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!"#\$%&' ('&)*!+, -&* ',+,', " &- \$ / / ,...,\$ 0&

\$ #&' ('& ' 1 ' "&\$ #&- 1+, # \$%0, 1&

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"#&#&' (*)+)*, &' -%()*, .)*/'!'!)0/d
1 / 2 2*(('/'3(!" 4 '! 5 /)*/'!'!)/!)0/d
" 0/#.)*/' (!.' \$!7#. 8)*8/d(!/9!7. 8*9*8! : .(!.' \$!
;9/8)*8!1 / 2 6.' =3(!> .)#+.< : .(!?#. '(2*(('/'!
7*0/6*10/d@=(/2!*'!A/8.)*/' (!4*)0!B*, 0/#!
7/6+<.)*/'!C%(*)=!

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&EEEFEEFGH!
IJ*0/δ!>/-%2K/#EGLMGEEN
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/ \$ ', \$ 0&\$ #&' ('&- , ' 2&\$ #&. 1 0&!%* 0 \$&# \$%&1 0&\$%3 "%&' \$&. (\$ 4&- 1 * . "&4 (2&
) 1 - , #, -&5 1 &1 0 3&' + " - '%, -&- \$ /) 1 0 2&. (\$ * + 3&0 \$ ' &' '&' (" + 3& 0&6 , \$ + 1 ' , \$ 0&
\$ #&- \$ / / , ... , \$ 0&%* + " &\$ #&)%1 - ' , - "&1 0 3&)%\$ - " 3 *% "&787&1 0 3&7987&\$%& 0&
' ('&1 + ' "%0 1 ' , 6 " & 0&- \$ 0 ' " /) '&\$ #&- \$ / / , ... , \$ 0&1 0 3&# \$%&. 1 0 - ' , \$ 0 &
1 0 3&# " " &1 &1))%\$)%, 1 ' "!

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@? ; O ; >!P! 5 ; Q ; P@
RP&? ?!SD@? P " ?? 5 T>!
5%0/#(U> . -%I P*K. 8U!@*-%#! V!W*(/ ' !
XXX!EM)0!@#%0!@+*%#EXGG!
" .U< ' \$! I T!HYZG[!
70 / %&!IXEGN]G]IMGGG!
J . ^!\!IXEGNYYYFEEG]!
;F2 . *!\!(2%0/#(_ 2%0/#(' . -%D8 / 2!
T))/#%=(!9/#! 1&? Q!" J!@T>!RP ` > "!

a. '+.#=!E[LMGEY!

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!"#\$%'&' (&)*!+, -&* ',+, ', " &- \$ / / ,..., \$ 0!
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"#\$/#&' (*)+)*', &' -%(*)*, .)*' /' /'!)0/d
1 / 2 2*((/' '3(!" 4 ' ! 5 /)*' /' !*)' /!)0/d
" 0/#.)*' /' (!. ' \$!7#. 8)*8/d! /9!7. 8*9*8! : .(!. ' \$!
; 0/8#*8! 1 / 2 6. ' =3(!> .)+#.< : .(!?#. ' (2*((/' /!
7*0/*' 0/d@=(%2 !*' !A/8.)*' /' (!4*)0!B*, 0/#!
7/6<.)*/' !C%' (*)=!

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/ \$ ', \$ 0&\$ #&' ('&- , ' 2&\$ #&. 1 0&!%* 0 \$&# \$%'&1 0&\$%3 "%&' \$&. (\$ 4&- 1 * . '&4 (2&
) 1 - , #, -&5 1 &1 0 3&' + " - '%, -&- \$ /) 1 0 2& (\$ * + 3&0 \$ '&' '&' (" + 3& 0&6 , \$ + 1 ' , \$ 0&
\$ #&- \$ / / , . . . , \$ 0&0* + " &\$ #&)%1 - ' , - '&1 0 3&)%\$ - " 3 *% '&78&1 0 3&7987&\$%& 0&
' ('&1 + ' "%0 1 ' , 6 " & 0&- \$ 0 ' " /) '&\$ #&- \$ / / , . . . , \$ 0&1 0 3&\$ \$%'& 1 0 - ' , \$ 0 &
1 0 3&# " " &1 &1))%\$)% , 1 ' " !

7+#+.!) /!P+0/dEHE! /9!)0/d 1 .<*9/#* .!7+K*8! `)**)%d(1 / 2 2*((/' '3(!Ib 1 / 2 2*((/' 'dN

P+0/d! /9!7#. 8)*8/d. ' \$!7#/8/\$+0L)0/d 1)*= /9!@. ' !R#+ ' /!Ib@. ' !R#+ ' /dN#(0/8)9+<=<=2 .U/d!)0*(!

2 /)*' /' 9/#. ' ! /#\$/#) /!(0 /4!8. +0/d40=!7. 8*9*8! : .(!. ' \$! ; 0/8)#*8! 1 / 2 6. ' =!Ib7 : V ; dN(0 / +<\$! ' /)!

K0/d0/\$!*! -*/<.)*/' /!9!)0/d 1 / 2 2*((/' 'P+0/d! /9!7#. 8)*8/d. ' \$!7#/8/\$+0L)P+0/d

HDEI 2*(# /6#0/d0').)*' /' (!) /!)0/d 1 / 2 2*((/' 'N. ' \$!EME! I7#/6 / (.<! /9!0)0%2%) (N! /#*!')0/d

.<9/#.)*' -%L*! 8 / ' %2 6) /9! 1 / 2 2*((/' '9/#)0/d (. 2%d -*/<.)*/' /' (!. ' \$!9+#)0/#9/# (. ' 8)*' /' (!. ' \$!9%&!)

.(!. 66# / 6#* .y/d9/#9. *!* , !) /! /)9= !TS 2* * (#).)*' -%dA. 4!a+\$, %dIbTAacNQ*6FS*U+ , . 4 .! . ' \$!)0/d

6.#)*d!(0/#0*! /9! . '!) %2 6y/\$!(0)0%2%) /!/#6.#)*.<!(0)0%2%) L!/#. 88/#\$! . ' \$!(.)*(9.8)*' /' L! /9!)0/d

-0/#! -*/<.)*/' /' (!.)*((+0/d*! *! -%d)*, .)*' /' 'EHEHEHGGHD! `)*' 9+#)0/#6+K*8!#0/\$/S(!.#/d#0*0/\$!

9# / 2!)0/d 17 ` 1!. (#/d+0/dy/\$!K=@. ' !R#+ ' /! /!8*).)*' /' !EeFGU! 7 : V ; !.< /!2 . =!K0/d*! -*/<.)*/' /! /9!

P+0/d JdIKNI6# / 0*K*)*/' !. , *' ()! "#\$%&'! 8 / 2 2 + '*8.)*' /' (*! . \$f+\$*8.)/# = 6# / 8%\$* , (N! @. ' !

R#+ ' /! . , *' #0/d+0/d(!0.)!0/d 1 / 2 2*((/' '0%#8*(0/d*) (0/d+*).K0/d6 / 4%#(!) /! . 66/*) !. ' !

&' \$/0%' \$%)! 5 / '*) /#) /!6# / -*\$d / -0/#(*, 0)9+ ' 8)*' /' (*!)0/d9*0%0% .<= /6/#)*' /' /9!)0*(! . ' \$!)0/d

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!	O*/<)*'/!1, -&@./oN!	! T66~*8.K&1 / \$11@. '\$.#\$!
e!	7: V ; ! \$* \$! ' /) ! 6# / - * \$ / d 8 / ') * ' + * ' , ! (+ # - % < = . ' 8 / d / ' ! (%, 2%') (! / @ # .) * ' , !) ! , # % . % # !) 0 . ' M G j ! @ 5 Q @ ! # / d + > * ' , * ' ! + ' / K @ # - % \$! 8 < . ((! 8 0 . ' , % / d !!!	YH! 1 J P ! i ! E H M Z E e !
Y!	7: V ; ! / @ # . % \$! (% , 2 % ') (. !) ! 6 # / d ((+ # / d ! , # % . % # !) 0 . ' ! . < = / 4 % \$! 9 / # !) @ # # ! 8 + # # % ' !) 8 < . ((! 8 .) * ' / ' ! !	YH! 1 J P ! i ! E H M Z E H !
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Z!	7: V ; ! \$ * \$! ' /) ! # @ . * ' ! 6 * @ % * % / d 6 . # / < # @ # \$ (9 / # !) @ / d # / d + * (* % / d 9 * % / d = % . # ! ! ! !	YH! 1 J P ! i ! E H M [G H !
[!	7: V ; ! \$ * \$! ' /) 9 / < = / 4 * ! (! / 4 ' ! 6 # / 8 \$ + # / d !	YH! 1 J P ! i ! E H M E e ! 8 N !
!]!	7: V ; ! / @ # . % \$! (% , 2 % ') (! . K / - % / d 5 T " 7 !	YH! 1 J P ! i ! E H M E G [U 1 . d 7 + k d ` * d 1 / \$ / d i N X E !

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\$ * 9 9 # % ') ! - * / < .) * / ' (U 4 0 * 8 0 ! 4 0 % ' ! 8 . < 8 < . % \$! / ' ! . ! \$. * = ! K . (* (! 8 / ' () *) + % / d / - % # e G ! 2 * < = / ' !

- * / < .) * / ' (D ? 0 / d 2 . ^ * 2 + 2 ! 6 / ((* K % d 9 * % / d * !) 0 .) * ' - % / d (* , .) * / ' ! < / ' % L % % ' ! * 9 / / ' < = ! 0 . 9 ! / 9 !) @ / d

- * / < .) * / ' (! . # / d 6 # / - % / L * (! 2 . ((* - % d ! W *) 0 !) @ / d 8 / ' (% ') / 9 ! 7 : V ; U) @ # / d 4 % # / d ' / % - * \$ % ') * . # = !

@ % . # ' , (! 7 : V ; 3 (! K # % @ ! \$ * (6 + % \$! / 0 3 # # / 0 ! # ! ' 5 ! * !) @ / d ; ' 9 / # 8 % 2 % ') ! C * - * (* / ' 3 (! P % 6 / # U . * ! I) 0 .) !

) @ / d + @ / d 9 ! @ @ # % * 9 % \$! 5 * * * 2 + 2 ! Q % % \$! @ # % ' ,) 0 ! B @ 5 Q @ d N - . < = @ / d ! # ' P % ^ 8 / d (! / 9 M M G G G ! 6 (* ! 4 . (! . !

- * / < .) * / ' ! / 9 ! Y H ! I D J P D E H M E G [D ! & ! 5 . # 8 0 ! / 9 M G E d L) @ / d B 1 T ! " && 4 . (! (+ K 2 *) % \$!) / ! T A a ! Q * 6 F

S * U + , . 4 . ! 9 / # ! . ! 7 # / 6 / @ \$! C % @ * (* / ' D

! P % / d / < = * / ' ! T A a F M [Y L] * (+ % \$! / ' ! C % @ % 2 K % # ! [L M G E H L . +) 0 / # * % / d ! 1 7 @ C @ ; C ! () . 9 ! / ! * (+ % / d

% / 9 / # 8 % 2 % ' ! 8 * .) * / ' (# % , . # \$ * ' , ! , . (! +) * *) = ! - * / < .) * / ' (! / 9 ! 1 / 2 2 * ((* / ' ! : % % # . < ! " # \$ % # ! B : " d N E E F

; L * ' 8 < + \$ * ' , ! 9 % # . < # % , + < .) * / ' (* ' 8 / # 6 / # . % \$! K = # @ % # % ' 8 / d * ') / !) @ / d : % % # . < ! " # \$ % # ! & ! . \$ / 6) * ' , !

P % / d / < = * / ' ! T A a F M [Y L] @ / d 1 / 2 2 * ((* / ' !) . % \$! ! b & ! ') 0 * (! P % / d / < = * / ' U 4 % / d . # / d (@ % * 9 * 8 . < = ! @ % ' \$ * ' , ! !

(# / ' , ! 2 % d (. , % / d) ! , . (! 8 / # 6 / # .) * / ' (! (. 9 @ = * (! / + # ! 6 # * 2 . # = ! 8 / ' 8 / # ' 1 D e ! ! ! ? @ / d 1 / 2 2 * ((* / ' !

. 8 U / 4 % \$, % \$!) 0 .) # @ % ') ! % , * (< .) * / ' ! 2 . ' \$. % \$! * ' 8 # % . @ \$! (. 9 @ = ! 2 % . (+ # / d (# % . % \$!) / ! , . (! 6 * @ % * % / d

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X! > / 4 ! . 2 % \$!) @ / d @ . 9 @ = ! ; ' 9 / # 8 % 2 % ') ! C * - * (* / ' !

Z! 1 7 @ C ! P % 6 / # U B 1 T ! " && E E E E H G G H U !) X] U ? . K % d E M #

! \$ / 8 (D 8 6 + 8 X D , / - g 4 / # S m 6 \$ 9 g 1 " 5 5 ; ; > ? m P ; @ " A ` % & " > g E Y X H M D S / 8 !

!) 0) 6 @ \$ / 8 (D 8 6 + 8 X D , / - g W " P C m 7 C J g T ; ; > C T m P ; @ " A ` % & " > g E Y X M G X 6 \$ S J 1 6 . % d E E !

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</8.)*/ 'L9.*<#/dL%U. %d0*()/#L18/###(*/ 'L(+K(). ')*.<80. ' ,%d(*!8.)0/\$*8!
6#/y8)* /' #/d+*#%2%) (L. ' \$!)0/#+'+(+.<!/0/#.)* ' ,!.' \$!2 . * 'y%' . '8/d8 / ' \$*)*/ ' (D!
I@%dYH! JJP! iEHMZEdNc!

!
?0/d " 5 V ; !T+*\$)*! !40*80!@; C!*\$%')9%\$!*!)0/d1*) .)*/ '!4 . (!8 / ' \$+8y/\$9# / 2!
J%K#+.#=#EYFE[LMGEMS+#' ,!)0/d0%' \$%' 8=/!9!)0/d1<. ((!A/8.)*/ '! "&&
@; C3(!I)0/d 17@CN 5 .=#GEM&' -%d*) .)*-%dP%/6/#)! *!)0/d1<. ((!A/8.)*/ '! "&&o!
!(+/%\$! .9y/#)0/d " 5 V ; !T+\$)! o!*' 8<+\$%\$! -*/<.)*/ ' (!/9! iEHMZEc9/#9.** ,!) /!
2 .*) . *! !!8 / ')* '+* , !(+#-%\$%< . '8/d6#/8/\$+##D

!
@; C3(!/0%' * , IK#%0!*!)0/d1<. ((!A/8.)*/ '! "&&L9*%\$!*! !> / -%2K/#MGEML <0, %/\$!
)0.)!7 : V ; !\$\$*! /) !2 . *) . *! !. 9/#2 . <8 / ')* '+* , !(+#-%\$%< . '8/d6#/8/\$+##D
!

?0/d . \$\$%' \$+2 !8 / ' 8<+\$%d!)0 .)!b : *-%!)0/d(+K(). ')*.< / -%\$%< . 6K%4%8%!)0/d(+Kf/8) ! 2 .)y%#!
/9!)0/d1*) .)*/ '! . ' \$!)0/d(+Kf/8) ! 2 .)y%# /9!)0/d1<. ((!A/8.)*/ '! "&&L7 : V ; #/d(0/8)9+<=<!=#, %d!)0/d
1 / 2 2*(*/ '!) /!) . U4*') /! . 88 / +) !7 : V ; 3(lnc [XCGG!6 . =2%) !(+K2*)y/\$) / \$. =!* !8 / ' %8)* / '!4*)0!
(0/d(2%)! /9! . '=!(+K0/d+%!)0%' .<=>!*!)0/d1<. ((!A/8.)*/ '! "&&Ez!!?0 . 'U9+<=<=L\$+0/d!)0/d
2 2%\$. y/d . 8)* / '!/9!)0/d 17@Cga; C! .)) /#%=(!0 . ' \$*' ,!)0/dB 1 T! "&& 40 / !4%0/d /)9%\$! /9!)0/d
6 . =2%) ! . ' \$! . \$\$%' \$+2g .)y%2 6y/\$! (0%)0%2%) /9!)0/dB 1 T! "&& . 9y%#)0/d9 . 8L)0/d 17 ` 1!4*)0\$#%4!
)0/d8*) .)*/ 'D^F!!T '=!9%#()! =% . #< . 4!(+%)U' / 4 (!)0 .)! . 88/6) . '8/dK=!0/d8%\$*) /# /9!6 . =2%) !9 /# !!
\$*(6+y/\$!\$K)18 . ' K%8 / ' (*\$%\$%\$! . ' !b . 88 / # \$! . ' \$! (.)*(9 . 8)* / ' c! /9!)0 .) / K* , .)*/ 'D!C*\$!7 : V ; !)0*'U!
)0/%=18 / +<\$!6+<=! . 9 .) / ! / %p!

.,8 3, . - * . . . , \$ 0&

TD 7 : V ; !@0/+<\$!K%dB%\$!*! !1 / ' y%2 6) /9! 1 / 2 2*(*/ '!9/#T)y%2 6)* ,!) / !0)0/d / #
7.#)* .<=<=!0)0/d)0/dB 1 T! "&&*! !. !R . 8U# / / 2!C% . <W*)0 / +) ! > / y%8/d) / !0/d
T \$ 2 * ! *(#.) *-%dA . 4!a+\$, %d . ' \$!)0/d7 . #y%#d

7 : V ; !*(!8 / ##8)*! *(! . \$\$%' \$+2 \!)0/d(+Kf/8) ! 2 .)y%# /9!)0/d8*) .)*/ '! / -%\$%< . 60/\$!)0/d(+Kf/8) !
2 .)y%# /9!)0/d8<. ((k/8.)*/ '! "&&LJ / #)0 .)#% . (/ 'L*)*(K%=/ ' \$! / +##+ ' \$%#() . ' \$* , !40=!7 : V ; !
9 . *%\$!) / ! /)9=!0/dTAa! . ' \$!)0/d6 . #)*d!(. 8)* -%<=>!* - /<-%\$%\$!*!)0/dB 1 T! "&&t@ . ' !R#+ / L "99*8/d/9!
P . y%6 . =%#T \$ - /8 . y%#(!b " PTcN! ?0/d `)**)=!P%0/#2!>0)4 / #U!b? ` P > dN! . ' \$!)0/d 1*) =! . ' \$!

!!
Ez/12*
E[!0@d ; ^0*K*) 1Lb4*0\$#. 4 .< /)*\$%c! \$. y/\$!C%0%2K/#MIMGED

FIXE!

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T'=#0#(/'!40/!(*, '(!.6%.\$*', !/#K#%#P%' y#(!.!.6%#. '8#1/99#(!y/()*2 /'=#.!.! 0%#.#', L@#>=FG=NGO;CFGG&QERER&-@< <@@@#LK=(+80!.8)#/6#d%')(!0.)!0/d/# (0/d*(!.+0/#%#%\$!)/!\$/!(/!. '\$!.,#%#d!)/!8/ 2 6<=!4*)0!)0/d<. 4 (!/9!)0*(!@. y#h!)/!2 .*) .*!)0/d#/(0/8)!\$+d)/!0/d 1 / 2 2*(*/ 'L 2%2K#(!/9!)0/d 1 / 2 2*(*/ '!.'\$!*)(!T\$ 2*#*(#.)*-%d A. 4!a+\$,%d(h!FSSFPIP>#&&<CIP=SERR&-@< <@@@R@>@GCE=MO&=R=>ICNR@&=ICR& CE=IP<PR@KA=NB@D=Q&P%2 60. (*(!. \$\$%\$N

!

! @*2<.#)/!0/d.)y%2 6y\$P/#.).!*!)0/dPDEHOMGEH!6#/8%\$*' , (L)0/d. \$\$%' \$+2!6#d%') y\$!

K=17 : V ; !\$*'3)!8%#=#8/ ' -%=#)0/d' .)#d/9!)0/d9. 8)!(0/9/#)0!4*)0*!.' \$!8%# y\$! .!9.<0/d

2 6#d(/ '!/9!*' (*, '*9*8. '8#1! ?0*(19.<0/d*2 6#d(*/ '!8/+<\$!0. %d 2*(0/\$!)0/d6.#)#d(!.' \$!)0/d

1 / 2 2*(*/ 'D!7 : V ; !9.*%\$!)/!9+<=<!. '\$!)#+)09+<=<!\$(8</0/d)0/d9. 8)!0.)*)!4 .(!.)y%2 6*' , !)/!(0/9)d

)0/dB 1 T!"&&4*)0/+!)0/d* 6+!)9!)0/dTAA!. '\$!)0/d6.#)#d(0!?!?0/d. \$\$%' \$+2!4 .(!.'!#)*9*8d)/!

/K(8+#d)0/d9. 8)!0.)!7 : V ; !4 .(!+ '*<. y#<=<!). y%2 6*' , !)/!(0/9)d)0/dB 1 T!"&&. '\$!,%#b8#%\$*)9/#

*2%#d%#-%\$d!

ID 7 : V ; !O* /<. y\$! 1 7 ` 13(!P+0/d/9!7#. 8)*8/d. '\$!7#/8/\$+#dEME!P%#.#\$*' , !7#/6/(.< /9!@0)0%2%')D

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! ` '\$%#P+0/dEMU)0/d 1 7 ` 1!0. (!-%#=(0/8*9*8!#+0/d(!.K/+)!6#/6/(.<!/9!(0/9)d%2%')D!7 : V ; !

\$*\$' /)9/< /4!. '=!9!)0/d9/+#!(+K0/8*/' (!0.)!0/#2*)6.#)#d(!/!6#/6/0/d(0/9)d%2%')D!P+0/dEME!

I7#/6/(.<!/9!@0)0%2%')(N6#/-*\$d(!0.)!)

I N 7 .#)#d(!2 .=LK=!4#)y% ! 2 /)* /'!. '=!)2%#d.9y#(!)0/d9*#(!6#d%#.#' , !8/ '9%#% 8/d . '\$!4*)0*!cG!\$.=(!9y#(!)0/d<.)!\$.=!/9!0%#.#' , L!6#/6/0/d(0/9)d%2%')(!/!)0/d #/d(<+)* /'!/9!. '=!2 . y#<.<*((+d/9<. 4!/9#9. 8)!/#/ '!!2+).<=<!. ,#%#K0/d/+8/ 2%#d /!)0/d6#/8%\$*' , D(0/9)d%2%')(!%8\$! /)K0/df/*%\$K=!.<16.#)#d(h!0/ 4%-%#L (0/9)d%2%')(*!'. 66*8.)* /' (!2+0)K0/d(*, '%\$K=!0/d. 66*8. ')!.' \$L!*!8/ 2 6<.*')(LK=!)0/d8/ 2 6<.*' . ')!.' '\$!\$0%' \$. ' D

!

?0/d 2 /)* /'!(0.<18/').*! !!(.) y%2%')!/9!)0/d9. 8)+<!. '\$!%#<18/ '(*\$%#.)*/' (! . \$%#d+. yd)/!. \$-*(0/d)0/d 1 / 2 2*(*/ '!/9!)0/d(8/0/d/9!)0/d(0/9)d%2%')!.' \$!/9!)0/d ,#/+ '\$(!/!'!4 0*80!.\$/6)* /'*(!+#,%\$D!P/d(<+)* /'!(0.<1K0/d*2*y\$!)/!0/d*(+0/d!*!)0.)!6#/8%\$*' , !.' '\$!(0.<!' /)0/0 y% \$!)/!(+K().)' *-%d*(+d/14 0*80!2 . =!8/ 2%#dK0/d/#d)0/d 1 / 2 2*(*/ '!*! /)0/#/#9+)+#d6#/8%\$*' , (D

!

M6(CDGHG]RGHLMGE! 1 .D7 ` 1!A; s&@ZXe!).!6D1tEeF1tEYI!\$%2*' , !9.*#+#d)!\$*(8</0/d#0/0-.')!*9/#2 .)* /'!.!P+0/d HE!O*/<)* /'ND

!

IKN7#/#)/!(*, '*', !. '=(l@)g%2%' l)O/d(l@)*', !6.#)P/d!(0.<18/'-%%d.)!%g. ()!/'%d
8/'9#%g'8d4*)0!' /)*8/d.' \$!/66/#)+'*')=)/!6.#)*8*6.y/d6#/-*%\$!)/!.<16.#)P/d(19/#
)O/d6+#6/ l/d/9!\$*(8+(('* ,!l@)g%2%')(!*!)O/d6#/#8%\$*' ,D> /)*8/d/9!)O/d\$. yLl)*2%Ll
' \$!6<.8/d(0.<K/d(l@#-%\$!/' !.<16.#)P/d(!.)!%g. ()!l@-%%' l [N\$.=(!*'!. \$-.' 8/d/9!)O/d
8/'9#%g'8d> /)*8/d/9!.' '=(+K(l@d+%!)!l@)g%2%')!8/'9#%g'8d!2 . =K/d/#. l 2 . =!
/88+#!%d(!)0.' !l@-%%'!\$.=(!*'!. \$-.' 8Ll.' \$!2 . =K/d*2*y\$!)/!6#/#8/'9#%g'8d
)y% \$8d!.' \$!)0/ l/d6.#)P/d!(l@%8*8.<=<#%d+%d)*', !' /)*8/d

!

T)y% \$.' 8/d.)!.' '=(l@)g%2%')!8/'9#%g'8d(0.<K/d*2*y\$!)/!O/d6.#)P/d!.' \$!)O/#!
#/6#d(l@).)*%dD

!

ISN(l@)g%2%')!(0/+<\$!/#\$*' .#*=<' /)!* 8<\$d\$%. \$-*%d(19/#1 / 2 2*(*/'!. 66#/- .<l
0/4%-%g#l!*!)O/d#.#d8. l/d4 O#%d\$%<. =K/=/' \$!. !8/#). *!\$. y/d4 /+<\$!*' -.<\$\$. y/d)O/d
K. (* (19/#)O/d6#/#6/ (.l)O/d)*2*' , !+#,% 8=!2+(O)K/d8%#=<!(). y\$!.' \$!9+<=<f+()*9%\$!
!)O/d2 /)' D

!

ISN?O/d1 / 2 2*(*/'!4*=<' /)! . 66#/- %d(l@)g%2%')(l4 O%O#l8/' y%y\$!/#!
+'8/' y%y\$!+'%d(!)O/d(l@)g%2%')!*(#%g. (/'. K%l*! !*, 0)!/9!)O/d40/%d#%8/#\$l
8/' (*y%')!4*)0<. 4Ll.' \$!*'!)O/d6+K*8!*' y%#d(D!

!

! 7 : V ; !-*/<. y\$!P+%dEMEI NK%8. +l@d*)9. *%\$!)/!6#d(l@)! .!4#)y% !2 /)*' /'!)0.)!6#/#6/ l/\$! .!

(l@)g%2%')!b/ '!)O/d#%d/<+)*' /'!9!.' =!2 . y#%<*((+d/9<. 4!/#9.8)!/#/ '!.!2+)+<=<!. ,#%g.K%g
/+>8/ 2%d)!O/d6#/#8%\$*' ,Dc!!T>0/+ , 0! .!l@)g%2%')! '%\$!' /)K/df/*%\$K=!.<16.#)P/d(l!l@)g%2%')!
2+(O)K/d(*, %\$K=!)O/d8/ 26<.*' .')!.' \$!\$%\$'. 'D!7 : V ; !\$*\$!' /)!(*, '!)O/d. \$%\$' \$+2Ll' /# \$*\$!
17@Cg@; CD!!

! 7 : V ; !.<(/!-*/<. y\$!P+%dEMEIKNK%8. +l@d6#/#)/!(*, '*', !. '=(l@)g%2%' l)b)O/d(l@)*', !
6.#)P/d!(0.<18/'-%%d.)!%g. ()!/'%d8/'9#%g'8d4*)0!' /)*8/d.' \$!/66/#)+'*')=)/!6.#)*8*6.y/d6#/-*%\$!
)/!.<16.#)P/d(19/#)O/d6+#6/ l/d/9!\$*(8+(('* ,!l@)g%2%')(!*!)O/d6#/#8%\$*' ,Dc!!7 : V ; !\$*\$!' /)! /' /)*9=
)O/d6.#)P/d!/9!)O/d(l@)g%2%')!.' \$!8/#). *!<=9. *%\$!)/!(8O/\$+%d. !8/'9#%g'8d)! , *%d)O/d6.#)P/d!.' !
/66/#)+'*')=)!\$*(8+(!)O/d(l@)g%2%' D!! ` \$%#P+%dEMEISN!7 : V ; 3(!.8)*' /' (!.<(/!\$%6#-%\$!)O/d
1 / 2 2*(*/'! /9!)O/d/66/#)+'*')=)! . 66#/- %d)O/d(l@)g%2%')!.' \$!8/' (*\$%#l4 O%O#l)O/d(l@)g%2%')!*(
#%g. (/'. K%l*! !*, 0)!/9!)O/d40/%d#%8/#\$l8/' (*y%')!4*)0<. 4Ll.' \$!*'!)O/d6+K*8!*' y%#d(Dc!

!

! T9y/6#.8)*8* ,!*'9#/'!)/9!)0/d17` 1!/'!.18/'(*%!)!.'\$!%,+<.#K.(!.'\$!K2*' ,!)0/d
(+Kf/8)!/9!.'!*'-%/)* ,.)*/'!40/8/d.'!%'6</(*!'U*8/8%*,0)!0/d'60L*)*(!.66.<=*' ,!)0.)!7 : V ;!0.(!
)0/dy/2%8*)=)!/* ,'/#d)0/d#+-0/d!7 : V ;!8/'*'+0/d!)/!0.-0/d)0/d ,.<=!)!0*'U*)#+-0/d!)/0/d#/ /()K=!
+'* .y/#.<=!\$#9)* ,!.'!.\$8% \$+2!.'\$!\$8<.#' ,!)0.)!nc [XGGG!(0/+<\$!K2/8/' (*%8/8!.(!6.#)*.<!
6.=2%)9/#)0/d9*%0/d!.'\$!0%'<)*%0/d!*')0/dB1T!"&&!!

CD ?0/dT)y/26y/8!(0/0)%2%!)!5 .=!B.-0/d0*%<.y/8!)0/d17` 13(!P+0/d!T ,.*')!6"#
7%8'!!1/22+'*8.)*/'(*'!T\$+\$*8.)/#=!7#/8/888*' ,D

T'!=18/22+'*8.)*/'(K2040%0!7 : V ;!.'\$!\$8%(*' 2.U#(!.K/+!)0/d(+Kf/8)!2.)y/#*')0/d
B1T!"&&8/'(*)+y/d!.'!'"#80&!!18/22+'*8.)*/'+ '\$/8!1/22*(*/'!P+0/d]DHD!7/8!1/22*(*/'!
P+0/d]D2IKN!'"#80&!!18/22+'*8.)*/'(!.#d6#/0K*y/8!*'%.80!/9!)0/dA*%0/dEdM"&&D!<!/9!40*80!
0.-0/dK2%'!80.#.8y/8#10/8!.(!.\$f+\$*8.)/#=!6#/8/888*' ,D!>/)!/'<=!(!)0/d6.#)*8*6.)*/'!/9!7 : V ;!*'
.!'!)y/26y/8!(0/0)%2%!)!)/9!)0/dB1T!"&&(*26#/0/8#.'\$!*'.66#/6#*.y/L)0/d6.#)*8*6.)*/'!/9!7 : V ;!
. '\$!\$8%(*' 2.U#(!.!'!-*/<.)*/'!/9!)0/d<.4D!/?0/d6.#)*8*6.)*/'!/9!7 : V ;!.'\$!\$8%(*' 2.U#(!*'
)0/dB1T!"&&/'+(+Kf/8)(!,%#2 .%d)/!0/dB1T!"&&.2/+)(!)/!.16#/0K*y/8!'"#80&!!
8/22+'*8.)*/'+ '\$/8!1/22*(*/'!P+0/d!/?0/d1*)=!/9!@.'!R#+'/!*(+0/8!.'!7+K*8!P/8/#\$(!T8)!
#d+0/d!)/!0/d17` 1!/'!a.'+.#=!EGLMGEY!)/!K).*!'12/#d*9/#2.)*/'!.(!)/!400/0/8!7 : V ;!
*26#/0/8#=!8/22+'*8.y/8!4*)0!b8/8%(*' 2.U#(c!.(!8/0*%0/8K=!P+0/d]DEIKND!T!)0*(!)2%L@.'!
R#+'/!\$%0/d!'/)0.-0/d)0*(!8/'8<+(*'0/d*9/#2.)*/'D!@.'!R#+'/#8/ , '*0/d!0.)!0/dC%/6+)=C*8/8)/#
/9!)0/d"998/d/9!`)**)=@.90=!.'\$!P%*.K**=@.90=!.'\$! ;'9/#8%2%!)!C*-(*/'!\$%0/d!'/)9.<!
+'\$8/8)0/d\$8/8*')*/'!/9!b8/8%(*' 2.U#(c!+'\$8/P+0/d]DEIKND!B/4%0/8L+'\$8/8)0/dTAAm[Y!8*.)*/'!
6#/8/888+8/d!.'\$!6#/)8/L!<*k.-0/0!5.<.(0%'U!/0.(!8/8%(*' 'F2.U*' ,!.)0/#)=D

?0/dK2%/4!.'<=(*(!.66<0/d!*9!)0/d#d*(!+K0/d+0%)<=!/K).*%0/8!*'9/#2.)*/'!)0.)!6#/-%/d!0.)!
7 : V ;!8/22+'*8.y/8!4*)0!b8/8%(*' 2.U#D!!/?0/d/#8/8%*')0/dB1T!"&&8.y/0/#10/8!)0/dB1T!
"&&.(!b.\$f+\$*8.)/#=c!6+#+.!)!)/P+0/d]DEIN/9!)0/d17` 13(!P+0/d!)/9!7#.8)*8/d.'\$!7#/8/888+8/d!
7+#+.!)!)/!17` 1!P+0/d!)/9!7#.8)*8/d.'\$!7#/8/888+8/d]Dd!*'!b.'=!.\$f+\$*8.)/#=!6#/8/888*' ,Lp/!

!

6.#y/d8/ 2 2+'*8.)*/ '(1.#/d6#/ 0*K*y/\$c!4*)0!!.'=\$/δ*(*/ ' 2 .U/δ^{YE}!!T<)>0/+, 0!P+e/d]DEI\$N\$O*%d!
U/δ^!6.#y/d8/ 2 2+'*8.)*/ 'c!.(!.'=4#%)%!/##/#.<!8/ 2 2+'*8.)*/ '!0.)\!!

IE\$N8/ ' 8/#' (!.'=(+K).)'*-o/d*((o/d*!'!9/#2 .<!6#/ 8/8δ* ',!
MN).U/δ<!6<.8/dRδ 4%8%!.'!*' y/δ/d(yδ!θ/δ(/'!. '\$!.!\$δ*(*/ ' 2 .U/δ! . '\$!!
IeN\$ /δ(!' /)/! /88+##*!'!.!6+K*8!0%.#* ',L4 /#U(0/δU/#/)/O/#!6+K*8!9/#+2!' /)*8/δIK=#+<*' ,!
/#!/#S/δ#!'!)O/d6#/ 8/8δ* ',L/#!/'!)O/d#δ/#\$!/9!)O/d6#/ 8/8δ* ',!
!
` ' \$/δ#)O/d .K/ -/F8*y/\$#H+eL. '!!"#S&#!8/ 2 2+'*8.)*/ '*(!6#/ 0*K*y/\$Rδ 4%8%!.'!

b\$δ*(*/ ' 2 .U/δ#c!. '\$!.!'b*' y/δ/d(yδ!6.#)δc!!T!'b*' y/δ/d(yδ!θ/δ(/'c*' 8<+\$/d(1b.'=16.#=)/!)O/d
6#/ 8/8δ* ',!/#)O/d.,%)(!/#/2 6<-/e8d!/9!'=!6.#=)U*' 8<+*\$',!θ/δ(/' (H/δ/δ-* ',!8/ '(*S/δ#.)*/ '!)!/
#/δ#d(δ')!. '=!9!)O/d2 c!. '\$!b.'=!θ/δ(/'!4*)0!.!9*' . '8*.<!*' y/δ/d)DDD*!'!2 .)y/δ#.)!*(o/dRδ/θ/d
)O/d 1 / 2 2*(*/ 'c!+' \$/δ#P+e/d]DEI\$N!

` ' \$/δ#)O/d 17 ` 13(!-o/δ=/ 4 ' #+eL\$δ*(*/ ' 2 .U/δ#!.#/d6#/ 0*K*y/\$9#/ 2!\$(8+((*' ,!.'=!
(+K/δ)!2 .)y/δ#/#<.yδ!)/!)O/d 7 : V ; P/δ 6</ (*'!'!4 O/δ'!*)\$ /δ(!' /)/! /88+##*!'!.!6+K*8!0%.#* ',L
4 /#U(0/δU/#/)/O/#!6+K*8!9/#+2!' /)*8/δIK=)O/d#+<*' ,!/#/#S/δ#!'!)O/d6#/ 8/8δ* ',L/#!/'!)O/d
#/δ/#\$#!'!)O/d6#/ 8/8δ* ',D!&!C/δ*(*/ ' !!CDG[FG[FGML])O/d 1 / 2 2*(*/ '9/+ '\$!)0.)!2%δ/δ=!
.)%δ \$*' ,!12%8δ*',!8.'!-*/<.yδ)O/d!'#S&#!H+e/d(M!&!CDG[FG[FGML]!2%8δ*',!4.(!0%\$!
Rδ 4%8%! #/δ#d(δ').)*-o/d(!/9!)4 /!y/δ/δ/ 2 2+'*8.)*/ '(!+)*y/δ(!.'\$!)O/d 1 / 2 2*(*/ 'o/δ(3!.\$-*/(##(!' /!
)O/d) /6*8!/9! .88d(!) /HEE%2%#,%8=!C/δ-*8/d!+' \$/δ#7+K*8!')*)y/δ(! / \$/d(δ)* / 'M]]d! ?O/d
) /6*8!/9!HEE! .88d(!0.\$!Rδ%#.#*C/δ#!')4 /!17 ` 1!6#/ 8/8δ* ',(1.)O/d)*2%L.#+e/2 .U*' ,!.'\$!
.\$f+\$*8.)/#!8/ 2 6*.'!)!*' - /<-*' ,!-*/<.)*/ '(!9/δ)* / 'M]]d! ?O/d 1 / 2 2*(*/ '9/+ '\$!)0.)!O/d
)4 /!y/δ/δ/ 2 2+'*8.)*/ '(!+)*y/δ(!-*/<.yδ!O/d#H+e/d.,*')O!!"#S&#!8/ 2 2+'*8.)*/ '(!*)O/d
.\$f+\$*8.)/#!8.δd(!.'\$!*(o/δ!.!nYGLGG!δ%'>=/'!K/)0!8/ 2 6.'*δd

C/δ*(*/ 'G]FGZFGMe!S%'#δ#d/δ%.#*',!/9!CDG[FG[FGML]! '\$!+60%\$!)O/d\$δ*(*/ '!)0.)O/d
8/ 2 2+'*8.)*/ '!'<.yδ!O/d#H+e/d.,*')O!!"#S&#!8/ 2 2+'*8.)*/ '(D^!!?O/d\$δ*(*/ '!'<(yδ!
8*#8+2(). '\$/d(9/#!6.#)y/δ(!/!8/ '(*S/δ!4 O/δ'!S%)'=*',!!"#S&#!8/ 2 2+'*8.)*/ '(!'

!!
Me(@δd.</!7+K*8!)')*)y/δ(!1 / \$/d i i [GHE!)/!E[GHX!
M(0))6\ggS / 8(D86+8X.D, / -g7+K*(O/\$C/8(gW " P Cm7C JgJ&> TAmC ; l&&" >g[Geed7CJ !
Me(0))6\ggS / 8(D86+8X.D, / -g7+K*(O/\$C/8(gW " P Cm7C JgJ&> TAmC ; l&&" >g]YHed7CJ !!
!

!

HD ?0/d%2 6/#.<16#/^*2*)=IKQ4%8%!.'!'"\$%&'!18/ 2 2+'*8.)*/'!'\$!.#%/&.'!)

MD ?0/d\$%,#8d/9!/-%#<.6IKQ4%8%!0/d*(+0/d!.'\$!6.#)%d(hl.'\$!

ED ?0/d6/%)'*.<!)0.)#%&0!(/+,0)!-*!)0/d!"\$%&'!18/ 2 2+'*8.)*/'!8/+<\$!

! W0%'!.66<=* ,!)0/d9#(!8/'(*\$%#.)*/'L!)*(2 6/#.)!)/' /y/d)0/d0/8+<*.#)*2* ,!/9!)0/d

.)%2 6)%\$!(%)%2%'!)*!)0/dB 1 T!"&&! ?0/d-*/<.)*/' (L9*%d(L#%2%\$%d(L.'\$!0%'<)%d(*!)0/dB 1 T!

"&&.#d8+##%'<=!(+K2*)%\$!)/!TAA!Q*6FS*U+ ,. 4 .!9/#0#7#/6/0/\$!C%\$*('D!W0%'!

\$%#2*!* ,!)0/d. 2 /+!)!9!)0/d0%'<=>H!)0/dTAA(!4<=18/'(*\$%#)0/d.66#/6#%.%0%!(/9!(+80!

0%'<=>!)!0/d(*%d/9!)0/dK+(*%d(!/9!)0/d0/#(/'!80.#,%\$L)0/d,#.-*)=!/9!)0/d-*/<.)*/'L.'\$!8!#

9//2#%8#/#8!\$!&(/0#;8%8!2#0#0!'! 5\$'.09#/#0;8.!<!#;/ 5 \$3%0; !#0'!�/'!..,%0./0#/#0#

</30./0#(8%3#!#;/0.(2!&! D^{MK}!!?0#/+ ,0!)0*(.)%2 6)%\$!(%)%2%'! L17 : V ;*(.)%2 6)*' ,!)/!

(0/4!)0/dTAA(!0.)!*(18/ 2 6<=* ,!4*0!)0/d-*/<.)*/' (*!)0/dB 1 T!"&&K=!' /)*' ,!*(!)0/d8*.)*/'!

6.=2%'!9/#2!)0.)!)*!0.(!b8/#%\$%\$g2*)* ,.%\$!)0/d-*/<.)*/' (! /%\$#!)0/d8*.)*/' c^{MZ}!o! /%d/9!)0/d

)0#80%2%'!(!)0/dTAA(!4<=10.%d)!8/'(*\$%#40%'!2 .U*' ,!*)(!%\$*(*/'!/!)0/d9*%d.'\$!0%'<=>%d!

!)0/d)0#8d'-%d(* ,.)*' /(!+'\$%#7+K<8!')*)%d(!1/\$d@8)*' 'MEGYDD!7 : V ;!%0(!)/!\$!(/L/ /)!

!)0/d8/+##// 2!.'\$!)0#/+ ,0!% ,<K#%0(LK+)'!.!b1*.)*/'!7.=2%'!J/#2 c!.'\$!b.\$%\$ \$+2Dc!!!

W0%'!8/'(*\$%# ,!)0/d0/8/'\$%#%2%'L)0/d\$%,#8d/9!/-%#<.6IKQ4%8%!0/d*(+0/d!.'\$!

6.#)%d(L17 : V ;*)0%9!.(0#)(*)0/d.\$%\$ \$+2!)0.)!0/d(+K%8!)2 .)%#/#9!)0/d8*.)*/' /!/-%#<.60\$!)0/d

(+K%8!)2 .)%#/#9!)0/d8<.(!</8.)*/'!"&&!W0%'!.66<=* ,!)0/d<.(0%#%2%'L)0/d6/%)'*.<!)0.)#%&0!

(/+,0)!-*!)0/d!"\$%&'!18/ 2 2+'*8.)*/'!8/+<\$!\$%#2%'<=>!*2 6.8)!6.#)%d(*!'!.#%/&.%\$!

.\$f+\$*8.)/#=18.(L)0/d6.#*.<!(%)%2%'!)/9!)0/d"&&(14*0/+!)0/d6.#)%d(!.'\$!TAA(!6.#)*8*6.)*/'!

8%#<=\$%#2%'<=>!*2 6.8)(!0/d6.#)%d(!o!)0/d6.#)%d(!\$\$'3)%0%'!0.%d.!80.'8d)!8/'(*\$%#)0/d

.)%2 6)%\$!(%)%2%' D

!!!!
M₁!72*U6.,%MG!
M₁!7+K<8!')*)%d(!1/\$d@8)*' 'MEGYX!
M₁!@8d ; ^0*K!)CL!b1*.)*/'!7.=2%'!J/#2 c!

EXHIBIT A



Public Utilities Commission
STATE OF CALIFORNIA

Citation Date: December 5, 2013

Citation #: 13 - 005

Operator ID#: 15007

**CITATION FOR VIOLATION(S)
ISSUED PURSUANT TO RESOLUTION ALJ-274
OF GENERAL ORDER 112-E**

Gas Corporation (Operator): Pacific Gas & Electric Company
To Which Citation Is Issued

RESPONDENT:

Ms. Jane Yura for Pacific Gas and Electric Company
Vice President Gas Operations Standards & Policies
6121 Bollinger Canyon Road
4th Floor, Room 4460A
San Ramon, CA 94583

CITATION:

Operator is hereby cited at a Risk Level 3 (moderate risk) and Citation Level 2, resulting in a financial penalty of \$ 375,000.

VIOLATIONS:

Operator is cited with having violated General Order 112-E, as described below. This violation occurred during the period 1971 through 2012.

1. 49 CFR §192.605(e) and §192.613 Continuing Surveillance

"(a) Each operator shall have a procedure for continuing surveillance of its facilities to determine and take appropriate action concerning changes in class location, failures, leakage history, corrosion, substantial changes in cathodic protection requirements, and other unusual operating and maintenance conditions."

PG&E did not have a specific written procedure addressing Continuing Surveillance at the time of the 2012 OM&E Audit.¹ PG&E had certain standards and work procedures such as patrolling, class location

¹ PG&E now has a Continuing Surveillance procedure TD-4800S effective June 12, 2013 (Enclosure 4). SED will provide specific feedback to PG&E on the corrective action and will seek a formal response by PG&E to any SED recommendations.



Public Utilities Commission
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study, leak survey, cathodic protection, etc. that describe PG&E's performance of the various operations and maintenance tasks, but absent a unifying Continuing Surveillance procedure, the practices were disconnected and did not result in effective continuing surveillance.

PG&E must clearly describe how it uses and coordinates the various operations and maintenance tasks in its continuing surveillance. PG&E's written procedure should describe how findings from failure investigations, leak surveys, cathodic protection monitoring, and other operating and maintenance tasks are gathered and analyzed as a part of its continuing surveillance. The written procedure must also describe the actions to take if changes are found as a result of its data gathering and analysis.



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ENCLOSURES:

The following enclosures were used to establish the findings of fact:

1. *Enclosure 1 - SED Investigation Report*
2. *Enclosure 2 - SED 2012 PG&E OM&E Audit Findings dated 8/29/2012*
3. *Enclosure 3 - PG&E Response to OM&E Audit Finding #4, dated 10/12/2012*
4. *Enclosure 4 - PG&E Continuing Surveillance Procedure, TD-4800S, dated 6/12/2013*

STATEMENT OF FACTS:

The above violation is documented in the attached *Enclosure 1 - SED Investigation Report* which is based on one or more of the following: SED's review of the 2012 PG&E OM&E Audit, PG&E's response to the audit findings, Operator's records and/or substantiating documents obtained from other sources, SED's field findings related to the Operator's facilities or operations, or other reasons as stated in the attached report.



Public Utilities Commission
STATE OF CALIFORNIA

Citation Date: December 5, 2013

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Operator ID#: 15007

SED CITATION ANALYSIS

Element of Sentencing Schedule	Staff Finding
Number of violation (s) and duration of violation (s) since inception	1 Violation of Title 49 CFR §192.605(e) and §192.613 from 1971 to 2012
Maximum Fine per P.U. Code § 2107 and P.U. Code § 2108	\$1,000,000 as prescribed in SED Standard Operating Procedure (SOP) for a Risk Level 3, Citation Level 2.
Severity of the offense: overall level of risk of violation(s)	Risk Level # 3 – Moderate Risk – Citation Level #2 - \$ 375,000 See SOP
The conduct of the utility before, during, and after the offense	The utility is being cooperative and has undertaken corrective actions
Previous occurrence of similar violations by the utility	N/A
Self-reporting of the violation	Not self-reported. Violation found as a result of GSRB 2012 PG&E OM&E Audit
Indication of the violation (s) being willful	No
Actions taken by the utility to address the violation	Refer to Enclosures 1 thru 4
Associated safety related condition	N/A
Financial resources of the utility	4.3 Million customers, \$715 Million Revenue requirement
The totality of the circumstances	Missing procedure for Continuing Surveillance required by 49CFR192.613 affects PG&E's entire gas system
The amount of the fine in the context of other SED citations or Commission decisions	4 citations since SOP released on September 20, 2013. The first citation resulted in a \$140,000 fine, the second and third each resulted in a \$50,000 fine,



Public Utilities Commission
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	<i>and the fourth in a \$8,100,000 fine</i>
Other factors deemed relevant by SED	<i>Utility Cooperative with staff, lowered citation 25% from SOP minimum recommended level</i>
Resultant Citation Taking All Of These Factors Into Account	\$375,000.00



Public Utilities Commission
STATE OF CALIFORNIA

Citation Date: December 5, 2013

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RESPONSE:

Respondent is hereby called upon to provide a response to this Citation by: **5:00 PM (PST) on December 15, 2013.**

By way of such response Respondent, **within 10 calendar days**, may either:

- (1) Correct the violations as soon as feasible, with any immediate safety hazard requiring immediate correction, and/or submit a Compliance Plan to the Director of SED for correcting those violations requiring more than 10 days to correct, **and** pay a fine pursuant to Pub. Util. Code § 2107. (Submit a check payable to California Public Utilities Commission using the attached *Citation Payment Form*. Upon payment, the fine will be deposited in the State Treasury to the credit of the General Fund and this citation will become final); **or**
- (2) Confirm that the violation(s) noted in this Citation have been corrected and/or otherwise do not present an on-going safety hazard to the Operator's employees and the general public, and /or submit a Compliance Plan to the Director of SED for correcting those violations requiring more than 10 days to correct, **and** contest this citation by completing and submitting a *Notice of Appeal Form*. Please see the attached document, "Directions For Submitting An Appeal To A Citation Issued Pursuant To Resolution ALJ-274" for information on the appeals process and the attached "Notice of Appeal Of Citation Form."

Respondent's failure to provide a response, as noted above, within 10 calendar days from the date the citation is served, will place Respondent in default of the citation and will result in forfeiture of Respondent's rights to appeal the citation. A late payment will be subject to a penalty of 10% per year, compounded daily and to be assessed beginning the calendar day following the payment-due date. The Commission may take additional action to recover any unpaid fine and ensure compliance with applicable statutes and Commission orders.

NOTIFICATION TO PUBLIC AGENCIES:

As soon as is reasonable and necessary, and no later than 10 calendar days after service of the citation is effected, Respondent must provide a notification to the City Manager or similar local agency authority in the city and county where a citation is issued. Within 10 days of providing such notification, Respondent must serve an affidavit to the Director of SED, at the mail or e-mail address noted below, attesting that the local authorities have been notified; the date(s) for when notification was provided; and the name(s) and contact information for each local authority so notified.



Public Utilities Commission
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Operator ID#: 15007

The CPUC expects Operators to take actions, as soon as feasible, to correct, mitigate, or otherwise make safe all violations noted on the Citation regardless of the Operator's intentions to accept or appeal the violation(s) noted in the Citation.

A handwritten signature in black ink, appearing to read "Elizaveta Malashenko", written over a horizontal line.

Elizaveta Malashenko

Deputy Director

Office of Utility Safety and Reliability

Safety and Enforcement Division

California Public Utilities Commission

505 Van Ness Avenue

San Francisco, CA 94102

elizaveta.malashenko@cpuc.ca.gov



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CITATION PAYMENT FORM

I (we) _____ hereby agree to comply with this citation dated _____, and have corrected/mitigated the violation(s) noted in the citation on _____ and no later than _____, all work to make permanent corrections to any mitigated, or otherwise remaining concerns related to the violation(s) will be completed as noted in the Compliance Plan we have submitted to the Director of SED and, herewith, pay a fine in the amount of \$ _____ as included in the citation.

Signature of Gas Corporation's Treasurer,
Chief Financial Officer, or President/CEO, or
delegated Officer thereof

(Signature)

(Date)

(Printed Name and Title)

Payment with a check must be made payable to the **California Public Utilities Commission** and sent to the below address. Please include the citation number on the memorandum line of the check to ensure your payment is properly applied.

California Public Utilities Commission
Attn: Fiscal Office
505 Van Ness Avenue
San Francisco, CA 94102-3298

NOTE: A copy of the completed Citation Payment Form must be sent to the Director of the Safety and Enforcement Division, via email or regular mail, to the addresses provided on the Citation.



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**DIRECTIONS FOR SUBMITTING AN APPEAL TO A CITATION
ISSUED PURSUANT TO RESOLUTION ALJ-274**

Within 10 calendar days of the Respondent being served with a **CITATION FOR VIOLATION(S) ISSUED PURSUANT TO RESOLUTION ALJ-274**, Respondent may appeal the citation. Beyond 10 calendar days of being served with the citation, Respondent is in default and, as a result, is considered as having forfeited rights to appeal the citation. The Respondent must still correct the violation(s) as feasible unless, within 10 calendar days from the date of service of the citation, the Respondent submits to the Director of SED, a Compliance Plan that provides a detailed description of when the violation(s) will be corrected, the methodology to be utilized, and a statement, supported by an affidavit from the Gas Corporation's Chief Executive Officer, that in the Respondent's best judgment, the time necessary to correct the violation(s) will not affect the integrity of the operating system or unduly endanger the public.

To appeal the citation, Respondent must complete and submit the below *Notice of Appeal Form* within 10 calendar days of the date on which the Respondent is served the Citation. The Respondent's appeal must explain with specificity all grounds for the appeal of the citation. The completed *Notice of Appeal Form*, along with copies of any materials the Respondent wants to provide in support of its appeal, must be sent to:

California Public Utilities Commission
505 Van Ness Ave, Room 2205
San Francisco, CA 94102
Attn: Director, Safety and Enforcement Division

Respondent must also serve a copy of the *Notice of Appeal Form*, along with copies of any supporting materials, at the address noted above, on the Commission's Executive Director, Chief Administrative Law Judge, General Counsel, and Director of the Division of Ratepayer Advocates.

NOTE: Submission of a *Notice of Appeal Form* in no way diminishes Respondent's responsibility for correcting the violation described in the citation, or otherwise ensuring the safety of facilities or conditions that underlie the violations noted in the Citation.

After SED receives the Respondent's *Notice of Appeal Form*, a hearing will be convened before an Administrative Law Judge. At least ten business days before the date of the hearing, the Respondent will be notified and provided with the location, date, and time for the hearing. At the hearing,

- (a) Respondent may be represented by an attorney or other representative, but any such representation shall be at the sole expense of the Respondent;



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- (b) Respondent may request a transcript of the hearing, but must pay for the cost of the transcript in accordance with the Commission's usual procedures;
- (c) Respondent is entitled to the services of an interpreter at the Commission's expense upon written request to the Chief Administrative Law Judge not less than three business days prior to the date of the hearing; and
- (d) Respondent may bring documents to offer in evidence and/or call witnesses to testify on Respondent's behalf.

At the Commission's discretion, the hearing in regard to the Respondent's appeal can be held in a hearing room at either of the Offices of the CPUC at the following locations:

San Francisco:

505 Van Ness Avenue
San Francisco, CA 94102

Los Angeles:

320 West 4th Street, Suite 500
Los Angeles, CA 90013

The hearing(s) held in regard to the Respondent's appeal will be adjudicated in conformance with all applicable Public Utilities Code requirements.



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Notice of Appeal Form
(For A Citation Issued Pursuant to Resolution ALJ-274)

Respondent:

Name
Vice President, Gas Operations
Gas Utility Name
Mailing Address
City, CA Zip

Citation Date:

Citation #: ____-____-____

Operator ID#:

Appeal Date: _____

Statements supporting Respondent's Appeal of Citation (You may use additional pages if needed and/or attach copies of supporting materials along with this form).



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Enclosures to Accompany Utility Appeal

Utility to add Enclosures as appropriate



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SED Investigation Report

August 29, 2012 PG&E OM&E Audit Finding - Notice of Violation
The Utility has No Specific Written Procedure Addressing Continuing Surveillance as
Required by 49 CFR 192.605(e) and 192.613

Utility: Pacific Gas & Electric Company (PG&E)

Utility Operating Unit: Pacific Gas and Electric Company's (PG&E) Gas Business Unit

Subject of Report: Audit Finding - Utility has no Continuing Surveillance Procedure as required by law.

Audit Title: General Order 112-E Audit of PG&E's Operations, Maintenance and Emergency (OM&E) Plans

Date of Audit: February 14-17, 2012

SED Investigator: Charles Magee

Summary:

49 CFR §192.605(e) and §192.613 Continuing Surveillance

"(a) Each operator shall have a procedure for continuing surveillance of its facilities to determine and take appropriate action concerning changes in class location, failures, leakage history, corrosion, substantial changes in cathodic protection requirements, and other unusual operating and maintenance conditions."

The GSRB audit finding stated, "PG&E currently does not have a specific written procedure addressing Continuing Surveillance. PG&E has certain standards and work procedures such as patrolling, class location study, leak survey, cathodic protection monitoring, and cathodic protection area resurvey. These specific procedures describe PG&E's performance of the various operations and maintenance tasks, but it remains unclear how or whether the various tasks relate to PG&E's continuing surveillance efforts."

"PG&E must clearly describe how it uses and coordinates the various operations and maintenance tasks in its continuing surveillance. PG&E's written procedure should describe how findings from failure investigations, leak surveys, cathodic protection monitoring, and

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other operating and maintenance tasks are gathered and analyzed as a part of its continuing surveillance. The written procedure must also describe the actions to take if changes are found as a result of its data gathering and analysis.”

Findings:

The staff of the Safety and Enforcement Division (SED), Gas Safety and Reliability Branch (GSRB) conducted a General Order 112-E audit of Pacific Gas and Electric Company's (PG&E) Operations, Maintenance, and Emergency Plans (OM&E) from February 14-17, 2012. Also in attendance were a representative from the Pipeline and Hazardous Materials Safety Administration (PHMSA) and staff from SED's Risk Assessment Unit. The audit consisted of a review of PG&E's gas distribution and transmission standards, work procedures, bulletins, job aids, etc. which constitutes PG&E's OM&E Plan. No field inspection was performed as a part of this audit.

On August 29th, 2012, SED staff notified PG&E of its audit findings, consisting of 4 Violations of the Code of Federal Regulations and 7 Areas of Concern (Enclosure 2). Of the 4 violations, the first 3 are considered administrative in nature. A Warning Letter will be sent to PG&E to correct those violations. Violation #4 however, the lack of a procedure for continuing surveillance, in violation of 49 CFR §192.605(e) and §192.613, is considered a serious violation having public safety implications. A Continuing Surveillance Procedure has been a requirement of these sections of the CFR since 1971.

On October 10th, 2012 PG&E responded to the SED audit report, agreeing with the finding of Violation #4. PG&E stated "PG&E agrees with this finding and will publish a specific work procedure to address the Company's continuing surveillance of its gas facilities as required by §192.613." (Enclosure 3)

On June 12, 2013, PG&E issued procedure TD-4800S, titled, "Continuing Surveillance" (Enclosure 4).

Recommendations:

It is imperative that PG&E operate its gas systems in compliance with GO 112-E and in a manner that promotes and safeguards the health and safety of the public. Safety-Related work must be tightly controlled by procedures. Changes in class location and indications of failures, leakage, corrosion, substantial changes in cathodic protection requirements and other unusual operating and maintenance conditions are serious threats to the integrity of the piping system and therefore serious threats to the safety of the public. From the time a potential problem is identified there must be an

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unbroken chain of custody from identification through problem assessment and resolution to completion of corrective action, if corrective action is required. The utility worker's determination of the next step to take after he/she has identified a potential problem must not be dependent on their level of experience, memory, co-worker's knowledge (a.k.a. tribal knowledge), etc. It must be clearly determined by procedure so that problems are identified and corrected thoroughly and in a timely manner. In addition, workers must receive training to make them aware of the existence of the Continuing Surveillance Procedure and how to use it.

The NTSB report on the San Bruno explosion and the SED Class Location OII contain numerous examples of weld cracks, problems and surveillance deficiencies which were not correctly identified, assessed and corrected, possibly due to the lack of a Continuing Surveillance Procedure and adequate employee training. In addition, this violation has the potential to affect infrastructure anywhere in the gas system so the probability of a negative consequence is greatly increased.¹

Furthermore, this violation is an indication that, two years after the San Bruno explosion, PG&E still did not have an internal auditing process to determine if gas system procedures and instructions are in compliance with the Code of Federal Regulations. Instead, this violation was found by CPUC auditors.

Based on its investigation SED has determined this violation as a Risk Level 3 (moderate risk) resulting in a financial penalty of \$ 375,000.

¹ See I.11-11-009.

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STATE OF CALIFORNIA

EDMUND G. BROWN JR., Governor

PUBLIC UTILITIES COMMISSION

805 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3298



August 29, 2012

Ms. Jane Yura, Vice President
Pacific Gas and Electric Company
Gas Operations – Standards and Policies
P.O. Box 770000, Mailcode N15F
San Francisco, CA 94177

GA2012-01

Dear Ms. Yura:

The staff of the Consumer Protection and Safety Division (CPSD), Gas Safety and Reliability Branch (GSRB) conducted a General Order 112-E audit of Pacific Gas and Electric Company's (PG&E) Operations, Maintenance, and Emergency Plans (OM&E) from February 14-17, 2012. Also in attendance were a representative from the Pipeline and Hazardous Materials Safety Administration (PHMSA) and staff from CPSD's Risk Assessment Unit. The audit consisted of a review of PG&E's gas distribution and transmission standards, work procedures, bulletins, job aids, etc. which constitutes PG&E's OM&E Plan. No field inspection was performed as a part of this audit.

During the audit, PG&E presented its Enterprise Tracking Compliance System (ECTS) which it uses to monitor and track reviews of the various standards included in PG&E's OM&E Plan. The ECTS lists, at a minimum, all documents subject to the annual OM&E review, PG&E staff responsible for the review of the documents, and the review dates. PG&E's use of ECTS appears to be in its early phase and CPSD looks forward to seeing it employed with full functionality. PG&E states that its ECTS is capable of tracking document update action plans as well as highlighting priority for revisions, which are important aspects of keeping the standards and procedures up-to-date.

Attached is a Summary of Inspection Findings which contains violations identified by CPSD staff and areas of concerns identified during the audit.

Please provide a written response indicating the measures taken by PG&E to address the violations and areas of concern within 30 days from the date of this letter.

Pursuant to Commission Resolution ALJ-274, CPSD staff has the authority to issue citations for each violation found during the audit. CPSD will notify PG&E of the enforcement action it plans to take after it reviews PG&E's audit response.

If you have any questions, please contact Aimee Cauguiran at (415) 703-2055 or by email at aimee.cauguiran@cpuc.ca.gov.

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Sincerely,

A handwritten signature in cursive script, appearing to read "Michael Robertson".

Michael Robertson, Program Manager
Gas Safety and Reliability Branch
CPSD/CPUC

Enclosure: Summary of Inspection Findings

Cc: Bill Gibson, PG&E
Larry Berg, PG&E
Brian Leary, PG&E
Cynthia Lee, PHMSA Western Region

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Summary of Inspection Findings

Areas of Violations

1. 49 CFR §192.605 – Procedural manual for operations, maintenance, and emergencies.

"Each operator shall prepare and follow for each pipeline, a manual of written procedures for conducting operations and maintenance activities and for emergency response. For transmission lines, the manual must also include procedures for handling abnormal operations. The manual must be reviewed and updated by the operator at intervals not exceeding 15 months, but at least once each calendar year."

- a) PG&E explained that its standards and procedures are identified as either maintenance and operations (M&O) or non-maintenance and operations (non-M&O). PG&E M&O documents are reviewed annually while non-M&O documents, described as mostly design and construction standards, are reviewed once every 5 years. PG&E's current four subject-matter volumes (Corrosion Control, Plastic, Damage Prevention, and Field Services) are also reviewed the same way, with M&O documents reviewed annually and non-M&O documents reviewed every five years. Document reviews are also tracked using ECTS.

In the 2010 OM&E audit, PG&E was cited by CPSD for not including Gas Standards and Specification (GS&S) documents in its annual review. As a result, PG&E reviewed its GS&S documents and included 36 GS&S documents in its annual OM&E reviews.

However, during the audit conducted from February 14-17, 2012, CPSD staff identified additional documents that should have been included in the annual reviews. As such, PG&E is in violation of §192.605 for failing to review OM&E documents once a year, not to exceed 15 months.

PG&E needs to continue reviewing its GS&S manual and the subject-matter volumes to identify documents that must be included in the annual reviews. The following are examples of documents not currently included in the annual reviews:

- Bulletin 304 – refers to Job Aid "Gas Construction and Maintenance – Demonstration of Compliance with 100 mV Shift Criteria Using a Coupon Test Station"
- A-93.1 Plastic Gas Distribution System Construction and Maintenance – This document contains repair procedures which meet §192.605(b)(1).

- b) In 2010, PG&E was also cited for not including standards and work procedures for Gas Field Services (GFS) personnel in its scheduled annual reviews. In particular, PG&E was cited for not including WP6435-04 Procedure for Discontinuing Gas Service in its annual review.

PG&E responded stating that it had identified four standards and work procedures that meet the requirements of §192.605(b)(11):

- S6434 Gas Leak and Odor Response

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- S6436 Gas and Electric Field Service and Dispatch and Scheduling Operating Practices
- S6437 Selsmic Automatic Gas Service Shut-Off (Earthquake) Valve Devices and Earthquake Preparedness
- WP6434-01 Gas Leak and Odor Investigation

Furthermore, in 2010, PG&E stated that it was performing a review of all GFS documents as it prepared to release the Field Services manual in 2011. As a part of its extensive review, PG&E committed to identifying any field services documents that met the criteria of §192.605(b) and included them in the scheduled annual review. However, it does not appear that any documents and work procedures within the Field Services manual, except for TD-6436P-28 Gas Regulator Servicing and Pressure Determination and TD-6437S Selsmic Automatic Gas Service Shut-Off (Earthquake) Valve Devices and Earthquake Preparedness, are included in the annual review as they are not reflected in the 2011 Annual Document Review spreadsheet provided to us during the audit.

The field services manual includes standards and work procedures to be followed by PG&E Gas Service Representatives (GSRs) as they respond to customer calls, encounter abnormal conditions while performing their tasks, and respond to emergencies. GSRs play an important role in PG&E's operations and emergency response. Therefore, many of the standards and work procedures that pertain to PG&E's GSR's tasks must be considered part of PG&E's OM&E and included in the annual reviews. This includes WP6435-04 Procedures for Discontinuing Gas Service which is a requirement under Subpart M §192.727(d).

- c) CPSD staff observed that not all bulletins are included in the annual review list. Bulletins that have not been converted into a new standard or procedure must be included in the annual review until they are formally adopted into the standards. Examples of bulletins that meet the requirements of §192.605, but were not included in the annual review are:
- Document 274 Rev 1 Leak Repair Option – Skinner Pipe Joint Clamps
 - Document 304 Reading Coupon Test Stations
 - Document 310 Replace District Regulator Station Maintenance Forms
 - TD-A-34B-001 A-34 Test Requirements Revision
 - TD-H-70B-001

PG&E must review its list of bulletins to ensure that all bulletins that have not been converted into a new or existing standard or procedure are included in the annual review. PG&E should also identify those that can be easily incorporated into an existing standard or procedure to avoid having active bulletins for a long period of time.

2. 49 CFR §192.614 Damage prevention program.

"(a)...[E]ach operator of a buried pipeline shall carry out, in accordance with this section, a written program to prevent damage to that pipeline from excavation activities...

(c) The damage prevention program required by paragraph (a) of this section must, at a minimum:

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(1) Include the identity, on a current basis, of persons who normally engage in excavation activities in the area in which the pipeline is located."

CPSD staff found that PG&E's damage prevention program does not have a written procedure addressing how PG&E maintains a current list of excavators or those who normally engage in excavation activities. PG&E needs to describe how it identifies excavators and how it maintains a current list of excavators for its damage prevention program.

3. 49 CFR §192.14 Conversion of service subject to this part.

"(a) A steel pipeline previously used in service not subject to this part qualifies for use under this part if the operator prepares and follows a written procedure to carry out the following requirements..."

PG&E's gap analysis shows this portion of the code as "N/A". PG&E needs to clarify why this section of the code is not applicable. Review of documents from PG&E's Tariff Application Guide (TAG) requires PG&E personnel to obtain records of design, construction, operation and maintenance of the pipeline being considered for acquisition. This implies that PG&E could possibly consider conversion of steel pipeline into service.

If it is company policy not to convert steel pipeline not previously subject to code, then PG&E must clearly state so. Otherwise, PG&E needs to prepare and follow a written procedure as required by 49 CFR §192.14 to guide its personnel through the review, evaluation, test, and record-keeping requirements for conversion.

4. 49 CFR §192.605(e) and §192.613 Continuing Surveillance

"(a) Each operator shall have a procedure for continuing surveillance of its facilities to determine and take appropriate action concerning changes in class location, failures, leakage history, corrosion, substantial changes in cathodic protection requirements, and other unusual operating and maintenance conditions."

PG&E currently does not have a specific written procedure addressing Continuing Surveillance. PG&E has certain standards and work procedures such as patrolling, class location study, leak survey, cathodic protection monitoring, and cathodic protection area resurvey. These specific procedures describe PG&E's performance of the various operations and maintenance tasks, but it remains unclear how or whether the various tasks relate to PG&E's continuing surveillance efforts.

PG&E must clearly describe how it uses and coordinates the various operations and maintenance tasks in its continuing surveillance. PG&E's written procedure should describe how findings from failure investigations, leak surveys, cathodic protection monitoring, and other operating and maintenance tasks are gathered and analyzed as a part of its continuing surveillance. The written procedure must also describe the actions to take if changes are found as a result of its data gathering and analysis.

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Areas of Concern/Recommendations

1. Annual review of documents and bulletins

- a) PG&E's OM&E plan includes standards, work procedures, bulletins, and job aids, etc. PG&E explained that the various documents are reviewed separately and can be assigned a different compliance review due date.

CPSD staff recommends that all documents related to one OM&E area or subject (i.e. leak survey standard, leak survey work procedures, bulletins related to leak surveys, etc.) be reviewed concurrently to ensure that all documents associated with a gas utility standard are properly referenced and that necessary updates, such as those issued via a bulletin, are incorporated in a timely manner.

- b) PG&E's current list of bulletins identifies active bulletins issued since 1994. CPSD staff is concerned that having active bulletins for a long period of time can lead to confusion as other documents are updated and the bulletins are left as stand-alone documents. We understand bulletins are issued in some instances where it is important to immediately inform personnel of changes that impact their work and public safety. However, bulletins should be converted into a new standard or procedure or incorporated into the applicable existing gas utility standard, work procedure, or job aid. The annual review and update process should provide a good opportunity to create a new document or incorporate such bulletins.

2. Updating Documents

CPSD staff reviewed certain standard review plan records generated from PG&E's ECTS. We understand that not all documents with a standard review plan using ECTS would have an Update Plan generated via PG&E's ECTS. Some review plan records contain notes regarding update plans within the Comments section of the review plan, while others only identify changes that needed to be made on the standard without detailing an update plan. We also observed some documents identified as needing updates have target completion dates that are more than one year from the date of the document review.

Please explain how the various documents that have been identified for a change or update are prioritized and how the subject matter expert and/or technical team determine the target date of completion.

3. UO Standard S4411 Inspection of Underground Gas Holders

- a) CPSD staff found that UO Standard S4411 was reviewed on 4/29/2011; however, the document content appears to have not been updated since August 2000. The UO Standard S4411 primarily consists of the various forms used for the monthly, annual, and 10-year inspections and lacks written procedures on how to perform the inspections. For instance, Exhibit A used during monthly inspections requires a check of the regulators for proper operations. However, the

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document does not describe the specific steps PG&E personnel would take to perform this task. Similarly, Item #8 in Exhibit B used for the annual inspections only asks for the results of operating tests on relief equipment, but does not include written procedures describing how to perform tests on relief devices. If PG&E has a separate work procedure to perform such operating tests on its regulating and over pressure protection equipment, the appropriate work procedures should be referenced in the document.

- b) UO Standard S4411 currently requires monthly and annual inspection reports to be retained for a period of 3 years. CPSD staff requests that the record retention for the monthly and annual inspection reports be changed to 10 years, at a minimum, to allow CPUC inspectors to review the inspection reports during scheduled audits.

4. Pipeline purging practice

PG&E's GS&S A-38 describes two methods that can be used to determine absence of air and determine whether further purging is necessary. The first method uses Combustible Gas Indicator (CGI), while the second method involves blowing a small amount of gas into a bucket of soapy water and igniting the gas contained in the bubbles to check the color of the flame. An orange and yellow flame indicates completion of purging, while a blue flame indicates need for further purging.

Please explain if PG&E still uses the latter method described above. If so, PG&E should explain and provide documentation on how PG&E trains its employees to safely execute this purging method.

5. Joining Procedures

- a) CPSD staff found that PG&E Procedures WP4170-04 through WP4170-07 for Polyethylene Heat Iron Socket, Saddle, Butt Fusion, and Electrofusion couplings and connections, do not take weather conditions into consideration in determining heating and cooling times. Specifically, Table 1 on page 3 of WP4170-04 shows the required heating, holding, and cooling times for heating iron socket fusion. Similarly, Table 1 on page 6 of WP4170-05, Tables 1-3 on page 5 of WP4170-06, and Tables 2 & 3 on page 10 of WP4170-07 identify required heating, holding, and cooling times for saddle fusion, butt fusion, and electrofusion respectively. However, there is no mention of the need to adjust the modifying heating and cooling times depending on ambient temperature.

CPSD staff is concerned that adverse weather conditions such as rain, cold, hot, wind, or snow, may adversely affect fusion quality. CPSD staff requests that PG&E review and adjust the recommended heating and cooling times to reflect weather conditions in order to achieve high quality fusion.

- b) TD-4170B-06 was published on 7/27/2011 (Rev 0) to correct the cooling times listed in WP4170-05 Polyethylene Heat Iron Saddle Fusion. Corresponding job aid TD-4170P-05-JA01 should also be changed to reflect the corrected cooling time in the bulletin.

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6. UO Standard S4110

The Current version of UO Standard S4110 is silent about conducting leak surveys of transmission pipelines transporting unodorized gas in Class 4 locations. If PG&E does not have any transmission pipelines in Class 4 locations currently transporting unodorized gas, then it should clearly state so in its standard.

7. Damage Prevention and Operator Qualification

PG&E's damage prevention manual does not require PG&E employees to be operator qualified when performing excavation. In addition, PG&E's list of covered tasks also does not include excavation. Please explain why PG&E does not include excavation as a covered task despite PHMSA's issuance of Advisory Bulletin ADB-06-01, which states in part:

"Furthermore, PHMSA reminds pipeline operators that although excavation is not explicitly addressed in 49 CFR parts 192 and 195, excavation is considered a covered task under the pipeline operator qualifications regulations (49 CFR 192.801-809 and 195.501-509). These regulations require that pipeline operators and contractors be qualified to perform pipeline excavation activities. A qualified individual is one who has been evaluated and can perform assigned covered tasks and can recognize and react appropriately to abnormal conditions."

Enclosure 3



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Citation Date: December 5, 2013

Citation #: 13-005

Operator ID#: 15007



Frances Yee
Acting Director
Regulatory Compliance & Support
Gas Operations

375 N. Walnut Lane, Suite 200
Walnut Creek, CA 94598

925-974-4316
Fax: 925-974-4102
Internet: FSC2@pge.com

October 12, 2012

Mr. Michael Robertson
Gas Safety and Reliability Branch
Consumer Protection and Safety Division
California Public Utilities Commission
320 West 4th Street, Suite 600
Los Angeles, CA 90013

Re: General Order 112-E Audit of PG&E's Operations, Maintenance, and Emergency Plan

Dear Mr. Robertson:

The Consumer Protection and Safety Division (CPSD), Gas Safety and Reliability Branch (GSRB) of the CPUC conducted a General Order 112-E audit of PG&E's Operations, Maintenance, and Emergency Plan (OM&E) from February 14 - 17, 2012. The attachment to this letter provides PG&E's detailed responses to the inspection findings listed in your audit letter, dated August 29, 2012.

Please contact Larry Berg at (925) 974-4084 or LMB5@pge.com for any additional questions you may have regarding this notification.

Sincerely,

/s/
Frances Yee
Acting Director, Regulatory Compliance and Support

Attachment

cc: Aimee Cauguiran, CPUC
Julie Halligan, CPUC

Larry Berg, PG&E
Larry Deniston, PG&E
Karen Roth, PG&E
Jane Yura, PG&E

Enclosure 3



Public Utilities Commission
STATE OF CALIFORNIA

Citation Date: December 5, 2013
Citation #: 13-005
Operator ID#: 15007

General Order 112-E Findings
CPUC Inspection Report, dated August 29, 2012
Operations, Maintenance, & Emergency Plan

INSPECTION INFORMATION

Inspection Dates	Finding	CPUC Contact	CPUC Phone #
February 14-17, 2012	NOV - 4	Aimee Cauguiran	(415) 703-2055

INSPECTION FINDING

CPUC Finding	<p>49 CFR §192.605(e) and §192.613 Continuing Surveillance</p> <p><i>"(a) Each operator shall have a procedure for continuing surveillance of its facilities to determine and take appropriate action concerning changes in class location, failures, leakage history, corrosion, substantial changes in cathodic protection requirements, and other unusual operating and maintenance conditions."</i></p> <p>PG&E currently does not have a specific written procedure addressing Continuing Surveillance. PG&E has certain standards and work procedures such as patrolling, class location study, leak survey, cathodic protection monitoring, and cathodic protection area resurvey. These specific procedures describe PG&E's performance of the various operations and maintenance tasks, but it remains unclear how or whether the various tasks relate to PG&E's continuing surveillance efforts.</p> <p>PG&E must clearly describe how it uses and coordinates the various operations and maintenance tasks in its continuing surveillance. PG&E's written procedure should describe how findings from failure investigations, leak surveys, cathodic protection monitoring, and other operating and maintenance tasks are gathered and analyzed as a part of its continuing surveillance. The written procedure must also describe the actions to take if changes are found as a result of its data gathering and analysis.</p>
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PG&E RESPONSE

PG&E agrees with this finding and will publish a specific work procedure to address the Company's continuing surveillance of its gas facilities as required by §192.613.

Enclosure 3



Public Utilities Commission
STATE OF CALIFORNIA

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CPUC Inspection Report, dated August 29, 2012
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ATTACHMENTS

Attachment #	Title or Subject
None	

ACTION REQUIRED

Action To Be Taken	Due Date	Completion Date	Responsible Dept.
Publish a new Continuing Surveillance Procedure	July 31, 2013		Integrity Management

Enclosure 4



Public Utilities Commission STATE OF CALIFORNIA

Citation Date: December 5, 2013
Citation #: 13-005
Operator ID#: 15007



**Pacific Gas and
Electric Company**

Utility Standard: TD-4800S
Publication Date: 06/12/2013 Rev: 0

Continuing Surveillance

Summary	This standard establishes requirements to identify abnormal operating conditions (AOC), collect data during operations and maintenance (O&M) tasks, evaluate data, perform corrective maintenance, post-evaluation actions, and ensure continuing surveillance of Pacific Gas and Electric Company (Company) gas transmission and distribution (T&D) systems to facilitate public safety.
Target Audience	Gas operations personnel responsible for asset integrity, risk management, engineering, gas control, and O&M tasks.
Safety	NA

Table of Contents

Subsection	Title	Page
1	General	1
2	Identification	3
3	Operations & Maintenance	3
4	Condition Evaluation	3
5	Corrective Maintenance	4
6	Post Evaluation	4

Requirements

- 1 **General**
 - 1.1 Gas O&M personnel must report any condition that may affect the safe operation of the gas system when observed during the normal performance of daily activities.
 - 1.2 Surveillance of gas systems facilities includes, but is not limited to, awareness of the following items:
 1. Right-of-way encroachments, which include the following:
 - a. Construction activities.
 - b. Boring across the right of way.

Enclosure 4



Public Utilities Commission

STATE OF CALIFORNIA

Citation Date: December 5, 2013

Citation #: 13-005

Operator ID#: 15007



**Pacific Gas and
Electric Company**

Utility Standard: TD-4800S
Publication Date: 06/12/2013 Rev: 0

Continuing Surveillance

1.2 (continued)

- c. Equipment or materials storage.
 - d. New structures including: buildings, swimming pools, etc.
 - e. Indications of heavy vehicle crossings.
 - f. Plowing or cultivating activities.
 - g. Fires.
 - h. Vegetation.
2. Activities near the facility right-of-way, which include the following:
- a. Construction activities.
 - b. Boring parallel to the right-of-way.
 - c. Building activity, including subdivisions and trail parks.
 - d. Drilling.
 - e. Blasting.
 - f. Fires.
3. Natural conditions, which include the following:
- a. Earth movement.
 - b. Surface deterioration.
 - c. Erosion.
 - d. Flooding.
 - e. Fires.
4. Condition of facilities, which include the following:
- a. Indication of leaks.
 - b. Indication of vandalism or sabotage.
 - c. Dig-ins.



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**Pacific Gas and
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Publication Date: 06/12/2013 Rev: 0

Continuing Surveillance

1.2 (continued)

5. Other factors that affect operations of the pipeline system, or result in the possible injury or damage to people or property.

2 Identification

- 2.1 Report AOCs, unsafe conditions, Supervisory Control and Data Acquisition (SCADA) incidents, overpressure events, unusual situations such as blasting, boring operations, heavy equipment crossings, land leveling, construction parallel to and in close proximity to Company facilities, and encroachments.
- 2.2 When an unsafe condition is identified, gas operations personnel must ensure the location is safe until permanent pipeline repairs are complete. In case of an emergency, personnel must proceed per the "Gas Emergency Response Plan."
- 2.3 Condition identification and reporting are performed per the standards and procedures listed in Table 1 Standards & Procedures ensuring continuing surveillance.

3 Operations and Maintenance (O&M)

- 3.1 Factors that affect operations of the pipeline system, or result in possible injury or damage to people or property are identified and reported throughout O&M tasks as prescribed in the standards and procedures listed in Table 1.

4 Condition Evaluation

- 4.1 Appropriate Company personnel review and analyze facility records periodically. These records include, but are not limited to the following:
 - Patrols (aerial, vehicle, or other)
 - Leak surveys
 - Valve inspections
 - Vault inspections
 - Pressure regulating/relieving.
 - Limiting equipment inspections
 - Corrosion control inspections
 - Facility failure investigations, per the standards and procedures listed in Table 1.
- 4.2 Information gathered throughout continuing surveillance is used to ensure ongoing safe operation of the pipeline system, and to recognize changing conditions on or near a pipeline asset that could affect integrity management decisions on Company assets. Where applicable, the integrity management programs established by the procedures listed in Table 1 use relevant data from continuing surveillance as a data source.

Enclosure 4



Public Utilities Commission STATE OF CALIFORNIA

Citation Date: December 5, 2013

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**Pacific Gas and
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Utility Standard: TD-4800S
Publication Date: 06/12/2013 Rev: 0

Continuing Surveillance

5 Corrective Maintenance

5.1 When a pipeline is determined to be in unsatisfactory condition by inspection or record review, but no immediate hazard exists, action is taken per the standards and procedures listed in Table 1 Standards & Procedures ensuring continuing surveillance.

6 Post Evaluation

6.1 Post evaluation of a condition may require reports to be completed and follow-up actions to assess effectiveness and sustainability of corrective action as prescribed in the standards and procedures listed in Table 1 below.

NOTE

Table 1 lists minimum requirements for continuing surveillance. Additional documents are being developed and not included in the table.

Table 1 Standards & Procedures ensuring continuing surveillance

Document	Identification	O&M	Condition Evaluation	Corrective Maintenance	Post Evaluation
<u>EMER-1011M, "Gas Emergency Response Plan."</u>	X			X	
<u>EMER-6010S, "Training and Exercising Gas Emergency Response Plan."</u>				X	
<u>H-70 "Pressure-Relief Devices."</u>		X	X		
<u>Q-16, "Corrosion Control of Gas Facilities."</u>		X	X	X	
<u>RMI-04, "Gas Transmission Earthquake Plan and Response Procedure."</u>	X	X	X		
<u>RMI-04A, "Gas Transmission Rainfall Plan and Response Instruction."</u>	X	X	X		
<u>RMI-04B, "Gas Distribution Earthquake Plan and Response Procedure."</u>	X	X	X		
<u>RMP-06, "Gas Transmission Integrity Management Program."</u>			X		
<u>RMP-16, "Gas Distribution Integrity Management Program."</u>			X		
<u>TD-4020S, "Gas Operations Corrective Action Program."</u>	X	X	X		X

Enclosure 4



Public Utilities Commission STATE OF CALIFORNIA

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**Pacific Gas and
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Utility Standard: TD-4800S
Publication Date: 06/12/2013 Rev: 0

Continuing Surveillance

Document	Identification	O&M	Condition Evaluation	Corrective Maintenance	Post Evaluation
TD-4050S, "Security Standard for Gas Operations."					
S4110, "Leak Survey and Repair of Gas Transmission and Distribution Facilities."		X	X	X	
TD-4110P-06, "Field Inspection of Gas Facilities."	X	X			
TD-4110P-09, "Leak Grading and Response."	X	X	X		
TD-4125S, "Maximum Allowable Operating Pressure Requirements for Gas Distribution Systems and Transmission and Gathering Lines."				X	
TD-4125P-03, "Revising the MAOP of Pipelines Operating at 60 psig or Less."				X	
TD-4125P-04, "Revising the MOP, MAOP, of Pipelines Operating at Greater than 60 psig."				X	
TD-4127S, "Class Location Determination and Compliance Requirements."	X	X	X	X	
TD-4127P-01, "Observing, Reporting, and Evaluating New Construction and Conducting Class Location Studies."	X	X	X	X	
TD-4127P-02, "Conducting System-wide Class Location Review."			X	X	
S4412, "Prevent Damage to Underground Facilities."	X			X	
TD-4412P-03, "Marking and Locating PG&E Underground Facilities."		X			
WP4412-04, "Field Meets and Standby - Damage Prevention."		X			
TD-4412P-06, "Handling Excavators, Contractors, and the Public Working Unsafely Around Utility Facilities."		X			
TD-4412P-07, "Patrolling Pipelines and Mains."	X	X	X	X	
TD-4412P-08, "Gas Pipeline Markers."		X			
TD-4430P-02, "Gas Transmission Station Inspection, Testing, and Maintenance Procedures."		X			
WP4430-04, "Gas Valve Maintenance Requirements and Procedures."		X	X		
S4446, "Vault Inspection Procedure."		X	X		

Enclosure 4



Public Utilities Commission
STATE OF CALIFORNIA

Citation Date: December 5, 2013

Citation #: 13-005

Operator ID#: 15007



Pacific Gas and Electric Company

Utility Standard: TD-4800S
Publication Date: 06/12/2013 Rev. 0

Continuing Surveillance

Document	Identification	O&M	Condition Evaluation	Corrective Maintenance	Post Evaluation
S4540, "Gas Pressure Regulation Maintenance Requirements."		X			
TD-4551S, "Station Critical Documentation."	X	X			
TD-6436S, "Gas and Electric Field Services and Dispatch and Scheduling Operating Practices."			X		
TD-6436P-12, "Handling Emergency Conditions Reported by Outside Agencies and Company Personnel."	X				
TD-6436P-27, "Gas Service Valve Inspection and Maintenance."			X		
WP4133-02, "Cathodic Protection Area Assessment/Resurvey Procedures for Gas Distribution."		X	X	X	

END of Requirements

Definitions

Abnormal operating condition (AOC): A condition identified by the operator that may indicate a malfunction of a component or deviation from normal operations that may do either of the following:

- Indicate a condition exceeding design limits, or
- Result in a hazard to people, property, or the environment.

Implementation Responsibilities

Document owner must set up a session to tailboard the document to the affected integrity management personnel.

Guidance Document Tailboard must be emailed to asset integrity, risk management, engineering, O&M, codes and standards, and regulatory compliance managers.

Governing Document

NA

Compliance Requirement/Regulatory Commitment

49 CFR §192.613, "Continuing Surveillance."

PG&E Commitment GEO-2012-130668

Enclosure 4



Public Utilities Commission
STATE OF CALIFORNIA

Citation Date: December 5, 2013

Citation #: 13-005

Operator ID#: 15007



**Pacific Gas and
Electric Company**

Utility Standard: TD-4800S
Publication Date: 06/12/2013 Rev. 0

Continuing Surveillance

Reference Documents

Developmental References:

NA

Supplemental References:

NA

Appendices

NA

Attachments

NA

Document Revision

NA

Approved By

Jane Yura
Vice President

Document Owner

Jeannette Lindemann
Engineer

Document Contact

Jeannette Lindemann
Engineer

Revision Notes

Where?	What Changed?
NA	NA

EXHIBIT B



Pacific Gas and Electric Company

Brian K. Cherry
Vice President
Regulatory Relations

Pacific Gas and Electric Company
77 Beale St., West Code B10C
P.O. Box 770000
San Francisco, CA 94177

Fax: 415-973-8520

December 16, 2013

Fiscal Office
California Public Utilities Commission
505 Van Ness Avenue
San Francisco, California 94102

RECEIVED
FISCAL OFFICE
12/16/2013

RE: Citation # 13-005

Enclosed please find check No. 3575926, dated 12/16/2013 in the amount of \$375,000.00, and PG&E's completed Citation Payment Form, as required by Citation # 13-005, dated 12/5/2013. In addition, an Addendum to Citation Payment Form is attached.

Sincerely,

Brian K. Cherry
VP, Regulatory Relations

Enclosures

cc: Paul Claron, Executive Director
Brigadier General Jack Hagan, Director, Safety and Enforcement Division
Kenneth Bruno, Program and Project Supervisor, Risk Assessment & Enforcement
Michelle Cooke, Interim Deputy Director, Executive Division

Received by CPUC:

Signature

ELSA L. CEREZO, FISCAL OFFICE 12/16/2013

(Please Print Name and Date)



Pacific Gas and Electric Company
77 Beale Street,
San Francisco, CA

BNY Mellon WGS
Everett, MA 02149

63-292
119

Date: 12/16/2013

Check No. 3575926

Pay \$*****375,000.00*

*THREE HUNDRED SEVENTY-FIVE THOUSAND ***** AND 00/100 DOLLARS

To The Order Of

ACCOUNTS PAYABLE

CALIFORNIA PUBLIC UTILITIES COMMISS
ATTN: FISCAL OFFICE ROOM 3000
505 VAN NESS AVE
SAN FRANCISCO CA 94102-3298

Dionys B. Wristy
VP, CONTROLLER, and CFO
Nicholas Bijou
VP and TREASURER

9006005

⑈0003575926⑈ ⑆011302920⑆ 059978⑈

PLEASE FOLD FIRST THEN DETACH ALONG PERFORATION

CALIFORNIA PUBLIC UTILITIES COMMISS
Check no. 3575926
Date 12/16/2013
Your account number 1014214
Payment Document 2000175006
Our account with you TAULIA

Invoice	Date	Discount	Net Amount	Comments
CITATION 13-005	12/13/13	0.00	375,000.00	SALLY CUARESMA, (A2C7) 77 BEALE ST # 1084 223-501
Totals:	USD	0.00	375,000.00	For Payment Inquiries, Call 1-800-756-PAID

Special Handle Code: 01

EXHIBIT C

Citation Date: December 5, 2013

Citation #: 13-005

Operator ID#: 15007

ADDENDUM TO CITATION PAYMENT FORM

In connection with the above-referenced citation ("Citation") and payment of the associated fine, respondent Pacific Gas & Electric Company ("PG&E") notes that the violation identified in the Citation substantially overlaps with the subject matter of Commission Order Instituting Investigation I.11-11-009 ("Class Location OII"). For example:

- The Class Location OII specifically identified issues relating to PG&E's continuing surveillance program pursuant to 49 CFR §192.613 as falling within the scope of that proceeding: "Federal regulations require a natural gas transmission pipeline operator to have a procedure for continuing surveillance of its facilities to determine and take appropriate action related to changes in class location, failures, leakage history, corrosion, substantial changes in cathodic protection requirements, and other unusual operating and maintenance conditions. (See 49 C.F.R. §192.613.)"
- The OM&E Audit in which SED identified the Citation was conducted from February 14-17, 2012, during the pendency of the Class Location OII.
- SED's (then CPSD) May 2012 Investigative Report in the Class Location OII – issued after the OM&E Audit – included violations of §192.613 for failing to maintain a continuing surveillance procedure.
- SED's opening brief in the Class Location OII, filed in November 2012, alleged that PG&E did not maintain a formal continuing surveillance procedure.

Given the substantial overlap between the subject matter of the Citation and the subject matter of the Class Location OII, PG&E respectfully urges the Commission to take into account PG&E's \$375,000 payment submitted today in connection with assessment of any subsequent penalty in the Class Location OII.

EXHIBIT C

SB_GT&S_0329055

EXHIBIT D

PUBLIC UTILITIES COMMISSION

605 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3290



December 20, 2013

Ms. Jane Yura for Pacific Gas and Electric Company
Vice President Gas Operations Standards & Policies
6121 Bollinger Canyon Road
4th Floor, Room 4460A
San Ramon, CA 94583

Re: 2012 Operations, Maintenance, and Emergency Plan Audit

Dear Ms. Yura:

The Safety and Enforcement Division (SED) of the Commission is withdrawing Citation 13-005, previously issued to Pacific Gas & Electric Company (PG&E). PG&E's Citation Payment of \$375,000 is being returned to PG&E. SED apologizes for any inconvenience.

Sincerely,

A handwritten signature in black ink, appearing to read "Elizaveta Malashenko".

Elizaveta Malashenko

cc: Emory J. Hagan III, Director, Safety and Enforcement Division, CPUC

EXHIBIT D

EXHIBIT E



State of California
Public Utilities Commission

Citation Date: 12/05/2013

Citation #: 13-005

Operator ID#: 15007

CITATION PAYMENT FORM

I (we) Pacific Gas and Electric Company (PG&E) hereby agree to comply with this citation dated December 5, 2013, and have corrected/mitigated the violation(s) noted in the citation on June 12, 2013 and no later than June 12, 2013, all work to make permanent corrections to any mitigated, or otherwise remaining concerns related to the violation(s) will be completed as noted in the Compliance Plan we have submitted to the Director of SED and, herewith, pay a fine in the amount of \$375,000 as included in the citation.

Signature of Gas Corporation Treasurer,
Chief Financial Officer, or President/CEO,
or delegated Officer thereof

Nickolas Stavropoulos 12/12/13
(Signature) (Date)

Nickolas Stavropoulos
Executive Vice President of Gas Operations
(Printed Name and Title)

Payment with a check must be made payable to the **California Public Utilities Commission** and sent to:

California Public Utilities Commission
Attn: Fiscal Office
505 Van Ness Avenue
San Francisco, CA 94102-3298

NOTE: A copy of the completed Citation Payment Form must be sent to the Director of the Safety and Enforcement Division, via email or regular mail, to the addresses provided on the Citation.