



PRESCRIPTION DRUG ABUSE

American College of Physicians
A Position Paper
2013

PRESCRIPTION DRUG ABUSE

L 9G197L ; ' F9, LM'
6 ' F2 7L 95 / ' L9, L OTG 2 27G

02; ; 'FLRF2M7L TL ' 2L 2FG07' F# 0 # !4L 2GPF/L7% 92G 7T%FL P56 G# L
R G%Q59; '%,9FLM' L ' 50L 7% P 52L 952 TL 96 6 2M' L9, LM' L 6 ' F2 7L 95 / ' L9,
OTG 27G< #H 096 G ; '# #< 0 2#H !@ 57' L 2 27!0' F# L< 9L 0 2#H 27' M
F9F# HL 742M 0 MHL 6' G 2 PG# HL 9P/5G 2 ' 97/# HL PG7L 57797#
HL F/9FTL 2 99%# HL FTL 'R6 7# HL '77' M L 2 5Q# HL 0 4 2 L
'06 7# HL 9' L G7/# "L7% ' , , F TL 2 2G# 2 ; ; F9Q% TL M' L L 9 P49,
' / ' 7M 97LQ LP5TLOV: N2

9RIM!!2MIM02E ;' F

6' F2 7L 95/' L9,L 0TG227G F GF2 M07L FP/L PG2 02%5 02"L 6' F2 7L 95/'
9,L 0TG227GHOV: N'L 952 TL ;' FL< Q25 5 L,F96 L 6' F2 7L 95/' L9,L 0TG227G
:8VL 2.7%;'7%7!'L 5L 'G# 02%5 02# L:8: VJ?

9; TF2 0M\$ LOV: NL 6' F2 7L 95/' L9,L 0TG227G

5FZ 0MF GFQ%2.7%22P 536 TL; 09M!9; TL519FL; F09,L 9G207L ;' FG,9FL'P! M07 5#
79M,9F1; F9,2NPG2 0' GL; ;' F06 TL79M! 'IF; F9%P! '%,9FL96 6' F 25L,9F1; F9,2NPG127L7T
,9F6 # TL7T16' 7G< 5!M972#6' !0 703 0 Td [<1B>16]TJ 0.4283 0 Td [(703 0 Td [<1B>16]TJ 0.4283 66 [<1B>16]

F 02 10716/L

4 ?&+?9& +?&& >G & 8 > & & >088D ? >8+9B8 + >) +9
. 8>) E> + . 8 * +?> B?\$. 88& 9> 9> &+#> ?>08#+&& +?>880(> . >
08 9 880?& +> 8B#> B9 >* G >8 5B88 >?. >0 8?& 80 ? >8+> > 8B#
* . +&. 88+#>08. #8 * >+ >B+ 8#. >8 + . * > 8B#>? 9?&+#> \$G&& &++

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LOV: VL P 0M7!'L PGL 7%L '7M5L ' 50L ' FQ2' G % 2723F M97
 < =LGFQ TL9P7%LNO MJ16 2527L 6 ' F2 7G/' 'L: CL7%95%FO %M4' 7
 L; F GF2 M97L; 27LF 52 Q F#M7 7 @25J F#026 P57M9FG%MQ L9F7976 ' %2 5
 ; PF; 9GG N15 0M97!' L27LNO' L; F Q9PGT' F#J M6 2527L<01 > =0 %LPG%L
 ; G! 09M' F; ' PM2 L%P/ G7976 ' %2 55LR2027LNO' L; 0M6 97M02 ,LNO' G L%P/
 PGFG- - ?> LG2LNO' TL9 M27' %LNO' L%P/ LNO' TL6 9GMF !' 7M5LPG%L F96 L
 ,F27%9RF 5 MQ L9FLF' 2 79M' F: I N> IF; 9FM%LNO' TL 9MNO' L%P/ LF96 L97'
 %9! M9FL 75TL ? > L9 M27' %LNO' 6 LF96 L L%P/ L% 5 F9F9M' F0M 7/ ' F#L 7%975T
 V? > L 9P/ ONMNO' 6 L97LNO' L 7MF7' M L 0' LGFQ TL79M%#LB 6 97/ LNO9GLR09
 F; 9FM%L/ ' M27/ LNO' L; 27LF 52 Q FL F96 L L F27%9RF 5 MQ L9FLF' #J 8? >
 F; 9FM%L27L L 95R1P; @ 027LNO MNO' L F27%9RF 5 MQ L0 %9 M27' %LNO'
 %P/ G F96 L PGM97' L9! MFC 79M' F0M%TL9P7%LNO N16 9F LNO 7L- V> L9,
 M' 709 M27' %L; F GF2 M97L%P/ G F96 LNO' F9R7L- 6 2526 ' %2 27' L 27' M
 LLO%9% 0.383735 0-Td [9G
 O' LGV: VL FQ,PM0 L;G

7%½ MFTLP; ; 5 6 ' 7MØR02 0L27L %½MØ7LØL 5 9095½ 9P5½ 96 ; 9P7½ 7T
%Q FG10' 50L97G @ 7!' GF P57/ L,F96 L; F GF2 MØ7LFP/L PG2 G IF P5M
9,LØ' L 9Q #LØ' L MØ7 5 7ØMML97L FP/L PGL79MGM M; F GF2 MØ7
%FP/L PG16 TLØ' F ,9F L ' L6 9F L%7/' F9PG27LØ' L 5%F5TLØ 7L7LT9P7/' F
; 9; P5 MØ7G' 96 ' 195%F; ' FØ7G6 ; F9; ' F5TPG; F GF2 MØ7GP LØL9/ 72Ø
6 ; 2F6 ' 7MLNØ 59; 9G2 5 LØ NF MF ' Ø97LL,2S %½! 96 ' L6 TL PG15 ,ØQF
6 ' ½ MØ7Ø9,L LG 9PG19FL 79M' F; ' FØ7LØLGQ 16 97' T2

O' L ' 7MFG,9FL ' ½ FL L ' ½ 2½ ' FØ' G< ±0 G Ø6 M%Ø M
ZLOV: : L Ø6 7TL ØØ #MM ' ½ FL FM L ' 7' ,22 F2 G½ > 19,LØ' L FM
; 9; P5 MØ7LØ9LR' F L79M! 7!' FL9LØ9G 2' L; M 7MØF!' 2Q%Ø2 0LØG/' G
< 9F LØ 7L: ØM6 / L%25±9,L6 9F, Ø2' L @2Q 5 7MØØG< ±,9FL N5 Ø8V
! 97G! PØQ L%TGZLOV: : # 7%ØMØPG 9P5½ ' LNF24,9FL %½ MØ7LØL9FL PG19,
M' GLFP/ G'

1/ " 4 " 8##."*0& 1. (." /

F GF2 MØ7LFP/L PG1ØL; F9 5 6 LØF9P/ Ø9PMM' L 72M% MMØL F96 L: 888
MØLØVNLØ' LF ML9,L2!' F GLR ØØ2 0' FL2LPPF 5 F GØ 7L2LPPF 7L F G
LØP/ØL9,L% MØZLPPF 5R' ØVIFL 2F 272 L ' NR' ' 7L: 881 L 7%ØVNL,9P7%
NV> L2!' F GL27LØ' L7P6 ' F9,L% MØZLØR02 0LØFP/ ØZ!' 5PØ7/ L; F GF2 MØ7
6 ' ½ MØ7ØR' F L%MF6 2' %ØL' LF 5 M%Ø9FL 97M2 PØFTL PGØ9,L% MØ?

O' L% MØF ML,F96 LØFP/ ØZLPPF 5 F ØZ!' F G%ØM %25L9Q FLØ M; ' F2%Ø
7L (> 19,LØ' L! GØM' L% MØZØ5Q %; 95%FP/ G< 9F LØ 7L97' LØFP/ L9F
6 ' ½ MØ7L F GF2 MØ719; 2ØØR' F L2%7M2 %½L. > 19,LØ' L GØ 5Ø9P/ 0
7 MØ7 5%ML2%Ø MLØ' LØ2 0' ØV MF MØ9,L; F GF2 MØ7LFP/L PGL 6 97/
; ' FØ7Ø7%ØØ L' FØ95#ØØØØP/ØL2%Ø M%Ø2Ø F9; 9FØ7 M5TLØ2 0' RF MG
9,L% MØL,F96 L; F GF2 MØ7LFP/L PG12LPPF 5 F ØZL7L95%F; 9; P5 MØ7L< /'
N LØL - L' FØ95%Ø 0' L PØØ9FØ 97! 5P%Ø

B 2Q 7LØ' L2%7M2 MØ719,195%FØ!' % 7MØZ19PØØP/ØL 7%Ø MØ7 57#ØØZ
; 9; P5 MØ716 TL79M' LM42/ LØ' G16 ' ½ MØ7G ØZ! M%Ø9F6 TL' L PG7/
9FL %½ M%ØØ; F GF2 MØ716 ' ½ MØ7ØZØM %Ø,1252 MØFP/ ØL G 952 T6 4' FG
7%ØF G FØ' FØ,9F6 P5 ML LF G 97G LØLØ' L2!' F GL27L976 ' ½ 5PG19,L; F 1
GF2 MØ716 ' ½ MØ7Ø 7L95%F; 9; P5 MØ7LØ9P5½ ' LMF' M%Ø,9FL %Ø! MØ7L G
R' 5L ØT9PØØL ' LØ9P5½ %Ø! ML 5; M 7MØ 7%ØØ 2L 6 2Ø Ø 9PMM42/
6 ' ½ MØ71975L G; F GF2 ' %Ø975L TLØ' L2%ØØP 5,9FRØ96 LØØZ7M7%Ø#
7%ØØ L%7/' FØ9,L 96 272/ L6 ' ½ MØ7ØR2Ø9PM F GF2 ' F479R5 %' Ø'

NØØ 59L79M 5 LØ M; F GF2 MØ7LFP/ ØØ Q IF; 5!' %Ø' FØZL7%Ø9! 2' LG
M' 15 %Ø/ LØFP/ ØZØ5Q %½L, M5ØFP/ L9Q PØØG ØZL5PF 7+PF 5L M/ 9F2 Ø8

."/ .& Ø* .1\$ 1/ " *! . 1! & " ! & &

2%GF %Ø GØØ,LFP%Ø 59LØ QL' ' 7LP7!9QF %½LØ' L ' ½ 2½; F9/ F 6 ?
7L IF ØØ RL9,L2Q LØMMØ< 52,9F72 # 52792Ø ' RL 9F4# 9FØL F957 # 7%
' S ØZLØW8#LØ' L 9Q F76 ' 7M !! 9P7M 25ML ,,2' L< ±,9P7%ØJ- #VV
2ØM7!' Ø9,L ' ½ 2½ ' 7' ,22 F2 Ø6 ; F9; ' F5L9 M272/ L; 9M7M 55L %½ MØ
%FP/ G M L 9ØØ9,L 9PM&JN6 25Ø7LØPF2/ LØWJL 7%ØØM 2 0' L L 59
,9P7%Ø L2ØPF 27/ L6 9P7ØØ,L F P½ØØ5ØZ/ LØ9PG7%ØØ,L; F GF2 MØ7ØRF2M7
,9F% %; M 7MØ9FL TL; ' 9; 5 L; 9Ø7/ L ØØ! MØFØ#Ø

O' L J- #MM ' ½ 2½ ' 7' ,22 F2 G2%7M2 %Ø TL LØ %Ø! ØF %ØØ'
G6' LM; ' L9,L 97MØ5 %ØØ M7!' G,F96 L M5 ØØØ%2,' F 7M6 ' ½ 5; F! M1
MØ7 FØPF2/ L,2Ø 5T FØØWJL 7%ØØM HØ' L6 3F2M1Ø %ØØ! ØØØØ; ; ' Ø
MØ9 M2L; F GF2 MØ7Ø,F96 L LØØ: M6 ' ½ 5; F! MØ7' FØ N5 ØØ VØ ' ½ 2%
' 7' ,22 F2 ØØ %ØØM%Ø LØL: Ø6 ' ½ 5; F! MØ7' FØ 7%ØP, LØL JØ2,' F 7M

; 0 F6 ! 2 G, 9 F M' L G 6 ' U 9 7 N 9 5 % L P G M 7 ! ' G L 0 ' L L ! 4 7 9 R 5 % ' % L
N 0 M 5 0 9 P / 0 L 9 6 ' L ' 7 , 2 2 F 2 G 6 T L 0 Q L P 0 2 2 5 L F 9 7 G, 9 F F ! ' 2 2 7 / L
; F G F 2 M 0 7 G, F 9 6 L 6 P 5 2 5 L 6 ' % 2 5 ; F ! M 0 7 ' F G L P ! 0 L G 0 2 7 / L G ' ! 2 5 0 0 9 F
G Q F 5 0 ! 0 F G 2 L M' L G 6 ' L 6 ' % 2 5 / F 9 P, # 9 M' F G B R ' F L 5 2 ' 5 L G ' 2 / L G Q F 5
6 ' % 2 5 ; F ! M 0 7 ' F G L P ; ; 9 F M 7 % 0 2 3 P 2 G L M' 2 L % 2 M 0 7 L 9 F M 1 9 M 2 7 L 9 P / G
M 0 L F P % P 5 7 M L G 5 5 C^m

1 / " / * ! + * Q & 1 0 & \$ 0 + . /

P 5 2 5 L ! 0 F G F L ' 5 2 Q % M 0 L ! ! 9 P 7 M 1 9 F M' L F 2 G L 2 7 L ; F G F 2 M 0 7 L 9 P / L P G
2 7 L M' L 7 2 M % M M G L 9 M Q M 0 7 G M 0 ; P F, 9 G 5 T L P G L 9 P / G 2 7 ! 5 P % L M 0 L ' ! 9 6 '
2 7 M 0 2 M % M 0 L 9 P 7 M F L 7 S 2 M # ; 2 7 # 9 F L 5 ' ; L ; F 9 5 6 G L 7 % M 0 L ' 7 0 7 ! '
! 9 / 7 2 0 7 2 7 2 7 M 7 % % 6 2 P G L 7 L ' L 9 P L M 0 6 2 3 ' F ' ; M 0 7 G 9 P M 0 7 P / L G, ' M #
P G L 9, 1 6 ' % 2 M 0 7 G M' F M 0 7 L G, F G F 2 ' % L 7 % 0 9 G / ' L F 9 F 0 9 P L M 0 L 9 / 7 2 0
% ! 5 7 ' L 9 F 2 6 ; 2 6 ' 7 M L

9 7 N 2 P M 7 / L M 0 L M' L ; F 9 5 6 L 2 G M' L 9 F 6 M L F 2 G L 2 7 L M' L Q 2 5 2 5 M L 7 % L
; F G F 2 M 0 7 L 9, 9 P / G L F 9 6 L 8 8 8 L M 0 L O W 8 # M 0 L 7 P 6 ' F 9, L ; F G F 2 M 0 7 G 2 7 ! F G %
N 8 > L ; F 9 6 L O X L 2 5 2 7 L M 0 L N 8 L 2 5 2 7 # L 9 6 ; F % R 2 0 L L L ; 9 ; P 5 M 0 7 L F 9 R M 0 1 9,
8 > 2 0 ' L Q F / ' L 7 P 6 ' F 9, L F M 2 1 ; F G F 2 M 0 7 G, ' F L ; 2 M L 2 7 ! F G % L F 9 6 L V ?
2 7 L 8 8 8 L M 0 L O X L 2 7 L O W 8 2 ' N R ' ' 7 L 8 8 : L 7 % O V : V # ; F G F 2 M 0 7 G, 9 F L G 2 6 P 5 7 M G
2 7 ! F G % L F 9 6 L L 6 2 5 2 7 L M 0 L 7 ' F 5 L - L 6 2 5 2 7 L 7 % L 9 F L 9 ; 2 2 1 7 5 ' G G, F 9 6
9 P M 1 - ? L 6 2 5 2 7 L M 0 L O W 8 ? L 6 2 5 2 7 ?ⁿ 2 0 1 % 9 G L 9 ; 2 2 1 6 5 9 L ' ! 6 ' L 6 9 F
F % 2 5 L Q 2 5 5 L G 9 ; 2 2 1 6 R ' F I F , 9 F 6 P 5 M % L G S M 7 % % 1 F 5 G L 6 ' % 2 M 0 7 G M
5 5 9 R L 5 9 7 / ' F L 9 G 2 7 / L 2 7 M F Q 5 5 9 F M F M 7 / L ; M 2 7 M 6 2 7 L ; 2 7 ? , M F F Q 2 R 2 7 / L M'
G 2 2 2 7 M F 9 R M 0 1 2 7 L ; F G F 2 ' % L 9 7 N 9 5 % L P / G 2 7 L F ! ' 7 M 1 ' F G 7 % L 2 0 6 1 9 F F 1
5 M 0 7 L R 2 M 0 1 2 7 ! F G G 2 7 L P G L 7 % 1 9 Q P 9 G # 5 S 7 % F L 7 % ! 9 R 9 F 4 ' F G ; 9 G M %
M 0 M 0 ' L P G M 7 M 5 2 7 ! F G L 2 7 L M' L 7 9 7 6 ' % 2 5 P G L 9, 1 9 ; 2 2 1 6 7 % L F 5 M % 9 P / G
2 6 L ; F % 2 M 5 L % Q F G L, , ! N 0, L P G M 7 M 5 2 7 ! F G G 2 7 L M' L S M 7 M 0, L ; F G F 2 M Q
P G ? P F M' F 6 9 F # M' T L P G 0 7 ' % M' L S M 7 M 0 L R 0 2 0 L P ! 0 L 6 ; 2 7 G G B 2 7
G M 0 6

F GF2 M7L FP/L PG

0' L % Q FGI 97G @ P 7!' G9, L: F GF2 M7L FP/L PGL F LGF2 PG 7% M'
! 90 G L F L P G M7 M 5 L F GF2 M7L FP/L PG L 96 6 97L 6 97/ L 9 M M' IT9 P7/
7% M' L 5% F5' 55

7L%207L0L0' L'9009, LNF M/ L0' L%2 M07L7%9M' FL%Q FGL0' 50
!97G@ 7!' G G9! 2M%R20L: F GF2 M07L%P/ L PG#10' F L F L 59L9M' FL900
M0L97G%FL 0' G12! 5%L79M075L0' L! M 5L900, L%P/ L; PF 0 G G L P M 59
M' L'9009, L0' L%9! MFL7%L6 ' F' 7! TL996 L00M0 M, F!' %L0' L%G' 7G7/
9, L0' GL6' %2 M07GL 0' F L2G 59L0' L! 9796 2 L'9009, L% M0L7%L50M
; F9%P! M0M L G79M% TL0' L #B 754' L%2 M07L0L0' F92L7%9M' F
%P/ G M0 M10 Q L79L !!'; M%L6' %2 5PG# %2 M07L0L96' L! 97M95% L
P G7!' G 7L' L2 7!' %L T2GF 7!' L7%L P 52L; F9/ F6 G P! 0L G ' %2 2C
!0LT #L%P/ L PGL7%L %2 M07L' 90MMS T FG7' F5L&- N L 2597L2L
; F Q 7M 5L0' 50L F #5 RL' 7,9F' 6' 7M L F6' #L7%9M' FL'900

% % (" * \$ " #. %4/ & & * / *! 1 (& +(&4) ' " . /

0' L; 0TG 2 27L6 PGM ' LP; 1M1% ML97L0' L; F9; ' FLPG L9, L6' %2 M07G 7%L
NF M' 7M L2! 5%27/ L; 27L6' %2 M07GL 0TG 2 27G0 Q L 7L' M2 59 52 M07
M0L6 7 / ' L 7%L F 52 Q L; 27# P M0L' 9L9L F G 97G 5TL 7%L 27L !! 9P%R20L
G 2 7M 2 L' Q% 7!' ? 6; F9Q 6' 7M 2 L P7! M07L M F9P/ 0L0' L G 9 F M M F6 L P G L9,
9/8892 0 T3 Tm [()] TJ 0.36987 0 Td [(6)] TJ 0.83276 0 Td [46958(.,315)] TJ 0 Td [(6)] TJ 0.83276 0

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% ++! *! .1\$!) & & 0 &+*

O' L ? 1 99% 7% FP/L % 27 23F M07L< 42F G 97Q 5 L,9FL 7PF27/ LM' G,' ML 7% ,, '! M2 7' G9, L6 ' %2 27' G27! 5P%27/ L; F GF2 M07L%FP/ G/ ' 7' F2 %FP/ G 7% 16 ' %2 M07GLND G9Q F2 0M,9FL ; ; F9Q 59, L7' RL; F GF2 M07 %FP/ G 5 ' 527/ L9, L L 7%; F GF2 M07L%FP/ G 7% %FP/ L6 7P; ! NPF27/ G/17% P/G L M 59L0 GF / P5 MFTL P M 9F2 M L9Q FL M' L6 7P; ! NPF27/ #6 F4' M7/ # 7% 5 ' 527/ L9, L 299/ 2 5; F9% P! M 6 ' %2 5% Q' G 27' G 99% #! 9G ' M G 7%; F9% P! M 6 2MF %2 M07L M 2GF G 97Q 5 L,9FL %Q 7! 27/ LM' L; P 52 0' 50L TLO' 5 27/ LM LG ' ' %2 779Q M07GN M 6 4' L6 ' %2 27' G 6 9F L ,, '! M2 # G,' F 7% 6 9F L ,, 9P% 5 L 7% TLO' 5 27/ LM' L; P 52 L' M M' L !! PF M # G 2 7! ' 1 G %2 7, 9F6 M07LM' TL7' ' %2 7' G 7% 99% G M L6 27M27 L 7% 26 ; F9Q LM' 2F0' 50C

O' L L; F9Q% GN' L; P 52 LR 20126 ; 9FM7M%FP/ LG,' M L27, 9F6 M07LM M 2G' G1M1F % 7% 2327L 7L27MF ! M2 L, 9F6 M L M6 27M27G LR' ; /' LM M ! 97M27GN' L6 9GMF ! ' 7M FP/L , ' ML 96 6 P72 M07G, F96 LM' L L 7% 6 27M27G 7L7% SML FP/ 1 ; ! 22 L7, 9F6 M07L O' L LG F G27, 9F6 M07 27LM' L27MF G, L27, 9F6 27/ L9! NFG 7%; M 7M 9PMM' L2GP GN M L F L P7% F F Q2 RL 7% R0' 7L L' S' F 7M 2 ML! 96 ; 5 M7/ LM' 2LF Q2 R 0' ' 50! F L F9,' G27 5 L, 9F6 M07LG' ' N2G, 9F9! NFG, 0 F6 ! 23G L PFG # 7% 9M' FLO' 50L F L; F9,' G27 53 M 97M27G 7LB 5 FVL < LCP6 6 FTL9, LM' L 7' RL G,' M L27, 9F6 M07-#% M25 %27, 9F6 M07L 9PMM' LG,' M L2GP #, ! NFG M L 97Q% FLR0' 7L6 427/ LNF M 6 ' 7M% ! 2297G 27, 9F6 M07L, 9FLO' 50L F L ; F9,' G27 53 M L 23 PGR 20L; M 7M 9PMM' 2LF95 G27LF %P! 27/ LM' LF23G , F96 LM' L%FP/ # 7% LCP6 6 FTL9, LM' L ! M9F% M L M NG FQ L GN' L G2, 9FMM' 27, 9F6 M07L27LM' LG' ' MC°

7L P5TLOV: GN' L L ; ; F9Q % LF23L Q 5P M07L 7% 6 27 M07LGF M/ T < 4, 9FL SM7% %1F 5 GL < 4 7% 597/ 1 ! M7/ L < 49; 292G G; FV9, L , ' % F 527 22 M2 L9L %F GN' L; F GF2 M07L%FP/ L PGL 7% 6 F 5 M% 9Q P% G ' ; 2% 6 2 ? N ' ! N L 46158 0 Td ((:)) TJ 0.5.OI ((I) 0.53168 0 Td ((5)5)TJ 0.27265 0 Td ((T)5)TJ((%)5)TJ 0(M)5)TJ Td R8 0 Td ((:)) 0 Td.33302 0 Td47 Td 53168 0 Td ((6)5)TJ 0.82 Td 34G>5)TJ3

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7%FL0' L 97N95% P G7!' G !N9,L 8I V#L0' L L' G1 5G' %L LG0V6 L
,9FL 97N95Z/ L0' L6 7P, !NPF #L%Z0F2 P107# 7%L%ZG' 7G7/ L9, U 97N95% L
G P G7!' GLB 7TL; ' F97LR09L6 7P, !NPF G%ZG' 7GG#26 ; 9FV#L' S 9FV#L9F
!97%P! N#F G F 0LR20L 97N95% G P G7!' G6 P0VF / Z0VFR20L L P75 G
' S 6 ; N#4' ; !NF !4L9, L 500! 409, U 97N95% G P G7!' G 7%16 ZM27LF !9P%G
N0L !! 9P7M, 9FL 5L 97N95% G P G7!' G F !' ZQ %L%Z0F2 PM%#9FL9M' FRZG
%ZG 9G%9, ZL 5LF / Z0F 7M L F LF @ZF %L0L6 ZM27LF !9P%G9, U 97N95%
G P G7!' !NF 7G! N07G TL0' L Z 0 F6 !2 G F LF @ZF %L0L6 ZM27
F !9P%G L PVL F L79NF @ZF %L0LF ; 9FV#L' 7G7/ L27, 9F6 N07L N0' L; M 7M
5 Q 5N0L0' L ?

O' L U5 G22 G 97N95% G P G7!' G27M0L, ZIG0' %P5 G97L0' L G09,
N0' 2FL PFF 7M0L!!'; M%16 ' %2 5PGL 7%; 9M7M2 5, 9FL PGL 7%%; ' 7%7!' ?
B !0' %P5 L L%F/ G Z! 5P%Z7/ L0' F9Z#6 FZP 7 # 7%10 5P! Z9/ ' 7G0P! 0L G
* 0 Q L L02 0L; 9M7M2 5, 9FL PG#79L PFF 7M0L!!'; M%16 ' %2 5PG GZ
NF N0' 7M27L0' L 72M%L MMIG 7%L L5! 4L9, L!!'; M%1G, ' ML, 9FL PGL P7% F
6 ' %2 5G; ' F0G07 Q L N0G9P5% L79M%10 N6 FZP 7 L0 G ' ' 7L; ; F9Q %L 9F
6 ' %2 5PG L27IG Q F 5GMMGL !0' %P5 L L%F/ G0 Q L PFF 7M0L!!'; M%16 ' %2 5

7L '!'6 'FLO: QM' L LF 5 G% L; F9; 9G%PF5 .8

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' 7 N9L TL 9! 4', ' 5 F27M9%P!' % L 25 < 2N (=27L ' FP FTLOV: NM9LF @P2
' %P! M97L! 9PFG G, 9FL 5; F GF2 ' FGF / 23MF27/ LR20LM' L LM; F GF2 '
! 97N95 %CP M7! ' GL 0' L 25R9P3%F @P2 LM' L ' ; F9 ' 7N9, L ' 50L 7%
P6 7L ' FQ2' GN0' M 526L L6 7% MFTL 7% ! 96 ; F 0' 7GQL; F ! M97' F
' %P! M97L; F9/ F 6 L, 9FL6 ' M %97' L 7% 9M' FL9; 22/ 27L! 95 9F M97LR20
F 5 Q7M; F9, ' G27 59! 2 M G' 0' L L 59LP; ; 9FM L6 7% MFTLM 272/
; F9/ F 6 L97LF G 97G 5 L9; 22L; F GF2 27/ L; F ! M' GN0 NR9P3% ' L574' %M9
LF / 23F M97?'

L 7% 9M' F6 ' %2 59! 2 M G2 7' % LQW815 NMF9; ; 9G7/ L6 7% MFT
' %P! M97 5F @P2 6 ' 7M L PV, 9F27/ LQ5P7MFTL', , 9FM L 0' L5 MFL S; F G%
G; ; 9FM, 9FL %9; M7/ L; 9GMQ L27! ' 7M Q GN0' 7! 9PF / ' L; OTG 27GN0! 96 ; 5 ML
' %P! M97 5F @P2 6 ' 7M L G! 0L G LR 2Q FL9, LM' L & - VL LF / 23F M97L, ' L
, 9FM9GLR09! 96 ; 5 ML LQ5P7MFTL! 9PFG L97L; 27L6 7 / ' 6 ' 7M 7% 9M' L
F ! 9/ 72M97L9, LP M7! ' LFG L29P% FG

7L P5TL: 8#LOV: OL 97/ F GR96 7L FTL 979L !4L < 1. - = 7%
97/ F G6 7L 25 ' M7/ L < 1: V=27M9%P!' % L 25M' L M9; L 6 ; ' F27/ L9,
F GF2 M97L 25G < = ! M < LJ: JV=#M9LF @P2 L6 7P, ! NPF FGN
, 9F6 P5 MLM6 ; ' F1; F99, LQ FG27G9, LM' 2L; F GF2 M97L9; 2 ML; 27425 FGL 0'
5 / 25 M97LR9P3%F @P2 L9P/ L6 4' FGN0; F9%P! ' LM6 ; ' FIF G2M7NQ FG27G9,
M9 2L9; 22L; 27L9P/ GN0 M! 779M ' L! FPG' %G349840.127266.08541(G.38373-053)T(G054TJ9536469

' 7 52 G,9FL, 2PF L0L %0' F L0L%,27' %; 0TC2 27L9 52 M07GP7%FM' G
F / P5 M07GQ FTLR20L' !0LMMML 7%6 TL2! 5%L6 97' MFTL; ' 7 52 G! F26 27 5
!0 F' G! 7%0FLPG' 7G07L9F59G0,16' %2 552' 7G 2
025 L0' 16' %2 5196 6 P72M10 G' 7' F 5TL'' 7LP; ; 9FVQ L9, LMMML,, 9FV0
M0L %F G1021 F9R27/ L; F9 56 #Q F29PG; 0TC2 27G 7%6' %2 519! 2 M 00 Q
' S F G%L 97!' F7GM M S' G2Q L9! P6' 7MM07#F; 9FV7/ # 7%LNF M 6' 7M
F @2F 6' 7M06 TL0 Q L0' L%Q FGL,, !M09, L%039PF / 27/ L0' L; ; F9; F2 MILPG
9, L0' G16' %2 M07G 7%0FL; M 7M0%! 227/ L79M0LG' 4L7'' %%L F ?^N

+ / &&+ * /

/ 4 >9B00. 8?9> 008. 08&? > + > ?0 > . 8?9>?. >8 B >
)>9B 9? + > B9 4 \$ 9 >&)B > B ?&+)>08 D +?&+ >
&#+. 9?& >+ >8 ?* +?> . 8?94 9=0\$0&& &+9>)&#>E &\$>?&
\$)?&> ?9> >\$8>. + &&+ >E >)9. >B00. 8?*& >8 9 8 \$
. +> &?&+ >89> B9 9>+ >8 ?* +?4

27!' L: 88(# L0 G %0! M%L,9FL L6' %2 516 9%5L G9; ; 9G%L0L0'
! F26 27 53PG1' L; ; F9 !0L,9! PG%L97L27MP2 M07L 7%L27! F' F M07L0L0'
; F9 56 L9, L%FP/ L PG 2 0' L6' %2 516 9%5L, 09F %L TL L,9! PG G97
%2 M07L G0' LP7% F527/ L; M09; 0TC09/ TL9, L0' L; F9 56 2 L,9P7%L0 M
NF M 6' 7M 7%L; F Q 7M07L F L 901,, !M0LR TGM0L 96 M00' L%FP/ L PG
' ; 2%6 2 2 L7MP2 M07L 7%L27! F' F M07L F L S' 7GQL 7%L2 5197516 2726 5
F G5VL L 97! 5%L0 NF M 6' 7M 7%6 900, L 5; F Q 7M07# F L G 7M 5
M0L F %2 M7/ L%FP/ L PGL27L9PFL0! 2M7L 0' L 955/ ' L0 G %0! M%L,9FL
%Q 59; 6' 7M9, LNF M 6' 7M P2% 57' G

A4 >B00. 8?> > . * 08 \$ +980]TJ 0.4214 0 Td [<1D>5]TJ 0.51442 0 Td [(\$)5]TJ 0]TJ 0.42

"4 \$ > >9B00. 8?9>? \$ > 9?)8\$* +?>. > >+ ?&+)> 8 9 880?&+
8B#> . +&. 8&+ #> 8. #8 * >1 24 +?8>9B \$> >08. #8 * >80
& 0) * +? > >9B00. 8?9> . 8?9>. >9? + 8 &+ >9? ? > 9
? \$. B# \$ > ? \$ > 8)> ?&+)>))> \$ B) 9> 8 9 880?&+
) ?8. +&> 0. 8?&+ #>1 2>08. #8 * 4 8 9 8& 89> + >
80 +9 89>0\$. B) > \$ (> 9>8>? \$ 88. E+> + > & \$. 8&+ #
9? ? 9>1 9>0 8* &? 2>08& 8>?. >E 88&+ #>. 8> 8) &+ #>08 9 880?&+ 9>. 8
* & ?&+ 9>. +? 538. 04TD[416> G[IT]7. 0. 058635 0%T[E] (10)4TJ 0. 024499 0T [< [106]6]

0' 11 ;

O' L L#27L 7L',,9FV0L 96 M0' LB F20, L6 2PG# PG# %2 M7#
 9Q P0G# 7%L% M0, F96 L' SM7% %f 5 GL 7% 57/ 1 ! M7/ L< K ±9; 22%
 7 5' Q GF !' 7M7L FF9R' %M' 2L2%2 M%PG L0L0' L6 7 / ' 6' 7M9, L; 2'
 GQ F L' 79P/ 0L0LF @2F L% 27L F9P7% M' 1! 5! 4# 57/ 1MF6 L9; 22M7 M' 7M
 7% 9FR02 0L5MF7 M0M7 M' 7M9; M7GF L2 % @ M? O' L IF / P5 MG
 %P/ L 96 ; 72 G79M 572 2 7G 7% M' 2L; F GF2 2/ #G L020' G79M, F902 M
 ; 0TG 2 7L3% 6' 7M27L; F GF2 2/ L% ! 207GL M%9' G; F902 M9,, 15 ' 5
 ; F96 9M7L0 M2G2 ; ; F9; F2 ML/ 2Q 7L PFF 7M Q% 7! ' L 7% M6 TL ' L
 ' 7! 9PF / 2/ L9Q F, F GF2 2/ 2

O' F 10 G 59L ' ' 7L 97M9Q FG L9Q F, P7% 2/ L9, L% P! M7 5L',,9FV0 F9P7%
 ; 27L6 7 / ' 6' 7M TL2% P0M7L 7% 574G ' NR' ' 7L2% P0M7L 7%; 27L/ F9P; G
 L QFG M 506 ' 7M9, L Q% 27L 73 0 Td [(')6] TJ 0.454J 0.22773 0 Td [(9)6] TJ 0] TJ 0.383 0 Td [-

FP/LM027/LI 7LI90M; M 7M6P; LM0LGQ F 50P7%F %L%95 F0,9FL' !0
' ; 29%#L7%096' LM0MGF @F L6 P52 5IF 7%96 LM00L IT' FL 0' GL9006 T
79M' !L9QF %L TL2GF 7!' #07!' LM' TLF L79M' 7' F 5TL970%F %6' %2 5T
7!' GFT?V 0' LI 9009,L6 7%0FTL%FP/LM027/LI 7LMPG 'L S' 70QL9F
; M 7M6 7%; 902 5TL9FM' IP7!96 ; '7GM%; 0T0 270R09L9P%FM' 6 ? 0' 7
%FP/LM027/L206 7%M% TL5/ 5L PM09F22 0' 50L2GF FG9FL/9QF76' 7M
; F9/F 6 0M' !L9009,LM' LM0009P5%L 'L 9F7' L TLM M PM09F2M?

020F!96 6' 7%M07L209! PG%97LM' LG' !22L0M M07LR0' 7LFFZ' LM027/
<9FL9M' FL9F6 09,L6 9720FZ/ +206 7%M% TL LM02P%; FM#F M' FM 7L
0M M07L2LR02 0L; 0T0 27L2! 5P% 06 9720FZ/ LR20L97G7M L 0; FM0,L7
9QF 5M M' 7M,57L%Q0; '%016' 'M0' L'Q0P M%17' '%00,L/L 207L; M 7M

, 4 >8 . * * + 9>\$ >. +9& 8 ?& +> >0 ?& +?08. D& 8>8 ?* +?
#8 * +?9> ?E +>0\$0&& +9> + >0 ?& +?9> 9> >?. .)>. 8>\$
?8 ?* +?> >0 &+4

0' LPG19,L; M 7M, F00%F; 27LM M' 7M/F' 6' 7M0L 59IF, 'FF %0127
M' L5MF NPF L 0B, 27L6 7 / '6' 7M/F' 6' 7M00; 22LM M' 7M/F' 6' 7M#
7%; 27L6' %2 M07L!97M!M0L QL '!96' LI 96 6 97L2LM' L,2 519,L; 27L
6 7 2Td [(7)-15]1-9]TJ 0.39771 0 Td [<1B>-9]TJ 0.457[(7)-15]1-93972469 0 Td [(9)5]TJ 0.53168 0

/14 >8 . * * + 9>? \$ >0 99 # > . >) #8) ?& +> G))! | >9? ? 9
0 8* &?&#>\$ >) ?8. +&>08 9 880?& +> >))9 \$ B) >. +?8.))
9B 9? + 94

0'

0

' / 2727 / LR20L0' L ' %2 F L 9% F2J M7L ! M9,LOWN#L0' L, ' % F 5
/ 9Q F76 ' 7M F9Q% %P ; ; 9FM,9FM' L' 7' F 5% Q 9; 6 ' 7M, L7L 1; F GF2 2/
2, F GMP! MP L7% L 7! 9PF / ' %26 ; 5 6 ' 7MM719, LM2M! 0799/ TL,9F797! 971
M95 %16 ' %2 M7G L7L! 97M G4M' L L O G ' ' 7L; F902 2M% L TM' L
P7MIF ! ' 7M7L O' L L 97M7% %M M G IF P5M, LM' L2! F G%52! 5099%
9, L PGL 7% %2 Q FG97L9, L! 97M95 %LP GM7! ' G L 992745 7006283075 1199 16 11100592458 D0T0

"#."*"/

: 1 FGF2 M7L 27L '52 QFL PG1 1: O: :-# '!LO/: :IEEE4# .4# D= 99 ?H , I =
! ; @/4

Q '7MF,9FL 2G GL 97N95L 727M7M07 5L FP/L 929727/1271M' L 72M% MMGLP5TLOV: V?
EEE4 #. D\$. * + 8 8 ?&+)9 ?G=0. 8. +%89B %8& 4

N 9G 7/'5G 2'GL FQ7M 5L ' MGF96 L FP/GE 9MFL '025G.7%L 2' F6 GLP5TON#
Ov: 096 0 Td [(L)-13]TJ4(5)]TJ 0.2Td [(:]TJ 0.5188 0 T [(L)-13]TJ 0.27173 0 Td [()]TJ 0.96289 0 Td [(9)]TJ 0.536

OL 25L 1 LF;9FVL 2597G7LF P%#2/P/L PGL 5/ G '%2 2+ L L
';M6 'FN#LOV8?

QL 1 '%2 2%L F P% 7% PGL '5 M% 10L 97M95 % P G7!' G %7M2 %2L '5!M%
MMGL 1V818-1L';NOV81EEE# .4#. D= 99 ?=@I=A,";/14

OL 1 '%2 2%L F P% 7% PGL '5 M% 10L 97M95 % P G7!' G %7M2 %2L '5!M%
MMGL 1V818-1L';NOV81EEE# .4#. D= 99 ?=@I=A,";/14

OL 2GL 6 25L 9P7%M7L F GF2 E8 @j9E)Y(T)E#09569T0/F4[(41D>]TJ 0.5188 0 Td [(?)TJ 0.36987 0 Td

.QL 2 FP/L,'ML7,9F6 M07L9FL' 50! FL F9,'G27 53EEEE4 #.D= 8B#9= 8B# ?G=
.9? 8(? 8B# ?G+.8* ?&+.8 ?&+?9+ 8.D& 89= 8B# ?G+.8* ?&+.8
?S 8 8. 99&+)9= B)?4\$?
.NL L 'RG' 5 G#P51810V: OEEEE4 #.D= E9 D+?9= E98. * =
8 99 ++. B+ * +?9=B * @I ;14\$?
.IL L7% F2I '%2 ,L ; 22L FGF2 Z/ 2P7' L-#OV: NEEEE4 0.+)& 4 8#= B ?&+C
8 8?&& ?& += * =9 C 0&& C08 9 8&& \$?
.-IL 2 '%2 2%L FP%L7%L PGL' 5M%ANL 97M95%L P G17!' G%7M2%2L' 5!M%
MMGL 1V818-1L'; NOV81EEEE# .#.D= 99 ?9=@I=A, "/14
.JL 2 '%2 2%L FP%L7%L PGL' 5M%ANL 97M95%L P G17!' G%7M2%2L' 5!M%
MMGL 1V818-1L'; NOV81EEEE# .#.D= 99 ?9=@I=A, "/14
.IL 2 '%F5L' /2MFL 9!4' M 92 1Q (# L::11 J: ?
(IL 2 9M FP/ GEEEE4 8 89&+4B9 .'#.D= 8B#C 80.9)=? ((= & F4\$*)
.8L ; F0' 7M9,LPG2' HL FP/L 7,9F' 6' 7M %6 22BF M07HL 239G49,L 97M95%L P G17!' G
EEEE#0.#.D= 99=0(#= %A/A%A%A/=0 =A/A@< , 4 >
-VL P0FL 2 F!MFL '%2 FL FP/L' 7', 2M7%L L ML F9P; #L' 7MFG,9FL '%2 FL7%
'%2 2L' FQ' G ; ;'7%2S #7 5TG9,L 9F,02' L @P257M 9GL< =27LM' L '%2 F
FL L F9/F6 # 'MFLNL 5L FVL L; 97GFGL P; ;56' 7M3 P2%7!' L' 5M%ANL6 ; F9Q7/
FP/L M07L' QRL 97M95ZL FVL 2JL'; OV: OEEEE4* 9#.D= & 8 = 8 9 80?&+%
8B#% .D 8 # = 8 9 80?&+ 8B# .D .+8 = .E+). 9= B00) * +?.)
B& +) ? %2. * 08.D&# .+?8.)949 9GL%L 5 00DSh`Sh`DSh`N°

JCL : (IML '7' F 5 9PFD, L 96 6 97R' 50L, L G!0PGMB ' G27L RCL 0 ; MRO . "L
7L !M ' 5M L F GF, 207L FP/L 207# PGL

(JLL 6' F2 7L 95/' L9,L 0TQ 27G- 6' F2 7L 9! 2ML9,L7MF7 5L '%27' 1.5/ 5L FP/L PG
7% 107 5L FP/L PGL 952 T# !M 88(1

(ILL 7T%FL L9FM' L 6' F2 7L 95/' L9,L 0TQ 27G M2G L F9,' G27 50 L7% P6 7L 2 0MG
96 6 2M' 1 6' F2 7L 95/' L9,L 0TQ 27G M2G 7P 5L 2M L %207L 77L7MF7L '%

OV: CH-J" N: V. 1EEE4 0. +)& 4 8#-8B++&#C08 ?& = ?&9* +B)=* +B)<\$ \$G8d (88) (68) 8, 9, 38 (98) 11

