

A . ACHEN

)0<=>, '<?0@ABC 'DE,<*C%%

XKC I=0@-%4,-%d%

\V@%I(OHH_%J2K<' /D@B%2* </*('E%K20@/H%/*%/O' <?%O110</DMOE>,%

\#\$!6_,%XD=OH-%<*CC0@/H-%' @2%H?' (0HP%4%CKE/DM' (D' /O%CKE/DEOMO'E' @' E>HDH% *1%
S' <0) **=%0@B'BOC0@/,% !"#\$\$%&67#*4&K3)-. ()& :#3* . %";&E\ " _-% !: !8, %

\#\$!6_,% [HD@B%S' <0) **=%' @2%TO\//O(%/*%O@<*K('BO%I?>HD<'E' '</DM/>P%4(O%<*EE0BO%
H/K20@/H%<*@O</O@B%O\/?%<'CIKH%(O<(O' /D* @%* @%H* <D' E%CO2D' I%4% I DE* /%H/K2>, %' (+* (%4-# . %"&67#*4)&
: #3* . %";&EB;&! "#: !^", %

XKC I=0@-%4,-%d% \#\$!6_,%G' (/D<DI' /D* @%D@%D@/O(H<? *E' H/D<%HI* (/HP+ *%/?O%' <'20CD<%
I0(1*(C' @<OH%*1% '/?E0/OH%' @2%* @: '/?E0/OH%2D110(I%M . 4(* . %4-# . %"&: #3* . %"&#&67#*4& 8% . %O(9(. 4;&
<Q-%8\$! :8!5, %

-%d%XKC I=0@-%4,%\#\$!6_,%JM' EK' /D@B%<E' HH(* *C%/DCO%/?(*KB?%H>H/OC' /D<%' @' E>HDH%
' @2%H/K20@/%1002)' <=, %M . 4(* . %4-# . %"&: #3* . %"&>#*4, (&6+, #"%*), -7&#&O(%+, . - . O&% . 2&G(%* . - . O,%B&ZH[-%
! :7, %?//IPgg2DB\/' E<*CC* @H,BO*(BD' H*K/?O(@,O2KqDe: H*/EqM*E5qdHH#g^%

XKC I=0@-%4,-% -%d%+ *22-%R,%\#\$!6_,% [HD@B%/O<?@*E*B>: @OH/O2%D@H/(K</D* @' E%H/('/OBDOH%
/*%O@?' @<O%H/K20@/%EO' (@D@B,%M .)-O, 4L&?&: #3* . %"&#&6+, #"%*A&O(%+, . - . O;&<X;&! !^: !#6, %

XKC I=0@-%4,-% -%d%+ *22-%R,%\#\$!6_,%L/K20@/%I0(<OI /D* @H%*1%' </MO%EO' (@D@B,%@#" (O(&
6432(. 4&: #3* . %"-%JB&Z<[;&!#!:

V@/0(@' /' * @ ' E% 3 * @10(0@<0%G(OH0@/' /' * @H%
& ' (C ' @-% + , -% %d%L/' 2E0(%QE' @=-%4,%V%jXD=0k%W/P%TOH/D@B%/?O%V C I ' </% * 1%SD(C:Z0@0(' /02%
L * <D' E% F 02D ' %3 * @/0@/' * @%3KH/* C0(%J @B ' B0C0@/%Q0? ' MD * (H,%G(OH0@/02% ' /%/?O%JK(* I 0 ' @%
F '(=0/0@B%4<' 20C>%^7th%4@@K' E% 3 * @10(0@<0-%& ' C)K(B-%Z0(C ' @>-%F '>#%\$!5,%

[H0% * 1%L * <D' E% F 02D ' %U0/O*(=H% ' @2%G0(<0I /' * @H% * 1%SD(C:Z0@0(' /02%3 * @/0@/' /?0%
SD/@0HH%V@2KH/(>,%G(OH0@/02% ' /%/?O%ZE*) ' E%L I * (%QKHD@0HH%4HH* <D' /' * @% ' @@K' E%< * @10(0@<0-%
FOND<*-%F '(<?%#%\$!7,%

%

aK/< * C0H% * 1%L * <D' E% F 02D ' %F '(=0/0@BP% + * 0H%V@/0(' </' * @%V C I ' </%R0E' /' * @H?D I %
WK' ED/>% ' @2%Q0? ' MD * (%V@/0@/' * @H I %G(OH0@/02% ' /%/?O%ZE*) ' E%L I * (%QKHD@0HH%4HH* <D' /' * @% ' @@K' E%
< * @10(0@<0-%FOND<*-%S0) (K' (>%#%\$! ; , %

d%& * (HC ' @@-%T,%3 * C I ' (D@B%G(*10HHD* @' E%L I * (%T0' CHb% [H0% * 1%S ' <0) * * =% ' @2%
TOV//0(P%R0E' /' * @H?D I %QKDE2D@B%L/(' /0B>% ' @2%V@/0(' </' * @%2K(D@B%/?O%a11:L0' H * @,%G(OH0@/02% ' /%/?O%
ZE*) ' E%L I * (%QKHD@0HH%4HH* <D' /' * @% ' @@K' E%< * @10(0@<0-%FOND<*-%S0) (K' (>%#%\$! ; , %

d%XKCI=)@-%4,%R0I (*B(' CC@B%/?0%jL ' B0% * @%/?O%L/' B0kP%4%L>H/OC ' /' <%JM' EK' /' * @%
1%3E' HH(* C%TDC0,%G(OH0@/02% ' /%/?O%ZE*) ' E%L I * (%QKHD@0HH%4HH* <D' /' * @% ' @@K' E%< * @10(0@<0-%
Q' ? ' C ' H-%S0) (K' (>%#%\$!8,%

%

3E' MD* -%Z,-%d%X0)0E-%f ,% . ?' /%3KH/* C0(H% . ' @/P%+01D@D@B%J@B' B0C0@/% * @%L * <D' E%

d%L/'2E0(%QE'@=-%4,%T?0%VCI'</%*1%3*B@D/DMO-%4110</DMO%'@2%4</DM'/D*@'E%L* <D'E%
F02)'%J@B'BOCO@/%* @%LI'*(/%3*@HKCO(%Q0?'MD*(,%G(OHO@/02%'/%/?O%'@K'E%4CO(D<'@%
F' (=0/0@B%4HH*<D)'D* @%LKCCO(%4<'20C) <3*@10(0@<0-%MD(/K'E-%4KBKH/#\$#\$,%
%

XKCI=D@-%4,-%+*22-%R,-%d%L'//E0(-%X, T?0%V@1EK0@<0%*1%Z('2K'/0%G(*B('CH%* @%
GO(<0I/D* @H%*1%3'(00(%+0<DHD* @%LOE1:J11D<'<>% '@2%

RD2D@B0(-%X,%X,-%&'(2D@-%R,-%XKC I=D@-%4,-%F'B@KH0@-%F,-%d% T?0%4(/% '@2%L<D0@<0%*1%
TO'<?D@BP%T(' @HE' /D@B%G(' <D<0%0@/*%L<?*'E'(H?DI,%G' @0E% I(OH0@/02%' /%/?0%U*(/?%4C0(D<' @%L* <D0/>%
1*(%LI*(/%F '@'B0C0@/%' @K'E%<* @10(0@<0-%+0M0(-%3a-%`K@O%#\$! ;,%
%

+D2@b/%L *C0* @O%L '>%D/%O'H%4EE+ *O@?DEE' 1/0(%/?0%+DHH0(/' /D* @I%
o1D(H/>0'(I(*)E0CH,%G(OH0@/02%' /%/?0%FXL%U' /D* @' E%L' EOH%30@/0(%VB@D/0%L>C I*HDKC%2K(D@B%/?0%
' @K' E%L I*(/%F '(=0D@B%4HH* <D' /D* @%3 * @10(0@<0-%V@2D' @' I*EDH-%VU-U*M0C)O(-%#\$!8,%
%

3E' MD*-%Z,-%d%X0)0E-%f,%F0'HK(D@B%L* <D' E%F02D' %J@B' B0C0@/P%+0M0E* I C0@/%' @2%
JM' EK' /D* @%*1% '%L<' E0,%G(OH0@/02%' /%/?0%' @K' E%L I*(/%F '(=0D@B%4HH* <D' /D* @%3 * @10(0@<0-%
V@2D' @' I*EDH-%VU-U*M0C)O(-%#\$!8,%

ROE' /D* @H?DI%QKDE2D@B%' @2%V@/O(' <D' @%* @L* <D' E%F02D' %+K(D@B%/?0%a11:L0'H* @P%4%
3*CI'(DH* @%*1% [@D/02%L/' /OH%G(*10HHD* @' E%L I*(/%X0' BK0H,%G(OH0@/02%' /%/?0%' @K' E%L I*(/%
F '(=0D@B%4HH* <D' /D* @%3 * @10(0@<0-%V@2D' @' I*EDH-%VU-U*M0C)O(-%#\$!8,%

4%WK' HD: JN10(DC0@/' E%JN' CD@' /D* @%*1%F0/?*2H%/*%VCI(*M0%Z('2K' /0%L/K20@/Hb%
. (D/D@B,%G(OH0@/02%' /%/?0%U*(/?%4C0(D<' @%L* <D0/>1*(%LI*(/%F '@'B0C0@/%' @K' E%<* @10(0@<0-%
a(E' @2*-%SX-%`K@O%#\$!8,%
%

+ *22-%R,%f,-%XKC I=D@-%4,-%d% JN' CD@D@B%/?0%G(' <D<0%*1%LO(M' @/%X0'20(H?DI%' @2%D/H%

J@<*K(' B0@B%3 * CCK@D/>%V@M*EM0C0@/' @2%ROHKC0%QKDE2D@B%/?(*KB?%JN I0(D0@/D' E%
X0' (@D@B,%G(OH0@/02%' /%/?0%U*(/?%4C0(D<' @%L* <D0/>%1*(%L I*(/F '@' B0C0@/' @K' E%<* @10(O@<0-%
a// 'O' -%a@/' (D*-%34-% K@O%#\$!6,%

%

R0' EE>-%O? '/%DH%/?0(0%/ *jXD=0kI %G(OH0@/02%' /%/?0%FXL%U' /D* @' E%L' E0H%30@/0(%VB@D/0%
L>C I*HDKC%2K(D@B%/?0%4@K' E%L I*(/F '(=0/D@B%4HH* <D' /D* @%3 * @10(O@<0-%G?DE' 20E I?D' -%G4-%
a</*)0(%#\$!^,%

%

J@B' B0@B%F0C)0(HP%S' <0) **=%4</DMD/>% ' @2%3 * @HKC0(%Q0? ' MD*(%D@%/?0%SD)/@OHH%
V@2KH(>,%G(OH0@/02%' /%/?0%4@K' E%L I*(/F '(=0/D@B%4HH* <D' /D* @%3 * @10(O@<0-%G?DE' 20E I?D' -%G4-%
a</*)0(%#\$!^,%

[HD@B%L *1/3? 'E=%/ *%3?0<=%1*(%R0'E:TD0C0 [@20(H/ ' @2D@B%0@%/?0%3E' HH(** C,%
G(OH0@/02%' /%/?0%U*(/?%4C0(D<' @%L* <D0/>%1*(%L I*(/F '@' B0C0@/' @K' E%<* @10(O@<0-%GD//H)K(B?-
G4-%F '>%#\$!^,%

%

XKC I=D@-%4,%d% V@H/(K</D* @' E%L(/' /OB0OH%1*(%V@/OB(' /D@B% . (D/D@B%' @2%4</DMD%O' (@D@B%
D@%L I*(/F '@' B0C0@/%3E' HH(** CH,%G(OH0@/02%' /%/?0%U*(/?%4C0(D<' @%L* <D0/>%1*(%L I*(/F
F '@' B0C0@/' @K' E%<* @10(O@<0-%4KH/D@-%Tm-%F '>%#\$!^,%

%

[HD@B%G*EE%JMO(>O?0(0%D@%/?0%3E' HH(** C,%G(OH0@/02%' /%/?0%U*(/?%4C0(D<' @%
L* <D0/>%1*(%L I*(/F '@' B0C0@/' @K' E%<* @10(O@<0-%4KH/D@-%Tm-%F '>%#\$!^,%

%

ROB D* @' E%3 * @10(O@<0%G(OH0@/' /D* @H%
S(0)0(B- f ,-%QOH/-%Q,-%F '(H? 'EE-%L,-% f DC-%&,-%d% %4<' 20CD<%G' @OE' /% F D20OH/%+DBD/' E%
F '(=0/D@B%3 * @10(O@<0,%G(OH0@/02%' /%/?0%F D20OH/%+DBD/' E%F '(=0/D@B%3 * @10(O@<0-%L,%X*KH-%F a-%
4 I (DE%#\$!5,%

ROE' /)*@H?DI%F' (=0/0@B%0@% [@D/02%L/ '/OH%G(*10HHD*@ 'E%LI*(/%X0' BK0H,%

L*K/?00H/%FD@0H*/'%L/'/O% [@DMO(HD/>-%F '(H?'EE-%FU% 4KBKH/%#\$\$8%:%F'(<?#\$\$;%
 !% 3(0'/02%'@2%C '@'B02%B'CO:2'>%I(*C*/@*H%1*(%/?0%FKH/'@B%'/?E0/D</%0'CH%
 !% L0/:KI%I(*C*/@*H-%H0E0</02%<*@/0H/'@/H-%@2%2D(0</02%I(*C*/@*H%
 !% 4HHH/02%OD/?%B'CO%2'>%H0/:KI%'@2%C '@'B0C0@/%

LD*KN%S'EEH%3 '@'(D0H%G(*10HHD*%'E%Q'HO)'EE%3EK)-%LD*KN%S'EEH-%L+% F'>%#\$\$8%:%4KBKH/%#\$\$8%
 !% .*(=02%D@/?0%1(*@/g/D<=0/%*11D<0%'@2%H%E2%B(*KI%<*@/'</H%'@2%HD@BEO%B'CO/D<=0/H%
 !% G(*C*/02%/?0%/0'C%'@2%20HD@02%'@2%DCE0C0@/02%O'>H/*%DCI(*MO%'//0@2'@<0%

L*K/?00H/%FD@0H*/'%L/'/O% [@DMO(HD/>-%F '(H?'EE-%FU% 4KBKH/%#\$\$^%:%F'>%#\$\$6%
 !% 3(0'/02%I(*C*/@*%'E%1E>0(H-%H0@/%*K/C'DED@BH-%@2%*(B'@Di02%I'IO(O*(=%1*(%OMO@/H%
 !% .*(=02%OD/?%JN<0E%/*%<*CIDE0C'DED@B%EDH/H%'@2%2'/')'HOH%
 !% 4//O@202%'/?E0/D<%OMO@/H%/*%?0E%I%OD/?%B'CO%2'>'</DMD/D0H%