

MAUI COUNTY, HAWAII

Community Name MAUI COUNTY Community Number 150003



REVISED November 4, 2015



Federal Emergency Management Agency

FLOOD INSURANCE STUDY NUMBER 150003V001D

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P qxgo dgt 6. 4237 ó Vq ej cpi g ur gekonhrqqf j c| ctf ctgcu. vq ej cpi g dcug hrqqf grgxcvkqpu. vq cff hrqqf y c{. fg/ceetgf kvMcwpcmcmckUtgco rgxggu. cpf vq tghrgevwrf cvgf vqr qi tcr j ke kphqto cvkqp0

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FLOOD INSURANCE STUDY MAUI COUNTY, HAWAII

1.0 **INTRODUCTION**

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C uwpcok tkum uwf { qh ý g Kurcpf qh Ncpck kp O cwk Eqwpv{. J cy ckk y cu eqpf wevgf kp Ugr vgo dgt 422; d{ TO VE IWTU hqt ý g F gr ctvo gpv qh J qo grcpf Ugewtkv{øu Hgf gtcnGo gti gpe{ O cpci go gpvCi gpe{ *HGO C+vq f gvgto kpg ý g 3' cppvcn ej cpeg vuwpco k twpwr grgxcvkqpu cpf tkum | qpgu crqpi ý g eqcuvrkpg0 Vj ku r tqlgev y cu ecttkgf qw hqt HGO C wpf gt eqpvtcev Vcum Qtf gt 44 qh GO H/4225/ TR/22230

Kp 4232. ý ku HKU y cu wrfcvgf d{ HGO C uwf { eqpvtcevqt DcngtCGEQO. NNE. vq kpeqtr qtcvg kphqto cvkqp htqo ý g 422; uwpco ktkumuwf { qh ý g Kncpf qh Ncpck cpf ý g 422: j wttkecpg uwf { qp ý g Kncpf u qhO cwkcpf NcpckOVj g 422: j wttkecpg uwf { kpenvf gf ý g Kncpf qhO qnqnckj qy gxgt. O qnqncky cu pqv kpeqtr qtcvgf kpvq ý ku tgxkukqpOVj ku rtqlgevy cu ecttkgf qw hqt HGO C wpf gt eqpvtcev VcumQtf gt J UHG2; /2; /L/2223 qh J UHGJ S /2; /F/258: 0 Kp 4236. ýku HKU y cu wrfcvgf d{ HGOC uwf{ eqpvtcevqt DcngtCGEQO vq kpeqtrqtcvg kphqto cvkqp htqo ýg 422: j wtkecpg uwf{ hqt ýg Kucpf qh Oqrqmck cpf ýg fg/ceetgfkgf ngxggu cmpi Mcwpcncnck Uvtgco 0 Vjg uwf{ cnq kpeqtrqtcvgf tgxkukqpu vq Y ckner w Uvtgco cu y gmcu pgy fgvckrgf uwf{ hqt Mkj gk I wrej 0 Mgqngc I wrej cpf cp crrtqzko cvg uwf{ hqt Y cko cj ckj ck I wrej 0 Vjg tgxkukqpu vq Y ckner w Uvtgco kpenvfgf wrfcvkpi ýg P qxgo dgt 4228 Y ckner w Uvtgco uwf{ j {ftqnqi { rtgrctgf hqt ýg Eqwpv{ qh O cwk F gr ctvo gpv qh Rncppkpi d{ Vgvtc Vgej d{ ecnkdtcvkpi vq cxckncdng i cwi g f cvc0 Vj ku rtqlgevy cu ecttkgf qw hqt HGOC wpf gt eqpvtcev Vcum Qtf gtu J UHG2; /2; /L/2223 cpf J UHG2; /2; /L/ 2224 qhJ UHGJ S/2; /F/258: 0

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Hqt yj g O c{ 37.4224.uwwf{. cp kpkkcnEEQ o ggvkpi y cu j grf qp Cwi wuv7.3;;9. cpf cwgpf gf d{ tgr tgugpvcvkxgu qh HGO C. yj g WUCEG cpf yj g Eqwpv{ qh O cwk0 Vj g tguwnu qh yj g tguwwf{ y gtg tgxkgy gf cv yj g kpvgto gf kcvg EEQ o ggvkpi j grf qp Ugr vgo dgt 45.3;;;. cpf cwgpf gf d{ tgr tgugpvcvkxgu qh HGO C. yj g WUCEG.cpf yj g Eqwpv{ qh O cwk0

Cp kpkkcn EEQ oggvkpi y cu j grf qp Cwi wuv 46. 4226. cpf cwgpf gf d{ tgr tgugpvcvkxgu qh HGOC. y g WUCEG. cpf y g Eqwpv{ qh O cwk0 V j g hpcn EEQ o ggvkpi hqt y g Ugr vgo dgt 47. 422; tguwwf { y cu j grf qp Lwpg 34. 422:. cpf cwgpf gf d{ tgr tgugpvcvkxgu qh HGOC. y g WUCEG. cpf y g Eqwpv{ qh O cwk0

Cp kpkkcnEEQ o ggvkpi y cu j gff qp Lcpwct { 49. 4232 kp Y cknwnw J cy ckkcpf cwgpf gf d { tgr tgugpvcvkxgu qh HGO C. ý g uwwf { eqpvtcevqt. cpf ý g Eqwpv{ qh O cwkOV j g hkpcnEEQ o ggvkpi hqt ý g Ugr vgo dgt 3; . 4234 tguwwf { y cu j gff qp Cwi wuv 45. 4232. cpf cwgpf gf d { tgr tgugpvcvkxgu qh HGO C. ý g uwwf { eqpvtcevqt. WUCEG. J cy ckkF gr ctvo gpvqh Ncpf cpf P cwtcnTguqwtegu *F NP T+cpf ý g Eqwpv{ qhO cwk0

Cp kpkkcn EEQ o ggvkpi y cu j grf qp Cwi wuv 3; . 4232 kp Y cknwnw. J cy ckk cpf cwgpf gf d{ tgrtgugpvcvkxgu qh HGOC. J cy ckk F gr ctvo gpv qh P cwtcn Tguqwtegu. y g WUCEG. y g uwwf { eqpvtcevqt. cpf y g Eqwpv{ qh O cwk0

VjghkpcnEEQ o ggykpi hqt yjgPqxgo dgt 6.4237 tguwwf { y cu j grf qp Cwi wuv33. 4236. cpf cwgpfgf d{ tgrtgugpycykxgu qh HGOC. yjg uwwf { eqpytceyqt. cpf yjg Eqwpy{ qhOcwk0

2.0 <u>AREA STUDIED</u>

408 UeqrgqhUwf {

Vj ku HKU eqxgtu ý g Kurcpf u qhO cwkcpf O qrqmck y j kej vqi gý gt y kj ý g Kurcpf u qh Ncpck cpf Mcj qqncy g ctg kpeqtr qtcvgf cu O cwk Eqwpv{0 Vj g Kurcpf qh Ncpck ku rtkxcvgn{ qy pgf cpf ý g Kurcpf qh Mcj qqncy g ku wugf d{ ý g WUUP cx{ cu c vcti gv ctgc0 Cm hqtguv tgugtxgu. pcvkqpcn r ctmu. y knf nkhg tghwi gu. cpf qý gt i qxgtpo gpv rtqr gtv{ qh ý g Kurcpf u qh Mcj qqncy g. Ncpck O cwk cpf O qrqmck j cxg dggp kpenwf gf kp ý ku uwuf {0

Vjg ctgcu uwwfkgf d{ fgyckrgf o gyjqfu y gtg ugrgevgf y kyj rtkqtkx{ i kxgp vq cm mpqy p hqqf jc| ctf ctgcu cpf ctgcu qh rtqlgevgf fgxgrqr o gpv cpf rtqr qugf eqputywevkqp0

Qp yig Kuncpf qh O cwk cm qt r qt kqpu qh yig hqmqy kpi uvtgco u y gtg uwwf kgf d{ f gvc kngf o gyiq f u<

MkjgkIwnej 6
Maprg Iwnej
MwncpkjcmqkIwnej
NkknkqjqnqI wrej

Kq Uttgco	O cj kpcj kpc I wnej
Mcj cpc Utgco	PcrktkI wiej 4
Mcj qo c Utgco	P cr ktk I wreij 5
Mcj wwkJ ctdqt	P cr krk I wrej 6
Mcknwc I wrej	P cr krk I wrej 7
Mengre I wrej	Qrqy cnwI wrej 4
McnkcnkpwkI wrej	Qmy cnwUtgco
Menvekj empmy Uvtgeo	Ur tgengnu F kej *Y cknwnw Vqy p Ctgc+
Mco cqug I wiej	Wppco gf Uttgco cvMtwcwRqkpv
Mcqr crc I wrej	Y ckempe I wrej
Mewewre Uttgeo	Y clema Mgcj cky ck Ur nky Hnay
Mgcj cky ckI wrej	Y ckgj wUttgco
Mgqngc I wrej	Y ckj gg Tkxgt
Mkj gkI wrej 3	Y ckmcr wUxtgco
Mi ald ymi 4	Y ckner wJ qpqcr ckknepk J ki j y c{
Mig gki mej 4	Qxgthqy
Mkj gk I wrej 5	YckrwknopkIwnej

Vjg hqmqy kpi uvtgcou y gtg uvvf kgf d{ fgvc kngf og y qfu qp y g Kuncpf qh O qmqmc k<

Mcj cpcpwkI wnej	O cpcy ckI wrej
Mco crq I wrej	O krg: 6 Uvtgco
Mco knjinje I wrej	Qj kc I wrej
McwpcmcmckUttgco	Rwmqq I wrej
Mcy grc I wrej	Wppco gf I wrej
Mgcy cpwkI wrej	Y clenve Utgeo

Vj g gpvktg eqcuvrkpgu qh ý g Kurcpf u qh O cwk cpf O qrqnrck y gtg uwwf kgf d{f gvckrgf o gyj qf u kp qtf gt vq guvcdrkuj uwpco k kpwpf cvkqp rko ku0 Kp 422; . cr r tqzko cvgn{ :2' qh ý g eqcuvrkpg qh ý g Kurcpf qh Ncpck y cu uwwf kgf vq f gvgto kpg 3' cppwcn ej cpeg uwpco k tkum | qpgu0 Vj g Ncpck uwpco k uwwf { kpenxf gu ý g eqcuvrkpg htqo Mcwo crcr cw J ctdqt qp ý g y guv eqcuv erqemy kug ctqwpf vq O cpgrg Dc{ qp ý g uqwj uj qtg y kj c vqvcnuj qtgrkpg rgpi ý qh cr r tqzko cvgn{ 62 o krgu0

Vjg hqmqy kpi ugevkqpu qh eqcuv y gtg uwwf kgf kp y j qng hqt y g j wttkecpg uvqto uwtig cpf y cxg j gki j v j c| ctf wukpi f gvckngf o gy qf u<

- Qp yig Kuncpf qh Ncpck yig uqwiyguvgtp cpf uqwijgtp eqcuvrkpg htqo Mcwo cncr cw vq O cpgng0
- Qp yjg Kuncpf qh O cwk yjg y guvgtp. uqwijgtp. cpf gcuvgtp heekpi eqcuvu htqo J qpqmej we vq Mwrgr geo qe Rqkpv0
- Qp yj g Kuncpf qh O ququnck yj g eqcuvrkpg uqwyj cpf gcuv qh Kuq Rqkpv vq Ecr g J cncy c0

Crrtqzko cvg o gy qfu y gtg wugf vq uwuf { y g hqmqy kpi ctgcu qp y g Kuncpf qh O cwk<

GrkcrkkI wrej J cpgqq I wrej J cy grgy grg I wrej J qpcpcpc I wej J qpqmqj cwI wrej J qpqo cgrg I wrej Mcj cmwqc I wrej Mcknwc I wrej Mcknwc I wrej 4 Mcngr c I wrej Mcpgo qgcrc I wrej Mcr kc Uttgco Mcy ckr cr c I wrej Mwkcj c I wrej Ngrgngc Uttgco O crkmq I wrej cvO cmcy cq O knko knkI wrej P wcpwcnąc I wrej Qr gnwI wrej Rcj kj kI wrej Rapf kpi kp Mgcnkc Rapf kpi Ctgc Rapf kpi ap O cwkCktr qtvTqcf Rapf kpi pgct Y ckj gg Tkxgt Rwpcj c I wrej Y cko cj ckj ckI wrej Y ckanto kną Utgco Ugxgtcnwppco gf i wrej gu

Crrtqzkocvgogvjqfuygtg wugf vquwwf{yjghqmqykpictgcuqpyjgKuncpfqh Oqnqmck≪

Cj ckpq I wrej Ckmqqnvc I wrej Gncj cj wkI wrej J crey c Utgeo J crepc I wrej J qpqo wpkI wrej J qpqwrky ckUtgco Mcj kpcy ckI wrej MckpcnwI wrej Mcmpc I wej Mcnwccj c I wrej Menver ggnve I wrej Mcr wcqmqqrcwI wrej Mcy ckner wI wrej Rwpkwqj wcpwkI wrej Ugxgtcnwppco gf i wrej gu Mgcpcnkqrg I wrej Mkkpqj wI wrej Mkvcngc I wrej MwnwnWI wrej O cpcy ckpwkI wrej O cpcy ckpwkI wrej O cwpcqnwqnwI wrej O qcpwkUtgco O qcpwkUtgco O qmwqnwc I wrej P cpkpcpknwnwkI wrej Qpgqj krq I wrej Rcj wncwkrc I wrej Rcr qj cmwI wrej RwpcnqwI wrej Y ckcnepg I wrej

Vjg uvtgco u dgnyy y gtg uvvf kgf d{ crrtqzko cvg o gyjqfu cpf y gtg hqwpf vq rqug o kpko cnhqqf j c| ctfu=y gtghqtg. pq hqqfrnckp dqwpf ctkgu y gtg f ghpgcvgf 0

Crgrg Utgco	O ccrq I wrej
Mwmwkwnc Uttgco	O qmwr gc I wrej
Ncj ckpc I wrej 4	Oqqo qqkmkI wnej
Ncj ckpc I wrej 5	Rqj cmwr wrg I wrej
Ncwpkwr qmq Uvtgco	Wmwo gj co g I wnej 4

Crrtqzko cvg cpcn{ugu y gtg wugf vq uwwf{ y qug ctgcu j cxkpi nqy fgxgnqro gpv r qvgpvkcn qt o kpko cn hnqqf j c| ctfu cu kfgpvkhkgf cv y g kpkkkcvkqp qh y g uwwf{0 Vj g

u
eqrg cpf o gyiqfu qhuwwf { y gtg r tqr qugf vq cpf ci tggf wr qp d
{ HGOC cpf O cwk Eqwpv{0

Vj ku HKU cnuq kpeqtr qtcvgu ý g f gvgto kpcvkqpu qh ngwgtu kuuwgf d{ HGOC tguwnkpi kp o cr ej cpi gu *Ngwgt qhO cr Tgxkukqp]NQOT_. Ngwgt qhO cr Tgxkukqp / dcugf qp Hkm]NQOT/H_. cpf Ngwgt qhO cr Co gpf o gpv]NQOC_. cu uj qy p kp Vcdng 3. \$Ngwgtu qhO cr Ej cpi g0\$

Ecug 34/2; /4785R. õUgrh J grr J qwukpi /J cpc NQO T.ö y cu ghhgevkxg Lwn{ : . 4235 hqt O cwk Eqwpv{0 Vj ku NQO T ku pqv kpeqtr qtcvgf kp vj ku RO T ukpeg kv ku qwukf g vj g r cpgru chhgevgf d{ vj ku RO T 0 Vj ku wpkpeqtr qtcvgf NQO T tgo ckpu ghhgevkxg0

Community	Flooding Source(s)/Project Identifier	Date Issued	Туре
OcwkEqwpv{	Maprg I wanej	Hgdtwct { 46. 4233	NQO T
O cwkEqwpv{	Uej mgo gt Rtqr gtv{	Lcpwct { 3: . 4233	NQO T
O cwkEqwpv{	Y ckcmqc I wrej	Octej 47. 422:	NQO T
O cwkEqwpv{	O cmppc Uwth Rtqr gtv{	Hgdtwct { 4; . 422:	NQO T
O cwkEqwpv{	J cj cngc I wrej	Oc{ 46. 4229	NQO T
O cwkEqwpv{	Vcj o qwuj Rtqr gtv{. Rcr qj cmwDgcej	Oc{ 32. 4228	NQO T
O cwkEqwpv{	Crkk Xkmci g Uwdf kxkukqp (Ftckpci g	Hgdtwct { 47. 4227	NQO T
	Kortqxgo gpvu	- .	
OcwkEqwpv{	O cwkP wkRctm	Lwn{ 3.4226	NQO T
O cwkEqwpv{	Rww/Mcj cpc Uwdf kxkukqp	Lwpg 35. 4225	NQO T
O cwkEqwpv{	McøQpqøWnwGuvcvgu/ Rj cug KX	Oc{ :. 4225	NQO T
O cwkEqwpv{	O cmppc Dgcej Nqu. NqvC/4 cpf NqvD	Oc{ 8.4225	NQO T
O cwkEqwpv{	O cj kpcj kpc I wrej	Hgdtwct { 44. 3; ; ;	NQO T
O cwkEqwpv{	MckCrc Uwdf kxkukqp ó Rckrqrq Ej cppgn	Lwn{ 35. 3; ; :	NQO T
O cwkEqwpv{	Mengre Dtkfig Tgrneego gpv	Qevqdgt 44. 3; ; 9	NQO T
OcwkEqwpv{	O cmppc Uwth Uwdf kxkukqp	Lwn{ 3:.3;;9	NQO T
OcwkEqwpv{	McjwnwkCktrqtvVuwpcokHnqqfUwwf{	Lwn{ 45.3;;8	NQO T
OcwkEqwpv{	Qy c Uwdf kxkukqp	Cwi ww44.3;;6	NQO T

TABLE 1: LETTERS OF MAP CHANGE

404 Eqo o wpkv{ F guetkr vkqp

Vj g Ucvg qh J cy ckk rgi cm{ eqpukuvu qh 354 kurepf u y ký c vqven repf ctgc qh 8.647 us wetg o krgu. ;; 0; r gtegpv qh y j kej ku kp gki j vo clqt kurepf u0 J cy ckk ku wpks wg kp y cv kv j cu qpn{ wq rgxgnu qh i qxgtpo gpv ucvg cpf eqwpv{ 0 Vj gtg ctg pq uo crngt o wpkekr crkkgu wpf gt y g eqwpv{ rgxgncpf pq uej qqnf kuvtkevu0

O cwk.Eqwpv{ ku ý g ugeqpf rcti guvqh ý g hqwt J cy ckkcp eqwpvkgu. eqo rtkukpi c vqvcn ctgc qh crrtqzko cvgn{ 3.395 us wctg o krgu0 Vj g Kurcpf qh O cwk eqxgtu cp ctgc qh crrtqzko cvgn{ 94: us wctg o krgu= ý g Kurcpf qh O qrqmck crrtqzko cvgn{ 483 us wctg o kngu⊨ Kuncpf qh Ncpck crrtqzko cvgn{ 35; us wctg o kngu⊨ cpf yig Kuncpf qh Mcjqqncyg.crrtqzko cvgn{ 67 us wctg o kngu0

Kø tgegpv {gctu. vqwtkuo j cu dgeqo g ý g o clqt kpf wurt { kp ý g eqwpv{. uwtr cuukpi ý g r kpgcrrng cpf uwi ct ecpg kpf wurtkgu0 O cwk Eqwpv{ cwt ceu o qtg vqwtkuu ý cp cp{ qý gt eqwpv{ kp ý g uvcvg0 Vj g vqwtkuv kpf wurt{ ku gzr gevgf vq i tqy y kj eqpvkpwgf tguqtvf gxgnqr o gpv0

Vjg Vqyp qh Y cknwnw ku ýg eqwpv{ ugcv0 Y cknwnw cpf ýg cflqkpkpi Vqyp qh Mcj wnwk hqto ýg dwukpguu jwd qh ýg eqwpv{0 Mcj wnwk j cu c fggr/ftchvj ctdqt cpf cp cktr qtvý cvugtxg ýg gpvktg knopf0

Vy q rtkpekr cn v{rgu qh ektewncvkqp ceeqwpv hqt rtgekr kxvkqp qp ýg kuncpf u
 $\forall j g$ enqeny kug hqy hqo ýg uxchg j ki j/rtguuwtg egm pqt ýg cuv qh J cy ckk ý cv kpkkc vgu qtqi tcr j ke tckphcm *ecwugf d{ ýg rtgugpeg qho qwpvckpu+ cpf ýg eqwpvgtenqeny kug hqy qh e{enqpke uvqto u ý cvrtqf weg i gpgtcm{ fkuvtkdwgf tckphcm *co qwpvkpi vq 42 vq 52 kpej gu rgt {gct+0 Qtqi tcr j ke tckphcm ku tguvtkevgf vq o qwpvckp ctgcu y j gtg wr nkhvkpi qh ýg o qkuv ckt gzeggf u 4.222 hggv=ý gug ctg ýg r ctvu qh ýg uvcvg y ký ýg j ki j guvtckphcm0

Vjg rtgfqokpcpv pqtyjgcuvgtn{ vtcfg ykpfu fktgevn{kphwgpeg vjg enkocvg qh vjg kuncpfu0 I gpgtcm{. nggy ctf mecvkqpu ctg octmgfn{ftkgt cpf uwppkgt vjcp vjg ykpfy ctf unqrgu0 Vjg y gvy kpvgt ugcuqp gzvgpfu htqo Qevqdgt vjtqwij Crtkn qp Ocwk cpf htqo Fgego dgt vjtqwij Octej qp Oqmqmck0 Vjg ft{uwo ogt ugcuqp gzvgpfu htqo Oc{vjtqwij Ugrvgo dgt qp Ocwk cpf htqo Lwpg vjtqwij Cwiwuv qp Oqmqmck0

Tckphcmxctkgu eqpukf gtcdn(htqo qpg r ctvqh gcej kurcpf vq cpqy gt0 Vj g y kpf y ctf ctgcu qh O cwk i gpgtcm{ i gv j gcxlgt tckphcm y cp y g nggy ctf ulf g0 Vj g | qpgu qh j ki j guvtckphem qp y g y kpf y ctf ukf g qh J ergenere. c 32.245/hqqv j ki j xqreepq rkg dgw ggp y g 4.222/ cpf 6.222/hqv grgxcvkqpu. y j gtg y g o gf kcp cppvcn tckphcm ku 422 vq 522 kpej gu0 Qp yj g y guvgtp ukf g qh yj g kurcpf. yj g o gf kcp cppvcntckphcmpgct y g uwo o kv qh Rww Mwmwk ku crrtqzko cvgn (622 kpej gul) Ko eqpvtcuv. nggy ctf nqecvkqpu kp egpvtcn Ocwk uwej cu Mkjgk jcxg c ogcp cppwcn tckphcm qh crrtqzko cvgn (32 kpej gu0 Vj g enko cvke ukwcvkqp ku o wej vj g uco g qp vj g Kuncpf qh O qrqmck y j gtg y g y kpf y ctf ukf g qh y g kurcpf i gvu j gcxkgt tckphcm0 V j g cxgtci g cppwcn tckphcm hqt y g kurcpf tcpi gu htqo crrtqzko cvgn{ 34 kpej gu vq qxgt 372 kpej gu0 Vj ku i tgcvf kur ctkx{ kp cppwcntckphcmqp yj g w q kurcpf u ctkugu htqo yj g hcev ý cvý g J cy cktop Kuropfu gzygpf qxgt c roktwefkpondgnvý cvku c | qpg qh f gukeecykqp yitqwijqw yig yqtnf gzegrvyjgtg octkpg ckt ocuugu ctg hqtegf vq tkug qxgt o qwpvckp dcttkgtu0 Qtqitcrjke tckphcm tguwnu htqo y g eqqnkpi qh y g wrnkhygf ckto cuugu. etgcvkpi gzvtgo gn{ j ki j tckphcm wpf gt y g kf gcn eqpf kkqpu qh o qwpvckp grgxcvkqp cpf vtgpf. cpf y kpf f ktgevkqp cpf xgrqekv{0

Vj tqwi j qw J cy ckk y g vgo r gtcwtg ku i gpgtcm{y cto cpf r ngcucpv0 Xctkcvkqpu kp vgo r gtcwtg fgr gpf o qtg qp nqecvkqp y cp ugcuqp0 Qp O cwk cpf O qnqnrck y g enko cvg tcpi gu htqo y cto cpf ft{ kp y g eqcuvcn ctgcu vq ugo kxtqr kecn qp y g y kpf y ctf o qwpvckp unqr gu0 V j g cxgtci g cppwcn vgo r gtcwtg ku 94 f gi tggu Hcj tgpj gkv ^{*o}H+0 Cv y g uwo o kv qh J crgcmene. y g vgo r gtcwtg qeecukqpem{ ftqr u dgrqy 54°H fwtkpi y g y kpvgt cpf upqy eqxgtu y g r gcmhqt uj qtvr gtkqf u qh vko g0

KINCPF QHOCWK

Vjg Kurcpf qh O cwk j cu cp gz tgo g ngpi y cpf y kf y qh 6: cpf 48 o kngu. tgur gevksgn{0 Crrtqzko cvgn{4; o kngu qh eqcuvrkpg ctg o cfg wr qh enkthu qxgt 322 hggvj ki j 0 Vj ktv{/gki j vcpf qpg/j crhr gtegpvqh y g ncpf ctgc j cu c unqr g qh nguu y cp 32 r gtegpv. 4707 r gtegpvj cu c 32/ vq 3; /r gtegpvunqr g. cpf 58 r gtegpvj cu c unqr g qh 42 r gtegpvqt i tgcvgt *Wpksgtukx{ qh J cy ckk 3; 95+0

Vj g w q xquecple eqpgu qh J crgcmen. qp GeuvO cwk cpf Rww Mwmxk qp Y guvO cwk hqto ýg kurcpf0 Cpqý gt y gm/npqy p i gqmi leen hgewtg ku ýg P ggf ng. c tqem r løpceng meevgf løp ýg Keq Xcmg{ qp Y guvO cwk0 Vj g w q eqpgu etg lqløgf d{ c tgnevkæn{ hrev kunj o wu. hqto gf qh ucpf dmyp lønepf y j gp ýg uge y eu uqo gy j ev my gt f wtløi ýg nevg Rngkunqegpg Rgtkqf0 Geuv O cwk ku i gqmi leem{ {qwpi gt ý cp Y guvO cwk eu gxkf gpegf d{ ýg edugpeg qh f ggr n{ kpekugf ecp{qpu epf gz vgpukæg etgeu qh xquecple nexe cpf ekpf gtu qp ýg nggy etf unqr gu qh J engemen0 Xquecple tqemu. ekpf gtu. cpf cuj etg ýg deuke o cvgtkenhtqo y j kej ýg kp ukwuqku f gægnqr gf 0 Vj g nepf u o qtg uwkædng hqt ei tlewnwtg. Ispenvf kpi ýg i gpvng unqr gu qh egpvtenO cwk epf ýg vedngrepfu qh Y guv O cwk tguwngf htqo emwæken f gr qukwu epf ýg f geqo r qukkqp qhdeuenke o cvgtkent *WUCEG. 3; 93+0

F guetkr klapu qh y g ut gco u uwuf kgf d{ f gvckrgf o gy qf u qp O cwkhqmqy 0

J cj cngc I wrej

Vjgrqtvkqp qhJ cjcmgc I wnej uwwfkgf kp fgvckngzvgpfu htqo ku o qwij vq 6.222 hggv wruvtgco = yjg cxgtcig umqrg kp yjg uwwf { ctgc ku crrtqzko cvgn{ 504 rgtegpv0 Vjgtg ctg yjtgg uvtgco etquukpi u y kij kp yjg uwwf { ctgc. qpg mecvgf fqy puvtgco qh yjg qnf J qpqcrkkmcpk J kij y c{. yjg ugeqpf cv yjg pgy j kij y c{. yjg yjktf cv c ewrxgtv cv c ecpg j cwntqcf crrtqzko cvgn{ 4.322 hggvwruvtgco qh ku o qwij 0 I tqwpf eqxgt cmpi yjg uwwf { ctgc xctkgu htqo uwi ctecpg wruvtgco qh yjg ecpg j cwntqcf vq my i tcuu cv yjg Mccpcr crkI qnhEqwtug fqy puvtgco qh yjg ecpg j cwntqcf 0

J apamej we Uttgeo

P cr ktk I wrej 4/5 y cu uwwf kgf hqt crrtqzko cvgn{ 4.222 hgs/0 Vjg uwwf kgf rqt vkqp j cu cp cxgtci g unqrg qh crrtqzko cvgn{ 4 rgtegp/0 Dgnqy J qpqcr kkncpk J ki j y c{. o quv ncpf fgxgnqro gpv ku j qvgnu cpf crct vo gpv dvkrf kpi u0 Vjg uj qtgrkpg ku c y j kg ucpf dgcej y j kej gz vgpf u vq y g uqwi y guv crrtqzko cvgn{ 3.222 hgs/0 Vjg ncpf wr uvtgco qh y g j ki j y c{ ku wugf vq i tqy rkpgcrrgu0

J qpqngcpc Dc{ I wrej

Vj g cxgtci g undr g dh J qpqngcpc Dc{ I wnej y kj kp yj g nko kw dh yj g 4.922/hqq/nqpi uwwf { ctgc ku 5 r gtegpv0 Vj g wr r gt r qt kqp dh yj g ctgc ku r ncpvgf kp r kpgcr r ng etqr u0 Tgukf gpvkcncpf j qvgnf gxgnqr o gpvu ctg nqecvgf cnqpi yj g nqy gt r ctvqh yj g i wnej 0

J qpqmqy ckUtgco

J qpqnqy ckUtgco y cu uwf kgf hqt crrtqzko cvgn{ 5.222 hggvwr utgco qh ku o qwj 0 Ku uqrg cxgtci gu crrtqzko cvgn{ 3 rgtegpv0 Vj tgg dtkf i gu etquu ý g utgco y ký kp ý g nko ku qh ý g uwf { ctgc=ý g hktuvku necvgf cvý g gzknkpi J qpqcr kkrcpkJ ki j y c{. ý g ugeqpf cv ý g pgy J qpqcr kkrcpk J ki j y c{. cpf ý g rcuv cv c ecpg j cwn tqcf crrtqzko cvgn{ 4.722 hggv qh ý g o qwj 0 Vj g i tqwpf eqxgt crqpi ý g utgco dgrqy ý g qnf j ki j y c{ ku rtko ctkn{ my dtwuj qp ý g uqwj dcpmqh ý g utgco 0 Ukpi ng/ hco kn{ f y gmkpi u crctvo gpvdwkrf kpi u cpf j qvgnu nkpg ý g utgco øu pqt ý dcpn0 Vj g ctgc cdqxg ý g qnf j ki j y c{ ku rtgf qo kpcpvn{ uvi ctecpg hkgrf u y kj uqo g tgukf gpvkcn/ eqo o gtekcnf gxgmr o gpvpqt ý qh ý g utgco 0

Keq Uttgeo

Kiq Utgco ku qp y g gcuygtp unqr g qh y g Y guv O cwk O qwpvckpu. pgct y g pqty gpf qh y g õucff ngö y cv eqppgevu Gcuv cpf Y guv O cwk O Kiq Utgco y cu uwif kgf hqt c f kuvcpeg qh 35.822 hggv Vj gtg ku hcktn{ j gcx{ eqo o gtekcn ci tkewnwtcn cpf tgukf gpvkcnf gxgnqr o gpvcnpi y g uwif { tgcej 0

Mcj cpc Utgco

Mcj cpc Utgco y cu uwf kgf hqt 3.822 hgg0 Vjg qpn{ o clqt utgco etquukpi ku nqecvgf 622 hggv wr utgco htqo y g o qwj cv y g qnf J qpqcr kkrcpk J ki j y c{ Dtkf i g0 Vjg cxgtci g unqrg qh y g utgco ku crrtqzko cvgn{ 307 r gtegpv0 Dgnqy J qpqcr kkrcpk J ki j y c{ cpf ko o gf kcvgn{ cdqxg kx y gtg ctg uecvgtgf tgukf gpvkcn j qo gu cpf crctvo gpv dwknf kpi u0 Cdqxg y gug j qo gu. vq y g wr rgt nko ku qh y g uwwf { ctgc. ctg uwi ctecpg hkgnf u0

Mcj qo c Uttgco

Vjguwf { ctgc qh Mcj qo c Utgco gzvgpf u crrtqzko cvgn{ 7.222 hggvwrutgco htqo ku o qwj0 Ku unqrg ku crrtqzko cvgn{ 4 rgtegpv0 Uctvkpi htqo ku o qwj pgct y g gzkuvkpi O cnc Y j cth y g uwf kgf rqtvkqp gzvgpf u wrutgco wpf gt c dtkf i g cv Htqpv Utggv cpf cnqpi c uvcpf qh gwecn{rwu tggu vq c dtkf i g wpf gt J qpqcr kkncpk J ki j y c{. y g ugeqpf cvvj g pgy J qpqcr kkncpkJ ki j y c{. cpf y g ncuvdtkf i g cvc ecpg j cwn tqcf crrtqzko cvgn{ 4.722 hggv wrutgco htqo y g o qwj0 Vj g i tqwpf eqxgt cnqpi y g utgco dgnqy y g qnf j ki j y c{ ku rtko ctkn{ my dtwij qp y g uqwj dcpmqh y g utgco 0 Ukpi mg/hco kn{ fy gmkpi u crctvo gpv dwknf kpi u cpf j qvgni nkpg y g utgco øu pqtyj dcpn0 Vj g ctgc cdqxg y g qnf j ki j y c{ ku rtgf qo kpcpvn{ uwi ctecpg hkgnf u y kj uqo g tgukf gpvkcn/eqo o gtekcnf gxgnqr o gpvpqtyj qh y g utgco 0

Mcj wwkJ ctdqt

Mcj wnyk J ctdqt. mjecygf kp Mcj wnyk Dc{. ku yj g qpn{ fggr/ftchyj ctdqt ugtxkpi yj g Kurcpf qhO cwk0 Vj g j ctdqt ku crrtqzko cygn{; 6 o krgu uqwj y guvqhJ qpqnynyvcpf ku egpytcm{ mjecygf qp yj g pqtyj gtp uj qtg qh yj g kurcpf 0 Vj g r qtvj cpf ngu vtcpur cekhke cpf kpygtkurcpf ecti qu. kpenyf kpi eqpyckpgtk gf cpf i gpgtchk gf ecti qu. ego gpy hgtykk gt r tqf weyu. dwmuwi ct. cpf o qncuugu0 Mcj wnkk J ctdqt ku gzrqugf vq rtgxckhoi y kpfu cpf y cxgu htqo ýg pqtý cpf pqtý gcuvs wcftcpu0 P qtý gcuv tcfg y cxgu ctg rtgugpv: 2 vq ; 2 r gtegpv qh ýg vko g fwtkpi O c{ yitqwij Ugr vgo dgt cpf 82 vq 92 r gtegpv qh ýg vko g fwtkpi ýg tgo ckpf gt qh ýg {gct0 V{r kecm{. y gug f ggr y cvgt y cxgu j cxg r gtkqf u tcpi kpi htqo 8 vq 32 ugeqpf u cpf j gkij vu qh 6 vq 34 hggv0 Vj g pqtý gtp uy gm ku i gpgtcvgf kp ý g pqtý gtp Rcekhke Qegcp d{ kpvgpug y kpvgt uvqto u0 Vj gug y cxgu v{r kecm{ j cxg r gtkqf u qh 34 vq 3: ugeqpf u cpf f ggr y cvgt j gkij vu qh 7 vq 47 hggv0 Vj gug y cxgu i gpgtcm{ qeewt f wtkpi Qevqdgt ý tqwij O ctej cpf ctg co qpi ýg ncti guvy cxgu ý cv tgcej ýg J cy ckkcp Kurcpf u0

McngrcI wrej

Mcngr c I wnej y cu uwwf kgf hqt crrtqzko cvgn{ 5.; 22 hgg0 Vjgrqtvkqp uwwf kgf j cu cp cxgtcig unqrg qh 507 rgtegpv0 I tqwpf eqxgt kp y g uwwf { ctgc xctkgu htqo ucpf { uj qtgrkpg vq y kem dtwuj y kj uqo g vtggu cpf ewnkxcvgf uwictecpg hlgrfu dgrqy Mcj gnkrk J ki j y c{0 P gct Mcj gnkrk J ki j y c{. Mcngr c I wnej twpu y tqwi j y g pqtyj gpf qh y g Vqy p qh Y ckj gg0 Y ckj gg Grgo gpvct{ Uej qqnku qp y g pqtyj dcpmcv y g j ki j y c{0 Cdqxg y g vqy p. Mcngr c I wnej hrqy u y tqwi j uwictecpg hlgrfu0

McnlcnlpwkI wnej

Mchchowk I wiej ku naecvef geuv ah Mej wink pect Mej wink Cktratvo Hiny kpi empi Uwpp{ukfgTqcf. Mchchowk Utgco reuugu yi tawij yig kpf wuxtkenetge cfleegpv qiyg cktratvo Vjg ftekpeig etge eqxgtu errtqzko even{3;04 uswetg o krgu= yig exgteig unarg ku errtqzko even{208 rgtegpv0 Cdqxg yig kpvgtugevkap ah Uwpp{ukfg cpf Fekt{ Tqcfu, yig i wiej ku eqxgtgf y kyi i teuu epf dtwuj 0 Fqy puxtgeo ah yig kpvgtugevkap. yig ej eppgn etge ku enget ah xgi gvevkap0 C ratvkap ah yig ej eppgn pget yig ektratv ceeguu tqcf ku eqpetgvg nkpgf0

Mco cqrg I wrej

Mco cqng I wnej j cu cp cxgtcig unqrg y ky kp y g 3.722/hqqv nqpi uwwf { ctgc qh crrtqzko cvgn{ 4 r gtegpv0 Vjg i wnej twpu y tqwij r cuwwtgncpf cdqxg MkjgkTqcf cpf dgw ggp ugxgtcnj qwugu dgnqy MkjgkTqcf 0

Mcqr cnc I wrej

Mcqr crc I wrej y cu uwf kgf 3.722 hggv htqo J qpqcr kkrcpk J ki j y c $\{0 \text{ Ku urqr g ku crrtqz ko cvgn} \{5 \text{ rgtegpv} 0 \text{ Vj g qxgtdcpm vgttckp j cu pgctn} \{ y g uco g urqr g cu y g i wrej 0 Cr ctvo gpv dwkrf kpi u cpf j qvgn j cxg dggp eqpuvt wevgf dgw ggp y g j ki j y c<math>\{$ cpf y g uj qtgrkpg=cdqxg y g j ki j y c $\{., y g tg ctg tgukf gpvkcn f y gmkpi u kp c uvtkr y cv xctkgu htqo 322 vq 422 hggv y kf g0 Wr nepf htqo y g tgukf gpvkcn f y gmkpi u ctg uwi ctecpg hkgrf u vq y g uqwj qh y g i wrej cpf r kpgcr r m hkgrf u vq y g pqt y 0$

Mcwcwrc Uttgco

Vj g Mcwcwnc ftckpci g dcukp eqpvckpu 50, us wctg o krgu qh ci tlewnwtch hqtguv. cpf tgukf gpvkcnncpfu0 Vj g uwuf { ctgc gzvgpfu crrtqzko cvgn{ 4.822 hgv wruvtgco qh ku o qwj. cpf y g cxgtci g unqrg qh y g uvtgco ku crrtqzko cvgn{ 50, rgtegpv0 Vj gtg ctg hqwt o clqt uvtgco etquukpi u y ký kp ý g uwwf { ctgc0 Mcwcwrc Uvtgco hrqy u kp cp kortqxgf eqpetgyg/nkpgf ej cppgn dgw ggp ý g o qwý cpf c dtkfig cv ý g J qpqcr kkncpk J ki j y c { 0 Vj g ej cppgn ku cnq eqpetgyg/nkpgf dgw ggp ý g j ki j y c { cpf cpqý gt uvtgco etquukpi crrtqzko cygn{ 72 hggv wr uvtgco htqo ý g j ki j y c { cvc ecpg j cwn tqcf 0 Vj g wr rgt rqtvkqp qh ý g tgcej cdqxg ý g hktuvecpg j cwn etquukpi cdqwv 4.722 hggv cdqxg ý g o qwý cvcpqý gt ecpg j cwn tqcf 0 Vj g wr rgt rqtvkqp qh ý g tgcej cdqxg ý g hktuvecpg j cwndtkfi g ku wprkpgf 0

Mgcj cky ckI wrej

Vjg ngpi vj qh Mgcjcky ck I wnej ku crrtqzko cvgn{ 5.222 hggvcpf vjg cxgtcig unqrg qh vjg i wnej ku 208 rgtegpv0 Vjg i wnej twpu vjtqwij uwictecpg cpf eqtp hkgrfu cdqxg O qmwngng J kijy c{0 Cvvjg j kijy c{. vjg uvtgco rcuugu vjtqwij c dqz ewnxgtv cpf o cngu ku y c{ vq Mgcnkc Rqpf. yj kej j cu cp qwngv vq vjg ugc pgct vjg pqtvjgtp gpf qh vjg rqpf0

Mgqngc I wrej

Mgqmgc I wnej ku c hcktn{ y gm/f ghkpgf y cvgteqwtug cdqxg Rkkrcpk J ki j y c{0 J qy gxgt. ku ej cppgn dgeqo gu wpf ghkpgf qpeg kv r cuugu y g grgevtkecn uvduvcvkqp wr qp gpvgtkpi Mkj gk Tgi kqpcn Rctm*nqecvgf dgw ggp Rkkrcpk J ki j y c{. Uqwj Mkj gk Tqcf. Gcuv Y grcncj cq Tqcf cpf J cngmvck Utggv+0 Vj g uwuf { ctgc eqxgtu ; 087 us wctg o krgu=ku unqr g xctkgu htqo crrtqzko cvgn{ 4 r gtegpvkp y g wr rgt tgcej f qy p vq c unqr g qhpgctn{ 202 r gtegpvcvMkj gk Tgi kqpcn Rctm0

<u>Mkj gkI wrej 3</u>

Vjg MkjgkI vnej 3 y cvgteqvtug ku pqvy gmfghkpgf0 Vjg cxgtcig unqrg qh y ku i vnej ku crrtqzko cvgn{ 206 rgtegpvqxgt y g uwuf { ngpi y qh 3.722 hggv o gcuwtgf wrutgco htqo y g o qwy 0 Vjg cxgtcig unqrg htqo crrtqzko cvgn{ 3.722 hggv q lwuv wrutgco qh RkkrcpkJ ki j y c{ ku crrtqzko cvgn{ 505 rgtegpv0

Mkj gkI wrej 4

Mkj gk I wrej 4 nkgu vq vj g pqt vj qh vj g Kpvgt/Eqpvkpgpvcn J qvgn cpf y cu uvwf kgf hqt c f kuvcpeg qh 3.722 hggvcdqxg ku o qwy 0 Ku urqr g cxgt ci gu 7 r gtegpv0

<u>Mkj gkI wrej 5</u>

Mkj gk I wrej 5 ku rujecvef pqtý qh cpf cflcegpv vq ýg Kpvgteqpvkpgpvcn J qvgn) Ku cxgtci g unqrg kp ýg uwuf { ctgc ku crrtqzko cvgn{ 707 rgtegpv0 Mkj gk I wrej 5 y cu uwuf kgf hqt c fkuncpeg qh 3.722 hggvwr uvtgco qh ýg o qwyi 0 Mkj gk Tqcf ugr ctcvgu ýg j qvgn i tqwpf u htqo ýg Y ckngc I qnh Eqwtug. cpf ýg i wrej dgnqy Mkj gk Tqcf ku crrtqzko cvgn{ 42 hggv fggr 0 Ku etquu ugevkqpu xct { eqpukf gtcdn{ htqo xgt { uvggr dgnqy Mkj gk Tqcf. cpf ý ku v{rg qh o qf gtcvg unqrg ku rtgf qo kpcpv ý tqwi j qw ýg i qnh eqwtug ctgcu qp Mkj gk I wrej 50

<u>MkjgkI wrej 6</u>

Mkj gk I wnej 6 ku nqecvgf vq y g uqwj gcuv qh Y ckngc dgw ggp Y ckngc cpf O cmgpc kp y g xkek pkv{ qh y g Y ckngc I qnh Eqwtug0 Mkj gk Tqcf twpu r ctcmgn vq y g nqy gt r qtvk qp qh y g i wnej wpvk nkvet quugu y g i wnej cv y g uj qtgnk pg0 Vj g cxgtci g unqrg ku crrt qz ko cvgn{ 7 r gtegp v0 Vj g uwwf { ctgc qp y g i wnej gz vgp f u crrt qz ko cvgn{ 3.722 hggvwr uvt gco htqo y g o qwj cv y g uj qtgnk pg0

<u>Maprg Iwnej</u>

Vj g uwf { ctgc qp Mqrg I wrej gzvgpf u 6.622 hggv wr uvtgco qh ku o qwj = vj g i wrej j cu cp cxgtci g unqrg qh crrt qzko cvgn{ 9 rgtegpv0 Vj g wrrgt nko kv qh vj g uwf { ctgc ku crrt qzko cvgn{ 5.222 hggv cdqxg Mcj gnkkJ ki j y c{0 Mqrg I wrej ku nqecvgf vq vj g uqwj qh vj g Vqy p qh Y ckj gg cpf hqy u y kj kp vj g ewnkxcvgf uwi ctecpg hkgrf u cdqxg cpf dgqqy Mcj gnkkJ ki j y c{0

Mwncpkj cmqkI wrej

Vjg Mwncpkjcmqk I wnej uwwf { ctgc eqxgtu 360,9 us wctg o kngu. cpf yjg uvtgco jcu c 206/r gtegpv cxgtci g unqrg0 Mwncpkjcmqk I wnej jcu ejctcevgtkuvkeu uko knct vq yjcv qh pgki jdqtkpi Y ckr wkncpk Uvtgco 0 Vjg wrrgt qpg/jch qh yjg i wnej ku eqxgtgf y ky Mgcy g vtggu cpf dtwuj 0 Fqy puvtgco. yjgtg ctg uqo g uecwgtgf vtggu cnqpi yjg eqcuvvkpg0

<u>Nkkrkaj ara I wrej</u>

Nkknkqjqmq I wnej jcu cp cxgtcig qh crrtqzko cvgn{5 rgtegpvy kyjkp vjg 4.222 hggvqh uwwf{ctgc gzvgpf kpi htqo ku o qwyj wrutgco 0 Vjg rtgugpvej cppgnku xgt{uj cmqy. tcpi kpi htqo 5 vq crrtqzko cvgn{8 hggv fggr 0 Kk ku cmq xgt{pcttqy. htqo 7 vq 32 hggv cetquu0 Kp vjg wrrgt tgcej qh vjg uwwf{ctgc. vjg cnki po gpv qh vjg ej cppgn ku pgctn{rgtrgpf kewnct vq vjg uj qtgnkpg=dww. cu kv pgctu Mkjgk Tqcf. vjg i wnej twpu pqtvj y ctf cpf kpvgtugevu Mkjgk Tqcf 0

<u>O cj kpcj kpc I wrej</u>

Vjg uwf { ctgc cnqpi O cj kpcj kpc I wnej gzvgpf u 3.422 hggv wrutgco htqo ku o qwj 0 Vjg utgco unqrgu cvcp cxgtcig qhcrrtqzko cvgn{ 407 rgtegpv0 Vy q dtkfigu etquu yjg utgco = yjg htuvku cv yjg qnf J qpqcrkkncpk J kijy c{. cpf yjg ugeqpf ku cv yjg pgy J qpqcrkkncpk J kijy c{. crrtqzko cvgn{ 822 hggv cdqxg yjg qnf qpg0 F gxgnqro gpv cnqpi yjg dcpmu qh yjg i wnej dgw ggp yjg ujqtgrkpg cpf yjg ctgc ko o gf kcvgn{ cdqxg yjg qnf J qpqcrkkncpk J kijy c{ ku rtko ctkn{ tgukf gpvkcn0 Uwi ctecpg hkgnfu ctg yjg rtgf qo kpcpvi tqwpf eqxgt cdqxg yjg tgukf gpvkcnctgc0

P cr krkI wrej 4/5

P cr ktkI wnej 4/5 y cu uwwf lef hqt cr r tqzko cvgn{ 4.222 hggv0 Vj g uwwf lef r qt vlqp j cu cp cxgtci g unqr g qh cr r tqzko cvgn{ 4 r gtegpv0 Dgnqy J qpqcr kkncpk J ki j y c{. o quv ncpf f gxgnqr o gpv ku j qvgnu cpf cr ct vo gpv dwkrf kpi u0 Vj g uj qtgrkpg ku c y j kg ucpf

dgcej y j kej gzvgpfu vq vjg uqwyjy guvcrrtqzko cvgn{ 3.222 hggv0 Vjg ncpf cdqxg vjg j ki j y c{ ku wugf vq i tqy r kpgcrrngu0

PcrkrkI wnej 6/7

P cr ktk I wnej 6/7 j cu cp cxgtci g unqr g qh cr r tqzko cvgn{ 507 r gtegpv. cpf vj g ngpi vj qh vj g ctgc uwwf kgf ku cr r tqzko cvgn{ 5.622 hggv0 Vj gtg ku qpg dtkf i g cv J qpqcr kkncpk J ki j v c{ cpf c ewnxgtv qp c ecpg j cwntqcf cr r tqzko cvgn{ 4.822 hggv wr uvtgco htqo vj g j ki j v c{0 I tqwpf eqxgt cdqxg vj g j ki j v c{ eqpukuvu qh hcktn{ vj kem vtggu cpf r kpgcr r ng hkgnf u0 Vj g uj qtgrkpg cv vj g uvtgco o qwyj ku c ucpf { dgcej 0

Qrqy cnwI wrej 4

Vjg o qwj qh Qnqy cnw I wnej 4 ku gcuv qh J gnkrk Rqkpv0 Vjg uwuf { ctgc gzvgpf u crrtqzko cvgn{ 4.222 hggvwruvtgco qh ku o qwj. cpf yjg cxgtcig unqrg qh yjg uvtgco ku crrtqzko cvgn{ 20, rgtegpv0

Qny cnwUtgco

Vjg ngpi ý qh ýg uwf { ctgc ku crrtqzko cvgn{ 4.: 22 hggv. cpf ýg uvtgco j cu cp cxgtci g unqrg qh crrtqzko cvgn{ 407 r gtegpv0 Qnqy cnw Uvtgco ku qpg qh ýg ncti guv uvtgco u kp ýg ctgc0 I tqwpf eqxgt. eqpukuvkpi qh ý kem dtwuj. ku hqwpf cnqpi ýg dcpmu cpf kp ugevkqpu qh ýg uvtgco dgf0 Uvi ctecpg hkgrf u nkg qwukf g ýg etguv qh ku dcpmu0 Vy q dtkfi gu etquu Qnqy cnw Uvtgco. qpg cv ýg gzkuvkpi J qpqcr kkncpk J ki j y c{ cpf qpg cvýg ecpg j cwntqcf ko o gf kcyn{ wr uvtgco qh ýg j ki j y c{0

<u>Urtgengnøu Fkej *Y cknwnw Vqy p Ctgc+</u>

Ur tgengni F kej ku qp ý g gcuvgtp unqr g qh ý g Y guv O cwk O qwpvckpu. pgct ý g pqtý gpf qh ý g õucff ngö ý cveqppgevu Gcuvcpf Y guv O cwk O Vj g uwuf { ctgc eqxgtu 4029 us wctg o kngu O Ur tgengni F kej r cuugu ý tqwi j ý g Vqy p qh Y cknwnw y j gtg kv hnqy u kpvq Y ckcng Tgugtxqkt. vq ý g uqwý O Vj gtg ku hcktn{ j gcx{ eqo o gtekcn ci tkewnwtcn cpf tgukf gpvkcnf gxgnqr o gpvcnpi ý g uwuf { tgcej 0

Y clemqc I wrej

Vj g uwuf { ctgc gzvgpfu 6.222 hggvwruvtgco qh ku o qwj. cpf Y ckcmqc I wrej j cu cp cxgtci g unqr g qh crrtqzko cvgn{ 306 rgtegpv0 Vj g i tqwpf eqxgt cdqxg Mkj gk Tqcf eqpukuvu qh y kem Mgcy g vtggu cpf dtwuj 0 Ugcy ctf qh Mkj gk Tqcf. eqpf qo kpkvo u cpf crctvo gpvdwkaf kpi u qeewr { dqyj dcpmu0

Y ckgj wUttgco

Vjg uwwf kgf r qt klap hqt Y ckgj w Uttgco uvctuu cv ku o qwj dgnqy Mcj gnktk J ki j y c{ cpf gz vgpf u wr uttgco c f kurcpeg qh 5.222 hgv0 Y kij kp i g uwwf { tgcej . i g cxgtci g unqrg qh i g uttgco ku crrt qz ko cvgn{ 208 r gtegpv0 Vj gtg ctg i tgg o clqt etquukpi u cnqpi i g uttgco tgcej < c dtkf i g mecvgf 872 hggv cdqxg i g o qwj qh i g uttgco . c ugeqpf dtkf i g mecvgf 822 hggv dgnqy Mcj gnktk J ki j y c{. cpf w q 32/hqv f ko gvgt ewnxgtu qp Mcj gnktk J ki j y c{. pgct ku kpvgtugevkqp y kj i g Y ckj w Dgcej Tqcf 0 I tqwpf eqxgt cnqpi yig y cvgteqwtug ku rtko ctkn{ yikem dtwuj cpf vtggu dgnqy McjgnknkJ kijyc{.ykj yig gzegrvkqp qhc ucpf fwpg ctgc vq yig uqwj qh yig uvtgco. dgnqy Y ckgj w Dgcej Tqcf0 Cdqxg Mcjgnknk J kijyc{.yigtg ctg ewnxkxcvgf uwictecpg hkgrfu cnqpi yig uvtgco0

Y cki gg Tkxgt

Vjg Y ckj gg Tkxgt uwaf { ctgc gzvgpfu 8.222 hggv wruvtgco htqo ku o qwj. cpf y g tkxgt j cu c urqrg qh crrtqzko cvgn{ 205 rgtegpv0 Vjg grgxcvkqp ej cpi g y kj kp y g uwaf { ctgc ku 3: 7 hggv0 C o wnkur cp dtkfi g uvtvewutg cvMcj gmkrkJ ki j y c{ etquugu y g tkxgt crrtqzko cvgn{ 5.222 hggv wruvtgco qh ku o qwj 0 I tqwpf eqxgt kp y g ctgc ku rtko ctkn{ y kemdtwuj cpf vtgg i tqy y . gzegr vpgct y g uj qtgrkpg y j gtg y g vtggu y kp qwcpf gxgpwcm{ i kxg y c{ vq my dtwuj cpf c tqem{ uj qtg0

Y ckmcr wUtgco

Vjg uwf { qh Y ckmcr w Utgco y cu eqpf weygf hqt c 8022/o krg utgvej kp O cwk Eqwpv{. gzygpf kpi htqo crrtqzko cygn{ 20 o krgu wrutgco qh y g J qpqr kkrcpk J ki j y c{ vq ku vgto kpcvkqp cv y g Mgcnc Rqpf qp y g uqwj gtp eqcuvqh O cwk Kncpf 0 Vjg Y ckmcr wutgco r cuugu y tqwi j y g egptcnmqy ncpf u qh O cwk Kncpf qt ki kpcvkpi htqo O cwkøu y guygtp o qwpvckpu0 Vjg dqwpf ctkgu cmpi y g uqwj gtp r qt kqp qh y g Y ckmcr wutgco vkg kp y kj gzkuvkpi hmqf r nckp dqwpf ctkgu0

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VjgY ckrwkrcpkuwaf { ctgc eqxgtu crrtqzko cvgn{ 36076 us wctg o kngu0 Vjg i wnej j cu c 3/r gtegpvunqrg kp vjg wrrgt eqwtug qh vjg uwaf { ctgc cpf c xgt{ o knf. 207/r gtegpv unqrg kp vjg nqy gt rqtvkqp0 VjkemMgcyg vtggu ctg dtwuj eqxgt vjg wrrgt tgcej qh vjg uvtgco 0 Vjg nqy gt uvtgco ctgc xctkgu htqo o qf gtcvgn{ vjkemdtwuj vq qrgp dgcej 0

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Qp ýg Kurcpf qh O qmmck r kpgcrrng. nkxguvqem xgi gvcdngu. cpf eqtp uggf ctg ýg o clqt rtqf weu0 Vjg Ucvg dwknv c neti g/uecng kttki cvkqp rtqlgev. yjkej gpneti gf ýg tqng qhf kxgtukhkgf ci tkewnwtg0 Kp tgegpv {gctu. vqwtkuo j cu cnuq dgeqo g ko rqtvcpvkp ýg geqpqo { qh ýg kurcpf0 Fgxgnqro gpv qh tguqtu qp ýg y guv eqcuv y km hwtý gt gzr cpf ýg vqwtkuo kpf wuxt{0 O cwpcnqc cpf Mcwpcnnenck ctg ýg o clqt ugwngo gpvu qp O qnqnck0

Vqr qi tcr j { kp y g ctgc tcp i gu htqo c tgrcvkxgn{ hcv eqcuxcn r nckp y kj cp cxgtc i g grgxcvkqp qh 507 hggv q y g unqr gu qh y g GcuvO qnqnckO qwpvckpu qh 5.222 hggv V j g eqcuvcn r nckpu ctg e j ctcevgtk gf d{ my. o ctuj { i tqwpf y kj vgt gutken cpf ecrectgqwu uqku gz vgpf kpi cr r tqz ko cvgn{ 922 hggv kpncpf htqo y g qegcp0 I tcuu cpf dtwuj r tgf qo kpcpvn{ eqxgt y g eqcuvcn r nckp ctgc0 Mgcy g vtggu i tqy kp y g ctgc cdqxg y g eqcuvcn r nckp0

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405 Rtkpekr cnHrqqf Rtqdrgo u

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Ko cffkkqp vq tkxgtkpg hqqfkpi. wpwuwcnuwth eqpfkkqpu. wuwpco ku. cpf j wttkecpgu ecwug eqpukfgtcdrg fco cig kp dgcej cpf rqy/n{kpi eqcuvcn ctgcu0 Ko uqo g ctgcu crqpi ý g eqcuv cmý tgg v{r gu qh hqqfkpi o c{ qeewt0 Vuwpco ku. y j kej ctg c ugtkgu qh y cxgu i gpgtcvgf d{ uwdo ctkpg gctyj o qxgo gpvu. vtcxgn cv j ki j xgrqekkgu cpf j cxg j cf c f gxcuvcvkpi ghgevqp ý g f gxgrqr gf ctgcu y kj kp ý g Eqwpv{ qh O cwk0

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O quv qh ýg fgutwetkag uwpco ku chigetkpi ýg J cy ckkcp Kurcpfu j cag dggp i gpgtovaf orqpi ýg eqcuru qh Uqwj Co gtkec. ýg Crawtkop Kurcpfu, ýg Mco ej orno Rgpkpuwro, qt Lor opo Vjg pwo dgt qh meorn{ i gpgtovaf uwpco ku ku agt{ uo orno Vjg o quv fgutwetkag uwpco k vq j kv ýg eqwpv{ qeewttgf qp Crtkn 3. 3; 680 Vj ku uwpco k tgr qtvgfn{ encko gf pkpg nkagu, fgo qnkuj gf 59 j qo gu, opf f co ci gf 557 qý gt dwknf kpi uo Qý gt tgegpv uwpco ku chigetkpi O orkk Eqwpv{ qeewttgf kp 3; 74. 3; 79. 3; 82. opf 3; 860 Kp ýg r cuv 368 {gctu, crrtqzko cvgn{ 65 uwpco ku j cag dcwgtgf ýg Kurcpfu qhO orkkopf O qmmcko Y ký kp ýg J cy ckkop Kurcpfu, ýg Ekv{ qh J km qp J cy ckkj cu dggp o quvugagtgn{ f co ci gf htqo Vuwpco kko r cewo Docugf qp 3; 92 hki wtgu. J km j cf uwhigtgf muugu qh &84 o kmkqp qagt ýg r cuv 72 {gctu0 Cnj qwij j kuxqtkecn tgeqtfu uj qy y cv y g qeewttgpeg qh j wttkecpg ncpfhcm ku kphtgs wgpv j wttkecpg/kpf wegf uxqto uwtig cpf y cxgu cnuq r qug c hnqqf kpi y tgcv vq y g kurcpf0 Tgxkgy qh j wttkecpg uxqto /vtcenu htqo 3; 6; vq 422: kpf kecy y cvqpn{ 36 uxqto u Ecyci qt{ 3 qt j k j gt j cxg eqo g y kj kp c 422 pcwkecno krg tcf kwu qh y g J cy ckkcp Kurcpf u0 Vj g kurcpf u y kj kp y g Eqwpv{ qhO cwk j cxg uki pkhecpvgzr quwtg vq j wttkecpg kpf wegf uxqto uwtig. y kj gz vgpukxg my /n{kpi ctgcu mecvgf qp y g uqwj uj qtg0 F gur kg y g hev y cv Ncpck O cwk qt O qmmck Kurcpf u j cxg pqv gzr gtkgpegf fktgev j wttkecpg ncpfhcm kp tgegpv j kurqt{. y g kurcpf u j cxg dggp ko r cevgf htqo j wttkecpg/i gpgtcvgf y kpf cpf y cxgu0 Vj tgg j wttkecpgu j cxg o cfg ncpfhcm qt j cf pqvcdrg ko r cevu vq y g J cy ckkcp ctej kr grci q. y gug ctg tgxkgy gf dgrqy 0



Figure 1: Hurricane tracklines within a 200 nautical mile radius of the Hawaiian Islands (1949-2008)

J wttkecpg Fqv o cfg ncpfhcm qp ýg Kuncpf qh Mcwck qp Cwiwuv 8. 3; 7;. cu c Ecvgi qt { 5 uvqto 0 Y kpf i wuvu qh 325 o rj. y ký uwuvckpgf y kpfu qh: 3 o rj y gtg tgeqtf gf cv Mkucwgc Nkijv. cpf fco ci gf xgi gwkqp kpfkecvgf ý cv y kpfu o c { j cxg gzeggf gf 347 o rj kp uqo g mecvkqpu *P cvkqpcn Y gcy gt Ugtxkeg. 3; 7; +0 C r gcm uvqto uwti g qh 408 hvy cu tgeqtf gf kp P cy ktky ktk J ctdqt qp ýg kuncpf qh Mcwck0 Qp ýg Kuncpf qh Qcj w fco ci g y cu nko kgf vq tckp/kpf wegf hmqf kpi cpf mecrk gf y kpf fco ci g0 Vjg kuncpf qh J cy ckk gzr gtkgpegf mecn hmqf kpi tgncvgf vq vqttgpvkcn tckphcm kp cff kkqp vq o kpqt y cxg fco ci g pgct Uqwj Rqkpv cpf cmpi ýg Mqpc Eqcuv *P cvkqpcnY gcý gt Ugtxkeg. 3; 7; +0 Cnj qwij kvfkf pqvo cng fktgevrepfhem qp cp{ qh y g J cy ckkep Kurepfu. J wttkeepg Ky c eewugf ugxgtg y kpf f co ci g vq y g Kurepf qh Mcwekepf pqvedng y exg f co ci gu vq y g uqwj y guvhekpi eqeuvu qh cm kurepfu0 J wttkeepg Ky c r cuugf vq y g pqtyj qh y g Kurepf qh Mcwekeu c Eevgi qt{ 3 j wttkeepg qp P qxgo dgt 33. 3; : 40 Vj g uqwj uj qtg qh y g Kurepf qh Mcwek cpf y g Y ckepeg eqeuv qh y g Kurepf qh Qcj w gzr gtkgpegf ugxgtg y exg f co ci g0 Vqven f co ci gu htqo y g uqto y gtg guvko evgf cv &472 o kmqp. kp 3; : 4 f qmetu *P evkqpenY gey gt Ugtxkeg. 3; : 4 \cdot 0

Vjg uvqto /qh/tgeqtf hqt ýg J cy ckkep Kurepfu ku J wttkeepg Køknko J wttkeepg Køknko o cfg nepfhem qp ýg Kurepf qh Mewek qp Ugr vgo dgt 33. 3; ; 4. cu c Ecvgi qt { 6 uvqto y kj o czko wo uwuvekpgf y kpfu qxgt nepf ev 362 o rj y kj i wuvu cu j ki j cu 397 o rj 0 Gzvgpuk xg y kpf. y cxg epf uwti g f co ci g qeewttgf empi ýg uqwj eqeuvqh ýg Kurepf qh Mewek f co ci kpi qt fguvtq { kpi 36.572 j qo gu *P evkqpen Y gey gt Ugt xkeg 3; ; 4-0 C r gem uwti g qh 608 hv NVF y cu qdugt xgf d { c y evgt ngxgn uvekqp kp P cy kny knk J etdqt qp ýg kurepf qh Mewek 0

Y j krg ý g ur gekke ecwug qh uwpco kcpf j wtkecpg tgrcvgf hrqqf kpi ecp dg cwtkdwgf vq c ukpi rg hcevqt. ý g ecwug qh hrqqf kpi cu c tguwnvqh uvtgco qxgthrqy o c{ dg f wg vq xctkqwu tgcuqpu0 Rquukdrg hrqqf ecwugu kpenwf g< fgdtku/enqi i gf uvtgco u hrcuj hrqqf u. cpf wpf ghkpgf uvtgco hrqy r cwgtpu kuqrcvgf fgr tguukqpu kp vqr qi tcr j{. kpcf gs wcvg ftckpci g hcektkkgu. cpf ej cpi gf ftckpci g eqpf kkqpu dgecwug qh fgxgrqr o gpv0

Huqqf kpi kp O cwk Eqwpv{ ku cwtkdwcdng vq hcuvo qxkpi uwthceg twpqhh htqo uwggr o qwpvckp unqrgu f kuej cti kpi qpvq my. hrcv. eqcuvcn r mkpu0 Vj ku eqpf kkqp ecwugu uvqto y cvgt htqo y g j ki j mpfu vq qxgtvqr my mpf uvtgco u cpf huqqf ctgcu cf lcegpv vq y g uvtgco u0 O quv huqqf r tqdngo u qp y g kuncpf qeewt kp y g my/n{kpi ctgcu. y j kej j cxg mti gn{ dggp f gxgmqrgf y kj kpcf gs wcvg qt pqpgz kuvgpv huqqf/ eqpvtqno gcuwtgu cpf uvqto f tckpci g u{uvgo u0

Gzeguuksg uwtheeg y cvgt htqo qxgtnepf hqy htgs wgpvn{ ecwugu hqqf kpi kp r qqtn{ ftckpgf ctgcu0 O cp{ qh y gug r tqdngo u ctg hqwpf kp fgxgnqr gf ctgcu y j gtg y g pcwten ftckpci g r cwgtpu j cxg dggp cngtgf fwtkpi fgxgnqr o gpv0 Qy gt heevqtu y j kej eqpvtkdwg vq y ku v{r g qh hqqf kpi ctg kpuwhhkekgpv qt gzeguuksg nepf unqr gu cpf r qqt uqkneqpf kkkqpu0

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kopyjg Mwnc Hqtguv Tgugtxg ygtg hkngf d{jgcx{hnqyu.ngcfkpi vqhncuj hnqqfkpi kop tgukf gpvkcn ctgcu kp Y ckqj wrk dgrqy 0 J crgcmere P cvkqpcn Retm y cu erqugf f wg vq hqqfkpi cpf tqem cpf o wfurkfgu cetquu ceeguu tqcfu cpf rqy gt qwci gu0 Ugxgp kpej gu qhj gcx{ tckp kp Mkj gkecwugf o clqt hqqf kpi qh qy /n{kpi uxtggu cpf vqttgpvu qh o wf cpf uqkn wr vq y tgg kpej gu fggr 0 Uqwj Mkj gk Tqcf y cu enqugf fwg vq uvcpf kpi y cvgt cpf hrcuj hrqqf u0Dgcej gu kp o cp{ ctgcu pgct Mkj gky gtg erqugf chvgt y jg uvqto fwg vq fcpigtqwu eqpfkkqpu cpf fcocig vq nkhgi wctf vqy gtu0 Rqy gt qwci gu htqo y g uvqto ecwugf y cvgt uj qtvci gu hqt o cp{ eqo o wpkkgu dgecwug rqy gt ku tgs wktgf vq r wor y cvgt vq uvqtci g vcpm0 Go gti gpe{ y cvgt vcpmgtu y gtg uvcvkqpgf ctqwpf y g ctgc0 V j g Uvcvg guvko cvgf vqvcn f co ci gu htqo y j g uvqto vq dg cdqww & o kmkqp0Qp Hgdtwct { 8. 422: . c hgf gtcnf kucuvgt y cuf genetgf hqt y g Ucvg qh J cy ckk *HGO C/3965/FT+ vq o cmg Rwdnke Cuukuvcpeg cxckrcdng hqt go gti gpe{ y qtm cpf tgr ckt qt tgr ncego gpv qh hcekrkskgu f co ci gf f wtkpi y ku gxgpv0 Vj ku kphqto cvkqp y cu qdvckpgf htqo y g Rcekhe F kucurgt Egpygtøu õO cvk Eqwpv{ O quv Chigevgf cu Uvqto Rawpfu Uvcvg ah J cy ckkö ctvkeng0 F gvckngf f guetkr vkapu ah y g Knopf u qhO cwkcpf O qnqnckctg r tqxkf gf dgnqy <

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J qpqmcj wc Uttgco

J qpqnrcj wc j cu j cf hrqqf kpi r tqdrgo u kp y g fqy puvtgco ctgc pgct y g gz kuvkpi J qpcr kkj cpk J ki j y c{0 Hrqqf kpi f co ci g j cu dggp rko kxgf vq j qo gu pgct y g o qwj qh y ku uvtgco 0 P q guvko cvgu qh f co ci g ctg cxckrcdrg hqt r cuvhrqqf u0

J qpqngcpc Dc{ I wrej

Ko Qevqdgt cpf Pqxgo dgt 3;83. uvqto hrqqfkpi htqo Jqpqngcpc Dc{ I wrej cpf i wrej gu kp y g uwttqwpfkpi ctgc fco ci gf rtqrgtv{ cpf ecwugf tqcf y cuj qwu cpf j ki j y c{ dtkf i g hcknwtgu0

J qpqmqy ckUtgco

J qpqmqy ck Utgco j cu htgs wgpvn{ hmqfgf ý g J qpqmqy ck Vqy p ctgc. wuwcm{ kp ý g hqto qh uj ggyhnqy 0 Hmqqfkpi vq c fgrý qh crrtqzko cvgn{ 4 hggv j cu dggp tgeqtfgf *WUCEG. 3; 93+0 Y cxgu qh 36 hggv y gtg qdugtxgf f wtkpi ý g 3; 68 wwpco k y j kej f guvtq{gf ugxgtcnj qo gu *Wpkxgtukv{ qh J cy ckk 3; 98+0

Kq Utgco

Vj gtg j cxg dggp pwo gtqwu hrqqf u qp yj ku uxtgco ukpeg yj g gctn{ 3; 22u. o cp{ qh y j kej j cxg kphklevgf j gcx{ f co ci g kp vgto u qh rquu qh rkhg cpf r tqr gtv{ f guxtwevkqp0 Vj g o quv uki pkhkecpv hrqqf u qeewttgf kp Lcpwct{ 3; 38. P qxgo dgt 3; 52. Lcpwct{ 3; 6:. F gego dgt 3; 72. P qxgo dgt 3; 83. cpf Lcpwct{ 3; 930 T geqtf u hqt yj g {gcturtkqt vq 3; 25 ctg wpcxckrcdrg0

Vjg hrqqf qh 3; 38 y cu ýg y qtuv hrqqf vq j kvýg ctgc0 Rgcm f kuej ctig y cu guvko cvgf vq dg 39.222 ehu cvýg O ctngv Utggv dtkfig0 Vj ktvggp rkxgu y gtg rquv. cpf 92 j qo gu y gtg f go qrkuj gf0

Vj g uvqto qh F gego dgt 3; 72 f wo r gf 7 kpej gu qh tckp kp c 4/j qwt r gtkqf. ecwukpi y g uvtgco vq tkug cpf qxgthqy xgt{ tcrkf n{0 Vj g f kuej cti g y cu guvko cvgf vq dg 9.772 ehu0 T gukf gpegu. eqo o gtekcn r tqr gtvkgu. etqr u. cpf qy gt r tkxcvg r tqr gtv{ y gtg f co ci gf 0 Vj ku hqqf tguwngf kp y g nquu qh qpg nkhg cpf &352.222 y qty qh f co ci g0

Vjg hrqqf qh Pqxgo dgt 3;83 tguwngf kp cp guvko cvgf & 7.222 kp fco cig vq j qo gu. uwi ctecpg hkgrfu. cpf r wdrke cpf eqo o gtekcn r tqr gtvkgu0 Vj ku hrqqf qeewttgf chvgt y g eqwpv{ j cf eqput wevgf hrqqf/eqpvtqn uvt wewstgu pgct y g O ctngv Utggv dtkf i g dgw ggp 3;73 cpf 3;770

Ko Lepwet { 3; 93. j gex { tekpu tguwngf ko hrqqf koi erqpi vj g uvtgeo øu tki j v qxgt depm0 Vj g f kuej eti g y eu guvko evgf vq dg 7.4: 2 ehu0

Ký cffkkap va hraaf koi kový g koog kovg uvtgeo ctge. hraaf koi htao uj ggyhray ku c rtadngo 0 Vj g ctgeu pget ý g kovgtuge kap ah Mgepw Uvtggv epf Uvevg J ki j y c{ 52 epf ý g Mej a angreg Uvtggv etge ceta uu htao Y eknymy Grego gpyet{ Uej a an etg eqpuvepvrtadngo u0 Y evgt ku gký gt r worgf a wat uggr u kova ý g i tawpf 0

Ko Hgdtwct{ 3; 87. y g ctgc dqwpf gf d{ Y ckcng Tqcf. Mccj wo cpw Cxgpwg. cpf Ur tgengni F kej y cu hqqf gf y kj ugxgtcn hggv qh y cvgt0 Uj ggvhqy y tqwi j y g f qy pvqy p ctgc cpf qxgthqy htqo y g f kej ecwugf y ku hqqf 0

Vuwpco khrqqf kpi qeewttgf kp Oc{ 3; 82. y j gp y cxgu qh 37 hggvy gtg tgr qtvgf kp y ku ctgc. ecwukpi f co ci g qh pgctn{ &972.222 *WUCEG. 3; 93= Wpkxgtukv{ qh J cy ckk 3; 98=Ucvg qh J cy ckk Cr tkn 3; 95+0

Mcj cpc Uttgco

Mcj cpc Utgco j cu hrqqf gf y g ctgc pgct ku o qwj cv y g J qpqcr khrcpk J ki j y c{0 F wtkpi hrqqf eqpf kkqpu. y g gzkukpi j ki j y c{ dgeqo gu ko r cuucdng0 F wtkpi y g Cr tkn 3; 68 uwpco k 46/hqqv j ki j y cxgu utvem y ku eqcuven ctgc. cpf y g 3; 82 uwpco kecwugf 32/hqqvy cxgu *Wpkxgtukv{ qhJ cy ckk 3; 98+0

Mcj qo c Uttgco

Vj g ctgc ctqwpf Mcj qo c Utgco. y j kej hrqy u vj tqwi j Ncj ckpc. j cu dggp hrqqf gf htgs wgpw{0 Vj g crki po gpv qh vj g gz ku kpi ej cppgn cpf ku nko kgf ecr cekv{ kp vj g nqy gt tgcej gu. cr rtqz ko cvgn{ 822 ewdke hggv r gt ugeqpf *ehu+. j cxg i tgcvn{ eqpvtkdwgf vq vj g hrqqf kpi rtqdrgo 0 Vj g uvtgco urqrg ku tgrcvkzgn{ uvggr cpf xgrqekkgu htqo hrqqf y cvgtu ctg xgt{ j ki j 0 Vj wu. qxgtdcpmhrqqf kpi j cu tguwngf 0 Vj g ugcy cm crqpi Htqpv Utggvr tgxgpvu hrqqf y cvgtu htqo qw rgwkpi f ktgevn{ kpvq y g qegcp0

Ukpeg 3: 9; . ý g Ncj ckpc ctgc j cu dggp f co ci gf d{ cv ngcuv 3; hnqqf u=j qy gxgt. ý gtg ctg pq tgeqtf u r tkqt vq 3; 820 Vj g Lcpwct{ 3; 38 hnqqf y cu tgr qtvgf vq j cxg ecwugf ugxgtg f co ci g kp ý ku ctgc0 Ncj ckpc y cu ugxgtgn{ f co ci gf d{ w q o clqt hnqqf u, qpg qp O c{ 35. 3; 82. cpf ý g qý gt htqo Qevqdgt 53 vq P qxgo dgt 5. 3; 830 WUI U tgr qtvgf r gcm f kuej cti gu qh 9.972 ehu cpf 5.622 ehu hqt ý g tgur gevkxg uvqto u0

Fwtkpi y g 3; 82 uvqto. Mcj qo c Uvtgco j cf hkxg r gcmu. gcej qhy j kej hmqf gf y g Htqpv Uvtggv ctgc qh Ncj ckpc0 Vj g O cmc. Ecppgt {. cpf Mgcy g Ecor ctgcu y gtg hmqf gf fwtkpi y g hkpcnr gcmqh y ku uvqto. cpf 352 hco ktlgu y gtg gxcewcygf htqo y gkt j qo gu0 O cp{ qh y gug j qo gu y gtg hmqf gf vq c f gr y qh 7 hggv0 F co ci g htqo y g 3; 83 uvqto y cu guvko cvgf vq dg kp gzeguu qh & 308 o kmkqp *WUCEG. 3; 93=Uvcyg qh J cy ckk 3; 95-10

Fwtkpi ý g uwpco k qh O c{ 45. 3; 82. y cxgu qh; vq 32 hggv kp j gki j v d cwgtgf ý g eqcuvrkpg dgw ggp O ccrege cpf Ncj ckpc0 F co ci g y cu guvko cvgf vq dg kp ý g xkekpkx{ qh &7; .222 *Ucvg qh J cy ckk 3; 95+0 C uwpco ky kj y cxgu wr vq 34 hggv j ki j j kv ý g Ncj ckpc ctgc qp Cr tkn 3. 3; 68. f co ci kpi qt fguvtq{kpi pwo gtqwu j qo gu0 Guvko cvgu qh f co ci g ctg wpcxckredrg *WUCEG. 3; 93+0

Mcj www.Ctgc

Vjg Mcjwnxkctgc ku uwdlgev vq kpwpfcvkqp htqo dqvj vuwpco ku cpf ujgghnqy 0 Vjg qxgthqy qh McnkcnkpwkI wnej eqpvtkdwgu vq hnqqfkpi kp vjg kpfwuvtkcnctgc cflcegpv vq McjwnxkCktrqtv0

Vjg eqcuvlpg ctgc htqpvlpi Mcj wnxk vqy p ku uvdlgev vq vuvpco k kpwpf cvkqp0 Vjg uvpco ku qh Crtkn 3;68 cpf Oc{ 3;82 ecwugf gzvgpulxg fco cig vq yjg eqo o wpkkgu qh Mcj wnxk Urtgengnixkng. cpf Rckc. cnqpi yjg pqty ujqtg qh yjg kurcpf.fguvtq{kpi ugxgtcnj qo gu0 Vjg o quvfgxcuvcvkpi vuvpco kvq j kvyg Mcj wnxk ctgc qeewttgf kp Oc{ 3;82. ecwukpi cp guvko cvgf &985.222 y qtyj qh fco cig *Wplxgtukv{ qh J cy clk 3;95+0

McngrcI wrej

Hnqqfkpi htqo Mcngrc I wnej jcu kpwpfcvgf Yckjgg Xkmcig cpf Yckgjw I qnh Eqwtug Tqcf0

Mco cqng I wrej

Mco cqng I wrej j cu hrqqf gf ku dcpmu qp ugxgtcnqeecukqpu0Vj g o quvtgegpvuqto gxgpv qp tgeqtf y cu y g uvqto qh 42290 Vj g F gego dgt 4229 tckpuvqto ecwugf o clqt hrqqf kpi kp my /n{kpi uvtggvu0 Dgcej gu pgct Mkj gk y gtg emqugf chvgt y g uvqto f wg vq f cpi gtqwu eqpf kkqpu cpf f co ci g vq nkhgi wctf vqy gtu cpf r qy gt qwci gu ecwugf y cvgt uj qtvci gu hqt o cp{ eqo o wpkkgu0 Vj g 3; 93 uvqto ecwugf f co ci g vqvchpi crrtqzko cvgn{ & 7.222 kp y g Mkj gk ctgc *WUCEG. 3; 99+0 Vj g uvqto qh O ctej 3; 8: kphkevgf j gcx{ f co ci g qp Mkj gk Tqcf cpf y cvgt o ckpu0 Hrqqf y cvgt htqo Mco cqng I wrej vqrrgf Mkj gk Tqcf. cpf y g nzy p qh pgctd{ Mco cqng Dgcej Rctmy cu eqo r nzygn{ y cuj gf cy c{0

Mcgr qrc I wrej

Vj gtg ku pq tgeqtf qhtkxgtkpg hqqf kpi kp yj ku ctgc0

Mcwcwrc Uttgco

Cu tgegpvn{ cu Lcpwct{ 3; 93. Mcwcwrc Utgco qxgthrqy gf cpf kpwpf cvgf fgxgrqr o gpu pgct y g utgco *WUCEG. 3; 93+0 J qy gxgt. ej cppgnko r tqxgo gpu j cxg dggp o cf g ukpeg y g 3; 93 uvqto . cpf pq hrqqf kpi j cu dggp tgeqtf gf ukpeg0

MgcjckyckI wrej

J kuvqtkecnfcvc hqt yi ku i wnej ctg xgt{ nko kgf dgecwug ku hqqfy cvgtu o gtig y kj y g hqqfy cvgtu qh Y ckcmc Utgco 0 Vjgtghqtg. hqqf fco cig cwtkdwgf vq qxgthqy htqo yi ku i wnej ecppqv dg cuegtvckpgf 0 F co cig htqo hqqf kpi qp yi ku i wnej kp y g Mkj gkctgc y qwrf dg y g uco g cu uvcyf hqt Y ckcmqc I wnej 0

Mgcpwg. Y cknwc. cpf J cpc

Huqqfkpi j cu qeewttgf kp Mgcpcg cpf Y cknxc. yj qwi j f co ci g j cu pqvdggp ugxgtg0 CvJ cpc. uj ggyhuqy twpqhh j cu ecwugf f co ci g vq y g j qvgn o quv pqvcdn{ kp Crtkn 3; 8:0

F co ci g vq ý g eqcuv f wtkpi ý g Cr tkn 3; 68 uwpco k y cu gz vgpukxg0 Cv O crkmq Dc{. 4: /hqqvj ki j y cxgu uy gr v qxgt 3.522 hggv kprcpf 0 Vj g gpvktg gpf qh ý g Mgcpcg Rgpkpuwc y cu kpwpf cvgf d{ 38/hqqvj ki j y cxgu0 Ugxgtcn dwkrf kpi u y gtg f co ci gf cpf w q r gtuqpu y gtg nkmgf 0 Ugxgtcn j qo gu cmpi ý g pqt y ukf g qh J cpc Dc{ y gtg f co ci gf d{ 35/hqqvj ki j y cxgu0 Cv J co qc. y cxgu qh wr vq 45 hggv kp j gki j vf guvtq{gf j qo gu cpf nkmgf ugxgtcnr gqr mg *WUCEG. 3; 93+0

Mkj gkI wrej 3

Fwtkpi r cuv tckpuvqto u. Mkj gk I wnej 3 j cu eqpvtkdwogf vq vjg hrqqf kpi qh vjg Mcnco c Rctm ctgc0 Vjg o quv tgegpv tgeqtf gf hrqqf kpi y cu kp Hgdtwct { 3;93. y j gp vjg Mcnco c Rctm ctgc y cu kpwpf cvgf 0 F wg vq vjgkt enqug r tqzko kw{. Mgqngc I wnej cpf Mkjgk I wnej 3 ftckp kpvq qpg hrqqfrnckp f wtkpi tckpuvqto hrqqf kpi qh Mcnco c Rctm cpf vjg uwttqwpf kpi ctgc0 F wtkpi vjg uvqto qh O ctej 3;8: vjg y cmu qh c j qwug pgct cp qwungvej cppgn y jkej ftck pu r qpfgf qxgth rqy htqo y g i wnej. y gtg wpfgto kpgf0 Qy gt r tqr gt kgu kp y g uco g ctgc y gtg kpwpf cvgf d{ y g hrqqf y cvgt0

<u>Mkj gkI wrej gu 4.5.6</u>

Vjg F gego dgt 4229 tckpuvqto ecwugf o clqt hrqqf kpi kp rqy/n{kpi uvtggvu0 Dgcej gu pgct vjg Mkgj k ctgcu y gtg erqugf chvgt vjg uvqto f vg vq f cpi gtqvu eqpf kkqpu cpf f co ci g vq nkhgi vctf vqy gtu cpf r qy gt qwci gu ecwugf y cvgt uj qtvci gu hqt o cp{ eqo o wpkkgu0

Magrg I wnej

Mqrg I wrej j cu hrqqf gf y g eqo o wpkv{ qh Y ckgj w qp xctkqwu qeecukqpu0 Uqto twpqhh hrqy u y tqwi j y g uwi ctecpg hkgrf u. f gr qukkqi o wf cpf f gdtku qp Mcj gnkrq J ki j y c{0 Rqpf gf y cvgt gxgpwcm{ uggru kpvq y g i tqwpf qt ku r wo r gf kpvq pgctd{ rqy /n{kpi ctgcu0 Pq guvko cvgu qh uvqto f co ci g ctg cxckrcdng0 J kuvqtkecn qeewttgpegu qh hrqqf kpi htqo Y ckgj w Utgco eqkpekf g y kj y qug qp Mcngr c I wrej dgecwug y g y q ctg uq enqug vqi gy gt0 Dwukpguugu. j qo gu. cpf r wdrke hcekrkxgu j cxg dggp f co ci gf =j qy gxgt. pq guvko cvg qh y gug f co ci gu ku cxckrcdng0 Vuwpco k tgeqtf u kp y ku ctgc uj qy y cxg j gki j u qh 36 hggv f wtkpi y g O c{ 3; 82 uwpco kcpf f co ci g co qwpvkpi vq &96.222 *WUCEG. 3; 93+0

Mwncpkj cmqkI wrej

Mwrcpkj cmqk I wrej. rkng o cp{ qh ý g utgco u kp ý g Mkj gk ctgc. qxgt vqr u ku dcpmu f wtkpi j gcx{ tckpuvqto u dgecwug qh ý g kpcdktkv{ qh ý g gz kukpi ej cppgn vq ectt{ uvqto f kuej cti guOC ucpf f wpg cvý g o qwyj qh ý g uvtgco kpvgpukhkgu ý g ftckpci g rtqdrgo d{ rtqf wekpi c r qpf kpi ghtgevOMwrcpkj cmqk I wrej qxgt vqr rgf ku dcpmu f wtkpi ý g uvqto u qh 3; 89. Lcpwct{ 3; 93 cpf F gego dgt 42290 Vj g F gego dgt 4229 tckpuvqto ecwugf o clqt hrqqf kpi kp my /n{kpi uvtgguODgcej gu y gtg emugf chugt ý g uvqto f wg vq f cpi gtqwu eqpf kkqpu cpf f co ci g vq nkgi wctf vqy gtu cpf r qy gt qwci gu ecwugf y cvgt uj qtvci gu hqt o cp{ eqo o wpkkguOF co ci g f wtkpi ý g Lcpwct{ 3; 93 uvqto y cu guvko cvgf cv & 7.222 kp ý g Mkj gk ctgc. kpenwf kpi Mco cqng Dgcej Rctm0 Vj g Mkj gk hrqqfrnckp y cu kpwpf cvgf vq f gr ý u qh 8 hggv *WUCEG. 3; 93+0F wtkpi ý g uvqto qh O ctej 3; 89. hrqqf y cvgt qxgt vqr rgf Mkj gk T qcf cpf y cuj gf qw c r qt vkqp qh ý g WU0Dwtgcw qh Ucpf ctf u r tqr gt v{0Q ý gt f co ci g kpenwf gf tvkpgf ci tlæwnwtcn etqr u. vqtp r cxgo gpv. cpf gtqf gf uj qwrf gtu cmpi Mkj gk T qcf cpf ugxgtcn ugeqpf ct{ uvtggu0F co ci g vq j g Mkj gk ctgc y cu guvko cvgf cv &93.522 *WUCEG. 3; 92+0

Vjg vuvpcok qh Oc{45.3;82. ecwugf crrtqzko cvgn{&45.222 kp fco cig vq yjg Mkjgkctgc0Kpwpfcvkqp kp yjg hqqfrnckp ctgcu fco cigf jqo gu. tqcfu. cpf wkrkkgu0 J kij uwtheqpfkkqpu cvMkjgkfwtkpi Lcpwct{3;7; cpf Lcpwct{3;85 hqqfgf ctgcu crqpi yjg eqcuv0 Cnyjqwij hqqfkpi y cu pqv ukipkhecpv. uwduvcpvkcn co qwpu qh ucpf ygtg y cuj gf cy c{d{ yjg gtqfkpi cevkqp qh yjg y cxgu *WUCEG.3;93+0

<u>NkkrkqjqrqI wrej</u>

Nkkrkqjqrq I wrej ku hrqqfgfd{dqy uwpcokcevkxkv{cpfuvqtoycvgt twpqhh htqoc ftckpcigdcukpqh608uswctgokrgu0VjgiwrejhrqqfgffwtkpiyguvqtoqhOctej 3;89 cpfycujgfqwuqogtqcfucpfycvgtockpu*W0U0Fgrctvogpvqhyjg Kpvgtkqt.3;8:+0

O cj kpcj kpc I wrej

O cj kpcj kpc I wnej cpf y g uwttqwpf kpi ctgc j cxg hrqqf gf kp y g r cuv. o quvn{kp y g hqto qh u j ggyhrqy 0 F wtkpi y g O c{ 3; 68 uwpco k 36/ vq 42/hqqv y cxgu dcwgtgf y g eqcuvrkpg kp y ku ctgc *Wpkxgtukx{ qh J cy ckk 3; 98+0 P q guvko cvg qh f co ci g ku cxckrcdrg0

$P \operatorname{cr} \operatorname{krk} I$ wrej 4/5

Qp Pcrkk Dc{. yg ctgc jcu dggp ugxgtgn{ fco cigf d{ hrqqfkpi qp ugxgtcn qeecukqpu0 Fwtkpi yg uvqto qhOctej 39. 3; 89. c dtgcmkp c rctig gcty hkmtqcf go dcpno gpv crrtqzko cvgn{ 208 o krg pqtyj gcuv qh yj g dc{ tgrgcugf y cvgt kp yj g i wrej cpf hrqqfgf yj g jqvgn ctgc0 Fco cig vq yj g jqvgn y cu guvko cvgf vq dg crrtqzko cvgn{ &72.2220 Kp cffkkqp. rtkxcvg rtqrgtv{ qy pgtu kp yj g ctgc uwuckpgf uvduvcpvkcn fco cig *WUCEG. 3; 93+0 Qp Octej 46. 3; 89. uqo g jqvgnu kp yj g ctgc y gtg fco cigf d{ gzeguukxg twpqhhhtqo yj g i wrej 0 Tgeqtf u rtkqt vq 3; 89 ctg wpcxckrcdng *WUCEG. 3; 93+0

PcrktkI wrej 6/7

Vj gt
g ctg pq tgeqtfu qhhqqf f co ci g htqo yj ku i wnej. y j kej ku m
qecvgf uqwj y guv qh P cr krk
I wnej 4/50

Qrqy cnwI wrej 4

Qrqy cnwI wrej 4 j cu xktwcm{ pq j kuvqt{ qh hrqqf kpi dgecwug ku ftckpcig dcukp ku hcktn{ uo cm0 Qdugtxgf uvqto cevkqp kp y ku ctgc j cu tguwngf rtko ctkn{ kp uj cmqy hrqqf kpi 0 J qy gxgt. hcevu cdqwy j g gzygpvqh hrqqf kpi j cxg pqvdggp tgeqtf gf 0

Qrqy cnwUtgco

Qrqy cnw Utgco j cu nkwg tgeqtf qh hrqqf kpi 0 F wtkpi ý g O ctej 3; 89 uqto. f co ci g vq r tqr gtv{ y cu o kpko cn/qpg j qo g y cu hrqqf gf cpf o wf cpf f gdtku y gtg ur kngf qpvq J qpqcr kkrcpk J ki j y c{ *WUO F gr ctvo gpv qh ý g Kþvgtkqt. 3; 8: +0 F gdtku nqf i gf kp ewrxgtu cpf dtkf i gu ecwugf hrqqf y cvgtu vq dcem wr cpf qxgtvqr ý g dcpmu qh ý g utgco 0 F wtkpi ý g Cr tkn3. 3; 68. uwpco k y cxgu qh wr vq 32 hggv j kv ý ku ctgc. ecwukpi o kpqt f co ci g cpf kpwpf cvkqp qh ý g my eqcuvcn ctgcu *WUCEG. 3; 93+0 F wtkpi ý g uvpco ku qh 3; 79 cpf 3; 82. y cxg j gki j u tgcej gf : cpf 33 hggv tgur gevkxgn{ *Uvcy qh J cy ckk 3; 96+0

Uqwj gtp EqcuvqhO cwk

Gzegrvhqt y g Crtkn 3; 8: uvqto. hrqqf f co ci g kphqto cvkqp kp y g ctgc ku ncemkpi 0 O cp{ dtkf i gu cpf tqcf ugevkqpu y gtg gky gt y cu gf qw qt eqxgtgf d{ ncpf unkf gu0 Uvtgco u dgw ggp Mkr cj wnw cpf P ww ctg npqy p vq j cxg hrqqf gf pwo gtqwu vko gu. gur gekcm{ pgct y g o qwj u0

Vjg uwpcok qh Crtkn 3;68 ecwugf okpqt fcocig kp yiku ctgc0 Y cxg jgkiju xctkgf htqo 43 hggvcvMcwrq vq 32 hggvcvP ww0 P q qy gt kphqto cvkqp ku cxckrcdrg hqt yiku ctgc0

<u>Ur tgengnøu F kæj</u> *Y cknwmw Vqy p Ctgc+

F wg vq ý g enqug r tqzko kx{ qh ý ku ctgc vq Kcq Utgco. ý g tgeqtf qh hnqqf kpi ku xgt{ uko knct0 Ukpeg ý g gctn{ 3; 22u. ý gtg j cxg dggp pwo gtqwu ceeqwpu qh hnqqf kpi cnqpi Kcq Utgco cpf ku vtkdwctkgu0 Tgeqtf u hqt ý g {gctu tkqt vq 3; 25 ctg wpcxckrcdng=j qy gxgt. ý g o quv uki pkhecpv tgeqtf gf kpekf gpegu qh hnqqf kpi qeewttgf kp Lcpwct{ 3; 38. Pqxgo dgt 3; 52. Lcpwct{ 3; 6:. F gego dgt 3; 72. Pqxgo dgt 3; 83. cpf Lcpwct{ 3; 93 *Wpkxgtukx{ qh J cy ckk 3; 95+0

Ký cffkkap va hraaf kpi kp ýg ko o gfkcvg uvtgco ctgc. hraaf kpi htao uj ggvhray ku c rtadngo 0 Vjg ctgcu pgct ýg kpvgtugevkap ah Mcgpw Uvtggv ctgc cetauu htao Y ckrwnw Grgo gpvct { Uej aqanctg eqo o apra{ chegevgf 0 Kjp Hgdtwct { 3; 87. ýg ctgc dqwpf gf d{ Y ckcrg Tacf. Mccj wo cpw Cxgpwg cpf Urtgengru F kej y cu hraaf gf y kj ugxgtcn hggv ah y cvgt 0 Uj ggvhray ýtawij ýg fay pvay p ctgc cpf axgthray htao ýg f kej ecwugf ýku hraaf 0

Y ckcmqc I wrej

Y ckemic I wiej j cu qxgthrqy gf fwtkpi emo quv gxgt { j gcx { tekpuqto kp y g etge0 Vj g i wiej dgeqo gu xgt { uj emqy pget y g kpvgtugevkqp qh O qmwigng J ki j y c { cpf Mkj gk Tqef. cpf fwtkpi tekpuvqto u kv qxgthrqy u ku depmu cpf hrqqfu y g uwttqwpf kpi etge0 Rgtukuvgpv ceewo wrevkqp qh ucpf f gr quku ev y g o qwj qh y g i wiej rm { u c o clqt tqrg kp rtgxgpvkpi htgg hrqy qh y evgt vq y g qegep. cpf kp tgegpv { getu f gxgrqr o gpv empi y g i wiej . gur gekem { dgw ggp Mkj gk Tqef cpf y g u q tgrkpg. j cu kpvgpukhgf y g ftekpei g rtqdrgo 0 Reuv hrqqf u kpenwf g y qug kp Icpwet { 3; 38. Hgdtwet { 3; 73. Crtkn 3; 78. O etej 3; 89. cpf Icpwet { 3; 93 *WUCEG. 3; 93=WUOF gr et vo gpv qh y g Kpvgtkqt. 3; 8: =WUCEG. 3; 92+0 Cnj qwi j y g Icpwet { 3; 38 hrqqf y cu pqv tgeqtf gf kp Mkj gk kv ku dgrkgxgf vq dg y g õy qtuv hrqqf kp j kuvqt {06 J gex { f co ci g y cu kphkevgf em qxgt y g kurepf 0 V j g hrqqf qh Hgdtwet { 3; 73 ku eqpukf gtgf y g i tgevguv hrqqf kp y g Mkj gk etge0 F co ci g v r wdrke cpf rtkxevg rtqrgtv{ y cu guvko evgf vq dg &97.2220

Y ckj gg Tkxgt

Hnqqf kpi kp y g Y ckj gg Tkxgt uwwf { ctgc j cu qeewttgf kp y g hqto qhtwpqhh y j kej ur tgcf y tqwi j y g hlgnf u cpf hnqy u vqy ctf y g j ki j y c {0 J qy gxgt. pq tgeqtf qh hnqqf kpi d{ y g tkxgt ku cxckrcdrg0 Hnqqf kpi f wg vq c uwpco k qeewttgf kp 3; 68. y j gp 45/hqqv j ki j y cxgu y gtg tgr qtvgf *Wpkxgtukv{ qh J cy ckk 3; 98+0 Dgecwug yig uwwf{ ctgc ku wugf rtkoctkn{ cu rcuwwtgncpf. guvkocvgu qh fcocig ctg wpcxckncdng0

Y ckmcr w Uvtgco

Vj gtg ctg w q uvtgco i ci gu cmpi Y ckmer w Uvtgco =WUI UI ci g P q038872722 ku c etguv/uvci g tgeqtf gt y kj 56 {gctu qh cppwcnr gcmhnqy f cvc htqo 3; 85 vq 3; ; 9. cpf WUI UI ci g P q03872422 ku c etguv/uvci g tgeqtf gt y kj : {gctu qh cppwcnr gcm hnqy f cvc htqo 4224 vq 422; 0 Vj gtg ctg pq uki pkhecpv j kuvqtkecn hnqqf muugu tgeqtf gf hqt y ku uvtgco 0

Y ckr wkrcpkI wrej

Y ckr wkrcpk I wrej hrqqfu ýg uwttqwpfkpi ctgc dgecwug qh ku uo cm ecr cekx{0 Hrqqfkpi ku hwtýgt ciitcxcvgf d{ ýg fco o kpi ecwugf d{ ucpf dgto u rqecvgf crqpi ýg eqcuvrkpg. y j kej tguvtkevu ýg ftckpcig qh hrqqfy cvgtu kpvq ýg ugc0

KUNCPF QHO QNQMCK

Nkwg hqqf kphqto cwqp ku cxckrcdrg hqt y ku kurcpf. cny qwi j hqqf kpi ku mpqy p vq j cxg qeewttgf 0 Kp gcuv O qrqmck y g uvqto u qh Hgdtwct { 6 cpf Crtkn 35. 3; 87. ctg dgrkgxgf vq dg y g y qtuv uvqto u vq j kv y g ctgc0 Qy gt uvqto u. qp Crtkn 34. 3; 6: . cpf P qxgo dgt 32. 3; 77. crrgctgf vq j cxg ecwugf eqpukt gtcdrg hqqf kpi 0 O quv hrqqf kpi j cu dggp eqphkpgf vq y g eqcuvcn cpf my rcpf ctgcu0 Hrqqf kpi kp y guv O qrqmck ku mpqy p vq j cxg qeewttgf. dwv cu y kj gcuv O qrqmck kphqto cwqp ku uecpv{0 Uqo g hrqqf kpi qeewttgf kp Qevqdgt 3; 83 cpf P qxgo dgt 3; 870

Vj g vuvpco k qh 3; 68 ku ý g qpn{ y gm/f qevo gpvgf uvqto vq j kv O qmmck0 Vj g pqtý gtp eqcuv qh ý g kurcpf tgr qtvgf n{ tgegkxgf ý g dtwpv qh ý g y cxg0 Qp gcuv O qmmck o kpqt kpwpf cvkqp f kf nkwg f co ci g vq tgukf gpegu cpf rtkxcvg rtqr gtv{0 Y cxg j gki j u qh 8 hggvy gtg tgr qtvgf cmpi ý g Rwmqq/Mvr gmg eqcuv0 Nkwrg qt pq f co ci g y cu tgr qtvgf qp gcuv O qmmck f wtkpi ý g uwpco ku qh 3; 79 cpf 3; 820 Kp y guv O qmmck y cxg j gki j u qh 42. 58. cpf 5; hggv y gtg tgr qtvgf hqt ý g 3; 68 uwpco k*WUCEG. 3; 88=Ucvg qh J cy ckk O cr HR/43. Cr tkn3; 95+0

KINCPF QHNCPCK

Tgr qtvgf j kuvqtkecn uwpco k twpwr fcvc ctg uecteg hqt y g kurcpf qh NcpckO <u>Vuwpco k Y cxg Twpwr J gki j u kp J cy ckk</u> *3; 98+r tgugpu uwpco ktwpwr fcvc hqt uwpco ku kp 3; 6; . 3; 74. 3; 79. 3; 82 cpf 3; 860 Hqt y g kurcpf qh Ncpck fcvc ku cxckrcdng qpn{ hqt y g 3; 6; uwpco k=twpwr qh 9 hggvcdqxg o gcp my gt my y cvgt y cu tgr qtvgf cvdqyj Mcwo cncr cwJ ctdqt cpf O cpgrg Dc{0

406 Hrqqf Rtqvgevkqp O gcuwtgu

Qp y g Kuncpf qh O cwk hnqqf r tqvgevkqp o gcuwtgu y gtg eqo r ngvgf hqt Kcq Utgco cpf 34 qy gt utgco u0

Vjg WUCEG uwwfkgf y g Mkj gk ctgc hqt hqqf/eqptqn cpf tgrcvgf r wtr qugu0 Vjg WUCEG rtgrctgf c tgrqtv kp 3; 86 y cv kpenwfgf c fguki p hqt c u{uvgo qh rcvgtcn kpvgtegr vqt f kej gu crrtqzko cvgn{ 208 o krg kprcpf vq eqregevuj ggvhqy cpf eqpxg{ kv kpvq hqwt nkpgf ej cppgnu *WUCEG. 3; 99+0 Vj ku rtqrqucneqwf pqvdg geqpqo kecm{ lwukhkgf. dwvj gug utvewutgu o c{ hqto yj g dcuku qh yj g pgy hqqf/eqptqnrtqi tco 0

O cwk Eqwpv{ fgxgnqrgf cp kpygtkqt ftckpcig u{uvgo hqt Mkjgk y cv wktk gu y tgg qh y g hqwt rtqrqugf ej cppgtk gf uvtgco u0 Vjg u{uvgo eqpukuvu qh crrtqzko cvgn{ 54.222 hggv qh ftckp nkpgu. dqz ewrxgtvu. cpf rkrg ewrxgtvu y kj 542 hggv qh qrgp ej cppgr0 Uvqto y cvgt htqo y g Mkjgk ctgc ku eqngevgf d{ y g kpygtkqt ftckpcig u{uvgo cpf fkuej cti gf kpvq y g nkpgf Mwrcpkj cmqk Y ckr wkrcpk qt Mgqngc I wrej gu0 Kpuvcmcvkqp qh y g u{uvgo y cu ceeqo rnkuj gf kp rj cugu qxgt c rgtkqf qhugxgtcn{gctu0 V j g gpxktqpo gpvcn ko r cev uvcvgo gpv y cu rtgr ctgf 0 *O cwk Eqwpv{ F gr ctvo gpv qh Rwdnke Y qtmu 3; 99+

Vig WU0 Uqkn Eqpugtxcvkqp Ugtxkeg j cu uwwfkgf c y cvgtuj gf r tqvgevkqp cpf hqqf rtgxgpvkqp rtqlgevhqt y g J qpqnvc y cvgtuj gf cko gf cvtgf wekpi gtqukqp. rtgxgpvkpi hqqfy cvgt cpf ugf ko gpvf co ci g kp y g hqqfr nckp. cpf tgf wekpi ugf ko gpvr qmwkqp qh eqcuxcn y cygtu *WU0 F gr ctvo gpv qh Ci tlewnwtg. 3; 98+0 Rtqlgev o gcuwtgu kpenwfgf fg/uknkpi dcukpu mecvgf qp J qpqmqy ck Utgco. O cj kpcj kpc I wrej. Rej enwneeper erk I wrej. Mej epe Uttgeo. Megr ene I wrej. J qpqngepe De{ I wrej. Pcrktk I wrej 6/7. cpf Pcrktk I wrej 4/5=crrtqzko cygn 20 o krg qh hrqqf y cygt f ksgtukqpu=209 o krg qh hrqqf y cygt ej cppgn=rcpf vtgcvo gpv o gcuvtgu qp 46.222 cetgu=eqputvevkqp qh hqvt dtkf i gu=tgnqecvkqp qh y tgg y cvgt o ckpu=cpf eqpvtqngf wug qh hqqfr nckp ctgcu0 Cm utwewtcn o gcuwtgu y gtg f guki pgf hqt c 3' cppwcn ej cpeg nkhg0 Ko cffkkkap. cm uvtvewtgu y gtg fguki pgf va ectt{ twophh htqo vjg 3/ r gtegpv cppwcn ej cpeg hqqf0 C vqvcn qh 6606 cetgu y gtg eqo o kwgf vq uvtwewtcn o gcuwtgu kpenwf kpi 5806 cetgu kp i wnej gu cpf : cetgu pqy kp uwi ctecpg r tqf wevkqp0 Kpuvcmcvkqp eqo o kvgf 80 cetgu hqt f co ukgu. 608 cetgu hqt ej cppgnu. cpf 307 cetgu hat f kxgtukapu0 Vj g tgo ckpkpi 5307 cetgu eqo o kvgf y gtg tgs vktgf hat ugf ko gpv dcukpu. y j kej y kmtgo ckp ft{ gzegr vf wtkpi uvqto u0

Mcj qo c Utgco y cu uwf kgf d{ y g WUCEG hqt hqqqf/eqptqncpf tgrcyf r wtr qugu *WUCEG. Cwi wuv 3; 95+. y j kej eqpukuv qh c fgdtku dcukp. c eqpetgyg tcrg| qkf cn ej cppgn cpf c tgxgwgf qwugvcpf crr wtygpcpegu y cvr tqxkf g hqqf r tqygevkqp vq y g Vqy p qhNcj ckpc0

Vjg Kq Utgco Hqqf Eqptqn Rtqlgev y cu eqputtweyf d{ y g WUCEG *WUCEG. Crtkn 3;97+0 Vjg rtqlgev rtqxkfgu hqqf eqptqn y tqwij y g eqputtweykqp qh ej cppgnu cpf ngxggu cpf y g wkdk cvkqp qh pqputtwewtcn eqpukfgtcvkqpu kp eqo dkpcvkqp y kj y g ngxgg ko rtqxgo gpvu0 Vjg hqqf/eqptqnko rtqxgo gpvu gz ypf crqpi y g Kq Utgco hqqfrnckp hqt c f kncpeg qh crrtqzko cvgn{ 407 o krgu wrutgco qh y g o qwj 0 Vjg rtkpekr cn rtqlgev hgcwtgu eqpuktv qh c f gdtku dcukp. ej cppgn ko rtqxgo gpvu utgco tgcrki po gpvy kj ej cppgrk cvkqp cpf c rtqi tco qh ngxgg cpf hqqfrnckp o cpci go gpv0

Qp ýg Knopf qh O qnqnock Mowponnonck Utgoo j cu dggp kortqxgf d{ ýg WUCEGO Kp 3; 72. gotý ngxggu y gtg eqputivevgf vq rtgxgpv hnqqf kpi kp ýg Mowponnonck j qo guvgof ctgoO Vj gug ngxggu y gtg f guki pgf hqt c ecr cekv{ qh 7.222 ehu. r nvu c 5/ hqv htggdqctf0 Hnqf/eqpvtqn o gcuwtgu kpenvfg ýg gpncti go gpv qh ýg uvtgco ej cppgn y kj gctý ngxggu0 Vjg ngxgg uvtwewetgu eqpuvtwevgf qp Mcwpcnænek Uvtgco d{ yg WUCEG j cxg dggp fg/ceetgf kgf cu hnqf r tqvgevkqp uvtwewetgu. cpf cu uwej yg{ fq pqv uj qy r tqvgevkqp qp yjg ghlgevkxg HKTO0 Vjg WUCEG j cu cnq r ncppgf uko kret hnqf/eqpvtqn ko r tqxgo gpvu hqt Mco knqmc Uvtgco kp yjg xkekpkv{ qh yjg Mcr cenge J qo guvgef ctgc. nqecvgf vq yjg gcuvqh Mcwpenænek0

Vjg Qjkc I wnej ej cppgnjcu dggp kortqxgf htqo ku o qwj vq crrtqzko cvgn{722 hggv wrutgco 0 Vjku ujqwf jgnr rtgxgpv hnqqf kpi htqo hnqy u uo cngt y cp y g 3/ rgtegpv cppw cnej cpeg hnqqf f knej cti g0

3.0 ENGINEERING METHODS

Hqt y g hqqf kpi uqwtegu uwwf kgf kp f gyckn kp y g eqwpy{. uvcpf ctf j {ftqnqi ke cpf j {ftcwrke uwuf { o gyi qfu y gtg wugf vq fgvgto kpg yi g hrqqf j c | ctf f cvc tgs wktgf hqt yi ku HKLO Hrqqf gxgpvu qh c o ci pkwfg y j kej ctg gzr gevgf vq dg gs wcngf qt gzeggf gf qpeg qp yj g cxgtci g fwtkpi cp{ 32/. 72/. 322/. qt 722/{gct r gtkqf *tgewttgpeg kpvgtxcn+j cxg dggp ugrgevgf cu j cxkpi ur gekenuki pkheepeg hqt hqqfr nekp o epei go gpvepf hqt hqqf kpuwtepeg tevgu0 Vj gug gxgpvu. eqo o qpn{ vgto gf yj g 32/. 72/. 322/. cpf 722/{gct hqqf u. j cxg c 32/. 4/. 3/. cpf 204/r gtegpvej cpeg. tgur gevlax gn{. qh dgkpi gs wcngf qt gzeggf gf f wtkpi cp{ {gct0 Cny qwi j y g tgewttgpeg kpvgtxcntgrtgugpvu y g napi vgto cxgtci g r gtkaf dgw ggp haqaf u ah c ur gekke o ci pkwfg. tctg hqqf u eqwf qeewt cvuj qtvkpvgtxcnu qt gxgp y kj kp vj g uco g {gct0 Vj g tkum qh gzr gtkgpekpi c tctg hqqf kpetgcugu y j gp r gtkqf u i tgcvgt y cp 3 {gct ctg eqpukf gtgf 0 Hqt gzco r ng. y g tkumqh j cxkpi c hqqf y j kej gs wcnu qt gzeggf u y g 322/{gct hqqf *3/r gtegpv ej cpeg qh cppwcn gzeggf gpeg+kp cp{ 72/{gct r gtkqf ku crrtqzko cvgn{ 62 r gtegpv *6 kp 32+. cpf. hqt cp{; 2/{gct r gtkqf. y g tkumkpetgcugu vq crrtqzko cvgn{ 82 r gtegpv *8 kp 32+0 Vj g cpcn(ugu tgrqtvgf j gtgkp tghgev hqqfkpi rqvgpvkcnu dcugf qp eqpfkkqpu gzkuvkpi kp y g eqwpv{ cv y g vko g qh eqo r ngvkqp qh y ku HKU0 O cr u cpf hqqf gngxcvkqpu y km dg co gpf gf r gtkqf kecm{vq tghrgevhwwtg ej cpi gu0

503 J {ftqnqi ke Cpcn{ugu

J {ftqnqi ke cpcn{ugu y gtg ecttkgf qwv vq guvcdnkuj y g r gcm f kuej cti g/htgs wgpe{ tgncvkqpuj kru hqt y g hqqf kpi uqwtegu uwwf kgf kp f gvcknchhgevkpi y g eqwpv{0

Hqt ctgcu uwdlgev vq tkxgtkpg hqqf kpi qp y g Kurcpf qh O cwk c tgi kqpcn hqqf/ htgs wgpe{ cpcn{uku qh cm uvtgco hqy f cw qp y g kurcpf y cu wktk gf vq f gvgto kpg ugrgevgf f kuej cti gu cv wpi ci gf mecvkqpu0 Vj g o wnkr m tgi tguukqp vgej pk wg y cu wugf vq f gxgrqr y g tgrcvkqpuj kr dgw ggp r gtvkpgpv ej ctcevgtkuvkeu qh y g uvcvkqp hqqf/htgs wgpe{ ewtxgu cpf dcukp cpf erko cvqrqi kecn ej ctcevgtkuvkeu0 Vj g o gy qf wugf qp y ku kurcpf ku y cv tgeqo o gpf gf d{ WU0Y cvgt Tguqwtegu Eqwpekn Dwngvkp 39 *WUD Y cvgt Tguqwtegu Eqwpekn 3; 98+0 F cw htqo 72 uvtgco i ci kpi uvcvkqpu y gtg wugf kp y g tgi kqpcn cpcn{uku0 Vj g tgeqtf u tcpi gf kp ngpi y htqo 33 vq 82 {gctu. y kj 47 uvcvkqpu j cxkpi c ngpi y qhtgeqtf qh47 {gctu qt o qtg0

Htqo ý g uvckqp hqqf/htgs wgpe{ ewtxgu. fkuej cti gu hqt ý g ugngevgf tgewttgpeg kpvgtxcni y gtg fgvgto kpgf0 Gcej ugv qh fkuej cti gu y cu ý gp eqttgrcvgf vq xctkqwu dcukp cpf enko cvqnqi kecnej ctcevgtkurkeu. wukpi c tgi tguukqp gs vcvkqp0 Vj g o wnkr ng/ tgi tguukqp cpcn{uku y cu o cfg wukpi ý g tgeqtf u hqt ý g gpvktg kurcpf. ugr ctcvkpi ý g tgeqtfu kpvq y kpfy ctf cpf nggy ctf uvcvkqpu. cpf kpvq ý g pqtý gcuv uvcvkqpu qh ý g kuncpf cpf ý g tgo ckpkpi uvcvkqpu0 Vj g o quveqpukuvgpvtgncvkqpuj kru y gtg f gxgnq gf d{ wukpi ý g tgeqtfu hqt ý g gpvktg kuncpf0 Tgi tguukqp eqpuvcpvu y gtg eqo r wgf d{ ý g o gý qf qhngcuvus wctgu0

Dcukp cpf enko cvqnqi kecn ej ctcevgtkuvkeu ý cv j cf nkwrg qt pq uki pkhkecpeg y gtg grko kpcvgf 0 Vj g ftckpci g ctgc cpf ý g 4/{gct. 46/j qwt rtgekr kxcvkqp y gtg hqwpf vq dg ý g o quv uki pkhkecpv ej ctcevgtkuvkeu 0 F kuej cti gu y gtg ý gp eqo r wgf wukpi ý g gs wcvkqpu ý cvy gtg f gvgto kpgf d{ ý ku cpcn{uku0

Hqt y g Kurcpf qh O qrqmck c tgi kqpcn hrqqf/htgs wgpe{ cpcn{uku y cu wpf gtvcngp vq eqo r wg f kuej cti gu hqt y g ugnevgf tgewttgpeg kpvgtxcnu cv wpi ci gf uksgu qp y g kurcpf0 Ucvkqp hrqqf/htgs wgpe{ ewtxgu y gtg f gvgto kpgf wukpi y g r tqegf wtgu qwrkpgf kp Dwngvkp 39 *WUDY cvgt Tguqwtegu Eqwpekn 3; 98+0 F cvc htqo 35 i ci gf ucvkqpu y gtg wkrk gf. cpf c i gpgtcvgf ungy eqghhelgpvqh/2027 y cu wugf0

C o wnkr ng/tgi tguukqp vgej pks wg y cu wugf vq f gxgnqr y g tgncvkqpuj kr dgw ggp r gcm f kuej cti g cpf r j {ukqi tcr j ke cpf o gvgqtqnqi kecnej ctcevgtkuvkeu vq y g f tckpci g dcukp ej ctcevgtkuvkeu0 Vj gtghqtg. c tgi kqpcncpcn{uku qh f kuej cti g xgtuwu f tckpci g ctgc y cu eqpf wevgf 0 Vj g 72/. 32/. 4/. 3/. cpf 204/r gtegpv cppwcn ej cpeg hnqqf hnqy u y gtg r mqvgf ci ckpuv y g tgur gevkxg f tckpci g ctgcu. cpf c uo qqyj ewtxg y cu eqput wevgf y tqwi j y gug r qkpu0 Vj gug ewtxgu y gtg wugf vq ugrgev y g 32/. 4/. 3/. cpf 204/ r gtegpv cppwcnej cpeg hnqqf f kuej cti gu hqt y g wpi ci gf męcvkqpu0

Vj g tkxgtkpg hrqqf dqwpf ctkgu ecwugf d{ cp wppco gf utgco hrqy kpi ý tqwi j ý g tgukf gpvkcn f gxgrqr o gpv qh Mvcw y gtg f gvgto kpgf wukpi ý g WUCEG J GE/TCU j {ftcwrle eqo r wgt r tqi tco *WUCEG. Ugr vgo dgt 3; : + cpf ý g f gvchrgf vqr qi tcr j ke o cru tghgtgpegf cdqxg0 Vj g 32/.4/.3/. cpf 204/r gtegpv cppvcn ej cpeg f kuej cti gu y gtg guvko cvgf wukpi wrf cvgf o wnkr mg tgi tguukqp gs vcvkqpu f gxgrqr gf d{ vj g WUI Uf wtkpi vj g gctn{ 3; : 2u cpf wugf kp vj g Lwpg 3. 3; : 3. HKU0 Hqt vj g Ugr vgo dgt 47. 422; . tguwxf{. vj g cff kkqpcn {gctu qh utgco i ci g tgeqtf u f kf pqv uvduvcpvkcm{ ej cpi g vj g eqo r wgf f kuej cti gu htqo vj g Lwpg 3. 3; : 3. uwf {0

Hnqy xcnwgu y gtg ecnewncvgf kpfgrgpfgpvn{ wukpi J GE/J O U d{ Vgvtc Vgej. Kpe0 cpf ku uwo o ctkl gf kp c tgrqtvrtgrctgf hqt y g Eqwpv{ qh O cwk F grctvo gpv qh Rncppkpi f cvgf P qxgo dgt 4228 *Vgvtc Vgej. 4228+0

J {ftqnqi ke cpcn{ugu y gtg ecttkgf qwvq guvcdrkuj ý g r gcmf kuej cti gu qh 3/r gtegpv cppwcnej cpeg hnqqf u hqt crrtqzko cvgn{758 o kngu qh uvtgco nkpgu kp ý g kuncpf u qh O cwk O qnqnnck cpf NcpckO Vj g o ckp vqr qi tcrj ke kphqto cvkqp wugf kp ý ku tguwf { qh O cwk O qnqnnck cpf Ncpckctg WUI UFGO *fki kcngngxcvkqp o qf gni+kp 52/hqqv i tkf uk g cpf NkFCT *Nki j v F gvgevkqp cpf Tcpi kpi + kp ý g Nqecn Vkf cn F cwo *NVF+0 F tckpci g ctgcu y gtg f grkpgcvgf wukpi VKP *tkcpi wrcvgf kttgi wrct pgw qtm+ cpf 32/hqqvqpvqwtu i gpgtcvgf htqo ý gug f ki kcnvqr qi tcrj ke f cvc0

C tgi tguukqp gs werkqp. f gxgrqr gf d{ WUEQG kp 3; : 3 hqt ý g kurepf qh O cwk y cu wugf vq gurko cvg r gemf kuej cti gu qh uvtgeo u qp cm ý tgg kurepf uO Vj g gs werkqp eep dg gzr tguugf cu<

$$S_{322}$$
? 364, * FC^{20} ; +, * $R_{4/46}^{3046}$ +

y j gtg S $_{322}$? 3' cppwcnej cpeg f kuej cti g kp ewdke hggvr gt ugeqpf FC? ftckpci g ctgc kp us wctgf o kng R_{4/46}? o gcp 4/{gct 46/{gct tckphcmf gr yj kp kpej gu

Vjg o gcp tckphcm fgr ý qh 4/{gct 46/jqwt gxgpv y cu eqor wgf hqt gcej eqpvtkdwkpi ftckpcig ctgc dcugf qp ýg tckphcm kuqr nwxkcno cr qdvckpgf htqo ýg Vgej pkecnRcr gt 73 qhPQCCøuPcvkqpcnY gcý gt Ugtxkegu0

Tgi tguukqp gs wcvkqp ku cp go r ktkecn hqto wnc vq guvko cvg kpuvcpvcpgqwu uvtgco r gcm hqy u dcugf qp dcukp cpf tckphcm ej ctcevgtkuvkeu0 F gvcknu qh hqqf j {ftqi tcrj ecppqv dg qdvckpgf htqo wukpi vj ku crrtqcej 0 Vj wu. cu c eqpugtxcvkxg crrtqcej. r gcm f kuej cti gu y gtg uko rn{ cffgf cv uvtgco lwpevkqp y j gtg w q qt o qtg vtkdwctkgu eqo dkpg0

Vqr qi tcr j le kphqto cvkqp wugf kp ý g j {ftqrqi le cpf j {ftcwrle cpcn{uku ku dcugf qp NkF CT vgttckp f cvc eqngevgf hqt ý g Ugr vgo dgt 47. 422; . uwvf {0 J {ftqrqi le hqy xcnwgu hqt gcej uvtgco y gtg f gvgto kpgf ý tqwi j ý g wug qh tgi tguukqp gs wcvkqpu f gxgrqr gf d{ y g WUCEG. cpf tgn{ wr qp y g ftckpci g ctgc cpf y g 4/{gct. 46 j qwt f wtcvkqp tckphcm f gr ý u0 Vj g 4/{gct. 46 j qwt tckphcm f gr ý u wugf kp y g tgi tguukqp gs wcvkqpu y gtg kpvgtr qncvgf htqo kuqj {gvcnej ctw f gxgrqr gf d{ y g WUOF gr ctvo gpv qh Eqo o gteg. Y gcy gt Dwtgcw0 Ftckpci g ctgcu cvxctkqwu r qkpvu crqpi y g uvtgco u y gtg f gvgto kpgf wukpi Fki kcn Grgxcvkqp O qf gn *FGO + dcugf qp NkFCT f cvc eqngevgf 0 Vj g vqvcnftckpci g ctgcu qh y g Mcnvckj crqnrq Utgco cpf Mco cqrg I wrej y gtg vq dg 20878 us 0 o krgu cpf 7042; us 0 o krgu tgur gevkxgn{0 Hqt y g 3/r gtegpv cppvcnej cpeg hqqf. y g Mcnvckj crqnrq Utgco cpf Mco cqrg I wrej ctg cuuqekcvgf y kj c r gcmf kuej cti g qh 683 ehu cpf 5.987 ehu. tgur gevkxgn{0

Vjg 4236 wrfcvg kpenwfgf tgxkugf j{ftqnqi{ hqt Mkjgk I wnej 3 cpf Y ckmcrw Utgco kp O cwkEqwpv{0 F kuej cti gu hqt y gug utgco u y gtg eqo r wgf hqt y g 32/. 4/. 3/. cpf 204/r gtegp√cppwcn'ej cpeg uvqto gxgpvu wukpi y g WUCEG J GE/J O U xgtukqp 506 uqhy ctg r cemci g *Tghgtgpeg 7+0 Dcukp j {ftqi tcrj u y gtg i gpgtcvgf wukpi yig PTEU VT/77 ogyiqfqrqi { hqt Mkjgk I wrej 3 yikng Y ckmer w Uvtgeo wugf y g o qf khkgf vko g qh eqpegpvtcvkqp ecnewncvkqp f gxgrqr gf hqt y g J cy ckkcp Kuncpfu kp 3; 95 d{ WUCEGO Cmo qf gnu wugf y g O wunkpi wo /Ewpi g o gy qf hqt tqwkpi hqy u fqy puvtgco 0 Ncpf wug cpf uqknfcvc y cu dcugf qp ugxgtcnuqwtegu0 Vjg ncpf wug cpf uqkn fcvc hqt yjg Mkjgk I wnej 3 o qfgn *fgxgnqrgf d{ T000 Vqy km Eqtr0 hqt y g Eqwpv{ qh O cwk F gr ctvo gpv qh Rwdrke Y qtmu kp y g Crtkn 422; ftchvtgrqtvhqt y g Kihei Drainage Master Plan Waiakoa Gulch to Kilohana Drive Existing Conditions+ y gtg dcugf qp PQCC Eqcuven Ej cpi g Cpen{uku Rtqi tco *E/ECR+y gduksg *ko ci gt { eqngevgf kp 4227 cpf r wdrkuj gf kp 422: +cpf y g P T E U y gduk g *Uqkn Uwt xg{ I gqi t cr j ke F c v c d c ug. UUWT I Q+. t gur gevk xgn{0 Vjg T0O0 Vqy km j{ftqitcr ju ygtg wugf kp yjg Mgqmgc Iwnej tgxkukqp cpf yjg rgcm fkuej ctigu qh yig j {ftqitcrju ygtg wugf kp tgxkukpi Yckocjckjck Iwnej0 Vjg TOO 0 Vqy km uwuf { kpenwfgf y g ghhgevu qh c f kxgtukqp uvtwewutg y cv f kxgtuu hqy u htqo Y cko cj ckj ck I wnej vq Mgqngc I wnej 0 Vj ku f kxgtukqp uvtwewtg
uwduvcpvkcm{ tgf wegu vjg 3/r gtegpv hrqy u rtgxkqwun{ eqpxg{gf d{ Y cko cj ckj ck I wrej 0 Vjg Y ckner w Uvtgco o qf gn *f gxgrqr gf d{ Vgvtc Vgej kp 4228 hqt vjg Eqwpv{ qh O cwk F gr ctvo gpv qh Rrcppkpi kp c tgr qtv vksrgf *Maui County Hydrologic Analysis for Waihee Stream, Waiehu Stream, Waikapu Stream, Kope Gulch, Kalepa Gulch and Unnamed Channels*+ wugf hkgrf uvtxg{u. ctgc o cr u. cgtkcn rj qvqi tcr j u cpf I KU eqxgtci gu vq dcug ku rcpf wug0 Dcukp Y M3 uqknf cvc y cu eqmgevgf htqo vjg P TEU y gdukg *Uqkn Uvtxg{ I gqi tcr j ke F cvcdcug. UUWTI Q+0 Rtgekr kkcvkqp f cvc hqt cm uvtgco u y cu qdvckpgf htqo vjg P cvkqpcn Qegcpqi tcr j ke cpf C vo qur j gtke Cf o kpkuvtcvkqp *P QCC+C vrcu 36 Xqnvo g 6< J cy ckkcp Kmcpf u tgekr kkcvkqp htgs wgpe{ guvko cvgu0

Hkpcnhrqy tcvgu hqt Y ckner wUtgco y gtg tgxkugf cpf echkdtcvgf vq cxckredng i ci g f cvc kp y g 4233 tguwf { qh y g Y ckner wUtgco o qf gn *f gxgrqr gf d{ Vgtc Vgej kp 4228 hqt y g Eqwpv{ qh O cwk F gr ctvo gpv qh Rrcppkpi kp c tgr qtv kkrgf *Maui County Hydrologic Analysis for Waihee Stream, Waiehu Stream, Waikapu Stream, Kope Gulch, Kalepa Gulch and Unnamed Channels*+0 Uwd/Dcukp ctgcu cpf tqwkpi tgcej gu y gtg ngr v htqo y g r tgxkqwu uwf {. cpf qy gt j {ftqrqi ke r ctco gvgtu y gtg cf lwuvgf vq echkdtcvg y g o qf gn q y g qdugtxgf i ci g f cvc0

C uwo o ct{ qh y g ftckpci g ctgc / r gcm f kuej cti g tgnckqpuj kr u hqt cm y g uvtgco u uwwf kgf d{ fgyckrgf o gy q f u ku uj qy p kp Vcdng 4. U o ct{ qh F kuej cti gu

Flooding Source and	Drainage	Peak Discharges (cubic feet per second)			
Location	(sq. miles)	10-Percent	2-Percent	1-Percent	0.2-Percent
KUNCPF QHOCWK					
J CJ CMGC I WNEJ	602	3.: 22	5.822	6.822	9.722
J QP QMCJ WC UVTGCO Cvo qwj	50	3.892	5.582	6.522	9.242
JQPQMGCPCDC[IWNEJ Cvoqwj	208	572	892	: 52	3.522
J QP QMQY CKUVTGCO Cvo qwj	802	4.222	6.222	7.422	: .422
ICQ UVTGCO Cvo qwj	3203	8.322	33.222	35.: 22	42.822
MCJ СРС UVTGCO Сvoqwj	608	4.222	6.222	7.322	: .622

TABLE 2: SUMMARY OF DISCHARGES Page 2

Flooding Source and	Drainage	Peal	k Discharges (c	ubic feet per se	cond)
Location	(sq. miles)	10-Percent	2-Percent	1-Percent	0.2-Percent
KUNCPF OHO CWK					
*eqpvlpwgf +					
MCJ QO C UVTGCO					
Cvo qwj	705	4.822	7.322	8.622	32.422
MCKNWC I WNEJ					
Cvo qwj	; 05	4.922	8.222	: .222	35.: 22
MCNGRC I WNEJ					
Cvo qwj	308	744	::9	3.336	3.624
MCNICNIP WKI WNEJ					
Cvo qwj	3;04	4.922	9.522	32.522	42.: 22
CvUwpp{ukfgcpfCktrqtv Tqcfu	3:07	4.827	9.267	; .; 97	42.2; 2
MCNWCKI CMQMQ					
UVTGCO					
Cvo qwj	209	34;	554	683	:;9
MCOCQNGI WNEJ					
Cvo qwj	704	3.354	4.978	5.987	9.266
MCQRCNC I WNEJ					
Cvo qwj	20,7	772	3.322	3.522	4.322
MCWCWNC UVTGCO					
Cvo qwj	50	3.622	5.222	6.222	8.922
MGCJ CKY CKI WNEJ					
Cvo qwj	PIC	РЮ	РЮ	: .; 72	РЮ
Crrtqzko cvgn{ 622 hggv	D 1C	D IC	D IC	0.822	D 1C
Jkijyc{	I K	r K	r K	7.822	F K.
MGQMGC I WNEJ					
Cvo qwj	; 02	РЮ	РЮ	: .288	РЮ
MKI GKI WNEJ 3					
Cvo qwj	308	643	: 35	3.229	3.737
CvCmmc Tqcf	20,	52;	7:2	934	3.278
CvRkkncpkJkijyc{	208	445	643	73:	987

Flooding Source and	Drainage	Peak Discharges (cubic feet per second)			
Location	(sq. miles)	10-Percent	2-Percent	1-Percent	0.2-Percent
KINCPF QHOCWK					
*eqpvlpwgf+					
MKI GKI WNEJ 4					
Cvo qwj	50,	; 52	4.422	5.222	7.722
MKI GKI WNEJ 5					
Cvo qwj	508	: 92	4.282	4.9; 2	7.352
MKI GKI WNEJ 6					
Cvo qwj	405	7;2	3.622	3.; 22	5.622
MQRGI WNEJ					
Cvo qwj	402	3.269	3.959	4.438	4.9:9
MWNCP KI CMQKI WNEJ					
Cvo qwj	3608	5 220	0 584	22 283	2 57
Underge 9	206	9.	9.384 3·9	32.285 493	5 52 738
Uwdetge;	204	P IC	47;	525	P 1C
NKKNKQJ QNQ I WNEJ					
Cvo qwj	6 B	;42	4.422	5.222	7.922
OCJKPCJKPCIWNEJ					
Cvo qwj	30	;52	3.: 22	4.522	5.922
PCRCNKI WNEJ 4/5					
Cvo qwj	20	642	: 32	3.242	3.822
PCRCNKI WNEJ 6/7					
Cvo qwj	20,	762	3.222	3.522	4.222
QNQY CNWUVTGCO					
Cvo qwj	703	3.822	5.822	6.922	:.322
URT GEMGNU FKVEJ					
*Y CKNWMW VQY P					
CTGC+	409	· 92	3 9.7	$A A \cdot 7$	5 · 27
	Ψ	. 72	5.7.1	न.न, /	5 21
WPPCOGFUVTGCOCV					
Cvo qwj	50B	8;2	3.: 52	4.762	7.222

Flooding Source and	Drainage	Peal	k Discharges (c	ubic feet per se	cond)
Location	(sq. miles)	10-Percent	2-Percent	1-Percent	0.2-Percent
KINCPFQHOCWK *eqpvkpwgf+					
Y CKCMQC I WNEJ Cvo awi					
CvRkkncpkJkijyc{	P 1C	PIC	PIC	8.: 22	РЮ
Uwdetge 7	РЮ	PIC	PIC	7.672	PIC
Y CKGJ WUVTGCO					
Cvo qwj	60	5.922	8.522	9.992	33.422
CvMgjgmharkJkijyc{	607	4.8;9	6.5: 5	7.772	8.; 82
Y CNA GG TKXGT					
Cvo qwj	80	9.672	32.: 59	34.: 66	37.9: 6
Y CKMCRWUVTGCO					
Lawwwrustgco ghegphnagpeg	0.07	0.444	a		
v kyi Mancrac I wrej	906	3.466	3.; 88	4.464	5.692
Crrtazko cyení 6.422 hegy					
fav puteco ah Mwki gropk	70	3.3:2	3.: 22	4.395	4.::3
J kijyc{		0.012	0.,		,
CvMwkjgncpkJkijyc{	60	3.357	3.9;;	4.233	4.785
CvJ qpqcrkkncpkJkijyc{	605	3.333	3.987	3.; 77	4.625
Y CKRWKNCP KI WNEJ					
Cvo qwj					
Uwdetge;	3406	4.; 35	8.: 8:	; .497	38.; 63
Uwdetge 32	208	338	4;5	628	99;
Uwdetge 33	205	88	384	444	644
Uwdctgc 34	20	427	6; 6	894	3.473
Uwdetge 35	203	4:	7:	9:	363
Uwdctgc 36	204	48	93	324	42:
Uwdetge 37	205	5:	328	374	535
KUNCPF QHOQNQMCK					
MCJ CP CP WKI WNEJ					
Cvo qwj	302	3.922	5.922	7.222	: .822
MCOCNQIWNEJ					
Cvo qwj	602	6.522	;.822	34.822	44.322

Flooding Source and	Drainage	Peal	k Discharges (c	ubic feet per se	cond)
Location	Area (sq. miles)	10-Percent	2-Percent	1-Percent	0.2-Percent
KUNCPFQHOQNQMCK *eqpvkpwgf+					
MCO KNQNQC UVTGCO Cvo qwj	509	4.747	8.222	: .422	37.877
MCWP CMCMCKUVTGCO Cvo qwj	802	7.858	33.622	37.222	4: .5; 2
MCY GNC I WNEJ Cvo qwj	709	7.: 22	35.222	39.222	52.222
MGCY CPWKIWNEJ Cvoqwj	20	3.622	5.322	6.322	9.622
O CP CY CKI WNEJ Cvo qwj	209	3.522	5.222	5.; 22	9.222
OKNG:6UVTGCO Cvoqwj	509	4.747	8.222	: .422	37.877
QJKCIWNEJ Cvoqwj	305	4.322	6.722	8.222	32.822
RWMQQIWNEJ Cvoqwj	207	; 82	4.542	4.; 22	7.422
Y CKCNWC UVTGCO	408	5 722	9 977	32 422	3. 222

Vuwpco k y cxg grgxcvkqpu hqt ý g eqcuven etgeu qh ý g Kurepf u qh O cwk epf O qmmek y gtg eenewnevgf wukpi c tgr qtv r tgr etgf d{ ý g WUCEG Y evgty e{u Gzr gtko gpv Uvevkqp *WUCEG. Cwi wuv 3; 99+0 C j {dtkf hkpkg grgo gpv pwo gtkeen o qf gn y eu f gxgmr gf vq uwr ngo gpv j kurqtkeen f eve kp f gvgto kpkpi ý g 32 neti guv uwpco k grgxcvkqpu hqt ý g Kurepf qh O cwk epf ý g 4 neti guv uwpco k grgxcvkqpu hqt ý g Kurepf qh O qmmek htqo 3: 59 vq 3; 9; . wugf kp ý g htgs wgpe{ cpen{uku0 Vj g o qf gnr tqxkf gu cp ceewtevg epf tgr tgugpvevkxg tgur qpug qh ý g kurepf u vq uwpco k cevkxk{ f wg vq ter kf devj {o gvtke epf lqt y exg j gki j vxetkevkqpu0 Vj g pwo gtkeeno qf gny eu ef lwuvgf epf xgtkh&gf d{ eqo r etkpi ý g eenewrevgf tguwnu qh ý g o qf gn y kyj kf g i ci g tgeqtf kpi u qh ý g 3; 82 epf 3; 86 uwpco ku0

Koyig Cwiwuv 5.3;;:.tgxkukqp.yig wrfcvgf vuwpcok twpwr cpcn{uku y curtgretgf wukpi yig VUW4 eqorwagt rtqitco cpf cp cgtken vqrqiterjke o cr gpvkvngf

õVqrqitcrjke Uwtxg{ qh Ncjckpc Vqy p Eqcuvkpg.ö cv c uecng qh 3422. y kj c eqpvqwt kpvgtxcnqh4 hggv rtgrctgf d{ y g WUCEG. cpf f cvgf Lcpvct{ 5.3; ; 80

Ký ý g O c { 37. 4224. tguwá {. ý g wwpco k twpwr cpcn{uku y cu r tgr ctgf wukpi ý g WUCEG¢u VUW4 eqo r wgt r tqi tco cpf fgvckngf vqr qi tcr j ke o cr u *WUCEG. 3; ; : +0 Wug qh ý g o qf gn {kgnf u uvctvkpi wwpco k grgxcvkqpu hqt xctkqwu hnqf htgs wgpekgu cv c r qkpv422 hggvkpncpf qh ý g uj qtgrkpg0 Vj g y cvgt/uwthceg grgxcvkqpu hqt c 3/r gtegpv cppwcnej cpeg wwpco k cv ý cv mecvkqp cnqpi ý g eqcuvrkpgu qh O cwk cpf O qnqmckctg uj qp qp ý g Vuwpco k Eqcuvrkpg Rtqhkrgu *Gzj kdkv4+0

Vuwpco k y cxg grgxcvkqpu y gtg cnuq fgxgrqr gf hqt y g Kurcpf qh Ncpck kp c Ugr ygo dgt 422; uwf {. gz vgpf kpi crqpi cdqw 62 o krgu qh uj qtgrkpg. gpeqo r cuukpi crrtqzko cvgn{:2' qh y g kurcpf øl eqcuvkpg0 Vj g 3' cppwcnej cpeg uwpco ktwpwr grgxcvkqpu cpf tkum | qpgu hqt y g uwf { ctgc y gtg fgxgrqr gf wukpi WUCEG o gy qf qrqi { eqpvckpgf kp y g <u>O cpwcnhqt F gygto kpkpi Vuwpco kT wpwr Rtqhkrgu Qp</u> <u>Eqcuvcn Ctgcu qh J cy ckk</u> *3; 9: +0 Vqr qi tcr j ke NkF CT f cvc qdvckpgf kp 4226/4228 cpf qtyj q/tgevkhlgf cgtlcnr j qvqi tcr j { ctg y g r tko ct { f cvc uqwtegu wugf kp y g uwf { 0 Vj g uwf { o gy qf qrqi { kpxqrxgf f gygto kpkpi tgrtgugpvcvkxg uj qtgrkpg vtcpugev rtqhkrgu. cpf y gp fgvgto kpkpi hqt gcej vtcpugev y g twpwr eqgthkekgpvu. cpf i tqwpf uwthceg htkevkqp hcevqtu0 Vj g 3' cppwcnej cpeg uwpco ktwpwr tghgtgpeg grgxcvkqp ku y gp ecrewrcvgf cvgcej vtcpugevcpf y g uwpco ktwpwr rtqhkrg ku ecrewrcvgf 0

Kp 422: c j wtłecpg uqto uwti g uwf { y cu eqo r nygf 0Vj g Cf xcpegf Ektewacydp o qf gnhqt Eqcuvan Qegap J {ftqf {pco keu *CFEKTE+. *Nwgwkej . 3; ; 4+. f gxgnqr gf d{ y g WUCEG y cu ugrgevgf vq f gxgnqr y g uwhy and a gygraf y gygi tangt uvqto uwti g hqt y g Uaay qh J and CFEKTE ku a w q/f ko gpukqpan f gr y koyi tawf. hkpkg grgo gpv. j {ftqf {pco ke o qf gn y av uqnxgu y g gs wawqpu qh o qwqp hqt a o qxkpi hwkf qp a tqaady y cu ugrgevgf eqpykpwks{ gs wawqpu and o qwqp hqt a o qxkpi hwkf qp a tqaady y g gygeta y g gygeta y g gygeta y gy

Vj g CFEKTE i tkf y cu uqwtegf htqo cp gzkukpi i tkf f gxgmr gf d{ y g WUCEG0 Vj g WUCEG i tkf y cu wugf hqt qhhij qtg ctgcu y j gtgcu pgy j ki j gt tguqnwkqp pgctuj qtg cpf vqr qi tcr j ke eqxgtci g y cu cff gf ctqwpf y g kurcpf u qh Mcwck Qcj w. O qmmck Ncpck O cwk cpf J cy ckl0 Vj g i tgcvgt r ctv qh y g dcyj {o gtke f cv ugv y cu eqo r tkugf qh 477 kpf kxlf wcn P cvkqpcn Qegcpqi tcr j ke cpf C vo qur j gtke Cf o kpkutcvkqp *P QCC+P cvkqpcn Qegcp Ugtxkeg *P QU+ j {ftqi tcr j ke uwtxg{u. eqmgevgf htqo 3; 22 vq 42270 Vj g WUCEG Iqkpv Cktdqtpg NkF CT Dcyj {o gt{ Vgej pkecn Egpvgt qh Gzr gtvkug *ICNDVEZ+ r tqxkf gf dcyj {o gtkle NkF CT eqmgevgf kp 3; ;; cpf 42220 Vj ku f cvcugvr tqxkf gf j ki j /tguqnwkqp eqxgtci g qh y g pgctuj qtg dcyj {o gtt{. y j gtg cxckrcdrg0 Vj g WUCEG J qpqnwwF kutkevr tqxkf gf c 4226 j {ftqitcrjke uwtxg{ qh J qpqnwnw J ctdqt0 C 4226 o wnkdgco uwtxg{ qh Rgctn J ctdqt eqpf wevgf d{ y g WU0Pcx{ y cu rtqxkf gf d{ y g PQCC P cvkqpcn I gqrj {ukecn F cvc Egpvgt0 Cm uqwpf kpi u y gtg eqpxgtvgf vq y g Nqecn Vkf cn F cwo wukpi tgncvkqpuj kru f gxgnqrgf htqo PQCC i ci gu0 Hkpcm{. cm f cvcugvu y gtg o gti gf cpf qxgtncrr kpi f cvc y gtg tgo qxgf vq rtqf weg y g dguv rquukdng f cvc0

Vj g vqr qi tcr j ke r qtvkqp qh y g CFEKTE i tkf y cu r qr wrcvgf y ky NkFCT f cc eqmgevgf hqt y g r tqlgev cmpi y g uqwj gtp eqcuvu qh y g hqwt kurcpf u. kpenwf kpi O cwk Eqwpv{)u Mcj qqrcy g. Ncpck O cwk cpf O qmqnck Kurcpf u. kpenwf gf kp y g uwwf {0 Vj g NkFCT f cc y gtg eqmgevgf kp Hcm 4228. r quv'r tqeguugf vq dctg gctyj cpf s wcrkv{ eqpvtqmgf vq o ggv HGOC o crr kpi ucpf ctf u0 Vq hcektkcvg wug y kj CFEKTE. grgxcvkqpu y gtg eqpxgt vgf vq o gvgtu0 NkFCT grgxcvkqpu y gtg f grkxgtgf kp NVF=y gtghqtg pq xgtvkecnf cwo eqpxgtukqp y cu pgeguuct {0

Y kpf cpf rtguuwtg hkgnfu y gtg tgs wktgf hqt kpr w0 C o qf gn ecmgf y g Rncpgxct { Dqwpf ct { Nc {gt o qf gn *RDN+: f gxgnqr gf d { X0.0 Ectf qpg *Ectf qpg. 3; ; 4+ y cu wugf hqt y ku uwf {0 Vj g RDN o qf gn wugu y g rctco gygtu htqo c j wttkecpg qt vtqr kecn uvqto vq uko wncvg y g gxgpv cpf f gxgnqr y kpf cpf rtguuwtg hkgnfu 0 Vj g RDN o qf gn uko wncvgu j wttkecpg/kpf wegf y kpf cpf rtguuwtg hkgnfu d { crrn{kpi y g xgtvkecm{ kpvgi tcvgf gs wcvkqpu qho qvkqp0

Vj g uvqto u crrnkgf kp ý ku uvkf {. uj qy p kp Vcdng 5. \$Uwo o ct { qh J kuvqtkecn Uvqto Gxgpwu Ugngevgf hqt F gxgnqr o gpv qh Uvqto Uvkti g Gngxcvkqpu.\$ y gtg ugngevgf vq tgrtgugpvý g tcpi g qh f khgtgpvuvqto o ci pkwkf gu ko r cevkpi ý g uvkf { ctgc0 Uvqto ugngevkqp y cu nko ksgf vq gxgpvu r cuukpi y ký kp 422 pcwkecn o kngu qh cv ngcuv w q kuncpfu kp ý g uvkf { ctgc0 Gngxgp j wttkecpg cpf vtqrkecn uvqto gxgpvu y gtg ugngevgf hqt uvqto uvki g o qf grkpi 0 F wg vq ý g my pwo dgt qh j kuvqtkecn uvqto u kf gpvkhkgf kp ý g uvqto ugngevkqp. ý g j kuvqtkecn uvqto gxgpvu y gtg f wr nkecvgf cpf uj khvgf ncvgtcm{ d{ qpg tcf kwu vq o czko wo y kpfu. kp qtf gt vq tgrtgugpv ý g r qvgpvkcn tcpi g qh vtcemu ý cv hwwtg uvqto u o c{ vcng0 Kp vqvcn 322 uvqto u y gtg i gpgtcvgf hqt f gxgnqr kpi uvkny cvgt gngxcvkqpu y ký kp ý g uvwf { ctgc wukpi ý ku o gý qf 0

Name of Storm	HURDAT Identification Number	Storm Event
J knk	32	Cwi wuv34/43.3;72
Fgmc	87	Ugr vgo dgt 3/33. 3; 79
P kpc	96	P qxgo dgt 4; /F gego dgt 8. 3; 79
Fqv	; 5	Cwi wuv3/:.3;7;
O ci i kg	444	Cwi wuv42/48. 3; 92
Fkcpc	472	Cwi wuv33/3; . 3; 94
Ky c	633	Pqxgo dgt 3; /46. 3; : 4

TABLE 3: SUMMARY OF HISTORICAL STORM EVENTS SELECTED FORDEVELOPMENT OF STORM SURGE ELEVATIONS

TABLE 3: SUMMARY OF HISTORICAL STORM EVENTS SELECTED FORDEVELOPMENT OF STORM SURGE ELEVATIONS, CONTINUED

Name of Storm	HURDAT Identification Number	Storm Event
I kn	63:	Lwn{ 45/Cwi wuv6. 3; : 5
F crktlc	754	Lxn{ 33/43.3;:;
Koknk	7;:	Ugr vgo dgt 7/35. 3; ; 4
F cpkgn	929	Lwn{ 45/C vi vuv7. 4222

Vj g CFEKTE o qf gn y cu echdtevgf d{ uko wævkpi vkf ene{engu. epf y gp xchkf evgf d{ rgthqto kpi uvqto j kpf ecuvu0 Vj g vkf enechdtevkqp ku eqpf wevgf d{ hqtekpi vkf gu ev yj g qr gp qegep dqwpf etkgu qh yj g o qf gn wukpi mpqy p xenwgu *Ng Rtqxquv. 3; ;: + epf eqoretkpi yj g uko wævgf y evgt ngxgnu vq qdugtxevkqpu qxgt e ur gekhe vo g r gtkqf qt e vkf enuki pentg/u{pyj guk gf htqo mpqy p vkf eneqpukwgpvu0 Uvqto j kpf ecuvu etg rgthqto gf wr qp uvæeguuhwn eqor ngvkqp qh vkf en echdtevkqpu vq gxenwevg y g edktkv{ qh y g o qf gn vq tgr nkeevg j kurqtkeen uvqto gxgpvu0 C y kpf epf rtguuwtg hkgnf tgr tgugpvkpi e j kurqtkeen uvqto gxgpv ku kpr w kpvq y g o qf gn y gp tguwnkpi y evgt ngxgnu etg eqoretgf vq qdugtxgf y evgt ngxgnu epf tgeqtf u0 O qf gn xenkf evkqp y eu rgthqto gf ei ekpuv J wttkeepgu F qv epf Kpkmk hqt y ku uwxf {0 Uko wævgf y evgt ngxgnu hqt geej gxgpvy gtg eqoretgf vq qdugtxgf y evgt ngxgnu ev yj g PQCC vkf eni ewig kp P ey ktky ktk J etdqt y j kej tgr tgugpvgf y g dguv exekredng feve0 Tguwnu htqo dqy gxgpu uj qy gf i qqf ei tggo gpv y ky qdugtxgf uvqto j {ftqi terj u0

Vj g GUV o qf gn y cu wugf hqt y g uxi g/htgs wgpe{ cpcn{uku0 Vj g GUV i gpgtcvgu c ncti g r qr wrcvkqp qh tkhg/e{eng f cvcdcugu y cvctg r tqeguugf vq eqo r wg o gcp xcnwg htgs wgpekgu0 Kpr w xgevqtu f guetkdg y g ej ctcevgtkuvkeu qh gcej uvqto uwej cu egpvtcn r tguuwtg cpf o czko wo y kpf u0 Kpr w xgevqtu hqt GUV cpcn{uku kpenvf gf < vkf cn r j cug. o kpko wo f kuvcpeg htqo g{g vq uvcvkqp. egpvtcn r tguuwtg f ghkekx o czko wo y kpf u kp j wttkecpg. hqty ctf ur ggf qh g{g qh j wttkecpg. cpf tcf kwu vq o czko wo y kpf u0 Vj g kpr w tgur qpug xgevqt y cu y g o czko wo uwti g grgxcvkqp tgeqtf gf cvgcej uvcvkqp hqt gcej uvqto uko wrcvgf y ky CFEKTEO Vj g qwr w ku c uvci g/htgs wgpe{ ewtxg hqt gcej uvcvkqp kp y g uwwf { ctgc0 Vj g GUV o qf gn r gthqto gf c j wpf tgf uko wrcvkqpu cv gcej uvcvkqp. hqt c uko wrcvgf r gtkqf qh 722 {gctu0 Vj g o gcp xcnwg y cu ugngevgf htqo y g gpvktg GUV uko wrcvkqp r qr wrcvkqp cv gcej uvcvkqp. cpf y g tgwtp r gtkqf grgxcvkqp ku y g hkpcntguwncpvxcnwg0

Ukany cvgt grgxcvkqpu hqt O cvk Eqwpv{. qdvckpgf wukpi y g CFEKTE cpf GUV o qf gnu ctg uwo o ctk gf kp Vcdrg 6. õUvo o ct{ qh Eqcuvcn Ukany cvgt GrgxcvkqpuOi Nqecvkqpu qh y g uwti g uvcvkqpu ctg uj qy p kp Hki wtg 4. õUvkany cvgt Uvcvkqp Nqecvkqp O crOi Rrgcug pqvg y cv y g uvcvkqp pwo dgtu hqt uwti g uvcvkqpu f q pqveqkpekf g y kj y g vtcpugevpwo dgtuO

TABLE 4: SUMMARY OF COASTAL STILLWATER ELEVATIONS[†]

Flooding Source and Location			Elevation (ft ltd)				
Station	Longitude	Latitude	10-Percent	2-Percent	1-Percent	0.2-Percent	
	*PCF	: 5+					
Rcelthe Qegc)						
479	/3780;;668	4209:736	2088	20 6	3026	4035	
47:	/3780; : : 29	42098:7;	2088	20 7	3027	4038	
47;	/3780; : 382	42097266	2088	20 5	3024	4029	
482	/3780,9229	42095; 5;	2088	20 7	3028	4036	
483	/3780,77:;	42095427	2088	20 8	302:	402:	
484	/3780, 6739	420953: 5	2088	20 9	302:	403:	
485	/3780,4668	42095586	2088	20 9	302;	4037	
486	/3780, 33: 2	42095665	2088	20 9	3082	4038	
487	/3780 ; : ; 4	42095::8	2088	20 8	3082	4039	
488	/3780;772	42095976	2088	20 8	302;	4036	
489	/3780;32:	42095569	2088	20 3	3025	30,2	
48:	/3780:857	42095992	2088	20:	3084	403;	
48;	/3780:842	42096499	2088	20,2	3088	4056	
492	/3780:3:8	4209639;	2088	20:	3034	4043	
493	/3780 95:;	420965: 3	2088	20 9	3033	4035	
494	/3780 834:	42097394	2088	20:	3085	403;	
495	/3780 7264	4209782;	2088	20 :	3035	403;	
496	/37808454:	43024723	2088	20 7	3028	4029	
497	/378085;:3	430248:4	2088	20 2	3022	30,8	
498	/378087347	4302298;	2088	20 7	302:	4029	
499	/378088: 59	43@2293;	2088	20 2	3022	30, 5	
49:	/378088; 86	420; ; 989	2088	20 5	3027	30; :	
49;	/378089846	420; : 665	2088	20 5	3028	30,9	
4:2	/37808:75;	420,8734	2088	20 5	3029	30,8	
4:3	/37808; 5; 3	420, 6992	2088	20 4	3025	30,9	
4:4	/37808; 5: 6	420, 5: 38	2088	20 6	3029	4034	
4:5	/37808;:32	420, 4: 5;	2088	20 6	3027	402:	
4:6	/37808;:26	420, 42; 2	2088	20 5	3026	4023	
4: 7	/37808; 629	420,3388	2088	20 5	3027	4028	
4:8	/37808:948	420, 24: 3	2088	20 8	3033	4043	
4:9	/37808:942	420;482	2088	20 7	302:	4036	
4::	/37808:;52	420:3:8	2088	20 2	20,9	30;	
4:;	/37808:22:	420 9453	2088	20.9	3035	4048	

ISLAND OF LANAI

^jVjgug grgxcvk qpu tghrgev vjg uvkrny cvgt grgxcvk qpu cuuqek cvgf y kvj vjgjwttke cpgjc|ctf qpn{0 Vuvvpcok jc|ctfu oc{fqok pcvg kpegtvc kpctgcu0

Floodin	g Source and	Location	Elevation (ft ltd)			
Station	Longitude	Latitude	10-Percent	2-Percent	1-Percent	0.2-Percent
	*PCF	F: 5+				
Rcelthe Qegc	р					
4;2	/3780887::	420 7657	2088	20;	3088	404;
4; 3	/3780874;:	420 622;	2088	20 9	3085	4045
4;4	/378086: 56	420 5564	2088	20.8	3082	403:
4; 5	/3780855;:	420 462:	2088	20;	3089	4052
4;6	/378084635	420 2: 83	2088	20 7	302:	402;
4;7	/378082:64	420 2927	2088	20,4	3044	406;
4; 8	/37807;:34	420 2386	2088	20,2	3œ;	4058
4;9	/37807:628	4209; 45:	2088	20.8	3083	4037
4;:	/378077;95	4209: 8: 9	2088	20;	308:	4054
4;;	/37807688:	42099; 75	2088	20:	3087	4046
522	/378075579	420994:6	2088	20 :	3086	4039
523	/378073;;:	42099: 69	2088	20,2	303;	4059
524	/378073245	4209; 247	2088	20,7	3052	408:
525	/37806; ; 3;	4209; 69;	2088	20,8	304;	4097
526	/378069989	4209; 229	2088	20,7	3048	4082
527	/37806837;	42099649	2088	20,6	3047	406;
528	/378068359	42097749	2088	20,2	3089	4049
529	/3780678; 5	42095454	2088	20 8	3082	4036
52:	/37806722:	42093: 52	2088	20;	3089	4052
52;	/378066: 3:	420923:6	2088	20 :	3085	4042
532	/3780668;7	4208: 262	2088	20.8	302:	4032
533	/378066643	42088464	2088	20 :	3083	4036
534	/378066776	420876;;	2088	20 9	302;	4029
535	/37806665;	4208695:	2088	20 :	3083	4037
536	/378067632	42085; 34	2088	20 7	3027	30,9
537	/378066: ; :	42085224	2088	20 9	302;	4029
538	/378066364	42083;;3	2088	20 9	3083	4028
539	/378065; 8;	42083598	2088	20 9	3082	4028
53:	/378066548	42082622	2088	20 7	3027	30,3
53;	/378065; 88	42082368	2088	20 8	3028	30,6
542	/378065458	4207;64:	2088	20 8	3028	4022
543	/3780648:7	4207; 459	2088	20 9	302;	4026
	/378063::2	4207; 78:	2088	20 :	3084	402:

TABLE 4: SUMMARY OF COASTAL STILLWATER ELEVATIONS[†], CONTINUED ISLAND OF MAUI

 $^{\ddot{A}}$ Vj gug grgxcvkqpu tghrgev vj g uvkrny cvgt grgxcvkqpu cuuqekcvgf y kj vj g j wttkecpg j c| ctf qpn{0 Vuvpco k j c| ctf u o c{ f qo kpcvg kp egtvckp ctgcu0

TABLE 4: SUMMARY OF COASTAL STILLWATER ELEVATIONS[†], CONTINUED

Floodin	g Source and	Location		Elevatio	on (ft ltd)	
Station	Longitude	Latitude	10-Percent	2-Percent	1-Percent	0.2-Percent
	*PCF	F:5+	I			
Rcelthe Qegc	0					
545	/378063775	4207;298	2088	20 9	3082	4025
546	/378063582	4207:45:	2088	20 5	3025	30 3
547	/378062477	42079839	2088	20.8	302:	30;
548	/37805;249	42079752	2088	20.8	302;	4023
549	/3780584:7	42079542	2088	20 9	302;	4028
54:	/378055896	42079:::	2088	20.8	3029	30,3
54;	/378052394	4207:2;:	2088	20 7	3029	30,7
552	/378049465	4207; 524	2088	20 :	3083	4039
553	/378046655	420826: :	2088	20 7	3029	4028
554	/37804476;	42083568	2088	20 :	3082	4037
555	/378042742	42084494	2088	20 9	3083	4039
556	/37803:3::	420844:6	2088	20.8	302;	4039
557	/378088: 33	4208433:	2088	20.8	302:	402:
558	/378037329	42084574	2088	20.8	3082	4037
559	/3780359:7	420836:;	2088	20 6	3028	402;
55:	/378034729	42084725	2088	20 :	3082	4042
55;	/378032;:2	420853;4	2088	20.8	302:	4036
562	/37802: 8; 5	42086494	2088	20 9	302:	4034
563	/3780297;9	420869:6	2088	20 9	3082	4037
564	/378028595	42086733	2088	20 5	3027	30,9
565	/37802726:	42086: 94	2088	20 6	3027	4022
566	/378025:45	42087; 55	2088	20 7	3029	30,9
567	/37802545;	420893:9	2088	20 9	3083	4032
568	/37802452:	42089::5	2088	20 9	3083	4028
569	/3780227:8	4208:773	2088	20 9	3082	4025
56:	/379047:62	43044358	2088	209;	3022	30.4
56;	/379047675	43042::;	2088	20 6	3082	4037
572	/379047295	4303;;94	2088	20.6	3083	403:
573	/3790475:6	4308:;38	2088	20.6	3083	403;
574	/379048595	43039432	2088	20 7	3084	4044
575	/379049873	43038438	2088	20 7	3082	4037
576	/37904: 872	43037522	2088	20 6	302;	4083
577	/37904; 5; :	43@643:	2088	20 5	3028	402;
578	/379052229	43@549;	2088	20 5	3028	402:
579	/379052566	4303:24	2088	20 6	3028	4036
57:	/379053488	43082562	2088	20 4	3024	4023
57;	/379052345	4302::98	2088	20 7	302;	4035
582	/37904:;97	4302; 297	2088	20 :	3088	404:

ISLAND OF MAUI *eqpvkpwgf +

^AVj gug grgxcvkqpu tghrgev j g uvkrny cvgt grgxcvkqpu cuuqekcvgf y kj y g j wttkecpg j c| ctf qpn{0 Vuvpco kj c| ctf u o c{ f qo kpcvg kp egtvckp ctgcu0

TABLE 4: SUMMARY OF COASTAL STILLWATER ELEVATIONS[†], CONTINUED

Flooding	g Source and	Location	Elevation (ft ltd)			
Station	Longitude	Latitude	10-Percent	2-Percent	1-Percent	0.2-Percent
	*PCF	: 5+				
Rcekhle Qegcp						
583	/379048::4	4302: 996	2088	20 :	3088	4053
584	/3790482;7	43 @ : 574	2088	20 9	3086	4047
585	/3790465; 8	43 @ : 37;	2088	20 9	3087	4049
586	/379044899	4302: 839	2088	20,3	3044	4067
587	/37903; 8; 9	4302: 743	2088	20,2	303;	4067
588	/37908: 623	4302::39	2088	20;	3039	4065
589	/379088783	4302:;69	2088	20,3	3043	4075
58:	/37908692;	4302:98;	2088	20 :	3039	4062
58;	/379084353	4302; 597	2088	20,6	304;	4098
592	/379032848	4302;964	2088	20;	3063	502:
593	/37902;696	4302; 9; 5	2088	20;	3065	502;
594	/379029445	4302; 799	2088	20:	305;	5024
595	/379027468	4302; 436	2088	20,8	3056	40 :
596	/37902598:	4302; 282	2088	20,9	3062	5022
597	/379024:24	43 @ : 735	2088	20,3	3045	407;
598	/37902336:	430299: 5	2088	20,5	3047	408;
599	/3780; :; 75	43@29455	2088	20,4	3044	4087
59:	/3780,873:	43@287:3	2088	20,2	308:	407:
59;	/3780,6442	43@824;	2088	20,3	308;	408:
5:2	/3780,4387	43@7928	2088	20,4	3046	40 8
5:3	/3780,2922	430275:;	2088	20,2	3043	40 4
5:4	/3780;657	43026; 28	2088	20;	3088	4084
5:5	/3780 9762	430266: 8	2088	20 9	3086	4078
5:6	/3780 7759	43@75:2	2088	20,5	3044	40 2
5:7	/3780 7367	43026; 46	2088	20,2	3089	4077
5:8	/3780 6627	43@7378	2088	20,7	3048	40,6
5:9	/3780 534:	43@7883	2088	20,9	3053	502:
5: :	/3780 4224	430284; 8	2088	3022	3057	504;
5:;	/3780 35; 3	430284::	2088	20,5	3046	40,3
5;2	/37809; 53;	43028; 98	2088	20;	303;	4084
5;4	/378097599	4302; 789	2088	20;	3089	4056
5;3	/378099257	4302:64:	2088	20.4	3044	4073
5;5	/378096489	43@2:45	2088	20 2	3042	4062
5;6	/378095499	430838: 3	2088	20 9	3084	4038
5;7	/3780947:7	43084595	2088	20 9	3035	4043
5;8	/378093623	43@5935	2088	20 8	302;	4032
5;9	/378092:75	43087:99	2088	20 2	3022	30 6
5;:	/378095462	43088488	2088	20 6	302;	402:

ISLAND OF MOLOKAI

 $^{\dot{A}}$ Vj gug grgxcvkqpu tghrgev vj g uvkny cvgt grgxcvkqpu cuuqekcvgf y ký vj g j wttkecpg j c| ctf qpn{0 Vuvpco k j c| ctf u o c{ f qo kpcvg kp egtvckp ctgcu0













504 J {ftcwnke Cpcn{ugu

Cpcn{ugu qh ý g j {ftcwke ej ctcevgtkukeu qh hrqqf kpi htqo ý g uqwteg uwwf kgf y gtg ecttkgf qwvq rtqxkf g guvko cvgu qh ý g grgxcvkqpu qh hrqqf u qh ý g ugrgevgf tgewttgpeg kpvgtxcnt0 Wugtu uj qwff dg cy ctg ý cvhrqqf grgxcvkqpu uj qy p qp ý g HKTO tgr tgugpv tqwpf gf y j qrg/hqv grgxcvkqpu cpf o c{ pqv gz cevn{ tghrgev ý g grgxcvkqpu uj qy p qp ý g Hrqqf Rtqhkrgu qt kp ý g Hrqqf y c{ F cv vcdrgu kp ý g HKU tgr qtv0 Hqt eqputwevkqp cpf kqt hrqqf rnckp o cpci go gpv r wtr qugu. wugtu ctg gpeqwtci gf vq wug ý g hrqqf grgxcvkqp f cvc rtgugpvgf kp ý ku HKU kp eqplwpevkqp y kj ý g f cvc uj qy p qp ý g HKTO 0

Y cvgt/uwthceg r tqhkrgu hqt hrqqf u qh ý g ugrgevgf tgewttgpeg kpvgtxcm hqt ý g uvtgco u uwwf kgf d{ fgvckrgf o gý qf u y gtg eqo r wgf ý tqwi j wug qh ý g WUCEG J GE/4 uvgr/dcemy cvgt eqo r wgt r tqi tco *WUCEG. Qevqdgt 3; 95+0 Hqt uvtgco u qwvrgvkpi kpvq ý g qegcp. uvctvkpi y cvgt/uwthceg grgxcvkqpu qp ý g Kncpf u qh O cvkcpf O qrqnrck y gtg fgvgto kpgf wukpi pqto cnf gr ý cpcn{uku0

Etquu ugevkqpu hqt y g dceny cvgt cpcn(ugu qh y g uvtgco u uvwf kgf d{ f gvckrgf o gy qf u ygtg qdvckpgf htqo vqrqitcrjke ocru *WUCEG. Vqrqitcrjke Ocru. Eqpvqvt Køvgtxcn7 hggv. 3; 98=WUCEG. Vqr qi tcr j ke O cr u. Eqpvqvt Køvgtxcn4 hggv=WUCEG. 3; 99=WUCEG. Var ai tor j le O cr u. Eqpravt Kygtxon 7 hggv. Cwi wuv 3; 95=WUCEG. Vqr qi tcr j ke O cr u. Eqpvqvt Kovgtxcn 32 hggv. Lcpvct { 3; 99=WUCEG. Lcpvct { 3; 97= WUCEG. Vqr qi tcr j ke O cr u. J ckmw Y ckj gg Ctgc. Kncpf qh O cwk Lcpwct { 3; 99= WUCEG. 3; : 6=WUCEG. Vqr qi tcr j le O cr u. Mcj wwkCtgc. Lcpwct{ 3; 99=WUCEG. Vqr qi tcr j ke O cr u. J cy crc/Mco crq Ctgc. Kurcpf qh O qrq mck F gego dgt 3;98= WUCEG. Var qi ter j le O er u. Mewpennenek epf Meo kname Ctgeu. Knepf qh O anamek F gego dgt 3; 98+cpf hkgrf uwtxg{u qh y g hqqfr nckp ctgcu0 Dtkf i gu. ewrxgtvu. cpf uvtgco ej cppgnetquu ugevkapu. kpenvf kpi dgrqy/y cvgt ugevkapu. y gtg hkgrf uvtxg{gf0 Etquu ugevlqpu y gtg mecvgf cvenug kpvgtxcni cdqxg cpf dgmy dtkf i gu. ewrxgtvu. cpf qy gt j {ftcwrle utwewtgu lp qtf gt vq eqo r wg y g uki pkhecpvdceny cvgt ghgevu htqo y gug untwewntgul Uqo g dtkfi gu qxgt untgco u uwwfkgf d{ fgvckrgf o gy qfu y gtg f gygto kpgf vq y cuj qwv d{ hqqf y cygt cpf y gtg pqv tguvtkevkxg vq hqy = y gtghqtg. y g y g tg pqv kpen wf g f kp y g j { f tcwrle cpcn { ugu qh y g u tgco u 0

Nqecvkqpu qhugngevgf etquu ugevkqpu wugf kp yigj {ftcwrke cpcn{ugu ctg uj qy p qp yig Hnqqf Rtqhkngu *Gzj kdkv 3+0 Hqt uvtgco ugi ogpvu hqt yj kej c hnqqf yc{ ycu eqor wugf *Ugevkqp 604+. ugngevgf etquu ugevkqp nqecvkqpu ctg cnuq uj qy p qp yig HKTO *Gzj kdkv 5+0

Uj cmy hqqf kpi kphqto cxkqp kp ýg Vqyp qh Y cknwnw y cu vcngp htqo c tgr qtv gpvkæf õY cknwnw Hqqf Uwuf {. $qpg CQ \circ HKTO Rcpgn 3; 2.$ Y cknwnw. O cwk J cy ckkö r tgr ctgf d{ UJ K f cvgf Ugr vgo dgt 47. 3; ; 40 O cppkpi øu hqto wæ y cu wugf vq f gvgto kpg 3/r gtegpv cpp vcnej cpeg hqqf f gr yi u xgrqekkgu. cpf y kf yi u hqt y g uwuf { ctgc. y j kej gz vgpf u uqwj qh Mcqj w Tqcf hqt c f kuvcpeg qh cr r tqz ko cvgn{ 4.622 hggv. y guv qh Ur tgengru F kej cpf Y ckcrg F tkxg. cpf gcuv qh J qpqcr kkrcpk J ki j y c{0 Vj g tguwmu qh y g uwuf { f gvgto kpgf cp cxgtci g 3/r gtegpv cpp vcnej cpeg hqqf f gr y qh 3 hqq0

Mcnuckj cmqmq Uutgco. Mco cqng I wnej. cpf Y ckner w Uutgco y gtg tguwuf kgf kp 422; wukpi fguckngf o gyj qf u0

Mcnucki cmqmq Uutgco (Mco cqng I unej

J {ftcwrke cpcn{uku hqt Mcnwckj cmqmq Utgco cpf Mco cqng I wrej y cu eqpf weyf wukpi J GE/TCU 508080 O cppkpi ¢u õpö xcnwgu wugf kp y g o qf gn y gtg ej qugp htqo y g WUI U Y cvgt/Uwr n{ Rcr gt 455; d{ gpi kpggtkpi lwfio gpv cpf hkgrf kpur gevkqp qh y g hrqqfrnckp ctgcu0 Vjg j {ftcwrke cpcn{uku tguwnu y gtg wugf vq f grkpgcvg y g 3/ cpf 204/r gtegpv hrqqfrnckpu0 Gpetqcej o gpv uvcvkqpu y gtg wugf vq f gvgto kpg hrqqfy c{ dqwpf ctkgu cuuqekcvgf y ky c o czko wo hrqqfy c{ kpetgcug qh 3 hqqv0

Y ckmcr w Uvtgco

Y ckner w Ut
tgco y cu uwwf kgf d{ fgyckref o gy
i qfu kp 422; hqt y g Eqwpy{ qh O cwk F gr ctvo gpyqh R
rcppkpi0

Vjg Y ckner w j {ftcwrke o qfgn ecnewnerkqpu y gtg eqpf wergf wukpi J GE/TCU Xgtukqp 50805 *Wpkgf Ucergu Cto { Eqtru qh Gpi kpggtu. O c{ $4227 \pm y$ j krg J GE/ I gqTCU xgtukqp 6040,4 cpf CteI KU; 04 y cu wugf vq i gpgterg y g i gqo gtt { hkrg cpf o cr y g tguwnu0 Vjg f grkpgerkqp qh y g utgeo rkpg y cu ceeqo r rkuj gf d{ wukpi eqprqwtu f gtkxgf htqo y g VKP cpf y g cgtkenko ci gt{ hqt O cwkEqwpv{0

J {ftcwrke etquu ugevkqpu ygtg fgxgrqrgf htqo ýg VKP hqt ýg J GE/TCU j {ftcwrke oqfgnu0 Vjg fcvc hqt ýg VKP ycu qdvckpgf htqo Ocwk Eqwpv{0 Grgxcvkqp fcvc ycu rtqxkfgf kp ýg NVF.cpf cmetquu ugevkqp rtqhkrgu wugf kp ýg J GE/TCU oqfgn ygtg i gpgtcvgf htqo ýg eqwpv{FGO fcvc.ykj ýg gzegrvkqp qh ýg wr uvtgco cpf fqy puvtgco etquu ugevkqpu dghqtg cpf chvgt gcej dtkfig0 Kp ýg ecug qh dtkfig etquu ugevkqpu.grgxcvkqp fcvc ycu qdvckpgf htqo c eqo dkpcvkqp qh FGO xcnwgu hqt ýg qwgt rqtvkqpu qh ýg etquu ugevkqp cpf grgxcvkqp fcvc qdvckpgf htqo cu/dwknvfcvc hqt gcej dtkfig mecvkqpu0

O cppkpi øu õpö xcnwgu wugf kp yig o qfgn kp yig Ugr vgo dgt 47.422; tguwwf { y gtg fgvgto kpgf wukpi yig i vkfgnkpgu urgekhkgf kp yig WUI U I vkfg vq Ugngevkpi O cppkpi øu Tqwijpguu Eqghhkekgpvu *WUI U.3;:;+0

Vjg uvtgco etquukpi u cv J qpqcr kkncpk J kijyc{ cpf Mkvkj gncpk J kijyc{ ygtg oqf gngf 0 Vjg cu/dvknvkphqto cvkqp hqt yjg etquukpi u cv yjgug nqecvkqpu y cu vvkrkt gf kp yjg j{ftcwrke cpcn{uku0

Eqpvtcevkqp cpf gzr cpukqp eqghhkekgpvu ugngevgf hqt vjg J GE/TCU o qf gn y gtg dcugf qp uvcpf ctf i vkf cpeg r tqxkf gf kp vjg Tkxgt Cpcn{uku U{uvgo J {ftcwhe Tghgtgpeg O cpwcn *WUCEG J {ftqmi ke Gpi kpggtkpi Egpvgt. 4224+0 V{r kecm{. eqpvtcevkqp cpf gzr cpukqp eqghhkekgpvu qh 208 cpf 205. tgur gevkxgn{. y gtg wugf hqt cm pcwtcn xcmg{ etquu ugevkqpu0Hqmqy kpi vjg J GE/TCU o qf grkpi i vkf cpeg hqt dtkf i gu. v{r kecn eqpvtcevkqp cpf gzr cpukqp cpf gzr cpukqp cpf gzr cpukqp eqghhkekgpvu qh 205 cpf 207. tgur gevkxgn{. y gtg wugf hqt vjg y q etquu ugevkqpu wr uvtgco qh vjg dtkf i g cpf hqt vjg qpg f qy puvtgco qh dtkf i g0

Etkkecn fgrý y cu wugf cu ýg dqwpfct { eqpfkkqp hqt ýg Y ckmer w Uvtgco i kxgp ýg hnev etge cpf Mgenke Rqpf cuuqekevgf y ký ýg fqy puvtgco gpf qhýg Y ckmer w Uvtgco 0

Vjg 204/r gtegpv hnyy ku pqv vqvcm{ eqpvckpgf tguwnkpi kp cp qxgthnyy yjkej crrgctu vq hnyy fqyp Gcuv Y ckmq Tqcf vqy ctfu yjg uqwjgcuv0 Vjku qxgthnyy hqt yjg 204/r gtegpv cppvcn ej cpeg gxgpv fkxgti gu htqo yjg Y ckmcr w Uvtgco 0 O qf gnkpi yjku fkxgti gpv hnyy y cu dg{qpf yjg ueqrg qh yjku uwwf{. cpf yjgtghqtg f gnkpgcvkpi yjg hnqqfrmckp dqwpf ct{ cmpi Gcuv Y ckmq Tqcf y cu pqvcwgo r vgf 0

Nkngy kug. cv J qpqcr kkncpk J ki j y c{ y g 3/r gtegpv cppwcn ej cpeg hny ku pqv eqpvckpgf d{ y g etquu ugevkqp cpf cp qxgthnqy vq y g uqwj y guv qeewtu0 Vj g qxgthnqy ngcxkpi Y ckncr w Utgco y km hnqy cmpi J qpqcr kkncpk J ki j y c{ dghqtg wtpkpi y guvy ctf cpf hnqy kpi qxgtncpf 0 C nko kv qh f gvckrgf uwwf { nkpg y cur ncegf cv y g uqwj gtp qxgtdcpm cpf hnqqf kpi cv y ku mecvkqp y cu pqv kpeqtr qtcvgf kpvq y g hnqqf r nkp dqwpf ct { o cr 0

Ký ýg 4236 tguwf {. ýg j {ftqnqi { hqt Y ckncrw Utgco y cu tgxkugf cpf ýg j {ftcwrke o qf grkpi y cu wr f cvgf vq tghrgev pgy r gcmhrqy kphqto cvkqp0Vj ku tguwf { wugf ýg gzkurkpi j {ftcwrke o qf gn i gqo gvt { wr utgco qh etquu/ugevkqp 3: .; : 5 cpf cff gf cff kkqpcn hkgrf uvtxg{ kphqto cvkqp cpf pgy VKP etquu/ugevkqpu f qy putgco qh y cv mecvkqp0J {ftcwrke o qf gn ecnewncvkqpu y gtg eqpf wevgf wukpi ýg eqo r wgt r tqi tco J GE/TCU Xgtukqp 60802 *Wpkgf Ucvgu Cto { Eqtr u qh Gpi kpggtu. O c { 4227+0

Vjg j {ftcwrke cpcn{ugu hqt y ku HKU y gtg dcugf qp wpqdurtwevgf hqy 0 Vjg hqqf grgxcvkqpu uj qy p qp y g rtqhkrgu ctg y wu eqpulf gtgf xcnkf qpn{ kh j {ftcwrke urtwewtgu tgo ckp wpqdurtwevgf.qr gtcvg rtqr gtn{. cpf fq pqvhckr0}

Cm grgxcvkqpu ctg tghgtgpegf vq ýg Nqecn Vkf cn F cwo 0 Dgpej o ctmu wugf kp ý ku uwwf {. cpf ý gkt f guetkr vkqpu. ctg uj qp qp ýg HKTO 0 Dgpej o ctmu uj qp qp ýg HKTO tgr tgugpv ý qug wugf f wtkpi ýg r tgr ctcvkqp qh ý ku cpf r tgxkqwu HKUu0 Vj g grgxcvkqpu cuuqekcvgf y ký gcej dgpej o ctm y gtg qdvckpgf cpf lqt f gxgrqr gf f wtkpi HKU r tqf wevkqp vq guvcdrkuj xgt vkecn eqpvtqn hqt f gvgto kpcvkqp qh hqqf grgxcvkqpu cpf hrqqf r rckp dqwpf ct kgu uj qp qp ýg HKTO 0 Wugtu uj qwrf dg cy ctg ý cv ý gug dgpej o ctm grgxcvkqpu o c{ j cxg ej cpi gf ukpeg ýg r wdrkecvkqp qh ý ku HKU0 Vq qdvckp wr/vq/f cvg grgxcvkqp kphqto cvkqp qp P cvkqpcn I gqf gvke Uvtxg{ *P I U+ dgpej o ctmu uj qp p qp ý ku o cr. r rgcug eqpvcev ýg Kphqto cvkqp Ugt xkegu Dtcpej qh ýg P I U cv *523+935/5464. qt xkukvý gkt y gdukg cv<u>y y v (pi utpqcc0 qx</u>0 O cr wugtu uj qwrf uggmxgtkhkecvkqp qh pqp/P I U dgpej o ctmo qpwo gpv grgxcvkqpu y j gp wukpi ý gug grgxcvkqpu hqt eqpuvtwevkqp qt hrqqf r rckp o cpci go gpvr wtr qugu0

Tqwijpguu hcevqtu *O cppkpi øu õpö+wugf kp yigj {ftcwhe eqor wcvkqpu y gtgej qugp d{ gpi kpggtkpi lwfi o gpv cpf y gtg dcugf qp hkgnf qdugtxcvkqpu qh yig uvtgco u cpf hqqfr nckp ctgcu0 Tqwijpguu hcevqtu hqt cmuvtgco u uwwfkgf d{ fgvckngf o gyiqfu ctg uj qy p kp Vcdng 7. õO cppkpi øu õpö Xcnvgu0ö

Stream	Channel "n"	Overbank "n"
J cj cngc I wrej	20262	20262
J qpqncj vc Utgco	2@52/2@62	2@62
J qpqngcpc Dc{ I wej	20262/20267	2@57/2@67
J qpqnqy ckUtgco	2@35/2@52	2@37/2@52
Keq Uttgco	2@36/2@63	2(342/2(2::
Mcj cpc Uttgco	20252	20262
Mcj qo c Uttgco	20262	20262
Mongro I wnej	2@62/2@72	2@52/2@67
McnkcnkpwkI wnej	2@44/2@5:	2@72/2@82
Menvelij emqmq Utegeo	20265	2@35/2@75
Mco cqng I wnej	20262	20262
Mcqr crc I wrej	2@47/2@57	2@52/2@57
Mcwcwnc Uttgco	2@3:/2@62	2@42/2@62
Mgqngc I wrej	2 @ 42 ó 2 @ 6:	2@34 ó 2@: 2
Mkj gkCtgc	20272	2@72
MkjgkIwnej 3	2 @ 6/2 @ :	2025/203
MkjgkI wnej 4	20277	2@77
MkjgkIwnej 5	2@42/2@72	2@57/2@62
M⊪jgkIwnej 6	20267	20267
MqrgI wnej	20282	20282
Nkkrkj qrq I wrej	20262	20262
O cj kpcj kpc I wrej	2@42/2@67	2@46/2@67
P cr krkI wrej 4/5	2@52/2@72	2@57/2@72
PcrknkIwnej 6/7	2@47/2@52	2@57/2@62
Qmy cnwUtgco	2@62/2@:2	20262
Urtgengni Fkej	2(262	20262
Wppcogf Uttgco cvMtxcwRqkpv	2@52/2@72	2@52/2@72
Y ckgj wUttgco	2@42/2@67	2@52/2@67
Y chj gg Thxgt	20272	2@72
Y ckmcr w Uvtgco	2(257/20287	2(257/2(35
KUNCPF OHO ONOMCH		
Mco cm I wrej	20247/2028	2025/2029
Mcknwc I wrej	20237/20252	20267
Mcj cpcpwkI wrej	20272	2@82/2@:2
Mco krqrqc I wrej	2023:/20258	20262
Mgcy cpwkl wrej	20282/20342	202: 2/20842
Mcy grc 1 wrej	20267	20282
McwpcmcmckUvtgco	20252/2026:	20252 ó 202: 2
O cpcy ck1 wej	20272	202:2
Y CKCHWC UNIGCO	20262/20272	20282/202:2

VABLE 5: MANNING'S "n" VALUES

TABLE 5: MANNING'S "n" VALUES, CONTINUED

Channel "n"	Overbank "n"
2@62/2@52	2@72/2@: 2
2@52/2@72 2@3:/2@5:	20262/20292 20262
	Channel "n" 2@62/2@52 2@52/2@72 2@3: /2@5:

Vj g vqr qi tcr j ke o cr u *WUCEG. <u>Vqr qi tcr j ke O cr u</u>. Eqpvqwt Køvgtxcn 7 hggv. 3; 98= WUCEG. <u>Vqr qi tcr j ke O cr u</u>. Eqpvqwt Køvgtxcn 4 hggv= WUCEG. 3; 99= WUCEG. <u>Vqr qi tcr j ke O cr u</u>. Eqpvqwt Køvgtxcn 7 hggv. Cwi wuv 3; 95= WUCEG. <u>Vqr qi tcr j ke</u> <u>O cr u</u>. Eqpvqwt Køvgtxcn 32 hggv. Lcpwct{ 3; 99= WUCEG. Lcpwct{ 3; 97= WUCEG. <u>Vqr qi tcr j ke O cr u</u>. J ckmv/Y ckj gg Ctgc. Kmcpf qh O cwk Lcpwct{ 3; 99= WUCEG. 3; : 6= WUCEG. <u>Vqr qi tcr j ke O cr u</u>. Mcj wnkk Ctgc. Lcpwct{ 3; 99= WUCEG. <u>Vqr qi tcr j ke O cr u</u>. J cy cm/Mco cm Ctgc. Kmcpf qh O qmmck F gego dgt 3; 98= WUCEG. <u>Vqr qi tcr j ke O cr u</u>. Mcwpcmenæk cpf Mco kmmc Ctgcu. Kmcpf qh O qmmck F gego dgt 3; 98+0 gpvkqpgf r tgxkqwun{. cpf cp{ eqpf kkqpu y j kej f khgt htqo y qug f guetklgf cdqxg. ctg uwo o ctk gf dgmy 0

KINCPF QHOCWK

<u>J cj cngc I wrej. J qpqnqy ck Uttgco. O cj kpcj kpc I wrej. Mcj cpc Uttgco. cpf</u> <u>Mcqr crc I wrej</u>

Vqrqitcrjke fcvc y gtg uwrrnkgf d{ y g WUCEG cpf ctg fcvgf Lcpwct{ 3;970 Vqrqitcrjke o cru y gtg rtgrctgf cvc uecng qh 3<4.622. y kj c eqpvqwt kpvgtxcnqh 7 hggv*WUCEG. Lcpwct{ 3;97+0

J qpqmcj wc Uvtgco

Vqr qi tcr j ke f cvc qh y g uwwf { ctgc y gtg qdvckpgf htqo y g WUCEG0 V j g o cr u. f cvgf Lcpwct { 3; 97. y gtg r tgr ctgf cvc uecng qh 3<6.: 22. y kj c eqpvqwt kpvgtxcnqh 7 hggv*WUCEG. Lcpwct { 3; 97+0

J qpqngcpc Dc{ I wrej . P cr krkI wrej 6/7. cpf P cr krkI wrej 4/5

Vqr qi tcr j ke f cvc qh ý g uwuf { ctgc y gtg uwr r hgf d{ ý g WUCEG cpf ctg ý g uco g cu ý qug wugf hqt ý g cdqxg/o gpvkqpgf uvtgco u *WUCEG. Icpwct{ 3; 97+0 J qy gxgt. dgecwug ý ku ctgc ku j gcxhn{ qxgti tqy p cpf eqpvqwt nkpgu ctg kpceewtcvg. ý g i kxgp o cr u y gtg cf lwuvgf ceeqtf kpi vq f cvc qdvckpgf f wtkpi ý g hkgrf uwtxg{0 Uvtgco etquu ugevkqpu y gtg vcngp htqo ý g cf lwuvgf o cr u cpf y gtg wugf kp ý g j {ftcwnke eqo r wcvkqpu0

Kq Utgco

Cm f cvc wugf kp y g j {f t cwrke eqo r wwcykqpu. kpenwf kpi vqr qi t cr j ke f cvc. uvtgco ej cppgn et quu ugevkqpu. cpf dtkf i g cpf ewrxgtv f ko gpukqpu y gtg d cugf qp f cvc wugf kp y g f guki p qh y g hrqqf/eqpvtqn r tqlgev hqt y ku uvtgco *WUCEG. Cr tkn 3;97+0 Rqtvkqpu qh y ku uvtgco gz j kdkv j ki j xgrqekkgu cpf c uwr gtetkkecn hrqy eqpf kkqp0

<u>Mcj qo c Uttgco</u>

Vqr qi tcr j ke f cvc hqt ý g uxtgco ctg ý g uco g cu ý qug wugf hqt Mcwcwrc Uxtgco *WUCEG. <u>Vqr qi tcr j ke O cr u</u>. Eqpvqwt Køvgtxcn 32 hggv. Lcpwct { 3; 99+0 Uwr gtetkkecn hqy qeewtu kp ý g wr rgt tgcej qh ý g uxtgco 0 Kø ý g ny gt tgcej qh ý g uxtgco . uj ggyhnqy qeewtu 0 Uj cmqy hqqf kpi gzvgpf u htqo 6.422 hggvhtqo ý g uj qtgrkpg vq 522 hggvcdqxg ý g o qwj 0 Vj g y kf ý qh ý g 3/r gtegpvcppwcnej cpeg hqqf r rckp cv Htqpv Uxtggv ku cr r tqzko cvgn{ 3.822 hggv=cv J qpqcr kkrcpk kv ku 5.722 hggvy kf g=cpf cvý g wr uxtgco nko kv ý g y kf ý ku 452 hggv0

Mco cqng I wrej

Cgtkon rjqvqitorju otg yjqug tghgtgpegf odqxg hqt yjg uvwf { otgo *WUCEG. <u>Vqrqitorjke Ocru</u>. Eqpvqwt Kpvgtxon 4 hggv. Fgego dgt 3; 98+0 Xgnqekkgu kp yjg ej oppgnotg ou jki j ou 3; hggvrgt ugeqpf. kpfkecvkpi uvvrgtetkkeon hqy eqpfkkqp0

Mcknwc I wrej

Vjg 3/r gtegpv cppwcn ej cpeg f kuej cti g hqt Mcknwc I wrej y cu qdvckpgf htqo c 3;99 tgr qtvr tgr ctgf d{ UJ K hqt y g WUCEGO Vjg j {f tcwrke cpcn{uku hqt Mcknwc I wrej y cu r tgr ctgf wukpi y g WUCEG J GE/4 j {f tcwrke eqo r wgt o qf gn cpf cp cgtken vqr qi tcr j ke o cr gpvkngf õY qtm O cr hqt Hrqqf Kpuwtcpeg Uwf {. Mcknwc I wrej .ö uecrg 3\$?622). eqpvqwt kpvgtxcn 32 hggv. cpcn{uku cff gf f gvckrgf hrqqf kpi kphqto cvkqp. kpenwf kpi c hrqqf y c{. vq y g uwf { tgcej qh Mcknwc I wrej. y j kej gz vgpf gf htqo ku o qwj hqt c tgcej qh cdqwv5.947 hggv0

Mcwcnc Uttgco

Cgtken rjqvqiterju qh vjg uwwf{ etge ygtg vengp kp Lepwet{ 3;990 Rjqvqiteo ogvtke o eru ygtg rtgretgf ev e ueeng qh 3<6.:22. ykj e eqpvqwt kpvgtxenqh 32 hggv *WUCEG. <u>Vqrqiterjke O eru</u>. Eqpvqwt Kpvgtxen 32 hggv. Lepwet{ 3;99+0 J kij ej eppgn xgnqekkgu epf e uwrgtetkkeen hnqy eqpf kkqp gzkuv qp vjg uvtgeo 0

Mkj gkI wrej 3 cpf Mgqngc I wrej

Vqr qi tcr j ke f cvc y gtg qdvckpgf htqo NkF CT kphqto cvkqp r tqxkf gf d{ Cktdqtpg3 kp Lxpg. 42260 C F ki kcn Grgxcvkqp O qf gn y cu etgcvgf htqo y ku f cvc y kj cp ceewtce{ qh 4 hgg00Mgqngc I wrej y cu uwwf kgf wukpi cp wpuvgcf{ hrqy J GE/TCU j {ftcwrke o qf gn0Cp wpuvgcf{ hrqy tgi ko g y cu ugngevgf hqt r tko ctkn{ w q tgcuqpu< kv y qwrf hcekrkscvg c 4/f ko gpukqpcn j {ftcwrke o qf gn hqt y g Mkj gk Tgi kqpcn Rctm ctgc cpf kvy qwf gpcdng c o qtg f {pco ke uqnwkqp hqt ý g wr uvtgco r qtvkqp qh ý g j {ftcwrke o qf gn y j gtg uwr gtetkkecn hnqy u ctg qeewttkpi f wtkpi ý g 3/r gtegpv/ cppwcn'ej cpeg hnqf gxgpv0Uwr gtetkkecn hnqy cpf j ki j ej cppgn xgnqekkgu gzkuv kp ý g wr rgt tgcej gu qh Mgqngc I wnej 0 Cu ý g ej cppgn i tcf kgpv nguugpu vqy ctf ý g eqcuvcn ctgcu cpf ý g hnqfr nckp y kf gpu. xgnqekkgu wgpf vq f getgcug cpf ý g hnqy dgeqo gu uwdetkkecn0Vj g f qy puvtgco r qtvkqp qh Mgqngc I wnej y cu uwrf kgf wukpi HNQ/4F. cp wpuvgcf { 4/f ko gpukqpcnj {ftcwrke o qf gn0C 4/f ko gpukqpcnj {ftcwrke o qf gn y cu wugf f wg vq ý g r qqtn{ f ghkpgf ej cppgn cpf hnqy r cyj u qpeg ý g hnqf y cvgtu qtki kpcvkpi kp ý g wr rgt Mgqngc I wnej y cvgtuj gf tgcej ý g gngevtkecn uwduvcvkqp qr r qukg ý g Gcuv Y gncncj cq Tqcf0 Vj g r tko ct{ o gcpu d{ y j kej hnqf y cvgtu ngcxg ý g tgi kqpcn r ctm ku xkc qxgtvqr r kpi Uqwj Mkj gk Tqcf qt ý tqwi j ý g ewnxgtu wpf gt J cngmvck Utggvvq ý g pqtý 0

Mkj gkI wrej 4

Cgtken r j qvqi ter j u qh y g etge y gtg hqy p ev y g uco g vko g eu y qug hqt Mkj gk I wrej 5 *WUCEG. <u>Vqrqi ter j ke O er u</u>. Eqpvqwt Køvgtxen 4 hggv. F gego dgt 3; 98+0 Uwr gtetkkeen hqy qeewtu dgeewug qhe uvggr ej eppgni tef kgvvcpf j ki j xgrqekklgu0

<u>MkjgkI wrej 5</u>

Cgtkon rjqvqitorju ygtg vongp qh yjg uwwf { ctgc kp Fgego dgt 3;980 Rjqvqitoo ogtke o cru ygtg rtgrotgf cv c ueong qh 3<3.422. ykj c eqpvqwt kpvgtxonqh4 hggv *WUCEG. Vqrqitorjke O cru. Eqpvqwt Kpvgtxon4 hggv. Fgego dgt 3;98+0 J kij ej oppgnxgnqekkgu kpf keovg yj ovo uwrgtetkkeonhrqy eqpf kkqp gzkuvu0

<u>Mkj gkI wrej 6</u>

Cgtkcnrjqvqitcrju y gtg vcngp kp F gego dgt 3; 980 Rjqvqitco o gvtke o cru y gtg rtgrctgf cv c uecng qh 3<4.622 y kj c eqpvqvt kpvgtxcn qh 7 hggv *WUCEG. Vqrqitcrjke O cru. Eqpvqvt Kpvgtxcn 7 hggv F gego dgt 3; 98-0 Dgecwug qh y g uvggr ej cppgnunqrg. c uvrgtetkkecnhqy eqpf kkqp gzkuvu hqt y ku uvtgco 0

<u>NkkrkqjqrqIwrej</u>

Cgtkcnrjqvqitcrjuctg y g uco g cu tghgtgpegf hqt MkjgkI wrej 5 cpf MkjgkI wrej 4 *WUCEG. <u>Vqrqitcrjke Ocru</u>. Eqpvqwt Kpvgtxcn 4 hggv. F gego dgt 3; 98+0 Vjg j {ftcwhe cpcn{uku kpfkecvgu y cv y g gzkuvkpi ewnxgtvecppqvcfgs wcvgn{ eqpxg{ y g 3/r gtegpvcppwcnej cpeg hqqf0 Qxgtvqrrkpi qh y g ej cppgndcpmu y kmtguwnx cpf uvqto y cvgt y kmhqy qxgt y g tqcf y c{ cpf kpvq Mco cqng Dgcej RctmP q040 J ki j ej cppgn xgnqekkgu qeewt qp y ku uvtgco cnuq. tguwnkpi kp c uwrgtetkkecn hqy eqpf kkqp0

Qrqy cnwI wrej 4

Vqr qi tcr j ke o cr u qh ý g uwf { ctgc y gtg uwr nkgf d { ý g WUCEG cpf ctg f cvgf Cwi wuv 3; 950 Vj gug o cr u y gtg r tgr ctgf cv c uecng qh 3 4.622. y kj c eqpvqwt kpvgtxcn qh 7 hggv *WUCEG. <u>Vqr qi tcr j ke O cr u</u>. Eqpvqwt Kpvgtxcn 7 hggv. Cwi wuv 3; 95+0 Vj g 3/r gtegpv cppwcnej cpeg hnqqf y kmqxgtvqr ý g y guv dcpmqh ý g i wrej cr r tqzko cvgn{ 4.722 hggv wr uvtgco qh J qpqcr kkncpk J ki j y c{ cpf tguwnv kp c uj cmqy hnqqf kpi eqpf kkqp0 Vj g y kf ý qh ý g 3/r gtegpv cppwcnej cpeg hnqqf r nckp cvJ qpqcr kkncpkJ ki j y c{ ku cr r tqzko cvgn{ 3.222 hggv0

Qmy cnwUtgco

Vqrqitcrjke Ocru ctg vjg ucog cu vjqug wugf hqt Qnqy cnw I wrej 4 *WUCEG. <u>Vqrqitcrjke Ocru</u>. Eqpvqwt Kovgtxcn 7 hggv. Cwiwuv 3;95+0 J qygxgt. cv crrtqzko cvgn{ 3.622 hggv wruvtgco htqo vjg oqwj. vjg hnqy dtgcmu qw cpf tguwnu kp ujggvhnqy 0 Uj cmqy hnqqf kpi gzvgpfu htqo crrtqzko cvgn{ 3.622 hggv wruvtgco vq 572 hggv cdqxg vjg oqwj 0 Vjg y kf vj qh vjg 3/r gtegpv cppwcnej cpeg hnqqf rnckp cv vjg j ki j y c{ ku crrtqzko cvgn{ 3.; 22 hggv cpf ku egpvgtgf cmpi vjg uvtgco 0

Y ckcmqc cpf Mgcj cky ckI wrej gu

Cgtken r j qvqi ter j u y gtg vengp kp Lepwet { 3; 990 Rj qvqi teo o gvtke o er u y gtg r tgr etgf ev e ueeng qh 3<6.: 22. y kj e eqpvqvt kpvgtxenqh 32 hggv *WUCEG. 3; 99+0 J {ftewrke eqo r weekqpu eqpf wevgf ugr etcvgn{ hqt y g w q i wrej gu uj qy y ev y g i wrej gu y km qxgthrqy f wtkpi y g 3/r gtegpv eppwen ej epeg hrqqf epf o gti g0 Uj emqy hrqqf kpi y km qeewt kp y g qxgtdepmetgeu0 Vj ku etge qh uj emqy hrqqf kpi gz vgpf u er r tqzko evgn{ 4.522 hggv pqt y empi 0 qmwgrg J ki j y c{ htqo Mgej eky ek I wrej vq Wy er q Tqef epf er r tqzko evgn{ 6.222 hggv htqo y g uj qtgrkpg empi Y ekemqe I wrej 0

Y ckj gg Tkxgt. Mcngr c I wrej. Y ckgj w Uttgco

Cgtken rjqvqiterju qh yjg uwwf{ etge ygtg vengp kp Lepwet{ 3;990 Rjqvqiteo o gvtke o cru ygtg rtgretgf ev e ueeng qh 3<6.:22. ykj e eqpvqwt kpvgtxen qh 32 hggv *WUCEG. <u>Vqrqiterjke O cru</u>. Jekmw/Yekjgg Ctge. Kunepf qh O cwk Lepwet{ 3;99+0

Y ckmcr w Uvtgco

Vqr qi ter j ke f cvc y gtg qdvckpgf htqo NkFCT kphqto cvkqp r tqxkf gf d{ Cktdqtpg3 kp Cr tkn 42270 C F ki kxcn Grgxcvkqp O qf gn y cu etgcvgf htqo y ku f cvc y ky cp ceewtce{ qh4 hggv0

J {ftqnqi { hnqy xcnwgu y gtg fgvgto kpgf kp c j {ftqnqi ke uvwf { eqpf wevgf d { y g Vgvtc Vgej kp Pqxgo dgt 4228=y j kng vqrqi tcrj { fcvc y cu qdvckpgf htqo Ocwk Eqwpv{0 J {ftcwrkeu y gtg ecnewncvgf kp J GE/TCU Xgtukqp 50805 cpf wugf cu y g dcuku hqt fgvgto kpkpi hnqqfrnckp cpf hnqqf y c { gz vgpv0 Vj ku uwuf { y cu tgxkugf kp Cwi wuv. 4233 y ky wrfcvgf j {ftqnqi { cpf cffkkqpcn hkgnf uwtxg{0 J GE/TCU i gqo gvt { y cu ugngevkxgn{ tgwugf htqo y j g rtgxkqwu ghgevkxg o qf gn vq etgcvg c o qf gn y ky y j g dguv cxckrcdng f cvc kp cm nqecvkqpu0 J {ftcwrkeu ecnewncvkqpu y gtg r gthqto gf kp J GE/TCU Xgtukqp 60802 cpf hnqqf y c{ gz vgpu y gtg tgxkugf 0

Y ckr wkrepkepf Mwrepkj emqkI wrej gu

Vqr qitcrjke fcvc y gtg qdvckpgf htqo y g cdqxg/tghgtgpegf rjqvqitco o gvtke o cru *WUCEG. <u>Vqr qitcrjke O cru</u>. Eqpvqvt Kovgtxcn 4 hggv. Fgego dgt 3; 98+0 Vjg j {ftcwrke cpcn{uku hqt y g i wrej gu kpf kecvgf y cv y g { y qwrf qxgthrqy y gkt dcpmt0 Hvty gt uwrf { uj qy gf y cv qxgthrqy htqo y g i wrej gu y qwrf o gti g0 Vj ku cpcn{uku y cu r gthqto gf d { gz vgpf kpi etquu ugevkqpu cetquu dqy i wrej gu0 Vj g 3/ r gtegpv cppwcn ej cpeg hrqqf rrckp gz vgpf u htqo J qqpcpk Uvtggv vq Mgpqrkq Uvtggv cpf crrtqzko cvgn{ 4.722 hggv kprcpf crqpi Mwrcpkj cmqkI wrej 0

Cp wrfcvgf uwpcok twpwr cpcn{uku y cu rtgrctgf wukpi ý g VUW4 eqorwgt rtqitco cpf cp cgtkcn vqrqitcrj ke o cr gpvkngf õVqrqitcrj ke Uwtxg{ qh Ncj ckpc Vqy p Eqcuvtkpg.ö cvc uecng qh 3 < 22. y kj c eqpvqwt kpvgtxcnqh 4 hggv. rtgrctgf d{ y g WUCEG. cpf f cvgf Lcpwct { 5. 3; ; 80

KUNCPF QHO QNQMCK

Hqt cm utgcou uwwfkgf d{ fgyckrgf o gyjqfu qp yjg kurcpf. Fgego dgt 3;98 yqrqitcrjke o cru y gtg qdyckpgf htqo yjg WUCEGO Vjg o cru y gtg rtgrctgf cvc uecng qh 3-6.: 22. y kj c eqpyqut kpygtxcn qh 32 hggy *WUCEG. <u>Vqrqitcrjke O cru</u>. J cy cm/Mco cm Ctgc. Kurcpf qh O qmmck Fgego dgt 3;98=WUCEG. <u>Vqrqitcrjke</u> <u>O cru</u>. Mcwpcmcmckcpf Mco knqmc Ctgcu. Kurcpf qh O qmmck Fgego dgt 3;98+0

Vjgj {ftcwrke cpcn{uku qh Y cyckc I wrej kpfkecvgf ý cvuj ggv hrqy gzvgpfu htqo 5.222 hggvwr uvtgco qh ý g o qwj vq 722 hggvwr uvtgco qh ý g o qwj 0 Vjgy kf ý qh ý g 3/r gtegpvcppwcnej cpeg hrqqfr nckp ku 3.522 hggvcv Mco gj co gj c X J ki j y c{0 Uwr gtetk kecn hrqy cpf j ki j ej cppgn xgrqek kgu gz kuv kp ý g wr rgt tgcej gu qh ý g uvtgco u0 Cu ý g ej cppgn i tcf kgpv nguugpu vqy ctf ý g eqcuvcn ctgcu cpf ý g hrqqfr nckp y kf gpu. xgrqek kgu vgpf vq f getgcug cpf ý g hrqy dgeqo gu uwdetk kecn Vj ku ukwcv kqp qeewtu qp Mcy gnc I wrej. Mco cmq I wrej. Mgcy cpwk I wrej. Qj kc I wrej. Mcj cpcpvk I wrej. cpf Y ckcnxc Uvtgco 0 O cpcy k I wrej gzj kd ku uwr gtetk kecn hrqy ej ctcevgt kurkeu ý tqwi j qw ku uwf { ngpi ý 0

Vj g f gvgto kpcvkqp qh ý g j {f tcwrke ej ctcevgtkurkeu hqt ctgcu qh cr r tqzko cvg uwwf { y cu ecnewncvgf d{ xctkqwu o gý qf u cpf ctg i tqwr gf kpvq ý g i gpgtcn ecvgi qtkgu rkuvgf dgrqy <

J {ftcwrke ej ctcevgtkurkeu y gtg fgvgto kpgf d{ o gvj qfu fguetkdgf hqt fgvckrgf/uwwf { ctgcu. y ky j g gzegr vkqp j cvurtgco etquu ugevkqpu y gtg pqv hkgrf uwtxg{gf. cpf dtkfi gu cpf ewrxgtvu y gtg pqv eqpukf gtgf0 J qy gxgt. j gtg y gtg hkgrf kpur gevkqpu qh j g hrqqfr rckp ctgcu0

- 40 C pqto cn/fgr y eqor wgt r tqi tco y cu wkrk gf dcugf qp y g vqr qi tcr j ke o cr u wugf kp y g fgvckrgf/uw f{ ctgcu cpf qp hkgnf kpur gevkqpu qh y g hrqqfr nckpu0
- 50 J {ftcwrke ej ctcevgtkurkeu y gtg gzvtcevgf htqo rtkqt uwwfkgu qt y gtg vcmgp htqo rtkqt o crrkpi qhxctkqwu nqecvkqpu qp yjg kurcpf u0

Vjg fgygto kpcykap qh o czko wo twpwr grgxcykapu hat y g Kurcpfu qh O cwk cpf O ammek y cu o cfg wukpi c uwuf { gpykugf <u>Vuwpco k Kpwpf cykap Rtgf keykap</u> *Ej ctrgu NO Dtgwej pgkfgt. 3; 98+0 Vj ku uwuf { fgxgrqrgf hato wrcu hat rtgf keykpi wuwpco k twpwr rtqhkrgu cpf eqo rctgf y g ecrewrcygf tguwnu y kj y g tgeqtfgf kpwpf cykap fcvc qh y g 3; 68 cpf 3; 82 wwpco k qp y g Kurcpfu qh O cwk cpf J cy ckk0 I qqf vq gzegrappv eqttgrcykapu y gtg qdvckpgf dgw ggp y g qdugtxgf cpf ecrewrcygf kpwpf cykap rtqhkrgu0

Twpwr grgxcvkqpu ctg fgrgpfgpv qp uvctvkpi uwpcok grgxcvkqpu. kprcpf i tqwpf grgxcvkqpu tqwi j pguu hcevqtu *O cppkpi øu õpö xcnwgu+. cpf gzrgevgf v{rg qh y cxg dgj cxkqt *dqtg qt pqpdqtg hqto cvkqp+0 Vjg fgtkxcvkqp qh uwpcok grgxcvkqpu ku fkuewuugf kp Ugevkqp 5080 WUI U vqrqi tcrjke o cru *WU0 Fgrctvo gpv qh yjg Kpvgtkqt. 3; 79. gvegvgtc+y gtg wugf hqt yjg uwpcok j{ftcwrke cpcn{ugu0}

Qxgtncpf tqwijpguu hcevqtu wugf kp yjg j {ftcwrke eqor wcvkqpu y gtg ej qugp d{ wukpi gpi kpggtkpi lwfio gpv cpf y gtg dcugf qp hkgrf kpur gevkqp d{ eqcuvcn ctgcu0 O quv qh yjg eqcuvcn ctgcu qh yjg eqwpv{ j cxg gzr gtkgpegf qpn{ yjg pqpdqtg v{rg qh wuwpco kcevkqp0

Hqt y g 422; Ncpck uwpco k uwwf {. f gwgto kpcwlqpu qh y g o czko wo twpwr grgxcwlqpu y gtg o cfg d { ecnewncwlpi twpwr rtqhkrgu hqt vtcpugevu rncegf crrtqzko cvgn{ 6.222 vq 7.222 hggv crctv crqpi y g uwwf { ctgc uj qtgrkpg wukpi NkF CT f cvc *4226/4228+0 Nqecwlqpu qh y g vtcpugevu hqt y g uwwf { ctg uj qy p kp Hki wtg 60 Vj g uwwf { wugf y g rtqegf wtgu f guetkdgf kp y g <u>O cpwcnHqt F gvgto kpkpi</u> Vuwpco kTwpwr Rtqhkrgu Qp EqcuvcnCtgcu qh J cy ckk*3; 9: +0

Htkevkqp hcevqtu hqt y g Ncpck wwpco k uwf { y gtg f gvgto kpgf wukpi <u>Ocpwcn Hqt</u> <u>F gvgto kpkpi Vuwpco k Twpwr Rtqhkrgu Qp EqcuvcnCtgcu qh J cy ckk</u>*3; 9: +cpf y g tgr qtv <u>Tqwi j pguu qh V{r kecn J cy ckkcp Vgttckp hqt Vuwpco k Twp/wr Ecrewwrvkqpu</u>. <u>C Wugtu O cpwcn</u>*3; : 8+0 Hkgrf kpur gevkqp y cu f qpg cv gcej vtcpugev vq f gvgto kpg y g cr r tqr tkcvg htkevkqp hcevqtu0

Cpcn{ugu qh y g j {ftcwrke ej ctcevgtkrkeu qh hrqqf kpi htqo y g uqwtegu uwf kgf y gtg ecttkgf qw vq guvcdrkuj y cvgt/uwthceg grgxcvkqpu cpf crrtqzko cvg kpwpf cvkqp rko kvqh y g \ qpg C hrqqfrnckpu fwtkpi y g 3/r gtegpvcppwcnej cpeg hrqqf 0 Uvgcf {/ hrqy J GE/TCU xgtukqp 50805 cpf I gqTCU xgtukqp 602 hqt CteI KU xgtukqp ; 04 y gtg wkrk{ gf 0 VKP cpf 32/hrqveqpvqwturtqxkf gf vqrqitcrj ke dcemi tqwpf hqt y g cpcn{uku0

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Fwg vq ýg wpcxckrcdkrkv{ qh rcpf/wug fcvc. tqwijpguu eqghhkekgpvu wugf kp ýg j{ftcwrke cpcn{uku qp cm uvtgcou ygtg ocpwcm{ guvkocvgf d{ gpikpggtkpi lwfiogpvu htqo cgtkcn kocigu0 Kvycu cuuwogf ýcvcm uvtgcou jcxg ýg ucog Ocppkpiøu õpö xcnwgu qh 20267 cpf 20262 hqt ejcppgnu cpf qxgtdcpmu tgurgevkxgn{0

EqcuvenJ {ftcwrke Cpcn{uku

Ctgcu qh eqcuvdpg uvdlgev vq uki pkhecpv y cxg cvcemctg tghgttgf vq cu eqcuvcnj ki j j c| ctf | qpgu0 Vj g WUCEG j cu guvcdrkuj gf vj g 502 hv0dtgcmkpi y cxg cu vj g etkgtkqp hqt kf gpvkh{kpi vj g nko kv qh eqcuvcnj ki j j c| ctf | qpgu *WUCEG. 3; 97+0 Vj g 502 hv0 y cxg j cu dggp f gvgto kpgf cu vj g o kpko vo ukl g y cxg ecr cdng qh ecvukpi o clqt f co ci g vq eqpxgpvkqpcny qqf htco g cpf dtkemxgpggt uvtvewtgu0

Hi wtg 5. õVtcpugev Uej go cvke.ö kmuut cvgu c r tqhkıg hqt c v{r kecn vtcpugev cmpi y kj y g ghlgevu qh gpgti { fkuukr cvkqp cpf tgi gpgtcvkqp qp c y cxg cu kv o qxgu kprcpf 0 Vj ku hi wtg uj qy u y g y cxg etguv grgxcvkqpu dgkpi f getgcugf d { qduvt wevkqpu. uwej cu dwkrf kpi u. xgi gvcvkqp. cpf tkukpi i tqwpf grgxcvkqpu. cpf dgkpi kpetgcugf d { qr gp. wpqduvt wevgf y kpf hgvej gu 0 Hki wtg 5 cmq kmuut cvgu y g tgrcvkqpu kr dgw ggp y g mecnuvkmy cvgt grgxcvkqp. y g i tqwpf r tqhkrg cpf y g mecvkqp qh y g \ qpg X I\ qpg C dqwpf ct { 0 Vj ku kprcpf rko kv qh y g eqcuvcnj ki j j c | ctf ctgc ku f grkpgcvgf vq gpuvtg y cv cf gs wcvg kpuwt cpeg t cvgu cr rn{ cpf cr r tqrt kcvg eqpuvt wevkqp uvcpf ctf u ctg ko r qugf. uj qwrf mecnci gpekgu r gto kvdwkrf kpi kp y ku eqcuvcnj ki j j c | ctf ctgc 0



Figure 3: Transect Schematic

Fggry cvgt y cxg ej ctcevgtkurkeu cuuqekcvgf vq y g 3/r gtegpv cppvcn ej cpeg uvqto y gtg fgxgrqrgf vukpi y g j vttkecpg rtgfkevkqp vgej pks vg hqt urqy n{ o qxkpi j wttlecpgu cu f guetkdgf kp vj g Uj qtg Rtqvgevkqp O cpwcn *WUCEG. 3; : 6+0 Vj g y cxg eqpf kkqpu ctg ecrewrcvgf dcugf qp j wttlecpg r ctco gvgtu uvej cu egpvtcn r tguuvtg f ghlekv. hqty ctf vtcpurcvkqp ur ggf. tcf kwu vq o czko wo y kpfu cpf o czko wo uwuvckpgf ur ggf 0 Kp r ctvkewrct hqt vj g J cy ckkcp Kurcpf u. J wttlecpg Kpknkøu r ctco gvgtu htqo vj g J WTFCV f cvcdcug *3; ; 4+ y gtg wkrkl gf hqt vj g cr r rkecvkqp qh vj g r tgf kevkqp vgej pks wg0 HGOC i wkf grkpgu hqt \ qpg X o cr r kpi f ghkpg H_s cu vj g uki pkhecpv y cxg j gki j v qt vj g cxgtci g qxgt vj g j ki j guv qpg vj ktf qh y cxgu cpf T_s cu vj g uki pkhecpv y cxg r gtkqf cuuqekcvgf y ky vj g uki pkhecpv y cxg j gki j v0 O gcp y cxg eqpf kkqpu ctg f guetkdgf cu<

$$\overline{H} ? H_s \times 20848$$

$$\overline{T} ? T_s \times 207$$

y j gt
g $\overline{H}\,$ ku vj g cxgtci g y cxg j gki j v qh cm y cxgu cp
f $\overline{T}\,$ ku vj g cxgtci g y cxg r gtkqf 0

Vjg vtcpugevu y gtg mecvgf y ký eqpukf gtcvk op i kxgp vq ýg rj {ukecn cpf ewnwtcn ej ctcevgt kuvkeu op vjg mcpf uq vjcvýg { y qwrf emugn{ tgr tgugpv eqpf kvk op u kp vjgkt mecrkv{0 Vtcpugevu y gtg ur cegf emug vqi gvjgt kp ctgcu op eqo r mz vqr qi tcr j { cpf fgpug fgxgm rogpv0 Kp ctgcu j cxkpi o qtg wpkh qto ej ctcevgt kuvkeu. vjg vtcpugevu y gtg ur cegf cv nct i gt kpvgt xcm0 Kv y cu cmq pgeguuct { vq mecvg vtcpugevu kp ctgcu y j gtg wpks wg hmq f kpi gz kuvgf cpf kp ctgcu y j gtg eqo r wgf y cxg j gki j vu xct kgf uki pkh kecpvn{ dgw ggp cf lcegpv vtcpugevu r cpgm y ky f gvck gf eqcuvch mq f kpi 0

Vjg vtcpugevrtqhkugu y gtg qdvckpgf wukpi dcy {o gvtke cpf vqrqitcrjke fcvc htqo xctkqwu uqwtegu0 Vjg i tgcvgt r ctv qh yjg dcyj {o gvtke f cvc ugv y cu eqo r tkugf qh 477 kpf kxkf wcnuwtxg{u PQCC PQUj {ftqi tcrj ke uwtxg{u. eqmgevgf htqo 3; 22 vq 42270 Uqwpf kpi u y gtg qtki kpcm{ kp y g o gcp rqy gt rqy y cvgt *O NNY +qt o gcp ny y cvgt *O NY + f cwo u0 Tgrcvkxg f cwo f khigtgpegu y gtg tgvtkgxgf hqt P QU y cvgt ngxgni ci gu kp vj g J cy ckkcp Kuncpf u. cpf cp cxgtci g eqpxgtukqp hcevqt y cu f gygto kpgf hqt gcej f cwo *202: o gygt *o +f get gcug htqo ONY vq ONNY. cpf 20 o kpetgcug kp f gr y htqo ONNY vq NVF+0 Vj g WUCEG Lqkpv Cktdqtpg NAFCT Dcy {o gvt { Vgej pkecn Egpvgt qh Gzr gtvkug *LCNDVEZ+ rtqxkf gf dcy {o gytke NKFCT hqt y g ukz kuncpf u. kpenwf kpi O cyk Eqwpy () u Mcj qqncy g. Ncpck O cwk cpf O qrqmck Kncpf u0 Vj ku f cvcugv y cu eqngevgf kp 3; ; ; cpf 4222. cpf rtqxkf gf j ki j/tguqnwkqp eqxgtci g qh y g pgctuj qtg dcyj {o gvt { uvttqwpf kpi y jg kuncpfu0 Fgry u y gtg cflwuwgf htqo y jg ONNY fcwo vq NVF cpf o gtigf y kj y g PQCC fcvcugv0 Vjg WUCEG J qpqnwnw Fknvtkev rtqxkfgf c 4226 j {ftqitcrjke uwtxg{ qh J qpqnwnw J ctdqt0 F gryju y gtg cflwuwgf htqo ONNY vq NVF cpf o gti gf kpvq vj g eqo r tgj gpukxg f cvcugv0 C 4226 o wnkdgco uwtxg{ qh Rgctn J ctdqt eqpf wevgf d{ y g WU0P cx{ y cu r tqxkf gf d{ y g PQCC P cvkqpcn I gqrj {ukecn Fcvc Egpvgt0 Fgryju y gtg eqpxgtvgf htqo ONNY vq NVF cpf o gti gf kpvq y g f cvcugv0 Qpeg cm f cvcugvu y gtg cuugo dngf. qxgtncrrkpi f cvc y cu tgo qxgf vq ngcxg y g dguvr quukdng f cvc kp y g pgctuj qtg ctgcu qh y g kuncpf u0 Vj g

vqr qi tcr j ke r qt vkqp qh y g vtcpugev r tqhkrgu y cu r qr vnc vgf htqo NkF CTO V j gug fcvc y gtg eqmgevgf hqt hrqqfrnckp o crr kpi crqpi y g uqwi gtp eqcuvu qh y g ukz kurcpfu. kpenvf kpi O cvk Eqwpv{)u Mcj qqrcy g. Ncpck O cvk cpf O qrqnck Kurcpfu. kpenvf gf kp y g uwuf { cpf gz vgpfu htqo y g u j qtgrkpg vq y g crrtqzko cvg 32 o gvgt eqpvqwt0 V j g NkF CT fcvc y gtg eqmgevgf kp Hcm qh 4228. r quv/r tqeguugf vq dctg gct y cpf s wcrkv{ eqpvtqmgf vq o ggv HGOC o crr kpi uvcpf ctf u0 NkF CT grgxcvkqpu y gtg f grkxgtgf kp NVF. y gtg hqtg pq eqpxgtukqp y cu pgeguuct {0

Dgcej gtqukqp y cu crrnkgf cu rgt uxcpfctf HGOC *4225+ cpf HGOC *4229+ I wkf gnkpgu cpf Urgekhkecvkqpu hqt Hnqqf J c| ctf O crrkpi Rctvpgtu o gy qf qnqi { cpf XG \ qpgu y gtg o crrgf wr vq y g gz vgpvqh y g Rtko ct { HtqpvcnF wpg *RHF +0

P gctuj qtg y cxg/kpf wegf rtqeguugu. uwej cu y cxg ugwar cpf y cxg twpwr. eqpuxkwwg c i tgcvgt r ctv qh y g eqo dkpgf y cxg gpxgnqrg y cp uvqto uwti g f wg vq y g kuncpf uø j ki j enkhu cpf mecvkqp gzr qugf vq qegcp y cxgu0 Hqt y ku r ctvkewact gpxktqpo gpv. y g F ktgev Kpvgi tcvgf O gy qf *HGO C. 4229+y cu wugf vq f gvgto kpg y cxg ugwar cnqpi y g eqcuvrkpg0

Qhhuj qtg eqtcntgghu uwttqwpf J cy ckk rtqf wekpi mecnk gf xctkcvkqp kp y cxg ugwr xcnwgu0 C o qf khkgf y cxg ugwr crrtqcej y cu crrhgf kp mecvkqpu y j gtg tgghu gz vgpf cdqxg y g dtgcmkpi f gr y qh y g kpekf gpvy cxg j gki j v0Vj g etkwytkqp crrhgf y cu dcugf wrqp y g o gy qf qmi { qwnkpgf d{ I qwtm{ *3; ; 8+0

Y cxg j gki j vecnewacykąp wugf kp y ku uwaf { hqnnqy u y g o gy qfqnqi { fguetkdgf kp y g HGOC *4225+cpf y g HGOC *4229+I wkfgnkpgu cpf Ur gekhkecykqpu hqt Hnqqf J c| ctf O crr kpi Rctypgtu0

TWP WR 402 y cu wugf vq rtgf lev y cxg twpwr xcnwg qp pcwtcnuj qtg y gp cf lwugf vq hqmqy y g HGOC *4227+õRtqegf wtg O go qtcpf wo P q059ö y cv tgeqo o gpf u y g wug qh y g 4' y cxg twpwr hqt fgvgto kpkpi dcug hmqqf grgxcvkqpu0 Hqt uvggr enkhu cpf kp ctgcu f qo kpcvgf d{ eqtcntgghu. y cxg twpwr y cu fgvgto kpgf wukpi y g Vgej plecn Cf xkuqt{ Eqo o kwgg hqt Y cvgt Tgvclpkpi Utvwewtgu *VCY + o gy qf *xcp f gt O ggt. 4224+0 Kp rtgugpeg qh uj qtg/rtqvgevkqp utwewtgu. y cxg twpwr ecrewacvkqpu y gtg eqo r wgf wukpi y g cr rtqrtkcvg tqwi j pguu eqghhlekgpv hqt y g utwewtg0 Vj g Uj qtg Rtqvgevkqp O cpwcn *URO + O gy qf y cu cr rnkgf kp ecugu qh y cxg twpwr qp xgtvlecn utwewtgu0 Hqt y cxg twp/wr cv y g etguv qh c umqrg y cv tcpukklqpu vq c rrcvgcw qt f qy punqrg. twp/wr xcnwgu y gtg fgvgto kpgf wukpi y g $6O C \times 4225+ cpf y g HGO C \times 4229+ I wkf gnkpgu cpf Urgekhlecvkqpu hqt Hmqqf J c| ctf O cr r kpi Rctvpgtu0$

Hi wtg 6. õVtcpugev Nqecvkqp O cr.ö kmuutcvgu ýg mecvkqp qh gcej vtcpugev cmpi y j kej ýg eqcuvcn cpcn{uku j cxg dggp r gthqto gf y kj kp ýg j wttkecpg uwuf { ctgc dqwpf ctlgu0 Cmpi gcej vtcpugev. y cxg gpxgmr gu y gtg eqo r wgf eqpukf gtkpi ýg eqo dkpgf ghbgeu qh ej cpi gu kp i tqwpf gngxcvkqp. xgi gvcvkqp cpf r j {ukecnbgcwtgu0 Dgw ggp vtcpugevu. gngxcvkqpu y gtg kpvgtr qncvgf wukpi vqr qi tcr j ke o cr u. ncpf/wug cpf ncpf/eqxgt fcvc. cpf gpi kpggtkpi lwfio gpv vq fgvgto kpg yjg cgtkcn gz vgpv qh hrqqf kpi 0 Vjg tguwnu qh yjg ecnewncvkqpu ctg ceewtcvg wpvkngkj gt mecn vqr qi tcr j {. xgi gvcvkqp. qt ewnwtcn fgxgnqr o gpv y kj kp yjg eqo o wpkv{ wpfgti q o clqt ej cpi gu0 Hqt yjg 422; Kncpf qh Ncpck uwpco k tkum uwwf{ *htqo Mcwo cncr cw J ctdqt qp yjg y guv eqcuv enqemy kug ctqwpf vq O cpgrg Dc{+ cp cff kkqpcn Ncpck Kncpf vtcpugev mecvkqp o cr uj qy u dqy yjg uwpco k vtcpugev twpwr cpcn{uku cpf tgur gevkxg uwpco k keqghikekgpvmecvkqpu0

Vj g vtcpugev f cvc hqt Ncpck O cvk (O qrqnrck Kurcpf u ctg r tgugpvgf kp Vcdrg 8. õVtcpugev F guetkr kqpu.ö y j kej f guetkdgu vj g rqecvkqp qh gcej vtcpugev0 Kp cf f kkqp. Vcdrg 8 r tqxkf gu vj g 3/r gtegpv cppvcnej cpeg uvkny cvgt. y cxg ugwr cpf o czko wo y cxg etguv grgxcvkqpu hqt gcej vtcpugev crqpi vj g kurcpf eqcuvkpg0 Kp Vcdrg 9. õVtcpugev F cvc.ö vj g hrqqf j c| ctf | qpg cpf dcug hrqqf grgxcvkqpu hqt gcej vcpugev hrqqf kpi uqwteg ku r tqxkf gf. crqpi y ky vj g 32/. 4/. 3/. cpf 204/r gtegpv cppvcn ej cpeg uvkny cvgt grgxcvkqpu hqt vj g tgur gevkxg hrqqf kpi uqwteg0 Hqt vj g 422; Kurcpf qh Ncpck uwpco k tkum uwwf {. vj gtg ctg ugr ctcvg uwpco k vtcpugev rqecvkqp kphqto cvkqp r tgugpvgf kp Vcdrg : . õVuwpco k Vtcpugev Nqecvkqpu.ö y j kej r tqxkf gu vj g dgi kppkpi cpf gpf kpi eqqtf kpcvgu. cpf rgpi vj qhgcej vtcpugev r tqhkrg wugf kp vj g uwpco k twpwr cpcn{ugu0 Kp Vcdrg ; . õVuwpco k Vtcpugev F cvc.ö vj g vchrg r tqxkf gu c ugr ctcvg vtcpugev f cvc uwo o ct { qh vj g tguwnu hqt vj g f gvckrgf uwpco k twpwr cpcn{uku y kyj o czko wo 3/r gtegpv cppwcnej cpeg twpwr grgxcvkqpu hqt gcej vtcpugev.cmpi y kyj vtcpugevuwpco keqghhekgpvxcnwgu *C (D+0

Hqt O cwk cpf O qnqmck Kurcpfu. rtgxkqwu o crrkpi qh ýg uwpco k j c| ctf y cu o gti gf y ký ýg f gvckgf j wttkecpg eqcuvcnj c| ctf uwwf { kp ý ku tgxkukqp0 Vj ku y cu ceeqo rnkuj gf d{ eqo rctkpi ýg | qpg v{rg. dcug hnqdf gngxcvkqp. cpf kpncpf hnqdf kpi gz vgpv qh eqkpekf gpv uwpco k cpf j wttkecpg uvqto uwti g j c| ctf u0 Vj g j ki j gt qh ýg w q gngxcvkqpu y cu tgvckpgf cpf rtgugpvgf qp ýg Hnqdf Kpuvtcpeg Tcvg O cr 0 Kakp c uwpco kj c| ctf/f qo kpcvgf ctgc. ýg kpncpf nko kvqh ýg j wttkecpg uvqto uwti g hnqdf kpi gz vgpf u hwtýgt ncpf y ctf ýc p ýg uwpco k j c| ctf. ýg uwpco k dcug hnqdf gngxcvkqp ku uj qy p cpf ýg hnqdf kpi gz vgpv ku gz vgpf gf vq y j gtg ýg j wttkecpg j c| ctf ku o crrgf 0 Vj ku ku vq tghngev ýg kpetgcugf j c| ctf i gpgtcvgf d{ ýg wug qh wr f cvgf vqr qi tcr j ke f cvc0Vj g XG \ qpg y cu gz vgpf gf cpf o crrgf vq ýg kpncpf nko kv qh ýg Rtko ct{ Htqpvn F wpg hqt dqý uwpco k cpf j wttkecpg j c| ctf u0 Kp ecugu y j gtg gngxcvkqpu y gtg uko krct. gpi kpggtkpi lwfi o gpv y cu crrnkgf vq hcektkscy ýg o quvcrrt qrtkcvg tgrtgugpvckqp qh ýg j ki j gt j c| ctf 0

Wugtu qh ý g HKTO uj qwrf cnuq dg cy ctg ý cveqcuvcnhrqqf grgxcvkqpu ctg r tqxkf gf kp Vcdng 6. õUwo o ct{ qh Eqcuvcn Uvkmy cvgt Grgxcvkqpuö kp ý ku tgrqtv0 Kh ý g grgxcvkqp qp ý g HKTO ku j ki j gt ý cp ý g grgxcvkqp uj qy p kp ý ku vcdng. c y cxg j gki j v. y cxg twpwr. cpf kqt y cxg ugwr eqo r qpgpvrkngn{ gz kuvu. kp y j kej ecug. ý g j ki j gt grgxcvkqp uj qwrf dg wugf hqt eqpuvtwevkqp cpf kqt hrqqfrnckp o cpci go gpv r wtr qugu0 Cu f ghkpgf kp y g Lwn{ 3; :; Guidelines and Specifications for Wave Elevation Determination and V Zone Mapping, y g eqcuvcn j ki j j c | ctf ctgc * qpg XG+ ku y g ctgc y j gtg y cxg cevkqp cpf lqt j ki j xgmqek { y cvgt ecp ecwug utwewtcn f co ci g *Guidelines and Specifications for Wave Elevation Determination and V-Zone Mapping. HGO C. 3; : ; +0 Kv ku f guki pcvgf qp y g HKTO cu y g o quvrepf y ctf qh y g hqmqy kpi y tgg r qkpw<

- 3+ Vj g r qkpvy j gtg y g 502 hvqt i tgcvgt y cxg j gki j veqwrf qeewt=
- 4+ Vjgrqkpvyjgtg vjggtqfgfitqwpfrtqhkng ku 502 hvqtoqtgdgnqy vjg oczkowo twpwrgngxcvkqp=cpf
- 5+ Vjgrtko ct{ htqpvcnf wpg cu f ghkpgf kp vjg P HKR tgi wrcvkqpu0

Vjgug ýtgg rqkpvu ctg wugf vq nqecvg ýg kprcpf nko kvqh ýg eqcuvcnjkij jc| ctf ctgc vq gpuwtg ýcv cfgs wcvg kpuwtcpeg tcvgu crrn{ cpf crrtqrtkcvg eqpuvtwevkqp uvcpf ctfu ctg korqugf. uj qwrf nqecnci gpekgu rgto kvdwkrfkpi kp ýku ctgc0














TABLE 6: TRANSECT DESCRIPTIONS[†] ISLAND OF MOLOKAI

		Elevation (feet Local Tidal Datum)		
Transect	Location	1-Percent Annual Chance Stillwater	Wave Setup	Maximum 1-Percent Annual Chance Wave Crest
3	Qp yig Rcektke Qegcp eqcuvok pg. qp yig pqtyiy guvuk fg qh yig kuncpf.crrtqzko cvgn {4058 okngu pqtyi pqtyiy guvqh yig kovgtugevk qp qh Nkq Rnceg cpf Mcmccmq Tqcf.mqecvgf pgct Kokq Rqkov.cvP 430443666Å Y 3790479:38Å0	302	706	3504 ³
4	Qp yjg Rcekhle Qegcp eqcuvrkpg. qp yjg PY ukfg qh yjg kurcpf. crrtqzko cvgn{ 3072 o krgu PPY qh yjg kpvgtugevkqp qh Mcnwc Mqk Tqcf cpf Mcmccmq Tqcf. rqecvgf pqtyj qh Mgr wjk cvP 430432589Å Y 3790473; 67Å0	308	606	320 ³
5	Qp y g Rcekhe Qegcp eqcuvkpg. qp y g pqty y guv ukf g qh y g kurcpf. crrtqzko cvgn{20679 o krgu y guv qh y g kpvgtugevkqp qh Mcnwc Mqk Tqcf cpf Mckcmc Tqcf. mecvgf kp Mgr w k cvP 4308: 743: Å Y 379046; 333Å0	303	605	: 0 ³
6	Qp y g Rcekhe Qegcp eqcuvkpg. qp y g pqty y guv ukf g qh y g kurcpf. crrtqzko cvgn{20.89 o krgu uqwy y guv qh y g kpvgtugevkqp qh Mcnwc Mqk Tqcf cpf Rc Nqc Nqqr. mecvgf kp Y ci krcwi wg. cvP 43088: 8: 5Å Y 379047: 59: Å0	303	607	320 ⁷³
7	Qp y g Rcekhe Qegcp eqcuvkpg. qp y g pqty y guv ukf g qh y g kurcpf. crrtqzko cvgn{;82 hggv pqty y guv qh y g kpvgtugevkqp qh Mwrcy ck Rrceg cpf Mcwrc Kik Y {. mecvgf pgct Rww.Mack cvP 43087: 546Å Y 3790497325Å0	303	609	: 0
8	Qp y g Rcekhe Qegcp eqcuvlpg. qp y g pqty y guv ukf g qh y g kurcpf. crrtqzko cvgn{ 20648 o krgu uqwy y guv qh y g kpvgtugevlqp qh Rqj cmwqc Tqcf cpf Mwrcy ck Nqqr. mecvgf pqty gh Mcwpcrc Dc{. cvP 4308633; 7Å Y 37904; ; 244Å0	303	607	: (7/
9	Qp y g Rcekhe Qegcp eqcuvkpg. qp y g pqty y guv ukf g qh y g kurcpf. cr r tqzko cvgn{ 3.: 32 hggv pqty y guv qh Mcwr qc *grgxcvkqp 4: hggv Nqecn Vkf cn F cwo +. cv P 430854775Å Y 37904; 88; 5Å)	303	60,	; 03
:	Qp yig Rcekhe Qegcp eqcuvlepg. qp yig pqtyjyguvukfg qh yig kuncpf. crrtqzko cygn{ 3023 o kngu pqtyj pqtyjgcuv qh Eqcuv I wctf Dgceqp pgct Nccw rqkpv. mqecygf cv Mco cmckrq. cvP 430836534ÅY 3790522; Å0	303	605	: 04
;	Qp y g Rcekhe Qegcp eqcuvlpg. qp y g y guv ukf g qh y g kurcpf. crrtqzko cvgn 205; 2 o krgu pqt y y guv qh c Eqcuv I wctf dgceqp. mecvgf cv y g Eqcuv I wctf Tgugtxcvkqp cv NccwRqkpv. cvP 430823837Å Y 3790532463Å0	302	703	; 05

 $^{\ddot{A}}$ Cm grgxcvkqpu tghgev y g j wttkecpg uwti g j c| ctf qpn{0 Vuwpco k j c| ctf u o c{ f qo kpcvg kp egtvckp ctgcu0 3 Y cxg twpwr grgxcvkqp

TABLE 6: TRANSECT DESCRIPTIONS^{\dagger}, CONTINUED

		Elevation (feet Local Tidal Datum)		
Transect	Location	1-Percent Annual Chance Stillwater	Wave Setup	Maximum 1-Percent Annual Chance Wave Crest ³
32	Qp yig Rcelthe Qegcp eqcuvtkpg. qp yig uqwiy guv ukfg qh yig kuncpf.crrtqzko cvgn{ 20827 o krgu uqwijgcuv qh c Eqcuv I wctf dgceqp.rqecvgf gcuv qh yig EqcuvI wctf Tgugtxcvkqp cvNccw Rqkpv.cvP 4302;5496Å Y 37904;:684Å0	308	605	: 05
33	Qp vj g Rcekhe Qegcp eqcuvleg. qp vj g uqwj y guv ukf g qh vj g kurcpf. crrtqzko cvgn $\{3028 \text{ o krgu gcuv uqwj gcuv qh c}$ Eqcuv I wctf dgceqp. rqecvgf gcuv qh vj g Eqcuv I wctf Tgugtxcvkqp cv Nccw Rqkpv. cv P 4302; 5876Å Y 37904: ; 757Å0	304	603	: 02
34	Qp yig Rcekhe Qegcp eqcuvkpg. qp yig uqwijyguvukfg qh yig kuncpf. crrtqzkocvgn{ 3036 o kngu yguv pqtyjyguv qh J cnganapa Rakov, cvP 4302; 2629ÅY 379048; : 79Å0	304	604	: 05
35	Qp y g Rcekhe Qegcp eqcuvlpg. qp y g uqwj y guv ukf g qh y g kurcpf. crrtqzko cvgn $\{206:: 0 \text{ krgu pqt y} \text{ pqt y} \text{ ygv qh} \}$ J crgqrupq Rqkov cvP 4302:: 8; Å Y 379047:: 64Å0	308	704	; 0
36	Qp yig Rcekhe Qegcp eqcuvleg. qp yig uqwiy guv ukfg qh yig kuncpf. crrtqzko cvgn{ $205:$; o krgu uqwijgcuv qh yig pqtyjgtpo quv xgtvgz kp c j gct $\sqrt{10}$ cr gf cuugo dreig qh vtckru vq yig pqtyj qh Nqpq J ctdqt. cv P 4302: 825; Å Y 3790467644Å0	304	605	: 06
37	Qp yjg Rcekhle Qegcp eqcuvrklog. qp yjg uqwyjyguvukfg qh yjg kuncpf. crrtqzko cvgn{3.;:2 hggv gcuvuqwyjgcuvqh c ycvgt vcpm mqecvgf kp J cngpc. cv P 4302:;297Å Y 379044838;Å0	304	604	: 05
38	Qp yjg Rcekhke Qegcp eqcuvnkpg. qp yjg uqwjyguvukfg qh yjg kuncpf.crrtqzkocvgn{492 hggvuqwjuqwjyguvqh yjg rqkpvyjgtg yjg uvtgco qh Qpqrcncpk Iwnej etquugu Ngg Ujqtg Tqcf.cvP 4302;2694ÅY 37908;9395Å0	304	604	: 05
39	Qp y g Rcekhe Qegcp eqcuvkpg. qp y g uqwj y guv ukf g qh y g kurcpf. crrtqzko cvgn{ 8: 2 hggv uqwj uqwj gcuv qh y g rqkpv y j gtg y g uvtgco qh Y ckcncpg I wrej etquugu Ngg U qtg Tqcf. cvP 4302; 4523Å Y 379088763: Å0	304	702	; 08
3:	Qp yjg Rcekhle Qegcp eqcuvdpg. qp yjg uqwjyguvuldg qh yjg kuncpf.crrtqzkocvgn{3.592 hggvgcuvqh yjg rqkpvyjgtg yjg uvtgco qh Mwmwmw I wnej etquugu Ngg Ujqtg Tqcf.cvP 4302;52:6Å Y 379066859;Å0	304	703	; 08

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^ACmgrgxcvkqpu tghgevý g j wtlecpg uwti g j c| ctf qpn $\{0 \text{ Vuwpco kj c} | \text{ ctf u o c} \{ \text{ f qo kpcvg kp egtvckp ctgcu} 0 \}$

		Elevation (feet Local Tidal Datum)			
Transect	Location	1-Percent Annual Chance Stillwater	Wave Setup	Maximum 1-Percent Annual Chance Wave Crest ³	
3;	Qp yig Rcelkhe Qegcp eqcuvolog. qp yig uqwijyguvulofg qh yig kuncpf.crrtqzkocvgn{20862 okngu uqwijyguvqh Rww Kaqnk *rgcm+.nqecvgf cv Rcnocpcnoc Hkujrqpf.cv P 4302;:246ÅY 3790845468Å0	305	703	; 0	
42	Qp yjg Rcekhke Qegcp eqcuvrkpg. qp yjg uqwjyguvukfg qh yjg kuncpf. crrtqzko cvgn{20; 8 o kngu uqwj uqwjyguv qh yjg rworkpi uvcvkqp pgct Rencew J qo guvgefu. nqeevgf kp Rencew cvP 430823953ÅY 37902; 7; 47Å0	306	703	3202	
43	Qp yjg Rcekhke Qegcp eqcuvklpg. qp yjg uqwjyguvukfg qh yjg kuncpf. crrtqzko cwgn{ 3059 o krgu uqwjyguv qh yjg kpvgtugevkqp qh O cwpcrqc J kijyc{ *J kijyc{ 682+ cpf J qcyc Tqcf. rqecvgf yguv qh Wo krcc. cv P 4302;; 4Å Y 379029373; Å0	306	60	; 07	
44	Qp yjg Rcekhe Qegcp eqcuvlpg. qp yjg uqwjyguvuldg qh yjg kurcpf. crrtqzko cygn{ 3.992 hggv uqwjyguv qh yjg kpygtugevlqp J qcyc Tqcf cpf Mcjcpw Cxg. mecvgf kp Mcrcpkcpcarg Earup{, cvP 4302; 9263Å Y 3790272; 64Å0	305	706	3205	
45	Qp y g Rcekthe Qegcp eqcuvtkpg. qp y g uqwj y guv ukf g qh y g kurcpf. crrtqzko cvgn{ 3.922 hggv Y P Y qh y g kpvgtugevkqp qh O cwpcrqc J ki j y c{ *J ki j y c{ 682+ cpf O cpkrc Rrceg. rqecvgf kp Mcrcpkcpcqrg Eqrqp{. cv P 4302; 73; 7Å Y 379025765; Å0	306	702	; 0	
46	Qp y g Rcelthe Qegcp eqcuvlpg. qp y g uqwj y guv ukf g qh y g kurcpf. crrtqzko cvgn{ 3.342 hggv uqwj y guv qh y g kpvgtugevlqp qh O cwpcrqc J ki j y c{ *J ki j y c{ 682+ cpf Mcwpcrncnck Rrceg. rqecvgf kp Mcwpcrncnck cvP 4302: 938Å Y 3790246983Å0	304	702	; 08	
47	Qp yjg Rcekhe Qegcp eqcuvleps. qp yjg uqwjyguvul fg qh yjg kuncpf. crrtqzko cygn{ 882 hggv uqwjyguv qh yjg gcuvgtpo quvkpygtugevlqp qh yguv Mco gj co gj c X J kijyc{ cpf Mcrccngc Nqqr. mecvgf kp cdqwwokfyc{ dgw ggp Mcokqnqc cpf Mcwpcnncnck cv P 4302: 3: 5: Å Y 379022; 663Å0	304	808	3402	
48	Qp yjg Rcekhke Qegcp eqcuvnkpg. qp yjg uqwyjyguvukfg qh yjg kuncpf.crrtqzkocygn{492 hggvuqwyjqh yjg kpygtugevkqp qh yguv Mcogj cogj c X J kijyc{cpf Rcpq Rnceg. m,ecygf kp Mcokmungc.cvP 43029858;ÅY 3780;::588Å0	304	702	; 08	

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 ${}^{\ddot{A}}Cmgngxckqputghgev y g j wttkecpg uwti g j c| ctf qpn{0 Vuwpco k j c| ctf u o c{ f qo kpcvg kp egtvckp ctgcu0 } {}^{3}Y cxg twpwr gngxckqp$

		Elevation (feet Local Tidal Datum)		
Transect	Location	1-Percent Annual Chance Stillwater	Wave Setup	Maximum 1-Percent Annual Chance Wave Crest ³
49	Qp yjg Rcekhke Qegcp eqcuvnkog. qp yjg uqwjyguvukfg qh yjg kuncpf. crrtqzkocvgn{20747 okngu yguvpqtyjyguvqh yjg kovgtugevkqp qh gcuv Mcogjcogjc X Jkijyc{ cpf Whwcpwk mqecvgf kp Mcygnc. cv P 43028:634Å Y 3780,85;77Å0	304	707	3204
4:	Qp yjg Rcekhle Qegcp eqcuvlopg. qp yjg uqwjyguvulofg qh yjg kuncpf. crrtqzko cvgn{ 3.322 hggvgcuvuqwjgcuvqh yjg kpvgtugevlqp qh gcuv Mcogjcogjc X J kijyc{ cpf Qpkqpk Ftkxg. nqecvgf cv Mcncjckc Pcvkqpcn Y knfnkhg Tghwig. cv P 4302848:: Å Y 3780, 63658Å0	304	608	: 0
4;	Qp yjg Rcekhle Qegcp eqcuvrkpg. qp yjg uqwjyguvukfg qh yjg kuncpf. crrtqzko cvgn{ 3095 o kngu gcuvuqwjgcuvqh yjg kpvgtugevkqp qh gcuv Mcogj cogj c X J kijyc{ cpf Qpkqpk Ftkxg. nqecvgf cvRcpcj cj c Hkujrqpf. cvP 43027; 727Å Y 3780, 4337: Å0	304	608	; 02
52	Qp yjg Rcekhle Qegcp eqcuvrløg. qp yjg uqwjyguvuldfg qh yjg kurcpf. crrtqzko cvgn{3.;62 hggv uqwjgcuv qh yjg kpvgtugevlqp qh gcuv Mcogj cogj c X J kijyc{ cpf c vtckn yjcv ngcfu wr Ckmqqnwc I wrej. nqecvgf cv Mcocj wgj wg Hkuir qpf. cvP 430273749Å Y 3780 : 3:23Å0	304	704	; 09
53	Qp yig Rcekhe Qegcp eqcuvkpg. qp yig uqwj ukfg qh yig kurcpf. crrtqzko cygn{ 432 hggv uqwj yguv qh yig kpygtugevkqp qh gcuv Mco gj co gj c X J kij y c{ cpf c tqcf yj cv twpu yigpeg pqt yi yi cv qpg gpeqwpygtu lwuv dghqtg yig ; 2Ådgpf kprcpf cu qpg vtcxgnu gcuv yi tqwi j Mco crq qp yig J kij y c{. cvP 430268; : 6Å Y 3780 98464Å0	308	707	3204
54	Qp yig Rcekhke Qegcp eqcuvrkpg. qp yig uqwijgcuvukfg qh yig kurcpf.crrtqzko cygn{ 3.892 hggvuqwijy guvqh cy cygt vcpm ; 92 hggv qpujqtg htqo Mgcy cpwk Hkujrqpf.nqecygf cdqw o kfy c{ dgw ggp Whcrwg cpf Mco cnq.cvP 430278494Å Y 3780 77:: Å0	304	706	3204
55	Qp y g Rcektke Qegcp eqcuvrkpg. qp y g uqwj gcuvukf g qh y g kurcpf. crrtqzko cvgn{2065; o krgu uqwj y guv qh y g r qkpv y j gtg Mcnwccj c Dtkfig etquugu c uvtgco. mjecvgf kp Wener wg cv Wener wg Hkuj r qpf. cv P 4302823: 4Å Y 3780 53586Å0	305	708	3208

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^{\ddot{A}}Cmgrgxcvkqpu tghgev y g j wttkecpg uwti g j c| ctf qpn{0 Vuwpco k j c| ctf u o c{ f qo kpcvg kp egtvckp ctgcu0 ³Y cxg twpwr grgxcvkqp

		Flevation (feet Local Tidal Datum)			
Transect	Location	1-Percent		Maximum 1-Percent	
		Annual Chance Stillwater	wave Setup	Wave Crest ³	
56	Qp yig Rcekhe Qegcp eqcuvnkpg. qp yig uqwjgcuvuk fg qh yig kuncpf. crrtqzko cvgn{852 hggv gcuv pqt yig cuv qh yig rqkpv y jgtg gcuv Mcogj cogj c X J kijy c{etquugu yig uvtgco yi cvf tckpu kpvq P kcwrcnc Hkujrqpf. nqecvgf kp Mcnwccj c. cv P 430289766Å Y 3780 36:35Å0	304	706	3204	
57	Qp yjg Rcekhke Qegcp eqcuvnkpg. qp yjg uqwjgcuvuk fg qh yjg kuncpf.crrtqzkocvgn {942 hggvuqwjuqwjgcuvqh yjg rqkpv yjgtg gcuv Mcogjcogjc X Jkijyc {etquugu cuvtgco. mqecvgf kp Rwmqq.cvP 4302938ÅY 37809;6;:6Å0	304	70	3209	
58	Qp yjg Rcekhke Qegcp eqcuvnkpg. qp yjg uqwyjgcuvukfg qh yjg kuncpf. crrtqzko cygn{ 2065: o krgu gcuv pqtyjgcuv qh Kqpqo wpk Dtkfig. nqecygf kp Rcwy cnw. cvP 4302: 8976Å Y 3780994; 5; Å0	304	60	; 04	
59	Qp yjg Rcekhke Qegcp eqcuvnkpg. qp yjg uqwjgcuvukfg qh yjg kuncpf. crrtqzko cygn{ 4:2 hggv uqwjgcuv qh c ejwtej. nqecygf kp Y cncnwc. cvP 4302; 9:93Å Y 3780978883Å0	304	702	; 07	
5:	Qp yj g Rcektke Qegcp eqcuvtkpg. qp yj g uqwj gcuvukf g qh yj g kurcpf. crrtqzko cvgn{882 hggv uqwj qh c y cvgt vcpm mqecvgf cdqww 307 o krgu pqtyj gcuv qh Y crcnwc. cv P 4308328; 8Å Y 3780967274Å0	304	706	3208	
5;	Qp yj g Rcektke Qegcp eqcuvtkpg. qp yj g uqwj gcuvukf g qh yj g kurcpf. crrtqzko cwgn{: 72 hggvuqwj gcuvqh yj g rqkpvy j gtg gcuv Mco gj co gj c X J ki j y c{ etquugu c uvtgco kp c j cktrkp wtp. nqecvgf cdqw 3.672 hggv pqt yj gcuv qh Mckrwnownwc I wrej. cvP 43033966; Å Y 37809563; ; Å0	308	6 ()	: 0	
62	Qp ý g Rcekhe Qegcp eqcurhog. qp ý g uqwj gcuvulá g qh ý g kurcpf. crrtqzko cvgn{ 3.672 hggv gcuv uqwj gcuv qh c y cvgt vcpm kpulá g c dgpf kp gcuv Mco gj co gj c X J ki j y c{. mqecvgf pgct Rwpqnj k cvP 430848329Å Y 378094; 685Å0	308	605	: 06	
63	Qp y g Rcekthe Qegcp eqcuvtkpg. qp y g uqwj gcuvukf g qh y g kurcpf. crrtqzko cvgn{2095 o krgu. gcuv pqty gcuv qh y g gcuv gpf qh y g rcpf kpi uvtkr pgct J qmw. mecvgf pgct Rwwnqc. cvP 43085::; 5Å Y 378093954: Å0	308	606	: 07	
64	Qp yjg Rcekhke Qegcp eqcuvnkpg. qp yjg gcuvukfg qh yjg kurcpf. crrtqzko cvgn{308: o kngu gcuv qh yjg pqtyjgtp gpf qh gcuv Mco gj co gj c X J kijy c{. mjecvgf cvEcrg J crcy c. cvP 43087: 849Å Y 378093252: Å0	302	609	; 06 ³	

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^ACmgrgxcvkqpu tghgev ý g j wtlecpg uwti g j c| ctf qpn{0 Vuwpco kj c| ctf u o c{ f qo kpcvg kp egtvckp ctgcu0 ³Y cxg twpwr grgxcvkqp

		Elevation (feet Local Tidal Datum) Maximum		
Fransect	Location	1-Percent Annual Chance Stillwater	Wave Setup	1-Percent Annual Chance Wave Crest ³
65	Qp yig Rcekhke Qegcp eqcuvrkpg. qp yig y guvuk fg qh yig kuncpf.crrtqzko cvgn{3.342 hggvpqtyjgcuvqh Mcwo cncrcw Nkijv *cv c Eqcuv I wctf Tgugtxcvkqp+.mqecvgf cv Mcwo cncrcw.cvP 4209:729; Å Y 3780; :; 464Å0	302	702	43@ ³
66	Qp yjg Rcekhle Qegcp eqcuvrløg. qp yjg yguvuldfg qh yjg kurcpf.crrtqzkocvgn{303; okrgu yguvpqtyjyguvqhctcfkq dgceqp *yjkej ku ruqecvgf 3 okrg kprcpf.okfyc{dgw ggp wq Eqcuv I wctf Tgugtxcvkqpu+.cv P 42098;8:4Å Y 3780:86;Å0	308	60	36 6 ³
67	Qp vjg Rcekhke Qegcp eqcuvrkpg. qp vjg y guv ukfg qh vjg kuncpf. crrtqzko cvgn{3038 o kngu uqwj uqwj y guv qh c tcfkq dgceqp *y j kej ku nqecvgf 3 o kng kpncpf. o kfy c{ dgw ggp w q Eqcuv I wctf Tgugtxcvkqpu+. cv P 42097273Å Y 3780, 9; 26: Å0	302	703	34Q ³
68	Qp yjg Rcekhle Qegcp eqcuvrkpg. qp yjg y guv ukfg qh yjg kurcpf. crrtqzko cvgn{207:7 o krgu pqtyj pqtyjy guv qh yjg nki j yj qwug cv Rcrcqc Rqkpv*cvyjg EqcuvI vctf Tgugtxcvkqp cv yjg uqwyjy guv eqtpgt qh yjg kurcpf+. nqecvgf kp Mcwpqnw cvP 42096253: Å Y 3780, 89; 49Å0	308	704	59Q ³
69	Qp yjg Rcektle Qegcp eqcuvrkpg. qp yjg uqwj ukfg qh yjg kurcpf. crrtqzko cygn{ 2085; o krgu gcuv qh yjg rki j yjqwug cv Rcrcqc Rqkpv *cv yjg Eqcuv I wctf Tgugtxcykqp cv yjg uqwj y guveqtpgt qh yjg kurcpf + rqecygf pgct Mcwpqnw. cvP 420955; 43Å Y 3780; 77549Å0	303	60	;03
6:	Qp yjg Rcektke Qegcp eqcuvrkpg. qp yjg uqwj ukfg qh yjg kurcpf. crrtqzko cvgn{ 4056 o krgu y guv uqwj y guv qh yjg kpvgtugevkqp qh O cpgrg Tqcf cpf O cpgrg J ctdqt Tqcf. rqecvgf y guv qh Rqøqrqøq *kurcpf+ cv P 4209569;;Å Y 3780,47694Å0	303	806	76 B ³
6;	Qp yjg Rcektke Qegcp eqcuvrkpg. qp yjg uqwj ukfg qh yjg kurcpf. crrtqzko cvgn{3066 o krgu y guv uqwj y guv qh yjg kpvgtugevkqp qh O cpgrg Tqcf cpf O cpgrg J ctdqt Tqcf. rqecvgf cdqwv 207 o krgu gcuv qh J vcy ck Dc{. cv P 420959569Å Y 3780, 33: 36Å0	308	7Œ	3803 ³

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 ${}^{\ddot{A}}Cmgngxcxkqputghgevyig jwttlecpguwtig jc|ctfqpn{0 Vuwpcokjc|ctfuoc{fqokpcvgkpegtvckpctgcu0}^{3}Y cxgtwpwrgngxcxkqp$

		Elevation (feet Local Tidal Datum)		
Transect	Location	1-Percent Annual Chance Stillwater	Wave Setup	Maximum 1-Percent Annual Chance Wave Crest
72	Qp yig Rcektke Qegcp eqcuvrkpg. qp yig uqwyi ukfg qh yig kurcpf. crrtqzko cvgn{ 20722 o krgu y guv uqwyi y guv qh yig kpvgtugevkqp qh O cpgrg Tqcf cpf O cpgrg J ctdqt Tqcf. mqcvgf dgwy ggp Mcrkjc Dc{ cpf J wrqrqg Dc{. cv P 42095: 6: 5Å Y 3780: 956: Å0	308	702	420 ³
73	Qp ýg Rcektke Qegcp eqcuvrkpg. qp ýg uqwj ukfg qh ýg kurcpf. crrtqzko cvgn{ 3.7:2 hggv uqwj yguv qh ýg kpvgtugevkqp qh O cpgng Tqcf cpf O cpgng J ctdqt Tqcf. mecvgf cvJ wnqng Dc{. cvP 42095: ; 89Å Y 3780 ; 5728Å0	308	606	3208 ³
74	Qp y g Rcektke Qegcp eqcuvtkpg. qp y g uqwj ukf g qh y g kurcpf. crrtqzko cvgn{ 3.: 22 hggv uqwj gcuv qh y g kpvgtugevkqp qh O cpgng Tqcf cpf O cpgng J ctdqt Tqcf. nqecvgf pgct Ngkpqj cwpvk Rqkpv. cv P 4209599; : Å Y 3780 : 923Å0	308	804	3304
75	Qp ýg Rcektke Qegcp eqcuvrkpg. qp ýg uqwý ukfg qh ýg kurcpf. crrtqzko cvgn{;52 hggv gcuv qh ýg kpvgtugevkqp qh O cpgrg Tqcf cpf O cpgrg J ctdqt Tqcf. mqecvgf kp O cpgrg Dc{. cvP 420964393Å Y 3780:989Å0	308	705	;0
76	Qp yjg Rcektke Qegcp eqcuvrkpg. qp yjg uqwj ukfg qh yjg kurcpf. crrtqzko cvgn{20832 o krgu gcuv pqtyjgcuv qh yjg kpvgtugevkqp qh O cpgrg Tqcf cpf O cpgrg J ctdqt Tqcf. rqecvgf kp O cpgrg Dc{. cvP 420964848ÅY 3780: 2863Å0	308	703	330 ³

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 ${}^{\ddot{A}}$ Cmgrgxcvkqpu tghrgev j g j wttkecpg uwti g j c| ctf qpn{0 Vuwpco k j c| ctf u o c{ f qo kpcvg kp egtvckp ctgcu0 } {}^{3}Y cxg twpwr grgxcvkqp

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		Elevation (feet Local Tidal Datum) Maximum		
Transect	Location	1-Percent Annual Chance Stillwater	Wave Setup	1-Percent Annual Chance Wave Crest
77	Qp yig Rcekhke Qegcp eqcuvrkpg. qp yig pqtyi ukfg qh yig kurcpf. crrtqzko cvgn{ 308 okrgu pqtyiy guv qh kpvgtugevkqp qh Mcjgmkark Jkijy c{ cpf Jqpqcrkkarcpk Jkijy c{. rqecvgf kpJqpqnvc. cvP 43024445Å Y 37808466;;Å0	302	806	3306
78	Qp y g Rcekhke Qegcp eqcurk pg. qp y g pqtyj ukf g qh y g kurcpf. crrtqzko cvgn{ 6.:52 hggv pqtyj gcuv qh kpvgtugev kqp qh J qpqnvc Rrceg cpf J qpqcrk karcpk J ki j y c{. rqecvgf kp J qpqnvc. cvP 43024738:Å Y 378085; 5:8Å0	302	80	46 0 ³
79	Qp yjg Rcekhke Qegcp eqcuvrkpg. qp yjg pqtyj ukfg qh yjg kuncpf.crrtqzko cvgn{ 832 hggvuqwyjy guvqh kpvgtugevkqp qh Nqygt J qpqcrkkacpk Tqcf cpf J qpqcrkkacpk J kijyc{. nqecvgf kp J qpqnacjwc.cvP 430227538ÅY 3780872485Å0	308	60	; 02
7:	Qp y g Rcekhle Qegcp eqcurk pg. qp y g pqty ukf g qh y g kuncpf. crrtqzko cvgn { 4.552 hggv pqty y guv qh kpvgtugev kqp qh Nqy gt J qpqcrk kncpk Tqcf cpf Tkf i g Tqcf. nqecvgf kp Mcr cnwc. cvP 430228536Å Y 3780888846Å0	302	802	320
7;	Qp vjg Rcekhle Qegcp eqcuvrkpg. qp vjg pqtvjy guvukfg qh vjg kuncpf. crrtqzko cvgn{ 3.542 hggv pqtvjy guv qh kpvgtugevkqp qh Nqy gt J qpqcrkkncpk Tqcf cpf Rwco cpc Rnceg. nqecvgf kp Mcjcpc. cv P 42Q:5;::Å Y 378089669;Å0	303	607	386 ³
82	Qp yjg Rcektke Qegcp eqcuvrkog. qp yjg pqtyjyguvukfg qh yjg kuncpf. crrtqzkocvgn{ 922 hggv pqtyjyguv qh kpvgtugevkqp qh Nqygt J qpqcrkkncpk Tqcf cpf Cnncjgng Utggv. nqecvgf kp Mcjcpc. cv P 420,87377Å Y 37808:5469Å0	303	607	: 08
83	Qp y g Rcekhle Qegcp eqcuvrkpg. qp y g y guv ukf g qh y g kurcpf. crrtqzko cvgn{ 3.6: 2 hggv uqwj y guv qh kpvgtuge kqp qh Nqy gt J qpqcr kkrcpk Tqcf cpf Mccpcr crk Uj qtgu Rrceg. rqecvgf kp J qpqnqy ck cvP 420, 69483Å Y 37808; 4447Å0	302	708	3204
84	Qp y g Rcekhe Qegcp eqcurkpg. qp y g y guv ukf g qh y g kurcpf. crrtqzko cvgn{ 3.532 hggv pqty y guv qh kpvgtugevkqp qh P qj gc Mck F tkxg cpf Mccpcr crk Rctmy c{. mecvgf kp Mccpcr crk cvP 420 43647Å Y 37808; 82: 3Å0	302	607	; 0 3

 ${}^{\ddot{A}}$ Cmgrgxcvkqpu tghrgev j g j wttkecpg uwti g j c| ctf qpn{0 Vuwpco kj c| ctf u o c{ f qo kpcvg kp egtvckp ctgcu0 } {}^{3}Y cxg twpwr grgxcvkqp

		Elevation (feet Local Tidal Datum) Maximum		
Transect	Location	1-Percent Annual Chance Stillwater	Wave Setup	1-Percent Annual Chance Wave Crest
85	Qp vjg Rcekhle Qegcp eqcuvrløg. qp vjg y guv ukfg qh vjg kurcpf. crrtqzko cvgn{ 4.452 hggv uqwaj gcuv qh kpvgtugevlqp qh Pqjgc Mck Ftkxg cpf Mccpcrcrk Rctmy c{. rqecvgf kp Mccpcrcrk cvP 420; 34726Å Y 37808; 52: 7Å0	303	607	: Q ³
86	Qp yjg Rcekhle Qegcp eqcuvrkpg. qp yjg yguv ukfg qh yjg kurcpf. crrtqzko cygn{; 72 hggv pqt yjyguv qh kpygtugevkqp qh Qmpc Rnceg cpf Htqpv Utggv. mecvgf kp Rwwpqc. cv P 420; 4; 93Å Y 37808: 7579Å0	308	607	; B ³
87	Qp yjg Rcekhle Qegcp eqcuvrkpg. qp yjg yguvuldfg qh yjg kurcpf. crrtqzko cvgn{ 3.442 hggvpqtyjyguvqh kpvgtugevkqp qh Rtkuqp Utggvcpf Nvcmkpk Utggv. mjecvgf kp Ncpckpc. cv P 420 948: 6Å Y 378089: : 69Å0	308	80	3403
88	Qp yjg Rcekhe Qegcp eqcuvrkpg. qp yjg uqwjyguvukfg qh yjg kurcpf. crrtqzkocvgn{ 408 o krgu uqwjgcuv qh kpvgtugevkqp qh Rtkuqp Utggv cpf Nwcmkpk Utggv. rqecvgf kp Ncwpkwr qmq. cvP 420 63533Å Y 3780873766Å0	308	807	3309
89	Qp yj g Rcekhle Qegcp eqcuvrkpg. qp yj g uqwj y guv ukf g qh yj g kurcpf. crrtqzko cvgn{ 3.222 hggv uqwj y guv qh kpvgtugevkqp qh Mcr cmk Rnceg cpf Qmy cmv Xkmci g Tqcf. mqecvgf kp Qmy cmv cvP 420 2; 6; ; Å Y 378(845528Å)	308	804	3308
8:	Qp y g Rcekhe Qegcp eqcuvkpg. qp y g uqwj y guv ukf g qh y g kuncpf. crrtqzko cygn{ 40, o krgu uqwj gcuv qh kpygtugevkqp qh Mcr cmk Rnceg cpf Qmy cmv Xkmci g Tqcf. mecvgf kp O qr wc. cvP 4209; 693Å Y 37807: 4686Å0	303	804	3304
8;	Qp yig Rcekhe Qegcp eqcuvkpg. qp yig uqwiy guv ukfg qh yig kuncpf. crrtqzko cvgn{ 308 o krgu uqwiy guv qh kpvgtugevkqp qh J qpqcrkkrcpk J kijyc{ cpf O ccrcgc Dqcv J ctdqt Tqcf. rqccvgf kp O ccrcgc. cv P 420997677Å Y 3780756855Å0	303	70	56Q ³
92	Qp yig Rcekhke Qegcp eqcuvklog. qp yig uqwijy guvuklîg qh yig kuncpf. crrtqzko cvgn{ 6.932 hggv pqtyjy guv qh kpvgtugevkqp qh Pqtyj Mkjgk Tqcf cpf Uqwij Mkjgk Tqcf. nqecvgf kp Mkjgk cvP 4209; 2:45Å Y 3780698; 97Å)	305	604	: 05

 ${}^{\ddot{A}}$ Cmgrgxcvkqpu tghrgev j g j wttlecpg uwti g j c| ctf qpn{0 Vuwpco k j c| ctf u o c{ f qo kpcvg kp egtvckp ctgcu0 } {}^{3}Y cxg twpwr grgxcvkqp

		Elevation (fe	et Local T	idal Datum) Maximum
Transect	Location	1-Percent Annual Chance Stillwater	Wave Setup	1-Percent Annual Chance Wave Crest
93	Qp yjg Rcelkhe Qegcp eqcuvnkpg. qp yjg uqwjyguvukfg qh yjg kuncpf. crrtqzkocvgn{;92 hggv uqwjyguv qh kpvgtugevkqp qh Qjwnck Uvtggvcpf Mgpqnkq Tqcf. nqecvgf kp Mkjgk cvP 42099654;ÅY 3780682824Å0	304	806	3309
94	Qp y g Rcektke Qegcp eqcuvkpg. qp y g uqwj y guvukf g qh y g kurcpf.crrtqzko cvgn{ 4.532 hggvy guvqh kpvgtugevkqp qh J qw Utggv cpf Grgw Rrceg. rqecvgf kp Mkj gk cv P 420977966Å Y 378067; 6; 9Å0	304	804	3305
95	Qp yig Reekhe Qegep equivalegi. qp yig uqwijy guvukfg qh yig kuncpf. crrtqzko cygn{742 hggv uqwijy guv qh kpygtugevkqp qh Y cko cj ckj ck Utggv cpf J cnco c Utggv. nqecygf kp Mgcy cmcrw. cvP 420955626Å Y 378067764: Å0	308	807	3308
96	Qp y g Rcekhe Qegcp eqcuvdpg. qp y g uqwj y guv ukf g qh y g kurcpf. crrtqzko cvgn{ 4.762 hggv pqty y guv qh kpvgtugevkqp qh Crcmw Rrceg cpf Qo kmq Rrceg. mecvgf kp Mgcv cmcr w cvP 42093: 966Å Y 378066: 325Å0	304	608	33Q ³
97	Qp y g Rcekhe Qegcp eqcuvdpg. qp y g uqwj y guv ukf g qh y g kurcpf. crrtqzko cvgn $\{3.4:2 \text{ hggv uqwj y guv qh}$ kpvgtugevkqp qh Mknj cpc Ftkxg cpf Y cknrck Utggv. mecvgf kp Mecv cmrr w cvP 42092433: Å Y 37806679: Å	303	608	3203 ³
98	Qp y g Rcekhe Qegcp eqcuvlpg. qp y g uqwj y guv ukf g qh y g kurcpf. crrtqzko cygn{ 4.962 hggv pqty y guv qh kpygtugevkqp qh Y ckrgc Crcpwk Ftkxg cpf Mcwnej k Utggv. mecygf kp Q cnrgpc, cyP 42(89:: 57Å Y 378(667393Å)	303	705	340 ³
99	Qp y g Rcekhe Qegcp eqcuvlpg. qp y g uqwj y guv ulf g qh y g kurcpf. crrtqzko cygn{ 5.8; 2 hggv pqt y y guv qh kpvgtugevlqp qh O cngpc Tqcf cpf J qpqknk Utggv mecvgf kp O cngpc. cvP 42088443Å Y 3780663763Å0	303	608	340 ³
9:	Qp yig Rcelthe Qegcp eqcuvtkpg. qp yig uqwjyguvukfg qh yig kuncpf. crrtqzkocvgn{ 3.672 hggv pqtyjyguv qh kpvgtugevkqp qh O cngpc Tqcf cpf J qpqknk Utggv nqecvgf kp O cngpc. cvP 42(876; 56Å Y 3780665745Å)	308	705	53Q ³
9;	Qp y g Rcelthe Qegcp eqcuvtlpg. qp y g uqwj y guv ukf g qh y g kurcpf. crrtqzko cvgn{ 3.;:2 hggv uqwj y guv qh kpvgtugevkqp qh O cngpc Tqcf cpf J qpqknk Utggv. mecvgf kp O cngpc. cvP 420869247Å Y 3780664993Å0	303	607	: 07

 ${}^{\ddot{A}}$ Cmgrgxcvkqpu tghgev ý g j wttkecpg uwti g j c| ctf qpn{0 Vuwpco k j c| ctf u o c{ f qo kpcvg kp egtvckp ctgcu0 3 Y cxg twpwr grgxcvkqp

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		Elevation (fe	et Local T	idal Datum)
				Maximum
Transect	Location	1-Percent Annual Chance Stillwater	Wave Setup	1-Percent Annual Chance Wave Crest
:2	Qp yig Reekhke Qegep eqcuvrkpg. qp yig uqwyiy guv ukfg qh yig kuncpf. crrtqzko cygn{ 304 o kngu uqwyiy guv qh kpygtugeykqp qh O engpe Tqef epf J qpqknk Uytggv. mqecygf kp O engpe, cyP 42085; 2:: Å Y 3780673927Å0	302	70	6307 ³
: 3	Qp yj g Rcekhke Qegcp eqcuvdpg. qp yj g uqwij y guv ukf g qh yj g kurcpf. crrtqzko cvgn{ 307 o krgu uqwij y guv qh kpvgtugevkqp qh O cngpc Tqcf cpf J qpqknk Utggv. mjecvgf kp Mcpcj gpc. cvP 420853; : 8Å Y 3780669948Å0	303	608	3204 ³
: 4	Qp yig Rcekhke Qegcp eqcuvdpg. qp yig uqwijy guv ukfg qh yig kurcpf. crrtqzko cvgn{ 505 o krgu uqwijy guv qh kpvgtugevkqp qh Wnwr crcmwc J kijy c{ cpf Mcrco c Rctm Tqcf. mecvgf kp Mcpcjgpc. cv P 4208242; 3Å Y 3780658; 6Å0	303	70	42@ ³
: 5	Qp yig Rcekhke Qegcp eqcuvtkpg. qp yig uqwj ukfg qh yig kurcpf. crrtqzko cvgn{ 503 o krgu uqwj y guv qh kpvgtugevkqp qh Whwr cremwc J kij y c{ cpf Mcreo c RctmTqcf. mjecvgf kp Mgqpgqkq. cvP 4207; 682: Å Y 3780648248Å0	303	702	33 G ³
: 6	Qp yig Rcekhe Qegcp eqcuvlpg. qp yig uqwj ukfg qh yig kurcpf. crrtqzko cvgn{ 409 o krgu uqwj y guv qh kpvgtugevkqp qh Whwr cremwc J ki j y c{ cpf Mcreo c RctmTqcf. mecvgf kp Mgqpgqkq. cvP 4207; 43: 6Å Y 3780635626Å0	303	606	: 05
:7	Qp yig Rcekhe Qegcp eqcuvtkpg. qp yig uqwj ukfg qh yig kurcpf. crrtqzko cvgn{ 306 o krgu uqwj qh kpvgtugevkqp qh Whwr crcmwc J kijy c{ cpf Mcroo c Rctm Tqcf. rqecvgf kp Mgqpgqkq. cvP 42079; 6: 4Å Y 37805; ; 8: : Å0	303	60	32 B ³
: 8	Qp yig Rcekhe Qegcp eqcuvlpg. qp yig uqwj ukfg qh yig kurcpf. crrtqzko cvgn{ 60, o krgu uqwj gcuvqh kpvgtugevkqp qh Whwr crcmwc J kijy c{ cpf Mcroo c Rctm Tqcf. rqecvgf kp Mgqpgqkq. cvP 4207: 3298Å Y 3780557848Å0	303	70	48@ ³
:9	Qp yig Rcektke Qegcp eqcuvtkpg. qp yig uqwj ukfg qh yig kurcpf. crrtqzko cvgn{80 o kngu uqwj gcuvqh kpvgtugevkqp qh Wiwr cnemwe J kijy c{ cpf Meneo c Retm Tqcf. nqecvgf kp P ww. cvP 4207: 467: Å Y 3780522526Å0	308	707	35Q ³
::	Qp yig Rcekhke Qegcp eqcuvuk pg. qp yig uqwyigcuvuk fg qh yig kuncpf.crrtqzkocvgn{; (9) o kngu uqwyigcuvqh kpvgtugevk qp qh Whwr cncmwc J kijy c{ cpf Mcncoc Rctm Tqcf.nqecvgf kp P ww.cvP 420827677Å Y 3780467::7Å0	303	70	550 ³

 ${}^{\ddot{a}}$ Cmgngxcvkqpu tghgev j g j wttlecpg uwti g j c| ctf qpn{0 Vuwpco kj c| ctf u o c{ f qo kpcvg kp egtvckp ctgcu0 } {}^{3}Y cxg twpwr gngxcvkqp

		Elevation (feet Local Tidal Datum)					
Transect	Location	1-Percent Annual Chance Stillwater	Wave Setup	Maximum 1-Percent Annual Chance Wave Crest			
:;	Qp yig Rcekhke Qegcp eqcuvnkpg. qp yig uqwyigcuvuk fg qh yig kuncpf. crrtqzko cvgn{ 3404 okrgu gcuv qh kpvgtugevkqp qh Whwr cnemwe Jkijy c{ cpf Menco c Retm Tqcf. nqecvgf kp Pww. cvP 420846;49Å Y 3780427585Å0	303	705	43 5 ³			
;2	Qp yi g Rcekhke Qegcp eqcuvrkpg. qp yi g uqwj gcuvukf g qh yi g kurcpf. crrtqzko cygn{ 3405 o krgu uqwj y guv qh kpygtugevkqp qh Uqwj J cpc J ki j y c{ cpf J cqwTqcf. mecygf kp P ww. cv P 42084892: Å Y 3780B9; 293Å0	308	60,	34 0 ³			
; 3	Qp yj g Rcekhke Qegcp eqcuvrkpg. qp yj g uqwj gcuvukf g qh yj g kurcpf. crrtqzko cygn{ 3308 o krgu uqwj y guv qh kpygtugevkqp qh Uqwj J cpc J ki j y c{ cpf J cqw Tqcf. m,ecygf kp P ww. cv P 420845:: 8Å Y 37808876; 4Å0	303	607	; 9 ³			
;4	Qp yj g Rcektke Qegcp eqcuvtkpg. qp yj g uqwj gcuvukf g qh yj g kurcpf. crrtqzko cygn{ 3202 o krgu uqwj y guv qh kpygtugevkqp qh Uqwj J cpc J ki j y c{ cpf J cqwTqcf. mecvgf kp Mcwrq. cvP 420843: 24Å Y 378085: 728Å0	303	608	32 8 ³			
;5	Qp yig Rcekhe Qegcp eqcuvnkpg. qp yig uqwjgcuvuk fg qh yig kuncpf.crrtqzkocvgn{:04 o kngu uqwjyguv qh kovgtugevkqp qh Uqwyj J cpc J kijyc{ cpf J cqw Tqcf.nqecvgf kp O qmyncw,cvP 420856:9:ÅY 3780834897Å0	303	60	35Q ³			
;6	Qp y g Rcekhe Qegcp eqcuvlpg. qp y g uqwj gcuvulf g qh y g kurcpf. crrtqzko cvgn{806 o krgu uqwj y guv qh kpvgtugevlqp qh Uqwj J cpc J ki j y c{ cpf J cqw Tqcf. rqecvgf kp Q gnwrcw. cvP 420866967Å Y 37802: 9548Å0	308	707	6; (6 ³			
;7	Qp y g Rcekhe Qegcp eqcuvkpg. qp y g uqwj gcuvukf g qh y g kurcpf. crrtqzko cvgn{702 o krgu uqwj y guv qh kpvgtugevkqp qh Uqwj J cpc J ki j y c{ cpf J cqw Tqcf. rqecvgf kp Mkr ci www. cvP 42086: 29: Å Y 378028523: Å0	302	60	3907 ³			
; 8	Qp yj g Rcektke Qegcp eqcuvtkpg. qp yj g uqwj gcuvukf g qh yj g kurcpf. crrtqzko cvgn{506 o krgu uqwj y guv qh kovgtugevkqp qh Uqwyj J cpc J ki j y c{ cpf J cqw Tqcf. rqecvgf kp Mkr cj wrw. cvP 420882; 86Å Y 3780263769Å0	308	708	46 B ³			
;9	Qp ý g Rcekhe Qegcp eqcuvhog. qp ý g uqwj gcuvuk f g qh ý g kuncpf. crrtqzko cvgn{309 o kngu uqwj y guv qh kovgtugevkqp qh Uqwj J cpc J kijy c{ cpf J cqw Tqcf. nqecvgf kp Y cknwc. cvP 4208: 2938Å Y 3780247: 2; Å0	308	708	37@ ³			

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 ${}^{\ddot{A}}$ Cmgrgxcvkqpu tghgev ý g j wttkecpg uwti g j c| ctf qpn{0 Vuwpco k j c| ctf u o c{ f qo kpcvg kp egtvckp ctgcu0 3 Y cxg twpwr grgxcvkqp

TABLE 7: TRANSECT DATA^{\dagger}

Flooding Source	Transect	Sti	illwater Eleva	ation (feet LT	D*)	Zone	Base Flood Elevation
		10-Percent	2-Percent	1-Percent	0.2-Percent		(feet LTD*)
Rcelthe Qegcp	3	209	20	302	30	XG CG	35 ^{4.5} 35 ^{4.5}
Rcelthe Qegcp	4	209	20	303	404	XG	33 ^{4.5}
Rcelthe Qegcp	5	209	20,	3 B	404	XG	, ^{4.5}
Rcelthe Oegcp	6	209	20	303	404	CG XG	; ^{4.5}
			,	3		CG	33 ^{4.5}
Rcelthe Qegcp	7	209	20	70 5	408	XG CG	:/; ⁵ 8/: ⁵
Rcelthe Qegcp	8	209	20	708 ³	403	XG CG	: /; ⁵ 8/: ⁵
Rcelthe Qegcp	9	209 209	20 20	70, ³ 308	403 403	XG XG	, 5 , 4. 5
				2		CG	: 4.5
Rcelthe Qegcp	:	209	20	7Œ ³	403	XG CG	9/: ⁵ 7/9 ⁵
Rcelthe Qegcp	;	209 209	20 20	803 ³ 302	402 402	XG XG	; ⁵ ; ⁴ . 5
						CG	: 4. 5
Rcelthe Qegcp	32	209 200	20 20	706 ³	403	XG XG	$:{}^{5}$ 0 ^{4.5}
		200	24	50	40	CG	9 9 ^{4. 5}

^ACmgrgxcvkqpu tghrgev y g j wttkecpg uwti g j c| ctf qpn{0 Vuwpco k j c| ctf u o c{ f qo kpcvg kp egtvckp ctgcu0, Nqecn Vkf cn F cwo ³Kpenwf gu y cxg ugwwr ⁴Y cxg twpwr grgxcvkqp ⁵Grgxcvkqpu htqo vuwpco k j c| ctf u f qo kpcvg

Source Tra	ng ce Transect Stillwater Elevation (feet LTD*)		Zone	Base Flood Elevation		
	10-Pe	rcent 2-Percent	t 1-Percent	0.2-Percent	20110	(feet LTD*)
			2			
Rcekhle Qegcp 3	33 20	9 20	704°	4Œ	XG	9/:
					CG	7/9
Rcekhle Qegcp 3	34 20	9 20	706^{3}	405	XG	:
	20	9 20	304	405	XG	9^{4}
					CG	9 ⁴
Realtha Oagen	35 7(D 20	806 ³	401	YG	• /32
Kichk Qigep	55 20	<i>y</i> 20,	80	404		./JZ 8/·
					CU	0/.
Rcekhle Qegcp 3	36 20	9 20	706^{3}	405	XG	:
					CG	7/:
Peolitin Oogen	27)(n 20	706 ³	406	YG	
Ricenne Qegep 3	57 20	<i>y</i> 20,	700	400		7/.
					Cu	//.
Rcekhle Qegcp 3	38 20	9 20	706^{3}	406	XG	:
					CG	7/:
Peolitin Oogen	30 20	n 20	801 ³	407	YG	• /22
Ricenne Qegep 3	59 20	<i>y</i> 20,	004	40/		./32 8/.
					CU	0/.
Rcekhe Qegcp	3: 20	9 20	804 ³	406	XG	:/32
					CG	8/:
Reekhe Oegen	3. 2(9 302	805 ³	40	XG	· /32
	-,		0.0		CG	8/.
	20	9 302	6Q ³	40	CG	7
Rcekhe Qegcp 4	42 20	9 302	807 ³	50B	XG	;/32
					CG	9/;
	20	9 302	408^{3}	503	CG	5/8

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^ACmgrgxcvkqputghrgevyigjwttkecpguwtigjc|ctfqpn{0Vuwpcokjc|ctfuoc{fqokpcvgkpegtvckpctgcu0,NqecnVkfcnFcwo ³Kpenwfguycxgugwwr ⁴Ycxgtwpwrgrgxcvkqp ⁵Grgxcvkqpuhtqowwpcokjc|ctfufqokpcvg

Flooding	Stillwater Elevation (feet LTD*)						
Source	Transect	10-Percent	2-Percent	1-Percent	0.2-Percent	Zone	(feet LTD*)
Rcelthe Oegon	43	209	3(1)	801 ³	502	XG	• /•
Tuckie Queep	-15	20	502	004	502	CG	8/:
		209	302	40 ³	502	CG	5/7
Rcelthe Qegcp	44	209	302	80 ³	40	XG	;/32
						CG	9/;
		209	302	$8 \mathfrak{Q}^3$	40,	CG	8
		209	302	$7\Omega^3$	40	CG	7
Rcelthe Qegcp	45	209	302	806 ³	502	XG	:/32
						CG	8/:
Rcelthe Qegcp	46	209	20	804 ³	408	XG	:/32
						CG	8/:
Rcelthe Oegcp	47	209	20	90 ³	409	XG	32/34
			,			CG	:/32
Rcelthe Oegcp	48	209	20	804 ³	408	XG	:/32
			,			CG	8/:
Rcelthe Oegcp	49	209	20	808 ³	408	XG	:/32
C-8-1		_ •	- 4			CG	9/;
Rcelthe Oegcp	4:	209	20	70^{3}	409	XG	:/:
001		_	-7		-	CG	8/:
Rcelthe Oegcp	4:	209	20	70 ³	40	XG	:/:
	,		,	,		CG	8/:
Rcelthe Oegcp	52	209	20	805 ³	408	XG	:/32
0.91			-7			CG	8/:
		209	20	607 ³	408	CG	7
Rcelthe Qegcp	53	209	20	808 ³	408	XG	;/32
			<i>,</i>			CG	9/;
		209	20	708^{3}	408	CG	8

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^ACmgrgxcvkqputghgevyig j wttkecpguwtig j c| ctf qpn{0 Vuwpcokj c| ctfuoc{fqokpcvg kpegtvckpctgcu0, NqecnVkfcnFcwo ³Kpenvfguy cxg ugwvr ⁴Y cxg twpwr grgxcvkqp ⁵Grgxcvkqpuhtqowwpcok j c| ctfufqokpcvg

		Stillwater Elevation (feet LTD*)					Base Flood
							Elevation
Flooding	T (10.5	A D			7	(feet LTD*)
Source	Transect	10-Percent	2-Percent	1-Percent	.02-Percent	Zone	10-Percent
Reelitie Oegen	54	200	20	800 ³	40	XG	· /32
Reente Qegep	54	20	29	00	40	CG	9/·
		209	20,	805 ³	40	CG	8
				3			
Rcelthe Qegcp	55	209	302	80, 5	503	XG	;/33
						CG	9/;
Rcelthe Oegcp	56	209	20	809 ³	40	XG	:/32
C.9.1	•••					CG	9/;
Rcelthe Qegcp	57	209	20,	80, ³	408	XG	;/335
						CG	9/; 5
Reelitie Oegen	58	200	20	800 ³	407	XG	• /•
Reente Qegep	50	20	29	002	40/	CG	8/:
						00	0,1
Rcelthe Qegcp	59	209	20	804 ³	405	XG	:/32
						CG	8/:
D. 111. O	E.	200	20	0.00 ³	407	VC	(225
Reenne Qegep	5:	209	20,	808	400		;/32
						CG	9/;
Rcekhle Qegcp	5;	209	20	70 ³	404	XG	;
		209	20	303	404	XG	: 4
						CG	: 4
Dealtha Ocean	(2)	200	20	$7\alpha^3$	404	VC	. 5
Reente Qegep	62	209	20,	700	404		7/. ⁵
						CU	17.
Rcekhle Qegcp	63	209	20	707 ³	403	XG	: 5
1		209	20	308	403	CG	: 4.5
N 111 - 2	<i></i>	•~	•		22		4 5
Rcekhe Qegcp	64	209	20	302	30,	XG	;,
						CG	,

ISLAND OF MOLOKAI *eqpvkpvgf +

^ACmgrgxcvkqputghrgevyig j wttkecpg uwtig j c| ctf qpn{0 Vuwpcok j c| ctf u o c{ fqokpcvg kpegtvckp ctgcu0, Nqecn Vkf cn F cwo ³Kpenwf gu y cxg ugwwr ⁴Y cxg twpwr grgxcvkqp ⁵Grgxcvkqpu htqowwpcok j c| ctf u fqokpcvg

Flooding Source	Transect	Sti 10-Percent	illwater Eleva 2-Percent	ntion (feet LT 1-Percent	D*) 0.2-Percent	Zone	Base Flood Elevation (feet LTD*)
							()
Rcekhle Oegcp	65	209	20	302	403	XG	43 ⁴
0.01						CG	43 ⁴
Rcelthe Qegcp	66	209	20	303	403	XG	36 ⁴
						CG	36 ⁴
Rcekhle Qegcp	67	209	20	302	403	XG	354
						CG	354
D. 111. O.	C 0	200	20	200	4.09	VC	- 4
Rcekne Qegcp	68	209	20,	308	403	XG	5: 4
						CG	5:
Reelthe Oegen	69	209	20	308	408	XG	32^{4}
Recare Qegep	0)	2Ψ	29	50	40	CG	32^{4}
						00	52
Rcelthe Oegcp	6:	209	20	303	403	XG	77^{4}
			,			CG	77^{4}
Rcekhle Qegcp	6;	209	20	303	404	XG	38 ⁴
						CG	38^{4}
							4
Rcekhle Qegcp	72	209	20	303	404	XG	434
						CG	43*
Dealtha Ocean	72	200	20	200	409	VC	22^{4}
Rcenne Qegcp	13	209	20	308	408	XG	33 22^4
						Cu	33
Rcekhle Oegon	74	209	20	905 ³	401	XG	· /33
Twente Qegep	, ,	20	29	70	101	CG	9/·
						00	<i>,</i>
Rcelthe Qegcp	75	209	20	806 ³	405	XG	;/32
						CG	8/;
Rcelthe Qegcp	76	209	20	303	404	XG	34^{4}
						CG	34^{4}

ISLAND OF LANAI

^ACmgrgxcvkqpu tghrgev y g j wttlecpg uwti g j c| ctf qpn{0 Vuwpco k j c| ctf u o c{ f qo kpcvg kp egtvckp ctgcu0, Nqecn Vkf cn F cwo ³Kpen v f gu y cxg ugwr ⁴Y cxg twpwr grgxcvkqp ⁵Grgxcvkqpu h qo vuwpco k j c| ctf u f qo kpcvg

Flooding Source	Transect	Sti	illwater Eleva	tion (feet LT	D *)	Zone	Base Flood Elevation
		10-Percent	2-Percent	1-Percent	0.2-Percent		(feet LTD*)
	~~	20	20	0.073	400	VO	22/225
Rcekne Qegcp	//	209	20	90/*	402	XG	$\frac{32}{33^{5}}$
		200	20	300	400		, / 52
		20	20	502	402	CU	•
Rcelthe Oegcp	78	209	20	302	402	XG	47^{4}
						CG	47 ⁴
							-
Rcekhle Qegcp	79	209	20	70, 3	403	XG	:/; 5
						CG	: >
		209	20	308	403	CG	94.5
Rcelthe Oegon	7.	209	20	902^{3}	30	XG	·/33 ⁵
Tacinic Qegep	<i>,</i> .	20	24	202	59	CG	9/· ⁵
						00	27,
Rcekhle Qegcp	7;	209	20	303	402	XG	38 ^{4.5}
						CG	38 ^{4.5}
-		• ~	• •	- ~ 3	1.00		. 5
Rcekhle Qegcp	82	209	20	7083	402	XG	:/; 5
		200	20	200	400	CG	:- 0 ^{4.5}
		209	20	30	402	Cu	9
Rcekhle Qegcp	83	209	20	808 ³	402	XG	32
		209	20	302	402	CG	32^{4}
Rcelthe Qegcp	84	209	20	302	402	XG	324
						CG	32^{4}
Reelthe Oesen	85	200	20	308	408	XG	. 4
Recare Queep	05	20	20	50	ΨΨ	CG	. 4
						60	,
Rcelthe Qegcp	86	209	20	303	403	XG	32^{4}
						CG	32^{4}
	67	200	20	003	4.07	vo	22/24
Regentive Qegep	87	209	20,	90, 5	405	XG	32/34
						UG	:/32

ISLAND OF MAUI

^ACmgrgxcvkqputghrgevyig j wttkecpg uwtig j c| ctf qpn{0 Vuwpcok j c| ctf u o c{ fqokpcvg kpegtvckpctgcu0, Nqecn Vkf cn F cwo ³Kpenwf gu y cxg ugwwr ⁴Y cxg twpwr grgxcvkqp ⁵Grgxcvkqpu htqovwwpcok j c| ctf u fqokpcvg

Flooding Source	Transect	Stillwater Elevation (feet LTD*)				Zone	Base Flood Elevation	
		10-Percent	2-Percent	1-Percent	0.2-Percent		(feet LTD*)	
	00	200	20	00 ³	401	VC	22/24	
Reenne Qegep	00	209	29,	908	404	AU CC	52/54	
						CG	:/32	
Rcelthe Qegcp	89	209	20	904 ³	403	XG	;/33	
						CG	9/;	
	_			3				
Rcelthe Qegcp	8:	209	20,	905	404	XG	;/33	
				2		CG	9/;	
		209	20,	7073	404	CG	8	
Rcekhle Oegcp	8:	209	20	308	404	XG	57^{4}	
100000 Q080P	з,		-9	54		CG	57^{4}	
Rcekhle Qegcp	92	209	302	706 ³	408	XG	: 5	
		209	302	305	408	XG	9 ^{4.5}	
						CG	$9^{4.5}$	
		• ~	•	0.003		WG	22/24	
Rcekhle Qegcp	93	209	20	908	407	XG	32/34	
						CG	:/32	
Rcekhe Oegcp	94	209	20	906 ³	405	XG	:/33	
0.01	-	-	-7			CG	9/:	
Rcekhle Qegcp	95	209	20	908 ³	403	XG	32/34	
						CG	:/32	
	0.6	20	20	201	4.07	VC	2.44	
Rcekhe Qegcp	96	209	20	304	405	XG	34	
						CG	34	
Rcelthe Oegcp	97	209	20	303	404	XG	32^{4}	
0.01		-	-7			CG	32^{4}	
							-	
Rcelthe Qegcp	98	209	20,	303	403	XG	35 ⁴	
						CG	35^{4}	

ISLAND OF MAUI *eqpulpingf +

^ACmgrgxcvkqpu tghgev y g j wttkecpg uwti g j c| ctf qpn{0 Vuwpco k j c| ctf u o c{ f qo kpcvg kp egtvckp ctgcu0, Nqecn Vkf cn F cwo ³Kpenvf gu y cxg ugwr ⁴Y cxg twpwr grgxcvkqp ⁵Grgxcvkqpu htqo wwpco k j c| ctf u f qo kpcvg

Flooding Source	Transect	Sti 10 Demonst	illwater Eleva	tion (feet LT	D*)	Zone	Base Flood Elevation
		10-Percent	2-Percent	1-Percent	0.2-Percent		(leet LID*)
Rcelthe Qegcp	99	209	20	308	403	XG	34 ⁴
						CG	34*
Rcekhle Oegcp	9:	209	20	308	403	XG	53 ⁴
0.01			-7			CG	53 ⁴
Rcekhle Oegon	9:	209	20	708^{3}	408	XG	: /:
2080P	-,		-9	1.00	· · ·	CG	8/:
Rcekhle Oegon	· 2	209	20	302	402	XG	64 ⁴
Twente Qegep	. 2	20	29	502	102	CG	64 ⁴
Rcelthe Oegon	• 3	209	20	308	408	XG	32^{4}
Reenic Qegep	. 5	20	29	50	ΨΦ	CG	32^{4}
Dealtha Oeren	• 1	200	20	308	30	YG	42 ⁴
Reenine Qegep	. 4	200	20,	50	50,	CG	42^{4}
DoolHa Oogon	. 5	200	20	202	400	VC	224.5
Reenine Qegep	. J	209	20,	30	402	CG	33 ^{4.5}
D. 111. O		200	20	$\pi \alpha^3$	40	NC	. 5
Rcekne Qegcp	:6	209	20 20	706- 308	402 402	XG CG	4.5
Rcelthe Qegcp	: 7	209	20,	308	402	XG	33 ⁴
						CG	334
Rcekhle Qegcp	: 8	209	20	303	30,	XG	48^{4}
						CG	48^{4}
Rcekhle Qegcp	: 9	209	20	303	402	XG	35 ⁴
						CG	35 ⁴
Rcekhle Qegcp	::	209	20	308	403	XG	56 ⁴
			/			CG	56^{4}

ISLAND OF MAUI *eqpulpingf +

^ACmgrgxcvkqputghgevyig jwttkecpguwtig jc|ctfqpn{0Vuwpcokjc|ctfuoc{fqokpcvgkpegtvckpctgcu0,NqecnVkfcnFcwo ³Kpenvfguy cxgugwvr ⁴Y cxg twpwr grgxcvkqp ⁵Grgxcvkqpuhtqowwpcokjc|ctfufqokpcvg

Flooding Source	Transect	St	illwater Eleva	tion (feet LT	D *)	Zone	Base Flood Elevation
		10-Percent	2-Percent	1-Percent	0.2-Percent		(feet LTD*)
							1
Rcelthe Qegcp	:;	209	20	308	404	XG	43 ⁴
						CG	43*
Reekhle Oegen	· 2	209	20	308	408	XG	35^{4}
Twente Qegep	, -	20	-9	50	i w	CG	35^{4}
						CQ	Fgrvj4
						CG	33
D 111 0	2	• •	•	277		wa	224
Rcekhe Qegcp	;3	209	20,	308	403	XG	32^{4}
						CG	32
Rcelthe Oegcp	: 4	209	20	308	403	XG	33^{4}
C-8-F	, -					CG	33 ⁴
Rcelthe Qegcp	; 5	209	20	308	403	XG	36 ^{4. 5}
						CG	36 ^{4.5}
PoolHo Oogon	• 6	200	20	308	408	VG	6· ⁴
Reenine Qegep	,0	209	20,	30	40		0, 6: ⁴
						CU	0,
Rcekhle Qegcp	;7	209	20	302	402	XG	3: 4
						CG	3: 4
							4
Rcekhe Qegcp	;8	209	20	303	402	XG	464
						CG	46⁴
Reekhle Oeven	• 9	209	20	308	408	XG	37^{4}
Tacinic Cogop	, ,	20	29	50	ιw	CG	37^{4}

ISLAND OF MAUI *eqpulpingf +

^ACmgrgxcvkqpu tghrgev y g j wttlecpg uwti g j c| ctf qpn{0 Vuwpco k j c| ctf u o c{ f qo kpcvg kp egtvckp ctgcu0 , Nqecn Vkf cn F cwo ³Kpenwf gu y cxg ugwr ⁴Y cxg twpwr grgxcvkqp ⁵Grgxcvkqpu htqo wwpco k j c| ctf u f qo kpcvg

TABLE 8: TSUNAMI TRANSECT LOCATIONS

ISLAND OF LANAI

Transect Number	Hawaii State Plane Zone First Transect Coordinates at MSL Shoreline (ft)		2, NAD83, U.S. Surv Last Transect Coor	Transect Length (ft)	
	East	North	East	North	
3	375242; 02	3864; 806	375256707	38652306	35808
4	375298709	38: 5: 30	3752; : 50	38: 59704	43:04
5	375342508	3946: 502	37538330	39464403	63504
6	37527; 706	39936902	375294509	39947608	38906
7	374: 82409	3: 2: 620	374: 86608	3: 2: 9: 04	780B
8	374867802	3: 678906	37486; : 05	3:67;902	7308
9	3745; 5607	3::2390B	3745;:607	3::28509	8:06
:	373;:7508	3; 2: 3609	373; : 9905	3; 2: 8204	7305
;	373723705	3; 43930	373726209	3;448709	; 905
32	3733:;60	3; 63: 706	3733; 75 B	3; 643; 08	8905
33	372::2206	3; 826: 04	372: : 990	3; 82; 30	::0
34	37294: 604	3;;;8309	37299640B	42229404	693B
35	372825806	425; 7608	372857406	425; 6909	538œ
36	37286590	429:770	37293; ; 9	42996908	98; 07
37	372::9407	432; 4404	372; 36908	43278305	6750
38C	3733; 880,	43453504	373444: 08	433; 2902	6: 5Q
38	373526504	434; 6208	373593306	433; 2302	34570
39	373878606	436; ; 809	3738: 7; 04	435; 9803	328405
39D	37389: 902	437244œ	373922: O	43647902	9; 805
3:	374262206	4376; 20,	374263605	43728; 02	644 B
3;	37463960	43773705	374638; 05	436: 9706	85; 0
42	3749: 7308	43845607	3749: 98 B	43768:06	98807
43	37539860B	43857308	37536: 905	4374250	33: 208
44	37575: 90	436: 92œ	3756; ; 408	435; 890	;:703
45	375; 53; 05	43673202	375; 48; 05	43625309	6: 20
46C	37649: 902	4367460	3764: 3408	43559803	336; B
46	376545;04	4364: 50	37652460	4355; ; 06	; 3202
46D	3765; 5; 09	43624608	376599706	43556809	8;908
47	376932; 06	43637402	37693740B	435; 3309	466 B
48	3772: 6705	43582804	377279808	43522406	8820
49	377743:06	434: 9:06	377726607	43377205	355; 06
4:	377: : 3: 0	433: 2406	377: 8460	43355206	73205
4;	378472;07	432586Q	378429;04	42; 55502	333904
52	378766602	429; : 60	378673804	4289; 808	372907
53	378: 63606	42776308	378963308	42689: 07	354404

TABLE 8: TSUNAMI TRANSECT LOCATIONS, CONTINUED

ISLAND OF LANAI (continued)

Hawaii State Plane Zone 2, NAD83, U.S. Survey ft.					
Transect Number	First Transect Coordinates at MSL Shoreline (ft)		Last Transect Coor	Transect Length (ft)	
	East	North	East	North	
- 4	2202520/7		2702 (70)	10111001	22200
54	37935280/	424;670/	3/926/902	42444204	333902
55	37963; 40	4224450	379547:0/	3; ; 4980	354; 0
56	3798;:309	3;965408	379775509	3; 7: ; ; @	432:0
57	379; : 950	3; 69930	379: 78307	3; 567; 06	3:7802
58C	37: 43; : 06	3; 472206	37: 339; 06	3; 397807	348308
58	37: 49: 80	3; 3; 2308	37: 3: 6; 05	3; 32420	34: 802
59	37: 754; 9	3:;38;08	37: 634207	3::5270,	36: 802
5:	37: 99850	3: 829506	37: 82640	3:736406	3;7809
5;	37:;69:0	3: 472: 02	37::;;205	3: 444907	78506
62C	37; 346603	3: 236906	37:;98506	39: 924 B	428;04
62	37; 397; 0	39; 4940	37; 2: : 408	39: 8: 504	327908
63	37; 4; ; : 08	3976480	37; 3; 58 0	39773706	32870
64	37; 486506	39385707	37; 3258 B	39428702	388509
65	37;263807	3894; 303	37:;9850	38986;06	96608
65D	37::84604	386; ; 304	37::29805	3875; 60	8:207
66	37: 95930	3854: 60	37: 88; 908	385: : 40	; 2304
66D	37:936506	384; ; 50	37: 87; ; B	3854; ; 02	846O2
67	37: 6; 67 B	37: 6: 60	37: 677; 9	37: 89507	64; O2
68	37: 3; 2; 04	37725705	37: 3: 2906	37739403	39207
69	3798; 9: 0	3764; 704	3798; 8604	3765770	8405
6:	379465205	3742; 304	379463: 0	37435408	640
6;	378: 8550	36; 28907	378: 58405	36; 67; 04	69808
72	3788: ; ; 06	36: 95907	3788; 640	36: : 340	: 902

TABLE 9: TSUNAMI TRANSECT DATA
ISLAND OF LANAI

Transect Number	Coefficient A	Coefficient B	Final 1% Annual Chance Tsunami Runup Elevation (ft. MSL)
3	607	603	60,
4	607	606	608
5	607	606	608
6	607	605	609
7	607	605	609
8	607	605	609
9	607	605	609
:	607	606	608
;	608	606	60
32	608	606	60
33	608	606	60
34	608	606	60
35	60,	60	7œ
36	709	70	708
37	809	80,	807
38C	: 04	: 07	80
38	: 07	: 0	50,
39	; 06	;07	; 04
39D	;07	;07	: 04
3:	3205	3204	3206
3;	3302	3302	3302
42	3404	3402	3406
43	3409	3406	3502
44	3504	3409	3509
45	3506	3502	350
46C	3409	3403	: 0,
46	3408	3404	3502
46D	3407	330	330
47	330	320	3409
48	3209	; 04	3402
49	; 06	906	3306
4:	902	805	909
4;	808	707	909
52	804	702	906
53	802	608	906
54	802	609	905
55	908	805	: 0

Transect Number	Coefficient A	Coefficient B	Final 1% Annual Chance Tsunami Runup Elevation (ft. MSL)
56	: 07	905	: 03
57	; 03	: 02	906
58C	;07	: 08	902
58	; 08	: 09	; 03
59	3204	; 04	: 05
5:	3206	; 06	: 05
5;	3205	; 02	3207
62C	;05	: B	904
62	; 02	90,	; 08
63	: 02	902	; 02
64	907	806	90,
65	809	802	70,
65D	809	805	903
66	809	806	902
66D	809	807	80
67	802	70,	803
68	706	705	707
69	70B	608	708
6:	609	606	702
6;	609	606	702
72	609	604	704

TABLE 9: TSUNAMI TRANSECT DATA, CONTINUED ISLAND OF LANAI (continued)

S workh{kpi dgpej o ctmu y kj kp c i kxgp lwtkuf kevkqp y cv ctg ecvcnji gf d{ y g P cvkqpcn I gqf gvke Uwtxg{ *P I U+cpf gpvgtgf kpvq y g P cvkqpcn Ur cvkcn Tghgtgpeg U{uvgo *P UT U+ cu Hktuv qt Ugeqpf Qtf gt Xgtvkecn cpf j cxg c xgtvkecn uvcdkrkv{ encuukhkecvkqp qh C. D. qt E ctg uj qy p cpf rcdgrgf qp y g HKTO y kj y gkt 8/ ej ctcevgt P UT URgto cpgpv Kt gpvkhkgt0

Dgpej o ctmu ecvcnqi gf d{ yi g PIUcpf Gpvgtgf kpvq yi g PUTU xct{ y kf gn{ kp xgtvkecn uvcdkrkv{ encuukhkecvkqp0 PUTU xgtvkecn uvcdkrkv{ encuukhkecvkqpu ctg cu hqmqy u<

- Uvcdkrkv{ C< O qpwo gpvu qh yi g o quv tgrkcdng pcwtg. gzr gevgf vq j qnf r qukskqp lgrgxcvkqp y gm*g0 0 o qwpvgf kp dgf tqem+
- Uvcdktkv{ D< O qpwo gpvu y j kej i gpgtcm{ j qrf y gkt r qukskqp lgrgxcvkqp y gm *g0 0 eqpetgvg dtkf i g cdwo gpv+

- Uvcdkrkv{ E< O qpwo gpvu y j kej o c{ dg chhgevgf d{ uvthceg i tqwpf o qxgo gpvu *g0 0 eqpetgvg o qpwo gpvdgrqy htquvrkpg+
- Uvcdkrkv{ F < O ctm qh s wguvkqpcdrg qt wpmpqy p xgt vkecn uvcdkrkv{ *g0 0 eqpetgyg o qpwo gpvcdqxg htquvrkpg. qt uvggny kpguu r quv+

Ký cffk klap va PUTU dgpej o ctmu. ýg HKTO o c{ cnuq uj qy xgt kecn eqp vt qn o qp vo gp vu guvcdrkuj gf d{ c rajecn l vt kuf ke klap=ý gug o qp vo gp vu y km dg uj qy p qp ýg HKTO y ký ýg crrt qrt kcvg f guki pc vk qp u0 Najecn o qp vo gp vu y km apn{ dg r ncegf qp ýg HKTO kh ýg eqo o wp kv{ j cu tgs vguvgf ý cv ýg{ dg kpen vf gf. cpf kh ýg o ap vo gp vu o gg výg chatgo gp vk qp gf PUTU kpen vuk qp et kvgt kc0

Vq qdvckp ewttgpv grgxcvkqp. fguetkr vkqp. cpf kqt rqecvkqp kphqto cvkqp hqt dgpej o ctmu uj qy p qp vj g HKTO hqt vj ku lwtkuf kevkqp. r ngcug eqpvcev vj g Kphqto cvkqp Ugtxkegu Dtcpej qh vj g PIU cv *523+935/5464. qt xkukv vj gkt Y gd ukvg cv y y y Qpi uQpqcCQ qxO

Kv ku korqtvcpv vq pqvg ý cv vgorqtct { xgtvkecn o qpwo gpvu ctg qhvgp guvcdrkuj gf fwtkpi ý grtgrctcvkqp qh c hqqf j c | ctf cpcn{uku hqt ý grwtrqug qh guvcdrkuj kpi rqecn xgtvkecn eqpvtqn0 Cn j qwi j ý gug o qpwo gpvu ctg pqv uj qy p qp ý g HKTO. ý g { o c { dg hqwpf kp ý g Vgej pkecn Uwrrqtv F cvc P qvgdqqm cuuqekcvgf y k j ý ku HKU cpf HKTO0 Kpvgtguvgf kpf kxkf wcm o c { eqpvcev HGOC vq ceeguu ý ku f cvc0

Dgj kpf Ngxgg Cpcn{uku

Uqo g hnqqf j c| ctf kphqto cvkqp rtgugpvgf kp rtkqt HKTO u cpf kp rtkqt HKU tgrqtvu hqt O cvkk Eqwpv{ y cu dcugf qp hnqqf rtqvgevkqp rtqxkf gf d{ ngxggu0Dcugf qp y g kphqto cvkqp cxckrcdng cpf y g o crrkpi uvcpf ctfu qh y g P cvkqpcn Hnqqf Kpuvtcpeg Rtqi tco *P HKR+cv y g vko g y cv y g rtkqt HKU cpf HKTO u y gtg rtgrctgf. HGO C ceetgf kgf y g ngxggu cu rtqxkf kpi rtqvgevkqp htqo y g hnqqf y cv j cu c 3/r gtegpv cppvcn ej cpeg qh dgkpi gs vcngf qt gzeggf gf kp cp{ i kxgp {gct0 Hqt HGO C vq eqpvkpvg vq ceetgf kv y g kf gpvkhgf ngxggu y kj rtqxkf kpi rtqvgevkqp htqo y g dcug hnqqf. y g ngxggu o wuvo ggv y g etkgtkc qh y g Eqf g qh Hgf gtcn Tgi wrcvkqpu. Vkng 66. Ej crvgt K Ugevkqp 87082 *66 EHT 87082+. vkngf õO crrkpi qh Ctgcu Rtqvgevgf d{ Ngxgg U{uvgo u06

Qp Cwi wuv 44. 4227. HGO C kuuwgf õRtqegf wtg O go qtcpf wo Pq056 ó Køvgtko I wkf cpeg hqt Uwwf kgu Køenwf kpi Ngxggu0ö Vjgr wtr qug qh vjg o go qtcpf wo y cu vq j grr enctkh{ vjg tgur qpukdkrkw{ qh eqo o wpkv{ qhhkekcnu qt qvjgt rctvkgu uggmkpi tgeqi pkkqp qh c ngxgg d{ rtqxkf kpi kphqto cvkqp kf gpvkhkgf f wtkpi c uwwf { lo crr kpi rtqlgev0 Qhxgp. f qewo gpvcvkqp tgi ctf kpi ngxgg f guki p. ceetgf kkcvkqp. cpf vjg ko rcevu qp hrqqf j c| ctf o crr kpi ku qwxf cvgf qt o kuukpi cnxqi gvjgt0 Vq tgo gf { vj ku. Rtqegf wtg O go qtcpf wo Pq056 rtqxkf gu kpvgtko i wkf cpeg qp rtqegf wtgu vq o kpko k g f grc { u kp pgct/vgto uwwf kgulo crr kpi rtqlgevu. vq j grr qwt o crr kpi rctvpgturtqrgtn{ cuuguu j qy vq j cpf ng ngxgg o crr kpi kuuwgu0

Y j kng f qewo gpvcvk qp tgncvgf vq 66 EHT 87082 ku dgkpi eqor kngf. y g tgngcug qh c o qtg wr/vq/f cvg HKTO hqt qy gt r ctwu qh c eqo o wpkv{ qt eqwpv{ o c{ dg f gnc{gf 0} Vq o kpko k{ g y g ko r cev qh y g ngxgg tgeqi pkxk qp cpf egtvk the cvk qp r tqeguu. HGO C kuuwgf õRtqegf wtg O go qtcpf wo P q0 65 ó I wkf grkpgu hqt Kf gpvkh{kpi Rtqxkukqpcm{ Ceetgf kgf Ngxgguö qp O ctej 38. 42290 Vj gug i wkf grkpgu cmqy kuuwcpeg qh y g HKU cpf HKTO y j krg rgxgg qy pgtu qt eqo o wpkkgu eqo r krg hwm f qewo gpvcvkqp tgs wktgf vq uj qy eqo r hcpeg y kj 66 EHT 870820 Vj g i wkf grkpgu cmq gzr rckp vj cv c HKTO ecp dg kuuwgf y j krg r tqxkf kpi vj g eqo o wpkkgu cpf rgxgg qy pgtu y kj c ur gekhtgf vko ght co g vq eqttgev cp{ o ckpvgpcpeg f ghkekgpekgu cuuqekcvgf y kj c rgxgg cpf vq uj qy eqo r nkcpeg y kj 66 EHT 870820

HGOC eqpvcevgf Ocwk Eqwpv{ vq qdvckp fcvc tgs wktgf wpfgt 66 EHT 87032 vq eqpvkpwg vq uj qy yj g ngxggu cu r tqxkf kpi r tqvgevkqp htqo yj g hqqf yj cv j cu c 3/ r gtegpvcppwcnej cpeg qh dgkpi gs wcngf qt gzeggf gf kp cp{ i kxgp {gct0

HGOC wpf gtuvqqf ý cv kv oc{ vcng vkog vq ces vktg cpf lqt cuugo dng ý g f qewo gpvcvkqp pgeguuct{ vq hwn{ eqo r n{ y ky 66 EHT 870820 Vj gtghqtg. HGOC r wv hqt ý c r t qeguu vq r t qxkf g ý g eqo o vpkkkgu y ký cff kkqpcn vko g vq uvdo kv cm ý g pgeguuct{ f qewo gpvcvkqp0 Hqt c eqo o vpkk{ vq cxckn kugrh qh ý g cff kkqpcn vko g. kv j cf vq uki p cp ci tggo gpv y ký HGO C0Ngxggu hqt y j kej uvej ci tggo gpvu y gtg uki pgf ctg uj qy p qp ý g hkpcn ghtgevkxg HKTO cu r t qxkf kpi r t qvgevkqp ht qo ý g hqqf ý cv j cu c 3/r gtegpv cppvcnej cpeg qh dgkpi gs vcngf qt gzeggf gf kp cp{ i kxgp {gct cpf r cdgngf cu c Rt qxkukqpcm{ Ceetgf kxgf Ngxgg *RCN+0Eqo o vpkkkgu j cxg w q {gctu ht qo ý g f cvg qh HGO C¢u kpkkcn eqqtf kpcvkqp vq uvdo kv vq HGO C hkpcn ceetgf kcvkqp f cvc hqt cm RCNu0Hqmqy kpi tgegkr vqh hkpcn ceetgf kcvkqp f cvc. HGO C y kmtgxkug ý g HKU cpf HKTO cu y cttcpvgf 0

HGOC eqqtf kpcvgf y kj y g njecneqo o wpkkgu cpf qy gt qti cpk cvkqpu vq eqo r kng c nkuv qh ngxggu dcugf qp kphqto cvkqp htqo y g HKTO cpf eqo o wpkv{ rtqxkf gf kphqto cvkqp0

Crrtqzko cvg cpcn{ugu qh õdgj kpf ngxggö hrqqf kpi y gtg eqpf vevgf hqt cm y g ngxggu cpf go dcpmo gpvu kp O cvk Eqwpv{0 Vj g o gy qf qrqi { wugf kp y gug cpcn{ugu ku f kuewugf dgrqy 0

Vj g Mcwpenenek Utgeo ngxggu j cxg dggp fg/ceetgf kgf 0 C j {ftewke cpen{uku wukpi J GE/TCU 60802 y cu eqpf weyf gxcnxcvkpi y g ko r ceu qh ngxggu0 Vj g ngxgg utwewtgu y kj kpxgpvqt { KF %8 (%53 y gtg uwdlgevgf vq c P cwten Xcmg{ Cpen{uku0Hqwt fkhgtgpv uegpetkqu y gtg o qf grgf <pq tki j v depmrgxgg ko r ceu qp y g hrqqf y cvgtu. pq nghv depmrgxgg ko r ceu qp y g hrqqf y cvgtu. qq nghv depmrgxgg ko r ceu qp y g hrqqf y cvgtu. qq f y cvgtu. cpf pgkj gt ngxggu ko r cevkpi y g hrqqf y cvgtu0 Vj g j {ftewke cpen{uku y cu eqpf weyf kp ceeqtf cpeg y kj y g Ngxgg Cpen{uku cpf O crr kpi Rrcp y cvy cu etgevgf y tqwi j HGO C cpf mecneqo o wpkx{ uvengj qnf gt eq/qtf kpcvkqp0

Vj g go dcpno gpvutvewut gy ký kpxgpvqt { KF % ku necvgf qp ý g Y ckenve Ut geo 0 Wukpi ý g vqr qi ter j ke kphqto cvkqp qdvckpgf d { NkF CT gpi kpggt kpi lwf i o gpv. cp cr r tqzko cvg ctgc qh 3/r gtegpvcppwenej cpeg hrqqf kpi kp ý g gxgpvqh heknwt g qh ý g go dcpno gpvy cu f grkpgevgf 0

Vjg go dcpno gpv uvtwewytg y ky kpxgpvqt { KF % 9 ku meevef qp y g Mco kncpc I wrej 0 Wukpi y g vqr qi tcr j ke kphqto cvkqp qdvckpgf d { NkF CT cpf gpi kpggt kpi lwf i o gpv. cp cr r tqzko cvg ctgc qh3/r gtegpvcppwcnej cpeg hqqf kpi kp y g gxgpvqh hcknwtg qh y g go dcpmo gpvy cu f gkpgcvgf 0

Vjg go dcpmo gpv utvæwtgu y kj kpxgpvqt{ KF u % cpf 46 ctg mecvgf qp yjg Mcj cpc Utgco 0 Wukpi yjg vqrqitcrjke kphqto cvkqp htqo 315 cte ugeqpf WUI U F GO u cpf gpi kpggtkpi lwfio gpv. cp crrtqzko cvg ctgc qh3/r gtegpvcppvcnej cpeg hnqqf kpi kp yjg gxgpvqhhcknutg qh yjg go dcpmo gpvy cu f grkpgcvgf 0

Vjg ngxgg utvæwtg y ký kpxgpvqt { KF %33 ku ngecvgf qp Kcq Utgco 0 Wukpi ý g NKF CT vqr qi tcr j ke kphqto cvkqp. cp cr r tqzko cvg ctgc qh 3/r gtegpv cppwcnej cpeg hnqf kpi kp ý g gxgpv qh hcknwtg qh ý g ngxggu y cu f gvgto kpgf d { f grkpgcvkpi ý g Kcq Utgco dcug hnqf gngxcvkqpu qp ý g ncpf y ctf ukf g qh ý g ngxggu0

Vjg ngxgg utvæwtg y kj kpxgpvqt { KF %49 ku meevef qp ýg Keq Utgeo 0 Wukpi ýg vqrqiterj ke kphqto evkqp htqo 315 ete ugeqpf WUI UFGO u. ep errtqzko evg etge qh 3/r gtegpv eppven ej epeg hmqqf kpi kp ýg gxgpv qh heknutg qh ýg ngxggu y eu f gvgto kpgf d{ f gnkpgevkpi ýg Keq Utgeo deug hmqqf gngxevkqpu qp ýg nepfy etf ukf g qh ýg ngxggu0

Vj g go dcpno gpv utwewtg y kj kpxgpvqt { KF %36 ku necvgf qp y g Mchchpwk Utgco 0 Wukpi y g vqr qi tcr j ke kphqto cvkqp htqo 315 cte ugeqpf WUI UFGO u cpf gpi kpggtkpi lwfi o gpv cp cr r tqzko cvg ctgc qh 3/r gtegpv cppwcnej cpeg hqqf kpi kp y g gxgpvqhhcknwtg qh y g go dcpno gpvy cu f gnkpgcvgf 0

Vjggo dcpmo gpvutvewutgyk j kpxgpvqt { KF %42 ku nqecvgf qp y g Mkjgk I wnej 60 Wukpi y g NkFCT vqrqitcrjke kphqtocvkqp. cp crrtqzkocvg ctgc qh 3/rgtegpv cppwcn ej cpeg hnqqf kpi kp y g gxgpv qh hcknwtg qh y g go dcpmo gpwu y cu fgvgto kpgf d { fgnkpgcvkpi y g Mkjgk I wnej 6 dcug hnqqf gngxcvkqpu qp y g ncpfyctf ukfg qh y g go dcpmo gpvu0

Vj g ngxgg utwewtg y ký kpxgpvqt { KF %2 ku mecvgf qp ý g Kcq Utgco 0 Wukpi ý g vqr qi tcr j ke kphqto cvkqp htqo 315 cte ugeqpf WUI U FGO u cpf gpi kpggtkpi lwfi o gpv. c cr r tqzko cvg ctgc qh 3/r gtegpv cppwcnej cpeg hqqf kpi kp ý g gxgpv qh hcknwtg qh ý g ngxggu y cu f grkpgcvgf 0

505 XgtvkecnFcwo

Cm HKUu cpf HKTO u ctg tghgtgpegf vq c urgekhke xgtvkecn f cwo 0 Vjg xgtvkecn f cwo r tqxkfgu c uvctvkpi r qkpv ci ckpuv y j kej hrqqf. i tqwpf. cpf uvtwewtg grgxcvkqpu ecp dg tghgtgpegf cpf eqo r ctgf 0

Cm hrqqf grgxcvkqpu uj qy p kp vj ku HKU tgrqtv cpf qp vj g HKTO ctg tghgtgpegf vq Nqecn Vkf cn F cwo 0 Utwewtg cpf i tqwpf grgxcvkqpu kp vj g eqo o wpk { o wux vj gtghqtg. dg tghgtgpegf vq vj g Nqecn Vkf cn F cwo 0 Hqt o qtg kphqto cvkqp qp Nqecn Vkf cn F cwo . ugg vj g P cvkqpcn Qegcpke cpf C vo qurj gtke Cf o kpkuvtcvkqpøu *P QCC+ vkf cn kphqto cvkqp y gdrci g cv <u>j wr <1 kkf gucpf ewttgpvu(bqcc0 qx 1</u> <u>f cwo aqr vkqpu0 vo r</u>0

4.0 FLOODPLAIN MANAGEMENT APPLICATIONS

Vjg P HKR gpeqwtci gu Ucvg cpf mecni qxgtpo gpu vq cfqrvuqwpf hmqfrnckp o cpci go gpv rtqi tco u0 Vq cuukuvkp ý ku gpfgcxqt. gcej HKU rtqxkfgu 3/r gtegpvcppwcnej cpeg hmqfrnckp fcvc. y j kej o c{ kpenvfg c eqo dkpcvkqp qh ý g hqmqy kpi < 32/. 4/. 3/. cpf 204/r gtegpvcppwcne ej cpeg hmqfrnckp fgrgcvkqpu=fgrkpgcvkqpu qh ý g 3/ cpf 204/r gtegpvcppwcnej cpeg hmqfrnckpu= cpf 3/r gtegpvcppwcnej cpeg hmqfy c{0 Vj ku kphqto cvkqp ku rtgugpvgf qp ý g HKTO cpf kp o cp{ eqo rqpgpvu qh ý g HKU. kpenvfkpi Hmqf Rtqhkrgu. Hmqfy c{ Fcvc vcdrgu. cpf Uvo o ct{ qh Uvkny cvgt Grgxcvkqp vcdngu0 Wugtu uj qwrf tghgtgpeg ý g fcvc rtgugpvgf kp ý g HKU cu y gm cu cff kkqpcn kphqto cvkqp y cvo c{ dg cxckrcdrg cv ý g mecn eqo o wpkv{ o cr tgrqukqt{ dghqtg o cmkpi hmqf grgxcvkqp cpf kqt hmqfrnckp dqwpfct{ fgvgto kpcvkqpu0

608 Hrqqf r nckp Dqwpf ctkgu

Vq r tqxkf g c pcvkqpcnuvcpf ctf y ky qwvtgi kqpcnf kuetko kpcvkqp. y g 3/r gtegpvcppvcn ej cpeg hrqqf j cu dggp cf qr vgf d{ HGO C cu vj g dcug hrqqf hqt hrqqf r nckp o cpci go gpvr wtr qugu0 Vj g 204/r gtegpvcppwcnej cpeg hqqf ku go r m{gf vq kpf kecvg cffkkqpcnctgcu qhhqqf tkumkp y g eqwpv{0 Hqt y g uxtgco u uwuf kgf kp f gvckn y g 3/ cpf 204/r gtegpv cppwcn ej cpeg hqqfr nckp dqwpf ctkgu j cxg dggp f grkpgcvgf wukpi y g huquf grgxcvkqpu f gvgto kogf cv gcej etquu ugevkqp0 Dgw ggp etquu ugevkqpu. y g cpf 3.6.: 22. y kj eqpvqvt kpvgtxcnu qh 4. 7. cpf 32 hggv *WUCEG. Vgr qi tcr j ke O cr u. Eqpvqvt Kygtxcn7 hggv. 3; 98=WUCEG. Vqr qi tcr j ke O cr u. Eqpvqvt Kygtxcn 4 hggv=WUCEG. 3; 99=WUCEG. Var ai ter j ke O er u. Eqpvqvt Kovgtxen 7 hggv. Cwi wuv 3;95= WUCEG. Vargiterile Ocru. Eqpravt Kovgtxen 32 hggv. Lepwet{ 3;99= WUCEG. Lcpwct{ 3; 97=WUCEG. Vqr qi tcr j le O cr u. J ckmv/Y ckj gg Ctgc. Kncpf qh O cwk Lcpwct{ 3; 99=WUCEG. 3; : 6=WUCEG. Vqr qi tcr j ke O cr u. Mcj wwk Ctgc. Lepwet{ 3;99= WUCEG. Vgrgiterike Ocru. J cy cm/Mco cmg Ctgc. Kmcpf gh O qrqmck F gego dgt 3; 98=WUCEG. Vqr qi tcr j ke O cr u. Mcwpcmcmckcpf Mco krqmc Ctgcu. Kncpf qhOqmnck Fgego dgt 3; 98+0

Hqt y g hqqf kpi uqwtegu uwwf kgf d{ crrtqzko cvg o gy qfu. y g dqwpf ctkgu qh y g 3/r gtegpv cppwcnej cpeg hqqfrnckpu y gtg f gtkpgcvgf wukpi vqrqitcrj ke o cru vcngp htqo y g rtgxkqwun{ rtkpvgf HKU tgrqtvu. HJ DO u. cpf kqt HKTO u hqt O cwk Eqwpv{0

Vj g 3/ cpf 204/r gtegpv cppwcn ej cpeg hqqfr nckp dqwpf ctkgu ctg uj qy p qp ý g HKTO *Gzj kdkv 5+0 Qp ý ku o cr. ý g 3/r gtegpv cppwcn ej cpeg hqqfr nckp dqwpf ct{ eqttgur qpf u q ý g dqwpf ct{ qh ý g ctgcu qhur gekcnhqqf j c| ctf u *\ qpgu C cpf CG+. cpf ý g 204/r gtegpv cppwcnej cpeg hqqfr nckp dqwpf ct{ eqttgur qpf u q ý g dqwpf ct{ qh ctgcu qh o qf gtcvg hqqf j c| ctf u0 Kp ecugu y j gtg ý g 3/ cpf 204/r gtegpv cppwcn ej cpeg hqqfr nckp dqwpf ctkgu ctg enqug vqi gý gt. qpn{ y g 3/r gtegpv cppwcn ej cpeg hqqfr nckp dqwpf ct{ j cu dggp uj qy p0 Uo cmctgcu y kj kp ý g hqqfr nckp dqwpf ctkgu o c{ nkg cdqxg ý g hqqf grgxcvkqpu dw ecppqv dg uj qy p f wg vq nko kcvkqpu qh ý g o cr uecng cpf kqt neemqhf gvckrgf vqr qi tcr j ke f cvc0

Vjg eqcuvcnjkij jc|ctf ctgc. yg rqtvkqp qh yg eqcuv y cv ku kpwpf cvgf d{ yg 3/ rgtegpvcppwcnej cpeg uwpco kgrgxcvkqpu cpf gzjkdku y cxg cevkqp. y cu fgvgto kpgf wkrk kpi uwpco kgrgxcvkqpu cpf twpwr grgxcvkqpu0 Vjg rko kv qh twpwr ku eqo rwgf wukpi twpwr grgxcvkqpu cpf mpqy p vqrqitcrjke ej ctcevgtkuvkeu cpf ku dcugf qp c f gr ý qhhnqf kpi d{ ý g kpeqo kpi uwpco kqh202 hqv0 Vj g 3/r gtegpvcppwcnej cpeg uwpco k kpwpf cvkqp dqwpf ctkgu y gtg f grkpgcvgf wukpi o gý qf u qwrkpgf kp <u>Vuwpco k</u> <u>Kpwpf cvkqp Rtgf kevkqp</u> *Ej ctrgu N0 Dtgwej pgkf gt. 3; 98+ cpf vqr qi tcr j ke o cr u r tgxkqwn{ o gpvkqpgf *WUCEG. <u>Vqr qi tcr j ke O cr u</u>. Eqpvqwt Køvgtxcn 7 hgv. 3; 98= WUCEG. <u>Vqr qi tcr j ke O cr u</u>. Eqpvqwt Køvgtxcn 4 hgv= WUCEG. 3; 99= WUCEG. <u>Vqr qi tcr j ke O cr u</u>. Eqpvqwt Køvgtxcn 7 hgv. Cwi wuv 3; 95= WUCEG. <u>Vqr qi tcr j ke</u> <u>O cr u</u>. Eqpvqwt Køvgtxcn 7 hgv. Cwi wuv 3; 95= WUCEG. <u>Vqr qi tcr j ke</u> <u>O cr u</u>. Eqpvqwt Køvgtxcn 32 hgv. Lcpwct{ 3; 99= WUCEG. Lcpwct{ 3; 97= WUCEG. <u>Vqr qi tcr j ke O cr u</u>. J ckmv/Y ckj gg Ctgc. Knrcpf qh O cwk Lcpwct{ 3; 99= WUCEG. <u>3; : 6= WUCEG. Vqr qi tcr j ke O cr u</u>. Mcj wnkk Ctgc. Lcpwct{ 3; 99= WUCEG. <u>Vqr qi tcr j ke O cr u</u>. J cy cm/Mco cm Ctgc. Knrcpf qh O qmnæk F gego dgt 3; 98= WUCEG. <u>Vqr qi tcr j ke O cr u</u>. Mcwpenenækcepf Mco kmmc Ctgcu. Knrcpf qh O qmnæk F gego dgt 3; 98= WUO F gr ctvo gpv qh ý g Køvgtkqt. 3; 79. gv egvgtc+0 Vuwpco k løwpf cvkqp dqwpf ctkgu y gtg f grkpgcvgf hrt ý g Knrcpf qh Ncpckdcugf qp vqr qi tcr j ke NKF CT f cvc qdvckpgf kp 4226/4228 cpf qt y qtgevkhløf cgtkcnr j qvi tcr j {0

Vj g 3/r gtegpvcppwcnej cpeg hqqfr nckp dqwpf ctkgu hqt ctgcu uwwf kgf d{ crrtqzko cvg o gy qfu y gtg fgvgto kpgf d{ xctkqwu o gy qfu cpf ctg i tqwrgf wpf gt y tgg ecvgi qtkgu<

- 30 Crrtqzko cyg 3/r gtegpv cppwcnej cpeg dqwpf ctkgu f gygto kpgf d{ y ku uwwf { wukpi y g j {ftqnqi ke cpf j {ftcwrke o gyj qf u fguetkdgf gctrkgt hqt ctgcu $uwf kgf d\{ crrtqz ko cvg o gvj qf u0 \}$ Vqrqitcrjke o cru *Ej ctngu N0 Dtgwej pgkf gt. 3; 98+cpf vqr qi tcr j ke o cr u r tgxkqwun{ o gpvkqpgf *WUCEG. Vqrqitcrjke Ocru. Eqpvqvt Køvgtxcn 7 hggv. 3; 98=WUCEG. Vqrqitcrjke O cr u. Eqpvqwt Kovgtxcn4 hggy=WCEG. 3; 99=WCEG. Vqr qi tcr j ke O cr u. Eqpvqvt Kovgtxcn7 hggv. Cwi wuv3; 95=WUCEG. Vqr qi tcr j ke O cr u. Eqpvqvt Køygtxen 32 hggv. Lepwet{ 3;99= WUCEG. Lepwet{ 3;97= WUCEG. Varaiterike Ocru. J cknw/Y ckj gg Ctgc. Kurcpf ah Ocwk Lepwet{ 3;99= WUCEG. 3; : 6=WUCEG. Vqr qi tcr j le O cr u. Mcj wwk Ctgc. Lcpwct { 3; 99= WUCEG. Vargiterike Ocru. Jeyem/Meoem Ctge. Kumpf an Ogmanek F gego dgt 3; 98=WUCEG. Vqr qi tcr j le O cr u. Mcwpcmcmck cpf Mco knprqc Ctgcu. Kncpf qh O qnqnck F gego dgt 3; 98=WU0F gr ctvo gpv qh y g Kpvgtkqt. 3; 79. gvegygtc+ctg y g uco g cu y qug wugf hqt y g ctgcu uwf lgf d{ f gyclygf o gyj qf u0
- 40 Crrtqzko cvg 3/r gtegpv cppvcnej cpeg hqqfrnckp dqwpf ctkgu y gtg gz v cevef htqortkqt uwf kgu ý cvf grkpgcvg hqqf/r tqpg ctgcu dcugf qp ý g hqqf j kuqt{ qhý g ctgc *WUOF gr ctvo gpvqh ý g Kygtkqt. 3; 95. gvegygtc+0
- 50 Crrtqzko cvg 3/r gtegpv cppwcn ej cpeg hqqfrnckp dqwpf ctkgu y gtg vcngp htqo ý g ghgevksg HKTO hqt O cvkEqwpv{0
- 604 Hungqfyc{u

Gpetqcej o gpv qp hqqfr nckpu. uwej cu utwewtgu cpf hkm tgf wegu hqqf/ectt{kpi ecr cekk{. kpetgcugu hqqf j gki j w cpf xgqekkgu. cpf kpetgcugu hqqf j c| ctf u kp ctgcu dg{qpf y g gpetqcej o gpv kught) Qpg cur gev qh hqqfr nckp o cpci go gpv kpxqnxgu dcncpekpi y g geqpqo ke i ckp htqo hqqfr nckp f gxgqqr o gpv ci ckpuv y g tguwnkpi kpetgcug kp hqqf j c| ctf 0 Hqt r wtr qugu qh y g PHKR. c hqqf y c{ ku wugf cu c vqqn q

cuukuv necn eqo o wpkkgu kp ý ku cur gev qh hnqqf r nckp o cpci go gp0 Wpf gt ý ku eqpegr v. ý g ctgc qh ý g 3/r gtegpv cppwcn ej cpeg hnqqf r nckp ku f kxkf gf kpvq c hnqqf y c{ cpf c hnqqf y c{ htlpi g0 Vj g hnqqf y c{ ku ý g ej cppgnqhc uvtgco . r nwu cp{ cf lcegpv hnqqf r nckp ctgcu. ý cv o wuv dg ngr v htgg qh gpetqcej o gpv uq ý cv ý g 3/r gtegpv cppwcnej cpeg hnqqf ecp dg ecttlgf y ký qw uvduvcpvkcnkpetgcugu kp hnqqf j gki j vu O kpko wo hgf gtcn uvcpf ctf u nko kvuwej kpetgcugu vq 302 hqv. r tqxkf gf ý cv j c| ctf qwu xgnqekkgu ctg pqv r tqf wegf 0 Vj g hnqqf y c{ u kp ý ku HKU ctg r tgugpvgf vq ngecnci gpekgu cu o kpko wo uvcpf ctf u ý cvecp dg cf qr vgf f ktgevn{ qt ý cvecp dg wugf cu c dcuku hqt cf f kkqpcnhnqf y c{ uwf kgu0

Vjg hrqqfyc{urtgugpvgf kp vj ku HKU y gtg eqorwgf hqt egtvckp uvtgco ugi o gpvu qp vjg dcuku qhgs wcneqpxg{cpeg tgf wevkqp htqo gcej ukfg qh vjg hrqqfrnckp0

Huqqf y c{ y kf y u y gtg eqo r wgf cv etquu ugevkqpu0 Dgw ggp etquu ugevkqpu. y g huqqf y c{ dqwpf ctkgu y gtg kpvgtr qncvgf 0 Vj g tguwnu qh y g huqqf y c{ eqo r wcvkqpu ctg vcdwncvgf hqt ugrgevgf etquu ugevkqpu *Vcdrg 32+0 Vj g eqo r wgf huqqf y c{ u ctg uj qy p qp y g HKTO *Gzj kdkv 5+0 Kp ecugu y j gtg y g huqqf y c{ cpf 3/r gtegpv cppwcn ej cpeg huqqf r nckp dqwpf ctkgu ctg gky gt enqug vqi gy gt qt eqnkpgct. qpn{ y g huqqf y c{ dqwpf ct{ ku uj qy p0

Gpetqcej o gpv kyq ctgcu uvdlgev vq kywpf cvkqp d{ hrqqf y cvgtu j cxkpi j c| ctf qwu xgrqekkgu ci i tcxcvgu y g tkumqhhrqqf f co ci g. cpf j gki j vgpu r qvgpvkcnhrqqf j c| ctf u d{ hvt y gt kpetgcukpi xgrqekkgu C rkuvkpi qh uvtgco xgrqekkgu cv uggevgf etquu ugevkqpu ku r tqxkf gf kp Vcdrg 32. \$Hrqqf y c{ F cvc0\$ Kp qtf gt vq tgf weg y g tkumqh r tqr gtv{ f co ci g kp ctgcu y j gtg y g uvtgco xgrqekkgu ctg j ki j. y g eqo o wpk{ o c{ y kij vq tguvtkevf gxgrqr o gpv kp ctgcu qwukf g y g hrqqf y c{0 Hrqqf y cvgtu htqo y qug uvtgco u o gpvkqpgf kp Ugevkqp 504 y j kej gzj kdkgf uvr gtetkkecn hrqy y gtg cmq hqwpf vq j cxg j c| ctf qwu xgrqekkgu ci i tcxcvgu y g tkumqhhrqqf f co ci g. cpf j gki j vgpu r qvgpvkcn hrqqf j c| ctf u d{ hvt y gt kpetgcukpi xgrqekkgu0 Vq r tqxkf g i wkf cpeg hqt gpetqcej o gpv kpvq y gug ctgcu c hrqqf y c{ ku f grkpgcvgf hqt y cvr ctvqh y g 3/r gtegpvcppwcnej cpeg hrqqf r mkp y cveqpxg{u hrq0

Hnqqfyc{u ygtg pqv fggo gf crrtqrtkcvg kp ýg ctgcu yjgtg ujcmqy hnqqfkpi eqpfkkqpu gzkuð Hqt uvtgco u fkuejcti kpi kpvq ýg qegcp. ýg hnqqfyc{ dqwpfctkgu ygtg vgto kpcvgf cv ýg eqcuvcn jki j jc|ctf dqwpfct{0 Cffkkqpcm{ pq hnqqfyc{ cpcn{uku y cu eqpfwevgf qp Mgqngc I wnej cu gpetqcej kpi wr qp ýg hnqqfrnckp kp ýg wrrgt tgcej gu qh ýg uwuf{ yqwnf etgcvg xgt{ jki j xgnqekv{ jc|ctfu cpf ýg fqy puvtgco tgcej yjgtg tgncvkxgn{ uchg gpetqcej o gpv qp ýg hnqqfrnckp yqwnf r quukdng y cu ykj kp ýg Mkj gk Tgi kqpcnRctmcpf kp y cu uwuf kgf d{ c 4/f ko gpukqpcn o qf gn yjgtg hnqqfyc{ ecnewncvkqpu ctg pqvrtcevkecdng0

Vj g ctgc dgw ggp ý g hnqqf y c{ cpf 3/r gtegpv cppwcnej cpeg hnqqf r nckp dqwpf ctkgu ku vgto gf ý g hnqqf y c{ htkpi g0 Vj g hnqqf y c{ htkpi g gpeqo r cuugu ý g r qtvkqp qh ý g hnqqf r nckp ý cveqwrf dg eqo r ngvgn{ qduxtwevgf y ký qwv kpetgcukpi ý g y cvgt uvthceg grgxcvkqp qh ý g 3/r gtegpv cppwcnej cpeg hnqqf d{ o qtg ý cp 302 hqqv cvcp{ r qkpv0 V{r kecn tgncvkqpuj kru dgw ggp ý g hnqqf y c{ cpf ý g hnqqf y c{ htkpi g cpf ý gkt uki pkhecpeg vq hnqqf r nckp f gxgnqr o gpv ctg uj qy p kp Hki wtg 7. õHnqqf y c{ Uej go cvkeö0



Figure 5: Floodway Schematic
						BASE EL	חסנ			
FLOODING SOU	RCE		FLOODWA	Y	W	ATER-SURFACE	ELEVATION			
	-		1		(F	EET LOCAL TIE	AL DATUM)			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE		
HAHAKEA GULCH			,	,						
A B C D E F	650 ¹ 1,060 ¹ 2,010 ¹ 2,704 ¹ 3,426 ¹ 4,705 ¹	234 331 73 70 62 25	590 700 382 941 441 314	7.8 9.3 12.0 4.9 10.4 14.7	15.1 35.2 72.5 115.4 157.0 226.7	15.1 35.2 72.5 115.4 157.0 226.7	15.1 35.2 72.5 116.3 157.7 227.2	0.0 0.0 0.9 0.7 0.5		
HONOKAHUA STREAM										
A B	1,460 ² 1,930 ²	141 159	222 326	16.1 8.6	27.2 40.1	27.2 40.1	27.2 40.1	0.0 0.0		
HONOKEANA BAY GULCH										
A B C D	360 ² 900 ² 1,900 ² 2,720 ²	183 78 37 43	450 118 48 75	1.8 7.0 17.3 17.4	22.8 33.0 67.6 112.5	22.8 33.0 67.6 112.5	23.5 33.0 67.6 112.5	0.7 0.0 0.0 0.0		
¹ Stream distance in feet above	confluence with A	uau Channel				-				
² Stream distance in feet above ³ Stream distance in feet above	confluence with H	onokeana Baj	у							
FEDERAL EMERGE		NT AGENCY		FLOODWAY DATA						
m MAUI (10	COUNTY,	HI		HAK	AKEA GULCH - HONOKEAI	- HONOKAH NA BAY GU	HUA STREA	M		

	ΜΑυι Ο	COUNTY,	ні			I LOOD		~	
ΔL	FEDERAL EMERGEN	ICY MANAGEMEI	NT AGENCY			FLOOD	WAY DAT	Δ	
¹ S	tream distance in feet above	 mouth							
	-	,							
	N O	12,602	352 187	3,173 942	3.6	324.7 347.4	324.7 347.4	324.7 347.4	0.0 0.0
	K L M	10,005	135 123	828	10.5 13.9 14.6	244.5 273.7 294.7	244.5 273.7 294 7	273.7 294.8	0.2 0.0 0.1
	ו J צ	8,033 8,790	89 89 100	714 716	16.1 16.1 10.5	187.9 203.4 244 5	203.4	203.3	-0.1
	G H	6,372 7,365	90 100	718 745	16.0 15.5	145.5 169.8	145.5 169.8	145.5 169.8	0.0
	E F	4,433 5,183	93 98	768	15.0 15.4	90.4 111.1	90.4 111.1	90.4 111.1	0.0 0.0
	C D	2,296 3,264	116 79	895 800	15.4 17.2	41.0 62.8	41.0 62.8	41.0 63.2	0.0 0.4
	A B	985 1,362	111 97	869 830	15.9 16.6	18.1 22.8	18.1 22.8	18.1 22.8	0.0 0.0
	IAO STREAM								
	CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
						(F	EET LOCAL TID	AL DATUM)	
	FLOODING SOUF	RCE		FLOODWA	(WA	BASE FLO	DOD ELEVATION	

¹ ç	Stream distance in feet above i	nouth							
	A B C D E F G	560** 631** 673** 1,098** 1,195** 1,420**	* * * * *	* * * * * *	* * * * *	15.6** 16.4** 17.5** 25.9** 26.1** 27.4** 29.3**	15.6** 16.4** 17.5** 25.9** 26.1** 27.4** 29.3**	* * * * *	* * * * * * *
	CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
	FLOODING SOUF	RCE		FLOODWA	Y	W/ (F	BASE FLO	OOD ELEVATION AL DATUM)	

FEDERAL EMERGEN	CY MANAGEME	NT AGENCY			FLOOD	WAY DAT	A		
Stream distance in feet above of Stream distance in feet above of Stream distance in feet above of	confluence with Pa nouth confluence with Pa	ailolo Channe acific Ocean	I (Pacific Ocean) *D ** D	ata not available istance and Water Surfac	e Elevation values	estimated from FI	ood Profile	
) *D					
D	4,520 ³ **	*	*	*	34.2**	34.2**	*	*	
ь С	2,030 3,135 ³	900 995	5,024 5,850	3.4 1.7	24.6	24.6	25.6	1.0	
A	$1,400^3$	1,080	4,920	2.1	13.7	13.7	14.7 15 5	1.0	
KALIALINUI GULCH									
D	4,8603	28	132	12.1	222.9	222.9	223.0	0.1	
С	4,080 ³	237	307	5.5	163.0	163.0	163.0	0.0	
В	3,160 ³	122	231	7.9	103.8	103.8	103.8	0.0	
А	1,510 ³	130	255	8.0	54.9	54.9	54.9	0.0	
KALEPA GULCH									
G	3,724 ²	127	671	11.9	82.8	82.8	83.1	0.3	
F	3,320 ²	178	756	10.6	71.1	71.1	71.8	0.7	
Ē	2,990 ²	141	707	11.3	66.1	66.1	66.7	0.6	
D	$2,330^2$	514	1.781	4.5	49.1	49.1	49.9	0.9	
С	$1,220^{2}$ 1.870 ²	468	082	/.1 8 1	25.4 11.2	25.4 11 2	25.8 12 1	0.4	
A	670 ²	795	1,362	5.9	17.2	17.2	17.2	0.0	
KAILUA GULCH									
А	760 ¹	171	846	10.5	15.2	15.2	16.2	1.0	
KAHANANUI GULCH									
CROSS SECTION	DISTANCE	WIDTH (FEET)	AREA (SQUARE FEET)	VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE	
			SECTION		(Г	EET LOCAL TIL			
FLOODING SOUR	CE		FLOODWA	Ŷ					
					147				

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FLOODWAY DATA

KAHANANUI GULCH – KAILUA GULCH **KALEPA GULCH – KALIALINUI GULCH**

						BASE FLO	DOD		
FLOODING SOUR	CE		FLOODWA	Y	WA	ATER-SURFACE	ELEVATION		
					(FEET LOCAL TIDAL DATUM)				
CROSS SECTION	DISTANCE ¹	WIDTH	SECTION AREA	MEAN VELOCITY	REGULATORY	WITHOUT	WITH	INCREASE	
		(FEEI)	(SQUARE FEET)	(FEET PER SECOND)		FLOODWAY	FLOODWAY		
KALUAIHAKOKO STREAM			, , , , , , , , , , , , , , , , , , ,	· · · · ·					
А	177	19	49	9.5	13.4	13.4	13.4	0.0	
В	214	26	57	8.1	16.0	16.0	16.2	0.2	
С	383	24	69	7.2	18.3	18.3	18.6	0.3	
D	521	78	192	2.2	22.2	22.2	22.2	0.0	
E	560	29	67	6.4	22.2	22.2	22.3	0.1	
F	773	31	80	5.4	28.1	28.1	28.2	0.1	
G	1,013	25	52	8.2	33.0	33.0	33.0	0.0	
Н	1,050	31	66	6.5	33.7	33.7	34.0	0.3	
I	1,129	25	52	8.3	36.1	36.1	36.1	0.0	
J	1,259	42	75	5.7	40.7	40.7	40.8	0.1	
К	1,622	25	54	8.4	54.9	54.9	54.9	0.0	
L	1,668	35	161	2.6	57.9	57.9	58.2	0.3	
Μ	1,734	27	67	6.2	58.8	58.8	59.0	0.2	
Ν	1,777	23	50	8.4	62.1	62.1	62.1	0.0	
0	1,853	23	106	3.9	65.5	65.5	65.7	0.2	
Р	1,914	23	61	6.9	65.6	65.6	65.8	0.2	
Q	2,017	16	44	9.4	72.3	72.3	72.4	0.1	
R	2,071	20	47	8.8	77.5	77.5	77.5	0.0	
S	2,154	17	45	9.3	79.5	79.5	79.5	0.0	
Т	2,203	19	46	9.0	82.7	82.7	82.7	0.0	
U	2,386	21	58	7.2	87.0	87.0	87.1	0.1	
V	2,467	25	101	4.1	90.2	90.2	90.6	0.4	
W	2,497	28	53	7.9	90.6	90.6	90.6	0.0	
Х	2,548	19	46	8.8	93.5	93.5	93.5	0.0	
Y	2,596	17	44	9.3	94.7	94.7	94.7	0.0	
Z	2,637	39	59	7.0	98.4	98.4	99.0	0.6	
AA	2,765	50	117	7.8	102.5	102.5	103.0	0.5	

TABLE

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FEDERAL EMERGENCY MANAGEMENT AGENCY

FLOODWAY DATA

MAUI COUNTY, HI

KALUAIHAKOKO STREAM

		Γ							
	~-					BASE FLC	DOD		
FLOODING SOUR	CE		FLOODWAY	Y					
			I		(F	EET LOCAL TID	DAL DATUM)		
			SECTION	MEAN					
CROSS SECTION		WIDTH	AREA	VELOCITY	REGULATORY	WITHOUT	WITH	INCREASE	
	DIGITATOL	(FEET)	(SQUARE	(FEET PER		FLOODWAY	FLOODWAY	INCINE/ICE	
			FEET)	SECOND)					
KALUAIHAKOKO STREAM									
(continued)	1								
AB	2,988	38	84	4.8	106.2	106.2	106.3	0.1	
AC	3,131'	46	81	4.9	108.5	108.5	108.5	0.0	
AD	3,184'	21	47	8.5	118.7	118.7	118.7	0.0	
AE	3,243'	24	49	8.2	122.3	122.3	122.3	0.0	
AF	3,299'	19	63	6.4	123.1	123.1	123.5	0.4	
AG	3,480	27	51	7.8	131.6	131.6	131.7	0.1	
АН	3,530	43	170	2.4	135.5	135.5	135.6	0.1	
KAMALO GULCH									
A	820 ²	487	1,179	10.7	7.8	7.8	8.8	1.0	
KAMAOLE GULCH									
А	166^{1}	420	715	53	11 2	11.2	12 1	0.9	
B	302 ¹	351	755	5.2	15.4	15.4	15.4	0.0	
C	375 ¹	255	850	5.0	16.8	16.8	17.8	1.0	
D	514 ¹	301	544	6.9	19.4	19.4	19.4	0.0	
E	597 ¹	260	616	6.1	23.6	23.6	23.8	0.2	
F	813 ¹	89	681	5.5	28.4	28.4	29.3	0.9	
G	988 ¹	83	424	8.9	29.2	29.2	30.2	1.0	
Н	1,196 ¹	127	402	9.4	36.7	36.7	37.2	0.5	
I	1,378 ¹	52	284	13.2	40.4	40.4	40.4	0.0	
J	1,6841	34	270	15.3	50.7	50.7	50.7	0.0	

² Stream distance in feet above confluence with Kalohi Channel (Pacific Ocean)

FEDERAL EMERGENCY MANAGEMENT AGENCY

MAUI COUNTY, HI

FLOODWAY DATA

KALUAIHAKOKO STREAM – KAMALO GULCH KAMAOLE GULCH

TABLE 10

						BASE FLO	DOD		
FLOODING SOUF	RCE		FLOODWA	Y	WATER-SURFACE ELEVATION				
			-		(F	EET LOCAL TID	AL DATUM)		
			SECTION	MEAN					
		WIDTH	AREA	VELOCITY		WITHOUT	WITH		
CR033 SECTION	DISTANCE	(FEET)	(SQUARE	(FEET PER	REGULATORI	FLOODWAY	FLOODWAY	INCREASE	
		. ,	FEET)	SECOND)					
KAMAOLE GULCH			, í	· · · · · · · · · · · · · · · · · · ·					
(continued)									
К	1,893 ¹	37	253	14.9	59.2	59.2	59.2	0.0	
L	2,211 ¹	56	290	13.0	74.5	74.5	74.5	0.0	
M	2,422 ¹	48	277	13.6	81.6	81.6	81.6	0.0	
N	2,609 ¹	50	280	13.4	89.0	89.0	89.0	0.0	
0	2,803 ¹	69	311	12.1	98.6	98.6	98.6	0.0	
Р	3,022 ¹	66	465	8.1	103.5	103.5	103.7	0.2	
Q	3,098 ¹	71	609	6.4	106.5	106.5	106.8	0.3	
R	3,241	50	306	7.3	109.5	109.5	110.3	0.8	
S	3,3771	129	581	6.8	115.7	115.7	116.7	1.0	
Т	3,579'	69	304	11.9	119.3	119.3	119.3	0.0	
KAMILOLOA GULCH									
А	715 ¹	465	1,455	9.5	10.0	10.0	10.9	0.9	
В	1,330 ¹	455	933	13.4	20.4	20.4	21.3	0.9	
KAOPALA GULCH									
A	50 ²	120	355	7.6	19.4	19.4	19.8	0.4	
В	215 ²	115	357	7.9	24.1	24.1	24.1	0.0	
С	280 ²	115	1,212	2.7	31.7	31.7	31.7	0.0	
D	675 ²	17	90	13.3	37.2	37.2	37.2	0.0	
E	1,050 ²	60	188	11.5	45.4	45.4	45.4	0.0	
F	1,250 ²	120	1,323	3.0	60.0	60.0	60.0	0.0	
G	1,445 ²	70	1,093	3.1	65.7	65.7	65.7	0.0	
Н Н	1,910 ²	21	144	21.3	68.5	68.5	68.5	0.0	

² Stream distance in feet above mouth

TABLE

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FEDERAL EMERGENCY MANAGEMENT AGENCY

MAUI COUNTY, HI

FLOODWAY DATA

KAMAOLE GULCH – KAMILOLOA GULCH KAOPALA GULCH

	FLOODING SOUR	CE		FLOODWAY	Y	WA (F	BASE FLO ATER-SURFACE EET LOCAL TID	DOD ELEVATION DAL DATUM)	
	CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
	KAUAULA STREAM				, , , , , , , , , , , , , , , , , , ,				
	A B C	760 ¹ 1,720 ¹ 2,560 ¹	36 51 51	114 189 199	35.0 21.1 20.1	14.1 54.9 107.8	14.1 54.9 107.8	14.1 54.9 107.8	0.0 0.0 0.0
ŀ	KAUNAKAKAI STREAM								
	A B C D E F G H I J K L	500^2 1,157 ² 1,480 ² 1,634 ² 1,914 ² 2,306 ² 2,507 ² 3,033 ² 3,500 ² 4,000 ² 4,498 ² 5,002 ²	1,728 1,555 1,273 1,178 670 249 212 247 167 203 95 140	2,261 4,806 5,318 5,700 3,043 1,220 1,172 1,842 1,358 1,527 1,019 1,307	6.6 3.7 2.8 2.6 4.9 12.3 12.8 8.1 11.1 9.8 14.7 11.5	$\begin{array}{c} 5.3 \ / \ 6.1 \ / \ 6.1^3 \\ 7.7 \ / \ 8.4 \ / \ 8.4^3 \\ 8.2 \ / \ 8.8 \ / \ 8.8^3 \\ 8.5 \ / \ 9.6 \ / \ 9.6^3 \\ 8.7 \ / \ 9.7 \ / \ 9.7^3 \\ 9.3 \ / \ 9.8 \ / \ 10.1^3 \\ 11.4 \ / \ 11.8 \ / \ 12.1^3 \\ 14.0 \ / \ 15.3 \ / \ 14.3^3 \\ 19.9 \ / \ 19.9 \ / \ 19.9^3 \\ 27.5 \ / \ 27.5 \ / \ 27.5^3 \\ 33.3 \ / \ 33.3 \ / \ 33.3^3 \\ 50.6 \ / \ 50.6 \ / \ 50.6^3 \end{array}$	6.1^4 8.4^4 9.5^4 9.6^4 9.8^4 11.8^4 15.3^4 19.9^4 27.5^4 33.3^4 50.6^4	$\begin{array}{c} 6.1^{4} \\ 8.4^{4} \\ 8.8^{4} \\ 9.6^{4} \\ 9.7^{4} \\ 9.8^{4} \\ 11.9^{4} \\ 15.3^{4} \\ 20.2^{4} \\ 27.6^{4} \\ 33.7^{4} \\ 50.9^{4} \end{array}$	$\begin{array}{c} 0.0\\ 0.0\\ 0.0\\ 0.1\\ 0.1\\ 0.0\\ 0.1\\ 0.0\\ 0.3\\ 0.1\\ 0.4\\ 0.3 \end{array}$
¹ S ² S ³ L ⁴ E	tream distance in feet above of tream distance in feet above of andward of left levee/River Clevations calculated withou	confluence with Au confluence with Pa cward of levees/ ut consideration	uau Channel (acific Ocean /Landward o of levees	Pacific Ocean) f right levee*	*Note	e: References to left and ri	ight are based on	looking in the dowr	nstream direction
TABL		Α							
E 10					KAU	AULA STREAM	- KAUNAKA	AKAI STRE	AM

FLOODING SOU	RCE		FLOODWA	Y	W. (F	BASE FLC ATER-SURFACE	DOD ELEVATION DATUM)		
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE	
KAWELA GULCH			,	0200112)					
A B C D	150 ¹ 705 ¹ 1,180 ¹ 1,725 ¹	1,187 1,106 664 338	3,289 2,724 1,624 1,314	5.2 6.2 10.5 12.9	5.8 8.7 12.4 28.6	5.8 8.7 12.4 28.6	6.6 9.7 13.4 29.3	0.8 1.0 1.0 0.7	
KEAWANUI GULCH									
A B	774** 1,835**	* *	*	*	9.9** 40.5**	9.9** 40.5**	* *	*	
KIHEI GULCH 1									
A B C D E F G H I J K L M Stream distance in feet above Stream distance in feet above	1,219 ² 1,388 ² 1,902 ² 2,305 ² 2,352 ² 2,528 ² 3,011 ² 3,232 ² 3,585 ² 3,770 ² 3,932 ² 4,080 ² 4,210 ²	248 213 168 110 98 60 30 28 43 52 60 40 Iohi Channel cific Ocean	463 436 337 188 301 114 107 93 87 75 157 86 75 (Pacific Ocean)	2.2 2.3 3.0 4.5 2.7 6.3 6.7 7.7 8.1 6.9 3.3 6.0 6.9	8.6 9.8 15.8 21.3 21.6 26.2 37.1 42.5 54.2 62.8 71.3 87.1 96.6 Data not available Distance and Water Surf	8.6 9.8 15.8 21.3 21.6 26.2 37.1 42.5 54.2 62.8 71.3 87.1 96.6	9.4 10.5 16.8 21.6 22.5 26.3 37.3 43.0 54.3 62.8 71.3 87.1 96.7	0.8 0.7 1.0 0.3 0.9 0.1 0.2 0.5 0.1 0.0 0.0 0.0 0.1 Flood Profile	
FEDERAL EMERGE	NCY MANAGEMEI	NT AGENCY		FLOODWAY DATA					
MAUL	COUNTY,	HI							

FLOODWAY DATA

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KAWELA GULCH – KEAWANUI GULCH – KIHEI GULCH 1

FLOODING SOUR	CE		FLOODWAY	Y	BASE FLOOD WATER-SURFACE ELEVATION (FEET LOCAL TIDAL DATUM)			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
KIHEI GULCH 2								
A B	990 1,500	34 104	134 306	24.1 11.4	31.7 82.2	31.7 82.2	31.7 82.2	0.0 0.0
KIHEI GULCH 3								
A B	960 1,620	51 134	208 209	13.4 13.4	49.2 93.8	49.2 93.8	49.2 93.8	0.0 0.0
KIHEI GULCH 4								
A B	700 ¹ 1,550 ¹	88 33	193 92	10.4 20.7	35.8 90.5	35.8 90.5	35.8 90.5	0.0 0.0
KOPE GULCH								
A B C D	1,667 ¹ 2,756 ¹ 3,568 ¹ 4,300 ¹	98 103 89 126	397 268 251 274	7.2 9.4 9.7 8.4	46.6 74.5 97.1 131.5	46.6 74.5 97.1 131.5	46.8 74.5 97.2 131.5	0.2 0.0 0.1 0.0
IILIOHOLO GULCH								
A B	810 ¹ 1,550 ¹	49 56	171 161	17.5 18.7	21.8 51.6	21.8 51.6	21.8 51.6	0.0 0.0

TABLE

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FEDERAL EMERGENCY MANAGEMENT AGENCY

FLOODWAY DATA

MAUI COUNTY, HI

KIHEI GULCH 2 – KIHEI GULCH 3 – KIHEI GULCH 4 – KOPE GULCH – LIILIOHOLO GULCH

FLOODING SOUF	RCE		FLOODWA	Y	BASE FLOOD WATER-SURFACE ELEVATION (FEET LOCAL TIDAL DATUM)				
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE	
MAHINAHINA GULCH				,					
A	1,172 ¹	201	1,390	1.7	42.0	42.0	42.0	0.0	
MILE 84 STREAM									
A B C	900 ² 1,980 ² 2,700 ²	1,869 1,251 626	6,327 3,239 1,860	2.2 10.5 6.4	7.0 16.5 17.5	7.0 16.5 17.5	7.8 17.3 18.5	0.8 0.8 1.0	
NAPILI GULCH 2-3									
A B	1,440 ³ 1,920 ³	99 42	115 87	9.7 11.7	22.8 39.2	22.8 39.2	22.8 39.2	0.0 0.0	
NAPILI GULCH 4-5									
A B C	950 ⁴ 1,800 ⁴ 3,280 ⁴	102 103 25	348 151 117	3.7 8.6 11.1	31.7 57.9 116.0	31.7 57.9 116.0	32.5 57.9 116.3	0.8 0.0 0.3	
OHIA GULCH									
A B	590 ⁴ 1,150 ⁴	212 138	846 725	7.1 8.3	10.5 22.8	10.5 22.8	11.3 23.2	0.8 0.4	
В	1,1504	138	725	8.3	22.8	22.8	23.2	0.	

¹ Stream distance in feet above confluence with Pailolo Channel (Pacific Ocean) ² Stream distance in feet above confluence with Pacific Ocean

³ Stream distance in feet above mouth

TABLE

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⁴ Stream distance in feet above confluence with Napili Bay

FLOODWAY DATA

MAUI COUNTY, HAWAII

MAHINAHINA GULCH – MILE 84 STREAM – NAPILI GULCH 2-3 – **NAPILI GULCH 4-5 – OHIA GULCH**

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET LOCAL TIDAL DATUM)			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
OLOWALU STREAM			, í					
A B C	2,000 ¹ 2,460 ¹ 2,820 ¹	137 188 236	299 349 380	15.3 13.9 10.3	50.9 61.5 73.2	50.9 61.5 73.2	50.9 61.5 73.2	0.0 0.0 0.0
PUKOO GULCH								
A B C	630 ² 760 ² 900 ²	366 101 127	867 261 313	3.3 11.1 9.3	9.0 10.4 14.8	9.0 10.4 14.8	9.7 11.4 15.8	0.7 1.0 1.0
UNNAMED STREAM AT KUAU POINT								
A B	520 ¹ 1,200 ¹	131 138	751 496	3.4 5.1	19.0 25.3	19.0 25.3	19.8 25.9	0.8 0.6

² Stream distance in feet above confluence with Pailolo Channel (Pacific Ocean)

FEDERAL EMERGENCY MANAGEMENT AGENCY

FLOODWAY DATA

OLOWALU STREAM – PUKOO GULCH UNNAMED STREAM AT KUAU POINT

MAUI COUNTY, HAWAII

TABLE

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FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET LOCAL TIDAL DATUM)			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
WAIAKOA GULCH								
A B C D E F G H I J K	3,018 ¹ 3,538 ¹ 4,584 ¹ 5,338 ¹ 5,782 ¹ 6,018 ¹ 6,838 ¹ 7,854 ¹ 8,490 ¹ 9,023 ¹ 9,231 ¹	93 173 219 221 231 78 98 102 87 84 114	511 629 1,030 672 693 480 518 528 499 503 552	$13.3 \\ 10.8 \\ 6.6 \\ 10.1 \\ 9.8 \\ 14.0 \\ 13.1 \\ 12.9 \\ 13.6 \\ 13.5 \\ 12.3 \\$	54.3 62.9 85.0 103.6 114.0 124.3 149.2 175.9 197.3 215.9 223.0	54.3 62.9 85.0 103.6 114.0 124.3 149.2 175.9 197.3 215.9 223.0	54.3 63.9 85.0 104.5 115.0 124.3 149.4 175.9 197.3 215.9 223.9	$\begin{array}{c} 0.0\\ 1.0\\ 0.0\\ 0.9\\ 1.0\\ 0.0\\ 0.2\\ 0.0\\ 0.0\\ 0.0\\ 0.0\\ 0.9\end{array}$
WAIALUA STREAM								
A B C	370 ² 690 ² 1,260 ²	427 477 120	2,475 3,699 735	4.1 2.8 13.9	11.4 11.9 14.3	11.4 11.9 14.3	12.3 12.8 15.3	0.9 0.9 1.0
WAIEHU STREAM A B	1,720 ³ 3,017 ³	100 135	1,014 478	7.0 11.1	50.7 80.2	50.7 80.2	50.9 80.2	0.2 0.0

¹ Stream distance in feet above Limit of Tsunami Inundation (Limit of Tsunami Inundation is approximately 1,035 feet downstream of Piilani Highway) ² Stream distance in feet above confluence with Pailolo Channel (Pacific Ocean)

³ Stream distance in feet above mouth

TABLE

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FEDERAL EMERGENCY MANAGEMENT AGENCY

FLOODWAY DATA

WAIAKOA GULCH - WAIALUA STREAM WAIEHU STREAM

FLOODING SOUP			FLOODWA	I					
			SECTION		(F				
		WIDTH	SECTION				\A/I T II		
CROSS SECTION	DISTANCE				REGULATORY			INCREASE	
		(FEEI)				FLOODWAY	FLOODWAY		
			FEEI)	SECOND)					
VVAIHEE RIVER									
А	1 190 ¹ **	*	*	*	30.9**	30.9**	*	*	
B	2.170 ¹ **	*	*	*	72.1**	72.1**	*	*	
Ċ	2,630 ¹ **	*	*	*	79.2**	79.2**	*	*	
D	3,700 ¹ **	*	*	*	122.0**	122.0**	*	*	
E	4,771 ¹ **	*	*	*	162.5**	162.5**	*	*	
F	6,050 ¹ **	*	*	*	204.3**	204.3**	*	*	
WAIKAPU STREAM									
А	4.500^{2}	126	491	4.6	25.6	25.6	26.2	0.6	
B	5.467^2	249	589	3.8	30.2	30.2	30.2	0.0	
Ċ	$7,000^2$	58	248	9.0	38.4	38.4	38.4	0.0	
D	$7,747^{2}$	41	235	9.5	44.2	44.2	44.3	0.1	
E	7,772 ²	179	1,085	2.1	48.7	48.7	49.0	0.3	
F	8,000 ²	128	713	3.1	48.8	48.8	49.2	0.4	
G	8,500 ²	57	207	10.8	51.1	51.1	51.1	0.0	
Н	9,000 ²	71	338	6.6	59.1	59.1	59.4	0.3	
I	9,500 ²	60	390	5.8	62.6	62.6	63.3	0.7	
J	10,000 ²	62	258	8.7	68.6	68.6	68.8	0.2	
К	10,500 ²	42	415	5.4	72.0	72.0	72.6	0.6	
	11,042 ²	93	296	7.6	83.8	83.8	83.8	0.0	
M	11,500 ²	90	271	8.3	90.7	90.7	90.8	0.1	
N	12,013 ²	57	340	6.6	95.6	95.6	95.9	0.3	
U D	13,500 ²	19	145	15.5	113.9	113.9	113.9	0.0	
P P	14,000-	64	421	5.3	120.2	120.2	121.2	1.0	
Q	15,326	44	228	9.5	135.2	135.2	135.2	0.0	

² Stream distance in feet above Kealia Pond

TABLE

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*Data not available

** Distance and Water Surface Elevation values estimated from Flood Profile

FEDERAL EMERGENCY MANAGEMENT AGENCY

MAUI COUNTY, HI

FLOODWAY DATA

WAIHEE RIVER – WAIKAPU STREAM

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET LOCAL TIDAL DATUM)			
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREAS
WAIKAPU STREAM (continued)								
R	16,000	45	292	7.4	141.5	141.5	141.5	0.0
S	16,287	66	241	9.0	144.0	144.0	144.0	0.0
Т	18,080	41	212	10.2	169.6	169.6	169.6	0.0
U	18,142	45	341	6.4	172.5	172.5	172.5	0.0
V	18,983	39	179	12.2	189.9	189.9	190.0	0.1
W	19,470	50	184	10.9	193.0	193.0	193.0	0.0
Х	20,785	68	251	8.0	214.9	214.9	214.9	0.0
Υ	22,117	140	262	7.7	243.9	243.9	243.9	0.0
Z	23,361	94	229	8.8	274.2	274.2	274.2	0.0
AA	24,802	102	268	7.5	317.5	317.5	317.5	0.0
AB	25,505	27	152	13.2	343.7	343.7	344.4	0.7
AC	26,170	156	317	6.4	362.6	362.6	362.6	0.0
AD	27,243	109	263	7.4	404.9	404.9	405.0	0.1
AE	27,358	44	201	9.7	406.9	406.9	407.0	0.1
AF	27,602	145	266	7.3	420.8	420.8	420.8	0.0
AG	28,352	101	247	7.9	448.3	448.3	448.3	0.0
AH	29,361	74	209	9.4	496.4	496.4	496.4	0.0
AI	29,632	32	156	12.5	505.3	505.3	505.8	0.5
AJ	30,436	60	193	10.1	547.9	547.9	548.8	0.9
AK	30,729	28	151	13.0	556.3	556.3	557.1	0.8
AL	31,527	49	181	10.8	596.6	596.6	597.4	0.8
AM	31,595	41	170	11.5	601.6	601.6	601.7	0.1
AN	32,418	52	188	10.4	637.9	637.9	638.9	1.0
AO	32,697	33	161	12.1	655.0	655.0	655.4	0.4
AP	33,074	27	150	13.0	667.6	667.7	668.1	0.4
AQ	33,643	22	141	13.9	697.5	697.5	697.8	0.3
AR	35,176	53	184	10.6	778.5	778.5	778.6	0.1

¹ Stream distance in feet above Kealia Pond

TABLE

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FEDERAL EMERGENCY MANAGEMENT AGENCY

FLOODWAY DATA

MAUI COUNTY, HI

WAIKAPU STREAM

4.3 Tsunami Inundation Boundaries

Inundation limits from the 1-percent annual chance tsunami were computed for most of the shoreline of the Islands of Lanai, Maui, and Molokai. The methodology employed in this computation is described in Section 4.1. The 1-percent annual chance tsunami inundation zone is divided into two districts. Where the depth of water from the tsunami exceeds 4.0 feet, the area is identified as Zone VE. The remainder of the area lying within the inundation limits of the 1-percent annual chance tsunami has a depth of flooding of less than 4.0 feet and is identified as a Zone AE. All AE and VE Zones are identified on the FIRM (Exhibit 3) except where cliff conditions exist or where the Zones are too narrow to show because of map scale limitations. In areas where the AE and VE Zones are too small to be shown separately, only Zone VE is shown.

The Coastal High Hazard Zone consists of all areas that are identified by Zone VE. Special performance standards for construction in Coastal High Hazard Zones have been set by FEMA. The Coastal High Hazard Zones and areas of known bore formations are delineated on the FIRM.

The inundation limits for the 1-percent annual chance tsunami are based on existing conditions. Any modification or alteration to existing conditions may have a significant effect on the tsunami inundation limits. For example, any regarding or reduction of surface roughness in onshore areas, such as that caused by the removal of native vegetation, could increase the extent of inundation. Similarly, dredge and fill operations offshore could increase the extent of inundation, due to the effects of coastal bathymetry on tsunami wave setup. On the other hand, existing or planned coastal features such as natural reefs, seawalls, groins, jetties, or beach-stabilization projects may have a mitigating effect on tsunami inundation.

5.0 **INSURANCE APPLICATIONS**

For flood insurance rating purposes, flood insurance zone designations are assigned to a community based on the results of the engineering analyses. The zones are as follows:

Zone A

Zone A is the flood insurance rate zone that corresponds to the 1-percent annual chance floodplains that are determined in the FIS by approximate methods. Because detailed hydraulic analyses are not performed for such areas, no base flood elevations or depths are shown within this zone.

Zone AE

Zone AE is the flood insurance rate zone that corresponds to the 1-percent annual chance floodplains that are determined in the FIS by detailed methods. In most instances, whole-foot base flood elevations derived from the detailed hydraulic analyses are shown at selected intervals within this zone.

Zone AH

Zone AH is the flood insurance rate zone that corresponds to the areas of 1-percent annual chance shallow flooding (usually areas of ponding) where average depths are between 1 and 3 feet. Whole-foot base flood elevations derived from the detailed hydraulic analyses are shown at selected intervals within this zone.

Zone AO

Zone AO is the flood insurance rate zone that corresponds to the areas of 1-percent annual chance shallow flooding (usually sheet flow on sloping terrain) where average depths are between 1 and 3 feet. Average whole-foot depths derived from the detailed hydraulic analyses are shown within this zone.

Zone V

Zone V is the flood insurance rate zone that corresponds to the 1-percent annual chance coastal floodplains that have additional hazards associated with storm waves. Because approximate hydraulic analyses are performed for such areas, no base flood elevations are shown within this zone.

Zone VE

Zone VE is the flood insurance rate zone that corresponds to the 1-percent annual chance coastal floodplains that have additional hazards associated with storm waves. Whole-foot base flood elevations derived from the detailed hydraulic analyses are shown at selected intervals within this zone.

Zone X

Zone X is the flood insurance rate zone that corresponds to areas outside the 0.2percent annual chance floodplain, areas within the 0.2-percent annual chance floodplain, and to areas of 1-percent annual chance flooding where average depths are less than 1 foot, areas of 1-percent annual chance flooding where the contributing drainage area is less than 1 square mile, and areas protected from the 1percent annual chance flood by levees. No base flood elevations or depths are shown within this zone.

Zone D

Zone D is the flood insurance rate zone that corresponds to unstudied areas where flood hazards are undetermined, but possible.

6.0 <u>FLOOD INSURANCE RATE MAP</u>

The FIRM is designed for flood insurance and floodplain management applications.

For flood insurance applications, the map designates flood insurance rate zones as described in Section 5.0 and, in the 1-percent annual chance floodplains that were studied by detailed methods, shows selected whole-foot base flood elevations or average depths. Insurance agents use the zones and base flood elevations in conjunction with information on structures and their contents to assign premium rates for flood insurance policies.

For floodplain management applications, the map shows by tints, screens, and symbols, the 1- and 0.2-percent annual chance floodplains. Floodways and the locations of selected cross sections used in the hydraulic analyses and floodway computations are shown where applicable.

7.0 <u>OTHER STUDIES</u>

Numerous reports have been prepared on various floodprone areas on the Islands of Maui and Molokai. Those reports were compared with the results of this FIS. Differences in riverine flood elevations and floodplain boundaries are caused primarily by dissimilar flood discharges. These discharge differences can be attributed to either different hydrologic methods or newer, more extensive stream gage data being employed. Other factors that can account for differences in flood elevations and boundaries are the stream cross-section data, computer programs and topographic maps, and the assumptions and estimations used in the hydraulic analyses of the floodplains.

For streams studied by detailed methods, comparisons of riverine flood determinations provided in the most recent reports with those of this study are summarized below.

ISLAND OF MAUI

A Flood Hazard Information (FHI) report for the Island of Maui was prepared by the USACE in 1971 (USACE, 1971). The island was divided into five regions, and dischargedrainage area relationships for each region were plotted based on the gaging stations in each region. The methodology employed in this study is more refined, has a longer period of gage data, and utilizes more stream gage data than the FHI report.

Iao Stream

A Flood Hazard Area Map was prepared in April 1973 (State of Hawaii, April 1973). A report was also prepared by the USACE in 1975 (USACE, April 1975). Because of the flood-control project on the stream, these past studies have been superseded by the study presented in the September 25, 2009 FIS.

Kahoma Stream

A Flood Hazard Area Map for Kahoma Stream was printed in August 1973 (State of Hawaii, 1973). Discharges for the report are somewhat higher than those determined for this study. Floodplain boundaries are wider as a result of the higher discharges. The USACE FHI report shows boundaries similar to the Flood Hazard Area Map.

Kahului Area

A Type 10 FIS for Kahului was completed in 1971 (U.S. Department of Housing and Urban Development, 1971)

Kihei Area

Several studies for this area were performed in 1970 and 1971. A USACE Flood Plain Information Study in January 1970 included Waiako Gulch, Kulanihakoi Gulch, Waipuilani Gulch, and Keoka Gulch (USACE, 1970). The 1971 FHI report also studied this area, except for Waiakoa Gulch. A Type 10 FIS studied Kulanihakoi Gulch, Waipuilani Gulch, and Keokea Gulch in 1970 (U.S. Department of Housing and Urban Development, 1972). In 1981, the Kihei Flood Control Study examined several alternatives to the Kihei flood problem. Although none of the alternatives were found to be feasible at the time, it was suggested that the structures be used to form the basis of the new flood-control program. Differences between these areas and this study can be attributed mainly to the disparity in hydrologic methods and the topographic information.

Olowalu Area

A Flood Hazard Area Map was printed in November 1971 (State of Hawaii, 1974). Floodplain boundaries for Olowalu Stream are very similar in width and shape to this study, and elevations and discharges are also in close agreement.

Wailuku Area

A flood-control study (State of Hawaii, April 1973) and FIS have been published for the Iao Stream in the Wailuku area. However, these studies have not addressed the problem of shallow flooding in the Wailuku town area.

ISLAND OF MOLOKAI

In January 1966, the USACE completed a report on four drainage basins on east Molokai-Waialua Stream, Wawaia Gulch, Kamalo Gulch, and Kawela Gulch (USACE, 1966). The 1-percent annual chance flood discharges given and the floodplains indicated by the USACE study are smaller than those depicted in the current study. The hydrology for the USACE report was prepared from an elevation of the records of five stream gaging stations; the hydrology of this study reflects 11 additional years of flood records and data gathered from 21 stream gaging stations. The difference in floodflow magnitudes is reflected by the wider floodplain boundaries than those delineated in the USACE report. Roughness coefficients for channels and overbanks are similar for both studies. Water-surface profiles for the 1-percent annual chance flood discharges are higher for this study than the previous study done by the state.

Kamiloloa Stream

A detailed flood-control project report for the Kapaakea Homestead area, located along the Kamiloloa Stream, was completed in December 1976. The study was conducted to evaluate the extent of the flood problems in the area and to develop an effective, economical, and

acceptable plan for reducing or preventing future floods. Field and office studies included site inspections, topographic surveys and subsurface, hydraulic, economic, and environmental investigation (USACE, <u>Topographic Maps</u>, Kaunakakai and Kamiloloa Areas, Island of Molokai, December 1976).

Kuluakoi Area

A Flood Hazard Area Map was prepared in June 1974 (State of Hawaii, Map FP-21, April 1973). Boundaries shown on that map are very similar to those shown in this study.

Pukoo Area

A Flood Hazard Area Map was prepared in October 1973 (State of Hawaii, October 1973). Elevations determined for that map are higher and floodplain boundaries are wider than those shown in this study. This is the result of lower discharges being used in this study.

All coastal flood elevations and boundaries of the selected recurrence intervals were analyzed in this study by a methodology not used in earlier reports. This study has employed the latest knowledge of tsunami elevation-frequency relationships and runup characteristics. Consequently, the tsunami flood elevations and boundaries differ from those given in earlier reports, although in a few areas the results are similar.

Information pertaining to revised and unrevised flood hazards for each area within Maui County has been compiled into this FIS. Therefore, this FIS supersedes all previously printed FIS Reports, FHBMs, FBFMs, and FIRMs for all of the areas within Maui County.

8.0 LOCATION OF DATA

Information concerning the pertinent data used in the preparation of this FIS can be obtained by contacting FEMA, Federal Insurance and Mitigation Division, 1111 Broadway, Suite 1200, Oakland, California 94607-4052.

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