

!" #&/
4;O <548G=>3> 70AB>AC20==O ;V:0@AL:>3> 70A>1C

" □ □

LAMICTAL □

C:;04:

4VNG0 @5G>28=0: ;0<>B@8468=;
1 B01;5B:0 01> 50 <3, 01> 100 <3;
4>?>28=8: ;0:B>78 <=>3V4@0B, F5;N;>70 :@8AB0;VG=0, ?>2V4=> 30, =0B@VN :@>E<0;L3;V:>;OB
(B8?), 70;V70 >:A84 6>2B89 (172), <03=VN AB50@0B.

V:0@AL:0 D>@<0. "01;5B:8.

A=>2=V DV78:>-EVABV: 1;V4>-6>2BC20B>.:>@8G=52>3> :>;L>@C 1030B>3@0==0 AC?5@5;V?B8G=0
B01;5B:0 7 3;045=L:>N ?>25@E=5N, 7 <0@:C20==O< GSEC7 7 >4=>3> 1>:C B0 25 7 V=H>3> (4;O 25 <3
B01;5B:8), 7 <0@:C20==O< GSEE1 7 >4=>3> 1>:C B0 50 7 V=H>3> (4;O 50 <3 B01;5B:8), 7 <0@:C20==O<
GSEE5 7 >4=>3> 1>:C B0 100 7 V=H>3> (4;O 100 <3 B01;5B:8).

\$0@<0:>B5@0?52B8G=0 3@C?0. @>B85?V;5?B8G=V 70A>18. 0<>B@8468=.
>4 "% N03A X09.

\$0@<0:>;>3VG=V 2;0AB82>ABV.

\$0@<0:>48=0

0<>B@8468= F5 ?@>B8AC4><=89 ?@5?0@0B, <5E0=V7< 4VW O:>3> ?>2O70=89 7 1;>;C20==O<
>?B5=FV0;70;56=8E =0B@VT28E :0=0;V2 ?@5A8=0?B8G=8E <5<1@0= =59@>=V2 C D07V ?>2V;L=>W
V=0:B820FVW B0 ?@83=VG5==O< =04;8H:>2>3> 282V;L=5==O 3;CB0<0BC (0:8A;>B8, O:0 2V4V3@0T
7=0G=C @>;L C @>728B:C 5?V;5?B8G=>3> =0?04C).

\$0@<0:>:V=5B8:0.

VA;O ?5@>@0;L=>3> ?@89> B0 ?>2=VABN 01A>@1CTBLAO 7V H;C=:>2>-.8H:>2>3> B@0:BC. 0:A8
<0;L=0 :>=F5=B@0FVO C ?;072V 4>AO30TBLAO ?@81;87=> G5@57 2,5 3>48=8.
0<>B@8468= 0:B82=> <5B01>;V7CTBLAO, 3>;>2=8< <5B01>;VB< T N-3;N:>@>=V4. # A5@54=L>4
=0?V2282545==O C 4>@>A;8E AB0=>28BL 29 3>48=. 0, 3>;>2=8< G8=><, C 283;04V <5B01>;V BV2 B0
G0AB:>2> C =57 7 A5G5N. # 4VB59 ?5@V>4 =0?V2282545==O <5=H89, =V6 C 4>@>A;8E.

!?5FV0;L=V 3@C?8 ?0FVT=BV2.

VB8.

;V@5=A 70;56=> 2V4 <0A8 BV;0 C 4VB59 28I89, =V6 C 4>@>A;8E, 7 =0928I8<8 ?>:07=8:0<8 C 4VB59
2V:>< 4> 5 @>:V2. 5@V>4 =0?V2282545==O ;0<>B@868=C C 4VB59 70728G09 :>@>BH89, =V6 C
4>@>A;8E, V7 A5@54=V< 7=0G5==O< ?@81;87=> 7 3>48=, ?@8 >4=>G0A=>AC20==V 7 B0:8<8
V=4C:B>@0<8 5=78AC20==V 28=OB:>2> 7 20;L?@>0B>

0FVT=B8 ;VB=L>3> 2V:C.

57C;LB0B8 D0@<0:>:V=5B8G=>3> 0=0;V7C C 3@C?0E ?0FVT=BV2, O:89 2;;NG02 O: ?0FVT=BV2
;VB=L>3> 2V:C, B0: V <>;>48E ?0FVT=BV2 7 5?V;5?AVTN, O:V ?@89<0;8 CG0ABL 2 >4=>A;V465==V,
28O28;8, I> ;;V@5=A ;0<>B@8468=C =5 7 ;;V=VG=> 7=0GCI>3> ?>:07=8:0. VA;O >4=>@07>28E 4>7
O2=89 ;;V@5=A 7<5=H82AO =0 12 % 7 35 <;/E2/:3 C 2VfV 20 @>:V2 4> 31 <;/E2/:3 C 2VfV 70 @>:V2.
=865==O ?VA;O 48 B86=V2 ;V:C20==O AB0=>28;> 10 % 2V4 41 4> 37 <;/E2 (0,39 <;/E2/:3)
7=0E>48BLAO

0FVT=B8 7 ?>@CH5==O< DC=:FV9 =8@>:.

12 4>1@>2>;LFO< V7 E@>=VG=8<8 ?>@CH5==O<8 DC=:FV9 =8@>:, 0 B0:>6 6 ?0FVT=B0<, I>
?@>E>4OBL 35<>4V0;V7, 1C;0 =040=0 T48=0 4>70 C 100 <3 ;0<>B@8468=C. !5@54=V 7=0G5==O CL/F
AB0=>28;8 0,42 <;/E2/:3 (E@>=VG=V ?>@CH5==O DC=:FV9 =8@>:), 0,33 <;/E2/:3 (?5@V>4 42,9
3>48=8 (E@>=VG=V ?>@CH5==O DC=:FV9 =8@>:), 57,4 3>48= (?5@V>4 20 % (2V4 5,6 4> 35,1) 2V4
?@8ACB=L>W C BV;V :V;L:>ABV ;0<>B@8468=C 7=86C20;>AL 2?@>4>26 G>B8@83>48==>W A5AVW
35<>4V0;V7C. ;O 40=>W 3@C?8 ?0FVT=BV2 287=0G5==O ?>G0B:>2>W 4>78 0B85?V;5?B8G=8E

?@5?0@0BV2 ?0FVT=B><; 7=865==O ?V4B@8W 4>78 <>65 1CB8 5D5:B82=8< 4;O ?0FVT=BV2 7V
 7=0G=>N DC=:FV>=0;L=>N =8@:>2>N =54>AB0B=VABN.
 0FVT=B8 7 ?>@CH5==O< DC=:FV9 ?5GV=:8.
 \$0@<0:>:V=5B8G=5 4>A;V465==O >4=>@07>2>W 4>78 ?@>2>48;>AL 7 CG0ABN 24 ?0FVT=BV2 V7
 @V7=8< ABC?5=5< ?>@CH5==O DC=:FV9 ?5GV=:8 B0 12 74>@>28E ?0FVT=BV2 C :>=B@>;L=V9
 3@C?V. !5@54=T 7=0G5==O O2=>3> ;;V@5=AC ;0<>B@8468=C AB0=>28;> 0,31, 0,24 B0 0,10 <;
 /E2/:3 C ?0FVT=BV2 7V ABC?5=5< , B0 ! (70 ::0A8DV:0FVTN '09;4-N) ?>@CH5==O DC=:FV9 ?5GV=:8
 2V4?>2V4=> ?>@V2=O=> 7 0,34 <;/E2/:3 C 74>@>28E ?0FVT=BV2 V7 :>=B@>;L=>W 3@C?8. 0728G09
 ?>G0B:>20, ?V428I5=0 B0 ?V4B@878 <0NBL 1CB8 7<5=H5=V ?@81;87=> =0 50 % C ?0FVT=BV2 V7 ?>C
 4>78 =5>1EV4=> :>@83C20B8 70;56=> 2V4 @50:FVW =0 ;V:C20==O.

;V=VG=V E0@0:B5@8AB8:8.

>:070==O.

?V;5?AVO.

>@>A;V B0 4VB8 2V:< 2V4 12 @>:V2: <>=>B5@0?VO B0 4>40B:>20 B5@0?VO 5?V;5?AVW, 7>:@5<0
 ?0@FV0;L=8E V 35=5@0;V7>20=8E =0?04V2, 2;;NG0NG8 B>=V:>-;=>=VG=V =0?048, 0 B0:>6 =0?048,
 ?>2O70=V V7 A8=4@><< 5==>:A0-0AB>.

VB8 2V:< 2V4 2 4> 12 @>:V2: 4>40B:>20 B5@0?VO 5?V;5?AVW, 7>:@5<0 ?0@FV0;L=8E V
 35=5@0;V7>20=8E =0?04V2, 2;;NG0NG8 B>=V:>-;=>=VG=V =0?048, 0 B0:>6 =0?048, ?>2O70=V V7
 A8=4@><< 5==>:A0-0AB>.

VA;O 4>AO3=5==O :>=B@>;N =0?04V2 ?@89< 4>?>

>=>B5@0?VO B8?>28E 01A0=AV2.

V?>;O@=V @>7;048 (4>@>A;V).

;O 70?>1V30==O D070< 5<>FV9=8E ?>@CH5=L C E2>@8E =0 1V?>;O@=V @>7;048, ?5@5206=>

?>?5@5460NG8 45?@5A82=V 5?V7>48.

@>B8?>:070==O.

0B8?>:070=89 ?0FVT=B0< V7 2V4><>N 3V?5@GCB;82VABN 4> ;0<>B@8468=C 01> 4> 1C4L-O:>3>
 V=H>3> :>=5=B0 ?@5?0@0BC.

70T<>4VO 7 V=H8<8 ;V:0@AL:8<8 70A>10<8 B0 V=HV 2848 270T<>4V9.

C;> 2AB0=>2;5=>, I> C@848=48D>AD>3;N:C@>=V;B@0=AD5@070 F5 D5@<5=B, O:89 2V4?>2V40T 70
 <5B01>;V7< ;0<>B@8468=C. 5<0T 4>:07V2 B>3>, I> ;0<>B@8468= <>65 A?@8G8=8B8 ;;V=VG=>
 7=0GCIC AB8 ?@83=VG5==O >.8A=8E D5@<5=V7 ?5GV=:8, I> 15@CBL CG0ABL C <5B01>;V7

"01;8FO 1.

?;82 V=H8E ;V:V2 =0 3;N:C@>=V70FVN ;0<>B@8468=C

V:8, O:V 7=0G=> ?@83=VGCNBL 3;N:C@>=V70FVN ;0<>B@8468=C	V:8, O:V 7=0G=> V=4C:CNBL 3;N:C@>=V70FVN ;0<>B@8468=C	V:8, O:V =5 ?@83=VGCNBL B0 =5 V=4C:CNBL 3;N:C@>=V70FVN ;0 <>B@8468=C
0;L?@>0B	0@10<075?V= \$5=VB>W= @8= \$5=>10@1VB0; 8D0 >?V=02V@/@8B>=02V@ B070=>2V@/@8B>=02V@* ><1V=0FVO «5B8=V;5AB@04V>; /;52>=>@35AB@5;L**»	VBV9 C?@>?V>= ;0=70?V= :A:0@1075?V= \$5;10<0B 010?5=B8= 525B8@0F5B0< @53010;V= ">?V@0<0B >=V70 @8?V?@07>;

* 482. @>74V; «!?!>AV1 70AB>AC20==O B0 4>78».

** =HV ?5@>@0;L=V :=B@0F5?B828 B0 3>@<>=>70=8 <>6CBL 0=0;>3VG=> 2?;820B8 =0 D0@<0:>:V=5B8G=V 2;0AB82>ABV ;0<>B@8468=C (482. @>74V; «!>AV1 70AB>AC20==O B0 4>78» B0 @>74V; «A>1;82>ABV 70AB>AC20==O»).

70T<>4VO 7 ?@>B85?V;5?B8G=8<8 ?@5?0@0B0<8.

0;L?@>0B, O:89 30;L=V70FVN ;0<>B@8468=C, 7=86CT <5B01>;V7< ;0<>B@8468=C V 71V;LHCT A5@54=V9 ?5@>V>4 =0?V2282545==O ?@81;87=> 2 2 @078.

5O:V ?@>B85?V;5?B8G=V ?@5?0@0B8 (B0:V O: D5=VB>W=, :0@10<075?V=, D5=>10@1VB0; V ?@8=), I> V=4C:CNBL ?5GV=>2V D5@<5=B8, V=4C:CNBL <5B01>;V7< 3;N:C@>=V70FVW ;0<>B@8468=C B0 ?@8A:>@NNBL <5B01>;V7< ;0<>B@8468=C.

?>2V4><;5==O ?@> ?>1VG=V O28I0 7 1>:C F5=B@0;L=>W =5@2>2>W A8AB5<8, I> 2;;NG0;8 70?0 <>@>G5==O, 0B0:AVN, 48?;>?VN, ?>@C V =C4>BC C ?0FVT=V2, O:V >B@8

4>A;V465==V =0 74>@>28E 4>@>A;8E 4>1@>2>;LFOE, O:V 70AB>A>2C20;8 4>7C ;0<>B@8468=C 200 <3 B0 4>7C >:A:0@1075?V=C 1200 <3, 1C;> 28O2;5=>, I> >:A:0@1075?V= =5 7

4>A;V465==V =0 74>@>28E 4>1@>2>;LFOE 1C;> 28O2;5=>, I> ACAC20==O D5;10<0BC C 4>7V 1200 <3 2 @078 =0 4>1C V ;0<>B@8468=C C 4>7V 100 <3 2 @078 =0 4>1C 2?@>4>26 10 4=V2 =5 <0;> ;;V=VG=> 7=0GCI>3> 2?;82C =0 D0@<0:>:V=5B8:C >AB0==L>3>.

V4?>2V4=> 4> 40=8E @5B@>A?5:B82=>3> 0=0;V7C ?;07<>28E @V2=V2 C ?0FVT=V2, O:V 70AB>A>2C20;8 ;0<>B@8468= V7 01> 157 3010?5=B8=C, 1C;> 28O2;5=>, I> 3010?5=B8= =5 7 >B5=FV9=0 <548:0<5=B>7=0 270T<>4VO < B0 ;0<>B@8468=>< 1C;0 282G5=0 H;OE<< >FV=N20==O @V2=O :=F5=B@0FV9 >1>E ?@5?0@0BV2 C A8@>20BFV :@>2V ?V4 G0A ?;0F51>:=B@>;L>20=8E ;;V=VG=8E 4>A;V465=L. V4?>2V4=> 4> F8E 40=8E @5G>28=8 =5 7

!BV9:0 :=F5=B@0FVO ;0<>B@8468=C C ?;072V =5 7AC20==V 7 ?@53010;V=<< (200 <3 3 @078 =0 4>1C). \$0@<0:>:V=5B8G=>W 270T<>4VW

">?V@0<0B =5 2?;820T =0 ?;07<>2C :=F5=B@0FVN ;0<>B@8468=C. 0AB>AC20==O ;0<>B@8468=C =0 15 % 71V;LHCT :=F5=B@0FVN B>?V@0<0BC.

0 40=8<8 4>A;V465==O, 70AB>AC20==O 7>=VA0

%>G0 >?8A0=V 28?04:8 7=F5=B@0FVW V=H8E ?@>B85?V;5?B8G=8E ?@5?0@0BV2 C ?;072V, :=B@>;L=V 4>A;V465==O ?>:070;8, I> ;0<>B@8468= =5 2?;820T =0 :=F5=B@0FVN C ?;072V AC?CB=VE ?@>B85?V;5?B8G=8E 70A>1V2. 57C;LB0B8 4>A;V465=L in vitro 70A2V4G8;8, I> ;0 <>B@8468= =5 28BVA=OT V=HV ?@>B85?V;5?B8G=V ?@5?0@0B8 7 WE=VE 7207:V2 7 1V;;&8.

70T<>4VO 7 V=H8<8 ?A8E>B@>?=8<8 @5G>28=0<8.

@8 >4=>G0A=> 100 <3/4>1C ;0<>B@8468=C B0 2 3 3;N:>=0BC ;VBN, I> 70AB>A>2C202AO 2 @078 =0 4>1C 2?@>4>26 6 4=V2 20 ?0FVT=B0<8, D0@<0:>:V=5B8:0 ;VBN =5 7

030B>@07>2V ?5@>@0;L=V 4>78 1C?@>?V>=C =5 <0;8 AB0B8AB8G=> 7=0GCI>3> 2?;82C =0 D0@<0:>:V=5B8:C ;0<>B@8468=C 2 4>A;V465==V =0 12 ?0FVT=B0E, ;8H5 ?@8725;8 4> A;01:>3> ?V428I5==O @V2=O 3;N:C@>=V4C ;0<>B@8468=C.

4>A;V465==V =0 74>@>28E 4>@>A;8E 4>1@>2>;LFOE 15 <3 >;0=70?V=C 7<5=HC20;8 ?;>IC ?V4 :@82>N «:>=F5=B@FVO-G0A» B0 C_{max} ;0<>B@8468=C 2 A5@54=L>2V4=>. "0:89 28A>:89 5D5:B C ;;V=VG=V9 ?@0:B8FV 7CAB@VG0TBLAO @V4:>. 200 <3 ;0<>B@8468=C =5 2?;820T =0 D0@<0:>:V=5B8:C >;0=70?V=C.

030B>@07>2V ?5@>@0;L=V 4>78 ;0<>B@8468=C 400 <3 =0 4>1C =5 A?@8G8=O;8 ;;V=VG=> 7=0GCI>3> 2?;82C =0 D0@<0:>:V=5B8:C @8A?5@84>=C ?@8 ?@89>2>W 4>78 2 <3 C 4>A;V465==OE 70 CG0ABN 14 74>@>28E 4>@>A;8E 4>1@>2>;LFOE. @8 ACAC20==V 2 <3 @8A?5@84>=C @07>< V7 ;0<>B@8468=>< C 12 V7 14 4>1@>2>;LFOE ?>2V4><;O;>AO ?@> 28=8:=5==O A>=;82>ABV ?>@V2=O=> 7 1 =0 20 4>1@>2>;LFO<8 ?@8 70AB>AC20==V ;8H5 @8A?5@84>=C. 5 28O2;5=> 6>4=>3> 28?04:C A>=;82>ABV ?@8 70AB>AC20==V BV;L:8 ;0<>B@8468=C.

;;V=VG=>A;V465==V 7 70;CG5==O< 18 4>@>A;8E ?0FVT=V2 7 1V?>;O@=8< @>7;04><, O:V >B@8C_{max} B0 AUC ;0<>B@8468=C. 5 >GV:CTBLAO, I> 5D5:B B0:8E 7

:A?5@8<5=B8 in vitro?>:070;8, I> =0 D>@3> <5B01>;VBC ;0<>B@8468=C, N-3;N:C@>=V4C, ;8H5 N <>65 <0B8 2?;82 0;C C A><0E ?5GV=:8 ;N48=8 <>6=0 287=0G8B8, I> ;0<>B@8468= =5 7<5=HCT ;;V@5=A ?@5?0@0BV2, O:V <5B01>;V7CNBLAO, 3>;>2=8< G8=><, 70 4>?><>3>N CYP2D6. 57C;LB0B8 in vitro 5:A?5@8<5=V2 B0:>6 40NBL <>6;82VABL AB25@46C20B8, I> =0 ;;V@5=A ;0<>B@8468=C =02@04 G8 <>6CBL 2?;8=CB8 ;;>70?V=, D5=5;78=, @8A?5@84>=, A5@B0;V= 01> B@07>4>=.

70T<>4VO 7 3>@<>=0;L=8<8 :>=B@0F5?B820<8.

?;82 3>@<>=0;L=8E :>=B@0F5?B82V2 =0 D0@<0:>:V=5B8:C ;0<>B@8468=C.

4>A;V465==V 7 CG0ABN 16 6V=>:-4>1@>2>;Lfv2, O:V 70AB>A>2C20;8 B01;5B:C 7 :<1V=0FVTN
<<5B8=V;5AB@04V>; 30=>@35AB@5;L 150 2V47=0G5=> 71V;LH5==O 282545==O ;0<>B@8468=C
?@81;87=> C 2 @078, I> C A2>N G5@3C A?@8G8=8;> 7<5=H5==O ?;>IV ?V4 :@82>N <<:=F5=B@0FVO-
G0A» B0 C_{max} ;0<>B@8468=C 2 A5@54=L>2V4=>. >=F5=B0FVO ;0<>B@8468=C C A8@>20BFV :@>2V
?>ABC?>2> 7@>AB0;0 2?@>4>26 B86=52>W ?5@5@28, 4>AO30NG8 :>=F5=B@0FVW 1;86G5 4> :V=FO
B86=52>W ?5@5@28 C A5@54=L> C 2 @078 28I5, =V6 ?@8 ACAC20==V ?@5?0@0BV2 (482. @>74V;
<!>AV1 70AB>AC20==O B0 4>78» B0 @>74V; «A>1;82>ABV 70AB>AC20==O»).

?;82 ;0<>B@8468=C =0 D0@<0:>:V=5B8:C 3>@<>=0;L=8E :>=B@0F5?B82V2.

0 40=8<8 4>A;V465=L, C 16 6V=>:-4>1@>2>;Lfv2 =5770 ;0<>B@8468=C 300 <3 =5 2?;820;0 =0 D0@
<0:>:V=5B8:C 5B8=V;5AB@04V>;C, O:89 T G0AB8=>N :<1V=>20=>W B01;5B:8 ?5@>@0;L=>3>
:>=B@0F5?B820. !?>AB5@V30;>AL ?>ABV9=5 =525;8:5 71V;LH5==O 282545==O ;52>=>@35AB@5;N,
I> C A2>N G5@3C A?@8G8=O;> 7<5=H5==O ?;>IV ?V4 :@82>N <<:=F5=B@0FVO-G0A» B0 C_{max}
;52>=>@35AB@5;N C A5@54=L>2V4=>. 820B:>2>3> @V2=O D>;V:C;>AB83> 3>@<>=C B0
;NB5W=V7CNG>3> 3>@<>=C, B0 5AB@04V>;C 2?@>4>26 4>A;V465==O ?>:070;> ?@83=VG5==O
OTG=8:>2>W 3>@<>=0;L=>W 0:B82=>ABV C 450:8E 6V=>:, E>G0 2835AB5@>=C C A8@>20BFV
:@>2V 28O28;8, I> =5<0T =VO:8E 3>@<>=0;L=8E A82C;OFVW C 6>4=>W V7 16 6V=>:. ?;82 720B:>28E
D>;V:C;>AB83> B0 ;NB5W=V7CNG>3> 3>@<>=V2 B0 =57=0G=>3> 71V;LH5==O 282545==O
;52>=>@35AB@5;N =0 0:B82=VABL OTG=8:>2>W >2C;OFVW =52V4<89 (482. @>74V; «A>1;82>ABV
70AB>AC20==O»). ?;82 ;0<>B@8468=C C 4>1>2V9 4>7V ?>=04 300 <3 =5 4>A;V46C202AO. >A;V465==O
V=H8E 3>@<>=0;L=8E :>=B@0F5?B82V2 B0:>6 =5 ?@>2>48;8AL.

70T<>4VO 7 V=H8<8 ;V:0<8.

4>A;V465==V 7 CG0ABN 10 G>;>2V:V2-4>1@>2>;Lfv2, O:V ?@89<0;8 @8D04 =0?V2282545==O ;0
<>B@8468=C 2=0A;V4>: V=4C:FVW ?5GV=>:28E D5@<5=BV2, 2V4?>2V40;L=8E 70
3;N:C@>=V70FVN. # ?0FVT=BV2, O:V >B@8 70AB>AC20==O B0 4>78»).

0 40=8<8 4>A;V465=L ?@>2545=8E =0 74>@>28E 4>1@>2>;LFOE, ;>?V=02V@/@8B>=02V@ ?@81;87=>
242VGV 7=86CNBL ?;07<>2C :>=F5=B@0FVN ;0<>B@8468=C H;OE<< V=4C:FVW 3;N:C@>=V70FVW.
;O ;V:C20==O ?0FVT=BV2, O:V 265 70AB>A>2CNBL ;>?V=02V@/@8B>=02V@, A;V4 4>B@8
<5=4>20=>3> ?@8 70AB>AC20==V ;0<>B@8468=C B0 V=4C:B>@V2 3;N:C@>=V70FVW (482. @>74V;
<!>AV1 70AB>AC20==O B0 4>78»).

0 40=8<8 4>A;V465=L =0 74>@>28E 4>1@>2>;LFOE, 70AB>AC20==O 0B070=02V@C/@8B>=02V@C
(300 <3/100 <3) 7<5=HC20;> AUC B0 C_{max} ;0<>B@8468=C 2 ?;072V (C 4>7V 100 <3) C A5@54=L> 32 %
B0 6 % 2V4?>2V4=> (482. @>74V; <!>AV1 70AB>AC20==O B0 4>78»).

0 40=8<8 7 282G5==O in vitro 2?;82C ;0<>B@8468=C =0 >@30=VG=V :0BV>==V B@0=A?>@B5@8 2 ("
2) 1C;> ?@>45<>=AB@>20=>, I> ;0<>B@8468=, 0;5 =5 N(2)-3;N:C@>=V4 <5B01>;VB, T V=3V1VB>@<
" 2 C ?>B5=FV9=> ;V=VG=> 7=0GCI8E :>=F5=B@0FVOE. &V 40=V 45<>=AB@CNBL, I> ;0<>B@8468=
T ?>BC6=VH8< V=3V1VB>@<< " 2, =V6 F8<5B848=, 7 !50 ?>:07=8:0<8 53,8 μB0 186 μ2V4?>2V4=> (482.
@>74V; «A>1;82>ABV 70AB>AC20==O»).

70T<>4VO V7 70;CG5==O< ;01>@0B>@=8E B5ABV2.

>2V4><;O;>AL ?@> 270T<>4VN ;0<>B@8468=C 7 B5AB0<8, I> 70AB>A>2CNBLAO 4;O H284:>3>
287=0G5==O 45O:8E ;V:0@AL:8E 70A>1V2 C A5GV, @57C;LB0B< G>3> <>6CBL AB0B8 E81=>-
?>78B82=V ?>:07=8:8, >A>1;82> ?@8 287=0G5==V D5=F8;;848=C. ;O ?V4B25@465==O ?>78B82=8E
@57C;LB0BV2 =5>1EV4=> 70AB>AC20B8 0;LB5@=0B82=89 1V;LH A?5F8DVG=89 EV

A>1;82>ABV 70AB>AC20==O.

!75FV0;L=V 70AB5@565==O.

(:V@=V 28A8?0==O.

?@>4>26 ?5@H8E 8 B86=V2 2V4 ?>G0B:C ;V:C20==O ;0<>B@8468=><< <>65 28=8:0B8 ?>1VG=0 4VO 7
1>:C H:V@8 C 283;O4V 28A8?0=L. # 1V;LH>ABV 28?04:V2 28A8?0==O T ?>=8E =0;560;8 28?04:8
28A8?0=L, I> ?>B5=FV9=> 703@>6CNBL 68BBN, B0:8E O: A8=4@< !BV25=A0-6>=A>=0 V B>:A8G=89
5?V45@<0;L=89 =5:@>;V7 (482. @>74V; <<1VG=V @50:FVW»).

4>@>A;8E, O:V 1@0;8 CG0ABL C 4>A;V465==OE V7 70AB>AC20==O< ACG0A=8E @5:><5=40FV9 7 4>7C20==O 0B0 BO6:8E H:V@=8E 28A8?0=L AB0=>28BL ?@81;87=> 1=0 500 E2>@8E =0 5?V;5?AVN. @81;87=> C ?>;>28=8 F8E 28?04:V2 4V03=>ABC202AO A8=4@>× !BV25=A0-6=>A=>0 (1 =0 1000).

'0AB>B0 BO6:8E H:V@=8E 28A8?0=L C E2>@8E =0 1V?>;O@=V @>7;048 AB0=>28BL 1 =0 1000.

4VB59 @878: 28=8:=5==O A5@9>7=8E H:V@=8E 28A8?0=L 28I89, =V6 C 4>@>A;8E.

0 40=8<8 4>A;V465=L, G0AB>B0 28?04:V2 28A8?0=L, I> ?@872>48;8 4> 3>A?VB0;V70FVW, C 4VB59 20@VNT 2V4 1 =0 300 4> 1 =0 100 E2>@8E.

4VB59 ?5@HV >7=0:8 H:V@=8E 28A8?0=L <>6CBL 1CB8 ?><8;:>2> A?@89=OBV 70 V=D5:FVN, B> 030;L=89 @878: 28=8:=5==O H:V@=8E 28A8?0=L, >G5284=>, BVA=> ?>2O70=89 V7 28A>:8-8

?>G0B:>28<8 4>70<8 ;0<>B@8468=C B0 ?5@528I5==O< @5:><5=4>20=>W AE5<8 71V;LH5==O 4>7 ?@8 B5@0?VW ;0<>B@8468=>< (482. @>74V; «!>AV1 70AB>AC20==O B0 4>78»), 0 B0:>6 V7 AC?CB=V< 70AB>AC20==O< 20;L?@>0BC (482. @>74V; «!>AV1 70AB>AC20==O B0 4>78»).

>15@56=VABN A;V4 70AB>A>2C20B8 ;0<>B@8468= 4;O ;V:C20==O E2>@8E, O:V <0;8 0;5@3VN 01> 28A8?0==O ?@8 70AB>AC20==V V=H8E ?@>B85?V;5?B8G=8E ?@5?0@0BV2 2 0=0<=57V, >A:V;L:8 G0AB>B0 ?>O28 ?>

@8 ?>O2V 28A8?0=L =0 H:V@V A;V4 =5309=> >3;O=CB8 ?0FVT=B0 (O: 4>@>A;>3>, B0: V 48B8=C) B0 ?@8?8=8B8 ?@89< 0 =5<0T 4>:07V2, I> H:V@=V 28A8?0==O =5 ?>2O70=V 7 ?@89<< ?@5?0@0BC. 5 @5:><5=4CTBLAO ?>2B>@=> @>7?>G8=0B8 ;V:C20==O ;0<>B@8468=><, :>8 2>=> 1C;> ?@8?8=5=> G5@57 ?>O2C 28A8?0=L 2=0A;V4>: ?>?5@54=L>3> ;V:C20==O ;0<>B@8468=>4> ?>2B>@=>3> ?@87=0G5==O ?@5?0@0BC =5>1EV4=> 72068B8 >GV:C20=C :>@8ABL 2V4 ;V:C20==O B0<>6;8289 @878:.

"0:>6 ?>2V4<>;O;>AO, I> H:V@=V 28A8?0==O T G0AB8=>N A8=4@>ABV, O:89 AC?@>2>46CTBLAO @V7=><0=VB=8<8 A8AB5<=8<8 A8<0<8, I> 2:;NG0NBL 30@OG:C, ;V45=>?0BVN, =01@O: >1;8GGO, 7 2V B0 ?>@CH5==O DC=:FVW ?5GV=:8 B0 0A5?B8G=89 <5=V=3VB (482. @>74V; «>1VG=V @50:FVW).

!8=4@>< <>65 <0B8 @V7=V ABC?5=V BO6:>ABV V 7@V4:0 <>65 ?@872>48B8 4> 48A520=>3> 2=CB@VH=L>AC48==>3> 73>@B0==O :@>2V B0 ?>;V>@30==>W =54>AB0B=>ABV. 06;82> 2V47=0G8B8, I> @0==V >7=0:8 3V?5@GCB;82>ABV (=0?@8:;04, 30@OG:0 B0 ;V45=>?0BVO) <>6CBL 28=8:0B8 =02VBL ?@8 2V4ACB=>ABV H:V@=8E 28A8?0=L. @8 =0O2=>ABV B0:8E A8>3;O=CB8 B0, ?@8 2V4ACB=>ABV V=H8E ?@8G8=, ?@8?8=8B8 ?@89< 0

1V;LH>ABV 28?04:V2 ?VA;O 2V4G0AB> <0NBL BO6:VH89 E0@0:B5@. 0FVT=B0<, O:8< ;0 <>B@8468= 1C2 2V4O2>N 0A5?B8G=>3> <5=V=3VBC ?@8 ?>?5@54=L>3> ?@87=0G5==V, ?@87=0G0B8 ;0<>B@8468= ?>2B>@=> =5 <>6=0.

!CWF840;L=89 @878:.

E2>@8E =0 5?V;5?AVN<>6CBL 28=8:0B8 A8<8 45?@5AVW B0/01> 1V?>;O@=>3> @>7;04C V VA=CNBL A2V4>FB20, I> E2>@V =0 5?V;5?AVN B0 1V?>;O@=89 @>7;04<0NBL ?V428I5=89 ACWF840;L=89 @878:.

V4 25 % 4> 50 % ?0FVT=BV2 V7 1V?>;O@=8<8 @>7;040<8 <0NBL I>=09<5=H5 >4=C ACWF840;L=C A?@>1C B0 2>=8 <>6CBL 2V4GC20B8 ?>3V@H5==O A8 ?>O2C ACWF840;L=8E =0254V=:8 (ACWF840;L=VABL), =570;56=> 2V4 B>3>, 70AB>A>2C20;8 2>=8 ?@5?0@0B8 4;O ;V:C20==O 1V?>;O@=>3> @>7;04C, 7>:@5<0 0

@8 ;V:C20==V E2>@8E V7 @V7=8<8 ?>:070==O<8, 2:;NG0NG8 5?V;5?AVN, ?@>B85?V;5?B8G=8<8 ?@5?0@0B0<8 ?>2V4<>;O;>AO ?@> ACWF840;L=V =0254V=:C. 0 40=8<8 <5B0=0=0;V7C @0=4>20=8E ?>0F51> :>=B@>;L>20=8E ;V=VG=8E 4>A;V465=L V7 70AB>AC20==O< ?@>B85?V;5?B8G=8E ?@5?0@0BV2, 2:;NG0NG8 ;0<>B@8468=, 1C;> ?@>45<=>=AB@>20=> =57=0G=5 71V;LH5==O @878:C ACWF840;L=8E =0254V=:8. 5E0=V7< FL>3> @878:C =52V4<<89, 0;5 =0O2=V 40=V =5 28:;NG0NBL <>6;82>ABV 71V;LH5==O FL>3> @878:C G5@57 70AB>AC20==O ;0<>B@8468=C. ">@8E =5>1EV4=> @5B5;L> :>=B@>;N20B8 =0 =0O2=VABL C =8E >7=0: ACWF840;L=8E =0254V=:8. # @07V ?>O28 B0:8E >7=0: E2>@V B0 BV, EB> 4>3;O40NBL 70 =8-8, ?>28==V 725@=CB8AL 70 <548G=>N 4>?><>3>N.

:V=VG=5 ?>3V@H5==O ?@8 1V?>;O@=>7;04V.

0 ?0FVT=B0<8, O:V ;V:CNBLAO 0< 7 ?@82>4C 1V?>;O@=>3> @>7;04C, =5>1EV4=> C206=> A?>AB5@V30B8 ?@8 ;V=VG=>3V@H5==V (I> 2:;NG0T ?>O2C =>28E A8ABV, >A>1;82> =0 ?>G0B:C :C@AC ;V:C20==O 01> ?V4 G0A 77C20==O. # 45O:8E ?0FVT=BV2, B8E, EB> <0T 2 0=0<=57V ACWF840;L=C ?>254V=:C 01> 4CN ACWF840;L=V =0 ?>G0B:C ;V:C20==O, <>65 1CB8 1V;LH89 @878: ?>O28 ACWF840;L=8E 4C<>: 01> ACWF840;L=8E A?@>1, I> 28<030B8<5 C206=>3> =03;04C ?V4 G0A

;V:C20==O.

0FVT=BV2 (B0 >AV1, O:V 4>3;O40NBL 70 ?0FVT=B0<8) A;V4 ?>?5@5460B8 ?@> =5>1EV4=VABL
A?>AB5@565==O 70 1C4L-O:8< ?>3V@H5==O< WE=L>3> AB0=C (2::NG0NG8 ?>O2C =>28E A8
?>O2>N ACWF840;L=8E =0254V=:8 01> AE8;L=VABN 4> A0<>CH:>465==O 4;O B>3>, I>1 =5309=>
725@=CB8AO ?> <548G=C 4>?><>3C ?@8 28=8:=5==V F8E A8
@8 FL>FV=8B8 A8BC0FVN B0 2=5AB8 2V4?>2V4=V 7 B5@0?52B8G=>3> @568 2::NG0T <>6;825
?@8?8=5==O ;V:C20==O C ?0FVT=BV2 V7 ?@>O20<8 ;:V=VG=>3> ?>3V@H5==O (2::NG0NG8 ?>O2C
=>28E A8 ?>O2C ACWF840;L=8E =0254V=:8, >A>1;82> O:I> FV A8<8 T BO6:8<8, 28=8:0NBL @0?B>2>
V =5 T G0AB8=>N 265 VA=CNG8E A8
>@<>=0;L=V :>=B@0F5?B828.

?;82 3>@<>=0;L=8E :>=B@0F5?B82V2 =0 5D5:B82=VABL ;0<>B@8468=C.
C;8 >B@8<0=V 40=V, I> :<1V=0FVO «5B8=V;5AB@04V>; 30=>@35AB@5;L 150 ;O >B@8<0==O
<0:A8<0;L=>3> B5@0?52B8G=>3> 5D5:BC C 1V;LH>ABV 28?04:V2 B@510 1C45 71V;LH8B8 (H;OE<
B8B@0FVW) ?V4B@87C ;0<>B@8468=C (2 2 @078). # 6V=>;, O:V I5 =5 70AB>A>2CNBL ?@5?0@0B8-
V=4C:B>@8 3;N:C@=>V70FVW ;0<>B@8468=C V 265 70AB>A>2CNBL 3>@<>=0;L=V :>=B@0F5?B828
(7 B86=52>N ?5@5@2>N 25 ?V428I5==O @V2=O ;0<>B@8468=C ?V4 G0A B86=52>W ?5@5@28. &5
?V428I5==O 1C45 1V;LH8<, O:I> 4>7C ;0<>B@8468=C 71V;LH8B8 70 45=L 4> 01> 2?@>4>26 B86=52>W
?5@5@28 (482. @>74V; «!>AV1 70AB>AC20==O B0 4>78»). ">
=HV ?5@>@0;L=V :>=B@0F5?B828 B0 3>@<>=>70=8 <>6CBL 0=0;>3VG=> 2?;820B8 =0 D0@
<0:>:V=5B8G=V 2;0AB82>ABV ;0<>B@8468=C.

?;82 ;0<>B@8468=C =0 5D5:B82=VABL 3>@<>=0;L=8E :>=B@0F5?B82V2.
0 @57C;LB0B0<8 ;:V=VG=>3> 4>A;V465==O I>4> 282G5==O 270T<>4VW, C O:> 16 74>@>28E
4>1@>2>;LFV2, 1C;> 28O2;5=> =57=0G=5 71V;LH5==O 282545==O ;52=>=>@35AB@5;N B0 7;V:C;>AB8
3> B0 ;NB5W=V7CNG>3> 3>@<>=V2 C A8@>20BFV :@>2V C 28?04:C, :>;8 ;0<>B@8468=
70AB>A>2C20;8 @07>< V7 3>@<>=0;L=8<8 :>=B@0F5?B820<8 (:<1V=0FVO «5B8=V;5AB@04V>; 30
=>@35AB@5;L 150 2C;OFVN OTG=8:V2 =52V4><89. ;5 =5 <>6=0 2V4:840B8 <>6;82>ABV, I> C 45O:8E
?0FVT=BV2, O:V >4=>G0A=> 70AB>A>2CNBL ;0<>B@8468= V 3>@<>=0;L=V :>=B@0F5?B828, FV 7
4OBL 4> 7=865==O 5D5:B82=>ABV >AB0==VE. "> ?>O2C @0?B>2>W :@>2>B5GV.

?;82 ;0<>B@8468=C =0 AC1AB@0B8 >@30=VG=8E :0BV>==8E B@0=A?>@B5@V2 2 (" 2.)
0<>B@8468= T V=3V1VB>@<< =8@:>2>W BC1C;O@=>W A5:@5FVW G5@57 1V;;8 >@30=VG=8E
:0BV>==8E B@0=A?>@B5@V2. &5 <>65 A?@8G8=OB8 71V;LH5==O ?;07<>2>3> @V2=O 45O:8E
?@5?0@0BV2, I> 5:A:@5BCNBLAO, 3>;>2=8< G8=><, 28I5=02545=8< H;OE> ">AC20==O 0
B5@0?52B8G=89 V=45:A, =0?@8::04, 7 4>D5B8;V4<< =5 @5:><5=4CTBLAO.

83V4@>D>;0B@54C:B070.
0AC20==V <>6;8289 9>3> 2?;82 =0 <5B01>;V7< D>;0BV2. 4=0: ?@8 B@820;>AC20==V 0AO 1C4L-O:8E
VAB>B=8E 7ABV 35<>3;>1V=C, A5@54=L>3> >1TF8BV2, :>=F5=B@0FVW D>;0BV2 C A8@>20BFV
:@>2V B0 5@8B@>F8B0E 2?@>4>26 1 @>:C B0 :>=F5=B@0FVW D>;0BV2 2 5@8B@>F8B0E
2?@>4>26 5 @>:V2.

>@CH5==O DV=:FV9 =8@>:.
4>A;V465==OE >4=>@07>2>W 4>78 C ?0FVT=BV2 V7 B5@2V ACBBT2> =5 7=V4=>3> <5B01>;VBC.
">15@56=>ABV.

0FVT=B8, O:V 70AB>A>2CNBL V=HV ?@5?0@0B8, I>
0

?V;5?AVO.
0?B>25 ?@8?8=5==O ?@89>B85?V;5?B8G=8E 70A>1V2, <>65 A?@>2>:C20B8 71V;LH5==O G0AB>B8
=0?04V2. 0 28=OB:<< B8E 28?04:V2, :>;8 AB0= ?0FVT=B0 28<030T @0?B>2>3> ?@8?8=5==O ?@89>O2V
28A8?0=L), 4>7C 0 2 B86=V2.

0 40=8<8 ;VB5@0BC@8, BO6:V 5?V;5?B8G=V =0?048 <>6CBL A?@8G8=OB8 @014>;V7, ?>;V>@30==C
=54>AB0B=VABL V A8=4@< 48A520=>3> 2=CB@VH=L>AC48==>3> 73>@B0==O :@>2V, V=:>;8 7
;5B0;L=8<=0A;V4:>3VG=V 28?04:8 <>6;82V V =0 B;V ;V:C20==O 0
>65 A?>AB5@V30B8AO ACBBT25 ;:V=VG=5 ?>3V@H5==O C G0AB>BV 28=8:=5==O =0?04V2 70
:@0I0==O AB0=C. # E2>@8E, O:V <0NBL 1V;LH5 =V6 1 B8? =0?04V2, ?>:@0I5==O :>=B@>;N 70 >4=8<
B8?>< =0?04V2 A;V4 @5B5;L=> 72068B8 C ?>@V2=O==V V7 ?>3V@H5==O< :>=B@>;N 70 V=H8< B8?>
<=0?04V2.
V:C20==O ;0<>B@8468=>< <>65 703>AB@N20B8 ;:>=VG=V =0?048.

40=V, I> 2V4?>2V4L =0 ;V:C20==O ;0<>B@8468=>< 2 :<>1V=0FVW 7 V=4C:B>@0<8 D5@<5=BV2 T A;01H>N =V6 =0 ;V:C20==O ;0<>B@8468=>< 2 :<>1V=0FVW 7 ?@>B85?V;5?B8G=8<8 70A>10<8, I> =5V=4C:CNBL D5@<5=B8. @8G8=0 FL>3> =52V4<<0.

@8 ;V:C20==V 4VB59 7 B8?>28<8 <0;8<8 5?V;5?B8G=8<8 =0?040<8 5D5:B 4>AO30TBLAO =5 C 2AVE ?0FVT=BV2.

V?>;O@=V @>7;048.

VB8 B0 ?V4;VB:8.

V:C20==O 0=B845?@5A0=B0<8 ?>2O70=> 7 ?V428I5=8< @878:<> ACWF840;L=8E =0254V=:8 C 4VB59 B0 ?V4;VB:V2 V7 25;8:8<8 45?@5A82=8<8 @>7;040<8 B0 V=H8<8 ?A8EVG=8<8 @>7;040<8.

\$5@B8;L=VABL.

0AB>AC20==O 04C:B82=8E 4>A;V465==OE =0 B20@8=0E =5 ?>@CHC20;> D5@B8;L=>ABV. 0=8E ?@> 2?;82 0

"5@0B>35==VABL.

070E, I> ?5@528IC20;8 B5@0?52B8G=V 4>78 4;O ;N459, =5 28O28;8 B5@0B>35==>3> 5D5:BC.

@5?0@0B 7C, B>

0AB>AC20==O C ?5@V>4 203VB=>ABV 01> 3>4C20==O 3@C44N.

878.: ?>2O70=89 V7 70AB>AC20==O< ?@>B85?V;5?B8G=8E ?@5?0@0BV2 2 FV;>

V=:0< 4VB>@>4=>3> 2V:C A;V4 725@=CB8AO 70 ?>@04>N 4> ;V:0@O. V4 G0A ?;0=C20==O 203VB=>ABV =5>1EV4=VABL ;V:C20==O ?@>B85?V;5?B8G=8<8 70A>10<8 A;V4 ?5@53;O=CB8. V=:0<, E2>@8< =0 5?V;5?AVN, O:V 265 ;V:CNBLAO, A;V4 C=8:0B8 @0?B>2>3> ?5@5@820==O ?@>B85?V;5?B8G=>W B5@0?VW, >A:V;L:8 F5<>65 A?@8G8=8B8 703>AB@5==O =0?04V2 B0 <0B8 BO6:V =0A;V4:8 O: 4;O 6V=:8 B0: V 4;O 48B8=8.

878: 28=8:=5==O 2@>465=8E 0=><0;V9 C 4VB59 <0B5@V2, O:V ;V:C20;8AL ?@>B85?V;5?B8G=8<8 ;V:0@AL:8<8 70A>10<8, 28I89 ?>@V2=O=> 7 B0:8< C 7030;L=V9 ?>?C;OFVW ?@81;87=> =0 3 %.

09?>H8@5=VH8<8 45D5:B0<8, ?@> O:V 1C;8 ?>2V4<<5==O, AB0=>28;8 @>715;8=0 3C18 (70OG0 3C10), 2048 @>728B:C A5@F52>-AC48==>W A8AB5<8 B0 45D5:B8 =5@2>2>W B@C1:8. 878: 28=8:=5==O 2@>465=8E 204 28I89 ?@8 :<>1V=>20=V9 ?@>B85?V;5?B8G=V9 B5@0?VW ?>@V2=O=> 7 <>=>B5@0?VTN, B>

878.: ?>2O70=89 V7 70AB>AC20==O< ;0<>B@8468=C.

03VB=VABL

C;8 >B@8<0=V ?>AB<0@:5B8=3>2V 40=V 4>A;V465==O, C O:>=04 8400 6V=>:, O:V >B@83> ?V428I5==O @878:C @>715;8= C @>BV, 7025@H5=5 28?04>:->=B@>;L>20=5 4>A;V465==O =5 ?@>45 <>=AB@C20;> ?V428I5=>3> @878:C @>715;8= C @>BV ?>@V2=O=> 7 V=H8<8 >A=>2=8<8 2@>465=8 <8 2040<8 @>728B:C ?VA;O 5:A?>78FVW ;0<>B@8468=>

@07V =5>1EV4=>ABV B5@0?VW 0< C ?5@V>4 203VB=>ABV A;V4 70AB>A>2C20B8 =09<5=HV <>6;82V B5@0?52B8G=V 4>78.

0<>B@8468= <0T A;01:89 V=3V1VB>@=89 2?;82 =0 483V4@>D>;0B@54C:B07C V B>@5B8G=> <>65 ?V428I8B8 @878: ?>@CH5==O 5<1@V>=0;L=>3> @>728B:C H;OE>< 7<5=H5==O @V2=O D>;VT2>W :8A;>B8 (482. @>74V; <A>1;82>ABV 70AB>AC20==O)). ">1EV4=VABL ?@89>;VT2>W :8A;>B8 ?V4 G0A ?;0=C20==O B0 C @0==V AB@>:8 203VB=>ABV.

<5=H5==O @V2=O ;0<>B@8468=C ?V4 G0A 203VB=>ABV ?>B5=V9=> 71V;LHC20;> @878: 2B@0B8 :>=B@>;N 70 =0?040<8. VA;O =0@>465==O 48B8=8 @V25=L ;0<>B@8468=C <>65 H284:> 71V;LH8B8AL 7 ?>B5=V9=8< @878:<> 28=8:=5==O 4>7>70;56=8E ?>1VG=8E @50:FV9. ">V4 ?5@52V@OB8 ?5@54, C ?5@V>4 203VB=>ABV B0 ?VA;O ?>;>3V2. # @07V =5>1EV4=>ABV 4>7C ;0<>B@8468=C A;V4 <>48DV:C20B8 4;O ?V4B@8=F5=B@0FVW ;0<>B@8468=C C A8@>20BFV :@>2V =0 B>1C2 4> 203VB=>ABV, 01> 040?BC20B8 2V4?>2V4=> 4> ;V=VG=>3> AB0=C. >40B:>2> A;V4 :>=B@>;N20B8 4>7>70;56=V ?>1VG=V @50:FVW ?VA;O =0@>465==O 48B8=8.

0=8E ?@> 70AB>AC20==O ;0<>B@8468=C ?@8 :<>1V=>20=V9 B5@0?VW =54>AB0B=L>, I>1 7@>18B8 28A=>2>:, G8 <0T ;0<>B@8468= 2?;82 =0 @878: 28=8:=5==O 204 @>728B:C, 0A>FV9>20=8E 7 V=H8<8 ?@5?0@0B0<8.

04 203VB=>ABV BV;L:8 C 28?04:C, O:I> >GV:C20=0 :>@8ABL 4;O<0B5@V ?5@52060T <>6;8289 @878: 4;O ?>;>40.

\$V7V>;>3VG=V 74 203VB=>ABV <>6CBL 2?;820B8 =0 @V25=L ;0<>B@8648=C B0/01> 9>3>
B5@0?52B8G=89 5D5:B. C;8 28?04:8 7<5=H5==O @V2=O ;0<>B@8468=C C ?5@V>4 203VB=>ABV. ">
5@V>4 3>4C20==O 3@C44N.

>2V4><;O;>AO, I> ;0<>B@8468= ?@>=8:0T C 3@C4=5 <>;>: C 20@V015;L=8E :=F5=B@0FVOE, O:V
?@872>4OBL 4> @V2=V2 ;0<>B@8468=C C =5<>2;OB, I> 4>AO30NBL 50 % 2V4 2V4?>2V4=8E
@V2=V2 C <0B5@V2. ">48;8AL =0 3@C4=>4>2C20==V, @V25=L ;0<>B@8468=C 2 A8@>20BFV :@>2V
AO30B8 @V2=V2, ?@8 O:8E 1C2 <>6;8289 D0@<0>;>3VG=89 5D5:B.

">@8ABL 2V4 3>4C20==O 3@C44N =5>1EV4=> ?>@V2=N20B8 7 <>6;828< @878:< 28=8:=5==O
?>1VG=>W 4VW C 48B8=8.

**40B=VABL 2?;820B8 =0 H284:VABL @50:FVW ?@8 :5@C20==V 02B>B@0=A?>@B< 01> V=H8<8
<5E0=V7<0<8.**

0 40=8<8 42>E 4>A;V465=L =0 4>1@>2>;LFOE 1C;> 28O2;5=>, I> 5D5:B ;0<>B@8468=C, ?>2O70=89 V7
:>@48=0FVTN 7>@C, @CEC >G59, C?@02;V==O BV;< V AC1T:B82=89 A540B82=89 5D5:B =5
2V4@V7=ONBLAO 2V4 B0:>3> C ?;0F51>. @8 70AB>AC20==V ;0<>B@8468=C ?>2V4><;O;>AO ?@>
28?04:8 70?0<>@>G5==O B0 48?;>?VW, B>

!>AV1 70AB>AC20==O B0 4>78.

02B0B8 =5 @>76>2CNG8 B0 =5 @>7;0

/:I> ?@87=0G5=0 4>70 0AC20==O 4VBO< (BV;L:8 5?V;5?AVO) 01> ?0FVT=B0< V7 ?>@CH5==O<
DC=:FV9 ?5GV=:8 =5 2V4?>2V40T :V;L:>ABV 4VNG>W @5G>28=8 C FV;8E B01;5B:0E, =5>1EV4=>
?@87=0G8B8 4>7C, O:0 2V4?>2V40T <5=HV9 :V;L:>ABV FV;8E B01;5B>:.

>2B>@=89 ?>G0B>: ;V:C20==O.

>;8 ?0FVT=BC, O:89 ?@8?8=82 ;V:C20==O, ?@87=0G0NBL ?>2B>@=89 ?>G0B>: ;V:C20==O, ?>B@V1=>
GVB:> 2AB0=>28B8 =5>1EV4=VABL 71V;LH5==O ?V4B@8W 4>78, B> VA=CT @878: 28=8:=5==O
28A8?0=L G5@57 28A>:C ?>G0B>:2C 4>7C B0 ?5@528I5==O @5:<5=4>20=>W AE5<8 ?V428I5==O
4>78 ;0<>B@8468=C. '8< 1V;LH89 V=B5@20; < ?@89>?5@54=L>W 4>78, B8< 1V;LH5 C2038 B@510
?@84V;8B8 @56878 4> @V2=O ?V4B@8W 4>78. >;8 V=B5@20; ?VA;O ?@8?8=5==O ?@89>W 4>78
2V4?>2V4=> 4> VA=CNG>W AE5<8.

5 @5:<5=4CTBLAO ?>2B>@=> @>?>G8=0B8 ;V:C20==O ;0<>B@8468=><, O:I> ;V:C20==O 1C;>
?@8?8=5=> C 7207:C 7 ?>O2>N 28A8?0=L C=0A;V4>: ?>?5@54=L>3> ;V:C20==O ;0<>B@8468=>4>

?>2B>@=>3> ?@87=0G5==O ?@5?0@0BC =5>1EV4=> 72068B8 >GV:C20=C :>@8ABL 2V4 ;V:C20==O B0
<>6;8289 @878:.

?V;5?AVO.

@8 <>=>B5@0?VW.

>@>A;V B0 4VB8 2V:>< 2V4 12 @>:V2 (482. B01;8FN 2).

>G0B>:20 4>70 028BL 25 <3 1 @07 =0 4>1C 2?@>4>26 2 B86=V2, ?>BV< ?@89<0B8 50 <3/4>1C
2?@>4>26 =0ABC?>8E 2 B86=V2, C ?>40;LH>7C ?V428ICNBL =0 50-100 <3 :>6=V 1-2 B86=V 4>
4>AO3=5==O >?B8<0;L=>3> 5D5:BC. 28G09=0 ?V4B@870 4>@V2=NT 100-200 <3/4>1C 70 1-2 ?@89><8.
;O 45O:8E ?0FVT=BV2 <>65 7=04>18B8AO 4>70 500 <3/4>1C.

VB8 2V:>< 2V4 2 4>12 @>:V2 (482. B01;8FN 3).

>G0B>:20 4>70 028E 01A0=AV2 AB0=>28BL 0,3<3/:3/<0A8 BV;0/4>1C 70 1-2 ?@89><8 =0 4>1C
2?@>4>26 2 B86=V2, ?>BV< ?@89<0B8 0,6 <3/:3/<0A8 BV;0/4>1C 70 1-2 ?@89><8 =0 4>1C 2?@>4>26
=0ABC?>8E 2 B86=V2. # ?>40;LH>7C ?V428IC20B8 =0 0,6 <3/:3 :>6=V 1-2 B86=V 4> 4>AO3=5==O >?B8
<0;L=>3> 5D5:BC. 28G09=0 ?V4B@870 AB0=>28BL 1-10 <3/:3/4>1C 70 1-2 ?@89><8. ;O 45O:8E
?0FVT=BV2 <>65 7=04>18B8AO 1V;LH0 4>70.

'5@57 @878: 28=8:=5==O 28A8?0=L ?>G0B>:2C 4>7C B0 B540;LH>3> ?V428I5==O 4>78 =5 A;V4
?5@528IC20B8.

@8 :><1V=>20=V9 B5@0?VW.

>@>A;V B0 4VB8 2V:>< 2V4 12 @>:V2 (482. B01;8FN 2).

;O ?0FVT=BV2, O:V 70AB>A>2CNBL 20;L?@>0B (>:@5<> 01> 7 V=H8<8 ?@>B85?V;5?B8G=8<8 ?@5?0@0B0<8), ?>G0B:>20 4>70 028BL 25 <3 G5@57 4>1C 2?@>4>26 2 B86=V2, ?>BV< ?> 25 <3 :>6=C 4>1C 2?@>4>26 =0ABC?>8E 2 B86=V2. VA;O FL>3> 4>7C A;V4 71V;LHC20B8 (<0:A8<0;L=> =0 25-50 <3 /4>1C) :>6=V 1-2 B86=V 4> 4>AO3=5==O >?B8<0;L=>3> B5@0?52B8G=>3> 5D5:BC. 28G09=0 ?V4B@8 70 4>@V2=NT 100-200 <3/4>1C 70 1-2 ?@89><8.

;O ?0FVT=BV2, O:V ?@89<0NBL V=HV ?@>B85?V;5?B8G=V ?@5?0@0B8 01> V=HV ?@5?0@0B8, V=4C:B>@8 3;N:C@>=V70FVW ;0<>B@8468=C C ?>T4=0==V 7 V=H8<8 ?@>B85?V;5?B8G=8<8 ?@5?0@0B0<8 01> 157 =8E (70 28=OB:>< 20;L?@>0BC =0B@VN), ?>G0B:>20 4>70 028BL 50 <3 1 @07 =0 4>1C 2?@>4>26 2 B86=V2, C ?>40;LH> 2 ?@89><8 2?@>4>26 2 B86=V2. >BV< 4>7C =5>1EV4=> 71V;LHC20B8 (<0:A8<0;L=> =0 100 <3) :>6=V 1-2 B86=V 4> 4>AO3=5==O >?B8<0;L=>3> B5@0?52B8G=>3> 5D5:BC. 28G09=0 ?V4B@870 AB0=>28BL 200-400 <3/4>1C 70 2 ?@89><8. ;O 45O:8E ?0FVT=BV2 <>65 1CB8 =5>1EV4=>N 4>70 C 700 <3/4>1C.

;O ?0FVT=BV2, O:V ?@89<0NBL V=HV ?@5?0@0B8, I> ACBBT2> =5 V=4C:CNBL 01> ?@83=VGCNBL 3;N:C@>=V70FVN ;0<>B@8468=C (482. @>74V; «70T<>4VO 7 V=H8<8 ;V:0@AL:8<8 70A>10<8 B0 V=HV 2848 270T<>4V9»), ?>G0B:>20 4>70 028BL 25 <3 1 @07 =0 4>1C 2?@>4>26 2 B86=V2, C ?>40;LH> 70 AB0=>28BL 100-200 <3/4>1C 70 1-2 ?@89><8.

"01;8FO 2.

5:><5=4>20=0 AE5<0 ;V:C20==O 5?V;5?AVW 4;O 4>@>A;8E V 4VB592V:>< 2V4 12 @>:V2.

568< ;V:C20==O		1-9 B0 2-9 B86 =V	3-9 B0 4-9 B86 =V	V4B@870
>=>B5@0?VO		25 <3/4>1C (1 ?@89><)	50 <3/4>1C (1 ?@89><)	100-200 <3/4>1C (70 1-2 ?@89><8) 4>AO30TBLAO >?ABC?>28< 71V;LH5==O < 4>78 4> 50-100 <3 >6=V 1-2 B86=V
><1V=>20=0 B5@0?VO 7 2 0;L?@>0B>< =0B@VN, =572060NG8 =0 V=HV AC?CB=V ?@5?0@0B8		12,5 <3/4>1C ?@89>< ?> 25 <3 G5@57 45=L	25 <3/4>1C (1 ?@89><)	100-200 <3/4>1C (70 1-2 ?@89><8) 4>AO30TBLAO >?ABC?>28< 71V;LH5==O < 4>78 =0 25-50 <3 >6=V 1-2 B86=V
><1V=>20=0 B5@0?VO 157	&N AE5A>2C20B8: 7 D5=VB>W=><, 7 :0@10<075?V=><, 7 D5=>10@1VB0;><, 7 ?@8=>< 01> 7 V=H8<8 V=4C:B>@0<8 3;N:C@>=V70FVW ;0<>B@8468=C	50 <3/4>1C (1 ?@89><)	100 <3/4>1C (2 ?@89><8)	200-400 <3/4>1C (70 2 ?@89><8) 4>AO30TBLAO >?ABC?>28< 71V;LH5==O < 4>78 =0 100 <3 :>6=V 1-2 B86=V
20;L?@>0BC =0B@VN	&N AE5A>2C20B8 I>4> V=H8E ?@5?0@0BV2, O:V ACBBT2> =5 V=4C:CNBL 01> ?@83=VGCNBL 3;N:C@>=V70FVN ;0<>B@8468=C	25 <3/4>1C (1 ?@89><)	50 <3/4>1C (1 ?@89><)	100-200 <3/4>1C (70 1-2 ?@89><8) 4>AO30TBLAO >?ABC?>28< 71V;LH5==O < 4>78 4> 50-100 <3 :>6=V 1-2 B86=V

0FVT=B0<, O:V 70AB>A>2CNBL ?@>B85?V;5?B8G=V ?@5?0@0B8, 270T<>4VO O:8E 7 ;0<>B@8468=>< =52V4><0, @5:><5=4CTBLAO 70AB>A>2C20B8 B0:C AE5A>2CNBL ;0<>B@8468= 7 20;L?@>0B> # 72O7:C 7 @878:>< 28=8:=5==O 28A8?0=L ?>G0B:>2C 4>7C B0 B540;LH>3> 71V;LH5==O 4>78 =5 <>6=0 ?5@528IC20B8.

VB8 2V:× 2V4 2 4> 12 @>:V2 (482. B01;8FN 3).

VBO<, O:V >B@80B =0B@VN C ?>T4=0==V 7 V=H8<8 ?@>B85?V;5?B8G=8<8 ?@5?0@0B0<8 01> 157 =8E, ?>G0B:>20 4>70 028BL 0,15 <3/:3 <0A8 BV;0 =0 4>1C 70 1 ?@89>< 2?@>4>26 2 B86=V2, ?>BV< 0,3 <3/:3 <0A8 BV;0 =0 4>1C 70 1 ?@89>< 2?@>4>26 =0ABC?=8E 2 B86=V2. 0;V 4>7C =5>1EV4=> 71V;LHC20B8 (<0:A8<0;L=> =0 0,3 <3/:3 <0A8 BV;0) :>6=V 1-2 B86=V 4>4>AO3=5==O >?B8<0;L=>3> B5@0?52B8G=>3> 5D5:BC. V4B@8 4>70 4>@V2=NT 1-5 <3/:3 <0A8 BV;0 70 1-2 ?@89><8 (<0:A8<0;L=> 200 <3/4>1C).

;O 4VB59, O:V ?@89<0NBL V=HV ?@>B85?V;5?B8G=V ?@5?0@0B8 01> V=HV ?@5?0@0B8, V=4C:B>@8 3;N:C@>=V70FVW ;0<>B@8468=C C ?>T4=0==V 7 V=H8<8 ?@>B85?V;5?B8G=8<8 ?@5?0@0B0<8 01> 157 =8E (70 28=OB:>< 20;L?@>0BC =0B@VN), ?>G0B:>20 4>70 028BL 0,6 <3/:3 <0A8 BV;0 =0 4>1C 70 2 ?@89><8 2?@>4>26 2 B86=V2, ?>BV< 1,2 <3/:3 <0A8 BV;0 =0 4>1C 2?@>4>26 =0ABC?=8E 2 B86=V2. 0;V 4>7C A;V4 71V;LHC20B8 (<0:A8<0;L=> =0 1,2 <3/:3 <0A8 BV;0) :>6=V 1-2 B86=V 4> 4>AO3=5==O >?B8<0;L=>3> B5@0?52B8G=>3> 5D5:BC. !5@54=O ?V4B@870 4>@V2=NT 5-15 <3/:3 <0A8 BV;0 =0 4>1C 70 2 ?@89><8 (<0:A8<0;L=> 400 <3/4>1C).

;O 4VB59, O:V 70AB>A>2CNBL V=HV ?@5?0@0B8, I> ACBBT2> =5 V=4C:CNBL 01> ?@83=VGCNBL 3;N:C@>=V70FVN ;0<>B@8468=C (482. @>74V; «70T<>4VO 7 V=H8<8 ;V:0@AL:8<8 70A>10<8 B0 V=HV 2848 270T<>4V9»), ?>G0B:>20 4>70 028BL 0,3 <3/:3 <0A8 BV;0 =0 4>1C 70 1-2 ?@89><8 2?@>4>26 2 B86=V2, C ?>40;LH>70 4>@V2=NT 1-10 <3/:3 =0 4>1C 70 1-2 ?@89><8. 0:A8<0;L=0 4>70 200 <3/ 4>1C.

;O ?@028;L=>3> @>7@0EC=:C ?V4B@8W 4>78 A;V4 :>=B@>;N20B8 <0AC BV;0 48B8=8.

"01;8FO 3.

5:><5=4>20=0 AE5<0 ;V:C20==O 5?V;5?AVW 4;O 4VB592V:× 2V4 2 4> 12 @>:V2 (7030;L=0 4>1>20 4>70 2 <3/:3 <0A8 BV;0 =0 4>1C).

568< ;V:C20==O	1-9 B0 2-9 B86 =V	3-9 B0 4-9 B86 =V	V4B@870
>=>B5@0?VO B8?>28E 01A0=AV2	0,3 <3/:3 (1-2 ?@89><8)	0,6 <3/:3 (1-2 ?@89><8)	1-10 <3/:3 (70 1-2 ?@89><8) 4>AO30TBLAO ?>ABC?>28< 71V;LH5==O < 4>78 ?> 0,6 <3/:3 :>6=V 1-2 B86=V, <0:A8

><1V=>20=0 B5@0?VO 7 2 0;L?@>0B>< =0B@VN, =572060NG8 =0 V=HV AC?CB=V ?@5?0@0B8	0,15 <3/:3* (1 ?@89><)	0,3 <3/:3 (1 ?@89><)	1-5 <3/:3 (70 1-2 ?@89><8) 4>AO30TBLAO ?>ABC?>28< 71V;LH5==O < 4>78 ?> 0,3 <3/:3 :>6=V 1-2 B86=V, <0:A8
&N AE5A>2C20B8: 7 D5=VB>W=><, 7 :0@10<075?V=><, 7 D5=>10@1VB0;><, 7 ?@8=>< 01> 7 V=H8<8 V=4C:B>@0<8 3;N:C@>=V70FVW ;0<>B@8468=C	0,6 <3/:3 (2 ?@89><8)	1,2 <3/:3 (2 ?@89><8)	5-15 <3/:3 (70 2 ?@89><8) 4>AO30TBLAO ?>ABC?>28< 71V;LH5==O < 4>78 ?> 1,2 <3/:3 :>6=V 1-2 B86=V, <0:A8

<<1V=>20=0 B5@0?VO 157 20;L?@>0BC =0B@VN	&N AE5A>2C20B8 I>4> V=H8E ?@5?0@0BV2, I> ACBBT2> =5 V=4C:CNBL 01> ?@83=VGCNBL 3;N:C@>=V70FVN ;0<>B@8468=C	0,3 <3/:3 (1-2 ?@89><8)	0,6 <3/:3 (1-2 ?@89><8)	1-10 <3/:3 (2 1-2 ?@89><8) 4>AO30TBLAO ?>ABC?>28< 71V;LH5==O < 4>78 ?> 0,6 <3/:3 :>6=V 1-2 B86=V, <0:A8
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*@8 =5>1EV4=>ABV ?@89>7@0E>20=>W 4>78 2V4 1 4> 2 <3 4>72>;QTBLAO ?@89>< 2 <3 04>26

?5@H8E 42>E B86=V2. /:I> ?V4@0E>20=0 4>70 <5=H5 1 <3, ?@89<0B8 0<5=4CTBLAO.
VBO<, O:V 70AB>A>2CNBL ?@>B85?V;5?B8G=V ?@5?0@0B8, 270T<>4VO O:8E 7 ;0<>B@8468=>< =5
2V4><0, @5:><5=4CTBLAO 70AB>A>2C20B8 B0:C A0B@V ?@89<0NBL ;0<>B@8468= V7 20;L?@>0B>
'5@57 @878: 28=8:=5==O 28A8?0=L ?>G0B:>2C 4>7C B0 B540;LH>3> ?V428I5==O 4>78 =5 A;V4
?5@528IC20B8.

!;V4 <0B8 =0 C207V, I> 2 @07V 2V4ACB=>ABV B01;5B>: 07V 2 <3 ?@028;L=> @>7?>G0B8 ;V:C20==O
4VBO< 7 <0A>N BV;0 <5=H5 17 :3 =5<>6;82>.

VB8 2V:>< 4> 2 @>:V2.

VO ;0<>B@8468=C C O:>ABV <=>B5@0?VW 4;O ;V:C20==O 4VB59 2V:>< 4> 2 @>:V2 01> 2 O:>ABV
4>40B:>2>W B5@0?VW 4;O ;V:C20==O 4VB59 2V:>< 4> 1 1 2 @>:V2 =5 2AB0=>2;5=0. ">
<5=4CTBLAO 70AB>A>2C20B8 C FV9 2V:>2V9 :0B53>@VW.

030;L=V @5:><5=40FVW 4;O ;V:C20==O 5?V;5?AVW.

@8 ?@8?8=5==V 70AB>AC20==O AC?CB=VE ?@>B85?V;5?B8G=8E ?@5?0@0BV2 4;O 4>AO3=5==O
<=>B5@0?VW ;0<>B@8468=>< 01> ?@8 4>40B:>2>B85?V;5?B8G=8E ?@5?0@0BV2 ?@8 ;V:C20==V ;0
<>B@8468=>< A;V4 72068B8 =0 5D5:B, I> <>65 28=8:=CB8 ?@8 FL>

V?>;O@=V @>7;048.

>@>A;V.

'5@57 @878: 28=8:=5==O 28A8?0=L ?>G0B:>2C 4>7C B0 B540;LH>3> ?V428I5==O 4>78 =5 A;V4
?5@528IC20B8.

0<5=4CTBLAO 70AB>A>2C20B8 ?0FVT=B0< V7 1V?>;O@=8<8 @>7;040<8 7 ?V428I5=8< @878:><
45?@5A82=8E 5?V7>4V2 C <091CB=L>

!;V4 4>B@83> =86G5 ?5@5EV4=>3> @568AC20==O. &59 @568< 2;:NG0T ?V428I5==O 4>78 ;0
<>B@8468=C 4> 4>AO3=5==O ?V4B@8W AB01V;V70FV9=>W 4>78 2?@>4>26 6 B86=V2 (482. B01;8FN
4), ?VA;O G>3> ?@89>< V=H8E ?A8E>B@>?=8E B0/01> ?@>B85?V;5?B8G=8E ?@5?0@0BV2 <>65 1CB8
?@8?8=5=89 C @07V ;V=VG=>W 4>FV;L=>ABV (482. B01;8FN 5).

!;V4 @>73;O=CB8 =5>1EV4=VABL 4>40B:>2>W B5@0?VW 7<5B>N ?>?5@5465==O <0=V0:0;L=8E
5?V7>4V2, B0: O: 5D5:B82=VABL 70AB>AC20==O 0AB5<5==> =5 2AB0=>2;5=0.

"01;8FO 4.

5:><5=4>20=0 AE5<0 71V;LH5==O 4>78 ;0<>B@8468=C 4;O 4>AO3=5==O ?V4B@8W
AB01V;V70FV9=>W 4>1>2>W 4>78 ?@8 ;V:C20==V 4>@>A;8E 7 1V?>;O@=8<8 @>7;040<8.

568< ;V:C20==O	1-9 B0 2-9 B86=V	3-9 B0 4-9 B86=V	5-9 B8645=L	!B01V;V70FV9=0 4>70 (6-9 B8645=L)
0) >40B:>20 B5@0?VO 7 V=3V1VB>@0<8 3;N:C@>=V70FVW ;0<>B@8468=C, =0?@8:;04, 7 20;L?@>0B><	12,5 <3 (25 <3 G5@57 4>1C)	25 <3 (1 @07 =0 4>1C)	50 <3 (1 @07 =0 4>1C 01> 70 2 ?@89> <8)	100 <3 (1 @07 =0 4>1C 01> 70 2 ?@89><8) (<0:A8<0;L=0 4>1>20 4>70 200 <3)
1) >40B:>20 B5@0?VO 7 V=4C:B>@0<8 3;N:C@>=V70FVW ;0<>B@8468=C C ?0FVT=BV2, O:V =5 70AB>A>2CNBL	50 <3 (1 @07 =0 4>1C)	100 <3 (70 2 ?@89> <8)	200 <3 (70 2 ?@89><8)	300 <3 =0 6-9 B8645=L, ?V428ICNG8 4> 400 <3/45=L C @07V =5>1EV4=>ABV =0 7-9 B8645=L (70 2 ?@89><8)

V=3V1VB>@8, B0:V O: 20;L?@>0B. &N AE5A>2C20B8: 7 D5=VB>W=><, 7 :0@10<075?V=><, 7 D5=>10@1VB0;><, 7 ?@8=>< 01> 7 V=H8<8 V=4C:B>@0<8 3;N:C@>=V70FVW ;0<>B@8468=C 2) >=>B5@0?VO ;0<>B@8468=>< 01> 4>40B:>20 B5@0?VO C ?0FVT=BV2, O:V 70AB>A>2CNBL V=HV	25 <3 (1 @07 =0 4>1C)	50 <3 (1 @07 =0 4>1C 01> 70 2 ?@89> <8)	100 <3 (1 @07 =0 4>1C 01> 70 2 ?@89> <8)	200 <3 (2V4 100 4> 400 <3) (1 @07 =0 4>1C 01> 70 2 ?@89><8)
?@5?0@0B8, I> ACBBT2> =5 ?@83=VGCNBL 01> V=4C:CNBL 3;N:C@>=V70FVN ;0<>B@8468=C				

@8 0FVT=B0<, O:V ?@89<0NBL ?@>B85?V;5?B8G=V ?@5?0@0B8 7 =52V4<8< 2?;82<< =0 D0@<0:;>:V=5B8:C ;0<>B@8468=C, A;V4 70AB>A>2C20B8 AE5IC20==O 4>78, O:0 @5:><5=4CTBLAO 4;O AC?CB=L>3> 70AB>AC20==O 20;L?@>0BC.

□!B01V;V70FV9=0 4>70 <>65 1CB8 7 2V4 ;;V=VG=>W 2V4?>2V4V.

0) >40B:>20 B5@0?VO 7 V=3V1VB>@0<8 3;N:C@>=V70FVW ;0<>B@8468=C, =0?@8:;04, 7 20;L?@>0B>

>G0B:>2>N 4>7>N 4;O ?0FVT=BV2, O:V 70AB>A>2CNBL O: AC?CB=N B5@0?VN B0:89 V=3V1VB>@ 3;N:C@>=V70FVW, =0?@8:;04, O: 20;L?@>0B, T 25<3 G5@57 45=L 2?@>4>26 2 B86=V2, ?>BV< 25 <3 1 @07 =0 4>1C =0ABC?=V 2 B86=V. >7C =5>1EV4=> 71V;LH8B8 4> 50<3 =0 4>1C (70 1-2 ?@89><8) =0 5-9 B8645=L. 28G09=>N 4>7>N 4;O 4>AO3=5==O >?B8<0;L=>W 2V4?>2V4V T 100 <3 =0 4>1C (70 1-2 ?@89><8). 4=0: 4>7C <>6=0 71V;LH8B8 4> <0:A8<0;L=>W 200 <3/4>1C 70;56=> 2V4 ;;V=VG=>W 2V4?>2V4V.

1) >40B:>20 B5@0?VO 7 V=4C:B>@0<8 3;N:C@>=V70FVW ;0<>B@8468=C C ?0FVT=BV2, O:V =5 70AB>A>2CNBL V=3V1VB>@8, B0:V O: 20;L?@>0B. &N AE5A>2C20B8 7 D5=VB>W=><, :0@10 <075?V=><, D5=>10@1VB0;><, ?@8=>< 01> 7 V=H8<8 V=4C:B>@0<8 3;N:C@>=V70FVW ;0 <>B@8468=C.

>G0B:>2>N 4>7>N 4;O ?0FVT=BV2, O:V 70AB>A>2CNBL ?@5?0@0B8, I> V=4C:CNBL 3;N:C@>=V70FVN ;0<>B@8468=C V =5 70AB>A>2CNBL 20;L?@>0B, T 50<3 1 @07 =0 4>1C 2?@>4>26 2 B86=V2, ?>BV< 100 <3/4>1C (@>7?>4V;5=0 =0 2 ?@89><8) =0ABC?=V 2 B86=V. >7C A;V4 71V;LH8B8 4> 200 <3/4>1C (70 2 ?@89><8) =0 5-9 B8645=L. >7C <>6=0 71V;LH8B8 4> 300 <3/4>1C =0 6-9 B8645=L, >4=0: 728G09=>N 4>7>N 4;O 4>AO3=5==O >?B8<0;L=>W 2V4?>2V4V T 400 <3/4>1C (70 2 ?@89><8), I> <>65 1CB8 ?@87=0G5=0 7 7-3> B86=O.

2) >=>B5@0?VO ;0<>B@8468=>< 01> 4>40B:>20 B5@0?VO C ?0FVT=BV2, O:V 70AB>A>2CNBL V=HV ?@5?0@0B8, I> ACBBT2> =5 V=4C:CNBL 01> ?@83=VGCNBL 3;N:C@>=V70FVN ;0<>B@8468=C (482. @>74V; «70T<>4VO 7 V=H8<8 ;V:0@AL:8<8 70A>10<8 B0 V=HV 2848 270T<>4V9»).

>G0B:>2>N 4>7>N 4;O F8E ?0FVT=BV2 T 25<3 1 @07 =0 4>1C 2?@>4>26 2 B86=V2, ?>BV< 50 <3/ 4>1C (70 1-2 ?@89><8) =0ABC?=V 2 B86=V. >7C A;V4 71V;LH8B8 4> 100<3/4>1C =0 5-9 B8645=L. 28G09=>N 4>7>N 4;O 4>AO3=5==O >?B8<0;L=>W 2V4?>2V4V T 200 <3/4>1C (70 1-2 ?@89><8). 4=0: ?V4 G0A ;;V=VG=8E 4>A;V465=L 70AB>A>2C20;8 4>78 C<560E 100-400 <3.

VA;O 4>AO3=5==O =5>1EV4=>W ?V4B@8W AB01V;V70FV9=>W 4>78 70AB>AC20==O V=H8E ?A8E>B@>?=8E ?@5?0@0BV2 <>65 1CB8 ?@8?8=5=> 73V4=> 7 =02545=>N =86G5 AE5<>N (482. B01;8FN 5).

"01;8FO 5.

V4B@870 ?@8 1V?>;O@=8E @>7;040E 7 ?>40;LH8< ?@8?8=5==O< ?@89>B@>?=8E 01> ?@>B85?V;5?B8G=8E 70A>1V2.

568< ;V:C20==O	1-9 B8645=L	2-9 B8645=L	7 3-3> B86=O□
0) ?>40;LH8< ?@8?8=5==O< ?@89> @V2 3;N:C@>=V70FVW ;0<>B@8468=C, =0?@8;:04, 20;L?@>0BC	>42>WB8 AB01V;V70FV9=C 4>7C, =5 ?5@528ICNG8 100 <3/B8645=L, B>1B> AB01V;V70FV9=C 4>7C 100 <3 =0 4>1C 71V;LH8B8 2?@>4>26 1-3> B86=O 4> 200 <3/4>1C	V4B@87C 200 <3/4>1C (@>7?>4V;5=C =0 2 ?@89> <8)	
1) ?>40;LH>N 2V4N V=4C:B>@V2 3;N:C@>=V70FVW ;0 <>B@8468=C 70;56=> 2V4 ?>G0B:>2>W 4>78. &N AE5A>2C20B8: 7 D5=VB>W=><, 7 :0@10<075?V=><, 7 D5=>10@1VB0;><, 7 ?@8=>< 01> 7 V=H8<8 V=4C:B>@0<8 3;N:C@>=V70FVW ;0 <>B@8468=C	400 <3	300 <3	200 <3
	300 <3	225 <3	150 <3
	200 <3	150 <3	100 <3
2) ?>40;LH8< ?@8?8=5==O< 70AB>AC20==O V=H8E ?@5?0@0BV2, I> ACBBT2> =5 ?@83=VGCNBL 01> V=4C:CNBL 3;N:C@>=V70FVN ;0 <>B@8468=C	V4B@87C, >B@8<0=C ?@8 ?V428I5==V 4>78 (200 <3/4>1C), @>7?>4V;5=C =0 2 ?@89>×8 (100-400 <3)		

□>7C <>6=0 71V;LH8B8 ?@8 =5>1EV4=>ABV 4> 400 <3/4>1C.

@. 0FVT=B0<, O:V 70AB>A>2CNBL ?@>B85?V;5?B8G=V ?@5?0@0B8 7 =52V4×8< 2?;82× =0 D0@ <0:>:V=5B8:C ;0<>B@8468=C, A;V4 70AB>A>2C20B8 @568< ;V:C20==O, ?@8 O:>70 0@5:FVO ?@>2>48BLAO =0 >A=>2V ;:V=VG=>3> AB0=C.

0) ?>40;LH8< ?@8?8=5==O< 70AB>AC20==O V=3V1VB>@V2 3;N:C@>=V70FVW ;0<>B@8468=C, =0?@8;:04, 20;L?@>0BC.

!B01V;V70FV9=C 4>7C ;0<>B@8468=C =5>1EV4=> ?>42>WB8 V B@8<0B8 =0 FL>0BC;

1) ?>40;LH8< ?@8?8=5==O< 70AB>AC20==O V=4C:B>@V2 3;N:C@>=V70FVW ;0<>B@8468=C 70;56=> 2V4 ?>G0B:>2>W ?V4B@8W 4>78. &N AE5A>2C20B8 7 D5=VB>W=><, :0@10<075?V=><, D5=>10@1VB0;><, ?@8=>< 01> 7 V=H8<8 V=4C:B>@0<8 3;N:C@>=V70FVW ;0<>B@8468=C. >7C ;0<>B@8468=C =5>1EV4=> ?>ABC?>2> 7<5=H8B8 2?@>4>26 3 B86=V2 ?VA;O ?@8?8=5==O

70AB>AC20==O ?@5?0@0BV2, I> V=4C:CNBL 3;N:C@>=V70FVN;

2) ?>40;LH8< ?@8?8=5==O< 70AB>AC20==O V=H8E ?@5?0@0BV2, I> ACBBT2> =5 ?@83=VGCNBL 01> V=4C:CNBL 3;N:C@>=V70FVN ;0<>B@8468=C (482. @>74V; «70T<>4VO 7 V=H8<8 ;V:0@AL:8<8 70A>10<8 B0 V=HV 2848 270T<>4V9»).

5>1EV4=> 715@V30B8 @V25=L 4>78, 4>AO3=CB>W ?VA;O @568
 7C20==O ;0<>B@8468=C 4;O ?0FVT=BV2 V7 1V?>;O@=8<8 @>7;040<8 ?@8 4>40B:>2>
 ;V=VG=>3> 4>A2V4C 77C20==O ;0<>B@8468=C ?@8 ?@87=0G5==V V=H8E ?@5?0@0BV2 =5<0T, 0;5,
 107CNG8AL =0 40=8E I>4> 270T<>4VW ;V:0@AL:8E 70A>1V2, <>6=0 @5:><5=4C20B8 =86G5=02545=C
 AE5

"01;8FO 6.

1>2>3> 4>7C20==O ;0<>B@8468=C 4;O ?0FVT=BV2 V7 1V?>;O@=8<8 @>7;040<8
 ?@8 4>40B:>2>

568< ;V:C20==O	!B01V;V70FV9=0 4>70 ;0 <>B@8468=C (<3/4>1C)	1-9 B8645=L	2-9 B8645=L	7 3-3> B86=O
>40B:>25 ?@87=0G5==O V=3V1VB>@V2 3;N:C@>=V70FVW ;0 <>B@8468=C, =0?@8;04, 20;L?@>0BC, 70;56=> 2V4 ?>G0B:>2>W 4>78 ;0 <>B@8468=C	200 <3	100 <3	V4B@87C (100 <3/4>1C)	
	300 <3	150 <3	V4B@87C (150 <3/4>1C)	
	400 <3	200 <3	V4B@87C (200 <3/4>1C)	

>40B:>25 ?@87=0G5==O V=4C:B>@V2 3;N:C@>=V70FVW ;0 <>B@8468=C E2>@8<, O:V =5 70AB>A>2CNBL 20;L?@>0B, B0 70;56=> 2V4 ?>G0B:>2>W 4>78 ;0<>B@8468=C. &N AE5A>2C20B8: 7 D5=VB>W=><, 7 :0@10<075?V=><, 7 D5=>10@1VB0;><, 7 ?@8=>< 01> 7 V=H8<8 V=4C:B>@0<8 3;N:C@>=V70FVW ;0 <>B@8468=C	200 <3	200 <3	300 <3	400 <3
	150 <3	150 <3	225 <3	300 <3
	100 <3	100 <3	150 <3	200 <3
>40B:>25 ?@87=0G5==O V=H8E ?@5?0@0BV2, I> ACBBT2> =5 ?@83=VGCNBL 01> V=4C:CNBL 3;N:C@>=V70FVN ;0 <>B@8468=C	V4B@87C, 4>AO3=CB ?VA;O @56878 (200 <3/4>1C) (100-400 <3)			

@8 0FVT=B0<, O:V 70AB>A>2CNBL ?@>B85?V;5?B8G=V ?@5?0@0B8 7 =52V4<8< 2?;82<< =0 D0@
 <0:>:V=5B8:C ;0<>B@8468=C, A;V4 70AB>A>2C20B8 @568< ;V:C20==O, O:89 @5:><5=4CTBLAO 4;O
 AC?CB=L>3> 70AB>AC20==O 20;L?@>0BC.

@8?8=5==O ?@89>

5 2V47=0G0;>AL ?V428I5==O G0AB>B8, ABC?5=O BO6:>ABV 01> B8?C ?>1VG=8E @50:FV9 ?VA;O
 @0?B>2>W 2V4@V2=O=> 7 ?;0F51>. ">AC20==O ?@5?0@0BC <>6=0 >4@07C 157 ?>ABC?>2>3> 7
 <5=H5==O 4>78.

VB8 B0 ?V4;VB:8.

0;O@=8E @>7;04V2 C 4VB59 B0 ?V4;VB:V2 (482. @>74V; «A>1;82>ABV 70AB>AC20==O»). 82G5==O
157?5:8 B0 5D5:B82=>ABV 70AB>AC20==O 0;O@=8E @>7;04V2 C FV9 2V:>2V9 3@C?V =5
?@>2>48;>AO. V4?>2V4=> =5<>6;82> =040B8 @5:><5=40FVW AB>A>2=> 4>7C20==O ?@5?0@0BC.
030:L=V @5:><5=40FVW 7 4>7C20==O 4;O >A>L;828E 3@C? ?0FVT=BV2.
V=:8, O:V 70AB>A>2CNBL 3>@<>=0;L=V :>=B@0F5?B828.
0) >G0B>: ;V:C20==O ;0<>B@8468=>< C ?0FVT=BV2, O:V 265 70AB>A>2CNBL 3>@<>=0;L=V
:>=B@0F5?B828.

%>G0 ?5@>@0;L=V :>=B@0F5?B828 71V;LHCNBL ;V@5=A ;0<>B@8468=C, 2=>A8B8 :>@5:B828 4>
AE5<8 71V;LH5==O 4>78 ;0<>B@8468=C C @07V 70AB>AC20==O ;8H5 3>@<>=0;L=8E
:>=B@0F5?B82V2 ?>B@518 =5<0T. >7C 71V;LHCNBL 70 @5:><5=4>20=>N AE5<N C 28?04:0E, :>;8 ;0
<>B@8468= 4>40TBLAO 4> 20;L?@>0BC (V=3V1VB>@0 3;N:C@>=V70FVW ;0<>B@8468=C) 01> 4>
V=4C:B>@0 3;N:C@>=V70FVW ;0<>B@8468=C, 01> ;0<>B@8468= 4>40TBLAO ?@8 2V4ACB=>ABV
20;L?@>0BC 01> V=4C:B>@0 3;N:C@>=V70FVW ;0<>B@8468=C (482. B01;8FN 1 B0 B01;8FN 3).

1) ?>G0B>: :C@AC ;V:C20==O 3>@<>=0;L=8<8 :>=B@0F5?B820<8 C ?0FVT=BV2, O:V 265
70AB>A>2CNBL ?V4B@878 ;0<>B@8468=C V =5 70AB>A>2CNBL V=4C:B>@8 3;N:C@>=V70FVW ;0
<>B@8468=C.

V4B@87C ;0<>B@8468=C C 1V;LH>ABV 28?04:V2 B@510 1C45 71V;LH8B8 C 2 @078. 5:>
<5=4CTBLAO, I>1 2V4 ?>G0B:C ;V:C20==O 3>@<>=0;L=8<8 :>=B@0F5?B820<8 4>70 ;0<>B@8468=C
71V;LHC20;0AL 2V4 50 4> 100 <3/4>1C I>B86=O 2V4?>2V4=> 4> V=482V4C0;L=>W ;V=VG=>W
2V4?>2V4V =0 ;V:C20==O. 1V;LH5==O 4>78 =5<0T ?5@528IC20B8 707=0G5=89 @V25=L, O:I> BV;L:8
73V4=> 7 ;V=VG=>N 2V4?>2V44N =0 ;V:C20==O B0:5 71V;LH5==O 4>78 =5 1C45 =5>1EV4=8
2) @8?8=5==O :C@AC ;V:C20==O 3>@<>=0;L=8<8 :>=B@0F5?B820<8 C ?0FVT=BV2, O:V 265
70AB>A>2CNBL ?V4B@878 ;0<>B@8468=C V =5 70AB>A>2CNBL V=4C:B>@8 3;N:C@>=V70FVW ;0
<>B@8468=C.

V4B@87C ;0<>B@8468=C C 1V;LH>ABV 28?04:V2 B@510 1C45 7<5=H8B8 4> 50 %. 5:>
<5=4CTBLAO 4>1>2C 4>7C ;0<>B@8468=C 7<5=HC20B8 ?>ABC?>2> 2V4 50 4> 100 <3 I>B86=O (=5
1V;LH5 25 % 7030;L=>W 4>78 70 B8645=L) 2?@>4>26 3 B86=V2, O:I> 2V4?>2V4=> 4>
V=482V4C0;L=>W ;V=VG=>W 2V4?>2V4V =0 ;V:C20==O =5 1C45 707=0G5=> V=0:H5.
0AB>AC20==O @07>< 7 0B070=02V@>=02V@>

%>G0 70AB>AC20==O 0B070=02V@C/@8B>=02V@C 7<5=HCT :>=F5=B@0FVN ;0<>B@8468=C 2 ?;07
2V, 7<5=4>20=V AE5<8 71V;LH5==O 4>7C20==O 0B@V1=>, 107CNG8AL =0 70AB>AC20==V
0B070=>2V@C/@8B>=02V@C. 1V;LH5==O 4>78 ?@5?0@0BC <0T 107C20B8AO =0 @5:><5=40FVOE
70;56=> 2V4 AE5< 70AB>AC20==O 0 040TBLAO 4> 20;L?@>0BC (V=3V1VB>@0 3;N:C@>=V70FVW ;0
<>B@8468=C), 01> 4> V=4C:B>@0 3;N:C@>=V70FVW ;0<>B@8468=C, 01> 040TBLAO ?@8
2V4ACB=>ABV 20;L?@>0BC 01> V=4C:B>@0 3;N:C@>=V70FVW ;0<>B@8468=C.
?0FVT=BV2, O:V 265 70AB>A>2CNBL ?V4B@878 0A>2CNBL V=4C:B>@8 3;N:C@>=V70FVW, 4>7C 0
=02V@><, 01> 7<5=HC20B8, O:I> ;V:C20==O 0B070=02V@>=02V@>< ?@8?8=OTBLAO.
%2>@V ;VB=L>3> 2V:C (2V:>< 2V4 65 @>:V2).

7C =5 ?>B@V1=>. \$0@<0:>:V=5B8:0 ;0<>B@8468=C C FV9 2V:>2V9 3@C?V =5 2V4@V7=OTBLAO 2V4
B0:>W C ?0FVT=BV2 A5@54=L>3> 2V:C.
>@CH5==O DC=:FV9 ?5GV=:8.

>G0B>:>2C 4>7C, 71V;LH5==O 4>78 B0 ?V4B@87C =5>1EV4=> 7<5=H8B8 7030;>< =0 50 % C
?0FVT=BV2 7 ?>70 :>@83CNBLAO 73V4=> 7 ;V=VG=8< 5D5:B>
>@CH5==O DC=:FV9 =8@>:.

@8 ?@87=0G5==V E2>@8< ?@5?0@0BC V7 ?>@CH5==O< DC=:FV9 =8@>: A;V4 4>B@815@56=>ABV.
@8 ;V:C20==V E2>@8E V7 B5@N AB04VTN ?>@CH5==O DC=:FV9 =8@>: ?>G0B>:20 4>70 ;0
<>B@8468=C 107CTBLAO =0 V=482V4C0;L=V9 AE5B85?V;5?B8G=>3> ;V:C20==O, ?@8 ;V:C20==V
E2>@8E 7V 7=0G=8< ?>@CH5==O< DC=:FV9 =8@>: A;V4 7<5=HC20B8 ?V4B@87C ;0<>B@8468=C.

VB8

V4ACB=O 4>AB0B=O V=D>@<0FVO I>4> 70AB>AC20==O 0< 4> 2 @>:V2, E2>@8E =0 5?V;5?AVN, B>
A>2C20B8 ?@5?0@0B =5 @5:><5=4CTBLAO FV9 2V:>2V9 :0B53>@VW.

0<>B@8468= =5 ?>:070=89 4;O 70AB>AC20==O 4VBO< B0 ?V4;VB:0< 7 1V?>;O@=8<8 @>7;040<8 2V:>
< 4> 18 @>:V2 (482. @>74V;8 «A>1;82>ABV 70AB>AC20==O» B0 «@>B8?>:070==O»). D5:B82=VABL V
157?5:0 70AB>AC20==O ;0<>B@8468=C 4;O ;V:C20==O ?0FVT=BV2 V7 1V?>;O@=8<8 @>7;040<8 C
FVTW 2V:>2>W 3@C?8 =5 282G0;0AO, B>5=40FVW I>4> @5687C20==O =5 <>6;82> =040B8.

5@54>7C20==O.

?>2V4<>;5==O ?@> 28?04:8 3>AB@>3> ?5@54>7C20==O (?@8 ?@89>7, I> C 10-20 @07V2
?5@5281C20;8 <0:A8<0;L=V B5@0?52B8G=V 4>78), 2;:NG0NG8 ;5B0;L=V 28?04:8. !8<0<8
?5@54>7C20==O 1C;8 0B0:AVO, =VAB0<, ?>@CH5==O A2V4<><ABV, 25;8:V 5?V;5?B8G=V =0?048 B0
:><0. "0:>6 C ?0FVT=BV2 V7 ?5@54>7C20==O< A?>AB5@V30;8 ?>4>265==O V=B5@20;C QRS =0
5;5:B@>:0@4V>3@0H;C=>G:>2>W ?@>2V4=>ABV).
28?04:C ?5@54>7C20==O ?0FVT=B <0T 1CB8 3>A?VB0;V7>20=89 4;O ?@>2545==O 2V4?>2V4=>W
?V4B@8W B5@0?VW.

>1VG=V @50:FVW.

07CNG8AL =0 VA=CNG8E 40=8E, ?>1VG=0 4VO @>7?>4V;5=0 =0 2 ?V4@>74V;8, A?5F8DVG=V 4;O
5?V;5?AVW B0 1V?>;O@=8E @>7;04V2. 4=0: 4;O >FV=:8 7030;L=>3> ?@>DV;N 157?5:8 70AB>AC20==O
?@5?0@0BC A;V4 1@0B8 4> C2038 >18420. > A?5F8DVG=8E 4;O 5?V;5?AVW ?>1VG=8E 4V9 4>40=>
V=D@><0FVN AB>A>2=> ?VA;O;VF5=7V9=>3> D0@<0:>=03;04C.
;O >FV=:8 G0AB>B8 28=8:=5==O ?>1VG=>W 4VW 28:>@8AB>2C20;0AL B0:0 ;:0A8DV:0FVO:
4C65 G0AB> (□1/10), G0AB> (□1/100, □ 1/10), =5G0AB> (□1/1000, □ 1/100), @V4:> (□1/10000, □ 1/
1000), 4C65 @V4:> (□ 1/10000).
?V;5?AVO.

1>:C H:V@8 B0 ?V4H:V@=>W ;:VB:>28=8.

C65 G0AB>: H:V@=V 28A8?0==O;
@V4:>: A8=4@<> !BV25=A0-6>=A>=0;
4C65 @V4:>: B>:A8G=89 5?V45@<0;L=89 =5:@>;V7.
@8 ?@>2545==V ?>42V9=8E A;V?8E ;:V=VG=8E 4>A;V465=L C 4>@>A;8E :<1V=>20=>3> ;V:C20==O 0
< H:V@=V 28A8?0==O A?>AB5@V30;8AO C 10 % E2>@8E, O:V 70AB>A>2C20;8 ;0<>B@8468=, B0 C 5
% E2>@8E, :>B@V 70AB>A>2C20;8 ?;0F51>. 8A8?0==O 1C;8 ?@8G8=>N ?@8?8=5==O 70AB>AC20==O
?@5?0@0BC C 2 % E2>@8E. (:V@=V 28A8?0==O <0;8 <0:C;>?0?C;L>7=89 E0@0:B5@, G0ABVH5
28=8:0;8 2?@>4>26 8 B86=V2 2V4 ?>G0B:C ;V:C20==O B0 7=8:0;8 ?VA;O ?@8?8=5==O 70AB>AC20==O
;0<>B@8468=C (482. @>74V; «A>1;82>ABV 70AB>AC20==O»).
@V4:0 ?>2V4<>;O;>AO ?@> 28=8:=5==O BO6:8E 68BBT2> =5157?5G=8E H:V@=8E @50:FV9,
2;:NG0NG8 A8=4@<> !BV25=A0-6>=A>=0 B0 B>:A8G=89 5?V45@<0;L=89 =5:@>;V7 (A8=4@<> 09T;:0).
%>G0 1V;LHVABL ?0FVT=BV2 >4C6CT ?VA;O ?@8?8=5==O ?@89?>@>B=V @C1FV; C ?>>48=>:8E
28?04:0E FV A8<8 ?@872>48;8 4> ;5B0;L=>3> =0A;V4:C (482. @>74V; «A>1;82>ABV 70AB>AC20==O»).
030;L=89 @878: 28=8:=5==O H:V@=8E 28A8?0=L, >G5284=>, BVA=> ?>2070=89 7 28A>:8<8 ?>G0B:>28
<8 4>70<8 ;0<>B@8468=C B0 ?5@52815==O< @5:><5=4>20=>W AE5<8 71V;LH5==O 4>7 ?@8
B5@0?VW ;0<>B@8468=>< (482. @>74V; «!>AV1 70AB>AC20==O B0 4>78»), 0 B0:>6 V7 AC?CB=V<
70AB>AC20==O< 20;L?@>0BC (482. @>74V; «!>AV1 70AB>AC20==O B0 4>78»).
"0:>6 ?>2V4<>;O;>AO, I> H:V@=V 28A8?0==O T G0AB8=>N A8=4@>ABV, O:89 AC?@>2>46CTBLAO
@V7=><0=VB=8<8 A8AB5<=8<8 A8<0<8 (482. ?V4@>74V; «1>:C VW A8AB5<8»).
1>:C A8AB5<8 :@>2V V ;VW A8AB5<8.

C65 @V4:>: 35<0B>;>3VG=V 2V4E8;5==O (I> 2;:NG0NBL =59B@>?5=VN, ;59:>?5=VN, 0=5
<1>F8B>?5=VN, ?0=F8B>?5=VN, 0?;0AB8G=C 0=5F8B>7), ;V?0BVO.
5<0B>;>3VG=V 2V4E8;5==O B0 ;V45=>?0BVO <>6CBL 1CB8 O: ?>2070=V, B0: V =5 ?>2070=V V7
A8=4@<><> 3V?5@GCB;82>ABV (482. ?V4@>74V; «1>:C VW A8AB5<8»).
1>:C VW A8AB5<8.

C65 @V4:>: A8=4@<> 3V?5@GCB;82>ABV, 2;:NG0NG8 B0:V A8<8 O: 30@OG:0, ;V45=>?0BVO, =01@O:
>1;8GGO, 72V B0 ?>@CH5==O DC=:FV9 ?5GV=:8, 48A520=>3> 2=CB@VH=L>AC48==>3> 73>@B0==O
:@>2V B0 ?>;V>@30==>W =54>AB0B=>ABV.
"0:>6 ?>2V4<>;O;>AO ?@> 28A8?0==O O: G0AB8=C A8=4@>ABV, O:89 AC?@>2>46C202AO @V7=>
<0=VB=8<8 A8AB5<=8<8 A8<0<8, 2;:NG0NG8 30@OG:C, ;V45=>?0BVN, =01@O: >1;8GGO, 72V B0
?>@CH5==O DC=:FV9 ?5GV=:8. !8=4@<><>65 <0B8 @V7=V ABC?5=V BO6:>ABV V 7@V4:0 <>65

?@872>48B8 4> 48A520=>3> 2=CB@VH=L>AC48==>3> 73>@B0==O :@>2V B0 ?>;V>@30==>W
=54>AB0B=>ABV. 06;82> 2V47=0G8B8, I> @0==V >7=0:8 3V?5@GCB;82>ABV (=0?@8::04, 30@OG:0 B0
;V45=>?0BVO) <>6CBL 28=8:0B8 =02VBL ?@8 2V4ACB=>ABV H:V@=8E 28A8?0=L. @8 =0O2=>ABV
B0:8E A8 >3;O=CB8 B0, ?@8 2V4ACB=>ABV V=H8E ?@8G8=, ?@8?8=8B8 70AB>AC20==O 0
A8EVG=V ?>@CH5==O.

'0AB>: 03@5A82=VABL, 4@0BV2;82VABL.

C65 @V4:>: B8:, 30;NF8=0FVW B0 A?;CB0=VABL A2V4><>ABV.

0 V=H8<8 :;V=VG=8<8 40=8<8:

4C65 @V4:>: =VG=V <0@5==O.

1>:C =5@2>2>W A8AB5<8.

V4 G0A <>=>B5@0?VW (70 40=8<8 :;V=VG=8E 4>A;V465=L):

4C65 G0AB>: 3>;>2=89 1V;L;

G0AB>: A>;82VABL, 157A>==O, 70?0<>@>G5==O, B@5<>@;

=5G0AB>: 0B0:AVO;

@V4:>: =VAB03

0 V=H8<8 :;V=VG=8<8 40=8<8:

4C65 G0AB>: A>;82VABL, 0B0:AVO, 3>;>2=89 1V;L, 70?0<>@>G5==O;

G0AB>: =VAB03<, B@5<>@, 157A>==O;

@V4:>: 0A5?B8G=89 <5=V=3VB (482. @>74V; «A>1;82>ABV 70AB>AC20==O»);

4C65 @V4:>: B@82>6=5 71C465==O, 2B@0B0 @V2=>2038, @CE>2V @>7;048, 703>AB@5==O E2>@>18

0@:V=A>=0, 5:AB@0?V@0@5>0B5B>7, 71V;LH5==O G0AB>B8 =0?04V2.

?8A0=>, I> ;0<>B@8468= <>65 ?>3V@HC20B8 A8<8 ?0@:V=A>=V72V4><;5==O ?@> 5:AB@0?V@0

@5>0B5B>7 C E2>@8E 157 FVTW ?0B>;>3VW.

1>:C >@30=V2 7>@C.

0 40=8<8 :;V=VG=8E 4>A;V465=L (<>=>B5@0?VO ;0<>B@8468=><):

=5G0AB>: 48?;>?VO, ?5;5=0 ?5@54 >G8<0.

0 V=H8<8 :;V=VG=8<8 40=8<8:

4C65 G0AB>: 48?;>?VO, ?5;5=0 ?5@54 >G8<0;

@V4:>: :>= N=:B82VB.

1>:C H;C=:>2>:8H:>2>3> B@0:BC.

V4 G0A <>=>B5@0?VW (70 40=8<8 :;V=VG=8E VA?8BV2):

G0AB>: =C4>B0, 1;N20==O B0 4V0@50.

0 V=H8<8 :;V=VG=8<8 40=8<8:

4C65 G0AB>: =C4>B0, 1;N20==O;

G0AB>: 4V0@50.

1>:C 35?0B>1V;V0@=>W A8AB5<8.

C65 @V4:>: ?V428I5==O ?>:07=8:V2 DC=:FV>=0;L=8E ?5GV=:>28E B5ABV2, ?>@CH5==O DC=:FVW

?5GV=:8, ?5GV=:>20 =54>AB0B=VABL.

>@CH5==O DC=:FVW ?5GV=:8 70728G09 28=8:0T C 72O7:C 7 @50:FVO<8 3V?5@GCB;82>ABV, 0;5

VA=CNBL >:@5

1>:C >?>@=>@CE>2>W A8AB5<8 B0 A?>;CG=>W B:0=8=8.

C65 @V4:>: 2>2G0:>?>4V1=V @50:FVW.

030:L=V @>7;048.

'0AB>: AB><;N20=VABL.

V?>;O@=V @>7;048.

1>:C H;C=:>2>:8H:>2>3> B@0:BC.

'0AB>: ACEVABL C @>BV.

1>:C H:V@8 B0 ?V4H:V@=>W ::VB:>28=8.

C65 G0AB>: H:V@=V 28A8?0==O;

@V4:>: A8=4@>< !BV25=A0-6>=A>=0.

0 40=8<8 CAVE :;V=VG=8E 4>A;V465=L (:>=B@>;L>20=8E V =5:>=B@>;L>20=8E), C E2>@8E =0

1V?>;O@=89 @>7;04 H:V@=V 28A8?0==O 2V47=0G0;8AO C 12 % ?0FVT=BV2, O:V ;V:C20;8AO ;0

<>B@8468=>4V O: C :>=B@>;L>20=8E 4>A;V465==OE H:V@=V 28A8?0==O A?>AB5@V30;8AO C 8 %

E2>@8E, O:V ;V:C20;8AO ;0<>B@8468=><, ?>@V2=O=> 7 6 % E2>@8E, O:V 70AB>A>2C20;8 ?;0F51>.

A8EVG=V ?>@CH5==O.

0 V=H8<8 ;;V=VG=8<8 40=8<8:

4C65 @V4:>: =VG=V <0@5==O.

1>:C =5@2>2>W A8AB5<8.

C65 G0AB>: 3>;>2=89 1V;L.

'0AB>: B@82>6=5 71C465==O, A>;;82VABL, 70?0<>@>G5==O.

1>:C >?>@=>:@CE>2>W A8AB5<8 B0 A?>;CG=>W B:0=8=8.

'0AB>: 0@B@0;3VO.

030;L=V @>7;048.

'0AB>: 1V;L, 1V;L C A?8=V.

"5@ABV.3 @>:8.

#<>28 715@V30==O.

15@V30B8 ?@8 B5ABC?=>

#?0:>2:0.

> 10 B01;5B>: C 1;VAB5@V 7 ?>;V2V=V;E;>@84/0;NW D>;L38. > 3 1;VAB5@8 2 :0@B>==V9 :>@>1FV.

0B53>@VO 2V4?CA:C. 0 @5F5?B<<.

8@>1=8:.

;0:A>!

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VAF57=0E>465==O 28@>1=8:0 B0 9>3> 04@5A0 20465==O 4VO;L=>ABV.

;0:A>!

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