

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

%!® "
(HELPEX® ANTICOLD)

!,:04:
4VNGV @5G>28=8: ?0@0F5B0<>;, :>D5W=, D5=V;5D@8=C 3V4@>E;>@84, E;>@D5=V@0
1 B01;5B:0
4>?>28=8: :@>E<0;L :C:C@C47O=89, F5;N;>70 :@8AB0;VG=0, :0;LFVN 3V4@>D>AD0B,
<5B8;?0@015= (218), ?@>?V;?0@015= (216), ?>2V4>=, <03=VN AB50@0B, B0;L:, =0B@VN :@>E
<0;L3;V:>;OB (B8?), 10@2=8: 6>2B89 70EV4 FCF (110).

V:0@AL:0 D>@<0. "01;5B:8.
A=>2=V DV78:>-EVABV:
B01;5B:8 ?><0@0=G52>3> 01> A2VB;>-?><0@0=G52>3> :>;L>@C V7 2:@0?;5==O<, 4>230AB>W
>20;L=>W D>@<8, 7 @8A:>N, <0NBL 2V418B:8 «» B0 «» =0 BV9 AB>@>=V, 45 @8A:0, 157 >1>;>=:8.

\$0@<0:>B5@0?52B8G=0 3@C?0. =0;L35B8:8 B0 0=B8?V@5B8:8. =V;V48. 0@0F5B0<>;, :><1V=0FVW
157 ?A8E>;5?B8:V2.
>4 "% N02B E51.

\$0@<0:>;>3VG=V 2;0AB82>ABV.
\$0@<0:>48=0
><1V=>20=89 ?@5?0@0B 4;O ;V:C20==O 3@8?C B0 70ABC48. 0T 60@>7=86C20;L=V, 7=51>;N20;L=V,
?@>B80;5@3VG=V B0 A;01:V ?@>B870?0;L=V 2;0AB82>ABV. #AC20T A8<8 70::045=>ABV =>A0,
=568BL, A;L>7>B5GC, GE0==O, 3>;>2=89 1V;L, ?>:@0ICT 7030;L=5 A0<>?>GCBBO.
0@0F5B0<>; 4VT O: 60@>7=86C20;L=89, 7=51>;N20;L=89, B0 ?@>B870?0;L=89 70AV1. =0;35B8G=0 B0
60@>7=86C20;L=0 4VO ?0@0F5B0<>;C ?>2O70=0 7 2?;82< ?@5?0@0BC =0 F5=B@ B5@
<>@53C;OFVW B0 740B=VABN V=3V1C20B8 A8=B57 ?@>AB03;0=48=V2.
\$5=V;5D@8=C 3V4@>E;>@84 4VT O: AC48=>72C6C20;L=89 70AV1, 7<5=HCT =01@O: A;87>2>W
>1>;>=:8 =>A0 V ?@840B:>28E ?07CE.
%;>@D5=V@0 <0T ?@>B80;5@3VG=C 4VN, 7=V<0T A;L>7>B5GC B0 A25@1V6 C =>AV.
>D5W= 74V9A=NT AB82C A8AB5;>2=8< G8=>< =0 :>@C 3>;>2=>3> <>7:C, 48E0;L=89 B0
AC48=>@CE>289 F5=B@8, ?V428ICT @>7C<>2C B0 DV78G=C ?@0F5740B=VABL, 7<5=HCT
A>;82VABL, 2V4GCBBO 2B<8 B0 ?>A;01;NT 4VN 70A>1V2, I> ?@83=VGCNBL F5=B@0;L=C
=5@2>2C A8AB5

;V=VG=V E0@0:B5@8AB8:8.
>:070==O.
V:C20==O A8 28=8:0NBL ?@8 3>AB@8E @5A?V@0B>@>8E 2V@CA=8E V=D5:FVOE, 3@8?V (4;O
7=865==O ?V428I5=>W B52>W >1>;>=:8 =>A0, CAC=5==O ;><>B8 C BV;V, CAC=5==O 3>;>2=>3> 1>;N).

@>B8?>:070==O.
V428I5=0 GCB;82VABL 4> 1C4L-O:>3> :>5=B0 ?@5?0@0BC, V=H8E ?>EV4=8E :A0=B8=V2
(B5>DV;V=, B5>1@>-AC48==V 70E2>@N20==O, 2;;NG0NG8 =5:>20=C A5@F52C =54>AB0B=VABL,
?>@CH5==O ?@>2V4=>ABV, 0@8BA::5@>7, AE8;L=VABL 4> A?07W E2>@>18 A5@FO; B06:0
0@B5@V0;L=0 3V?5@B5=7VO. 8@065=V ?>@CH5==O DC=:FVW ?5GV=:8 B0 =8@>;, 045=><0 ?5@54
2>W 70;>78 7 CB@C4=5=8< A5G>28?CA:0==O<, >1AB@C:FVO H89:8 A5G>2>3> 7CNG0 28@07:0
H;C=:0 B0 420=04FOB8?0;>W :8H:8, ?V;>@>4C>45=0;L=0 >1AB@C:FVO; 3>AB@89 ?0=:@50B8B.
0E2>@N20==O :@>2V (C B.G. 28@065=0 0=5?5=VO), 3V?5@B8@5>7, FC:@>289 4V015B,
1@>=EV0;L=0 0AB<0, 70:@8B>:CB>20 3;0C:><0, 45DVF8B 3;N:>7>-6-D>AD0B453V4@>35=078,
0;>3>;V7<, ?V428I5=0 71C4;82VABL, ?>@CH5==O A=C, 2@>465=0 3V?5@1V;V@C1V=Ξ@><>F8B><0,
5?V;5?AVO. VB=V9 2V:. 4=>G0A=5 70AB>AC20==O 7 B@8F8;;VG=8<8 0=B845?@5A0=B0<8, β-
1;>:0B>@0<8; 7 V=3V1VB>@0<8 B0 ?@>BO3>< 2 B86=V2 ?VA;O ?@8?8=5==O WE 70AB>AC20==O.

0FVT=B8 7 @878:>< 28=8:=5==O 48E0;L=>W =54>AB0B=>ABV.

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

5B>;>?@0= ?V428ICT, 0 E>;5AB8@0?0@0F5B0<>;C. @8 >4=>G0A=>AC20==V 7 ?0@0F5B0<>;><
<>6CBL A?>AB5@V30B8AO =0ABC?=V 2848 270T<>4V9: <>65 C?>2V;L=N20B8AO 282545==O
0=B81V>B8:V2 7 >@30=V7728B:C 0=5W ?0@0F5B0<>;>; 0=B0F848 B0 W60 7<5=HCNBL 01A>@1FVN
?0@0F5B0<>;C. @8 >4=>G0A=>23>B@820;>AC20==V ?>A8;NTBLAO 0=B8:>03C;O=B=89 5D5:B :C
<0@8=V2 (=0?@8;:04 20@D0@8=C). 0@1VBC@0B8 7<5=HCNBL 60@>7=86C20;L=C 0:B82=VABL
?0@0F5B0<>;C. @>B8AC4><=V ?@5?0@0B8 (D5=VB>W=, 10@1VBC@0B8, :0@10<075?V=), I> AB8A>
<0;L=V D5@<5=B8 ?5GV=:8 B0 V7>=V0784, <>6CBL ?>A8;N20B8 35?0B>B>:A8G=VABL ?0@0F5B0
<>;C. @8 >4=>G0A=>AC20==V ?0@0F5B0<>;C 7 35?0B>B>:A8G=8<8 70A>10<8 71V;LHCTBLAO
B>:A8G=89 2?;82 ?@5?0@0BV2 =0 ?5GV=:C. 0@0F5B0<>; 7=86CT 5D5:B82=VABL 4VC@5B8:V2.
0AB>AC20==O D5=V;5D@8=C 3V4@>E;>@84C 7 V=4<5B0F8=>< B0 1@><>65 A?@8G8=8B8 BO6:C
0@B5@V0;L=C 3V?5@B5=7VN; 7 A8:0@4C.

>65 7=86C20B8 5D5:B82=VABL B-1;>:0B>@V2 B0 V=H8E 0=B83V?5@B5=782=8E ?@5?0@0BV2
(@575@?V=C, <5B8;4>?8) 7 ?V428I5==O< @878:C 0@B5@V0;L=>W 3V?5@B5=7VW B0 ?>1VG=8E
A5@F52>-AC48==8E @50:FV9.

;:0;>W48 @0C2>;LDVW 7<5=HCNBL B5@0?52B8G=89 5D5:B D5=V;5D@8=C 3V4@>E;>@84C.
α-04@5=>1;>:0B>@8 (D5=B>;0BV078=8, DC@>A5460NBL 207>:>=AB@8:FVW.

%;>@D5=V@0 ?>A8;NT 0=B8E>;V=5@3VG=C 4VN 0B@>?V=C, A?07<;VB8:V2, 70A>1V2, I>
?@83=VGCNBL F5=B@0;L=C =5@2>2C A8AB5@8, 10@1VBC@0B8), ?@>B8?0@:V=A>=VG=8E
?@5?0@0BV2.■

5 70AB>A>2C20B8 >4=>G0A=> 7 0;:>3>;5@D5=V@0AC20==V 7 0;:>3>;5< ?>B5=VFNBL 4VN >48=
>4=>3>.

4=>G0A=5 70AB>AC20==O 7V A=>4V9=8<8 70A>10<8, 10@1VBC@0B0<8, 70A?>:V9;828<8 70A>10<8,
=59@>;5?B8:0<8, B@0=:2V;V70B>@0<8, 0=5AB5B8:0<8, =0@:>B8G=8<8 0=0;35B8:0<8 ?>A8;NT 4VN
E;>@D5=V@0

0?@>B8;V= (G>B8@8F8;:VG=89 0=B845?@5A0=B) B0 V=HV ?@5?0@0B8 0=B8E>;V=5@3VG=>W 4VW:
<>65 ?>A8;8B8AL 0=B8E>;V=5@3VG=0 4VO F8E ?@5?0@0BV2 01> B0:8E 0=B83VAB01V2, O:
E;>@D5=V@0

>D5W= ?>A8;NT 5D5:B (?>:@0ICT 1V>4>ABC?=VABL) 0=0;35B8:V2-0=B8?V@5B8:V2, ?>B5=VFNNT
4VN ?>EV4=8E :A0=B8=C, α- B0 B-04@5=>1V2.

>D5W= 71V;LHCT V<>2V@=VABL C@065==O ?5GV=:8 35?0B>B>:A8G=8<8 ?@5?0@0B0<8.

&8<5B848=, 3>@<=0;L=V :=B@0F5?B828, V7>=V0784 ?>A8;NNBL 4VN :=D5W=C.

>D5W= 7=86CT 5D5:B >?V>W4=8E 0=0;35B8:V2, 0=:AV>;VB8:V2, A=>4V9=8E V A540B82=8E, T
0=B03>=VAB< 70A>1V2 4;O =0@:>7C B0 V=H8E ?@5?0@0BV2, I> ?@83=VGCNBL F5=B@0;L=C
=5@2>2C A8AB5=:C@5=B=8< 0=B03>=VAB< ?@5?0@0BV2 045=>78=C, "\$. @8 >4=>G0A=>AC20==V
:=D5W=C 7 5@3>B0< ?>;V?HCTBLAO 2A<:BC20==O 5@3>B0B@>?>8<8 70A>10<8 ?V428ICTBLAO
B8@5>W4=89 5D5:B. >D5W= 7=86CT :=F5=B@0FVN ;VBVN 2 :@>2V.

B>B>:A8G=V B0 D>B>A5=A81V;V7CNGV ?@5?0@0B8 ?@8 >4=>G0A=>AC20==V <>6CBL
?V4A8;N20B8 ?>1VG=V 5D5:B8.

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

5 ?5@528IC20B8 707=0G5=C 4>7C.

!;V4 C=8:0B8 >4=>G0A=>3> 70AB>AC20==O 7 V=H8<8 ;V:0@AL:8<8 70A>10<8, I>

/:I> A8<8 =5 7=8:0NBL, 725@=CB8AO 4> ;V:0@O. /:I> 3>;>2=89 1V;L AB0T ?>ABV9=8<, A;V4
725@=CB8AO 4> ;V:0@O.

0=89 ;V:0@AL:89 70AV1 =5 @5:>5=4CTBLAO 70AB>A>2C20B8 >4=>G0A=> 7 A540B82=8<8,
A=>4V9=8<8 70A>10<8, 0;:>3>;57C20==O ?V428ICTBLAO ?@8 0;:>3>;L=8E 70E2>@N20==OE ?5GV=:8.
@8 70AB>AC20==V ?@5?0@0BC A;V4 C=8:0B8 =043> 26820==O :028, 3> G0N, V=H8E B>=V7CNG8E
=0?>W2 B0 ;V:0@AL:8E 70A>1V2, I> D5W=. &5 <>65 A?@8G8=8B8 ?@>1;5<8 7V A=>, B@5<>@,
=0?@C65==O, 4@0BV2;82VABL, 2V4GCBBO A5@F518BBO.

3 >15@56=VABN 70AB>A>2C20B8 ?@8 :>20=V9 A5@F52V9=54>AB0B=>ABV, ?0FVT=B0<, C O:8E
VA=CT @878:28=8:=5==O AC4<=>8E =0?04V2, ?0FVT=B0< 7 E@>=VG=8<8 >1AB@C:B82=8<8
70E2>@N20==O<8 48E0;L=8E H;OE V2, ?5@A8ABCNG8< 01> E@>=VG=8< :0H;5<, O:89 28=8:0T
2=0A;V4>: :C@V==O G8 5QT 01> C 28?04:0E B@820;>3> ?@89>?@5?0@0BV2, I> <>6CBL
?@>4>26C20B8 QT V=B5@20;.
@5?0@0B <>65 2?;820B8 =0 @57C;LB0B8 ;01>@0B>@=8E 4>A;V465=L 22V 3;N:>78.
0AB>AC20==O ?@5?0@0BC <>65 7C<>28B8 ?>78B82=89 0=0;VB8G=89 @57C;LB0B 4>?V=3-:>=B@>;N.
5@54 70AB>AC20==O< ?@5?0@0BC =5>1EV4=> ?>@048B8AL 7 ;V:0@5<, O:I> 28 70AB>A>2CTB5
20@D0@8= G8 ?>4V1=V ?@5?0@0B8, O:V <0NBL 0=B8:>03C;O=B=89 5D5:B B0 ?0FVT=B0< 7
?>@CH5==O<8 DC=:FVW =8@>: V ?5GV=:8.

0AB>AC20==O C ?5@V>4 203VB=>ABV 01> 3>4C20==O 3@C44N.
5 70AB>A>2C20B8.

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.
?5@V>4 ;V:C20==O A;V4 C=8:0B8 :5@C20==O B@0=A?>@B=8<8 70A>10<8, @>1>B8 7 <5E0=V7<0<8
B0 V=H8E =5157?5G=8E 284V2 4VO;L=>ABV.

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

>@>A;8< V 4VBO< 2V:< 2V4 12 @>:V2 ?@87=0G0B8 ?> 1 B01;5BFV 4> 4-E @07V2 =0 4>1C. !;V4
4>B@8<0<8 =5 <5=H5 4 3>48=. "@820;VABL ;V:C20==O ?>28==0 AB0=>28B8 =5 1V;LH5 5 4=V2.
@5?0@0B ?@89<0B8 2=CB@VH=L> G5@57 1 3>48=C ?VA;O ?@89>N :V;L:VABN 2>48.

VB8.

@5?0@0B 70AB>A>2C20B8 4;O ;V:C20==O 4VB59 2V:< 2V4 12 @>:V2.

5@54>7C20==O.

@8 ?5@54>7C20==V ?0@0F5B0<>;C 2 ?5@HV 24 3>48=8 @>72820NBLAO A8<8 1;V4VABL, =C4>B0,
1;N20==O, 0=>@5:AVO B0 1V;L C 682>BV. V428ICTBLAO 0:B82=VABL ?5GV=:>28E B@0=A0
=F5=B@0FVO 1V;V@C1V=C V 7=86CTBLAO @V25=L ?@>B@<1V=C. # @07V ?5@54>7C20==O
<>6CBL A?>AB5@V30B8AO ?V428I5=5 ?>B>284V;5==O, ?A8E<>B>@=5 71C465==O 01>
?@83=VG5==O F5=B@0;L=>W =5@2>2>W A8AB5<8, 70?0<>@>G5==O, ?>@CH5==O A=C,
A>=;82VABL, ?>@CH5==O A5@F52>3> @8B;VO, B@5<>@, 3V?5@@5D;5:AVO, AC4<8, ?0=:@50B8B.
?>>48=>:8E 28?04:0E ?>2V4<;O;>AO ?@> 3>AB@C =8@:>2C =54>AB0B=VABL V7 3>AB@8<
=5:@>7>< :0=0;LFV2, I> ?@>O2;OTBLAO 1>;5< C 4V;O=FV ?>?5@5:C, 35<0BC@VTN,
?@>B5W=C@VTN, =5D@>B>:A8G=VABN (=8@:>20 :>;V:0, V=B5@AB8FV0;L=89 =5D@8B,
?0?V;O@=89 =5:@>7).
6820==O 4>@>A;8< 10 3 01> 1V;LH5 ?0@0F5B0<>;C B0 48B8=>N ?>=04 150 <3 ?0@0F5B0<>;C =0 :3
<0A8 BV;0 <>65 ?@8725AB8 4> 35?0B>F5;N;O@=>3> =5:@>7C 7 @>728B:< 5=F5D0;>?0BVW 7
?>@CH5==O< A2V4<>ABV, ?5GV=:>2>W :<8 B0 ;5B0;L=>3> =0A;V4:C.
5@HV ;V=VG=V V 1V>EV7=0:8 C@065==O ?5GV=:8 <>6CBL 7028B8AO G5@57 12-48 3>48= ?VA;O
?5@54>7C20==O. >6CBL 28=8:0B8 ?>@CH5==O <5B01>;V778 B0 <5B01>;VG=89 0F84>7. @8 B@820;>
AC20==V 28A>:8E 4>7 <>6;82V 0?;0AB8G=0 0=5?5=VO, 03@0=C;>F8B>7, =59B@>?5=VO, ;59:>?5=VO,
B@><1>F8B>?5=VO.
?0FVT=BV2 7 D0:B>@0<8 @878:C (B@820;5 ;V:C20==O :0@10<075?V=><, D5=>10@1VB0;<<,
D5=VB>W=><, ?@8=><, @8D0<, 72V@>1>T< 01> V=H8<8 ;V:0@AL:8<8 70A>10<8, I> V=4C:CNBL D5@
<5=B8 ?5GV=:8; 0;>3>;V7<; 3;CB0BV>=>20 :0E5:AVO (@>7;048 B@02;5==O, 2VAF84>7, -V=D5:FVO,
3>;>4, :0E5:AVO) 70AB>AC20==O 5 3 01> 1V;LH5 ?0@0F5B0<>;C <>65 ?@8725AB8 4> C@065==O
?5GV=:8.
!8<8 ?5@54>7C20==O, 7C<>2;5=V 4VTN D5=V;5D@8=C B0 E;>@D5=V@0: 3>;>2=89 1V;L,
3V?5@3V4@>7, A>=;82VABL, 157A>==O, 7254V=:8, =5A?>:V9, 4@0BV2;82VABL, B@5<>@, AC4<8,
3V?5@@5D;5:AVO, 70?0<>@>G5==O, =C4>B0, 1;N20==O, B0EV:0@4VO, 0@8B5:AB@0A8AB>;VO.

@8 ?5@54>7C20==V E;>@D5=V@0 AB0=<65 20@VN20B8 2V4 ?@83=VG5=>3> 4> 71C465=>3>
(=5A?>:V9 B0 AC4<8). >6CBL A?>AB5@V30B8AO 0B@>?V=>?>4V1=V A8<8, 2;:NG0NG8
D>B>D>1VN, ACEVABL H:V@8 B0 A;87>28E >1>;>=:, ?V428I5==O B5=VN :8H5G=8:C; ?@83=VG5==O
F5=B@0;L=>W =5@2>2>W A8AB5<8 AC?@>2>46CTBLAO @>7;040<8 48E0==O B0 ?>@CH5==O<8
@>1>B8 A5@F52>-AC48==>W A8AB5<8.
@8 ?5@54>7C20==V :>D5W=C 2V47=0G0NBLAO B0:V A8<8: 7=52>4=5==O, 3V?5@B5@B8 4VC@57C,
5:AB@0A8AB>;VO, B0EV:0@4VO, ?@8A:>@5=5 48E0==O, 0@8B2C A8AB5
V:C20==O ?5@54>7C20==O: C @07V ?V4>7@8 =0 ?5@54>7C20==O ?0FVT=B0 A;V4 4>AB028B8 C
;V:0@=N. @>BO3< 24 3>48= ?VA;O ?@89>BO3< ?5@H8E 8 3>48= ?VA;O ?@89>BO3< ?5@H8E 8
3>48= ?VA;O ?5@54>7C20==O<65 1CB8 70AB>A>20=89 <5BV>=V= ?5@>@0;L=>.

>1VG=V @50:FVW.

I>:C VW A8AB5<8: @50:FVW 3V?5@GCB;82>ABV, 2;:NG0NG8 A25@1V6, 28A8? (5@8B5<0B>7=89,
:@>?82O=:0), 0=0DV;0:B8G=89 H>:, 0=3V>=52@>B8G=89 =01@O:, @<=0 5:AC40B82=0 5@8B5<0 (C
B. G. A8=4@< !BV25=A0-6>=A>=0), B>:A8G=89 5?V45@<0;L=89 =5:@>;V7.
I>:C F5=B@0;L=>W =5@2>2>W A8AB5<8: ?A8E<>B>@=5 71C465==O V ?>@CH5==O
>@VT=B0FVW, 70=5?>:>T=VABL, 7254V=:8, 2V4GCBBO AB@0EC, B@82>30, 4@0BV2;82VABL,
?>@CH5==O A=C, 157A>==O, A>=:82VABL, 70?0<@>G5==O, A?;CB0=VABL A2V4<>ABV,
30;NF8=0FVW, 45?@5A82=V AB0=8, B@5<>@, 2V4GCBBO ?>:>N20==O V BO6:>ABV C :V=FV2:0E,
HC< C 2CE0E, 3>;>2=89 1V;L, 2 >:@5<8E 28?04:0E :<0, AC4<8, 48A:V=57VO.
I>:C 48E0;L=>W A8AB5<8: 1@>=E>A?07< C ?0FVT=BV2, GCB;828E 4> 0A?V@8=C B0 4> V=H8E .
I>:C >@30=V2 7>@C: ?>@CH5==O 7>@C B0 0:><40FVW,>G=>3> B8A:C, ACEVABL >G59.
I>:C H;C=:>2>-.8H:>2>3> B@0:BC: 7=865==O 0?5B8BC, =C4>B0, 1;N20==O, ACEVABL C @>BV,
3V?5@A0;V20FVO, ?5GVO, 48A:>@B V 1V;L 2 5?V30AB@VW, 703>AB@5==O 28@07:>2>W E2>@>18,
<5B5>@87<, 4V0@5O, 70?>@.
I>:C 35?0B>1V;V0@=>W A8AB5<8: ?>@CH5==O DC=:FVW ?5GV=:8, ?V428I5==O 0:B82=>ABV
?5GV=:>28E D5@<5=BV2, O: ?@028;>, 157 @>728B:C 6>2BO=8FV, 35?0B>=5:@>7 (?@8
70AB>AC20==V 28A>:8E 4>7), 35?0B>B>:A8G=VABL.
I>:C 5=4>:@8==>W A8AB5<8: 3V?>3;V:5 3V?>3;V:5W :<8.
I>:C A8AB5<8 :@>2V B0 ;VW A8AB5<8: 0=52>B5GV; AC;LD35<>3;>1V=57, 7048H:0, 1>;V C A5@FV).
@8 B@820;>AC20==V C 28A>:8E 4>70E 0?;0AB8G=0 0=5?5=VO, 03@0=C;>F8B>7, =59B@>?5=VO,
;59:>?5=VO, B@><1>F8B>?5=VO.
I>:C =8@>: B0 A5G>284V;L=>W A8AB5<8: ?@8 70AB>AC20==V 28A>:8E 4>7
=5D@>B>B>:A8G=VABL (2;:NG0NG8 ?0?V;O@=89 =5:@>7), ?>@CH5==O A5G>28?CA:0==O, 70B@8
28?CA:0==O, 487C@VO, V=B5@AB8FV0;L=89 =5D@8B, ?V428I5==O :;V@5=AC :@50B8=V=C,
71V;LH5==O 5:A:@5FVW =0B@VN B0 :0;LNVN, 0A5?B8G=0 ?VC@VO, =8@:>20 :>;V:0.
I>:C A5@F52>-AC48==>W A8AB5<8: 0@B5@V0;L=0 3V?5@B5=7VO, B0EV:0@4VO 01>
@5D;5:B>@=0 1@048:0@4VO, 0@8B
=HV: 7030;L=0 A;01:VABL, ?>A8;5=5 ?>B>284V;5==O, 3V?>3;V:5W :<8, 70;:045=VABL =>A0,<>6;825
E81=5 ?V428I5==O A5G>2>W :8A;>B8 2 :@>2V, I> 287=0G0TBLAO<5B>4>< Bittner; =57=0G=5
?V428I5==O 5-3V4@>:A8V=4>;>FB>2>W :8A;>B8
(5-), 20=V;V;<8340;52>W :8A;>B8 (V) B0 :0B5E>;0
>?>28=8 <5B8;?0@015= (218) B0 ?@>?V;?0@015= (216)<>6CBL A?@8G8=8B8 0;5@3VG=V @50:FVW (
<>6;82>, C?>2V;L=5=V) B0 2 >:@5<8E 28?04:0E 1@>=E>A?07

"5@ABV.

4 @>:8.

#<>28 715@V30==O.

15@V30B8 C =54>ABC?=>@83V=0;L=V9 C?0:>2FV ?@8 B5

#?0:>2:0.

> 4 01> ?> 10 B01;5B>: C 1;VAB5@V, ?> 1 1;VAB5@C C :0@B>==V9 C?0:>2FV 7 V=AB@C:FVTN 4;O
<548G=>3> 70AB>AC20==O; ?> 20 C?0:>2>: ?> 4 B01;5B:8 C 3@C?>2V9 :0@B>==V9 ?0GfV (80), ?> 10
C?0:>2>: ?> 10 B01;5B>: C 3@C?>2V9 :0@B>==V9 ?0GfV (100).

0B53>@VO 2V4?CA:C.
57 @5F5?B0.

8@>1=8:.
;520 !.

VAF57=0E>465==O 28@>1=8:0 B0 9>3> 04@5A020465==O 4VO;L=>ABV.
@5FVO, 0@=VB>A 2. 189, E0@=09 BBV:V, 13675.

0O2=8:.
>2V %5;A <1%.

VAF57=0E>465==O 70O2=8:0.
35 35@VHB@0AA5, 00@, 6340, (259F0@VO.

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

%!® "
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!,:04:
4VNGV @5G>28=8: ?0@0F5B0<>;, :>D5W=, D5=V;5D@8=C 3V4@>E;>@84, E;>@D5=V@0
1 B01;5B:0
4>?>28=8: :@>E<0;L :C:C@C47O=89, F5;N;>70 :@8AB0;VG=0, :0;LFVN 3V4@>D>AD0B,
<5B8;?0@015= (218), ?@>?V;?0@015= (216), ?>2V4>=, <03=VN AB50@0B, B0;L:, =0B@VN :@>E
<0;L3;V:>;OB (B8?), 10@2=8: 6>2B89 70EV4 FCF (110).

V:0@AL:0 D>@<0. "01;5B:8.
A=>2=V DV78:>-EVABV:
B01;5B:8 ?><0@0=G52>3> 01> A2VB;>-?><0@0=G52>3> :>;L>@C V7 2:@0?;5==O<, 4>230AB>W
>20;L=>W D>@<8, 7 @8A:>N, <0NBL 2V418B:8 «» B0 «» =0 BV9 AB>@>=V, 45 @8A:0, 157 >1>;>=:8.

\$0@<0:>B5@0?52B8G=0 3@C?0. =0;L35B8:8 B0 0=B8?V@5B8:8. =V;V48. 0@0F5B0<>;, :<1V=0FVW
157 ?A8E>;5?B8:V2.
>4 "% N02B E51.

\$0@<0:>;>3VG=V 2;0AB82>ABV.
\$0@<0:>48=0
><1V=>20=89 ?@5?0@0B 4;O ;V:C20==O 3@8?C B0 70ABC48. 0T 60@>7=86C20;L=V, 7=51>;N20;L=V,
?@>B80;5@3VG=V B0 A;01:V ?@>B870?0;L=V 2;0AB82>ABV. #AC20T A8<8 70:;045=>ABV =>A0,
=568BL, A;L>7>B5GC, GE0==O, 3>;>2=89 1V;L, ?>:@0ICT 7030;L=5 A0<>?>GCBBO.
0@0F5B0<>; 4VT O: 60@>7=86C20;L=89, 7=51>;N20;L=89, B0 ?@>B870?0;L=89 70AV1. =0;35B8G=0 B0
60@>7=86C20;L=0 4VO ?0@0F5B0<>;C ?>2O70=0 7 2?;82< ?@5?0@0BC =0 F5=B@ B5@
<>@53C;OFVW B0 740B=VABN V=3V1C20B8 A8=B57 ?@>AB03;0=48=V2.
\$5=V;5D@8=C 3V4@>E;>@844VT O: AC48=>72C6C20;L=89 70AV1, 7<5=HCT =01@O: A;87>2>W
>1>;>=:8 =>A0 V ?@840B:>28E ?07CE.
%;>@D5=V@0 <0T ?@>B80;5@3VG=C 4VN, 7=V<0T A;L>7>B5GC B0 A25@1V6 C =>AV.
>D5W= 74V9A=NT AB82C A8AB5;>2=8< G8=>< =0 :>@C 3>;>2=>3> <>7:C, 48E0;L=89 B0
AC48=>@CE>289 F5=B@8, ?V428ICT @>7C<>2C B0 DV78G=C ?@0F5740B=VABL, 7<5=HCT
A>;82VABL, 2V4GCBBO 2B<8 B0 ?>A;01;NT 4VN 70A>1V2, I> ?@83=VGCNBL F5=B@0;L=C
=5@2>2C A8AB5

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

>:070==O.

V:C20==O A8 28=8:0NBL ?@8 3>AB@8E @5A?V@0B>@=8E 2V@CA=8E V=D5:FVOE, 3@8?V (4;O 7=865==O ?V428I5=>W B52>W >1>;>=:8 =>A0, CAC=5==O ;><>B8 C BV;V, CAC=5==O 3>;>2=>3> 1>;N).

@>B8?>:070==O.

V428I5=0 GCB;82VABL 4> 1C4L-O:>3> :>5=B0 ?@5?0@0BC, V=H8E ?>EV4=8E :A0=B8=V2 (B5>DV;V=, B5>1@>-AC48==V 70E2>@N20==O, 2::NG0NG8 =5:>20=C A5@F52C =54>AB0B=VABL, ?>@CH5==O ?@>2V4=>ABV, 0@8BA::5@>7, AE8;L=VABL 4> A?07W E2>@>18 A5@FO; BO6:0 0@B5@V0;L=0 3V?5@B5=7VO. 8@065=V ?>@CH5==O DC=:FVW ?5GV=:8 B0 =8@>:, 045=><0 ?5@54 2>W 70;>78 7 CB@C4=5=8< A5G>28?CA:0==O<, >1AB@C:FVO H89:8 A5G>2>3> 7CNG0 28@07:0 H;C=:0 B0 420=04FOB8?0;>W :8H:8, ?V;>@>4C>45=0;L=0 >1AB@C:FVO; 3>AB@89 ?0=:@50B8B. 0E2>@N20==O :@>2V (C B.G. 28@065=0 0=5?5=VO), 3V?5@B8@5>7, FC:@>289 4V015B, 1@>=EV0;L=0 0AB<0, 70:@8B>:CB>20 3;0C:><0, 45DVF8B 3;N:>7>-6-D>AD0B453V4@>35=078, 0::>3>;V7<, ?V428I5=0 71C4;82VABL, ?>@CH5==O A=C, 2@>465=0 3V?5@1V;V@C1V=Ξ@><>F8B><0, 5?V;5?AVO. VB=V9 2V:. 4=>G0A=5 70AB>AC20==O 7 B@8F8::VG=8<8 0=B845?@5A0=B0<8, β - 1;>:0B>@0<8; 7 V=3V1VB>@0<8 B0 ?@>BO3>< 2 B86=V2 ?VA;O ?@8?8=5==O WE 70AB>AC20==O. 0FVT=B8 7 @878:>< 28=8=:5==O 48E0;L=>W =54>AB0B=>ABV.

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

5B>::>?@0= ?V428ICT, 0 E>;5AB8@0?0@0F5B0<>;C. @8 >4=>G0A=>AC20==V 7 ?0@0F5B0<>;>< <>6CBL A?>AB5@V30B8AO =0ABC?=V 2848 270T<>4V9: <>65 C?>2V;L=N20B8AO 282545==O 0=B81V>B8:V2 7 >@30=V7728B:C 0=5W ?0@0F5B0<>;><; 0=B0F848 B0 W60 7<5=HCNBL 01A>@1FVN ?0@0F5B0<>;C. @8 >4=>G0A=>23>B@820;>AC20==V ?>A8;NTBLAO 0=B8:>03C;O=B=89 5D5:B :C <0@8=V2 (=0?@8::04 20@D0@8=C). 0@1VBC@0B8 7<5=HCNBL 60@>7=86C20;L=C 0:B82=VABL ?0@0F5B0<>;C. @>B8AC4><=V ?@5?0@0B8 (D5=VB>W=, 10@1VBC@0B8, :0@10<075?V=), I> AB8A> <0;L=V D5@<5=B8 ?5GV=:8 B0 V7>=V0784, <>6CBL ?>A8;N20B8 35?0B>B>:A8G=VABL ?0@0F5B0 <>;C. @8 >4=>G0A=>AC20==V ?0@0F5B0<>;C 7 35?0B>B>:A8G=8<8 70A>10<8 71V;LHCTBLAO B>:A8G=89 2?;82 ?@5?0@0BV2 =0 ?5GV=:C. 0@0F5B0<>; 7=86CT 5D5:B82=VABL 4VC@5B8:V2. 0AB>AC20==O D5=V;5D@8=C 3V4@>E;>@84C 7 V=4><5B0F8=>< B0 1@>< <>65 A?@8G8=8B8 BO6:C 0@B5@V0;L=C 3V?5@B5=7VN; 7 A8:0@4C.

>65 7=86C20B8 5D5:B82=VABL β -1;>:0B>@V2 B0 V=H8E 0=B83V?5@B5=782=8E ?@5?0@0BV2 (@575@?V=C, <5B8;4>?8) 7 ?V428I5==O< @878:C 0@B5@V0;L=>W 3V?5@B5=7VW B0 ?>1VG=8E A5@F52>-AC48==8E @50:FV9.

::0;>W48 @0C2>;LDVW 7<5=HCNBL B5@0?52B8G=89 5D5:B D5=V;5D@8=C 3V4@>E;>@84C.

α-04@5=>1;>:0B>@8 (D5=B>;0BV078=8, DC@>A5460NBL 207>:>=AB@8:FVW.

%,>@D5=V@0 ?>A8;NT 0=B8E>;V=5@3VG=C 4VN 0B@>?V=C, A?07<;VB8:V2, 70A>1V2, I> ?@83=VGCNBL F5=B@0;L=C =5@2>2C A8AB5@8, 10@1VBC@0B8), ?@>B8?0@:V=A>=VG=8E ?@5?0@0BV2.■

5 70AB>A>2C20B8 >4=>G0A=> 7 0;>3>;5@D5=V@0AC20==V 7 0;>3>;5< ?>B5=VFNBL 4VN >48= >4=>3>.

4=>G0A=5 70AB>AC20==O 7V A=>4V9=8<8 70A>10<8, 10@1VBC@0B0<8, 70A?>:V9;828<8 70A>10<8, =59@>;5?B8:0<8, B@0=:2V;V70B>@0<8, 0=5AB5B8:0<8, =0@>:B8G=8<8 0=0;35B8:0<8 ?>A8;NT 4VN E;>@D5=V@0

0?@>B8;V= (G>B8@8F8::VG=89 0=B845?@5A0=B) B0 V=HV ?@5?0@0B8 0=B8E>;V=5@3VG=>W 4VW: <>65 ?>A8;8B8AL 0=B8E>;V=5@3VG=0 4VO F8E ?@5?0@0BV2 01> B0:8E 0=B83VAB0I V2, O: E;>@D5=V@0

>D5W= ?>A8;NT 5D5:B (?>:@0ICT 1V>4>ABC?=VABL) 0=0;35B8:V2-0=B8?V@5B8:V2, ?>B5=VFNNT 4VN ?>EV4=8E :A0=B8=C, α- B0 β -04@5=>1V2.

>D5W= 71V;LHCT V<>2V@=VABL C@065==O ?5GV=:8 35?0B>B>:A8G=8<8 ?@5?0@0B0<8.

&8<5B848=, 3>@<=>0;L=V :=B@0F5?B828, V7>=V0784 ?>A8;NNBL 4VN :>D5W=C.

>D5W= 7=86CT 5D5:B >?V>W4=8E 0=0;35B8:V2, 0=:AV>;VB8:V2, A=>4V9=8E V A540B82=8E, T
0=B03>=VAB< 70A>1V2 4;O =0@>:7C B0 V=H8E ?@5?0@0BV2, I> ?@83=VGCNBL F5=B@0;L=C
=5@2>2C A8AB5=:C@5=B=8< 0=B03>=VAB< ?@5?0@0BV2 045=>78=C, "\$. @8 >4=>G0A=>AC20==V
:>D5W=C 7 5@3>B0< ?>;V?HCTBLAO 2A<:BC20==O 5@3>B0B@>?=8<8 70A>10<8 ?V428ICTBLAO
B8@5>W4=89 5D5:B. >D5W= 7=86CT :>=F5=B@0FVN ;VBVN 2 :@>2V.
B>B>:A8G=V B0 D>B>A5=A81V;V7CNGV ?@5?0@0B8 ?@8 >4=>G0A=>AC20==V <>6CBL
?V4A8;N20B8 ?>1VG=V 5D5:B8.

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

5 ?5@528IC20B8 707=0G5=C 4>7C.

!;V4 C=8:0B8 >4=>G0A=>3> 70AB>AC20==O 7 V=H8<8 ;V:0@AL:8<8 70A>10<8, I>
/:I> A8<8 =5 7=8:0NBL, 725@=CB8AO 4> ;V:0@O. /:I> 3>;>2=89 1V;L AB0T ?>ABV9=8<, A;V4
725@=CB8AO 4> ;V:0@O.

0=89 ;V:0@AL:89 70AV1 =5 @5:>5=4CTBLAO 70AB>A>2C20B8 >4=>G0A=> 7 A540B82=8<8,
A=>4V9=8<8 70A>10<8, 0;:>3>;57C20==O ?V428ICTBLAO ?@8 0;:>3>;L=8E 70E2>@N20==OE ?5GV=:8.
@8 70AB>AC20==V ?@5?0@0BC A;V4 C=8:0B8 =043> 26820==O :028, 3> G0N, V=H8E B>=V7CNG8E
=0?>W2 B0 ;V:0@AL:8E 70A>1V2, I> D5W=. &5 <>65 A?@8G8=8B8 ?@>1;5<8 7V A=<, B@5<>@,
=0?@C65==O, 4@0BV2;82VABL, 2V4GCBBO A5@F518BBO.

3 >15@56=VABN 70AB>A>2C20B8 ?@8 :>20=V9 A5@F52V9=54>AB0B=>ABV, ?0FVT=B0<, C O:8E
VA=CT @878:28=8:=5==O AC4<=8E =0?04V2, ?0FVT=B0< 7 E@>=VG=8<8 >1AB@C:B82=8<8
70E2>@N20==O<8 48E0;L=8E H;OEV2, ?5@A8ABCNG8< 01> E@>=VG=8< :0H;5<, O:89 28=8:0T
2=0A;V4>: :C@V==O G8 5QT 01> C 28?04:0E B@820;>3> ?@89>?@5?0@0BV2, I> <>6CBL
?@>4>26C20B8 QT V=B5@20;.

@5?0@0B <>65 2?;820B8 =0 @57C;LB0B8 ;01>@0B>@=8E 4>A;V465=L 22V 3;N:>78.

0AB>AC20==O ?@5?0@0BC <>65 7C<>28B8 ?>78B82=89 0=0;VB8G=89 @57C;LB0B 4>?V=3-:=B@>;N.
5@54 70AB>AC20==O< ?@5?0@0BC =5>1EV4=> ?>@048B8AL 7 ;V:0@5<, O:I> 28 70AB>A>2CTB5
20@D0@8= G8 ?>4V1=V ?@5?0@0B8, O:V <0NBL 0=B8:>03C;O=B=89 5D5:B B0 ?0FVT=B0< 7
?>@CH5==O<8 DC=:FVW =8@>: V ?5GV=:8.

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

5 70AB>A>2C20B8.

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.

?5@V>4 ;V:C20==O A;V4 C=8:0B8 :5@C20==O B@0=A?>@B=8<8 70A>10<8, @>1>B8 7 <5E0=V7<0<8
B0 V=H8E =5157?5G=8E 284V2 4VO;L=>ABV.

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

>@>A;8< V 4VBO< 2V:< 2V4 12 @>:V2 ?@87=0G0B8 ?> 1 B01;5BFV 4> 4-E @07V2 =0 4>1C. !;V4
4>B@8<0<8 =5 <5=H5 4 3>48=. "@820;VABL ;V:C20==O ?>28==0 AB0=>28B8 =5 1V;LH5 5 4=V2.
@5?0@0B ?@89<0B8 2=CB@VH=L> G5@57 1 3>48=C ?VA;O ?@89>N :V;L:VABN 2>48.

VB8.

@5?0@0B 70AB>A>2C20B8 4;O ;V:C20==O 4VB59 2V:< 2V4 12 @>:V2.

5@54>7C20==O.

@8 ?5@54>7C20==V ?0@0F5B0<>;C 2 ?5@HV 24 3>48=8 @>72820NBLAO A8<8 1;V4VABL, =C4>B0,
1;N20==O, 0=>@5:AVO B0 1V;L C 682>BV. V428ICTBLAO 0:B82=VABL ?5GV=:>28E B@0=A0
=F5=B@0FVO 1V;V@C1V=C V 7=86CTBLAO @V25=L ?@>B@<1V=C. # @07V ?5@54>7C20==O
<>6CBL A?>AB5@V30B8AO ?V428I5=5 ?>B>284V;5==O, ?A8E<>B>@=5 71C465==O 01>
?@83=VG5==O F5=B@0;L=>W =5@2>2>W A8AB5<8, 70?0<>@>G5==O, ?>@CH5==O A=C,
A>=:82VABL, ?>@CH5==O A5@F52>3> @8B;VO, B@5<>@, 3V?5@5D;5:AVO, AC4<8, ?0=:@50B8B.
?>>48=>:8E 28?04:0E ?>2V4<>;O;>AO ?@> 3>AB@C=8@>2C =54>AB0B=VABL V7 3>AB@8<
=5:@>7>< :0=0;LFV2, I> ?@>O2;OTBLAO 1>;5< C 4V;O=FV ?>?5@5:C, 35<0BC@VTN,

?@>B5W=C@VTN,=5D@>B>:A8G=VABN (=8@:>20 :>;V:0, V=B5@AB8FV0;L=89 =5D@8B,
?0?V;O@=89 =5:@>7).
6820==O 4>@>A;8< 10 3 01> 1V;LH5 ?0@0F5B0<>;C B0 48B8=>N ?>=04 150 <3 ?0@0F5B0<>;C =0 :3
<0A8 BV;0 <>65 ?@8725AB8 4> 35?0B>F5;N;O@=>3> =5:@>7C 7 @>728B:< 5=F5D0;>?0BVW 7
?>@CH5==O< A2V4<>>ABV, ?5GV=>2>W :<8 B0 ;5B0;L=>3> =0A;V4:C.
5@HV ;:V=VG=V V 1V>EV7=0:8 C@065==O ?5GV=:8 <>6CBL 7O28B8AO G5@57 12-48 3>48= ?VA;O
?5@54>7C20==O. >6CBL 28=8:0B8 ?>@CH5==O <5B01>;V778 B0 <5B01>;VG=89 0F84>7. @8 B@820;>
AC20==V 28A>:8E 4>7 <>6;82V 0?;0AB8G=0 0=5?5=VO, 03@0=C;>F8B>7, =59B@>?5=VO, ;59:>?5=VO,
B@><1>F8B>?5=VO.
?0FVT=BV2 7 D0:B>@0<8 @878:C (B@820;5 ;V:C20==O :0@10<075?V=><, D5=>10@1VB0;><,
D5=VB>W=><, ?@8=><, @8D0<, 72V@>1>T< 01> V=H8<8 ;V:0@AL:8<8 70A>10<8, I> V=4C:CNBL D5@
<5=B8 ?5GV=:8; 0;:>3>;V7<; 3;CB0BV>=>20 :0E5:AVO (@>7;048 B@02;5==O, 2VAF84>7, -V=D5:FVO,
3>;>4, :0E5:AVO) 70AB>AC20==O 5 3 01> 1V;LH5 ?0@0F5B0<>;C <>65 ?@8725AB8 4> C@065==O
?5GV=:8.
!8<8 ?5@54>7C20==O, 7C<>2;5=V 4VTN D5=V;5D@8=C B0 E;>@D5=V@0: 3>;>2=89 1V;L,
3V?5@3V4@>7, A>=:82VABL, 157A>==O, 7254V=:8, =5A?>:V9, 4@0BV2;82VABL, B@5<>@, AC4<8,
3V?5@>5D;5:AVO, 70?0<>@>G5==O, =C4>B0, 1;N20==O, B0EV:0@4VO, 0@8B5:AB@0A8AB>;VO.
@8 ?5@54>7C20==V E;>@D5=V@0 AB0= <>65 20@VN20B8 2V4 ?@83=VG5=>3> 4> 71C465=>3>
(=5A?>:V9 B0 AC4<8). >6CBL A?>AB5@V30B8AO 0B@>?V=>?>4V1=V A8<8, 2;;NG0NG8
D>B>D>1VN, ACEVABL H:V@8 B0 A;87>28E >1>;>=:, ?V428I5==O B5-VN :8H5G=8:C; ?@83=VG5==O
F5=B@0;L=>W =5@2>2>W A8AB5<8 AC?@>2>46CTBLAO @>7;040<8 48E0==O B0 ?>@CH5==O<8
@>1>B8 A5@F52>-AC48==>W A8AB5<8.
@8 ?5@54>7C20==V :>D5W=C 2V47=0G0NBLAO B0:V A8<8: 7=52>4=5==O, 3V?5@B5@B8 4VC@57C,
5:AB@0A8AB>;VO, B0EV:0@4VO, ?@8A:>@5=5 48E0==O, 0@8B2C A8AB5
V:C20==O ?5@54>7C20==O: C @07V ?V4>7@8 =0 ?5@54>7C20==O ?0FVT=B0 A;V4 4>AB028B8 C
;V:0@=N. @>BO3< 24 3>48= ?VA;O ?@89>BO3< ?5@H8E 8 3>48= ?VA;O ?@89>BO3< ?5@H8E 8
3>48= ?VA;O ?5@54>7C20==O<>65 1CB8 70AB>A>20=89 <5BV>=V= ?5@>@0;L=>.

>1VG=V @50:FVW.

I>:C VW A8AB5<8: @50:FVW 3V?5@GCB;82>ABV, 2;;NG0NG8 A25@1V6, 28A8? (5@8B5<0B>7=89,
:@>?82O=:0), 0=0DV;0:B8G=89 H>;, 0=3V>=52@>B8G=89 =01@O:, @<=0 5:AC40B82=0 5@8B5<0 (C
B. G. A8=4@>< !BV25=A0-6>=A>=0), B>:A8G=89 5?V45@<0;L=89 =5:@>;V7.
I>:C F5=B@0;L=>W =5@2>2>W A8AB5<8: ?A8E<>B>@=5 71C465==O V ?>@CH5==O
>@VT=B0FVW, 70=5?>:>T=VABL, 7254V=:8, 2V4GCBBO AB@0EC, B@82>30, 4@0BV2;82VABL,
?>@CH5==O A=C, 157A>==O, A>=:82VABL, 70?0<>@>G5==O, A?;CB0=VABL A2V4<>>ABV,
30;NF8=0FVW, 45?@5A82=V AB0=8, B@5<>@, 2V4GCBBO ?>:>;N20==O V BO6:>ABV C :V=FV2:0E,
HC< C 2CE0E, 3>;>2=89 1V;L, 2 >:@5<8E 28?04:0E :<0, AC4<8, 48A:V=57VO.
I>:C 48E0;L=>W A8AB5<8: 1@>=E>A?07< C ?0FVT=BV2, GCB;828E 4> 0A?V@8=C B0 4> V=H8E .
I>:C >@30=V2 7>@C: ?>@CH5==O 7>@C B0 0:><>40FVW, >G=>3> B8A:C, ACEVABL >G59.
I>:C H;C=:>2>-.8H:>2>3> B@0:BC: 7=865==O 0?5B8BC, =C4>B0, 1;N20==O, ACEVABL C @>BV,
3V?5@A0;V20FVO, ?5GVO, 48A:>@B V 1V;L 2 5?V30AB@VW, 703>AB@5==O 28@07:>2>W E2>@>18,
<5B5>@87<, 4V0@50, 70?>@.
I>:C 35?0B>1V;V0@=>W A8AB5<8: ?>@CH5==O DC=:FVW ?5GV=:8, ?V428I5==O 0:B82=>ABV
?5GV=:>28E D5@<5=BV2, O: ?@028;>, 157 @>728B:C 6>2BO=8FV, 35?0B>=5:@>7 (?@8
70AB>AC20==V 28A>:8E 4>7), 35?0B>B>:A8G=VABL.
I>:C 5=4>:@8==>W A8AB5<8: 3V?>3;V:5 3V?>3;V:5W :<<8.
I>:C A8AB5<8 :@>2V B0 ;VW A8AB5<8: 0=52>B5GV; AC;LD35<>3>;>1V=57, 7048H:0, 1>;V C A5@FV).
@8 B@820;>AC20==V C 28A>:8E 4>70E 0?;0AB8G=0 0=5?5=VO, 03@0=C;>F8B>7, =59B@>?5=VO,
;59:>?5=VO, B@><1>F8B>?5=VO.
I>:C =8@>: B0 A5G>284V;L=>W A8AB5<8: ?@8 70AB>AC20==V 28A>:8E 4>7
=5D@>B>B>:A8G=VABL (2;;NG0NG8 ?0?V;O@=89 =5:@>7), ?>@CH5==O A5G>28?CA:0==O, 70B@8
28?CA:0==O, 487C@VO, V=B5@AB8FV0;L=89 =5D@8B, ?V428I5==O ;V@5=AC :@50B8=V=C,
71V;LH5==O 5:A:@5FVW =0B@VN B0 :0;LFVN, 0A5?B8G=0 ?VC@VO, =8@:>20 :>;V:0.
I>:C A5@F52>-AC48==>W A8AB5<8: 0@B5@V0;L=0 3V?5@B5=7VO, B0EV:0@4VO 01>
@5D;5:B>@=0 1@048:0@4VO, 0@8B

=HV: 7030;L=0 A;01:VABL, ?>A8;5=5 ?>B>284V;5==O, 3V?>3;V:5W :<>8, 70;;045=VABL =>A0,<>6;825
E81=5 ?V428I5==O A5G>2>W :8A;>B8 2 :@>2V, I> 287=0G0TBLAO<5B>4>< Bittner; =57=0G=5
?V428I5==O 5-3V4@>:A8V=4>;>FB>2>W :8A;>B8
(5-), 20=V;V;<8340;52>W :8A;>B8 (V) B0 :0B5E>;0
>?>28=8 <5B8;?0@015= (218) B0 ?@>?V;?0@015= (216) <>6CBL A?@8G8=8B8 0;5@3VG=V @50:FVW (<>6;82>, C?>2V;L=5=V) B0 2 >:@5<8E 28?04:0E 1@>=E>A?07

"5@ABV.
4 @>:8.

#<>28 715@V30==O.
15@V30B8 C =54>ABC?=>@83V=0;L=V9 C?0:>2FV ?@8 B5

#?0:>2:0.
> 4 01> ?> 10 B01;5B>: C 1;VAB5@V, ?> 1 1;VAB5@C C :0@B>==V9 C?0:>2FV 7 V=AB@C:FVTN 4;O
<548G=>3> 70AB>AC20==O; ?> 20 C?0:>2>: ?> 4 B01;5B:8 C 3@C?>2V9 :0@B>==V9 ?0GFV (80), ?> 10
C?0:>2>: ?> 10 B01;5B>: C 3@C?>2V9 :0@B>==V9 ?0GFV (100).

0B53>@VO 2V4?CA:C.
57 @5F5?B0.

8@>1=8:..
!020 %5;A:50 B4.

VAf57=0E>465==O 28@>1=8:0 B0 9>3> 04@5A020465==O 4VO;L=>ABV.
=4VO, GIDC AB59B, 507--512, 04E20= !VBV 363 035, !C@5=4@0=030@.

0O2=8:..
>2V %5;A <1%.

VAf57=0E>465==O 70O2=8:0.
35 35@VHB@0AA5, 00@, 6340, (259F0@VO.