! " # & /
4;O <548G=>3> 70AB>AC20==O ?@5?0@0BC

$!" " # "
(FLIXOTIDE" NEBULES")

!:;04:
4VNG0 @5G>28=0: D;NB8:07>=C ?@>?V>=0B (=V7>20=89);
1 =51C;0 (2 <; ACA?5=7VW) =C ?@>?V>=0BC (=V7>20=>3>) 0,5 <3
01> 2 <3;
4>?>28=8: ?>;VA>@@@10B 20, A>@@1VB0=;0C@@0B, =0B@VN 483V4@@>D>AD0B 483V4@0B, =0B@VN
3V4@@>D>AD0B 1572>4=89, =0B@VN E;>@84, 2>40 4;O V=T:FV9.

V:0@AL:0 D>@<0. !CA?5=7VO 4;O V=30;OFV9.

$0@<0:>B5@0?52B8G=0 3@C?0. @@>B80AB<0B8G=V 70A@18 4;O V=30;OFV9=>3> 70AB>AC20==O.
;N:>:>@B8:>W48. >4 "! R03B A05.

;V=VG=V E0@0:B5@8AB8:8.
>:070==O.
>@@>A;V V V ?V4;VB:8 2V:><< 2V4 16 @@>:V2
@@>DV;0:B8G=5 70AB>AC20==O ?@8 BO6:V9 0AB@@8, O:V ?>B@51CNBL 28A>:V 4>7 V=30;OFV98E
01> ?5@@@0;L=8E :>@B8:>AB5@>W4V2. 0FV5=B=B8 ;V:CNBLAO 28A>:8<8 4>70<8 ?5@@@0;L=8E
:>@B8:>AB5@>W4V2, 4;O 7<5=H5==O 01> 28:;NG5==O 70AB>AC20==O :>@B8:>AB5@>W4V2
?5@@@0;L=>.
VB8 V ?V4;VB:8 2V4 4 4> 16 @@>:V2
V:C20==O 703>AB@5L 0AB<8. V4?>2V4=0 ?V4B@8<
=30;OFV9=89 D;C8:07>=C ?@>?V>=0B <0T ?>B@51C 3;N:>:>@B8:>W4 4VN C
;535=OE. V= 7<5=HCT A8=8 B0 703>AB@5==O 0AB<8 C ?0FV5=BV2, O:V :><8=CNB 8AL <0;8
1@>=E>;VB8:0<8 01> C AC:C?=>ABV 7 V=H8<8 ?@@>B80AB<0B8G=8<8 ?@5?0@0B0<8. >@@>A;V A8
<0?@@>D8;0:B8G=V 5?7?7>48 703>AB@5==O <>6CB L 703>AB@8BL ?@@8 70AB>AC20==V
H284:>4VNG8E 1@@>=E>;VB8:V2, 0;5 B@8=20;V ?@>O28 703>AB@5==O 28<030NBL 4>40B:>2>
70AB>AC20==O :>@B8:>AB5@>W4V2 ?5@@@0;L=> B0 =57020=>3> 0=B81V>B8:C 4;O :C?V@C20==O

@>B8?>:070==O.
V?5@G8C;V82VABL 4> 1C4L->O:>3> 7 :><?>=5=BV2 ?@5?0@0BC 2 0=0<=57V.

!?>A1 70AB>AC20==O B0 4>78.
@5?0@0B ?@87=0G5=89 8A:;NG=> 4;O V=30;OFV9=>3> 70AB>AC20==O.
$;V:07>=C ?@@>?V>=0B 2 =58?G=89 :V;L:>ABV 703>AB@N;VAO A;V4 28:>@8AB>2C20B8, A1=
4>AB02<8 V=30;OFV9=C 2?V4;;N30;L=V 38A@5==V D>@<8, 8:>@8AB>2C20B8 A8<?B><8, I>
7015?G5C20B8 =58?V4@<8.
0A>A>2C20B8 ?@5?0@0B 8A:;NG=> 70 4>?>>>3>N =51C;0975@0, O: ?@@028;>, 7 <5A> ?@8=0G5=V,
<5H=0B8<5B@@.
%2>@@8 =5?B8C;V2VABL 4> ?VAL?>>G548B88 ?@@> 1C4L, I> ;V:C20==O V=30;OFV9=8< D;C8:07>=C ?@>?V>=0B>< 25
T ?@>DV;0:B8G=8< V 2 B5A>3 => 1C4L =5 ?@@>2848B8AO :;5?V9=C=8 =51C;0975@>< @02=8
@07V 7<5=H5==O 5D5:B88 ?@@8 ?@@028;8=>AB 4>78=C;;N30;L=5 ?@@>248B8AO 2?5@HV 7<5=H5==O 78
G0ABV0B8BV0BV5 ?@>?V>=0B 4>7 4< 725@=CB8AO 4> ;V:0@O.
>G0B:>2V 20 4@@>70 ?@@>28=0 2V4?>2V40B8 ABC?5=N 8A@C20==O. >V20 21 4>7V2 ?04V 703>AB@5==O
?V428I5=V 4> 4>AO3=5==O ?5@@@0;L=> 01> 7<5=H5==O 01>28I48< B0AB>AC20==O
>@@>A;V V V ?V4;VB:8 2V4 16 @@>:V2: 0,5-2 <3 ACA?5=7VW 42VGV =0 45=L.
$;V:07>=C ?@>?V>=0B T 5D5:B82=8<, O:I> V=30;VBL ?@>?>=>20=C 4>7C O:I>28=V5=8 B0:>6 C
:>=B@>;V V=30;OFV9=>3> D;C8:07>=C ?@>?V>=0BC ?@81;87=> 5:2V20;5=B=> 200 78 15:;@<51V5=89
48?@@>?V>=0BC (I> =) 01> 1C451A>=V4C.

02648 VA=CT @878: A8AB5<=8E 5D5:BV2 ?@8 70AB>AC20==V 28A>:8E 4>7 :>@B8:>AB5@>W4V2 (482. @>74V;8 «A>1;82>ABV 70AB>AC20==O» B0 «>1VG=V @50:FVW»).

>G0B:>20 4>70 V=30;OFV9=>>3> D;NB8:07>=C ?@>?V>=0BC ?>28==0 2V4?>2V40B8 ABC??5=N BO6:>AB V 70E2>@N20==O ?0FVT=B0.

>7C20==O ?>28==> 1CB8 7<5=H5=> 4>

VB8 V ?V4;VB:8 4-16 @>:V2: 1 <3 ACA?5=7VW 42VGV =0 45=L.

>7C20==O A;V4 7<5=H8B8 4>

:@5@8E.

5<0T =5>1EV4=>ABV 77C 4;O ?0FVT=B=BV2 ;VB=L>3> 2V:C 01> >AV1 7 ?>@@8CH5==O<8 DC=:FVW ?5GV=:8 B0 =8@@@@:.

5@52545==O ?0FVT=B=BV2, O:V ;V:C20;8AO ?5@@>@0;L=8<8 :>@B8:>AB5@>W40<8, =0 V=30;OFV9=5 70AB>AC20==O.

>ABC??>20 2V4 =5 <5 <5H5 =V6 B8645=L. 030;>< 4;O ?V4B@8<:8 4>78 ?@54=V7>;>=C (01> 0=0;>3V2) 10 <3 =0 45=L 01> <5H5 7<5=H5==O 4>78 =5 ?>28==> 1CB8 1V;LH8< =V6 1 <3 =0 45=L 7 V=B5@20;0<8 =5 <5H5 B86=O. ;O ?V4B@8<:8 4>78 ?@54=V7>;>=C, I> ?5@52545ICT 10 <3 =0 45=L, 4>?CA:0TBLAO 7 <5H5 V=B5@20;0<8 =5 <5H5 B86=O 7 V=B5@20;0< =5 <5H5 B86=O, 7 >A>1;82>N

>15@56=VABN.

$;V:A>B84 51C;8 =5 <>6=0 22>48B8 C 283;O4V V=T:FV9.

>@8A=V< T ?@87=0G5==O ?@5?0@0BC G5@57 1;8GGO, O:V <>6CBL 7CAB@VG0B8AO ?@8 B@820;>>< @8B0AB0==V ;8FL2>W <A0:8.

@8 70AB>AC20==V ;8FL2>W <A0:8 H;VA@C, I> 707=0T 4VW ?@8?5@0@0BC, ?>B@V1=> 70E8G0B8 70 4>?><>3>N 70E8A=>3> :@5 @5B5;L=>3> 2<820==O ?VA;O ?VA;O 28A;820==O.

=AB@@C:FVW 7V 70AB>AC20==O $;V:A>B84C 51C;8.

7=09><B5AO 7 V=AB@C:FVTN 28@>1=8:0 :51C;0975@C.

5@54 70AB>AC20==O< =5>1EV4=> 2?52=8B8AO, I> 21@5 ?5@548B0BL=0AO <0@:N20==O <0@:820==N, 7 V=AB@@C:FVTN :V;L:0 @07V2 ?5@54 28B8:>< 2V4 ?>2V4=>3> 4> ?>2V4=>3> ?5@5 2V4:@8B8 2V4:@8BB8 =51C;8 =0 28A;820==O, A;V4 ?>2V4=>3> :CB8 ?@>25@8B8 :51C;, 2A5 4>8E48B48;O =0 WW 25@V2FV.

@07V =5>1EV4=> 2?52=8B8AO ?@5?0@0B0 <>6=0 @07@C72>48B8 @5@57V :>@>B:V :0==0 E;V>2N E;V>2N.

528:>@8AB0=89 @07V= 7 T =><>6=0 28=2>4V 7 5 <5H5 28:>@8AB0=2C20B8 ?>2B>@=>. >3> A;V4 28=8B8 7=8GB8.

>1VG=V @50:FVW @50:FVW.

86G5=02545=0 ?>1VG=> 4VO A8AB5B5<=8<>>20=0 70 >@30=0<8 V A8AB5<0<8 B0 70;56=> 2V4 G0AB>B8:=8 28==8:=5==O 2V4 G0AB>B8 28=8:=5==O B0 70;56=> 2V4 G0AB>B8 28==8:=5==O 2V4=>A=>: 4C65 G0AB> G0AB> (³ 1/10), G0AB> (³ 1/100 B0 < 1/10), =5G0AB> (³ 1/1000 B0 < 1/100), @V4:> (³ 1/10000 B0 < 1/1000), 4C65 @V4:> (<1/10000) B0 G0AB> B0 =528 2V4> (70 =0O2=8< 40=8< 2AB0=>> 2A5 G0AB> B0=>2;5=> 2A5 G0AB>B8 <5H5;82><). ,;NG0NG8 >:@5<V 28O2;5==O. 0=V ?@> ?>1VG=V 4VW, I> 28=8:0N>BL 4C65 G0AB> G0AB>, G0AB> B0 =5G0AB> 7 28:>@8AB0==O< @V7=8G =5=8G2>7=G10@C20BL =0 =52V4>><V, 4> ;NG0NG8 >:@5<V 28O2;5==O G0AB> G0AB>, =5G0AB> B0 @V4:> 2V4=>A=> 2A5 28O2;5==O, I> 28=8:0N>BL @V4:> ?@8 >B@8<0==V.

=D5:FVW B0 V=20207VW

C65 G0AB>: 0=484>7 ?@>>=6=8 2V@@V:8 B0 B0 3>@;0.

45G=> 20E2>@N20==O <>6CBL 28=8:0B8 2@>4V 0=484>7C ?@>>=6=8 2V@@V:8 B0 B0 3>@;0 (?;NG0NG8 O2=> 287V48;82); <5H5<=8 70?>1V3=> F;O>BL =5:@0@=>< 70E2>@N20==O $;V:A>B84C B0 283;O4V V=30;OFVW G5@57 =51C;09975@C 70 4>?><>3>N A;V4 ?>C0:0;L=>3> ?@82525=8=82<V?>4V:>3> ?@8 28=8:=5==V ?@82525=V>=0 , ?>2V4>>26CNG8 ?@8 B0 :V;L: 70AB>AC20==O $;V:A>B84C 51C;8.

'0AB>: C ?0FVT=B=82 V7 %=>6>7V7>=8 @V4:> =528:><5 @V4:> ?@>>25=5.

=;NG0NG8 >:@5<V 28O2;5==O ?0FVT=B=82 V7 %, O:V >B@8<0NBL ?@5?0@0B C 28A>:8E 4>70E 4>2H5 500 >2B4V4><C;,O;NG0< ?@8> @8A:0;NG5<=>> 70@@8>3>0=N20==O =0 =528 4>?><>3>N. V>0@V<5=0NG8 1CB8 C;20@86C <5H5 I>45==>>B4V0 =5 =5G0AB> ?@>25><8 G5@57 B0E2>7N20==O :V;L: 0H5 =528 ?>1VG=V 2A5 70B@0N5==O B0 703>?@8@@V==> %G>0AB> 71V=30;NG8.

V:4>>: 57@@034;50;L=8<>>20=89 ?> 4B48GA 70A84>.

>2V4V2;NGCB8,O;NG0 ?@> @8A@8=@8;O@=>>NG8 @8A@>3C B0:@8>8<?= 7 =86G65707=V0=7=8< ?@@8>3=>8=8V.

5G0AB>: H;VC@@@8>=2V$;V:A>B84C 51C;8 V7 28A:O>28H5=5G9 2V42>3> 40G55;07=8.

C65 @V4:>: 0=3V>=52@>B8G=89 =0@V>= 2V4@V@@50:FVW (3;O>B;82><87V70B:=8 V> 28;O:C 02V>8<=89 >4=8=V (7048H:0 B0/01> 1@>=E>A?07<) B0 =0;V7 2V@>0=5=89 B>AV= 7 70:@>7><;08N.

=4>:@8==V ?>@CH5==O A8AB5B<80

>6;820 A8AB5<=0 4VO, I> 4C65 @V4:> 2.;NG0T A8=4@>< CH8=30, :CH8=3>W4=V >7=0:8,
?@83=VG5==O =04=8@:>28E 70;>7, 70B@8ABC C 4VB59 B0 ?V4;VB:V2, 7<5=H5==O :, :0B0@0;:BC B0
3;0C:>74V; «A>1;82>ABV 70AB>AC20==O»).
5B01>;;V7< V @>7;048 B@02;5==O
C65 @V4:>: 3V?5@3;V:574V; «A>1;82>ABV 70AB>AC20==O»).
"@02=0 A8AB5<0
C65 @V4:>: 48A>?5?AVO.
!:5;5B=>-<O7>>20 A8AB5<0 B0 A?>;C:G=0 B:0=8=0
C65 @V4:>: 0@B@0;3VO.
A8EV0B@8G=V @>7;048
C65 @V4:>: 2V4GCBBO =5A?>:>N, @>7;048 A=C, 7254V=:8, 2.;NG0NG8 3V?5@0:B82=VABL V
71C4V465=VABL (3>;>2=2=8< G8=>< C 4VB59).
'0AB>B0 =52V4><0: 45?@5AVO, 03@5AVO (3>;>2=2=8< G8=>< C 4VB59).
8E0;NL=0 A8AB5<0 B0 3@C4=0 :;VB:0
'0AB>: 70E@8?;V;VABL 3>;>AC.
45O:8E E2>@8E V=30;OFV9=89 D;NB8:07>=C ?@>?V>=0B <>65 1CB8 ?@8G8=>N 70E@8?;>;>ABV
3>;>AC, C FL>@8A8< ?>;>A:0:0==O 3>;@;0 2>4>N >4@07C ?VA;O;O V=30;OFVW.
C65 @V4:>: ?0@04>:A0;L=89 1@>=E>A?07< (482. @>74V; «A>1;82>ABV 70AB>AC20==O»).
'0AB>B0 =52V4><0: =>A>2V :@>2>B5GV.
(:V@0 B0 ?V4H:V@=0 B:0=8=0
'0AB>: A8=FV.

5@54>7C20==O.
@8 70AB>AC20==V $;V:A>B84C 51C;8 C 4>70E, O:V ?5@528ICNBL @5:><5=4>20=V, <>65 28=8:=CB8
3@AB@5 ?5@54>7C20==O, I> ?@>O2;OTBLAO C B82>28E 70;>7. &5 =5 ?>B@5B@51CT =52V4:;04>=>W 4>?><
<>38, >A:V;L:8 DC=:FVO :>@8 =04=8@:>28E 70;>7 2V4=>2;NTBLAO G5@57 :V;L:0 4=V2, I>
?V4B25@465@46CTBLAO 282V.
@>B5 5 ?@8 70AB>AC20==V 4>7, 28I8E 70 @5:><5=4>20=V, ?@>BO3>< B@82>;0B>3> G0AC <>65
A>?@>A5@V@V30AO 45O:>5 ?@83=VG5==O DC=:FVW =04=8@:>28E 70;>7, I> >A>1;82>
28?04:C ?5@54>7C20==O B5@0?VN <>65 1CB8 ?@8?V>4:5=0 C 4>70E, =5>1EV4V4=89 4;O, =5>1EV4VYP 70
A8<0<<0<0B82=0 0AB5@0?VO. 0FV>T=B=8, O:V ;V:CNBLAO 4>70:8 28A>:VH8, =56 @5:><5=4>20=V, ?>B@51CNBL 1C4L=0A=8 ?V4
>A>1;82>3> ;V:0@AL:>3>=3;O4C ;V:0@O, 0 4 70 ?V4 ?@5?0@0B0<8 4;O =5>1EV4=>ABV 7<5=HC20B8 ?>A=NB> ?>A?>:>O (482. @>74V;
«A>1;82>ABV 70AB>AC20==O»).

0@40:B5@8AB8:8 B0 ?V4?8A82=8 4;V I> 3>@4O4:> 3@VAB8F.
$5@B8;V7=V==O
5<0T 40=8E I>4> 2?;82C =0 D5@B8;V7=V==O ;N48=8. >A;V48, ?@>2545=V =0 B20@8=0E, =5 ?>:070;8
2?;82C D;NB8:07>=C ?@>?V>=0BC =0 D5@B8;V7=V==O.
03VB=VABL
>A2V4 70AB>AC20==O C 203VB=5?>@82 C ;N48=8 T >1<568=89 T >1<565=89.
@8 2VH85==V ?>B@51C =0 :>@B8:>AB5@>W48 ?V4 G0A 203VB=>ABV C F5?>7@58 @5B@5B05BLAO 72068B8
>F8=NCO B>48AAB1 :>@8AB> 4;O <0B5@V B0 @878 4;O ?;>40. O:@5: 4;NN A2>3>48V2:48 203VB=89 >A:V;L:8
:>@B8:>AB5@>W48 ?5@5B8=0NBL ?;0F5=B0@=89 10@'T@. O:I> ?>B@V1=V :>@B8:>AB5@>W48 ?V4 G0A
203VB=>ABV, ?5@52030 =040TBLAO <V=V<0;L=V9 5D5:B82=V9 4>7V.
03>4C20==O 3@C4L<8 <>;>:><
0@B8:>AB5@>W48 28>4OBLAO 7 3@C4=8< <>;>:><. 45I> =52V4><0, G8 203VB=0 4>7AN F>3> ?@5?0@0BC, >B@8<0=0 4;O
V=30;OFV9=>W 4>7AE7B?5:?>3> ?@5?0@0BC, 4>AB0B=L>N4;O =53>B82=>3> 2?;82C =0 48B8=C. @8 287=0G5==V 4>FV;L=>ABV
3@C4=>3> 2838>4C20==O =0 B;V ;V:C20==O F5?>V>=0B>< ?>B@V1=> 2@0E>2C20B8 :>@8AB> 2V4
3@C4=>3> 2838>4C20==O 4;O 48B8=8 B0 :>@8AB> ?@5?0@0BC 4;O <0B5@V.
?;82 =0 74B=VABL :5@C20B8 02B>B@0=A?>@B=8<8 70A>10<8 B0 V=H8<8 <5E0=V7<0<8
0@40:B5@=V <0H8=8.

VB85. 0A>1V @V4:>: 2C20F> 8 4VBB89 2V:> 2V:C 4 @>:V2.

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

V:C20==O 1@>=EV0;L=>W 0AB<8 A;V4 ?@>2>48B8 73V4=> 7 ?>5B0?=>N ?@>3@0<<0<, AB0=
?0FVT=B0 =5>1EV4=> @53C;O@>=> :>=B@>;N20B8 O: :;V=VG=>, B0: V H;OE>< 287=0G5==O
?>:07=8:V2 DC=:FVW 7>2=VH=L>3> 48E0==O.

0?B>=25 B0 ?@>3@@5ACNG5 ?>3V@@H5==O :>=B@?;N = =04 0AB<>N T ?>B5=FV9=> 68BBT2= =5157?5G=8
< AB0=>< V A;V4 28@VHC20B8 ?8B0==O ?@> 71V;LH5==O 4>78 :>@8B8:>@AB5@>W4V2. # @07V
28=8:=5==O B0:>3> @878::C ?0FVT=B=2V A;V4 I>45==> ?@>2>48B8 ?V:D;C><5B@VN.

$;V:A>B84 51C;8 =5 ?@87=0G5=89 4;O ?>;53H5==O 3>AB@@@8E =0?04V2 0AB<8, ?@8 O:8E =5>1EV4=>
70AB>A>2@2C20B8 H284:>- B0 :>@@B:>4VNG5V V=30;OFVW9=V 1@=E>48;0B>@8. 0FVT=BV2 A;V4
?>?5@@548B8 ?@> =5>1EV4=VABL <0B8 ?@8 A>1V V B0:V ;V:0@AL:V 70A>18. $;V:A>B84 51C;8 A;V4
?@87=0G0B8 4;O 4>23>B@8<0;>3> ;V:C20==O.

$;V:A>B84 51C;8 =5 T ?@5?0@0B><, O:8< <>6=0 70AB>A>2@2C20B8 0AB<8, I> T =5157?5G=8< 4;O 68BB>).
"O6:0 0AB<0 T ?>B5=FV9=> ?>B5=FV9=> <50B>3>=N, 2;;N;0NG0N8 287=0G5==O ?>:07=8:V2
DC=:FVW 7>2=VH=L>3> 48E0==O, >A:V;L:8 VA=CT @878: 3>AB@@8E =0?04V2 0AB<8 B0 =02VBL
;5B0;L=>3> =0A;V4:C C B0:8E 8E ?0FVT=BV2.

1V;LH5==O G0AB>B8 70AB>A>2@2C20==O 4>78 :>@8B8:>@AB5@>W4V2 V=30;OFV9=5 15B0-2-03>=VABV2
A83=0;0;;V7CT ?@> ?>3V@H5==O :>=B@>;N 70 0AB<>N. # @07V 7<5=H5==O 5D5:B82=>ABV
:>@8B8:>@AB5@>W4V2 1@@=E>48;0B>@V2 01> =5>1EV4=>ABV WE G0AB>3> 70AB>A>2@2C20==O
?0FVT=BV2 A;V4 725@=CB8A5AO 4> ;V:0@O. # B0:8E A8BC0FVOE ?0FVT=B=< =5>1EV4=> ?@>9B8
4>40B:>25 >1AB565==O 4;O 287=0G5==O =5>1EV4=>ABV ?>A8;5==O ?@>B80AB<0B8G=>W B5@0?VW B0
>?B8<V70FVW ;V:C20==O. @8 B0:>6>1?>AB565==V 0AB<8 A;V4 ?@87=0G0B8 728G09=C 4>40B:>2C
B5@0?VN.

A=CNBL ?>>48=>:V ?>2V4><;5==O ?@> ?V4287I5==O @V2=O A8AB5<=>3> 287=0G5==O @V2=O A8AB5<=>3>
:>@8B8:>@AB5@>W4V2 B0 ?@>2V4:0 =0487@=8:>2>W =54>ABA@0B=>ABV, B0: V C ?0FVT=BV2 ?@8 2828G=8E
4>70E V=30;OFV9=8E :>@8B8:>@AB5@>W4V2, O:I> 2>=8 ?@89<0NBLAO 2 28A>:8E 4>70E 4@83>G0A>2>
(482. @>74V;; «>1V43V=V @@50:FVW»). &5 A;V4 1@@0B8 4> C2038 ?@8 ?@87=0G5==V $;V:A>B84C 51C;8
E2>@8< =0 FC:@>2V 4V015B.

/: V ?@8 ;V:C20==V V=H8<8 V=30;OFV9=8<8 ?@5?0@0B0<8, <>6;8289 @>728B>: ?0@04>:A0;L=>3>
1@>=E>A?07<C 7 @0?B>28< >A;015==O< 48E0==O ?VA;O V=30;OFVW. # FL> 7<5=H5=>2 $;V:A>B84C >4@07C
?@8?8=8B8 70AB>A>2C20==O, ?@87=0G8B8 V=H5 ;V:C20==O ?0FVT=B 01> B0:C @07V 70AB>A>2@2C20B8 ?@>2V4:0 =0487@=8:V
0;LB5@=0B82=C B5@0?VN.

@8 70AB>A>2@2C20==V V=30;OFV9=8E :>@8B8:>@AB5@>W4V2 C 28A>:8E 4>70E 70 C<>28 ?@>2V4:V =0487@=8:>2>
3>0C <>6;8288 28=8:=5==O A8<?B><V2 4@VW7, 0;5 2 @074V >3>;5==O 287=0G5==O >A;015=> =C<>6 ?@8
70AB>A>2@2C20==V ?5@>@0;L=8E AB5@>W4V2. !8AB5<=8< 4VW >65 28O2;ONBLAO A8<?B><8<8 4<VH8=>30,
:4VH8=3>W4=8<8 >7=0:0<8, ?@83=VG5==O< DC=:FVW =04=8@:V270=>7, 70B@8<:>N @>ABC, ?5=86=>30
V ?V4;VB:V2, 7<5=H5==O< <V=5@0;L=>W IV;L=>ABV :VAB>:, 287=0G5==O< ?0@04>:A0;L=>W 70O;C4, ?@>3@5A?>45;= A=0O,
2V4GC2C20==O =5A?>:>N, 45?@5AA82=8< B0 03@5AA82=8< ABO=>< (3>;>2=>2=2=8< G8=>< C 4VB59). ">, V> 4>7C
V=30;OFV9=8E :>@8B8:>@AB5@>W4V2 A;V4 @53C;O@=> ?5@5V0;O2@0B8 B0 2828G=0 4> <V=V<0;L=>W 4>78 ?@8 O:V9 7
<5=H5=>= 4> =5>1EV4=>;L A8

"@820;5 70AB>A>2@2C20==O 28A>:8E 4>7 V=30;OFV9=8E :>@8B8:>@AB5@>W4V2 <>65 A?@8G8=8B8
?@83=VG5==O DC=:FVW =04=8@:>2 B0 3>A3>A3>A 01> 3>A3>A3>A8 04@5=0;>2C=54>ABA@0B=>ABL :@878. VB8, O:V >45@66C20;8 28A>:V 4>78 4>70G3>A 4>@3> O A?>ABA@5O20O
16 @>:V2 B0 4>>70 V=30;OFV9=8E :>@8B8:>@AB5@>W4V2 4>A7 D;NB8:0A>=C =5>1EV4=>, O:I> 287=0G5==V >;0>B>30?>5AB (?0FVT=B8 ≥ 1000
<:3), ?@87=0G5==8 >:@5<V ;V:0@O 7 O28<8 >A>1;82>ABO<8 4>70G. >728B>: 7<5=H5==O 4>70 0::;870E B0 ?8=0G3>A
?0FVT=B2V>B>=20B8 @@@B8 B0 ;V:0@0V 70 C<>28 @>728B:C ?>4V19 F82=8, 2>78D5B>2>A8N 01> ?>4V1=8E
?@>O2V2, A;V4 15A?5@5@2=> =040B8 B0:C 70B5@0?VN, 70 728G0? 4>OB C V=H8E V=H8E V=H8E 48BO, 1>2@87=0GV;A @5?5@< B0 ?5@=8:8N.

?@83=VG5==O DC=:FVW =04=8@:>28E 70;>7. >6;82VABL 28=8:=5==O ?>1VG=8E @50:FV9
715@V30TBLAO ?@>BO3>< 45O:>3> G0AC. "0:V ?0FVT=B8 <>6CBL ?>B@51C20B8 ?5@51C20==O C
A?5FV0;V7>20=8E :>=AC;LB0FVOE 4;O 287=0G5==O ABC?5=O =530B82=>3> 2?;82C =0 =04=8@:>2V
70;>78 ?5@54 ?@@>2545==O< 45O:8E ?@@>F54C@. !;V4 <0B8 =0 C207V <>6;82VABL 70;8H:>>2=3>
?>@CH5==O DC=:FVW =04=8@:>:>28E 70;>7 C =52V4:;04=8E A8BC0FVOE, 2:;NG0NG8 EV@C@3VG=V
2B@@CG0==O B0 V=HV AB@5A>2V A8BC0FVW, V 72068B8 =0 =5>1EV4=VABL ?@@87>0G5==O
2V4?>2V4=3>> ;V:C20==O :>@@B8:>>AB5@>W4@0<8.
0FVT=B=0< =5>1EV4=> >B@@878 V=30;OFV9=3>> D;NB8:07>==C ?@@?V@===0BC, I> 2V4?>2V4@40NBL
B06:>:>ABV 70E2>@N20==O. >7C20==O A;V4 7<5=H8B8 4> AC20==O A8AB5<;<=8E 0AB>@>W4@82
/01> 0=B818V>B8:B82 <>65 1CB8 =5>1EV4=8<, O:I> 5D5:B8B=8 :>=B@;>;N 70 70E2>@N20==O< =5
2AB8=>=2;5=89.
03> 70AB>AC20==O, C B>@@B8:>:>ABV@>W4@0< W 4VW.
/: V ?@8 70AB>AC20==V 2AVE V=30;OFV9=8E :>@@B8:>:>AB5@>W4V2, >A>1;82>>W C2038
?@@B851CN0B8 ?0FVT=B8 7 0:B82=>N 01> ;0B5=B=>N D>@@<>N BC15@:C;L>7C ;535=V2.
V:C20==O $;V:A>B84< 51C;8 =5 A;V4 ?@@?8=OB8 OB8=>B>0?8B>2.
5@52545==O ?0FVT=BV2, O:V ;V:A2C20;8AO ?5@@0;L=8< :>@@B8:>:>AB5@>W4@0<8, =0 V=30;OFV9=5
70AB>AC20==O.
5@52545==O ?0FVT=BV2, O:V ;V:2C20;8AO ?5@@0;L=8< :>@@B8:>:>AB5@>W4@0<8, =0 V=30;OFV9=5
70AB>AC20==O $;V:A>B840< 51C;8 B0 WE ?@@40;LH5 ;V:A2C20==O ?5@@0;L=8< :>@@B8:@0;0<8,
>A>1;82>:8 2V4@5>2:5==O >A;01;5==O 2=0A;V4>> 2=0A;;V4>:V: B@@B820;>>W B5@@0?VW :0@@B8:@0;@0<8
DC=:FVW =04=8@:>:>28E 70;>7 <>65 28<030B8 B@820;>>3> G0AC.
"@B20;;5 70AB>AC20==O 28A>>:8E 4>7 V=30;OFV9=8E :>@@B8:>:>AB5@>W4V2 <>65 A?@@8G8=OB8
?@@83=VG5==O DC=:FVW =04=8@:>:>28E 70;>7. $C=:FVO =04=8@:>:>28E 70;>7 B0:>E ?0FVT=BV2 A;V4
@53C;O@=>> :>=B@>;N20B8. >78 A?@@8G8=OT >A;01;5==O DC=:FVW =04=8@:>:>28E 70;>7 ?@@8 15@@53=V
(482. @>74V; «!?@AV1 70AB>AC20==O B0 4>78»).
5O:V ?0FVT=B8 2V4GC20NBL =5A?@@8O:CI5 =5704>2>;5==O 70 A2>0> >A3>1>AB8 ?@@8 AB@5AV 01> ?V4
G0A ?5@H>> 2V4GC20==O >A;01;5==O DC=:FVW =04=8@:>:>28E 70;>7. @8A8 <>ECBL 28=8:0B8 V C
28B4@8<;8< A8BC0FVOE, O:V ?@@842C20B8 :V;L:V AB@@5AV2. 42:0 A;V4 @53C;O@=>0 2V4@52V4C20B8, 70
28A>B8B >A;01;5==O DC=:FVW =04=8@:>:>28E 70;>7, EV@@3VG=V, 7=0G=V 5<>FV9=V =02=0605==O
70E2>@N20==O, EV@@3VG=V 2B@@CG0==O, B@@028<8.
8B@8<>0V2@@ <>65 7=0G8B8 ?@@842B8I8B8 >A;01;5==O DC=:FVW =04=8@:>:>28E 70;>7 C ?@@8:075E
70AB>AC20==O DC=:FVW =04=8@:>:>28E 70;>7 B0 @V:A2C20==O, 70 28B4@8;8< 28?04:V2, :V;L:8 >@82B82V
2B4 B0>0> 70AB>AC20==O 1C;4 1V;LH>N 70 @53C;O@=8< 70AB>AC20==O 28A>B8 ?5@@0;L=8< :>@@B8:@0;@0<8. "0>6
V@05@@B V?@8@88=5>89 70E2>@N20==O 70:15:CN0 =5>1EV4=5 ?5@@0;L=8< :>@@B8:@0; ?@@8
>4@5>2:V20>2:V20==V 7 !""3A4 V=3V1V1B>@@0<8 7 ABC?5=T>2 ?@@83=VG5==O (482. @>74V; «70?@@>2>C 7 V=3V1>@0B0>W 7;V:00@A1@8 B0 V=HV 2848 270?@@>2V9>»).

**40B=VABL 2?@;820B8 =0 H28B4VABL @50:FVW ?@@8 :5@@C20==V 02B>@B@0=A?>@@B>< 01> @>1>B V=HV
V=H8<8 <5E0=V7<0<8.**
C4L-O:89 2?@;82 T <0;>>9<>2V@=8<

70?@@>2V9>C 7 V=3V1V1B>@@0<8 7 ABC?5=T>2 ?@@83=VG5==O B0 V=HV 2848 270?@@>2V9>.
728G09=8E C<>20E ?VA;O V=30;OFV9=3>> 22545==O 4>AO30N0NBL =877L:>W :>=F5=B@@0FVW
D;NB8:07>==C ?@@?V@@==0BC C ?;07<V 70B4O8 5:A?5@@0<5=B>2 ?@@8E>465==O B0 28B4A2>>
?VA;O@@5:A50 54:V720==O F8B>E@@><5 P450 34 C ?5GV=FV B0 :8H5G=8:C. ">
0 40=8< 4>A;V465==O :V;L:VABL >A1;01;5==O 270?@@>2V9 =0 74>0>2>W28E 4V1>2><;L@?FOE D=9
< D;NB8:07>==C ?@@?V@@==0BC, 1C;> ?@@:>7=0>> I> @C8:00?B82V B0 A8AB5<;< V=3V1V1B>@@8 34)
100 C :>@@8AB 71V;LH5=2@0:20@@BL >:A0 D;NB8:07>==C ?@@?V@@==0BC B0 A8AB5<;< V?@0:20>2 V>
?@8:875@2;0048@ 4> 20=0V2B@0V=02V =8 ?>O28 =5>;V720==O 7 :V@07L:=H >A11@>2V :>0@@2. =DO@0>
<0DVWB I:>4> B0:> 170?@@2B >A;01;5==O 270?@@2>V9 7 V=30;OFV9=3>>< :>=B@@>;N< =54>AB0B@L=><>, 0;L
707=0G0T ?V7B=VABL >0 2@0:2L @@?V@==0BC 70 28A>0:>W <5B01>:>;V7<V >A;01;5==O 270?@@2V9 @@?V@@==0BC >A1

A?>AB5@V30B8AL. "0:>6 =04E>48;8 ?>2V4><;5==O I>4> @>728B:C A8=4@>28E 70;>7. !;V4 C=8:0B8 >4=>>G0A=>3> 70AB>AC20==O D;NB8:07>=C ?@>?V>=0BC B0 @8B>=02V@@C@<C, :@V< 28?04:V2, :>;8 :>@8B 2V4 B0;>:>3> 70AB>AC20==O 1C45 1V;LH>N 70 @878: A8AB5<=>3> 2?;82C :>@B8:>:AB5@@W4V2.

=525;8:>A;V465==V, I> ?@@2>48;>AO 7 CG0ABN 74>@28E 4>1@@2>;LFV2,<5=H A8;L=89 V=3V1VB>@@ CYP3A :5B>:@0=>7>; 71V;LHC202 :>=F5=B@0FVN D;N8B0:07>=C ?@@?V>=0BC ?VA;O >4V=TVW V=3@;OFVW 4> 150 %, I> ?@8725;>> 4> ACBBT2>3> 7<5=H5==O :>=F5=B@0FVW :>@B8:>@;C B C A8@@20BFV :@@2V ?>@@V2=O=O 7 70AB>AC20==O< ;8H5 D;N8B0:07>=C ?@@?V>=0BC. @8 >4=>>G0A=>>> AC20==V 7 V=H8<8 A8;L=8<8 V=3V1VB>@@0<8 CYP3A, B0:8<8 O: V=B@:>=07>;@, B0;>6 >GV:CTBLAO ?V428I5==O :>=F5=B@0FVW D;N8B0:07>=C ?@@?V>=0B0 B@ @878: A8AB5<=@W5<=>3> 2?;82C. !;V4 1CB8 >15@56=8< B0 ?@@8 <>;;82>AB>ABV ABV C=8:0B8 B0:>3> >4=>>G0A=>3> 7>AB>AC20==O B0:>3> ?@>T4=0@@==O ?@@50?0@BV2.

0 40=8<8 4>A;V465=L 1C;> ?>:070=>, I> V=HV V=3V1VB>@@8 F8B@>E@><C 34 ?@@4CN:CNBL 4C65 <0;5 (5@8B>;0=>3> 7<5=H5==O :>=F5=B@0FVW D;N8B0:07>=C ?@@?V>=0B0 C A8AB5<=@5<> 2?;82. "8:@ =5 <5=H5, 70AB>A@A>2C20==8 ?@@5?0@BB0 AC<VA=> 7 A8;L=8<8 V=3V1VB>@@0<8 F8B@>E@><C 34 (=0 ?@8:;04 :5B>:>=07>;) A;V4 7 >15@56=V>=8, >A>V@;>:V:8 ?>B5=FV9=>><5> 71V;LHC20B8AO A8AB5<=@W5==O A8AB5<=@5<> 5:A?>78FVW D;N8B0:07>=C ?@@?V>=0B0.

$0@<0:>:V=5B8G=V 2;0AB82>ABV.

$0@<0:>:V=48=0
;N:>:@0B8:>V >@@B8:>AB5@@W4 D;N8B0:07>=C ?@@?V>=0B 0@A@A<V;8<5 4@5=8E 4>70E V=30;OFV9 ?@@?O2;OT ?@@BC<V=C<C :@>C=07>AV4V0 4VN =0 ;535=V, I> ?@8872548BL 4> <5=H5==O A8<@<0B8:0B0 B0 G0B;V@25 >=?04V2 @04<8.

$0@<0:>:V=5B8:0.
@@57C;LB0BV V=30;OFV9=>3> 70AB>AC20==O A8AB5<=@5 4>ABC?=V@@<V =51;:V7;>20>=>3> D;N8B0:07>=C ?@@?V>=0BC C 74>@28E 4>1@@2>;LFV2 >GV:CTBLAO =0 @V2=V 8 % ?>@@V2=O=O 7 26 % 4;O B0;>:>W C @@07V 70AB>AC20==O ?V@AVO?0<> C D>@<V 70AC><. !8AB5<=@5<0 01A>@@>:FVO 74V9A=NTBLAO 3>;>>2=8< G8=>< G5@57 48E0;L=V A8AB5<=@@@B8 H284V>:5>, ?@@BV< ?V4 G0A V=30;OFVW 7 B@82@2>3> B@0:BC 70>AC. 0;8H>: V=30;OFVW=>>W 4>78 C @@BV >BV@:CN65 ?@@:>>2C?0B8<5 >4V=70=: (< 1 %) C 72>7:C 7 :><<1V=0FVW=B8 =5@@2>3> 01A>@@@>FVW 7 B@@2@2>3> B@@0:BC B0 5:A@AB5:@0FVW ?@@5:A>465==O. 87-100 % ?5@@@?04V2=@5A@ 4>78 282@>48B@LAO 7 D5:0;LO<V<0, 4> 75 % C 283;O4V ?>G0B:>2>3> :>=5=:FV, 0 B0;>6 =50:B82@=0>3> 3@>2>>3> <5B01@>;V8;V2BC.

<u>0=V I>4> 157?5:8 ?@@?V>=0B</u>

":A8:>;>3>3VG=V 4>A;V465==O ?V:070;8 =0 @>=V:070A8;8 =0 @V2=V =51575G=>3 @A;V4V0 4V9 A8;L=5> :>@8B @:>8;V4V0 4V:@B8:AB5@@W4V20 5D5:B82=>@ 0;;5 C 4>@V6 O:V 2 1030@> @07V2 ?5@@528I5C5NBL@BLMCNBL C 4>70E, >:O<V :>AB@>:C20==O. # 4>@V6 O:V 286:V>=5 70 B@82@0@<>F;:0 ?@@>:>V@8 @:>B8:>=07>= =0 @@5?V>=0B0 B0:V>70:B82=0>3 D:>=ADVN B0 =50:B82@=0 B0@>B0 B0@@?04B8A>2>3V0 :>=F5=B@>=0FVV >=7282@>B@O->T ?>=2>>3V, >0 B@@>8:0>V@@5?:0?@@?V>=0BV. $;N8B0:07>=C ?@@?V>=0B 5 <=O>:0V 1V;>B0:07>=C @@?V>=0BV *in vitro* B0 *in vivo.* # 4>@V640T =0 B20@@8=0E =5 1C;0 287;O:V0 ?>B5=FV9=>0 2V4:OC<0:01V=0>B8 :0B0:>V@0@A@4=0 5:A?>78FVV ?@@?V>=0BV, 0 B0:>6 ?>@4>A@07=20V;L=5V B0 5A=0:A@V@5:A@@0@0:04V>=0@AB5@@WNCG=8E 2;0ABB82>ABV ?@@?V>=0BV.

$0@<0:>F5@ADVG=V E0@0:B5@@8AB8:8.
A=>2=V DV78:>->-E8<VG=V: 1V;;>W>3> :@:>?@>7>>@@ ACA@?5=7VNO, I> ;53:> 48AB@V>@07@:CTBLAO, 157 2848<8E A:04>@@F5>==5VV 4>:.

"5@:@?@?@V. 3 @>:8.

#<>28 715@5656==O.
15@5656==O ?@8 B5!°! C ABC?=V 4>@ 4V:>59, C 25@B0B8:0;=>=L>>8=>3>>@===V. 0548I>3V8 2V4 ?@O@>G3> A@?>0G=5NV3 ?@@: 289=>01V57 ?@0:5B@1V 7 0;=NW D@:;38, A8;V4 715@5656==O C 70548I5=>@2:0@8B0>V8 ?@@?BO@:OV< 28 4=V2. V4:@V5B8BTB>0B8 =51;75@C8 A8;V4 715@5656==O C E>@0V9>B5@5:CNG C C 25@B8:0;=>=L>>V65==V B0 28:@@8A@4:0=@ @@?B>0G@?@A< 12 3=04V> ?@@?>@2AVO 2V4:@V5=0@B>0:BBO.

#?0:>2:0.

@5?0@0B 7=0E>48BLAO C =51C;0E, ?> 2 <; C :>6=V9. 5 =51C; C?0:>20=> 2 >:@5<89 ?0:5B 7 0;NW D>;L38; ?0:5B8 ?> 2 HBC:8 ==8E :>@>1:0E.

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

8@>1=8:. GlaxoSmithKline Australia Pty Ltd.(Australia)/
              ;0:A>!

VAF57=0E>465==O.
GlaxoSmithKline Australia PtC Ltd., 1061 Mountain Highway, Boronia, Victoria 3155, Australia/
;0:A>!@>=VO, V:B>@VO 3155, 2AB@0;VO.