8/)!.8(!(/!(#$!-%(%!*/0+%)$-!(/!/,$!(#%(!$0+4/7$-!%!'80+4$!8,6$)'$!/.!-8'(%,*$5!H--8(8/,!/.!
1$, \( (7+$! 8, \) 0 \( (8\), ! 8, ! (#$! *\ 0 +$(8(8\), ! 8, -$=! \. 2)(#$)! 80 + \) \( (6$ -! (#$! \. 8(! \).! (#$! \. 0 \/ -$45! \. F4\), $'!
$=+$)8$, *$-!-8..$)$, (!4$6$4'!/.!*/0+$(8(8/,!8,!0/,/*4/,%4!%,-!*4/,%4! 08=(2)$!0/-$'!/.!-$+4/70$, (5!
F/O+$(8(8/,!8,!0/,/*4/,%4!+4/('!)$0%8,$-!2,8./)O!/6$)!(80$9!?#$)$%'!'/O$!*4/,$'!$=+$)8$,*$-!
1)$%($)!*/0+$(8(8/,!8,!*4/,%4!08=(2)$!+4/('!?#8*#!4$-!(/!1)$%($)!6%)8%&848(7!8,!(#$8)!()$$!'8X$'5!"#8'!'(2-7!
8, -8*%($-!(#%(!'8, 14$!()$$!+4/(!+)/1$, 7!($'(!'$4$*(8/, '!%, -!$%)47!'$4$*(8/, '!0 \%7!08''!/2(!'/0$!1//-!
1$, \( (7+$'!(\(\frac{1}{4}\), \(!^*\), \(!1)\/ ?!)\(\frac{1}{4}\).!-$+4\/7$-!0\/, \( \frac{1}{4}\/, \(\frac{1}{4}\).
3(%, -!4$6$4!0/-$448, 1!)$6$%4$-!(#%(!*4/,$'!-8..$)$-!'81,8.8*%,(47!8,!0/-$44$-!78$4-!+%(($),'!%,-!0/-$4!
\%'70+(/(\$'5!F4/,\$'!./)0\$-!(?/!-8'(8,*(!1)/2+'!#\%68,1!'81,8.8*\%,(47!-8..\$)\$,(!78\$4-!0/-\$4'5!''#\$!'(2-7!)
%4'/!-$0/,'()%($-!(#%(!0/-$4'!-$6$4/+$-!.)/0!%,!8,8(8%4!.$?!7$%)'C!-%(%!?$)$!&8%'$-!8,-8*%(/)'!/.!(#$8)!
)$4%(86$!.2(2)$!+$)./)0%,*$'5!
K6%42%(8/,!/.!$..$*(86$,$''!/.!(#$![b;U!#7&)8-!0/-$4!2'8,1!+%)%0$($)!6%42$'!/&(%8,$-!.)/0!
-$'()2*(86$!'% 0+48, 1!%, -!'+$*8$'b'+$*8.*!6%42$'!.)/0!-8..$)$,(!'(2-8$'!)$6$%4$-!(#%(!8(!8'!+/''8&4$!(/!
*%48&)%($!(#8'!0/-$4!./)!'8024%(8,1!(#$!+)/-2*(868(7!/.!*4/,$'9!%,-!+)$-8*(8/,'!.)/0!(#8'!0/-$4!081#(!
8,./) 0!*4/, %4!'$4$*(8/, '!%(!-8..$)$, (!'8($'!2, -$)!-8..$)8, 1!*48 0%(8*!*/, -8(8/, '5!<$'()2*(86$!!% 0+48, 1!%(!
%1$!R!7$%)'!)$6$%4$-!(#%(!*4/,$'!'81,8.8*%,(47!-8..$)$-!8,!./48%1$!%,-!'($0!&8/0%''5!"#$!-8..$)$,*$'!8,!
+)/-2*(868(8$'!/.!*4/,$'!?$)$!0%8,47!-2$!(/!-8..$)$,*$'!8,!&8/0%''!+%)(8(8/,8,1!%,-!'+$*8.8*!4$%.!%)$%'5!
F4/,$'!'81,8.8*%,(47!-8..$)$-!8,!-7,%08*!?//-!'(8..,$''9!'($0b'4$,-$),$''9!&)%,*#!-8%0$($)9!&)%,*#!
8, -$=!%, -!&)%, *#!%, 14$!%(!%, !8,8(8%4!'(/*>8,1!/.!\_RS!'($O'0#%5!A/-$!/.!-$+4/7O$,(!%..$*($-!'($O!
'4$,-$),$''9!?#8*#!8'!'/O$(8O$'!)$4%($-!(/!'(8..,$''5!H4(#/21#!-7,%O8*!'(8..,$''!?%'!*/))$4%($-!?8(#!
'($ 0!'4$, -$),$''!%, -!'($ 0!'4$, -$),$''!$=#8&8($-!%!'81,8.8*%,(!8,.42$,*$!/,!'(8..,$''9!*4/,$'!-8-!,/(!
$=#8&8(!'(%(8'(8*%447!'81,8.8*%,(!-8..$)$,*$'!8,!-7,%08*!'(8..,$''5!B,*)$%'8,1!8,8(8%4!'(/*>8,1!.)/O!d[[!
'($ 0 '0#%!(/!_RSS!'($ 0 '0#%!)$ '24($-!8, !%!R`T!-$*)$% '$!8, !&)%, *#!-8% 0 $($)!%, -!%!\eT!8, *)$% '$!8, !&)%, *#!
%, 14$5!
")$$'!8.!(#$!0/,/*4/,%4!0/-$!/.!-$+4/70$,(!$=#8&8($-!1)$%($)!2,8./)08(7!?8(#!)$'+$*(!(/!()$$!'8X$9!
'($ 0 b'4$, -$),$''9!%, -!*/0+$(8(8/,!$=+$)8$,*$-!&7!*4/,$'!*/0+%)$-!(/!(#/'$!8,!(#$!*4/,%4! 0 8=(2)$!
0/-$!/.!-$+4/70$,(5!32'*$+(8&848(7!/.!/,$!*4/,$!(/!V//447!%+#8-!'211$'($-!(#%(!1)$%($)!)8'>'!?$)$!
%''/*8%($-!?8(#!4%)1$!'*%4$!-$+4/70$,(!/.!'2'*$+(8&4$!*4/,$'!8,!%!0/,/*4/,%4!0/-$!/.!-$+4/70$,(5!
"#8'!'(2-7!%4'/!8, -8*%($-!(#%(!8.!(#$!+4%,('!?$)$!(/!&$!-$+4/7$-!8,!%!O/,/*4/,%4!O/-$!(#$,!&4/*>!+4/(!
'$4$*(8/, '!?/24-!#%6$!1)$%($)!+/($,(8%4!(/!$,#%,*$!+)/-2*(868(75!
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()0%�+%,' %1' 3#,%28' 0&((')2(3+()'+,'/(-&#/(/' #)0(&,' %*05')!#,/'(3%)8)0(\$)

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"#\$!#8'(/)7! /.!\$*/'7'(\$0!-8'(2)&%, *\$'!#%'!%4(\$)\$-! 0 /'(! /.!(#\$! /)818,%4! ./)\$'(!\$*/'7'(\$0'!8,! L\$?!f\$%4%, -!\$'+\$*8%447!(#/'\$!%''/*8%(\$-!?8(#!(#\$!\$%'(\$),!X/,\$!/.!(#\$!3/2(#!B'4%,-!?#\$)\$!.8)\$!%, -!+%'(/)%4!.%) 08,1!#%6\$!()%, './) 0\$-! 02*#!/.!(#\$!./)\$'(4%, -'!8,(/!-\$1)%-\$-!1)%''4%, -'!%, -!'#)2&4%, -'5! V#84\$!(#\$'\$!*/002,8(8\$'!%)\$!68%&4\$!*/, '\$)6%(8/,!%)\$\%'!./)!&8/-86\$)'8(7!8,!)\$'(/)%(8/,!'*#\$0\$'9!(#\$7!)\$:28)\$!%*(86\$!#20%,!8,(\$)6\$,(8/,!(/!.%*848(%(\$!,%(2)%4!)\$1\$,\$)%(8/,!%, -!(#\$!'2**\$''!/.!)\$'(/)%(8/,!+4%,(8,1!+)/@\$*(5!"#2'9!8,!(#\$!*/,(\$=(!/.!0%,%18,1!\$%)47b!'2**\$''8/,%4!*/002,8(8\$'!./)!./)\$'(!)\$'(/)%(8/,9!2,-\$)'(%,-8,1!(#\$!\$..\$*('!/.!%,7!8,(\$)6\$,(8/,!?84!#%6\$!80+/)(%,(!80+48*%(8/,'!(/!#\$!'2'(%8,%848(7!/.!%,7!)\$'(/)%(8/,!0\$%'!)\$'(/)%(8/,!/2(*/0\$'!0%7!6%)7!?8(#!(%)1\$(!'+\$*8\$'9!6\$1\$(%(8/,9!%,-!-8'(2)&%,*\$!)\$180\$'!8,6/46\$-5!!

, /!80+%*(!/,!%,,2%4!%6\$)%1\$!6%42\$'!/.!-\$, '8(79!K!%,-!AIH!8,!(#8'!\$=+\$)80\$,(!&2(!'81,8.8*%,(!%,,2%4!-8..\$)\$,*\$'!\$=8'(\$-!8,!*\$44!?%44!(#8*>,\$''9!*\$44!)%-8%4!-8%0\$(\$)!%,-!*\$44!+/+24%(8/,'!&\$(?\$\$,!(#\$!.%'(\$)!%,-!'4/?\$)!1)/?8,1!()\$\$'5!V\$44!?%(\$)\$-!()\$\$'!#%-!#81#\$)!6\$4/*8(7!%,-!%4'/!1)\$%(\$)!4/,18(2-8,%4!

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+!!+#$)' !78,'
,'05('(3%!%-8'#,/'&()0%&#0+%,'%1'

"+,'05(' #)0(&,'
%*05')!#,/' +-5' %*,0&8
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 $B8780''(25 \% 0566 \% 6) <''3 \% \& 8'! \%, !\$, -\$ 0 \$*! L\$?! f\$\%\%, -!*/, 8.\$)! (\#\% (9! \$, !+) \$b\#2 0 \%, ! (8 0 \$' 9! ./) 0 \$-! \$=(\$, '86 \$! ./) \$'(!*/0 02, 8(8 \$'! \%*) /''! (\#\$! \$\%'(\$), ! 3/2(#! B'4\%, -! #81#! */2, ()75! H, (#)/+/1$, 8*! -8'(2) & \%, *$'!#\(6$!) \$-2*\$-!(#\$!-8'() & & 2(8/, !/.!B8780''(25 \% 0566 \% 6) <''3 \% & / 0 02, 8(8 \\ !': 2*#!(#\(!#\$7! ,/?!\$=8'(! 0 \\ 8, 47! \\ '': 0 \\ 044! \\ ,-!8' /4\(\$-!) \$ 0, \\ , ('!? 8(#\$, !\\!#\$1#\$7! 0 /-8.8 \$-9!+) \$-/0 8, \\ , (47!+\\ '(/) \\ 4\\ ,-'*\$+\$5!M$$) 748((4\$\!!) \\ ,/?, !/.!(#\$!\$*/4/17!/.\\#\$1#\!*/2, () 7!B8780''(25 \\ 0566 \\ 6) <''3 \\ \\ ,-!7 \\ 8(#\$/2(!(#\$'!\$,./) 0 \\ (8/, \\!8(!\$'!, /(!+/''\$\ 84\$!(/!-\$6\$4/+!\\ ,!\$*/4/18*\\ 4!\\ \\ '8'!./)!(#\$\ 8)!) \\ '(/) \\ (8/, \\ 5!''\#\$'! \\ #\$'!\$ \\ (4/17!/.\\ 188780''(25 \\ 0566 \\ 6) <''3 \\ \\ , (47!+\\ 18\$'!\$) \\ (48\$!\$) \\ (4/17!/.\\ 188780''(25 \\ 0566 \\ 6) <''3 \\ \\ , (47!+\\ 18\$'!\$) \\ (4/18\$) \\$

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-7, %08*'!+)\$*42-\$-!%, !\$6%42%(8/,!/.!(#\$!%**2)%*7!/.!(#\$'\$!+#\$, /4/18*%4!%'+\$*('!%, -!%, !\$=+4%, %(8/,!/.!(#\$8)!-8'(8, *(86\$!*/, ()&&2(8/,!/.!(#\$!0/-\$45!!)))))

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 $P6\$)\%449!(\#\$!.8, -8, 1'!'\#/?!(\#\%!(\#\$!8, (\$1)\%.5-!3b_b; 3!80\%1\$)7!*\%, !80+)/6\$!(\#\$!*4\%''8.8*\%(8/,!/.!L\$?!f\$\%4\%, -C'!, \%(2)\%4! 6\$1\$(\%(8/,5!"#\$!*/'(!'\%68, 1'!'/.!#\$!8, (\$1)\%(\$-!\%++)/\%*\#! 081\#(!+)/6\$!*)8(8*\%49! \$'+\$*8\%47!\%'!L\$?!f\$\%4\%, -C'!8, -81\$, /2'!./)\$'('!*/6\$)!\%!6\%'(!4\%, -!\%)\$\!(\pm'(!2'/24-!)\$:28)\$!'2&'(\%, (8\%4!-8, \%, *8\%4!8, 6\$'(0\$, (!8.!8(!?\$)\$!\%44!*\$+(2)\$-!&7!*/0\00\$)*8\%4!'\%(\$448(\$'5!"\$!2'\$!/.!+\$, /4/18*\$4!.\$\(2)\$'!\$, -!.\$\(2)\$!'\$4\$(\$/, 9!.\$, -1.\$\(2)\$!'\$4\$(\$/, 9!.\$, -1.\$\(2)\$!'\$4\$(\$/, 9!.\$)\$\(1)\$'\$(\$/, 1.\$)\$\$\(1)\$\(1)\$'\$\(1, 1.\$)\$\$\(1, 1.\$)\$\(1, 1.\$)\$\$\(1, 1.\$)$

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"#\$!0%=8020!)%(\$!/.!,\$(!FP!%''8084%(8/,!8,*)\$%'\$-!?8(#!(#\$!(\$O+\$)%(2)\$!%(!?#8*#!+4%,('!?\$)\$!1)/?,!+%)(47!&\$*%2'\$!/.!%**480%(8/,!8,!>\$7!+#/(/'7,(#\$(8*!+)/*\$''\$'!8,!(#\$!F%468,!*7*4\$5!N\$'+/,'\$'!/.!0%=80%4!*%)&/=74%(8/,!)%(\$!JM*0%=0!%,-!%4'/!(#\$!0%=80%4!481#(b-)86\$,!\$4\$*()/,!.42=!Jg 0!(/!'#/)(b(\$)0!(\$0+\$)%(2)\$!*#%,1\$!6%)8\$-!?8(#!&%'\$b48,\$!(\$0+\$)%(2)\$!./)!%44!'+\$*8\$'!'(2-8\$-5!L\$(!+#/(/'7,(#\$'8'!%',-!+#/(/'7,(#\$(8*!+%)%0\$(\$)'!0\$%'2)\$-!-8-!,/(!6%)7!'81,8.8*%,(47!?8(#!\$..\$*('!/.!,8()/1\$,9!+#/'+#/)2'!%,-!(#\$8)!8,(\$)%*(8/,!J+!i!S5\a^d05!

"#\$!)%(8/!/.!g !(/!M !-\$*)\$%'\$-!?8(#!8,*)\$%'8,1!4\$%.!(\$O+\$)%(2)\$'!./)!%4!'+\$*8\$'!J+!t!S5S\$\\05!

"#\$'\$!)\$'24('!8, -8*%(\$!(#%(!(#\$!'+\$*8\$'!'(2-8\$-!?844!%-%+(!(/!4/,1b)2,!*#%,1\$'!8,!(\$O+\$)%(2)\$9!%,-!(#\$!+%)%O\$(\$)'!/&(%8,\$-!.)/O!(#\$'\$!'(2-8\$'!*%,!&\$!2'\$-!./)!O/-\$4'!(#%(!'8O24%(\$!(#\$!+#7'8/4/17!%,-!1)/?(#!/.!(#\$!'+\$*8\$'5!

, / (&)%, ' 0*#&0'
(!'\$%+)0&('#, /'/ (4(!%2\$(,0'%1'+-,+0+%,'#,/'1+&(')2&(#/'05&()5%!/)'+,'-%&)('

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Z% 6\$ '(8, 1!8'!(7+8*%447!/,\$!/.!(#\$!4%)1\$'(!*/0+/,\$,('!?8(#8,!%!+4%,(%(8/,!./)\$'(!)/(%(8/,5!H!4%)1\$! +)/+/)(8/,!/.!L\$?!f\$%4%,-C'!.2(2)\$!#%)6\$'(!?844!&\$!/,!'(\$\$+!(\$))%8,5!F2))\$,(47!'(\$\$+!(\$))%8,!#%)6\$'(8,1! 8'!*#%)%*(\$)8'\$-!&7!4/?\$)!+)/-2*(868(7!%,-!#81#\$)!*/'(5!B(!%4'/!#%'!#81#\$)!4\$6\$4'!/.!0%,2%4!/)!0/(/)! 0%,2%4!(%'>'!'2*#!%'!'\$((8,1!*#/>\$)'!/)!()\$\$!.\$448,19! ?8(#!%!*/))\$'+/,-8,1!#81#\$)!'%.\$(7!)8'>5!"#\$! 2(848 '%(8/,!/.!1)/2, -b&% '\$-!0%*#8,\$'!/,!'(\$\$+!(\$))%8,!#%'!(#\$!+/(\$,(8%4!(/!-\$*)\$%'\$!#%)6\$'(!*/'('!%,-! 80+)/6\$!'%.\$(75!"#\$)\$!8'!*2))\$,(47!%!+2'#!8,!L\$?!f\$%4%,-!(/!8,*)\$%'\$!(#\$!/+\$)%(8,1!)%,1\$5!"#8'!8'!&\$8,1! -/,\$! ?8(#!%!+//)!2,-\$)'(%,-8,1!/.!(#\$!'4/+\$'!/,! ?#8*#! O%*#8,\$'!%)\$!*2))\$,(47!/+\$)%(8,1!%,-!48((4\$! 2,-\$)'(%,-8,1!/.!(#\$!,\$?!)8'>'!'(\$\$+\$)!'4/+\$'!081#(!8,()/-2*\$5!"/!&\$((\$)!2,-\$)'(%,-!(#\$!()2\$!)%,1\$!/.! '4/+\$'!/,!?#8*#!./)\$'(!0%*#8,\$'!%)\$!/+\$)%(8,19!%!-818(%4!%**\$4\$)/0\$(\$)!?%'!%((%*#\$-!(/!!./)\$'(! 0%*#8,\$'!%,-!+)/68-\$-!)\$%4b(80\$!0\$%'2)\$0\$,('!/.!'4/+\$5!"#\$!\$6%42%(\$-!0%*#8,\$'!?\$)\$!1)/2+\$-!8,(/! /,\$!/.!./2)! 0%*#8,\$!(7+\$'Y!.\$448,1!J,ia09!'#/6\$448,1!J,iR09!'>8--\$)!J,i]0!/)!K2)/+\$%,!J,ia05!"#\$! 0 %*#8,\$! (7+\$'! ?\$)\$! (#\$,! %, %47'\$-! ?8(#!)\$'+\$*(!(/!(#\$8)! 0 %*#8,\$! '4/+\$! J%*(2%40! %, -!(\$))%8,! '4/+\$! J+)\$-8*(\$-0!&%'\$-!/,!%!-818(%4!(\$))%8,!0%+5!"?/!0\$(#/-'!/.!*%4*24%(8,1!(\$))%8,!'4/+\$!?\$)\$!2'\$-9!0\$(#/-! /,\$!?%'!&%'\$-!/,!%!()8%,124%)!\$)\\$124%)!,\$(?/)>!J"BLQ!.84\$!?8(#!O\$(#!O\$(#/-!(?/!&%'\$-!/..!%!)%'(\$)!.84\$! G8, \$%)!)\$1)\$''8/, !8, -8*%(\$-!(#%(!(#\$)\$!?%'!%!)\$4%(8/, '#8+!&\$(?\$\$,!0%*#8,\$!'4/+\$!%, -!(\$))%8,!'4/+\$!./)! %44!./2)!0%*#8,\$!(7+\$'9!?8(#!(#\$!\$=*\$+(8/,!/.!K2)/+\$%,!&%'\$-!0%*#8,\$'9!2'8,1!(#\$!"BL!0\$(#/-!/.!'4/+\$! *%4*24%(8/,5!H44!6%)8%&4\$'!'#/?\$-!%!+//)!*/\$..8*8\$,(!/.!-\$(\$)O8,%(8/,!?8(#!(#\$!#81#\$'(!%-@2'(\$-!N! ':2%)\$-!'8,14\$!6%)8%&4\$!\$=+4%8,8,1!\eT!/.!(#\$!6%)8%(8/,5!H44!O%*#8,\$'!/+\$)%(\$-!/,!'4/+\$'!

 $)\%(\$!\%(!?/)>C!/6\$)![ST9!\&2(!4\$''!(#\%,!aST05!B,!(#8'!''(2-7!(#\$!0/(/)8'\$-!*\%))8\%1\$!2'\$-!\%(!(#\$!.8)'(!H*(86\$!))8\%1\$!2'\$-!\%(!(#\$!.8)'(!H*(86\$!))8\%1\$!2'\$-!\%(!(#\$!.8)'(!H*(86\$!))8\%1\$!2'\$-!\%(!(#\$!.8)'(!H*(86\$!))9\%1\$!2'\$-!\%(!(#\$!.8)'(!H*(86\$!))9\%18!2'\$-!\%(!(#$!.8)'(!H*(86\$!))9\%18!2'\$-!\$(!4\) \((1.8) \) \(($

<2)8,1!(#\$'\$!*%'\$!'(2-8\$'!(#\$!0%*#8,\$'!%44!/+\$)%(\$-!&\$4/?!(#\$!%6\$)%1\$!L\$?!f\$%4%,-!+)/-2*(868(7!)%(\$!
/.!_`5[0 03 A Z!%,-!,/!*4\$%)!\$)1/,/08*!%-6%,(%1\$!?%'!\$'(%&48'#\$-!./)!(#\$!*#/>\$)b'\$((\$)'5!H'!'2*#!
(#\$'\$!0%*#8,\$'!%)\$!,/(!48>\$47!(/!/2(b*/0+\$(\$!\$=8'(8,1!0%*#8,\$)7!*#/8*\$'!8,!\$8(#\$)!+)/-2*(868(7!/)!
#/>\$)b'\$((\$)!?/)>!)%(\$5! Z/?\$6\$)9!/'(b&\$,\$.8(!%,%47'\$'!?\$)\$!,/(!+/''8&4\$!&\$*%2'\$!/.!4808(\$-!
8,./)0%(8/,!%&/2(!/+\$)%(8,1!*/'(!%,-!(#\$!%&'\$,*\$!/.!()247!*/0+%)%&4\$!'\$((8,1'5!H-6%,(%1\$'!'2*#!%'!(#\$!
%-6%,*\$-!*/,()/4!'7'(\$0'!%,-!4/?\$)!,/8'\$!4\$6\$4'9!?#84\$!'(844!%*#8\$68,1!)\$'+\$*(%&4\$!+)/-2*(868(7!.812)\$'9!
8,-8*%(\$!(#%(!(#\$7!%)\$!68%&4\$!%4(\$),%(86\$'!./)!L\$?!f\$%4%,-!*%&4\$!7%)-8,1!8.!%++48\$-!*/))\$*(475!!

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B,!(\$) O '! / .! '(\$, -! '()2*(2)\$9! (#\$)\$!8'!)\$+8-!)\$1\$,\$)\$(\$/,! / .! +8/,\$\$)!()\$\$'! - / 08, %(\$-!&7! J "O"("6)" & '+\$*8\$'!8,!(#\$!,\$?47!4/11\$-!J[b7\$%)'Q!./)\$'(!?#8*#!#%'!%!*/, '8-\$)%&47!#81#!'(\$0!-\$, '8(7!%, -!&%'%4!%)\$%! 8,! (#\$!,2,-\$)'(/)7! '%+48,1'!*/0+%)\$-! (/! (#\$! '%+48,1'! / .! (#\$! /4-!4/11\$-!J_Sb7\$%)'Q!./)\$'(!%,-!(#\$! 2,4/11\$-!J_Sb7\$%)'Q!./)\$'(!%,-!(#\$! 2,4/11\$-!J_Sb7\$%)'Q!./)\$'(!%,-!(#\$! 2,4/11\$-!J_Sb7\$%)b/4-!/)\$'(! (\$0!-\$,'8(7!-8-!,/(!-8..\$)!(/!(#\$(!/.!(#\$!2,4/11\$-!J_Sb7\$%)b/4-!/)\$'(!'(\$0!-\$,'8(7!-8-!,/(!-8..\$)!(/!(#\$(!/.!(#\$!2,4/11\$-!J_Sb7\$%)b/4-!4/11\$-!J_Sb7\$%)b/4-!/)\$'(!'(\$0!-\$,'8(7!)\$-2*\$-!./)!(#\$!0%(2)\$!*/00\$)*8%4!()\$\$!'+\$*8\$'!\$,!(#\$!_Sb7\$%)b/4-!4/11\$-!./)\$'(!*/0+%)\$-!(/!(#\$!2,4/11\$-!./)\$'(!"#\$!'(2-7!"#/?'!(#%(!'(\$0!-\$,'8(7!)\$-2*\$-!./)!(#\$!0%(2)\$!*/00\$)*8%4!()\$\$!'+\$*8\$'!\$,!(#\$!_Sb7\$%)b/4-!4/11\$-!./)\$'(!**!2,4/11\$-!./)\$'(!?%'!*/,'8-\$)%&47!)\$-2*\$-5!D%'%4!%)\$%!/.!(#\$!2,4/11\$-!./)\$'(!?%'!*/,'8-\$)%&47!)\$-2*\$-5!D%'%4!%)\$%!/.!(#\$!2,4/11\$-!./)\$'(!?%'!*/,'8-\$)%&47!)\$-2*\$-5!D%'%4!%)\$%!/.!(#\$!2,4/11\$-!./)\$'(!%!2,4/11\$-!./)\$'(!%!2,4/11\$-!./)\$'(!#\$!2,4/11\$-

A%,%18,1!(#\$!./)\$'(!)\$'/2)*\$'!./)!(#\$!4/11\$-!%,-!2,4/11\$-!./)\$'(!8'!*)2*8%4!./)!*/,(8,2/2'!+)/68'8/,!
/.!./)\$'(!1//-'!%,-!'\$)68*\$'5!B!'211\$'(!(#%(!*/0 02,8(8\$'!%,-!)\$'/2)*\$!/?,\$)'!*%,!2(848'\$!%,-!0%,%1\$!
(#\$8)!./)\$'(!(#)/21#! %!,20&\$)!/.!0%,%1\$0\$,(!'()%(\$18\$'!'2*#! %'!4%,-b2'\$!+4%,,8,19!'0%44b'*%4\$!

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JU09!%, -!4\$%.!%)\$%!8, -\$=!JGHBQ! ?\$)\$!\$=%08,\$-5!A8=\$-b\$..\$*('!%,%47'8'!/.!6%)8%,*\$! ?%'!*%))8\$-!/2(5!3(/*>8,19!./44/?b2+!?\$\$-!*/,()/49!%,-!*4/,\$!'81,8.8*%,(47!8,.42\$,*\$-!%&/6\$b1)/2,-!+)/-2*(8/,!%,-! &\$4/?b1)/2,-!*%)&/,!+%)(8(8/,8,15!B,*)\$%'\$-!%&/6\$b1)/2,-!&8/0%''!+)/-2*(8/,!?8(#!'(%,-!-\$,'8(7!?%'!+)80%)847!-\$(\$)08,\$-!&7!(#\$!&\$((\$)!2'\$!/.!'8(\$!)\$'/2)*\$'5!<\$*)\$%'\$-!D3N0HUD!?8(#!'(%,-!-\$,'8(7!?%'!0/'(47!%''/*8%(\$-!(/!1)\$%(\$)!)\$'/2)*\$!4808(%(8/,!-2\$!(/!*/0+\$(8(8/,5!HUD!%,-!U!8,*)\$%'\$-!?#84\$!<DZ!%,-!Z!-\$*)\$%'\$-!%'!'(%,-!-\$,'8(7!8,*)\$%'\$-5!I/44/?b2+!?\$\$-!*/,()/4!\$,#%,*\$-!%&/6\$b1)/2,-!1)/?(#!&7!)\$-2*8,1!D3N!'211\$'(8,1!?\$\$-!*/,()/4!?/24-!-\$*)\$%'\$!*/0+\$(8(8/,!./)!&\$4/?b1)/2,-!)\$'/2)*\$'5!

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+2)*#%'8,1! F%'#0$)$! I/)$'(!./)! (#$!+2)+/'$! /.!*)$%(8,1!%!+2&48*!./)$'(!+%)>!$,68)/,0$,(!?#$)$!
./)$'()79!8, -81$, /2'!&8/-86$)'8(79!)$*)$%(8/,!%, -!(#$!$,68)/, O$,(!%)$!1/%4'!/.!'2'(%8,%&4$!O%,%1$O$,(5!
I/)!(#8'!+2)+/'$!(#8'!-)%.(!./)$'(!0%,%1$0$,(!J<IA0!+4%,!#%'!&$$,!+)$+%)$-5!!
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_5! ;)$+%)%(8/,!/.!%!-)%.(!./)$'(!0%,%1$0$,(!+4%,!?#8*#!$,*/0+%''$'!(#$!0%,%1$0$,(!/.!+4%,(%(8/,!
                 \%, -!, /, b+4\%, (\%(8/, \!\%)\$\%'\!\%, -!
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K*/, / 08*!%, %47'8'!$6%42%($-!*4$%).$49!*/2+$!J!(/!R!#%09!%,-!%!08=(2)$!/.!*/2+$!%,-!*/,(8,2/2'!
*%,/+7!0%,%1$0$,(!JFFA0!%'!#%)6$'(8,1!'*$,%)8/'5!"#$!*/2+$!FFA!08=!?%'!)$*/00$,-$-!./)!
80+4$0$,(%(8/,!+)80%)847!%' !8(!&$'(!'28($-!4/,1!($)0!0%,%1$0$,(!1/%4'!./)!F%'#0$)$!I/)$'(!;%)>!?#84$!
%4'/!)$(2),8,1!0/-$'(!6%42$!JL;M!^R`\9]``05!L/)0%4!*%'#.4/?!%,%47'8'!?%'!%4'/!2'$-!(/!%,%47'$!
*%'#.4/?!/6$)!(#$!.8)'(!(#8)(7!7$%)'!/.!/+$)%(8/,!.)/0!_SSe5!!
E_{,-}!*/2+$0FFA9!%**)2$-!+)/.8(!-/$'!,/(!&$*/0$!+$)0%,$,(47!+/'8(86$!2,(84!%)/2,-!_S\]!-2$!(/!
8,8(8%4!8,.)%'()2*(2)$!*/'('5!H**)2$-!)$6$,2$!*2408,%($'!%(!%)/2,-!a!08448/,!%.($)![S!7$%)'5!"#8'!.812)$!
0\%7! - \frac{1}{2} \cdot \frac{1}{8} \cdot \frac{1}{8}
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%*#8$6$'!+)/-2*(8/,9!$,68)/, O$,(%49!$*/4/18*%4!%,-!)$*)$%(8/,%4!1/%4'!%++)/+)8%($!(/!8('!;/)(!Z844'!
4/*%(8/,5!;)/-2*(8/,!./)$'()7!8'!+)%*(8*$-!(#)/21#!(#$!'$4$*(86$!#%)6$'(8,1!/.!%!)%,1$!/.!,%(2)%447!
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 '81,8.8*%,(47!%210$,($-!?8(#!8,-81$,/2'!.4/)%!%,-!.%2,%!(7+8*%4!/.!(#$!;/)(!Z844'!%,-!$*/4/18*%447!
'81,8.8*%,(!%)$\'!%)$\!0%,%1$-!'+$*8.8*%447!./)!(#$8)!8,-81$,/2'!&8/-86$)'8(75!;%)>!)$*)$%(8/,%4!2'$)'!%)$!
$, \(\text{0}/78, \frac{1}{7}, \frac{1}{8}, \frac{1!}{18}, \frac{1!}{2}(848\)(8/\, \frac{1}{8}\), \(\text{1}/8, \frac{1}{8}\), \(\te
*/2+$'!/.!&$(?$$,!!(/!R!#%!?#8*#!?844!&$!#%)6$'($-!?8(#!*%&4$!/)!1)/2,-!&%'$-!'7'($0'!?8(#!%)$%'!
 '+48(!%++)/=80%($47!RS\RS\&S(?$$,!(#$!(?/5!F\&4$!#%)6$'(8,1!?84!&$!*%))8$-!/2(!?8(#!%!'?8,1!7%)-$)!
 '7'($0!?8(#!1)/2,-!&%'$-!/+$)%(8/,'!*%))8$-!/2(!?8(#!()%*>!'>8--$)'5!FFA!?84!&$!*%))8$-!/2(!/,!%!
()8%4!&%'8'!8,!(#)$$!*/O+%)(O$,('5!N$b$'(%&48'#O$,(!/.!+4%,(%(8/,!%)$%'!?844!%8O!(/?%)-'!/**2+78,1!
\%)/2, -!RdT!/.!F\%'\#0\$)\$!I/)\$'(9!*/0+)8'\$-!/.!\%)\$\%'!/.!)\%-8\%(\%!+8,\$!`RT9!)\%-8\%(\%!+8,\$0\$2*\%47+(!_aT9!)\%-8\%(\%!+8,\$!`RT9!)\%-8\%(\%!+8,\$0\$2*\%47+(!_aT9!)\%-8\%(\%!+8,\$0\$2*\%47+(!_aT9!)\%-8\%(\%!+8,\$0\$2*\%47+(!_aT9!)\%-8\%(\%!+8,\$0\$2*\%47+(!_aT9!)\%-8\%(\%!+8,\$0\$2*\%47+(!_aT9!)\%-8\%(\%!+8,\$0\$2*\%47+(!_aT9!)\%-8\%(\%!+8,\$0\$2*\%47+(!_aT9!)\%-8\%(\%!+8,\$0\$2*\%47+(!_aT9!)\%-8\%(\%!+8,\$0\$2*\%47+(!_aT9!)\%-8\%(\%!+8,\$0\$2*\%47+(!_aT9!)\%-8\%(\%!+8,\$0\$2*\%47+(!_aT9!)\%-8\%(\%!+8,\$0\$2*\%47+(!_aT9!)\%-8\%(\%!+8,\$0\$2*\%47+(!_aT9!)\%-8\%(\%!+8,\$0\$2*\%47+(!_aT9!)\%-8\%(\%!+8,\$0\$2*\%47+(!_aT9!)\%-8\%(\%!+8,\$0\$2*\%47+(!_aT9!)\%-8\%(\%!+8,\$0\$2*\%47+(!_aT9!)\%-8\%(\%!+8,\$0\$2*\%47+(!_aT9!)\%-8\%(\%!+8,\$0\$2*\%47+(!_aT9!)\%-8\%(\%!+8,\$0\$2*\%47+(!_aT9!)\%-8\%(\%!+8,\$0\$2*\%47+(!_aT9!)\%-8\%(\%!+8,\$0\$2*\%47+(!_aT9!)\%-8\%(\%!+8,\$0\$2*\%47+(!_aT9!)\%-8\%(\%!+8,\$0\$2*\%47+(!_aT9!)\%-8\%(\%!+8,\$0\$2*\%47+(!_aT9!)\%-8\%(\%!+8,\$0\$2*\%47+(!_aT9!)\%-8\%(\%!+8,\$0*2*\%47+(!_aT9!)\%-8\%(\%!+8,\$0*2*\%47+(!_aT9!)\%-8\%(\%!+8,\$0*2*\%47+(!_aT9!)\%-8\%(\%!+8,\$0*2*\%47+(!_aT9!)\%-8\%(\%!+8,\$0*2*\%47+(!_aT9!)\%-8\%(\%!+8,\$0*2*\%47+(!_aT9!)\%-8\%(\%!+8,\$0*2*\%47+(!_aT9!)\%-8\%(\%!+8,\$0*2*\%47+(!_aT9!)\%-8\%(\%!+8,\$0*2*\%47+(!_aT9!)\%-8\%(\%!+8,\$0*2*\%47+(!_aT9!)\%-8\%(\%!+8,\$0*2*\%47+(!_aT9!)\%-8\%(\%!+8,\$0*2*\%47+(!_aT9!)\%-8\%(\%!+8,\$0*2*\%47+(!_aT9!)\%-8\%(\%!+8,\$0*2*\%47+(!_aT9!)\%-8\%(\%!+8,\$0*2*\%47+(!_aT9!)\%-8\%(\%!+8,\$0*2*\%47+(!_aT9!)\%-8\%(\%!+8,\$0*2*\%47+(!_aT9!)\%-8\%(\%!+8,\$0*2*\%47+(!_aT9!)\%-8\%(\%!+8,\$0*2*\%47+(!_aT9!)\%-8\%(\%!+8,\$0*2*\%47+(!_aT9!)\%-8\%(\%!+8,\$0*2*\%47+(!_aT9!)\%-8\%(\%!+8,\$0*2*\%47+(!_aT9!)\%-8\%(\%!+8,\$0*2*\%47+(!_aT9!)\%-8\%(\%!+8,\$0*2*\%47+(!_aT9!)\%-8\%(\%!+8,\$0*2*\%47+(!_aT9!)\%-8\%(\%!+8,\$0*2*\%47+(!_aT9!)\%-8\%(\%!+8,\$0*2*\%47+(!_aT9!)\%-8\%(\%!+8,\$0*2*\%47+(!_aT9!)\%-8\%(\%!+8,\$0*2*\%47+(!_aT9!)\%-8\%(\%!+8,\$0*2*\%47+(!_aT9!)\%-8\%(\%!+8,\$0*2*\%47+(!_aT9!)\%-8\%(\%!+8,\$0*2*\%47+(!_aT9!)\%-8\%(\%!+8,\$0*2*\%47+(!_aT9!)\%-8\%(\%!+8,\$0*2*\%47+(!_aT9!)\%-8\%(\%!+8,\$0*2*\%47+(!_aT9!)\%-8\%(\%!+8,\$0*2*\%47+(!_aT9!)\%-8\%(\%!+8,\$0*2*\%47+(!_aT9!)\%-8\%(\%!+8,\$0*2*\%47+(!_aT9!)\%-8\%(\%!+8,\$0*2*\%47+(!_aT9!)\%-8\%(\%!+8,\$0*2*\%47+(!_aT9!)\%-8\%(\%!+8,\$0*2*\%47+(!_aT9!)\%-8\%(\%!+8,\$0*2*\%47+(!_aT9!)\%-8\%(!_aT9!)\%-8\%(!_aT9!)\%-8\%(!_aT9!)\%-8\%(!_aT9!)\%-8\%(!_aT9!)\%-8\%(!_aT9!)\%(!_aT9!)\%-8\%(!_aT
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 \%\&()0 \$+!!'+,0(-\&\#0+\%,'1\&\%\$'\#'0\&\#,)\#30+\%,'3\%)0)'2(\&)2(30+4(
18&)$!'/2)*8,1!8'!%!*)8(8*%4!'()%($18*!:2$'(8/,!./)!%44!'%?0844'!%,-!+24+0844'9!&2(!(#$!-$1)$$!/.!'2++47!
8,($1)%(8/,!(#)/21#!4/,1b($)0!*/,()%*(!'%,-!./)$'(!/?,$)'#8+!6%)8$'!?8-$475!"#$!+2)+/'$!/.!(#8'!
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*%($1/)8$'\\!()\%, '\%*(8/,!.)\$:2\$, *79! 0\%)>$(!2, *\$)(\%8, (79!\%, -!\%''\$(!'+\$\*8.8\$)(75!\B, (\$)6\$\$?'!?\8(\#!6\%)\8/2'!
8, -2'()7!)$+)$'$,(%86$'!'211$'($-!(#%(!.%*(/)'!.)/0!%4!(#)$$!*%($1/)8$'!%)$!)$4$6%,(!(/!(#$!:2$'(8/,!/.!
./)$'(b 0 844!8, ($1)%(8/,5!
H!'2)6$7!?%'!*/,-2*($-!/.!0844'!8,!L$?!f$%4%,-!%,-!3?$-$,9!+)/68-8,1!-%(%!/,!(#$8)!'2++47!08=!%,-!
6%)8/2'!"FK!.%*(/)'5!P.!%,!$'(80%($-!+/+24%(8/,!/.!%++)/=80%($47!aRS!0844'9!\[`!0844'!?$)$!'%0+4$-!
%,-!dd!)$'+/,-$-!(/!(#$!'2)6$75! I)%*(8/,%4!4/18*! O /-$4'! ?$)$!-$6$4/+$-!(/!$=+4/)$!(#$!.%*(/)'!(#%(!
0 %7!8, .42$, *$!(#$!8, ($1)%(8/,!-$*8'8/,5!
F/, '8-$)%&4$!$68-$, *$!?%'!./2, -!./)!(#$!80+/)(%, *$!/.!"FK!.%*(/)'!8,!-)868, 1!.8&)$!'2++47!8, ($1)%(8/.5!
"#$!$68-$, *$!?%'!'()/,1$'(!./)!.%*(/)'!)$4%($-!(/!%''$(!'+$*8.8*8(79!8, *42-8,1!./)$'(!/?,$)!*/,*$,()%(8/,!
%, -!(#$!'+$*8.8*8(7!/.!%!084C'!.8&)$!)$:28)$O$,('5!")%, '%*(8/,!.)$:2$, *7!%++$%)'!4$''!8O+/)(%,(Y!?#84$!
8,($1)%(8/,!?%'!./2,-!(/!&$!'81,8.8*%,(47!%'''/*8%($-!?8(#!(#$!,20&$)!/.!0844'!%,!/)1%,8X%(8/,!#%'!?8(#8,!
(#$!'2++47!&%'8,9!(#$!8,.42$,*$!/.!0844!*%+%*8(7!?%'!./2,-!(/!6%)75!"#$)$!?%'!?$%>!$68-$,*$!./)!(#$!
80+/)(\%, *\$!/.!2, *\$)(\%8, (79!\%, -!+\$)\#\%+'!/, 47!(\#)/21\#!(\#\$!80+\%*(!/.!./)\$'(!/?,\$)!*/, *\$, ()%(8/,!/,!)
0\%)>\$(!*/, -2*(5!)
B,($1)%(8/,!?%'!./2,-!'81,8.8*%,(47!#81#$)!./)!+24+0844'!(#%,!'%?0844'9!%,-!#81#$)!8,!3?$-$,!(#%,!8,!
L$ ?!f$%4%, -5!"#$!4%(($)!)$'24(!8'!-8..8*24(!(/!$=+4%8,!&7!"FK!(#$/)79!%, -!'211$'('!(#%(!, /, b"FK!.%*(/)'!
+4\%7!\%! '81,8.8*%,(!)/4$5!32)6$7!)$'+/,'$'!%4'/!8,-8*%($-!(#%(!,/,b"FK!.%*(/)'!%)$!80+/)(%,(5!12)(#$)!
)$'$%)*#!8'!)$:28)$-!(/!$,4%)1$!(#$!'%O+4$!'8X$!%,-!&$(($)!2,-$)'(%,-!(#$!)/4$!/.!"FK!.%*(/)'!8,!./)$'(b
0.844!8,(\$1)\%(8/.5!
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(4(!%2+,-'4%!*$('#,/'0#2(&'(9*#0+%,)'1%&' '+,' #%)
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<%(%!2'\$-!8,!(#8'!'(2-7!*% 0\$!.)/ 0!e[!()\$\$'5!")\$\$'!?\$)\$!+2)+/'\$47!'\$4\$*(\$-!(/!\$,'2)\$!*/6\$)%1\$!/.!%!.244!
)%,1\$!/.!()\$\$!'8X\$'5!A\$%'2)\$0\$,(!?%'!2,-\$)(%>\$,!/,47!/,!/6\$)b&%)>!-8%0\$(\$)'!-2\$!(/!'/0\$!*/,'()%8,('9!
4808(%(8/,'!%,-!+)/&4\$0'!-2)8,1!(#\$!.8\$4-!-%(%!*/44\$*(8/,5!Z/?\$6\$)9!-2\$!(/!(#\$!80+/)(%,*\$!/.!2,-\$)b
&%)>!6/420\$!./)!(#8'!'+\$*8\$'9!%!'0%44!%6%84%&4\$!-%(%'\$(!?%'!2'\$-!(/!&284-!%!&%)>!0/-\$4!%'!%,!8,(\$)80!

 $128 - \$!(/!(\#\$!\$))/)'!\%''/*8\%(\$-!?8(\#!2'8,1!/6\$)b\&\%)>!0/-\$4'!./)!\$'(80\%(8,1!2,-\$)b\&\%)>!6/420\$'5!1)/0! \\ (\#8'!\&\%)>!0/-\$49!\$))/)'!8,!\$'(80\%(8,1!2,-\$)b\&\%)>!6/420\$'!/.!()\$\$'!?8(\#!-8\%0\$(\$)'!\%(!\&)\$\%'(!\#\$81\#(!\&\$(?\$\$,!\S*0!\%,-!\e!*0!?\$)\$!\%++)/=80\%(\$47!\dT5!!)$

L8, \$(\$, !8, -868-2%! 6/42 0\$! 0/-\$4'9!%, -!e!8, -868-2%! (%+\$)! . 2, *(8/, '! ?\$)!*/0+%)\$-!./)! &8%'!%, -!e!8, -868-2%! (%+\$)! . 2, *(8/, '! ?\$)!*/0+%)\$-!./)! &8%'!%, -!e!8, -868-2%! (%+\$)! . 2, *(8/, '! ?\$)!*/0+%)\$-!./)! &8%'!%, -!e!8, -868-2%! (%+\$)! . 2, *(8/, '! ?\$)!*/0+%)\$-!./)! &8%'!%, -!e!8, -868-2%! (%+\$)! . 2, *(8/, '! ?\$)!*/0+%)\$-1./2&4\$b\$, ()79! -/2&4\$b\$, ()79! -/2

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*(!'3%,)*$20+%,'%1'0+$.(&'5#&4()0+,-')8)0($)'+,' (7' (#!#,/
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I2\$4!8'!%! O %0/)!*/'(!8,!4/118,1!%,-!8'!%4'/!)\$48\$-!/,!&7!4/118,1!*/,()%*(/)'!8,!L\$?!f\$%4%,-!(/!%-02'(!2,8(!4/118,1!))%(\$'!8,!-/44%)'!+\$)!*2&8*!O\$()\$'!J^0OO! "#\$)\$!8'!#/?\$6\$)9!,/!&\$,*#O%)>!/,!.2\$4!*/,'2O+(8/,!)%(\$'!8,!48()\$!+\$)!*2&8*!O\$()\$'!J40O

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E, -\$)!(#\$!N\$'/2)*\$! A%, %1\$ O\$, (!H*(!\]]\9!(#\$!8, (\$)+)\$(%(8/,!%, -!8 O +4\$ O\$, (%(8/,!/.!\$, 68)/, O\$, (%4! +/48*7!8'!+)8 O %)847!(#\$!)\$'+/, '8&848(7!/.!4/*%4!1/6\$), O\$, (5!"#\$!0%, %1\$ O\$, (!/.!./)\$'()7!/+\$)%(8/, '!0%7! &\$!8, .42\$, *\$-!68%!(?/!?)8((\$,!0\$%, '\\"!'(\(2(/)7!)24\$'!+2&48'\#\$-!8,!)\$18/, \%4!\%, -!-8'()8*(!+4%, '9!\%, -!)\$*/O O\$, -\$-!&\$'(!0%, \%1\$ O\$, (!+\)*(8*\$'!JDA; '\(0!+2&48'\#\$-!8,!)\$18/, \%4!\%, -!*(9!\%, *5!"\#\$)\$!\%)\$!*/, *\$), '!(\(4!\%, */, '8'(\$, *7!&\$(?\$\$, !\(2)8'-8*(8/, '0!)\$124\(8/, '!\#\6\$)\)\, 18(\(65\)\, 18(0+\)*(!/, !(\(#\$!./)\$'()7!\)\, -2'()7\)\\\(4!\)\, 8, (\(5)\)\, 18/\(4!\)\

"#8'!)\$'\$%)*#!#%'!8,6\$'(81%(\$-!%,-!:2%,(8.8\$-!(#\$!6%)8%(8/,!8,!;\$)08((\$-!H*(868(7!)24\$'!%,-!DA;'!&\$(?\$\$,!(#\$!'8=(\$\$,!N\$18/,%4!F/2,*84'!/.!L\$?!f\$%4%,-9!?8(#!%!./*2'!/,!*246\$)(!8,'(%44%(8/,!%,-!\$%)(#?/)>'5!"#8'!)\$'\$%)*#!:2%,(8.8\$-!6%)8%(8/,!/,!&/(#!%!,%(8/,%4!'*%4\$!%,-!&\$(?\$\$,!,\$81#&/2)8,1!*/2,*84'5!H!+\$\$)!)\$68\$?!\$=\$)*8'\$!?%'!*%))8\$-!/2(!(/!(\$'(!(#\$!+/''8&4\$!'2&@\$*(868(7!/.!)\$'24('9!%,-!./2,-!#%(!%,!\$=+\$)(!+%,\$4!4%)1\$47!%1)\$\$-!?8(#!(#\$!)\$'24('!+)/-2*\$-5!

B(!#%'!&\$\$,!./2,-!(#%(!(#\$)\$!8'!'81,8.8*%,(!6%)8%(8/,!8,!(#\$'\$!)\$18/,%4!)24\$'!%,-!DA;'5!M%)8%(8/,!8,!&/(#!

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8, (/!*/, '8-$)%(8/, 5!<$6$4/+8, 1!(#$!/6$)%44!.)% O$?/)>!?8(#8,!K=*$4!%44/?'!$%'7!%,%47'8'!/.!(#$!)$'24('!%,-!*#%,1$'!(/!(#$!2,-$)478,1!%''20+(8/,'5!!)!

P++/)(2,8(7!*/'('!0%>$!2+!%!4%)1$!+)/+/)(8/,!/.!(#$!(/(%4!*/'(!/.!-$486$)7!./)!(#$!*#8+4/19!'%?-2'(9!%%)>!%,-!*#8+!&8/O%''!%,-!,$$-!(/!&$!8,*42-$-!8,!%,7!$'(80%($!/.!*/'(!./)!(#$'$!&8/O%''!'()$% O'5!"#$!4/18'(8*!'7'($0!*#/'$,!./)!*/44$*(8,1!%,-!*#8++8,1!(#$!./)$'(!)$'8-2$'!#%'!%!4%)1$!80+%*(!/,!(#$8)!-$486$)$-!*/'(!%'!-/!(#$!()%,'+/)(!*/'(5!Z/?$6$)!()%,'+/)(!*/'(!8'!,/(!(#$!0/'(!81,8.8*%,(!8,.42$,*$!/!(#$!-$486$)$-!*/'(!/.!/(#$)!&8/O%''!)$% O5!"#$!2'$!/.!&8/O%''!./)!$4$*()8*8(7!1$,$)%(8/,!/,47!8'!,/(!*2))$,(47!$*/,/08*!8.!*/0+%)$-!(/!(#$!$4$*()8*8(7!+2)*#%'$!+)8*$5!

***O5' %(0"
0#, %& '#)' #' /#0#' )%*&3(' 1%&' 1%&()0' $#,#-($(,0' #' 1%&()0')0#,/'&(3%,3*!+#0+%,'+$2!($(,0#0+%,'3#)(')0*/8
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"#\$! L\$?! f\$%4%, -!./)\$'(!8, -2'()7!8'!8,!%!'(%(\$!/.!*#%,1\$!.)/0!0/()b0%, 2%4!*#%8, '% ?!+)/*\$''8, 1! (/?%)-'!.2447!0\$*#%,8'\$-!#%)6\$'(8,1!/+\$)%(8/, '5!"#8'!8'!-)86\$,!+)\$-/08,%(\$47!&7!*#%,1\$'!8,!(#\$!#\$%4(#!%,-!'%.\$(7!4\$18'4%(8/,!%,-!8,*)\$%'\$-!\$..8*8\$,*7! (%)1\$('5!"#)/21#! (#\$! 2'\$!/.!%-6%,*\$!#%)6\$'(8,1!0%*#8,\$)7!?8(#!&284(!8,!*/0+2(\$)!'7'(\$0'!%,-!'(%,-%)-8'\$-!*/0+%(8&4\$!-%(%!*/44\$*(8/,!'/.(?%)\$!J**44\$-!3(%,I/)<0!%44!0\$*#%,8'\$-!+)/*\$''8,1!/+\$)%(8/,'!%)\$!%&4\$!(/!+)/-2*\$!,\$%)!)\$%4b(80\$!+)/-2*(8/,!-%(%5!"#8'!-%(%!'()\$%0!\$,%&4\$'!./)\$'(!0%,%1\$0\$,(!(/!?/)>!?8(#!-%(%'\$('!*/,6%8,8,1!-\$(%84\$-!8,./)0%(8/,!/.!%4!#%)0\$'(8,1!+)/-2*(8/,5!3(%,I/)<!-%(%!?844!(#\$)\$./)\$!\$,%&4\$!(#\$!-\$6\$4/+0\$,(!/.!,\$?!?%7'!/.!./)\$'(!0%,%1\$0\$,(5!!

"#\$!'(2-7!/&0\$*(86\$!?%'!(/!)\$'\$%)*#!(#\$!2'\$!/.!3(%, I/)<!-%(%!8, !%!./)\$'(!'(%, -!)\$*/,*848%(8/,!'*\$,%)8/5! 3(%, I/)<!+)/-2*(8/,!6/420\$'!?\$)\$!*/0+%)\$-!%1%8, '(!%!?\$81#(!-/*>\$(8, 1!'7'(\$0!%, -!8, 6\$, (/)7!78\$4-!+)\$-8*(8/, '!/,!./2)!#%)6\$'(8, 1!'8(\$'5!"#\$'\$!'(2-8\$'!?\$)\$!*/, -2*(\$-!8, !%!*4\$%).\$44!#%)6\$'(8, 1!*)\$?!?8(#!%, !\$=+\$)8\$, *\$-!#%)6\$'(\$)!/+\$)%(/)!/6\$)!(#\$!-2)%(8/,!/.!%++)/=80%(\$47!/,\$!7\$%)5!!

"#\$!-%(%!*/44\$*(8/,!8,*42-\$-!%4!)\$4\$6%,(!+)/-2*(8/,!.84\$'!.)/0!(#\$!#%)6\$'(\$)!!5; NB!J+)/-2*(8/,!-%(%0!H;"!J#%)6\$'(\$)!*2((8,1!8,'()2*(8/,0!%,-!o"N!J#%)6\$'(\$)!#\$%-!*%48&)%(8/,!-%(%0!.84\$'5!"#\$!./)\$'(!0%,%1\$0\$,(!*/0+%,7!'2++48\$-!4/%-!-\$486\$)7!-/*>\$('9!*/,6\$)'8/,!.%*(/)'!%,¬!8,6\$,(/)7!-%(%!"#\$!.8,6\$,(/)7!-%(%!?%'!+)/*\$''\$-!(/!\$'(80%(\$!(#\$!78\$4-'!/.!(#\$!#%)6\$'(\$-!'(%,-'5!;GK 'J+!^!S5SRQ!&/2,-%)8\$'!.87!1)%-\$!1)/2+!%,-!(/(%4!6/420\$!?\$)\$!*%4*24%(\$-5!"#\$!\$'(80%(\$-!78\$4-'!?8(#!8('!;GK!&/2,-%)8\$'!?\$)\$!.*/0+%)\$-|%11%,'(!(#\$!6/420\$!)\$*/)-\$-!&7!(#\$!#%)6\$'(\$)!%,-!(#\$!-%(%!)\$()8\$6\$-!68%!(#\$!-/*>\$(8,1!'7'(\$05!!

"#\$!)\$'24('!'#/?!(#\$!#%)6\$'(\$)!-%(%9!?#\$,!*/O+%)\$-!?8(#!(#\$!8,6\$,(/)7!-%(%9!?%'!?8(#8,!(#\$!;GK!48O8('!./)!'\$6\$,!/2(!/.!\R!1)%-\$!1)/2+'5!3O%44!2(848(7!?%'!(#\$!/,47!1)%-\$!*/))\$*(47!+)\$-8*(\$-!%(!%44!'8(\$'5!;24+!?//-!#%',C(!&\$\$,!+)\$-8*(\$-!*/))\$*(47!%(!%,7!'8(\$!8,!*/O+%)8'/,!(/!(#\$!#%)6\$'(\$)!-%(%5!"#\$!-/*>\$(!-%(%!?%'!./)!.86\$!/2(!/.!\R!1)%-\$!1)/2+'!?8(#8,!(#\$!;GK!48O8('5!1/)!(#\$!(/(%4!6/42O\$!(#\$!#%)6\$'(\$)!-%(%!?%'!

\$'+\$*8%447!./)!%'+\$*('!'2*#!%'!)\$*/,*848%(8/,5! A/)\$!\$0+#%'8'!/,!/+\$)%(/)!()%8,8,1!/,!(#\$!#%)6\$'(\$)!
/0+2(\$)'!'7'(\$0'!8'!48>\$47!(/!8,)\$%'\$!(#\$!-%(%!:2%48(7!*/44\$*(\$-!&7!(#\$!#%)6\$'(\$)5!!

!

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#035(!!' 0*#&0' (#,'
4#!*#0+, -'2&%1+0#.+!+08'%1')%!+/'0+$.(&'2&%/*30+%,'1&%$' '8(#&'%!/'2&*,(/'
#,/'05+,,(/' '#,(' '#+/(,'+,' #,0(&.*&8)
```

"#8'! *%'\$! '(2-7! 8,6\$'(81%(\$-!+)/.8(%&848(7! /.!%! '0%4! '(%.-!/.! %'(b1)/?.!>50"#245*&6\$416*&8.! F%, (\$)&2)7!./!'%?, !(80&\$)!+)/-2*(8/,5!"#8'!'(%,-!?%'!+)2,\$-!%,-!(#8,,\$-!%,-!(#\$,!#%)6\$'(\$-!%(!\R! 7%)'!4-5!H, \$(80%(\$!/.!+\$)b#\$*(%)\$!4/1!78\$4-'!%, -!-8%0\$(\$)'!?%'!0%-\$!.)/0!(#\$!'(%, -5!3%0+4\$!4/1'!)?\$\\$!'\%?,9!-\8\$-!\%,-!+\/.84\$-9!(#\$,,!+\)/-2*('!:2\%,(8.8\$-5!G/1!+\)8*\$'!?\$\\$!\\$'(80\%(\$-!2'8,1!(#\$!)\\$'8-2\%4! 6%42\$!0\$(#/-5!;)8*\$'!?\$)\$!'200\$-!./)!'%?,!+)/-2*('!.)/0!\$%*#!4/19!.)/0!?#8*#!+)/*\$''8,1!\$=+\$,'\$'! %, -!'%? 0844!+)/.8(!?\$)\$!-\$-2*(\$-!./)!%, !\$'(80%(\$!/.14/1!6%42\$5!B, !(#\$!%&'\$, *\$!/.!0%)>\$(!+)8*\$'!./)!'%?,! 0/-\$4'!?\$)\$!+)/-2*\$-!.)/0!\$'(80%(\$-!'(%,-!4/1!78\$4-'!%4/,1!?8(#!+)\$-8*(\$-!+)/-2*(!)\$6\$,2\$'!%,-!.)/0!(#\$!*%'\$!'(2-7!'(%,-!()\$\$'5!18,%,*8%4!)\$(2),'!(/!(#\$!1)/?\$)!?\$)\$!(#\$,*%4*24%(\$-!%'!-8'*/2,(\$-! *%'#!.4/?'!.)/0!(#\$!\$'(80%(\$-!4/1!)\$'8-2%4!6%42\$'!+\$)!#\$*(%)\$9!(%>8,1!8,(/!%**/2,(!1)/?\$)!*/'('!%4/,1! ?8(#! #%)6\$'(8, 1! %, -! ()%, '+/)(! */'('5! D\$'(b+)%*(8*\$! +)/*\$''8, 1! O\$(#/-'! ?\$)\$! 8-\$,(8.8\$-! .)/O! (#\$! 48(\$)%(2)\$! %, -! %++48\$-! %'! %! +)/-2*(868(7! &\$, *#0 %)>5! **A**\$(#/-'! ?\$)\$! -\$6\$4/+\$-! ?8(#! (#\$! 68\$?! (/! '(%, -%)-8'8, 1!-%(%!%*)/''!)\$'\$%)*#!\$../)('!(#%!'\\$\$>!(/!80+)/6\$!1)%-\$!)\$*/6\$)8\$'!./)!>,\66\816*5!H!)%, 1\$! /.!.%*(/)'!?\$)\$!8.6\$'(81%(\$-!(#%(!+/(\$.(8%447!8..42\$.*\$-!>.\d6\subseteq 10.\subseteq 11.\subseteq 11.\subsete 8,*42-8,1!4/1!-8% 0 \$(\$)! %,-!4/1!+/'8(8/,5! P2(*/0 \$'! 8,*42-\$-! %!)\$%'/,%&47!.%6/2)%&4\$!)\$(2),!/,! 8,6\$'(0\$,(!./)!(#\$!1)/?\$)5!Z/?\$6\$)9!(#8'!-\$+\$,-\$-!/,!%!,20&\$)!/.!.%*(/)'!'2*#!%'!4%,-!+)8*\$9!-8'(%,*\$! .)/0!+)/*\$''/9!+)/-2*(!+)8*\$'9!1)%-8,1!0\$(#/-'9!-)78,1!0\$(#/-'!%,-!4\$6\$4!/.!'%?0844!+)/.8(5!"#\$! %++48*%(8/,!/.!*/,(\$O+/)%)7!&\$'(!+)%*(8*\$!'O%44b'*%4\$!+)/*\$''8,1!O\$(#/-'!8,-8*%(\$'!(#%(!>,&6\$416*&#%'! +/(\$,(8%4!%'!%!+)/.8(%&4\$!+4%,(%(8/,!'+\$*8\$'!./)!'/48-!(80&\$)!+)/-2*(8/,5!!

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#*', /+' /&+#, #' (' (, &+' '

*#, 0+18+, -' 1%&()0' /(-&#/#0+%,' #, /' (1%&()0#0+%,' *)+, -' (%-&#25+3'

,1%&$ #0+%,' 8)0($' '#' 3#)(')0*/8'+,' 05('05&(('2&%4+,3()' %*05'

#+!+$#, 0#, '#)0' #!+$#, 0#, '#, /' %*05 (#)0' *!#7()+', /%, ()+#
```

H! 1\$/1)%+#8*! 8,./) 0%(8/,! '7'(\$ 0! JUB30! ?%'! 2'\$-! (/! 1\$,\$)%(\$! 1\$/1)%+#8*! -%(%'\$('! (/! %44/?! :2%,(8.8*%(8/,Y!%**/0+%,8\$-!&7!%!-\$'*)8+(86\$!'(%(8'(8*%4!%,%47'8'5!G%,-!*/6\$)!8,!_SSS!%,-!_SS]! ?%'! 2'\$-!%'!(#\$!&%'8'!/.!%,%47'8'5!H!,%(8/,%4!4%,-!2'\$!*4%''8.8*%(8/,!?%'!%11)\$1%(\$-!8,(/!\S!-8..\$)\$,(!4%,-!2'\$!*4%''\$'5!F#%,1\$'!8,!4%,-!2'\$!&\$(?\$\$,!_SSS!%,-!_SS]!%44/?\$-!:2%,(8.8*%(8/,!/.!(#\$!)%(\$'!/.!./)\$'(!-\$1)%-%(8/,!%,-!-\$./)\$'(%(8/,!%'!?\$44!%''!/*8%(8/,!&\$(?\$\$,!-\$1)%-%(8/,!%,-!-\$./)\$'(%(8/,!%,-!+\$./)\$'(%(8/,!**))*(**(1,1))*(**(1,1))*(**(1,1))*(**(1,1))*(**(1,1))

 $*2((8,1!)^*,\%)8/'!+)/-2*8,1!.86\$9!,8,\$9!(?\$46\$!\%,-!.8.(\$\$,!4/1!'/)('5!"\#\$!'(2-7!*/44\$*(\$-!-\%(\%!.)/0!/6\$)! \\ - `!#/2)'!/.!0\$*\#\%,8'\$-!+)/*\$''8,1!?\#8*\#!8,*42-\$-!(\#\$!+)/*\$''8,1!/.!Red!'(\$0'!\%(!\%,!\%6\$)\%1\$!+8\$*\$!'8\$!/.!\%++)/=80\%(\$47!\$^*!0[5!A\%*\#8,\$!2(\$48'\%(8/,!)\$'24('!'\#/?\$-!+)/*\$''/)'!'+\$,-8,1!\daT!/.!(/\%4!(\$0\$!?\%'!'+\$,(!/,!(\$!+)\80\%)7!+)/-2*(\$6\$!(\%'>'!/.!\4/1!+)/*\$''8,15!$

x 2%-)%(8*!)\$1)\$''8/,'!?\$)\$!2'\$-!(/!0/-\$4!4/1!+)/*\$''8,1!+)/-2*(868(7!()\$,-'!?#8*#!'#/?\$-!+8\$*\$!'8X\$!
%,-!*2((8,1!'*\$,%)8/!%'!'81,8.8*%,(!+)\$-8*(/)!6%)8%&4\$'!J+b6%42\$!tS5\$\(05!''#\$)\$!?%'!%!'81,8.8*%,(!-8..\$)\$,*\$!&\$(?\$\$,!*2((8,1!'*\$,%)8/!?8(#!.86\$!4/1!'/)('!%,-!(#\$!*2((8,1!'*\$,%)8/'!?8(#!(?\$46\$!%,-!.8.(\$\$,!4/1!'/)('!J+b6%42\$!tS5S\(05!''#\$)\$!?"!*1,4(18.8*%,(!-8..\$)\$,*\$!&\$(?\$\$,!(#\$!,8,\$!%,-!.8.(\$\$,!4/1!'/)(!*2((8,1!'*\$,%)8/'!J+b6%42\$!tS5S\(05!''#\$)\$!?%'!,/(!\$,/21#!\$68-\$,*\$!(/!'211\$'(!+)/-2*(868(7!?%'!-8..\$)\$,(!&\$(?\$\$,!*2((8,1!'*\$,%)8/'!+)/-2*8,1!.86\$!%,-!,8,\$!4/1!'/)('5!D%'\$-!/,!(#8'!%,%47'8'9!8(!?%'!48>\$47!(#%(!(#\$!,244!#7+/(#\$'8'!(#\$!,20&\$)!/.!4/1!'/)('!-/\$'!,/(!%..\$*(!4/1!+)/*\$''8,1!+)/-2*(868(7!?%'!\\$T!))\$\$(\$*(5:14)(!*1+)/*\$'*8,1!+)/-2*(868(7!?%'!\\$T!)\$\$(\$*(5:14)(!*1+)/*\$'*8,1!+)/-2*(868(7!?%'!\\$T!))\$\$(\$*(5:14)(!*1+)/*\$'*8,1!+)/-2*(868(7!?%'!\\$T!)\$\$(\$*(11)(!*1+)/*\$'*8,1!+)/-2*(868(7!?%'!\\$T!))\$\$(\$*(11)(!*1+)/*\$'*8,1!+)/-2*(868(7!?%'!\\$T!))\$\$(\$*(11)(!*1+)/*\$'*8,1!+)/-2*(868(7!?%'!\\$T!))\$\$(\$*(11)(!*1+)/**1,8)**1.8.(\$\$,14/1!'/)('5!)\$\$\$(\$*(11)(!*1+)/*1,8)**1.8.(\$\$,14/1!'/)('5!)\$\$\$(\$*(11)(!*1+)/*1,8)**1.8.(\$\$,14/1!'/)('5!)\$\$\$(\$*(11)(!*1+)/*1,8)**1.8.(\$\$,14/1!'/)('5!)\$\$\$(\$*(11)(!*1+)/*1,8)**1.8.(\$\$,14/1!'/)('5!)\$\$\$(\$*(11)(!*1+)/*1,8)**1.8.(\$\$,14/1!'/)('5!)\$\$\$\$(\$*(11)(!*1+)/*1,8)**1.8.(\$\$,14/1!'/)('5!)\$\$\$\$(\$*(11)(!*1+)/*1,8)**1.8.(\$\$,14/1!'/)('5!)\$\$\$\$(\$*(11)(!*1+)/*1,8)**1.8.(\$\$,14/1!'/)('5!)\$\$\$\$(\$*(11)(!*1+)/1,8)**1.8.(\$\$,14/1!'/)('5!)\$\$\$\$(\$*(11)(!*1+)/1,8)**1.8.(\$\$,14/1!'/)('5!)\$\$\$\$(\$*(11)(!*1+)/1,8)**1.8.(\$\$,14/1!'/)('5!)\$\$\$\$(\$*(11)(!*1+)/1,8)**1.8.(\$\$,14/1!'/)('5!)\$\$\$\$(\$*(11)(!*1+)/1,8)**1.8.(\$\$,14/1!'/)('5!)\$\$\$\$\$(\$*(11)(!*1+)/1,8)**1.8.(\$\$,14/1!'/)('5!)\$\$\$\$\$(\$*(11)(!*1+)/1,8)**1.8.(\$\$,14/1!'/)('5!)\$\$\$\$\$(\$*(11)(!*1+)/1,8)**1.8.(\$\$,14/1!'/)('5!)(**(11)(!*1+)/1,8)**1.8.(\$\$,14/1!'/)('5!)(**(11)(!*1+)/1,8)**1.8.(\$\$,14/1!'/)('5!)(**(11)(!*1+)/1,8)**1.8.(\$\$,14/1!'/)('5!)(**(11)(!*1+)/1,8)**1.8.(\$\$,14/1!'/)('5!)(**(11)(!*1+)/1,8)**1.8.(\$\$,14/1!'/)('5!)(**(11)(!*1+)/1,8)**1.8.(\$\$,14/1!'/)('5!)(**(11)(!*1+)/1,8)**1.8.(\$\$,

 $N\$1)\$''8/, !()\$, -'!./)!+)/-2*(868(7!\%, -!1)/''!6\%42\$!)\$*/6\$)7!8, -8*\%(\$-!(\#\%(!(\#\$!\ 0\ /'(!/+(8\ 0\ \%!^2((8\ 1!'*\$,\%)8/9!8\,,!(\$)\ 0\ '!/.!+)/*\$''8\,, 1!6\%42\$!/2((2)\,,!+\$)!+)/-2*(86\$!\ 0\ \%*\#8\,,\$!\#/2)9!\ ?\%'!(\#\$!*2((8\ 1!'*\$,\%)8/!+)/-2*8\,, 1!\,, 8\,,\$!4/1!'/)('5!''#8'!'211\$'('!(\#\%(!-\$*48\,,\$'!8\,,!+)/*\$''/)!+)/-2*(868(7!\%,\%47'8'!'211\$'(\$,!1)/''!6\%42\$!)\$*/6\$)7!?\#\$\,,!+)/-2*8\,, 1!(?\$46\$!\%\,, -!.8.(\$\$\,,!4/1!'/)('5!A\%)>\$(!'\$\,, '8(868(7!\%\,,\%47'8'!'211\$'(\$-!(\#\%(!-8..\$)\$\,,(8\%4'!8\,,!4/1!+)/8*\$'!80+\%*(!/\,,!(\#\$!\,,20\&\$)!/.!4/1!'/)('!?\#8*\#!/+(808'\$!(\#\$!\,6\%42\$!/2((2)\,,!+\$)!+)/-2*(86\$!\,0\%*\#8\,,\$!\#/2)!.)/0!4/1!+)/*\$''8\,,15!$

#-5%&,' #005(7''

 $P2(\$)?//-!APK!?\%'!'81,8.8\%,(47!JBtS5SSS\setminus0!8,.42\$,*\$-!\&7!'(\%,-!'+\%*8,1!\%,-!\&)\$\$-9!\&2(!,/(!(\#\$8)!8,(\$)\%*(8/, IJBcS5SR05!APK!'*\%4\$-!+/'8(86\$47!?8(#!'(\%,-!'+\%*8,15!APK!8,*)\$\%'\$-!\&7![]T!.)/0!R5a!U;\%!\%(!_S]!'(\$0'!#\%'!(!_RR\!'(\$0'!#\%'5!"#\%!0\%!/8(7!/.!(#\%'!8,*)\$\'$!J[[TQ!/**2))\$-!&$(?\$,!$

 $'+\%)>'!?\%'![eT!AF!!\#/(!0\$(\%49!?8(\#!\%!?8,-!'+\$\$-!/.!_!00'!\%,-!AF!/.!\ T9!?\%'![]d"F!\#/(!0\$(\%4!(\$0+\$)\%(2)\$Y!\%,-!*\%)\&/,!\$08''8/,'!?\%'!`RT!AF5!$

!

"#\$!)\$'24('!)\$+)\$'\$,(!%!'81,8.8*%,(!*/,()8&2(8/,!(/!>,/?4\$-1\$!/.!(#\$!81,8(8/,!&\$#%68/2)!/.!1)%''4%,-!.2\$4'5! I2)(#\$)!)\$'\$%)*#!8'!)\$:28)\$-!(/!6\$)8.7!%,-!\$=(\$,-!(#\$!)\$'24('Y!&2(9!8,8(8%4!.8,-8,1'!+)/68-\$!%!'*8\$,(8.8*!&%'8'!./)!0%,%1\$0\$,(9!8,6\$'(81%(8/,'!/.!?84-.8)\$!*%2'\$'9!%,-!-\$*8'8/,'!%)/2,-!*/,()/4'!/,!)\$*)\$%(8/,%4!%*(868(8\$'!(/!+)/(\$*(!#81#47!'\$,'8(86\$!\$*/'7'(\$0'!%,-!,%(2)%4!%)\$%'!.)/0!-%0%18,1!?84-.8)\$'5#

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(6()#' ,,(' '
)+,-' '0%'#))())'05('2%0(,0+#!'%1'3&%2'&()+/*()'1%&'(,(&-8'-(,(&#0+%,'+,'(,8#
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 $F)/+!)\$'8-2\$'!*\%, !0\%>\$!\%!'81,8.8*\%, (!*/,()8&2(8/,!(/!(#\$!\$,\$)17!'\$*(/)!8,!o\$,7\%5!''#\$!+2)+/'\$!/.!(#8'!'2-7!?\%'!(/!8-\$,(8.7!(#\$!\%6\%84\%&848(7!\%,-!'+\%(8\%4!-8'()8&2(8/,!/.!*)/+!)\$'8-2\$'!\%,-!(#$8)!\$,\$)17!+/(\$,(8\%4!-8'()8&2(8/,!/.!*)/+!)\$'8-2\$'!\%,-!(#$8)!\$,\$)17!+/(\$,(8\%4!-8'()8&2(8/,!/.!*)/+!)\$'8-2\$'!\%,-!(#$8)!\$,\$)17!+/(\$,(8\%4!-8'()8&2(8/,!/.!*)/+!)\$'8-2\$'!\%,-!(#$8)!\$,\$)17!+/(\$,(8\%4!-8'()8&2(8/,!/.!*)/+!)\$'8-2\$'!\%,-!(#$8)!\$,\$\)$

"#\$! 0 \$% ,!4\$6\$4'!/.!-% 0 %1\$! ? \$)\$!*/ 0 +%)\$-!&?!'+\$*8\$'9!% ,-!8(! ? %'!\$'(%&48'#\$-!(#%(!(#\$!-% 0 %1\$!4\$6\$4'! %)\$!'81 ,8.8*% ,(47!-8..\$)\$,(9! ? 8(#!</214%'b.8)!\$=#8&8(8 ,1!#81#\$)!&)/>\$,!#\$81#('9!4/ ? \$)!+)/+/)(8/ ,!/.!()\$\$'! -% 0 %1\$-9!% ,-!4/ ? \$)!+)/+/)(8/ ,'!/.!()\$\$'!%486\$!(#% ,!)%-8%(%!+8 ,55!

 $\% + +48\$ - !(/!(\#\$!\ 0\ \$\%'\ 2)\$ - ! - \%(\%!(/!\$'(80\%(\$!\ \$\%)\&/\ ,!\$ = +)\$''\$ - !\%'!\ FP\ !\$: 286\%4\$\ ,('5! < \%(\%!\ \%, \%47'8'!\ ?\%'!) + (\%(\%!\%, \%47'8'!\ ?\%'!))$

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(.&#5' #,+(!'
(&&()0&+#!'+,4(&0(.&#0('#)'#,'+,/+3#0%&'%1'&()0%&#0+%,')*33())'#0' +&%$%#,#'
*)5' (7' (#!#,/
```

"#\$!2'\$!/.!8,6\$)(\$&)%(\$'!%'!&8/b8,-8*%(/)!8,!0/,8(/)8,1!)\$'(/)%(8/,!+)/@\$*(!8'!1)%-2%447!1%8,8,1!%((\$,(8/,!?/)4-?8-\$!5"#\$8)!*/0+/'8(8/,!%,-!-8'()8&2(8/,!8'!%&4\$!(/!8,-8*%(\$!*#%,1\$'!8,!(#\$!\$*/'7'(\$05!B,6\$)(\$&)%(\$!*%,!&\$!2'\$-!%'!%!(//4!(/!0\$%'2)\$!)\$'(/)%(8/,!'2**\$''!-2\$!(/!(#\$8)!%&848(7!(/!-\$(\$*(!'0%4!/*#%,1\$'!8,!8,!(#\$!\$,68)/,0\$,(5!"#8'!'(2-7!?%'!2,-\$)(%>\$,!%(!"8)/0/%,%!D2'#9!L\$?!f\$%4%,-!?8(#!(#\$!

"#\$! 0%8, !+2)+/'\$!/.!(#8'!)\$'\$%)*#!8'!(/!+)/+/'\$!(#\$!'*\$,%)8/'!(/!80+)/6\$!(#\$!/6\$)%44!\$*/, / 08*'!/.! g\$+%)%C'!(\$%>!.2), 8(2)\$!8, -2'()7!%, -!)\$68\$?!(#\$!()\$, -!#7+/(#\$'\$'5!V8(#!%!'2)6\$7!/.!_\\$!.2), 8(2)\$!0%>\$)'!8, !g\$+%)%!%, -!8, b-\$+(#!8, (\$)68\$?'!?8(#!>\$7!+\$)'/, \$4!/.!g\$+%)%C'!(\$%>!.2), 8(2)\$!8, -2'()7!'(%>\$#/4-\$)'9!(#8'!)\$'\$%)*#!'#/?\$-!(#%(!(/(%4!(\$%>!?//-!*/, '20+(8/,!./)!.2), 8(2)\$!)%?!0%(\$)8%4!-\$*)\$%'\$-!.)/0!_S\$e!(/!_\$\\9\\9\\8, -8*%(8, 1!\%!*/))\$'+/, -8, 1!)\$-2*(8/,!8,!(\$\%>!.2), 8(2)\$!+)/-2*(8/,5!"#\$!*/, -8(8/,!\%4'/!?\%'!\%11)\%6\%(\$-!&7!(#\$!.2), 8(2)\$!8, -2'()7!*24(2)\$!/.!2(848'8, 1!0%)>\$(8, 1!8, (\$)0\$-8%)8\$'!8,!(\$\\$8\)!0%)>\$(8, 1!

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#6&\%)+\$, \%6'*3#)''
 )0#.!+)5$(,0' #,/' -&%705' %1' 1%&()0')((/!+,-)' +,' &(-(,(&#0+,-' 1%&()0'
 +&% $ %#, #' *) 5 ' %&0 5' #, 0 (&. *&8
A%,7!7$%)'!/.!*/,'8'($,(!'#$+!%,-!*%((4$!1)%X8,1!#%-!-)%'(8*%447!-$($)8/)%($-!(#$!$*/'7'($O!%,-!
&8/-86$)'8(7!8,!02*#!/.!(#$!F%,($)&2)7!)$18/,5!"#8)($$,!+$)0%,$,(!,%(2)%4!'$$-48,1!)$1$,$)%(8/,!+4/('!
?$\$!$'(%&48'#$-!?8(#8,!"8)/0/%,%!D2'#9!L/)(#!F%,($)&2)75!"#$!%80!/.!(#$!"8)/0/%,%!N$'(/)%(8/,!
;)/@$*(!8'!(/!O/,8(/)!%,-!%''$''!(#$!-7,%O8*'!/.!(#$!,%(86$!./)$'(!)$1$,$)%(8/,!(#%(!O%7!)$'24(!8,!(#$!
)$'(/)%(8/,!/.!%,!$=%0+4$!/.!4/?4%,-!./)$'(!'/!(#%!!$*/'7'($0!%,-!&8/-86$)'8(7!*%,!&$!)$'(/)$-!8,!
(#$!.2(2)$5!
"#$!-%(%!%,%47'8'!?%'!2,-$)(%>$,!(/!$=%08,$!(#$!)$4%(8/,'#8+!&$(?$$,!%!,20&$)!/.!-$+$,-$,(!6%)8%&4$'!
%,-!8,-$+$,-$,(!.%*(/)'5!<$+$,-$,(!6%)8%&4$'!$=%08,$-!?$)$\\!(/(%4!'$$-48,1!-$,'8(7!+)$'$,(!8,!_SSd9!
(/(%4!()$$!'$$-48,1!-$,'8(7!+)$'$,(!8,!_SSd9!%6$)%1$!*#%,1$!8,!#$81#(!/.!()$$!'+$*8$'!'$$-48,1'!&$(?$$,!
_SSe!%,-!_SSd!0$%'2)$0$,('9!+$)*$,(%1$!*#%,1$!8,!#$81#(!/.!()$$!'+$*8$'!'$$-48,1'!&$(?$$,! SSe!%,-!
_SSd9!%, -!-$, '8(7!/.!,$?!'$$-48,1'!(#%(!?$)$!0$%'2)$-!./)!(#$!.8)'(!(80$!8,!_SSd5!I/2)!8,-$+$,-$,(!
6%)8%&4$'!(#%(! ? $)$! 0 $%'2)$-!./)!$%*#!6$1$(%(8/,!0/,8(/)8,1!+4/(!%,-!2'$-!(/!+)$-8*(!(#$!'$$-48,1!
6%)8%&4$'!8,*42-$\!\*\,/+7!/+$,,$''9!'/84!+\Z9!\%'+\$\(\$=+\)\$''\$-!/,!,/)(\(\psi \)/2(\(\psi \)!\)\%-8\$,(\(\gamma \)\\,-\!-8\'(\%,\*\$!
.)/O!+4/('!(/!(#$!+/($,(8%4!'$$-!'/2)*$'9!$=+)$''$-!8,![b+/8,(!'*%4$5!
381,8.8*%,(!*/))$4%(8/,'!J;^$5$R0!/**2))$-!&$(?$$,!()$$!'$$-48,1!-$,'8(7!%,-!-$,'8(7!/.!,$?!'$$-48,1'!
%,-!-8'(%,*$!.)/O!+/($,(8%4!'$$-!'/2)*$'9!%,-!&$(?$$,!+$)*$,(%1$!*#%,1$!8,!()$$!'$$-48,1!#$81#(!%,-!
%'+$*(5!H44!/(#$)!*/))$4%(8/,'!?$)$!./(!'81,8.8*%,(!J;cS5SR05!<$'+8($!-$6$4/+8,1!'81,8.8*%,(!)$1)$''8/,!
0/-$4'!./)!%&/6$!>$7!+)$-%(/)!6%)8%&4$'9!(#$!6%)8%,*$!$=+4%8,$-!8,!(#$!)$1)$''8/,!0/-$4'!?%'!4/?9!
'211$'(8,1!(#%(!(#$!)$4%(8/, '#8+!?%'!,/(!(#%(!'()/,15!"#8'!6$1$(%(8/,!0/,8,1!'(2-7!'#/?$-!(#%(!
0/)$!()$$!'+$*8$'! ?/24-!$'(%&48'#!2,-$)!(#$!/+$,!*%,/+7!?8(#!+/($,(8%4!'$$-!'/2)*$'!?8(#8,!*4/'$!
+)/=808(75!1%'(!1)/?(#!/.!()$$!'$$-48,1'!?%'!/**2))8,1!8,!12447!%,-!'4/+$'!.%*8,1!3/2(#!-8)$*(8/,!?8(#!
)8*#!$,68)/, 0$,(%4!)$'/2)*$'!J?%($)9!'/84!,2()8$,(9!481#(Q5#
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"#$!'2**$''!/.!)$'(/)%(8/,!+4%,(8,1'!8,!)$'(/)8,1!.%)04%,-!%-@%*$,(!(/!(#$!F%+$!I/24?8,-!480$'(/,$!
: 2%))7! ? %'!%''$-!%(!(? /!'8($'5!"#$!)$'24('!/&(%8,$-!8,!(#8'!'(2-7!'211$'(!(#%(!)$'(/)%(8/,!+4%,(8,1'!
%(!(#$!,2)'$)7!'8($!%)$!.%*848(%(8,1!(#$!)$*/4/,8'%(8/,!/.!,$?!'+$*8$'!'2*#!%'!S"0(?0"(25*\7"0(?7\87\81*!
%, -!J 1#$0?45*&("3$'#8(5*9!?#84$!(#/'$!%(!(#$!&$%*#!'8($!%)$!.%848, 15!3$$-48, 1'!)$1$,$)%(8, 1!%(!(#$!,2)'$)7!
'8($!%)$!+)/1)$''8, 1! ?$4! ?8(#!%! ?8-$!)%, 1$!/.!8, -81$, /2'!'+$*8$'!$'(%&48'#8, 1!2, -$)!(#$!*%, /+7!
'+$*8$'5!"#$!+)$'$,*$!/.!,/6$4!'$$-48,1'!%(!(#$!'(2-7!'8($'!8,-8*%($'!(#%(!'$$-!-8'+$)'%4!%1$,('!%)$!
+)$'$,(5!Z/?$6$)9!(#$!)$'(/)%(8/,!-4%,(8,1'!%(!(#$!&$%*#!'8($!#%6$!.%84$-5!"#$!)$'(/)%(8/,!.%842)$!%(!(#$!
&$%*#!'8($!8'!-2$!(/!(#$!#81#!O/)(%48(7!)%($!/.!(#$!8,8(8%4!+4%,(8,1'5!32,481#(!#%'!+$,$())%($-!(#)/21#!(#$!
/+$,!*%,/+8$'!*%2'8,1!%,!8,.42=!/.!?$$-'!%,-!$=/(8*!1)%''!!"#$!1)%''!'?%)-'!#%6$!-/08,%($-!(#$!
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+4%, (8, 1! '8(\$!%, -! ' O /(#\$)\$-!(#\$! '\$\$-48, 1 '5!3\$4\$*(8/,!/.!'+\$*8\$'!./)!(#\$!)\$'(/)%(8/,!+4%, (8, 1 '!(#%(!%)\$! 8,%++)/+)8%(\$!(/!(#\$! '8(\$!#%6\$!%4'/!*/,()&&2(\$-!(/!(#\$!)\$'(/)%(8/,!.%842)\$5!"#\$!-8..\$)\$,*\$!&\$(?\$\$,!(#\$!,2)'\$)7!'8(\$!%, -!(#\$!&\$%*#!'8(\$!'211\$'(!(#%(!?\$\$-!*/,()/4!%, -!'+\$*8\$'!*#/8*\$!#%-!%!O%0/)!8O+%*(!/,!(#\$!

)\$1\$,\$)%(8/,9!'2**\$''8/,!%,-!/6\$)%4!'2**\$''!/.!)\$'(/)%(8/,!+4%,(8,1'!%(!(#\$'\$!'8(\$'5!

F%'#!.4/?'!.)/O!(#\$!V//-'8-\$!/+\$)%(8/,!*%,!'2++/)(!/2('/2)*\$-!4%&/2)!J^\SS9SSS!O%,%1\$)C'!'%4%)7Q!
8.!%*(868(7!*/O&8,%(8/,'!%)\$!*#/'\$,!(#%(!8,*42-\$!)\$6\$,2\$!.)/O!&\$\$*#!'%?,!(80&\$)!J/(#\$)!%*(868(7!*/O&8,%(8/,'!*%,,/(!'2++/)(!(#\$!%--8(8/,%4!\$=+\$,'\$05!Z/?\$6\$)9!(#\$!L;M!./)!(#\$!O/'(!+)/.8(%&4\$!*/O&8,%(8/,!J_Q!8'!,\$1%(86\$!?#\$,!/2('/2)*\$-!4%&/2)!8'!8,*42-\$-!Jb^\]e9SSS09!'211\$'(8,1!%(!^RSSS0#%!4%,-!*/'(9!(#8'!/+\$)%(8/,!*%,,/(!%*#8\$6\$!%,!dT!)\$(2),5!!

"#\$!V // - '8-\$!/+\$)%(8/,!JF / 0 &8,%(8/,!_Q!?%'!./2,-!(/!&\$!0 /'(!'\$,'8(86\$!(/!'#8.('!8,!&\$*#!!%?,!(80 &\$)!+)8*\$'9!./44/?\$-!&7!#/,\$7!+)8*\$'!%,-!#86\$!,20 &\$)'5!"#\$)\$!8'!'81,8.8*%,(!80+/)(%,*\$!(#\$)\$./)\$!./)!\$\forall V //-'8-\$!0%8,(%8,8,1!J/)!8,*)\$%'8,1Q!(#\$!+)8*\$'!%*#8\$6\$-!./)!&\$*#!%,-!#/,\$75!\forall V //-'8-\$C'!&\$\$#86\$!,20 &\$)'!%)\$!)\$'()8*(\$-!./)!\$*/4/18*%4!)\$%'/,'!2,-\$)!%!xKBB!*/6\$,%,(!(/![RS!J(#/21#!(#\$!*%))78,1!*%+%*8(7!/.!(#\$!+)/+\$)(7!8'!#81#\$)09!'211\$'(8,1!(#%(!%,!/++/)(2,8(7!*/'(!/**2)'!./)!\forall V //-'8-\$!&7!8,*42-8,1!68/-86\$)'8(7!%'!%!0%,%1\$0\$,(!/&\$*(86\$5!

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11(30' %1' 3#, %28' 0&(#0\$(,0)' %,' +,0(& 2!#,0+,-' !%7!#,/' 0%0#&#' +,0%' &(-(,(�+,-' 6#,*6#' 1%&()0' +&%\$\%#,#' *)5' #0(' #!!(8' %&05'

%(()%*(!8,6\$'(/)'!./)!(#\$!+2)+/'\$!/.!*%+8(%4!.2,-8,19!.0%*#8,\$!.8,'(%44%(8/,9!%-6%,*\$!()%8,8,1!.8,!(#\$!+)/-2*(8/,!/.!6%42\$b%--\$-!+)/-2*('!%,-!%''8'(!8,!(#\$!\$'(%&48'#0\$,(!/.!.0%)>\$('!./)!(#\$'\$!+)/-2*('5!"#\$!.4%*))

 $N\$-2*8,1!(\#\$!\ 0\ \$)*\#\%,(\%\&4\$!\ 6/42\ 0\ \$!./)!\ ,\%(2)\%4!./)\$'(!\#\%)6\$'(!.)/\ 0!\ S*\ 0!-\&\#!'/!(\#\%)!(\#\$!\%\ 0/2,(!/.!?/-1.4/?!)\%6\%84\%\&4\$!8,*)\$\%'\$'!?\%'!*/, '8-\$)\$-5!"\#8'!?844!\$, \%&4\$!\#81\#\$)!?//-!.4/?!.)/\ 0!\ ,\%(2)\%4!./)\$'(!\%,-!0\%(2)8,1!+4\%,(\%(8/,'!(/!*/6\$)!(\#\$!\%,(8*8+\%(\$-!\$*/,/08*!-/?,..\%44!1\%+5!F2'(/0\%)7!4\%,-!)\$18'()\%(8/,!?844!186\$!1)\$\%(\$)!8,6\$'(0\$,(!/++/)(2,8(8\$'!./)!4\%)1\$!+4\%,(\%(8/,!\$'(\%\&48'\#0\$,(5!!$

 $<; 3!+)8*\$!!*\#\$-24\$-!./)!: 2\%)(\$)47!*\#\%, 1\$'!/**2)!/, 47\%,...)\$: 2\$, (479\%, -!(\#\$)\$./)\$!0\%7!, /(!)\$.4\$*(\%*(2\%4!\$, (\$), \%(8/, \%4!+)8*\$!*\#\%, 1\$'5!B(!8'!)\$*/00\$, -\$-!./)!(\#\%(!\%, !\%4(\$), \%(86\$!0\$*\#\%, 8'0!\&\$!8, !+4*\$!(/!8, *42-\$!FBI!+)8*\$!*\#\%, 1\$'!*/, '8-\$)\$-!./)!(\#\$! <; 35! <8)\$*(!\$, ()7!/.!4/*\%4!+)/-2*\$)'!/.!'\%?, !(80 &\$)!8, (/!(#\$!\$+/)(!, 8*#\$!0\$)>\$('!?844! 186\$!+)/-2*\$)'!/++/)(2, 8(8\$'!(/!2, -\$)'(\%, -!0\%)>\$(!)\$: 28)\$0\$, ('!\%, -!0\$)>\$(!)\$: 28)\$0\$, ('!\%, -!0\$)$

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5 ('1%&(3#)0'%1' 5+,#)'/(\$#,/'1%&')#7,7%%/'7%%/.#)(/'2#,(!)'#,/'2#2(&'2&%/*30)

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'3#)(')0*/8'%,'$%)#+3'&()0%&#0+%,'2!#,0+,-'+,' #.#5' #!#8)+#
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V 8(#!(#\$!)%+8-!-\$*48,\$!/.!,%(2)%4!./)\$'('9!(#\$!\$'(%&48'#O\$,(!/.!./)\$'(!+4%,(%(8/,!\$'(%(8!8'!8O+/)(%,(!/!'2++47!*/,(8,2/2'!)\$'/2)*\$'!(/!(8O&\$)b&%'\$-!8,-2'()8\$'!8,!+\$)+\$(28(75!3%&%#9!?#8*#!8'!/,\$!/.!(#\$!(#\$)(\$\$,!'(%(\$'!8,!A,%4%7'8%9!#%-!'(%)(\$-!\$'(%&48'#8,1!./)\$'(!+4%,(%(8/,!'8,*\$!(#\$!\]eS'5!B,!)\$*\$,(!7\$%)'9!186\$,!(#\$!8O+/)(%,*\$!/.!(8O&\$)!+4%,(%(8/,'9!(#\$!**)*8(7!/.!4%,-9!%'!?\$44!%'!%--)\$''8,1!(#\$!%-6\$)'\$!80%1\$!/.!*/,6\$)(8,1!./)\$'('!8,(/!B,-2'()8%4!")\$\$!;4%,(%(8/,!B";09!%!,\$?!'7'(\$0!*%44\$-!0/'%8*!)\$'(/)%(8/,!+4%,(8,1!?%'!8,()/-2*\$-!%,-!4%(\$)!%-/+(\$-!&7!(#\$!3(%(\$!U/6\$),0\$,(!/.!3%&%#5!"#8'!8'!%!'7'(\$0!(#*(!*/0&8,\$'!+4%,(8,1!/.!.%'(!1)/?8,1!'+\$*8\$'!%,-!)\$(\$,(8/,!/.!,%(2)%4!./)\$'('!8,!%,!%)\$%!#%68,1!\$(#!?8(#8,!(#\$!48*\$,'\$-!%)\$'('!%,-!-\$1)%-\$-!./)\$'('!(11(#\$)9!/)!'+/)%-8*!./)\$'('9!/)!08=\$-!'(%,-'!/.!&(#!?8(#8,!(#\$!48*\$,'\$-!%)\$'('!%,-!-\$1)%-\$-!./)\$'('!(11(#\$)9!/)!'+/)%-8*!./)\$'('9!/)!08=\$-!'(%,-'!/.!&(#!?8(#8,!(#\$!48*\$,'\$-!%)\$'('!%,-!-\$1)%-\$-!./)\$'('!(11(#\$)9!/)!'+/)%-8*!./)\$'('9!/)!08=\$-!'(%,-'!/.!&(#!?8(#8,!(#\$!48*\$,'\$-!%)\$'('!%,-!-\$1)%-\$-!./)\$'('!(11(#\$)9!/)!'+/)%-8*!./)\$'('9!/)!08=\$-!'(%,-'!/.!&(#!?8(#8,!)\$(9),'!(/!(#\$!3(%(\$9!(#)/21#!%!*/00/,!^\$\\$asignessing*)\$'('!(#\$!44*,(8,1!/.!'\$4\$*(\$-!.%'(!1)/?8,1!'+\$*8\$'9!?#84\$!(#\$!)\$0%8,8,1!aST!?844!&\$!2,-\$)!(#\$!)\$(\$,(8/,!/.!,%(2)%4!./)\$'(!+%(*#\$'9!/)!68*\$!6\$)'%9!-\$+\$,-8,1!/.!(#\$!'8(\$!*/,-8(8),5!

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"#\$)\$!#%'!&\$\$,!%!, /(8*\$%&4\$!'#8.(!8,!./*2'!8,!&8/-86\$)'8(7!)\$'\$%)*#!8,!L\$?!f\$%4%, -!/6\$)!)\$*\$, (!-\$*%-\$'5!N\$'\$%)*#! #%'! ()%-8(8/,%447!../*2'\$-!/,!&8/-86\$)'8(7!+)/(\$*(8/,!/,!(#\$!+2&48*!\$'(%(\$9!?#8*#!?%'!*/0+)8'\$-!+)80%)847!/.!\$*/'7'(\$0'!?8(#!4/?\$)!+)/-2*(86\$!+/(\$,(8%4!J1\$,\$)%447!/6\$)!RSS 0!%'405!;)86%(\$!4%, -'!1\$,\$)%447!#%6\$!#81#\$)!+)/-2*(8/,!+/(\$,(8%4!%, -!%)\$!/.(\$,!2'\$-!./)!8,(\$,'86\$!*24(86%(8/,!%, -!%)1)8*24(2)%4!+)%*(8*\$'5!"#\$7!'(844!#/?\$6\$)!#%6\$!'81,8.8*%,(!+/(\$,(8%4!./)!+)/(\$*(8,1!&8/-86\$)'8(7!6%42\$'5!P,\$!/.!(#\$!>\$7!(/4'!./)!+)/(\$*(8,1!&8/-86\$)'8(7!6%42\$'!/,!+)86%(\$47!/?,\$-!4%,-'!8,!(#\$!F%,(\$)&2)7!)\$18/, %)\$!(#)/21#!4\$1%447!&8,-8,1!x KBB!/+\$,!'+%*\$!*/6\$,%,('!%,-!(#\$)\$!8'!'81,8.8*%,(!+/(\$,(8%4!(#)/21#!8,-2'()7!*\$)(8.8*%(8/,'5)!)

1 *;\H. IJ69FIK4I8:L*;64I;4\F9\M6FLFN6;:L*;64I;40\#24565\ - 7589:;85

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"#8'!'(2-7!.8)'(!%((\$0+(\$-!(/!8-\$,(8.7!%!2,8:2\$!-8'*)808,%(8,1!+%)%0\$(\$)!/.!#81#!\$)/'8/,!'\$6\$)8(75!H! *%'\$!'(2-7!?%'!*/,-2*(\$-!8,!(#\$!3#\$))7!N86\$)!*%(*#0\$,(9!4/*%(\$-!8,!(#\$!"%'0%,!<8'()8*(!/.!(#\$!3/2(#! B'4%, -9! L f5! "#\$! 3#\$))7! N86\$)! F%'\$! 3(2-7!#%-!(?/!%80'Y!(#\$!.8)'(!?%'!(/!8,6\$'(81%(\$!(#\$!*/))\$4%(8/,! &\$(?\$\$,!(#\$!A\$4(/,!)%(8/!%,-!GEF!\$)/'8/,!'\$6\$)8(75!"#8'!?%'!%**/0+48'#\$-!&7!*%4*24%(8,1!(#\$!A\$4(/,!)%(8/9!%!(\$'(\$-!0/)+#/0\$()8*!.%*(/)!(#%(!-\$'*)8&\$'!&%'8,!J?%(\$)'#\$-0!)211\$-,\$''9!2'8,1!B)68,\$C'!J S\\0! U\$/1)%+#8*!B,./)0%(8/,!37'(\$0'!JUB30!-\$&)8'b!.4/?!0/-\$45!"#\$!+)/-2*(!/.!(#8'!UB3!-\$&)8'b.4/?! $0/-\$49! \%! *\%4*24\%(\$-! A\$4(/,!)\%(8/! \bullet! S5RS! ?8(#!(#\$! \%)\$\%4! \$=(\$,(!/2(48,\$-! \&7! \%! N86\$)! K,68)/, 0\$,(!/2(48,\$-! \%! N86\$)/, 0\$,(!/2(48,\$-! \%! N86\$)/, 0\$,(!/2(48,\$-! \%! N86\$)/, 0\$,(!/2(48,\$-! \%! N86\$)/,$ F4%''8.8*%(8/,!JNKFQ!/)-\$)!/,\$!+/471/,9!?\$)\$!-\$'81,%(\$-!(#\$!%)\$%'!/.!8,(\$)\$'(!JHPB'\05!"#\$! A\$4(/,!)%(8/! ?%'! (#\$,! (\$'(\$-! %1%8, '(! GEF! \$)/'8/,! '\$6\$)8(7! 2'8, 1! (#\$! 3+\$%) 0%, C'! N%, >\$-! F/))\$4%(8/,! F/\$..8*8\$,(9!?8(#\$!-\$'81,%(\$-!HPB'5!H!.8\$4-!8,6\$'(81%(8/,!?\"'!*/,-2*(\$-!(/!6\$)8.7!-\$\&)8'b.4/?!8,! UB3!8-\$,(8.8\$-!HPB'5!P,47!.86\$!/.!(#\$!(#\$)(\$\$,!HPB'!8-\$,(8.8\$-!'#/?\$-!\$68-\$,*\$!/.!-\$&)8'b.4/?5!"?/! ?\$\\$!2,b*#\$*>\$-!-2\$!(/!%**\$''8&848(7!%,-!(#\$)'!#%-!%!#81#!-\$1)\$\$!/.!.4268%4!%*(868(79!?#8*#! 8, -8*%(\$'!%!#81#!+)/&%&848(7!(#%(!'2).%*\$!\$68-\$,*\$!/.!%44268%4!\$)/'8/,!-\$+/'8(8/,!?%'!\$)%'\$-5!L/08,%4! %''/*8%(8/,!&\$(?\$\$,!(#\$!(?/!0\$%'2)\$0\$,('!/.!\$)/'8/,!JA\$4(/,!)%(8/!%,-!GEF!\$)/'8/,!'\$6\$)8(70!?%'! %, !8, -\$+\$, -\$, (!+%)% 0 \$(\$)!/.!\$)/'8/,!'\$6\$)8(75!

"#\$! '\$*/, -!%80!/.!(#\$! 3#\$))7! N86\$)! F%(*#0\$,(!'(2-7!?%'!(/!%''\$''!(#\$!'\$, '8(868(7!/.!\$0+8)8*%447!
1\$,\$)%48'\$-!GEF!%)\$%4! 0 %+!2,8('!%, -!(#\$8)!\$)/'8/,!'\$6\$)8(7!0\$%'2)\$0\$,('!(/!'+%(8%4!)\$'/42(8/,9!(#%(!8'9!?%)*139((+%():(+%0-1-1(()-1-1(()-1-1(()-1()*0-(7)-1(!)0.24123Tf[("#)9((+1(#)1((#%41((,)-1(9)-11(!)2(F)

1 *;\\! . IJ69FIK4I8:L*;64I;4\\F9\\M6FLFN6;:L*;64I;40\\#24565\\ - 7589:;85

&8%'9!%'!\$%*#!0%+!?%'!0%-\$!2'8,1!\$0+8)8*%4!@2-10\$,(5!"#\$!%**2)%*7!%''\$''0\$,(C'!/6\$)%44!%1)\$\$0\$,(!?\"[T!\",-!\"!/)!(#\"!+)\\$68/2'!*\"\\$!'(2-79!\"-!\":2\"447!4/?!;)/-2\"\")C'

1*; HI.IJ69FIK418:L + ; 641; 4 HF9 MM6FLFN6; : L + ; 641; 40 M + 24565 M - 7589 : ; 85

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%,+0%&+,-' !#,/' 3%4(&' 35#,-(' 7+05' + ' #,/' #(&+#!' +$#-(&8' +,'
5&+)035*&35' (7' (#!#,/
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G%, -!*/6\$)!*#%, 1\$!8,../) 0 %(8/,!8,!2)&%,!%)\$%'!'2++/)('!-\$*8'8/,!0%>\$)'!8,!-\$%48,1!?8(#!+2&48*!+/48*7!+4%,,8,1!%,-!)\$'/2)*\$! 0%,%1\$ 0\$,(5! N\$ 0 /(\$! '\$, '8,1!#%'! &\$\$,!-\$ 0 /, '()%(\$-!%'!%,!\$..8*8\$,(!%,-!%**2)%(\$!?%7!(/!0/,8(/)!4%,-!*/6\$)!*#%,1\$!/6\$)!4%)1\$!\$=(\$,('5!"#\$!F%,(\$)&2)7!K%)(#:2%>\$!3\$:2\$,*\$!
JFK30!*%2'\$-!0%''86\$!-%0%1\$!8,!F#)8'(*#2)*#9!L\$?!f\$%4%,-!%,-!)\$'24(\$-!8,!'81,8.8*%,(!4%,-!*/6\$)!