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^{B@} 3"\$) H "6 ,6 &" .& ,6 ? \$ H(\$, \$ MBNBNLLO DKN_@P2 5- BBC DLB_RM
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B	47 8 6 9" & 5, \$%& (5& %)/ "\$& B] L , 6 F\$" B_DM4(=M & M., " e @AB %6"9: ^N RST ; ^{LN} VUM .R ^{AD}	
D	47 8 \$%& 99" 33" & & \$, & / ""& \$ (%& : . 9M4(=M & M., " e @AB %& \$ % ^M RST ; VUM R ^A	
-	47 8 \$%& 99" %5& \$%, 6 33" & & 1" " \$, & % 9M4(=M & M., " e @AB 6, , 3" & \$ 9 5, \$ & \$ ^N RST ; VUM R ^A E?28 H_BMB] NEKAA Pe] BLMBR	
@	47 8 6 9" & 5, \$ (5& -: , %& & ^{AA} & %& M . 9M4(=M & M., " e @AB ^{PN} RST ; VUM R E?28 H_BMB] NEKAA Pe] BMB] DP5RR	
A	47 8 6 9" & % 99: %& "5& 33" %)/ "\$& %=: . 9M4(=M & M., " e @AB 6 9\$) & % 99: %& "5& %)/ "\$& % ^{PN} RST ; VUM R E?28 H_BMB] NEKAA Pe] BMDOPER	
U	47 8 \$%& 99" a3(3% , \$ & % 33" 9\$) & & 1%" .9'9M4(=M & M., " e @AB & \$ 6" 6"" & 9, \$) ^{PN} RST ; VUM R E4 AFs Pe R	
O	47 8 \$%& 99" 33" %)/ "\$& %& & \$, & / ""& .& 9M4(=M & M., " e @AB 33 , 3 & / \$/ (/ : "9 %& "\$) & ^{A1}	

@ ?(// "% ""9, 3" = % , \$ 3"\$) H "6%, 6 .4?& & " G, & . (% P MBNLDNLLORC
 G'5, Y"3\$) P MBNLDNLR \$ & " V.E BBNBMLKR \$ " , \$9: \$&' \$ " & 3, ")"\$" 9
 & " & "\$&, 6 & " %& : , 6 , 9 & \$%) 7 \$%& 99)" C \$ " \$, & \$&' \$ " \$ \$: 1 : & & "

%5, 3"C (& \$, %&=9& \$5" , 6 , 9 & \$% % 99")4?; M
^{AL} AA 9%& , 9 & \$%"d(9 & , (%\$ % , 6 , 9 & \$%& - , 9 & \$ %\$, & = , Y"\$, (& = : Rm %"

.4?; 3"\$) H "6 E33"\$ I .
^{AB} E99 a (& \$b :% \$: " %\$, & %& / "/" = ?" BKAU %& & & \$?"3& / =" BLC

DLBL "\$ & (\$9"%%, & " 1% \$, & M
^{AD} .4?; NBC 3M_C 3MBUDC 33MBAND

^A .4?; NBC 3M_C 3MBUDC 33MBAND_M
^{AG} .4?; NBC 3M_C 3MBUDC 33MBAND_M
^{AA} .4?; NBC 3MBK, " DL , & " "6" "\$5"% & & & 6-: , N&' %& \$.4?; NBM.4?; NKC 33M__N

-@M
^{AU} .4?; NBC 3M @ 3MBUDC 3MBKM. 4?; NKC 3MKUM
^{AO} .4?; NBC 3M DDC 3MBUDM. 4?; NKC 3MK @M

	, 9 & \$ PP3. (-&R	E3395 =9" ., "C ?& \$
	PNQ RST ; VUM R	E?28 H_BBM]NBKAA Pe]LAMA@R
] D@LL 3%& %)/"\$&, 6 (\$YS, 1\$: "9 %& "\$)	47 8 / 3 , 3" 9: %&)" : "9 %& "\$) & =, ". 9M4(=M &9M., " e @AB	E?28 H_BBM]NBKAA Pe]BEMDOP7RR
PNQ RST ; VUM R ^K	47 8 (% "65"\$& 1"9 %, \$ &% 33"9\$ ^H M	. 9M4(=M &9M., " e @AB E?28 H_BBM]NBKAA Pe]BEMDOP8RR
PNQ RST ; VUM R	47 8 (% "65"\$& 1"9 %, \$ &% 33"9\$ ^H M	. 9M4(=M &9M., " e @AB ?"5& \$ BMD , 6 E4 ?& \$ BBL@P@& 8 BKALR
PNQ RST ; VUM R	47 8 (% \$5, / 39" & 1"9 % \$ 6 9" & / " % '9M4(=M &9M., " e @AB	E?28 H_BBM]NBKAA Pe]BEMDOP. RR
PNQ RST ; VUM R	47 8 \$, & \$5, 3, & & " a3(3% \$& &% . 9M4(=M &9M., " e @AB	E?28 H_BBM]NBKAA Pe]BEMDOP. RR
PNQ RST ; VUM R	47 8 5 95(9 & \$, 6 & " "%)\$ 3 "%& " \$ 2E 4 6, &%	. 9M4(=M &9M., " e @AB
PNQ RST ; VUM R	47 8 6 9" & / ""& 2E 4 " & / \$ & \$. 9M4(=M &9M., " e @AB E?28 H_BBM]NBKAA Pe]@AMDR
PNQ RST ; VUM R	"d("/"\$&="5 (% , 6 &% \$5, / 39" & Y\$, 19")"M ^P	
PNQ RST ; VUM R	47 8 6 9" & %&)" : "9 %& "\$) & , 6 D@LL@K 3 JG BKDMBLOP=RPDR	
PNQ RST ; VUM R	& &% 33"9\$" 1-"\$ & " %& "\$) & 1 %(\$YS, 1\$M S ^A	
	47 8 , 9 & \$% "9 & & &% \$&') & 2 \$)" / 4\$& / M	
PNQ RST ; VUM R	47 8 \$, &) & " \$ \$&') & "d(" 33"9\$. JG BKDMKBCP=R	
PNQ RST ; VUM R	& M ^W ; VW . & () S ^H ;	
PNQ RST ; VUM R	47 8 \$, & 5-"5Y 6, \$ " 6: & " 55(5: @K . JG BKD P\$5, 3, & \$)	E?28 H_BBM]? PeAMCRR
PNQ RST ; VUM R	47 8 \$, & \$ 9: " &% 33"9\$" 6, & " / \$(6 5& " "6"5&, 6 1"9 "6"5&M	@K . JG BKDMKBCP R P\$5, 3, & \$) E?28 H_BM]? PeDMCRR
PNQ RST ; VUM R	PNQ RST ; VUM R	

^A . 4?; NBC 3M OC 3MB_C 33M BKNDLC 3M DDC 33M UNLUC; NK 33M @NALM
^{AK} . 4?; NBC 3M _BC 3M BAC 3M BKM. 4?; NK 3M MBC 3M BLJ
^U . 4?; NBC 3M_B_C 3M BKC 33M DLNDBC 3M BUDMBM@BNC@G 33M KANKUM
^{UB} . 4?; NBC 3M_B_C 3M BKC 33M DLNDBC 3M BUDMBM@BNC@G 33M KANKUM
^U . 4?; NBC 3M DBC 3M OC 3M BKC 3M ALC 3M LBC 3M U3M DONJ C 33M @BNC 33M KDKUM
^U . 4?; NBC 33M DDND@C 3M_C 3M BUDM. 4?; NK 3M BLUM
^{U@} . 4?; NBC 33M DDND@C 3M_C 3M BUDM. 4?; NK 3M BLUM
^{UA} , 9 & \$ %& & & ']gBKgOLm. 4?; NBC 3M _BNC. 3M UBC 3M BLUC 3M BLJ] M
^W , 9 & \$ %& & & ' BDgBAGDLL_m. 4?; NBC 33M UNBU_M. 4?; NK 3M ULC 3M UKC 3M OLC 3M]AM
^U , 9 & \$ %& & & ' L]gBKgBKOLm. 4?; NBC 3M DUC 3M AAM. 4?; NK 3M BLOC 3M BBLC 3M
^{BB@M} U , 9 & \$ %& & & ' BDgBAGDLL_m. 4?; NBC 33M UNBU_M. 4?; NK 3M UN_KM

	, 9 & \$ PP3. (-&R	E3395 =9" ., "C ?& \$
_O	47 8 \$, & - " 39 \$ 6, "\$))\$) / (& 9 @K . JG BKDMBAP5RP@R %88& \$5" TRU; VN . NR ¹	
_J	47 80% 0, 1 \$ (\$5, , \$ & "%, \$% & & " @K . JG BKDMBAP RP_R F\$" B D 8I 39, % \$ 1 % \$" & " 3 , / 3 & \$, "66" 5& MP; ^{1K}	
_K	47 8 6 9" & "d(&'9: "5""C "\$&: \$ @K . JG BKDMBAP RPBR 59 %86: "/")"\$5: \$, & "MP ^{KL}	
@	47 8 \$, & 3 , " 6, 3 , 3" 3" % \$\$"9 \$ @K . JG BKDMBAP RP@R "%(5"% & & " "/")"\$5: % " \$" P ^B	
@B	47 8 \$, & 3" 6, / \$ "/")"\$5: % (& , 1\$ & @K . JG BKDMBAP RPUR "d(&'9: / \$/ " - % & 96" \$ 3 , 3" & PV; ^{KD}	
@D	47 8 \$, & / Y" % 6" \$: 5& 9 , 3, &' \$ & @K . JG BKDMBAP RPOR - % & 96" \$ 3 , 3N & P ^F	
@	47 8 \$, & \$, & 6: 9, 5 9 6 % & "%, \$V"; % P ^{KQ} @K . JG BKDMBAP RP] R	
@@	47 8 \$, & - " \$ "/")"\$5: / \$(9 & & @K . JG BKDMLAP5RPBR \$ "d(" 33 , 3 &' 5& \$% PTRU; VN . NR ^{KA}	P_R
@A	47 8 \$, & "%& =9% \$ / \$ & \$ @K . JG BKDMBAP RPDR 5, / (\$5 & \$% 1& 9, 5 9 6 % & "%, \$ "N% P ^{KU}	
@U	47 8 \$, & 3 , &' 5& 3", 39" 6 % & & "\$ 3 , 3" @K . JG BKDMBAP RPAR PV; ^{KO}	
@D	47 8 \$, & "%& =9% \$ / \$ & \$ 9 % \$ 1& @K . JG BKDMBAP5RP@R 9, 5 9 6 % & "%, \$ TR% P VN . NR ^{KI}	
@	47 8 \$, & & \$ 3" % \$\$"9 & "5,)\$ " \$5 "\$ @K . JG BKDMBAP RP_R 3 , 3" 9: MP; ^{KK}	

¹¹ , 9 & \$ % & & ']g_BgDLLKm . 4?; NBC 33M BB@P 33M BBONBB] m . 4?; NKC 33M AANAUm . 4?; NBLC 33M OAC . 4?; 3 , 3, (\$ " ; G F") 9 ; % \$ LIENhL] & , = & \$ 47 80% 8/ ")"\$5: G' % , \$% 49 \$ P8GARC 1-5- % - " \$) "1- = & . 4?; NDKOM 2(& E%8& \$5" E) "" / "\$% " % (% " , \$ JNDMB , 6 47 80% 8G4M
^{1K} , 9 & \$ &' KgKgDLBLm . 4?; NBC 33M BLDNBB@P 33M BBON BB] m . 4?; NKC 33M AAN AUC 33M KONBL
^{KL} , 9 & \$ &' KgKgDLBLm . 4?; NBC 33M BBANBB@P 33M BBON BB] m . 4?; NKC 33M AANAUC 33M K] NBLDm . 4?; NBLC 33M OAC 33M O
^{KB} , 9 & \$ &' KgKgDLBLm . 4?; NBC 33M BLDNBB@P 33M AANAUC 33M KKM
^{KD} , 9 & \$ &' KgKgDLBLm . 4?; NBC 33M BL_C BBONBBDDm . 4?; NKC 33M KKC BLBNBLDM
^K , 9 & \$ &' KgKgDLBLm . 4?; NBC 33M BBONBB@P 33M BBON BB] m . 4?; NKC 33M AAN AUC 33M KKC 33M BLBN BLDM
^{K@} , 9 & \$ &' KgKgDLBLm . 4?; NBC 33M BB@P 33M AANAUC 33M BLNBLBM
^{KA} , 9 & \$ % & &']g_BgDLLKm . 4?; NBC 33M BB@P 33M BBON BB] m . 4?; NKC 33M AAN AUC 33M KKNBLM
^{KJ} , 9 & \$ &' KgKgDLBLm . 4?; NBC 33M BB] NBBKNC 33M BLLM
^{KO} , 9 & \$ &' KgKgDLBLm . 4?; NBC 33M BB] NBBKNC 33M BLLM
^{KI} , 9 & \$ % & &']g_BgDLLKm . 4?; NBC 33M BB@P 33M BLLM
^{KK} , 9 & \$ &' KgKgDLBLm . 4?; NBC 33M BLDNBB@P 33M BBON BB] m . 4?; NBLC 33M B@M . 4?; NKC 33M DEC 33M K] N KKM

	, 9 & \$ PP3. (-&R	E3395 =9" ., "C ?& \$
@K	47 8 \$, & & \$ 3" %\$\$"9 3 , 3" 9: , "\$% @K . JG BKDMUBAP=RPDR &": " Y\$, 19")" =9" =, (& 3 , 5" N,"%MP	
AL	47 8 \$"" "& / \$" 6 &%& \$\$) %"66"5&W @K . JG BKDMUBAP=RP_R ; BLB	
AB	47 8 6 9" & ""1 &%/")"\$5: "%&, \$% @K . JG BKDMLAP5RP@R 3" , 5 99: MP; BLD	
AD	47 8 \$, & 3 , 3" 9: " (5 & &" 3(=95 \$ 9&5 . JG BKDMUBUP R , 665 9%MP; BL_	
A_	47 8 \$, & 3" 6, / 95, -, 9 &%&\$ &"9: @K . JG BKKMDAP R / \$\$" \$ 6 9" & "5, &" " %,\$%6, 9 5Y , 6 5, / 39 \$5"MP; BL@	
A@	47 8 \$, & 3" 6, / () \$ 95, -, 9 &%&, @K . JG BKKMDAP R \$ @K 7 %., \$&, 9 %& 66MP ^{BLA} . JG BKKMUBAP=R	
	47 8 , 9 & \$ "9 & &%? 6"& . (9& "	
AA	47 8 6 9" & 39 5" %6"& , " 3 , 6&%=: PBR9M4(=M &M., " e @AB " (5\$) %6"& N"9 & =()"&m PDR %&"\$ \$) 9"%% & \$ (&, " , \$ %6"& m P_R 3 "/ & "9: %\$ \$) & & \$%&%\$ 33"9\$" "39 5"/"\$& 39 \$m P@R \$, & %"Y\$) %665"\$& 2 6(\$ %m PAR (%\$) 9"%% "66"5&" \$ 5-" 3" 2 &, 9% m PUR " (5\$)N%6"& "9 & 3" %\$\$"9C 1-9" &&" %/" &" (%\$) "&\$" " \$\$)%& 3 : "\$ %C "3(5- %\$) %& 5YC 3 , \$) =, \$(%&C "I3"\$ \$) 6(\$ %, \$ 3(=95 "9 & \$% \$ = 99, & \$& &'%M PMWU; V NS . & () RQ;	

HE K AD & 9 T AE2 A 6 4GA Y44B 3)) 5)USUV 7^V

	, 9 & \$ PP3. (-&R	E3395 =9" ., "C ?& \$
B	? 9)" 43" G'5, %M47 8 6 9" & 5 " & \$ 9M4(=M &M., " e @ABm / \$& \$ 55(&'C 5, / 39"&'C \$ 55"%%=9" "5, 9& \$ 4(=95 &9&'%	

HL , 9 & \$ &' KgKgDLBLm . 4?; NBC 33M BLDNBB@C 3M BD_m . 4?; NBLC 33M B@BAM . 4?; NK 3M DBC 33M KJ NKKM
 HLB , 9 & \$ &' KgKgDLBLm . 4?; NBC 33M BLDNBB@C 3M BD_m . 4?; NK 3M DBC 33M KJ NKKM
 HLD , 9 & \$ &' KgKgDLBLm . 4?; NBC 33M BLDNBB@C 3M BD_m . 4?; NK 3M DBC 33M KJ NKKM
 BL_ , 9 & \$ &' KgKgDLBLm . 4?; NBC 33M BD_NBDANK433M AONAKC 3M OCC 3M BBAM
 BL@ , 9 & \$ &' KgKgDLBLm . 4?; NBC 33M KKNBLBMY@ 33M DBNDDC 33M BL@BLAM
 BLA , 9 & \$ &' KgKgDLBLm . 4?; NBC 33M KKNBLBMY@ 33M DBNDDC 33M BL@BLAM
 BLU , 9 & \$ %& & &' BgBgBKKj m . 4?; NBC 3M N@C . 4?; 3&' sC 33M BDUNBUBM . 4?; NBUJ C 3 %&M
 BLO_A 9&' , 9 & \$% "d(9 &, (% \$ %, 6 , 9 &, \$%, 9 & \$ \$59("% 33 , 1/ &'9: D_COLL /%&\$) %&"\$)& &'& 3 "%& " "5, %C \$, 9&, & \$ \$59("% 33 , 1/ &'9: DCALL %&/" ?2W 9("%, 6 -) -" & \$ D@LLL 4? Rm %" . 4?; " & 3=%&

	, 9 & \$ PP3. (- &R	E3395 =9" ., "C ?& \$
	, 6 33" %9)" 6 ,/ &%& \$%%&\$ %%%&'/ \$ E5&C E &59" C %'5& \$ B	P=R
	"(% \$ FS" B_DMP (- 3- 8 0- & R&	
D	., \$%& (5& \$ G'5, %6, BKAU 4 , f"5& 72 B_U@BML4(=M &9M., " e @ABM	
	47 8 6 9" & Y""3 5, /39"&' \$ 55(&'	
	5, \$%& (5& \$ "5, %6, &" 3 , f"5& 72 B_U@BC &"	
	3 , f"5& & & \$%& 99" ?") / "\$& B L \$ BKAUC	
	"39 5\$) 3 & , 6 FS" B_D & & - =""\$ \$%& 99"	
	\$ BK@MMPQ (& : (. Q S R ^{BLK}	
-	4 "%& " T"%& G'5, %M47 8 \$, & "& \$. 9M4(=M &9M., " e @ABM	
	3 "%& " &'%& "5, %6, ?") / "\$& B L , 6 FS". B_D \$ 4(=95 &9&'%	
	6, &" 96" , 6 &" 6 59&MPE S R ^{BBL}	E5&C E &59" C %'5& \$ B
		P=R
@	\$ " 9: \$) G'5, %G'9 & & 2 I/(/ . 9M4(=M &9M., " e @AB	
	E99, 1 =9" 3" &\$) 4 "%& " 6, ?") / "\$& B LM	
	47 80%43"9\$) ?(" : ?-""&C 7 ? \$ 665 9	
	2E 4 9%& 6, 33"9\$"%C 5 99" ; 1\$)	
	L U U CBB C "d(" _KL 3%2E 4 6, &" 3 &	
	, 6 FS" B_D & & \$59(" ?") / "\$& B MP(&	
	S R ^{BBB}	
A	.9" \$5" 4 , 5" ("%M47 8 3" %\$\$"9 \$, &. 9M4(=M &9M., " e @ABM	
	- " 1 &&' \$ %'d("\$5" , 6 %&'3%& =" (\$ " & Y"\$6\$ \$ 4(=95 &9&'%	
	&" / \$&' \$ \$5" 3 , 5" ("MP . N S N E5&C E &59" C %'5& \$ B	P=R
	: (. Q S R ^{BBB}	
U	3" & \$% \$ 2 \$&' \$ \$5" \$%& (5& \$%MT-" . 9M4(=M &9M., " e @ABM	
	3" &\$) \$ 2 \$&' \$ \$5" \$%& (5& \$%/ \$(9 @K . JG BKDMBA	
	&" 293& %T' / \$ 9 1 % , (& , 6 &'MP .	
	NQQ : (. S R ^{BBL}	
O	; 1\$) \$? . E; E ;) / % , 6 &" 293& % . 9M4(=M &9M., " e @AB	
	T' / \$ 9M47 8 3" %\$\$"9 & &" 293& %T' / \$ 9	
	, \$9: - 55"%&& \$, (& &' / 3 \$ 5, \$& , 9	
	, , / 3" %\$\$"9 - 55"%&& \$ \$5, /39"&'	
) / , 6 &" 293& %T' / \$ 9MP S R ^{BBL} @	
]]	H 5YN 3 ? , 6&1 " & 293& %T' / \$ 9M47 8 . 9M4(=M &9M., " e @AB	
	5, \$ (5&' "9"5& 5 9 1, Y & &" 293& %T' / \$ 9	
	1& , (& 33 , 3 &' = 5YN 3 %6&1 " 9 =9" 6,	

BLJ	3"\$\$) H "6 , 6 .4?; \$ G'5, Y""3\$)	& D@B- DAC DLB_RM
BLK	3"\$\$) H "6 , 6 .4?; \$ G'5, Y""3\$)	& 2 B- DAC DLB_RM
BBL	3"\$\$) H "6 , 6 .4?; \$ G'5, Y""3\$)	& 2 B- DAC DLB_RM
BBB	3"\$\$) H "6 , 6 .4?; \$ G'5, Y""3\$)	& @ B- DAC DLB_RM
BBB	3"\$\$) H "6 , 6 .4?; \$ G'5, Y""3\$)	& @ B- DAC DLB_RM
BBB	3"\$\$) H "6 , 6 .4?; \$ G'5, Y""3\$)	& @ B- DAC DLB_RM
BB	3"\$\$) H "6 , 6 .4?; \$ G'5, Y""3\$)	& @ B- DAC DLB_RM
BB@	3"\$\$) H "6 , 6 .4?; \$ G'5, Y""3\$)	& @ B- DAC DLB_RM

	, 9 & \$ PP3. (-&R	E3395 =9" ., "C ?&\$
	9" 5, \$&, 99" %, \$ FS" B_D %)/"\$& B] L P (& S N R ^{BBA}	
K	?(3" % : ., \$&, 9 \$; & E5d(%&\$?:%&'/ . 9M4(=M &9M., " e @AB Pa?. E; EbRM47 80%?. E; E \$, & 3, " & 47 8 3" %\$\$"9 &" \$6, / &\$ \$" " \$ &" 5, \$&, 9 , / \$ "9%1-" " & " 9 "66"5&9: 1& &" FS" B_D 8I39, %\$ \$ \$, & 3, " 47 8 3" %\$\$"9 1& %665"\$&\$ \$6, / &\$ & "& /"\$ &" ="%& 5, (% , 6 "/" 9 5&\$ &S & Y" ^{BBA} S N R ^{BBA}	
BL	8/")"\$5: G'%, \$% 49 \$M47 80%8/")"\$5: . 9M4(=M &9M., " e @ABm 49 \$ 6 9" & %33, & %6" \$ "665"\$& "%K\$%G %5& \$ BKDMBA & &" FS" B_D 8I39, %SC 1-5- 5, \$&=(&' & 9, \$)" & \$ "\$5"%% : "%, \$%-MBS N (& :(. S N R ^{BBA}	
BB	\$5 "\$&%, 6 3" &S) FS" B_D \$ "I5"%%, 6_KL 9M4(=M &9M., " e @ABm 2E 4M47 8 , 3" &' FS" B_D \$ "I5"%%, 6_KL 7 BBD 3%2E 4 , \$ & 9" %&& "" , 55 %%%1&, (& 6, 99, 1\$) ") (9 &\$%& & "d(" -: , %&& 99: &'%&S)MP. 0-& (-& - S T S ^{BB} S N	
BD	4 "% &\$, 6 G'5, %G'9 &' & H "\$&, , ., //%%\$ G'9(&\$./" ?I " , M47 8 "%&, : " "9" \$& S(/=" FN@m; MKNL] NDK " "\$5" 6&' &" ., //%%\$ "5&' && 99 " "\$5" "9" \$&& &" ? \$ H (\$, \$5 "\$&="	
B	47 80%; & G'%, \$%G') \$) H "\$&, , ., //%%\$ G'9"% , 6 ./" ?I " , M47 8 3 , " .4?; \$ &" 4 5&5" \$ 4 , 5" (" G'9" . , //%%\$ 1& & "%, \$%%& & 1" " BMBM 5, \$& 5& : \$ /%9" \$)C \$ & &/3" " &" \$"%& &\$, 6 /3, &\$& \$ "9" \$&%& ("-%&& 3 , 5"" \$)M&P& . :& G S N V :. (; (
B@	47 8 ; & G'%, \$%G') \$) 4" %\$\$"9 & ., //%%\$ G'9(&\$ 293&%T' / \$ 9 , \$?"3&/'=" KC DLB 47 8 S(/=" FN@m; MKNL] NDK 6 9" & "\$&6: 99 3" %\$\$"9 6, 1-, / .4?; %()-& "\$&65 &\$ \$ / " &1, 6 9% , /%9" \$) %& &'/"\$&M&P& 0-& (-& G F4(& . N	

- | | | |
|-----|--------------------------------------|--------------------|
| BBA | 3"\$\$) H "6 , 6 .4?; \$ G'5, Y"3\$) | & UB B- DAC DLB_RM |
| BBU | 3"\$\$) H "6 , 6 .4?; \$ G'5, Y"3\$) | & U B- DAC DLB_RM |
| BBO | 3"\$\$) H "6 , 6 .4?; \$ G'5, Y"3\$) | & OU B- DAC DLB_RM |
| BBJ | 3"\$\$) H "6 , 6 .4?; \$ G'5, Y"3\$) | & OL B- DAC DLB_RM |
| BBK | 3"\$\$) H "6 , 6 .4?; \$ G'5, Y"3\$) | & O B- DAC DLB_RM |
| BBL | 3"\$\$) H "6 , 6 .4?; \$ G'5, Y"3\$) | & PL B- DAC DLB_RM |

	, 9 & \$ PP3. (-&R	E3395 =9" ., "C ?& \$
	S NV ; (&, & - -& ; 4- -& P 4 . NR S NV ; (&, & - -& ; 4- -& & (. (-0 - 4) 4 (.) &8) 3 . NU S NSRM ^{BB}	
BA	k1& 1\$1	
BU	Q = J9"%M47 8 f, = 69"% " /%8\$) , 5, \$& \$. 9M4(=M &9M., " e @Afm 55, (\$&8) \$6, / & \$ 1&, (& "%8"\$& 9 E?28 H_BM)m 47 80% "\$)\$"" \$) \$6, / & \$M P& (- 3- 8 0-& (-& . &&' \$ 9 3, 95"%M NQ RR ^{BD}	
BO	43"9\$" V& : G'5, %M 47 8 6 9" & "%8\$. 9M4(=M &9M., " e @Afm 33"9\$" -%& : "5, %M P(- 3- 8 0-& (-& . &&' \$ 9 3, 95"%m 7 BBDNH NQ R (& S NM ^{BD}	
Bj	;"%\$ \$ 4 "%8% " T'%& G'5, %2%8\$)M E?28 H_BM)m 7 BBDm @K 47 8 6 9" "&" &, &" "d(" %&"\$)%E & BKDMAL C @K . JG , & "&\$ &" %&"\$)& &'& "5, % \$ "BKDMALAC \$ @K . JG & , 6 &'%8%& & & 5, \$ (M P&8) BKDMALOM S N RM ^{BD}	
BK	["9 2 3% \$ ["9 \$%3"5&\$ G'5, %M47 8 . 9M4(=M &9M., " e @Afm 6 9" & "&\$ 1"9 / 3% \$ 1"9 \$%3"5&\$ E?28 H_BM)m. 96, \$ "5, %M P(- 3& . & NOT (& SRV ^{BD} 4(=95 &9%'E5& E &59" %5&\$ B_P=Rm @K . JG BKDM@B \$ BKDM@m 7"\$" 9 " % BBDC BBDEC \$ BBDH %5&\$ BLOm \$ 47 8 %&\$ 3 5&5"M	
DL	3" &8) 4 "%8% " G'5, %M47 8 \$, & 5 " &' 9M4(=M &9M., " e @Afm , / \$&\$ &" , 3" &8) "5, % PBK_LN ^{BD} DLBRM. 96, \$ 4(=95 &9%' E5& E &59" %5&\$ B_P=RC E?28 H_BM)C 7"\$" 9 " % BBDC BBDEC \$ BBDH %5&\$ BLOC \$ 47 8 \$&' \$ 9 3, 95"%M	
DB	4 "NBKOL F" Y G'5, %M47 80% "5, %, 6 . 9M4(=M &9M., " e @ABC & \$%8%\$ 33" 9" Y%="6, " BKOL %\$ "d(&'M96, \$ 4(=95 &9%' PBK_L & DLBRM ^{BD} E5& E &59" %5&\$ B_C	

^{BB} 3"\$\$) H "6 , 6 . 4?; \$ G'5, Y""3\$) & P@B- DAC DLB_RM
^{BD} 3"\$\$) H "6 , 6 . 4?; \$ G'5, Y""3\$) & PO B- DAC DLB_RM
^{BD} 3"\$\$) H "6 , 6 . 4?; \$ G'5, Y""3\$) & BD B- DAC DLB_RM
^{BD@} 3"\$\$) H "6 , 6 . 4?; \$ G'5, Y""3\$) & BB 5- DAC DLB_RM
^{BDA} 3"\$\$) H "6 , 6 . 4?; \$ G'5, Y""3\$) & BK 5- DAC DLB_RM
^{BDU} 3"\$\$) H "6 , 6 . 4?; \$ G'5, Y""3\$) & BZ@ 5- DAC DLB_RM
^{BDD} 3"\$\$) H "6 , 6 . 4?; \$ G'5, Y""3\$) & BZ 5- DAC DLB_RM

	, 9 & \$ P3. (-&R	E3395 =9" ., "C ?&\$
		E?28 H_BM]C 7"\$" 9 " %BBDC BBDEC \$ BBDH %5&\$ BLOM
DD	F" Y G'5, %6 ,/ BKOL J, 1 M47 8 - % \$. 9M4(=M &9M., " e @ABm \$5,/39"& \$ \$ 55"%8=9" %& ,6 3,%& BKOL 9"EX28 H_BM]C 47 8 "5, %MPBKOLNDBLRM	\$& \$ 9 3,95"%
D	G'5, %& T 5Y ? 9)" \$ G'(% 43"M47.89M4(=M &9M., " e @ABm 5,(9 \$,& "\$&6: &" 9,5 &\$C 5- 5& %85%4\$ 80%\$& \$ 9 3,95"%M %8"565 &\$%6, "(% 33" \$%& 99" ="6, C BKOL PBKA@NDBLRM	
D@	; & \$ 43"9\$" ?(" : ?-""&% \$ &" 7",) 3-5 9M4(=M &9M., " e @ABC \$6, / &\$?:%&/ Pa7 ?bRM /3, &\$& 33"9\$" \$ 47 80%\$& \$ 9 3,95"% & \$ 47 80%7 ? %" ,,\$,(% \$ \$5,/39"&C \$ /\$%"%6"&C \$59(\$) & "9 & "& 33 %8"565 &\$%C 33" / \$(6 5& " C "(% ,6 33"C 1"9 5- 5& %85 , % /9""88""88C 33" 9,5 &\$C 2E 4C 3,3(9 &\$%\$" &" 33"C \$,&" %PBKO@ & DLBRM	
DA	; & % \$ \$&) & 2 \$)"/"\$& C/Y 2, "9M. 9M4(=M &9M., " e @AB 47 8 & \$ "5, % " \$5,/39"&C \$ 55(&C \$ \$ "d(&C / Y\$) 47 80%\$&) & / \$)"/"\$&/, "9C \$ &" 5 &5 9 3 , & &\$,6 33"9\$" %Y & &%&" 3 , (5&,6 &" /, "9 \$5,/39"&C \$ 55(&C \$ \$ "d(&MP S N R ^B	
DU	2%8\$) G'3, &6, BK] ["9 J 9("M47 8 9,%& 9M4(=M &9M., " e @ABm &" "3, & ,5(/"\$88) "3 ,6 9" Y,\$ FS"4B_D ?&\$ 4 5&5" "%988) 6 ,/ / \$(6 5&(\$) "6"5&\$ &" 7"\$" 9 " BBDM 9,\$)& \$ 9 1"9 ,6 &" 33MMP (&S NRM ^B D	
DO	2%8\$) G'3, &6, BKU ["9 J 9("M47 8 6 9": 9M4(=M &9M., " e @ABm &" &\$ BKU_ 1"9 6 9(" "3, & PBKU_ & 47 8 ?&\$ 4 5&5" DLBR ^B - 7"\$" 9 " BBDM	
DJ	7"\$" 9 G'5, %2 \$)"/"\$& ,9 &\$M 47 8 @K . JCC %5&\$ BKDMLK m 1 %/%88) %&"\$)& &'& "5, %m/%88) 1"9 . 9M4(=M &9M., " e @ABm "5, %m- \$5,/39"&C/%88) \$ (395 & f;=96, \$ 4(=95 &9&"% 69"%m/%88) 3" &8) 4 ""88 " G'5, %m/%88)G//%8\$ 7"\$" 9 " % BBDC BBDEC \$ BBDHC	

- ^{BJ} 3"\$) H "6 ,6 .4?; \$ G'5, Y""3\$) & BJB 5- DAC DLB_RM
- ^{BK} 3"\$) H "6 ,6 .4?; \$ G'5, Y""3\$) & BD@ 5- DAC DLB_RM
- ^{BL} 3"\$) H "6 ,6 .4?; \$ G'5, Y""3\$) & BL 5- DAC DLB_RM
- ^{BB} 3"\$) H "6 ,6 .4?; \$ G'5, Y""3\$) & B2@ 5- DAC DLB_RM
- ^{BD} 3"\$) H "6 ,6 .4?; \$ G'5, Y""3\$) & B2D 5- DAC DLB_RM
- ^B 3"\$) H "6 ,6 .4?; \$ G'5, Y""3\$) & BCB 5- DAC DLB_RM

, 9 & \$ P3. (- &R E3395 =9" ., "C ?& \$

\$ 55(&'C " , \$", (%C \$ \$5, /39" &' 7 ? & %5& \$ BLOm \$ E?28
6 "d("\$&9: 6 9" & (% 5, \$%' &' %&/" 7 ?, " H_BM]M
9("m- \$5, /39" &' 9" Y "5, %m/%&\$) @K . JG %'5& \$ BKDMUBK5R
33"9\$ " -%& : 69"%m/%&\$) \$ \$5, /39" &'
G'5, %& & ?-, 1 G'(% 43"m/%&\$) \$
\$5, /39" &' 2" & 99() 5 9 G'3, &'m \$ % =%& \$
G'5, %2 \$) / "\$& PBKAANDBL^{B@}

DK G'5, %G'&'\$&\$ \$, 9 & \$%M47 8 6 9" & PF" Y ?(" : 2 3%R @K . JG
"& \$ F" Y ?(" : 2 3%PE3 9 BUC DLBL & %'5& \$ BKDMLKC \$. 9M
?"3&' / =" KC DLBLRm FS" 4 & , 9 G'3, &' 4(=M &9M. , " e @AB
P?"3&' / =" BC BKU@(\$&9 ?"3&' / =" KC DLBLRm FS"
\$%&"5& \$ G'3, &'PE3 9 U BKK@(\$&9 ?"3&' / =" PF\$" 4 & , 9 G'3, &'R E?28
DLBLRm 4 "%& " T"%& G'5, %PE3 9 U BKK@(\$&9 P_BM]m @K . JG BKDMLKm
?"3&' / =" DLBLRm T \$%&\$ FS" \$%&"5& \$% %'5& \$ BLO , 6 7"\$" 9
P?"3&' / =" BC BKU@(\$&9 ?"3&' / =" DLBLRm J 9(" " %BBDC BBDEC BBDHm \$
T, . , /39: [& ?"3"565 G'5, G'&'\$&\$M 47 8 . 9M4(=M &9M. , " e @AB
9% 6 9" & 6, 99, 1 , 1\$ "5, "&'\$&\$ \$
"d(" / "\$&' PBKAANDBL^{B@}

PF\$" \$%&"5& \$ G'3, &'R
E?28 H_BM]m @K . JG
%'5& \$ BKDMLKm \$. 9M
4(=M &9M. , " e @AB

P4 "%& " T"%& G'5, %R
E?28 H_BM]m @K . JG
%'5& \$ BKDMLKm \$. 9M
4(=M &9M. , " e @AB

PT \$%&\$ FS"
\$%&"5& \$%R E?28 H_BM]m
@K . JGC %'5& \$ BKDMLKm
. , // %&\$ 7"\$" 9 " %
BBDC BBDEC \$ BBDH %'5& \$
BLOm \$. 9M4(=M &9M. , "
e @AB

PJ 9(" & 5, /39: 1&
%&"565 "5, "&'\$&\$ \$
"d(" / "\$&'R @K . JG
BKDMB_P5RC . 9M4(=M &9M
. , " e @ABC 7"\$" 9 " %

^{B@} 3"\$) H "6 , 6 . 4?; \$ G'5, Y"3\$)
^{BA} 3"\$) H "6 , 6 . 4?; \$ G'5, Y"3\$)

& BR2 5- DAC DLB_RM
& BR2 5- DAC DLB_RM

	, 9 & \$ PP3. (- &R	E3395 =9" ., "C ?& \$
		BBDC BBDEC \$ BBDH %'5&\$ BLOC E?28 H BM C \$ 47 8 \$&' \$ 9 "d("/"\$&M
L	&" E99)" ? 6"&g43"9\$" \$&') & ,9 & \$%9M4(=M &9M., " e @AB 47 8 (%& " 1 , \$) : " % \$ (33" 9/ & \$ &% 7 %43"9\$" G'39 5"/"\$&4 ,) /m&%\$6" , "5, %- \$ /3 5&,\$ 3 " 5&\$) " &d(Y" /)"m \$ 47 8 - \$ "d(&' 9" Y "5, %M PQQU :(. Q S R ^{BU}	

H2 K AD & 9 T AE2 A 6 .)) 5) U UW 7

	, 9 & \$ PP3. (- &R	E3395 =9" ., "C ?& \$
B	47 8 5- \$)" 59 %9, 5 & \$%1&, (& 59 %%	@K : JG e BKMLK
D	47 8 \$, & 5, \$6 / , "% 2E 4 6, 99, 1\$) 59 %5- \$)"M	@K . JG e BKDMBB
-	47 8 \$, & 3 , " 5, \$&\$(\$ % "99 \$5" , \$ %)/"\$&%, 3" &\$) &) " &' & \$ DLt ?2WC "%9&\$) \$ (\$, =%" " 59 %5- \$)"%	@K . JG e BKDMB_
@	47 8 , 3" &' %)/"\$&% & 3 "%6("%) " &' 99, 1" 6, &" 5("\$& 59 %9, 5 & \$	@K . JG e BKDMBK
A	47 8 \$, & 3 & , 9 &%33"9\$"M	@K . JG e BKMLA
U	47 8 \$, & "& \$ 33"9\$" 3 & , 9 "5, %6, "d(%&' 6" : " %M	@K . JG e BKMLK
O	47 8 \$, & 6, 99, 1 &%, 1\$ 3 , 5" ("%M	@K . JG e BKDMB_P5R
J	47 8 , 3" &' %)/"\$&% =, " 2E 4M	@K . JG e BKMBLOC . 9M4(=M &9M., " e @AB

)T)-

. 2 A 14H2 6 I2 2 S EE A 4 F46HBA & 9
? \$ H (\$, C \$ \$&' "\$, \$ & %/ &&' C "d&'&&'&, // % \$ / 3, %
6\$" , 6 cBMDA =99, \$, 99 % \$ & " & "" 5&\$%9, 5"" \$) %M E55, \$) & & "
&'&&, \$: \$ & "% 3 , 5"" \$) %C & % /, (\$& % 9; (47 80%5, 3, &' 3 , 6&%6, , \$9:

^{BU} 3"\$\$) H "6 , 6 .4?; \$ G'5, Y"3\$) & D2 5- DAC DLB_RM
^{BO} _CLUD & & 9 , 9 & \$%m%" .4?; 3"\$\$) H "60"&BD & 3MA]M

(

, \$" : " B] M E55, \$) & & " "5, C & %6\$" %%%&-\$ &9" (&9&K M E cBMDA
=99, \$ 6\$" %%%665"\$&9: 3(\$&' & %' " %"66"5&' \$ (5"/"\$&6, 47 8 \$
"" : , &" "\$%& N 1\$" (&9& \$. 96, \$ \$&" \$&' ?& &'%& "9" &' %6"&
," 3 , 6& \$ "I"5(&' 5, /3"\$%& \$M T-" 5&9%, 6 ? \$ H (\$, \$ &" 5&"\$%, 6
. 96, \$ - " "" :) - && "I3"5& &%., // %&& & , \$, 9" %8M

**SI4 . BBE QFE4 (432E 2 2 BBA 6) HA6 DA AS EE A
4**

. 96, \$ 4(=95 &9&'%.., " %'5&\$ DBL@A \$, // %& \$; "5%\$ K] NBDN
LOA), " \$ &" ., // %& \$0% %&'%&"\$&, 6 3"\$ 9&'&% / &&' M?"5&\$ DBL@A
3 , "%\$ "9" \$&3 &

ES: 3"\$ 9& 6, , 9 & \$, 6 \$: 3 , %\$, 6 & & 5 , 6 \$: (9"C
") (9 & \$C)" \$" 9 , " C , , " , 6 & " , \$C / \$, 9&) %6"&
& \$ %6, 33"9\$" 6 59&'%, &" & \$%\$, & & % \$ &" ?& &' , 6
. 96, \$ / : =" 5, /3 , /% =: &" 5, // %& \$q

q \$ "&' / \$) &" /, (\$&, 6 %5- 3"\$ 9& C , /, (\$&) "" (3, \$ \$
5, /3 , /%C () :: &. - (& 34) : ((& () -3 -& () &
() : . & 4) . 8 ; () 8. 0-(& () 0-& (()-&8&& ; -() & ()
: . & 4) . 8 ; - ((:(- 8 (& 4)- 0 4& : (- . 4 & --4 (-& &
0-& (-&) 4& MP"/3- %& " R

T-%& && : / \$ &' %5, \$%&'&\$& 1& &"39"\$&&" ., // %& \$ "9" %

(3, \$ & "%& =9% 6\$" %C % "%& =" \$; "5" NBDN LOA

PBR T-" 6\$ \$5 9 "%(5"% , 6 &" (&9& C
PDR T-" %" & , 6 &" , 66"\$ %C
P_R T-" 5, \$ (5& , 6 &" (&9& & 3 ""\$&C %59, 9&C \$ "5&6: &"
, 9 & \$C \$
P@R T-" & & 9& , 6 &" 5 5(/%& \$5" %M

B] 47 8 ., 3, &\$ \$ 4 565 7 % \$ 89"5&5 ., /\$ DLBD ESS(9 G'3, & & BM
B.K 188 "\$& : V' \$) T \$% 3& P47 8gJ, "\$99R &] [N BA]] PP2 5- AC DLB_R
B@]@. 4 . D & B] DN] @ BK_NBKAM

E55, \$) & & " ., //%% \$C a& " 3(3, % , 6 6\$&), =":, \$ "%&& & \$ &
& " 5& \$ & "66"5&'9: "& 6(& " „,9%&: & %3" 3"& & \$, & %qb
\$, " & = "66"5&'C "& "\$5"C

qMM " &'% \$ \$5"\$&' 6, 3(=95 (&9&'%& „,9 & \$%M ; "& "\$5" %
3 &5(9 9: /3, & \$&) \$%& ,9 & \$%1-5- \$, ("%9& \$ 3(=95 - /C
\$ 3 &5(9 9:) \$%& & , %1-" " %" " 5, \$5%4(5', (9 "%9&M

8I / \$ & \$, 6 & " 6 5&% \$ & " F\$" B_D 8I39, %"\$&) & \$% "9 & & & "
6 5& %%"&6, & \$?"5& \$ DBL@A , 6 & " . 4(6,9\$ &9&'% ., " \$ & "
. , //%% \$N'%& =9% " 3 \$539"%6, 6\$" 5 95(9\$&& , \$)9: 5, (\$%"9 \$ 6 , , 6 & "
. , //%% \$ /3, %\$) %\$65 \$& 6\$" , \$ 47 8M

E cBMDA H9, \$ 4"\$ 9& %E33 , 3 &' G'9 &'&& ? " , 6 47 80%
H%"\$""%

47 8 %C \$ 99 "%8"5&'C = "-"/, & M T-" (&9&'% \$ & 9) % \$ "9"5&5
%" 5" & 33 , I/ &'9: BA /99, \$ 3", 39" & , (& , (CLLLL%dl("N 9" %" 5" "
\$ \$, & " \$ \$ 5"\$& 9 . 96, B@\$ M" : " , 6 & " F\$" B_D 8I39, %\$C 47 8 / "
," c@ /99, \$ \$ 3, 9& 9 5, \$&=(& \$% \$ %8"\$& c@ /99, \$, \$ &%4 , 3, %& \$ BU
5 /3)\$ & / \$& \$ &%3 9")" /, \$, 3, 9: M^ \$ & & %/" : " C 47 8 3 , 665" %
, 6 4 565 7 % \$ 89"5&5 ., /3 \$: /, " & \$ c_@ / \$ \$)) "&
5, /3"\$%& \$M^ 4 , I: N9&' , 665" % , 6 47 8 ., 3, & \$ N 665' % , 6 4 565
7 % 89"5&5 ., /3 \$: 1& = %' %9 "%-) -" \$ & d(&' , 6 /99, \$, 99 %

B@]@.4 . D BAA & B]DC B]M
B@ C: I
B@ 47 8 ., /3 \$: 4 , 69"C 9 =9" & 111M)"M, /g"\$g (&5, /3 \$: g3 , 69" g\$ "IM)"
B@ G'3, & , 6 4 565 7 % \$ 89"5&5 ., /3 \$: 4(&& \$7"\$ 9 " S, MCO2 J, & " W
8\$ " ; "5"/=" _BC DLBL & B_DNB_]C 9 =9"&3% gg111M)"M, /g ") (9 & \$g7 uO2g7 uO2N
DLBLNG' 5&' M 6
B@ .4?; G'3, & \$ MBDNLBLL0 & B@NB@M
B@ G'3, & , 6 4 565 7 % \$ 89"5&5 ., /3 \$: 4(&& \$7"\$ 9 " S, MCO2 J, & " W
8\$ " ; "5"/=" _BC DLBL & B@AC 9 =9" & gg111M)"M, /g ") (9 & \$g7 uO2g7 uO2N
G' 5&' M 6

)

1" " 3 , " cB] /99, \$M^{RP} \$ %, &C 47 8 %"\$&," cB@K /99, \$, \$ 399&5
5, \$&=(& %C 5 / 3)\$% \$ "I"5(&' 5, / 3"\$%& \$ DLB^{LM}

\$ DLB^{LC} 47 8 "3, &' , 3" &\$) ""\$("%1" "] @B_M9, \$M^{RP} E55, \$)
& 47 8C 47 8 ., 3, &\$0%"&\$5, /" 6&' \$' %, \$ 3 "6" " %& 5Y 6, &" 6 %&
d(&' , 6 DLB_ 1 %cD_K /99, \$M^{RP} /" " &!, \$ - 96 : " % 6&' &" F\$" B_D
8I39, %C 47 8 3 , 6&% " , \$ &" %'M 47 80%&66 &" 6 %& d(&' , 6 DLB_
"3 "%\$& \$ \$5 " %' \$ 6 %&N(&' 3 , 6&%&"&& (&0%3" 6, / \$5" \$ &"
6 %& d(&' , 6 DLB^{DC} \$ 1-5- &" \$" cD, \$M^{RP} E55, \$) & 47 8 "3, &C
(&& ""\$(" 6, "9"5&5 \$) %, 3" &\$%5, /" 5-" c_MUO =99, \$ 6, &" 6 %&
d(&' , 6 DLB_ 9, \$"M\$ &\$C 47 8 1 %%%665"\$&9: 5, \$6 "\$&'5, \$\$\$) &%
6\$ \$5 9 , (&, Y & 66 / &%6(99N ")(\$\$\$%C ""\$ %&" (&0& 5, \$5" "
& &&" &&9 5, %&6, \$ &(9) %33"9\$&\$% &%9Y"9: & "15"" cBM@
=99, \$M^{RP}

T-" 5, \$6 "\$5" 47 8 3 , f"5&%& \$"%& %1& "%& &% =9& & =% =
%\$65 \$&C \$ 1 \$&' 6\$" , \$ &% " \$\$)%%%9%5, \$%&%"\$& 1& 47 80%, 1\$ "I3" &
&'& , \$: ="6, " &" ., //%%, \$M 47 80%6\$ \$5 93" &C 2 M8 5 MJ, \$"99 , 6
["99%J), ?"5(&'% "%5 =" cD =99, \$ 665(9&b \$ a5- 99"\$)Cb =(&
\$"" &"9"%%5, \$5" " & & 47 8 - &" 5 3 5& &" %5- 3"\$ 9&

2GM28W&G? ? , 9"&0%%33, %' -:3, &"&5 99: &\$ &(\$, 5-""%
1- && 1, (9 9Y" & 5-"" \$ &"% 3 , 5"" \$)%& &
&" 6\$" / 3, %' (3, \$ 4 565 7 % \$ 89"5&5 ., \$3

^{B@}C: 1
^{B@} ; "5%\$ BBNBLLB & @M
^{B@} hB DLB_ 47 8 ., 3, &\$ 8 \$\$)%., \$6" "\$5" . P99(% : C 2 : DC DLB_ BB LL MM8TR
9 =9" & -&&3 gg\$" & M)"5, 3M, /g3-, " &1915j BBLB_] 3j , 9N
""\$&" & 9%8"\$& j @B_LA
^{BAL}C: 1
^{BAB}C: 1
^{BAD}C: 1

6, &" DLB ? \$ H (\$, %&' %\$ &" \$),=, 6
cD=99, \$m \$ %33, %' 2 M8 9": 5, /"%& :\$(%
\$"%&"\$& = \$Y' \$ %:%C p8 5C 1" \$"" &%88Y
& 5, " &%M . \$:, (&'99 /" 1- &:, (1, (9 ="
%\$) -/ ") \$) & &i

2GMJ GS8FF

1, (9 &'99 -/ p , \$o& , &, \$9"bM

2GM28W8G?

Y : M " 1- & 3" , , 6 &"i

2GMJ GS8FF

["99C -"o - " " 9 5- 99"\$) "%C56(%&, 6 99C & &
\$/=" 1, (9) " &9: "I5"" &" / Y"&"I3"5&8&"\$%
&5Y 1, (9 =" =" &'\$, 1\$m &" " 1, (9 =" 9, &, 6
3", 39" 1 \$&\$) & %'99 &" % "MV" - % 6, ()-9:
\$ - 96 & % =99, \$, 99 % : " , & 3& 9
\$"" %& %"\$ \$, " & =(9 , (&&" \$6 "%&(5&
1-5- 1, (9 \$ \$, 6 &'96 =" -) -" & \$ \$: , &"
(&9& % 3" 5"\$&)" , 6 / Y"& 5 3& 9 , "9&8, (" 9
:" %C "I5"3& 6, &" &1, =) (&9&'%& &1, NN &"
(&9&'%C , \$" =)C , \$" % 99C & &/ " %/" 5%886
5d(%&\$%M 1, (9 &'99 -/ & & -"o%f(%&), \$)
& 1, Y &, (&, " &" \$ / :=" ""\$ %\$ 9" =5Y%
5 3 "IC ="5 (%' &" " 5, (9 =" %/" " 9 5-\$ 99"\$) "%
&' /%, 6 %\$) & & /, (\$&, 6 5 3& 9 & &'N &9"
99 , 6 &" \$6 %&(5& " & &&": 1 \$&&M? , (& , (
1, (9 =" 5- 99"\$) "MQ%&%'" -, 1 &" / M&S " 5&%
1, (9 \$o& (% & &" / Y"&M

2GM28W8G?

%& , =9"i

2GMJ GS8FF

o/ \$, &% "M o/ \$, &% "M9&o%8&M

2GM28W8G?

H&: , (5" 1, (9 =" & 3 , 5"" \$88-"%1&
&5Y %86 \$5"i

2GMJ GS8FF

o %" - , 1 &" %& 5Y %&89" , P\$ " \$- & Y\$, 6 NN
-, 1 \$"%& % " 5&C 1-5- %), \$) & =" -" \$) & "
"I&'C \$ &"\$ &\$Y =, (&&" 5 3"IC ="5 %%\$ & &
16(9 9, &, 6 5 3& 9 & %' , " &" \$"I&'M(W: "
3(&& &/ (5- , \$ & 3 , 6 && &o%), \$) & % , 99(& =
&&" " , "& \$C & &o%), \$) & =" "M5- 99"\$)

2GM28W8G?

H&: , (o " (3 & &" 5- 99"\$) "C: , (C8&i

2GMJ GS8FF

F, , YC "/= 5" 99 Y\$ %, 6 5- 99C\$)("&: , (o" %M'
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^{BIA} ; "5% \$ KJ NBDNLOA

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^{BCB} ; "5% \$ KJ NBDNLOA
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Figure 10: Precedent Fines / Penalties³⁴

Event	Event Date	Total Penalties (\$MM)	Commentary
UGI Corporation Allentown, PA	February 9, 2011	\$0.4	Gas leak and explosion; loss of five lives and three serious injuries
Kleen Energy Plant Middletown, CT	February 7, 2010	16.0	Plant explosion during natural gas pipeline purging; loss of six lives and fifty injured
PG&E Corporation Rancho Cordova, CA	December 24, 2008	38.0	Natural gas leak and explosion; loss of one life and five injuries
Dominion Peoples Nat Gas Company Plum Borough, PA	March 5, 2008	0.1	Natural gas pipeline explosion; loss of one life and one serious injury
Public Service Enterprise Group Bergenfield, NJ	December 13, 2005	0.4	Pipeline rupture and explosion; loss of three lives and five people hospitalized
El Paso Corporation Carlsbad, NM	August 19, 2000	101.5	Natural gas pipeline rupture; loss of twelve lives
Olympic Pipeline Company Bellingham, WA	June 10, 1999	28.5	Pipeline rupture and ignition; loss of three lives

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4 % S & 9 7 % ., MP; %&M. &MS"1 2"15, R \$& B& %' dMC 9 =9" &
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