## ! '#\$% & % ' ! %\$\$

```
2!.$&-)4!C=8C!

3*/&.#.!'%/45'H!

• F.0% (-;!1&'!

2!C==DRC==`!
```

## 3\*/&.#.!'%/45'H!

- $a\%07! < \#A \#N\%0! \ 1 \&'!V + */\&'5!' 5 \& */45! \ (-AR'b\#0 + '5!;\#)'/\& \#.W!$
- Z%'#&! < #A-#N%0! 1 &'!V ( -AR'b#0+'5!'5&\*/45!+-+'##) '5!;#)'/&-#.W!
- F.0% (-:!1&'!
- 1);-#)'!1&'!!
- 1&'!\*+!1+&-;%2!'5#!1 (#&-;%.2!%)A!'5#!9\*/'5!B%;-+-;!
- 1.-%)!1&'!!!
- 1 &'! 6-. '\*&7!9/&N#7!F!!

## 2!8QQ[RC===!

## 3\*/&.#.!'%/45'H!

!

B/M0-.5#A!

!

- F ( %4#.!\*+! 1 0#0% ) A#&!'5#!P&#%'!V+\*&! " &@! " %N-A! < -''#)2!1 &'!6-.'\*&7\!
- a /&\*\$#%)!3 /0'/&#!-)!'5#!Z%'-)! < -AA0#! 1 4#.!V+\*&! " &@!L%)!c-\*0X\*b.X-2!3\* ( \$%&%'-N#! Z-'#&%'/&#W!

!

• 1 &'!%) A!, -./%0!3/0'/&#!V+\*&! " &@!F&#)#!:-)'#&!%) A! " &@!L\*.#\$5!T\*#&)#&2! 1 &'!6-.'\*&7W!

```
!

F)!$&*4&#..!

3*R#A-'*&!b-'5! < %''5#b! < !J##N#!%)A!;*)'&-M/'-)4!%/'5*&@!/.O+1$'.,2$&3%+$3+24.+52("6+&7+8."$.#*-!'2+$3+9'$2*$3:+F)!$&#$%&%'-*)!+*&!6%&N#7! < -00#&@!
!

d)A#&!&#N-.-*)!

9-)40#R%/'5*&!M**X@!!;3<-$%4+9&"$.%-+>)?&'2."+5$-@%A+>%-*)$,+*3"+96B*32$3.+C.D2$-.%+$3+E&24$,+;3<-*3"@!!3/&&#)'07!/)A#&!&#N-.-*)!+*&!3*&)#00!d)-N#&.-'7!B&#..!+*&!'5#!<#A-#N%0!9*;-#'-#.2!
J#0-4-*).2!%)A!3/0'/&#.!9#&-#.@!
```

"#\$%&'(!\*!

3%'%0\*4/#!\*+!-)N-'#A!#...%7.!'\*!%;;\* (\$%)7!#05-M-'-\*)!%'!'5#!3%)'\*&!P%00#&7!\*+!1&'2!
3\*00#4#!\*+!'5#!6\*07!3&\*...2!L%)R1\$&-0!C=CD0!!3\*)'&-M/'\*&.!-);0/A#!<-;5%#0!:\*\*A!V]UaW2!

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"#\$%&'(!+!

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!
E: 5#)!-.!%!9'*&7!)*'!%!9'*&7m!!9#; /0%&! f %&&%'-N#!F ( %4#&7!*)!'5#! 105% ( M&%!3#-0-)4.!%)A!'5#!!
35-N%0&-;!] &A#&!*+!'5#!U%)A%6K!F)N-'#A!;*)'&-M/'-*)!'*!%)!#A-'#A!N*0/ ( #!#)'-'0#A!
O'.) &".'3+P*G-.%+*3"+24.$'+!("$.3,.2!#A-'#A!M7! f #4/-)!n %N%&-2!-)!'5#!FZao!G*/)A%'-*)!
.#&-#.!A-.'&-M/'#A!M7!6%&N%&A!d)-N#&.-'7!B&#..@!!'2$,-.=+(3".'+'.#$.O:!
!
EJ*(%)!%)A!F ( $#&-%0H! I #O'-0#.2! " &#..2!%)A! J*(%)-'%.!-)! I5-&'##)'5R3#)'/&7!U&-'%-)@K!G*&!%!
.$#;-%0!-../#!*+!52("$.%+$3+I*2.+!32$Q($26@!!'2$,-.N+(3".'+'.#$.O:!
!
E9##-)4!%)A!d)A#&.'%)A-)4H!,-./%0-Y-)4!'5#!G&%4(#)'#A!35#&'.#7! I-0#.!-)!9'$3<$3<+24.+H&-6+
I*3"+H&).:R+F)N-'#A!;*)'&-M/'-*)!'*! I$<$2*-+8. "$.#*-+52("$.%SF'(%*".'%+3"+F&)?(2.'%2!#A@!f%'.5%!6*A4.*)2!9#%)!P-0.A*&+2!%)A!Z%/&%!<*&&#%0#2! I J 3!6/(%)-'-#.!
B&#..2!+*&'5;*(-)4!C=C>@!!'2$,-.N+$3+?'.?*'*2$&3:+
```

Е

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V:*)'#($*&%&7!'#0'-0#!%&'W2!;/&%'#A!M7!Z#.0-#!9;5*($!%)A!3%)A-;#!9(-'5!3*&M7@!!]9B!
       3%'%0*4.2!C=8C@!!!
E35&-.'S.!P*0A#)!, *-;#H!I5#!: %00R$%-)'-)4.!*+!'5#!B%0%-.!A#.!B%$#.2!1N-4)*)@K!!U&'"+M+>) *<.2!!
       N*00!Ch2!)*0!D2!C=88H!DD^RD^>0!!!
EI5#!B-04&- (2!'5#!F(%4#2!%)A!'5#!: *&A!-)!F.0%(@K!!F)!O$-<'$) *<.+*3"+P*$24A+9(""4$%)=++
       F4'$\%2$*3\$26=+*3''+>\%-*) 2!#05-M-'-*)!;\%'\%0*4/#2!#A@!, -&4-)-\%!J\%4/-)!#'!\%0@!!9#&-)A-\%!B&#..2!
       C=8=H!D=[R8\@+
E3&*..R3/0'/&%0!9'70#!-)!'5#!105% (M&\H!I#O'-0#.2!FA#)'-'72!\%)A!]&-4-).\@K!!8.\\%.\#*-+;3,&(32.\\%2!
       N*00!8^2!)*0!CRD2!C==[H!D^8RD>h0!
EIb*!U**X.!*+!6*/&.#!I5#!P*0A!9;&*00.!P&*/$2!a)40%)A2!%)A!F)'#&)%'-*)%0-.(!-)!'5#!G-+'##)'5!!
        3#)'/&7@K!F)!F*24&-$,+F&--.,2$3<=+F*24&-$,+J.7-.,2$&32!#O5-M-'-*)!;%'%0*4/#2!#A@!,-&4-)-%!
       J%4/-)@!!3%'5*0-;!d)-N#&.-'7!*+!1 (#&-;%!B&#..2!C==>H![QR8=8@!
EB0%7-)4!b-'5!1)-(%0.||:15#!,-./%0!3*)'#O'!*+!%)!1&'5/&-%)!<%)/.;&-$'!VG0*&#);#!B%0%'-)*!!
        ``>W!%)A!'5#!d.#.!*+!1 (M-4/-'70K!!U&'''+M+>)*<.2!N*00!C=2!)*0!8!VL%)0R<%&0W2!C==^H!8RC80!
!EI5#!P.)).Z*(DZ5.'?.32%!%'!<*-..%;H!Z/O/&-%!VZ/.'W|*&!%!U%A!<*'5#&mK!!F)!9.20..3+8*<$,++
        *3"+J.-$<$&3A+>32.'"$%, $?-$3*'6+52("$.%+$3+!3,$.32+8."$2.''$2.''*3.*3+J.-$<$&3+*3"+5&,$.262!
       #A.@!9@!1.-&N%'5%(2!3@!1@!B%:5#2!%)A!L@!: %'&*/.@!!J*b(%)!\!Z-''0#+-#0A!B/M0-.5#&.2!
       C==8H!8> RQ80+
       1
!
EP-+'!Z-.'!*+!6#)&7!FF2K!; 3,6,-&?."$*+&7+8."$.#*-+1'.\\\#*3"+C.D2\\-.\\+&7+24.+9'\\\\\\#\-\\\+\\\\\YZ\\
       [X \ Y_0!!U\&-002!C=CC2!*)0-)\#0!!W>3\#$2. ":]+
EZ%M#0.2K!; 3,6,-&?. "$*+&7+8."$.#*-+1'.\\\#+*3"+C.D2\$-.\\#+\&7+24.+9'\$2\\\#4>\\#-.\\#+\\YZ[X\Y\!!U\&-002!!
       C=CC2!*)0-)#@!!W>3#$2.":]!
       !
ET\%0-0\%!b\%R''-()\%!-00/.'\&\%'-*).2K!;3,6,-\&?*.''\$*+\&7+>\%-*)=+`+.''$2$&3
```

 $\label{eq:final_continuous_final_conti$ 

- F)N-'#A!M\*\*X!&#N-#b!\*+!37)'5-%!6%5)2!O\*%%&3+J.-\$, %+\*3"+24.+8."\$.#\*-+>) \*<\$3\*2\$&3A+!'2=+
  !',4\$2.,2('.=+\*3"+5&,\$.262!d)-N#&.-'7!\*+!3%0-+\*&)-%!B&#..2!C=C=@!!U.%2+bc A+!+K&('3\*-+&7+
  I.,&'\*2\$#.+!'2%=+I.%\$<3+H\$%2&'6=+\*3"+8\*2.'\$\*-+F(-2('.@!,\*0@!CQ2!F../#!82!9\$&-)4R9/((#&!C=CC2!8CQRD=@!
- F)N-'#A!A\*/M0#RM\*\*X!&#N-#b!\*+!"-\*)-4-!10M#&%!%)A!<%&-%!3\*/&\*/;0-2!#A.2!54\*'\$3<+5\*,'."+5?\*,.%+\$3+24.+8."\$2.''\*3.\*3A+F4'\$%2\$\*3%=+8(%-\$)%+\*3"+K.0%+\*2+54'\$3.%+\*3"+5\*3,2(\*'\$.%=+U0\*\*(-)4'\*)H!F)A-%)%!d)-N#&.-'7!B&#..2!C=8C\_!%)A!<%&4%&#'!3\*&(%;X2!#A@2!8(%-\$)%+\*3"+L24.'%+\$3+5\*,'."+5?\*,.2!]O+\*&AH!]O+\*&A!d)-N#&.-'7!B&#..2!C=8D@!!>32.'3\*2\$&3\*-+K&('3\*-+&7+

!

"#\$%&'(!/!

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I5#!B%/0!<#00*)!3#)'&#!+*&!9'/A-#.!-)!U&-'-.5!1&'2!J#.#%&;5!9/$$*&'!P&%)'@!C===R=8!
G*&!&#.#%&;5!*)!'5#!35#&'.#7!'-0#.@!
       !
< #00*)!G#00*b!-)!6/(%)-.'-;!9'/A-#.2!: **A&*b!:-0.*)!G*/)A%'-*)@!8QQ>RQh!
G/00! . : 5*0\% \& . 5-\$!\%) A! . '-\$\#) A! + *\&! + -\& . '!7#% \&!* + !4 \& \% A/\%' #! . '/A7 @!
B5-!U#'%!T%$$%2!1 (5#&.'!3*00#4#@!!800`!
f %'-*) %0! < #&-'!9:5*0%&@!!800C!
B&#.-A#)'-%0!9;5*0%&!G-)%0-.'@!!8QQC!
!
F!5%N#!$0%7#A!%!0#%A-)4!&*0#!-)!b&-'-)4!%)A!#A-'-)4!%$$0-:%'-*).!+&*(!'5#!3*00#4#!*+!'5#!6*07!
3&*..!'*!%!N%&-#'7!*+!)%'-*)%0!%)A!-)'#&)%'-*)%0!4&%)'!*&4%)-Y%'-*).!+*&!0*%).!%)A!$&*4&%((-)4!
%..*;-%'#A!b-'5!'5#!/$;*(-)4!3&/.%A#.!#O5-M-'-*)@!!10*)4!b-'5!<#&#A-'5!G0/X#!V"-&#;'*&2!3%)'*&!
P%00#&7W!%)A!6#%'5#&!T/&'Y!V"-&#;'*&2!G*/)A%'-*)!%)A!3*&$*&%'#!J#0%'-*).W2!b#!5%N#!
./::#..+/007!%$$0-#A!'*!'5#!+*00*b-)4!+*/)A%'-*).H!
f %'-*)%0!a) A*b (#)'!+*&!'5#!6/(%)-'-#.@11b%&A#A!t8==2===@!!B&-);-$%0!F)N#.'-4%'*&H!!
        1 (%) A%!Z/7.'#&@!!C=CC!
P0%A7.!T&-#M0#! "#0 ( %.!G*/)A%'-*)@!!1 b %&A#A!t8=2===@!!C=CC!
< %&7!L%5%&-.!3#) '#&@! 1 b %&A#A! t 8=2===@!C=CC!
9% ( /#0!6@!T&#..!G*/)A%'-*)@!!1 b%&A#A!t^2[==@!!C=C8!
!
U%';5#0*&!G*&A!9/((#&!G#00*b.5-$2!3*00#4#!*+!'5#!6*07!3&*..2!+*&!M**X!$&*e#;'!;3<-$%4+9&''$.%-+
>) ?&'2. "+5$-@%4+>%-*) $,+*3"+96B*32$3.+C.D2$-.%+$3+E&24$,+;3<-*3"@!9/((#&!C=C^@!
3*00#4#!*+!'5#!6*07!3&*..!3*((-''##!*)!G%;/0'7!9;5*0%&.5-$!J#.#%&;5!1b%&A2!+*&!&#.#%&;5!
'&%N#0!+*&!M**X2!:3<-$%4+9&"$.%=+>)?&'2."+5$-@%4+C4.+>)?*.2+&7+>%-*)$.+*3"+96B*32$3.+C.D2$-.%+$3+
E&24$,+:3<-*3"0!9/((#&!C=CD0!
3*00#4#!*+!'5#!6*07!3&*..!3*((-''##!*)!G%;/0'7!9;5*0%&.5-$!B/M0-;%'-*)!1b%&A2!+*&!;*.'!*+!
- ( %4#.!%) A!$#& ( -..-*) .!+*&!M**X!b-'5!3% ( M&-A4#@!!G%00!C=CC@!
U'':5\#0*\&!G*\&A!9/((\#\&!G\#00*b.5-\$2!3*00\#4\#!*+!'5\#!6*07!3\&*..2!+*\&!;/\&''-)4!\%)!\#05-M-'-*)!
9'$3<$3<+24.+H&-6+I*3"+H&).=+C4.+F'(%*".%=+F4.'2%.6+!GG.6=+*3"+24.+J.,&3%2'(,2$&3+&7+*+
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•	::

"#\$%&'(!)2!

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3*/\&.#!"#N#0*$(#)'!G%;/0'7!G#00*b.5-$2!9/((#&!C=800!)
1 b%&A#A!+*&!A#N#0*$ (#)'!*+!)#b!;*/&.#2!E1&'.!*+!1.-%H!I#($0#.!%)A!9-0X&K!
G\%; (0'7!" #N#0*\$ (#)'!P\&\%)'2!6*07!3&*..!3#)'#&!+*&!I#%;5-)42!9$&-)4!C=8`@!
1 b%&A#A!+*&!;&#%'-*)!*+!)#b!;*((/)-'7RM%.#A!0#%&)-)4!$&*e#;'!b-'5!J1:!\VJ#+/4##!1&'-.%).!*+!
: *&;#.'#&W!+*&!F)'&*!;0%..0!
G\%; (0'7!" #N#0*\$ (#)'!P\&\%)'2!6*07!3\&*..!3#)'#&!+*&!I#%;5-)42!9$&-)4!C=8^@!
1 b%&A#A!+*&!$0%)!'*!&#N-.#!;0%..!E1&'!*+!1+&-;%!%)A!1 (#&-;%.K!-)'*! (*&#!$&*e#; 'RM%.#A2!%; '-N#!
0#%&)-)4!#)N-&*) (#)'@!
<%&.5%00!P&%)'2!"*)#0%)!*++-;#!%'!6*07!3&*..2!G%00!C=8D@!
1 b%&A#A!+*&!%&'!./$$0-#.!%)A!&#;#$'-*)!+*&!;*((/)-'7RM%.#A!0#%&)-)4!$&*e#;'!-)!F)'&*!;0%..0!
G\%; (0'7! " #N#0*\$ (#) "!P\&\%) '2!6*07!3&*..!3#) '#&!+*&! I #%; 5-)42!9$&-)4!C=8D@!
1 b%&A#A!+*&!$0%)!'*!A#N#0*$!%)A!#O$%)A!;*((/)-'7RM%.#A!0#%&)-)4!$&*e#;'2!-);0/A-)4!N-&'/%0!
'*/&!*+!'5#!: *&;#.'#&!1&'!</.#/(2!-)!F)'&*!;0%..0!
< %&.5%00!P&%)'2!3F99!*++-;#!%'!6*07!3&*..2!G%00!C=8C@!!
1 b%&A#A!+*&!%&'!. /$$0-#.!%) A!&#;#$'-*)!+*&!;*((/)-'7RM%.#A!0#%&)-)4!$&*e#;'!-)!F)'&*!;0%...0!
G%; /0'7!"#N#0*$ (#)'!P&%)'2!6*07!3&*..!3#)'#&!+*&!I#%;5-)4@!!G%00!C=88
1 b %&A#A!+*&!$0%)!'*!-); *&$*&%'#!; *((/)-'7RM%.#A!0#%&)-)4!%)A!%!N-&'/%0!
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EJ#'&*.$#;'-N#H!U&-)4-)4!'5#!6*07!Z%)A!6*(#@K!F'5%;%!3*00#4#@!1$&-0!C=C^@!
EI5#!3&/.%A#.2!'5#!35#&'.#7!I-0#.2!%)A!%!f#b!<#A-#N%0!1&'!6-.'*&72K!<*&0#7!3*00#4#2!Z*)A*)2!
d T2!+*&! < *&0#7! < #A-#N%0@! f *N@2!C=CD@!
E: %00RB%-)'-)4.!%)A!F($*&'#A!I#O'-0#.2K!b*&X.5*$!+*&!'5#!<#A-#N%0!: %00!B%-)'-)4.!
J#.#%&;5!P&*/$2!3*/&'%/0A!F).'-'/'#!*+!1&'2!d)-N#&.-'7!*+!Z*)A*)2!dT@!1/4@2!C=CD@!
E: 57!'5#!35#&'.#7!I-0#.m!Z*.'!Z%'-)!I#O'.2!J#A-.;*N#&#A!F(%4#.!*+!'5#!3&/.%A#.2!%)A!%!B*..-M0#!
G# (%0#!B%'&*)@K!! < #A-#N%0!3-&;0#!Z#;'/&#.2!U&*b)!d)-N#&.-'7@!G#M@!C=CD@!
G\&\#A.!*+!'5\#!F3 < 1!*0-1\#!S\%\#02!EdS:*(-)4!1''\&\%:'-*).\#9S\&-04!C=CD!aO5-M-'-*).!*+!<\#A-\#N\%0!
1 &'@K!! f *N@!C=CC@!! 1 N%-0%MO#!*)0-)#!%'!5''$.Hjjb b b@(#A-#N%0%&'@*&4j.$#;-%0R*)0-)#RO#;'/&#.!!
EF)'&*A/;-)4!gU&-)4-)4!'5#!6*07!Z%)A!6*(#2SK!<#A-#N%0!%)A!J#)%-..%);#!9'/A-#.2!3*00#4#!*+!
'5#!6*07!3&*..@!9#$'@!C=CC@!
E < #A-#N%0! < #A%00-*)RB%''#&)#A!9-0X.H!a%.'!%)A!: #.'@K!!3*00#4#!*+!1&'.2!f*&'5#%.'#&)!d)-N#&.-'7!
V! " #$\!-)!95\)7\%)42!35-)\%!!\L/07!\C=\CC\!
E < *N# (#) '0K!! n %0#! d ) -N#&.-'7S.!B% /0! < #00*)!3#) '\&#!+*&!9' /A-#.!-)!U&-'-.5! 1 &'2!Z*)A*)2! d T0!!
B/M0-;!Z#;'/&#!9#&-#.H!EU&-'%-)!%)A!'5#!: *&0A@K!!<%7!C=CC@!!G*&!&#;*&A#A!@#;'/&#!.##H!
5''$.Hijbbb\%%\/0R(#00*)R;#)'&#\%\;\@/Xjb5%'.R*)j$0;RM&-'%-)R%)AR'5#Rb*&0AR-)R'5#R (-AA0#R%4#.!!
EI5#!B/YY0#!*+!'5#!35#&'.#7!I-0#.H!B/''-)4!'5#!B-#;#.!I*4#'5#&&K!!I5#!35#&'.#7!9*;-#'72!35#&'.#7!
< / .#/ ( 2! d T@!!G#M&/%&7!C=CC@!
Eg < *&#!B&#;-*/.!'5%)!'5#!T-)4$H!U7Y%)'-)#!9-0X.2!'5#!35#&'.#7!3*(M%'!I-0#.2!%)A!a)40-.5!
 F (\$\#\&-\%0! 1 .\$-\&\%'-*) . (K!! I 5\#! 3\% (M\&-A4\#! < \#A-\#N\%0! 1 \&'! 9\# (-)\%\&2! 3\% (M\&-A4\#! d) -N\#\&.-'72! d T2! ) 
1;'*M#&!C=C8@!
E = [0.042!, 0.0/\%M0#2!\%) A!9'\% (0.04H! < #A-#N%0!B\%;'-;#.!*+!3*00#;'-*)!\% (0.04+3.14H! < #A-#N%0!B\%;'-;#.!*+!3*00#;'-*)!\% (0.04+3.14H! < #A-#N%0!B\%;'-;#.!*+!3*00#;'-*)!% (0.04+3.14H! < #A-#N%0!B\%;'-*)!% (0.04+3.14H!
F)N-'#A!0#;'/&#!%)A!&*/)A'%M0#@!!''#0%b%&#!,%00#7!<#A-#N%0!1..*;-%'-*)2!9#$'#(M#&!C=C8@!!!G*&!
&#;*&A#A!0#;'/&#!.##H!5''$.Hjj;/&%'-)4%&'*+'5#40*M%0(-AA0#%4#.@M0*4.@M&7)(%b&@#A/j$&#&#;*&A#AR
'%0X.i!
EG&* (!G&%4 (#)'!'*!G0**&H!1!"-4-'%0!J#;*).'&/;'-*)!*+!'5#!35#&'.#7!3* (M%'!9#&-#.!I-0#.!
Va)40-.52!; @!8C`=\!\%)A!I5#-&!Z*.'!I#O'.@K!!d)-N#&.-'7!*+!]O+*&A2!\\#)\\;*A-)4!6#&-'\%4\!9\((-)\%&!
9#&-#.2! < %7!C=C80!!G*&!&#; *&A#A!0#; '/&#!.##!5''$.Hjj'*&; 50*O0%; 0/Xj%RA-4-'%0R&#; *).'&/;'-*)R*+R'5#R
;5#&'.#7R;* ( M%'R.#&-#.R'-0#.R#)40-.5R;@R8C`=R$&*+@R% ( %)A%R0/7.'#&!
Ea)40-.5!,-.-*).!*+!'5#!a%.'H!6#)&7!FFF2!'5#!3&/.%A#.2!%)A!'5#!3*.(*$*0-'%)!3/0'/&#!*+!"-.$0%7!
-)!I5-&'##)'5R;#)'/&7!a)40%)A&K!!3*00#4#!*+!'5#!6*07!3&*..2!G%;/0'7!9;5*0%&.5-$!Z/);5!.#&-#.@!!
G#M\&/\%\&7!C=8Q@!
```

```
 \begin{split} &\text{Ea} \ ) \ 40^{-}.5! \ U^*A-\#.2! F \left( \ \$^*\&'\#A!9-0 X. \ H! U 7 \% \right)'-)\#! \ I\#0'-0\#.!-)! 15-\&'\#\# \right)' 5R;\# \right)'/\&7! \ a \ ) \ 40\%) \ A\&K!! \ 15\#! < \%\&7! \ L\%5\%\&-.!3\# \right)'\#\&!+\&! U 7 \% \right)'-)\#! 1\&'!\%) A!3/0'/\&\#!\%) A!'5\#!3* ( (-''\#\#!*)! < \#A-\#N\%0!9'/A-\#.2! 6\%\&N\%\&A! \ d )-N\#\&.-'72!\%'! 6\%&N\%\&A! \ d )-N\#\&.-'72!\%'! (-)%\&@!! \ d )-N\#\&.-'71!\%+! \ < \%...\%; 5/.#''.!1 (5\#\&.'@!!9\#\$'\# (M\#\&!C=8[@!!]! \ | E3*00\#;'-*).jJ\#;*00\#;'-*).H! 15\#! \ d.\#!*+! 1#0'!-)! f\#' b*\&X.!*+! 3*00\#;'-*)@!! < \#A-\#N\%0!F)N#)'*\&-\#.2! \ ZMM\#0.2!F).;\&-\$'-*).2!M) A! < \# (*\&7@K!Z\#;'/&\#!-)!.\# (-)%&!.#\&-#.!*)!'5\#! \ 6-.'*&7!*+! 3*00\#;'-*)@!! \ F).'-'/'#!+! 6-.'*&-;%0!J#.#%&;52!Z*)A*)@!!L\%)/%&7!C=8[@!!!! \ | E15#!35#\&'.\#7!I-0#.H!a)40%)A!\%)A!'5#!a%.'@K!F)N-'#A!'*!0#\A!\%!5%)A0-)4!.#..-*)!+*&!'5#!3*/&'\%/0A! \ F).'-'/'#!-)!;*)e/);'-*)!b-'5!'5#!U&-'-.5! < /.#/(@!!1'!'5#!U&-'-.5! < /.#/(2!Z*)A*)@!!L/)#!C=8h@! \ | E15#!U#\%/'-+/0!9;-#);#!*+!B000.242418.14);0.82/TT810501384###! (5#)0.22 (A-)0.&!3/0 (0.82/TT810501384.
```

```
!
E1&'5/&-%)!Z#4#)A.!-)! < #A-#N%0!1&'0K!! <-))#.*'%!9'%'#!d)-N#&.-'72!];'0!C[2!C==D0!
!
E15#!a%&0-#.'!a)40-.5!F(%4#.!*+!I&-.'%)!%)A!F.#/'H!I5#!3*)'#0'!%)A!F)'#&$&#'%'-*)!*+!'5#!
35#&'.#7!I-0#.0K!d)-N#&.-'7!*+!6/002! < #A-#N%0!9'/A-#.!"#$%&'(#)'2!6/002!d0T0_!G#M0!C[2!C==80!
!
EJ#$&#.#)'%'-*).!*+!I&-.'%)!%)A!F.*0A#!-)! < #A-#N%0!1&;5-'#;'/&#H!I5#!G*/&'##)'5R3#)'/&7!: %00R
B%-)'-)4.!%'!9'
```

!

EU&-)4-)4!'5#!6\*07!Z%)A!6\* (#H!I5#!3&/.%A#.2!35#&'.#7!1MM#72!%)A!'5#!J#;\*).'&/;'-\*)!\*+!%! <#A-#N%0!<%.'#&\$-#;#\K!!f#b!a)40%)A!<#A-#N%0!3\*).\*&'-/(2!3\*00#4#!\*+!'5#!6\*07!3&\*..2!<%&;5!

,

```
EI5#!105% ( M&\tilde{M}!'5#!B\tilde{M}\tilde{M}: #2!B0#\tilde{M}: /&\tilde{M}: A!B\tilde{B} \tilde{M} \tilde{M}: |3 \tilde{M}: 4#!\tilde{H}: \tilde{H}: \tilde{M}: \t
E1&;5-'#;'/&%0!9'/A-#.!F2K!0%'#&!&#N-.#A!'*!EP0*M%0!6-.'*&7!*+!1&;5-'#;'/&#@K!!];'@!D=2!C==h2!&#$#%'!
-)N-'\%'-*)!*)!];'@!Ch2!C==Q!\%)A!*)!<%&;5!8[2!C=8^@!
EF.0% (-;!P%&A#).0K!3*00#4#!*+!'5#!6*07!3&*..!;*/&.#2!EP%&A#).!%)A!J#0-4-*/.!I&%A-'-*).0K!!G#M0!
CC2!C==[2!&#$#%'!-)N-'%'-*)!*)!G#M@!8h!%)A!C82!C=882!%)A!G#M@!8Q2!C=8>2!%)A!9#$'@!Ch2!C=8[@!
E35&-.'S.!P*0A#)!, *-;#H!I5#!: %00RB%-)'-)4.!*+!'5#!B%0%-.!A#.!B%$#.2!1N-4)*)@K!3*00#4#!*+!'5#!
6*07!3\&*..!<\#A-\#N\%0!\setminus !J\#)\%-..\%);\#!3*00*r/-/(!\%)A!"\#\$\%\&'(\#)'!*+!,-./\%0!1\&'.!0\#;'/\&\#\emptyset!!<\%\&\emptyset!
8=2!C=8=0!
!
F)N-'#A!'*!&#N-#b! (%'#&-%0.!+*&!'5#! <%; 1 &'5/&!G#00*b.5-$2! f%'-*)%0!a)A*b (#)'!+*&!'5#!
6/(%)-'-#.!Vfa6W2!]O+*&A!d)-N#&.-'7!B&#..2!B#))!9'%'#!d)-N#&.-'7!B&#..2!E.\\(\pi\*2!5?.,(-()2!\)
52("$. %+$3+>, &3&<'*?462!K&('3*-+&7+; ...-. \%*\%\$, *-+H\$\%2&'62!\%) A!*'5#&. @!
a0'#&)%0!J#N-#b#&2!G-)#!1&'.!"#$'2!9'@!1).#0(!3*00#4#2!f6@!<%7!C=C8@!
15\#!F)'#&)%'-*)%0!3#)'#&!*+!<#A-#N%0!1&'!!
                                                                                                                  2!-)N-'#A!%)A!#0#;'#A!$*.-'-*)2!C=CDRC=C^@!!
                       J#.$*).-M0#!+*&!)*(-)%'-)4!.;5*0%&.!+*&!.#%'.!*)!'5#!U*%&A!*+!"-&#;'*&.!%)A!'5#!)#0'!
                      f * (-)%'-)4!3 * ( (-''##2!#0#; '#A!$*.-'-*)@!C=CCRCD@
```

 $I5\#!\#05-M-'-*)!b\%.!*)\#!*+!'b*!5-450-45'\#A!M7!'5\#! f a 6!"-N-.-*)!*+!B/M0-;!B\&*4\&\% (.!-)!'5\#-\&!L\%)/\%\&7!C=CD!)\#b.0\#''\#\&\emptyset!$ 

!

"#\$%&'(!\*)!

- I / '\*&-%02!E < #A-#N%0!P0\*M%0! 1 & '2K!T#) )#'5!: \*)4!SC^@!9\$&-)4!C=CC!
- : #-..!9/((#&!J#.#%&;5!B&\*4&%(@!!f-)%!<%.-)R<\*7#&!SCC@!!9/((#&!C=C8!
- I / '\*&-%02!E 1 &'! 6 . '\*&7!% ) A!9 '\*&72K!L%A%! 3 0%&X#!SC=@!G%00!C=8[!

!!

F) '#&N-#b#A!&#4%&A-)4!EU&-)4-)4!'5#!6\*07!Z%)A!6\* (#K!+\*&!d)-N#&.-'7!\*+!35-;%4\*!\$&\*+#..\*&! 1)'5\*)7!T%0A#00-.S.!\$\*A;%.'2!EU7Y%)'-/ (!\!G&-#)A.@K!!a%;5!#\$-.\*A#!\*+!'5-.!\$\*A;%.'!&#;#-N#.! %M\*/'!`2===!A\*b)0\*%A.@!B\*A;%.'!%-&#A!\*)!L%)@!C>2!C=CD@!

5''\$.HjjM7Y%)'-/(%)A+&-#)A.@\$\*AM#%)@;\*(j#j[>R5\*bR'\*R\*&4%)-Y#R%R(/.#/(R#O5-M-'-\*)RiR%)AR M&-)4R'5#R5\*07R0%)AR5\*(#Rb-'5R%(%)A%R0/7.'#&j!!

 $<7!\&\#.\#\%\&;5!b\%.!'5\#!./Me\#;'!*+!\%)!\%\&'-;0\#!-)!'5\#!Z*)A*)!)\#b.\$\%\$\#\&!'5\#!>3".2.3".322!EJ\#N\#\%\#A!!\\Z*)A*)S.!0*)4R0*.'!(#A-\#N\%0!$\%0\%;\#!\&\#;\&\#\%'\#A!\%+'\#\&!^*==!7\#\%\&.0!8.''$.\#*-+*'2+\$3\#.\%2\$<*2&'-+!)*3''*+\\I(6\%2.'-+4*\%+)*3*<.''+2&+''\$<\$2*--6+'.*\%.)G-.+)&\%2+&7+*+)&\%*\$,+2*#.).32+''.\$<\$2*--6+'.*\%.\)G-.+)&\%2+&7+*+)&\%*\$,+2*#.).32+''.\$<\$3*--6+'.*\%.\)Hightarrow A!T#7.2!$/M0-.5#A!*)!L%)0!C^2!C=CD0!!I5#!F)A#$#)A#)'S.!(*)'507!\%/A-#);#!-.!*N\#&!C[!(-00-*)!-)A-N-A/\%0.0!\frac{5}''\$.\\#jbbb\@-)A\#\$#)A\#)'\@;*\@/Xj)\#b.j/Xj5*(\#R)\#b.j0*)A*)R\&*7\%0R\$\%0\$;\#R(*.\%-;RMCC)[=D=\@5''(0!!)$ 

F)'#&N-#b#A!&#4%&A-)4!'5#!35#&'.#7!'-0#.!+\*&!'5#!EP\*)#!<#A-#N%0K!\$\*A;%.'2!\$%&'!\*+!'5#!E6-.'\*&7!
6-'.K!)#'b\*&X2!E%!4&\*b-)4!&%)4#!\*+!\$\*A;%.'.!\$&#.#)'#A!M7!%)A!+#%'/&-)4!5-.'\*&-%).!%'!'5#!
+\*&#+&\*)'!\*+!&#.#%&;5!%)A!A#M%'#@K!EP\*)#!<#A-#N%0K!5%.!5%A!)#%&07!'#)!(-00-\*)!A\*b)0\*%A.@!!
B\*A;%.'!%-&#A!\*)!L%)@!C^2!C=CD@!