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

*

O . "!" 4#5** +6789:; <*=:6>>*6?@*6@AB?B=:C6:DC=*6:*) EF*1EC=E; *, B:; *&?BGEC=B:; *H) 1, &I* =J6CE*6?*6KB@B?L*7DAAB:AE?:*:D*A6B?:6B?*6?*E@876:BD?69*E?GBCD?AE?:*FJECE* =:8@E?:*9E6C?B?L*B=*7E?:C69*:D*:JE*AB==BD?*D>*:JE*8?BGEC=B:; M*6?@*

*

0 . " ! " 4 #5*** ! "#\$%&#'() * #' &#"\$+',\$) - %\$. /0) 1 / '/2#3#'()4/\$)5##')&/3/2%'2)(+)(4#) 6 '%7#"\$%(8,\$)\$(/(9"#)/'&)\$9\$(/%'/5%%8:***

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*

 $\label{eq:fj} FJ; *: JE*\&?BGEC=B:; *B=*B?*=87J*6*@EEN*>B?6?7B69*7CB=B=*J6GE*KEE?*>&/, \$\&+!'(*>CDA*: JEBC*=: 8@; \nabla**$

'JE*CNa*QCD8N*CENDC:*FB99*E=:6K9B=J*6*?6CC6:BGE*:J6:*:JE*>B?6?7B69*BANCDGEAE?:*D>*
)1, &*B=*D?9;*ND==BK9E*GB6*@EEN*78:=*B?:D*:JE*676@EAB7*=B@E*D>*D8C*DNEC6:BD?=5*
@EN6C:AE?:=<*>899

#:8@E?:=*6=a*FJ;*:JE*&?BGEC=B:;*B=*K8B9@B?L*98b8C;*6N6C:AE?:=*:J6:*:JE;*DC*:JEBC*
>6AB9BE=*76??D:*6>>DC@W*4:*:JE=6AE*:BAE<::JE;*=EE*:8B:BD?*B?7CE6=B?L*6?@*E==E?:B69*
=ECGB7E=*@E7CE6=B?L*``*=ECGB7E=*:J6:*6CE*>&/;'.*:D*BANCDGE*LC6@86:BD?*6?@*
CE:E?:BD?W*%8b8C;*6N6C:AE?:=*@D*./:*BANCDGE*LC6@86:BD?*6?@*CE:E?:BD?*C6:E=<*?DC*
6=*N96??E@*@D*:JE;*=JDF*=BL?=*D>*6NNCDNCB6:E*CE:8C?*D?*B?GE=:AE?:W**(:*9DDa=*9BaE*
=:C87:8C69*C67B=A*FJE?*)1, &*=EEA=*:D*KE*6B@B?L*6?@*6KE::B?L*LE?:CB>B76:BD?W*'JB=*
=JD89@*KE*6GDB@E@*?D:*D?9;*>DC*:JE*DN:B7=*B:*NCE=E?:=<*K8:*D?*NCB?7BN9EW*#:8@E?:*
=877E==*=JD89@*69F6;=*KE*D8C*JBLJE=:*NCBDCB:;W*



#D8C7E=**

 $\overline{J::N=5ggFFF}\|?\78\|E@8g=B:E=g@E>689:g>B9E=g@D7=gRSRT\SRg+B?69h48@B:E@h+2RSh)EF1EC=E;,B:;&?BGEC=B:;h+\#\|N@>^*\\ \underline{J::N=5ggFFF}\|?\78\|E@8g=B:E=g@E>689:g>B9E=g>B=769h;E6ChRST]h>B?6?7B69h=:6:EAE?:=\|N@>^*$

*

* #D8C7E=5** *

