

Pr j j ^ov Ic Prpmbkaba*Pbaf j bkq
@Ik`bkqo^qfIk A^q^ P^k Co^k`fp`I ?^v)
@^ifcIokf^ T ^qbo Vb^o / - - 0

?v M^ri >+ ?r`e^k^k ^ka KbfI H+ D^kgr

Fk`I Imbo^qfIk t fqe qeb @>ICBA ?^v*Abiq^ MoI do^ j) ^ka qeb R+P+ >o j v @Iomp Ic
Bkdfkbbop) P^k Co^k`fp`I Afrqof`q

A^q^ Pbofbp . . 0

R+P+ Abm^oq j bkq Ic qeb Fkqbof Io
R+P+ DbIi Idf`^i Prosbv

R+P+ Abm^oq j bkq Ic qeb Fkqbof lo
D^ib >+ K loq l k) Pb`obq^ov

R+P+ Db l i l d f ` ^ i P r o s b v
@e^oibp D+ D o l ^ q) A f o b ` q l o

R+P+ Db l i l d f ` ^ i P r o s b v) O b p q l k) S f o d f k f ^ 7 / - - 2

C l o p ^ i b _ v R + P + D b l i l d f ` ^ i P r o s b v) F k c l o j ^ q f l k P b o s f ` b p
? l u / 2 / 5 3) A b k s b o C b a b o ^ i @ b k q b o
A b k s b o j @ L 5 - / / 2

C l o j l o b f k c l o j ^ q f l k ^ _ l r q q e b R P D P ^ k a f q p m o l a r ` q p 7
Q b i b m e l k b 7 . * 5 5 5 * > P H * R P D P
T l o i a T f a b T b _ 7 e q q m 7 , , t t t + r p d p + d l s ,

> k v r p b l c q o ^ a b) m o l a r ` q) l o c f o j k ^ j b p f k q e f p m r _ i f ` ^ q f l k f p c l o a b p ` o f m q f s b m r o m l p b p l k i v ^ k a a l b p k l q f j m i v
b k a l o p b j b k q _ v q e b R + P + D l s b o k j b k q +

> i q e l r d e q e f p o b m l o q f p f k q e b m r _ i f ` a l j ^ f k) m b o j f p p f l k j r p q _ b p b ` r o b a c o l j q e b f k a f s f a r ^ i ` l m v o f d e q l t k b o p q l
o b m o l a r ` b ^ k v ` l m v o f d e q b a j ^ q b o f ^ i p ` l k q ^ f k b a t f q e f k q e f p o b m l o q +

P r d d b p q b a ` f q ^ q f l k 7
? r ` e ^ k ^ k) M > +) ^ k a D ^ k g r) K + H +) / - - 2) P r j j ^ o v l c P r p m b k a b a * P b a f j b k q @ l k ` b k q o ^ q f l k A ^ q ^) P ^ k C o ^ k ` f p ` l ? ^ v
@ ^ i f c l o k f ^) T ^ q b o V b ^ o / - - 0 7 R + P + D b l i l d f ` ^ i P r o s b v A ^ q ^ P b o f b p . . 0) 1 3 m +

@ I kqb kqp

>_pqo^`q	.
Fkqo I ar`qf I k	.
Mrom I pb ^ka P` I mb	.
Pq rav >ob^	/
>`hkl t ibad j bkqp	/
J bqe I ap	1
Fkqor j bkq Abp`ofmqf I k ^ka Lmbo^qf I k	1
J I kfq I ofkd Pfqbp	4
Prfpr k ?^v Fkq^ii^qf I kp	4
P^k M^_j I ?^v Fkq^ii^qf I kp	4
@bkqo^i P^k Co^k`fp` I ?^v Fkq^ii^qf I kp	4
P I rqe P^k Co^k`fp` I ?^v Fkq^ii^qf I kp	4
T^qbo*P^ j mib @ I iib`qf I k	4
A^q^ Mo I `b p p f k d	5
Pbkp I o @^if_o^qf I k ^ka Pr p m b k a b a * P b a f j b k q @ I k ` b k q o ^ q f I k A ^ q ^	5
Prfpr k ?^v	./
J ^ii^oa Fpi^ka	./
?b k f ` f ^ ? o f a d b	.3
P^k M^_j I ?^v	/-
@^on r f k b w ? o f a d b	/-
J ^ob Fpi^ka @^r p b t ^v	/1
@e^k k b i J ^ohbo 6	/5
@bkqo^i P^k Co^k`fp` I ?^v	0.
M I f k q P^k M^_j I	0.
P I r q e P^k C o ^ k ` f p ` I ? ^ v	02
P^k J ^q b I ? o f a d b	02
A r j _ ^ o q I k ? o f a d b	05
@e^k k b i J ^ohbo .4	1.
Pr j j ^ov	11
Obcbobk`bp @fqba	11

@Iksbopflk C^`qlop) A^qr j) >__obsf^qflkp)
 ^ka >`olkvj p

J riqmiv	?v	Ql l_q^fk
hmbg 'hm-(14-3/	l hkkh l dsdq
enns 'es(-2/37	l dsdq
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Sboqf`^i `l loafk^qb fkc lo j ^qflk fp obcbobk`ba ql qeb Kloqe > j bof`^k Sboqf`^i A^qr j lc .655
 %K>SA 55&& e lofwl kq^i `l loafk^qb fkc lo j ^qflk fp obcbobk`ba ql qeb Kloqe > j bof`^k A^qr j
 lc .6/4 %K>A /4&+

J b^k i l t b o i l t t ^q b o % J I I T & 7 Q e b ^s b o ^d b l c q e b i l t b o i l t t ^q b o e b f d e q ^_l s b q e b _l q q l j)
 f k c b b q) l c b ^ ` e q f a ^ i a ^ v l _p b o s b a a r o f k d q e b K ^ q f l k ^ i Q f a ^ i A ^ q r j B m l ` e + Q e b K ^ q f l k ^ i Q f a ^ i
 A ^ q r j B m l ` e f p q e b p m b ` f < ` . 6 * v b ^ o m b o f l a % . 6 3 - @ 4 5 c l o s ^ i r b p d f s b k f k q e f p o b m l o q & ^ a l m q b a
 _v q e b K ^ q f l k ^ i L ` b ^ k P b o s f ` b ^ p q e b l c < ` f ^ i q f j b p b d j b k q a r o f k d t e f ` e q f a b l _p b o s ^ q f l k p ^ o b
 q ^ h b k ^ k a o b a r ` b a q l l _q ^ f k j b ^ k s ^ i r b p +

>__obsf^qflkp ^ka >`olkvj p

- >A>MP ^rql j ^qba a^q^*mol`bppfkd pvpqb j
- A T O @^ifc lokf^ Abm^oq j bkq lc T^qbo Obpl ro`bp
- j d, l j fiifdo^ j mbo ifqbo
- j S j fiifs liq
- KQR kbmebil j bqof` qro_fafqv r kfqp
- MF_{km} k l k m ^ o ^ j b q o f ` m o b a f ` q f l k f k q b o s ^ i
- O J P o l l q * j b ^ k * p n r ^ o b a % b o o l o &
- PP@ p r p m b k a b a * p b a f j b k q ` l k ` b k q o ^ q f l k
- RP@D R + P + @ l ^ p q D r ^ o a
- RPDP R + P + D b l i l d f ` ^ i P r o s b v
- T V t ^ q b o v b ^ o % L ` q l _ b o . @ P b m q b j _ b o 0 - &

Prjj^ovlcPrpmbkaba*Pbafj bkq@Ik`bkqo^qfIk A^q^) P^k Co^k`fp`I ?^v) @^ifclokf^) T^qbo Vb^o / - - 0

?vM^ri >+ ?r`e^k^k ^ka KbfI H+ D^kqr

>_pqqo^`q

Rtrodmcdc,rdchldmsbnmbdmsq`shnm c`s` v`dqdbnkdbscdchm R`m Eq`mbrbn A`x ctqhmfv`sdqxd`q 1//2 'Nbsnadq 0+ 1//1° Rdosladq 2/+ 1//2(- Noshb`krdmrnqr`mc v`sdqr`l okdr v`dqdrdc sn lnmhsnq rtrodmcdc,rdchldmsbnmbdmsq`shnm `svnrhsdr hm Rthrtm A`x+ sgqdd rhdshm R`m O`akn A`x+ nmd rhdshm Bdmsq`k R`m Eq`mbrbn A`x+ `mc sgqdd rhdshm Rntsg R`m Eq`mbrbn A`x- Rdmrnqr v`dqdonrshnmcd `svncdosgr `s lnrshsdr- V`sdqr`l okdr v`dqdbnkdbscdodqhcib`kx `mc `m`kxydc enqbnmbdmsq`shnmr ne rtrodmcdc rdchldms- Sgdqdrtkr ne sgd`m`kxrdr v`dqdrdc sn b`khaq`sdsgd ntsots ne sgd noshb`krdmrnqr rnsq`s` qdbnqc ne rtrodmcdc,rdchldmsbnmbdmsq`shnmr bntkc adcdqhudc- Sghrqdonqs oqdrdmsrsgd c`s` ,bnkdbshnm l dsgncr trdc `mc rtil`qhydrsgd rtrodmcdc,rdchldmsbnmbdmsq`shnm c`s` bnkdbscd eqn l Nbsnadq 1//1 sqntfg Rdosladq 1//2- B`khaq`shnm btqudr `mc oknsr ne dchsdcc`s` enq`d`bg rdmrnq`k`rn`qd oqdrdmsdc-

Fkqolar`qfIk

Rdchldmsr`qd`mhlonqs`msbnlonmdms ne sgd R`m Eq`mbrbn A`x drst`qhm dxrsdl - Anssn l rdchldmsr oqnuhed g`ahs`s enq admsghb nqf`mhr l r`mc `qd` qdrdqunhq enq mtsqhdmsr sg`s bnmsqhatssn drst`qhmd oqnc tbsuhx 'G` l l nmc `mc nsgdqr+ 0874(- Onsdms`kx snwhb rtars`mbrdr+ rtbg`r l ds`kr `mc odrshbedr+ `crnqa sn rdchldms o`qshbkdrr` J tv`a`q` `mc nsgdqr+ 0878: Cn l`f`krjh `mc J thuhk`+ 0882: Ekdf`k `mc nsgdqr+ 0885(- Admsghb nqf`mhr l r b`m hmfdrs sgdrdr rtars`mbrdr `mc hmsqnc tbdsgd l hmsnsgd ennc vda `Ktn l` `mc nsgdqr+ 0874: Aqnv m`mc Ktn l` + 0884: Ktn l` + 0885(- `K`qfd she`k,hmctbdc udknbshdr `mc vhmcc v`udr hm rg`kknv v`sdq`qd b`o`akd ne qdrtrodmchmf anssn l rdchldmsr 'Onvdkk `mc nsgdqr+ 0878: Rbgndkkg` l dq+ 0885(-

Sgd sq`mronqs `mc e`sd ne rtrodmcdc rdchldmsr`qd`mhlonqs`ms e`bsnqr hm cdsdq l hmhmfv`sgd sq`mronqs `mc e`sd ne rdchldms, `rrnbh`sdcbnms` l hm`msr- Hm Rthrtm A`x+ sgd l`wh l t l rtrodmcdc,rdchldmsbnmbdmsq`shnm 'RRB(trt`kx l`qjrsgdonrshnm ne sgd stqahchsx l`wh l t l Ê` bqtbh`k dbnknfih`k ynmv`gdqdrtrodmcdc rdchldmsr+ mtsqhdmsr+ ogxsnok`mjsnm+ ynnok`mjsnm+ k`qu`d` `mc itudmhd ehrg`bbt l tk`sd `Odsdqrnm `mc nsgdqr+ 0864: @qsgtq `mc A`kk+ 0868: Jh l l dqdq+ 0881: I`rrax `mc Onvdkk+ 0883: Rbgndkkg` l dq `mc Atq` t+ 0887: Rbgndkkg` l dq+ 1//0(-

Rtrodmcdc rdchldmsr kh l hsgd odmsq`shnm ne khfgs hmsn R`m Eq`mbrbn A`x+ vghbg`eedbsr ognsnrnxmsgdrrr `mc oql`qx ogxsnrxmsgdshb b`qanm oqnc tbsuhm `Bnk d`mc Bkndqm+ 0876: Bkndqm+ 0876+ 0885(- Rdchldmsr`k`rn edonrsh hm onqsr `mc rghoohmf bg`mmdkr+ vghbgsgdm qdptdq cqdchmf sn l`hms`hm m`uhf`shnm 'T-R- Dmuhqnm l dms`k Oqnsdbshnm @fdmbx+ 0881(- Sgd T-R- Fdnknfih`k Rtqudx `TRFR(+ hm bnnodq`shnm vhsqsgd B@KEDC A`x,Cdks` Oqnfq` l+ `mc sgd T-R- @ql x Bnqor ne Dmfhmdqr+ hr rscxhmfsgd e`bsnqrsg`s`eedbsRRB hm R`m Eq`mbrbn A`x-

Mromlpb^ka P`lmb

Sghrqdonqs rtil`qhydrRRB c`s` bnkdbscd axsgd TRFR hm R`m Eq`mbrbn A`x ctqhmfv`sdqxd`q 'VX(1//2 `mc hrsgdk`sdshm`rdqdr a`rdc nm c`s` bnkdbscd adfhmhmfv`hm VX 0881 'Atbg`m`m`mc Rbgndkkg` l dq+ 0884+ 0885+ 0887+ 0888: Atbg`m`m`mc nsgdqr+ 0885: Atbg`m`m`mc Qtgk+ 1//+ 1//0: `mc Atbg`m`m`mc F`mit+ 1//1+ 1//2+ 1//3(- Bnkdbshnm ne RRB c`s` hm R`m Eq`mbrbn A`x qdpthqdc edudkno l dms ne lnmhsnqhm l dsgncr `mc b`khaq`shnm sdbgmhptdr vghbg`qd oqdrdmsdc hm sghrqdonqs- RRB v`dqdr l nmhsnqdc `svnrhsdr hm Rthrtm A`x+ sgqdd rhdshm R`m O`akn A`x+ nmd rhdshm Bdmsq`k R`m Eq`mbrbn A`x+ `mc sgqdd rhdshm Rntsg R`m Eq`mbrbn A`x- Sgdrc`s` v`dqdrdc sn gdco cdsdq l hmdsgd e`bsnqrsg`s`eedbsRRB hm R`m Eq`mbrbn A`x 'T-R- Fdnknfih`k Rtqudx+ `bbdrdc Itx 03+ 1//3(- RRB c`s` enq VX 0881 sqntfg 1//2 `qd`u`hk`akd eqn l sgd T-R- Fdnknfih`k Rtqudx `bbdrdc Itx 04+ 1//3(-

Pqrav >ob^

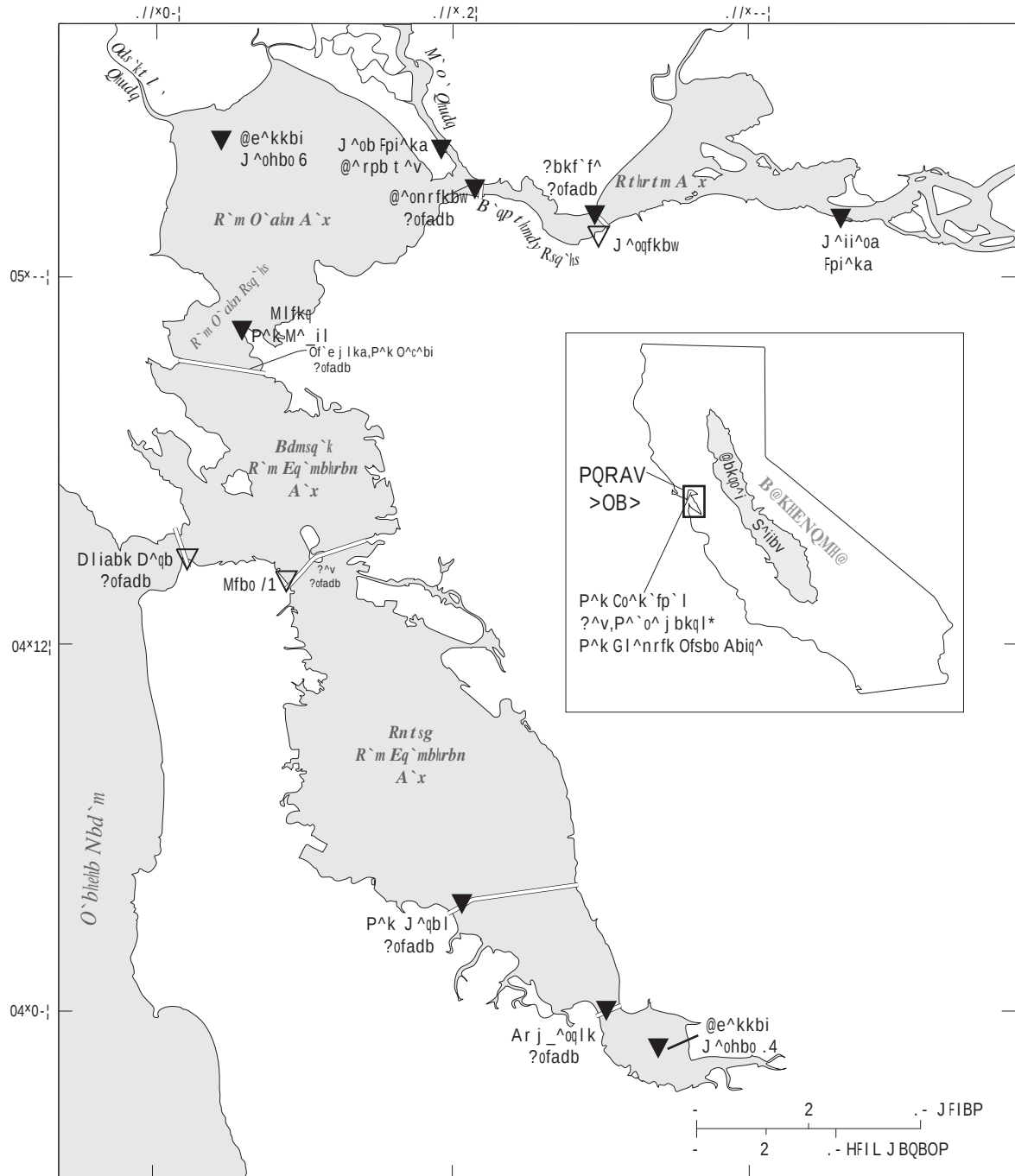
R`m Eq`mbhrbn A`x 'ehf- O(bn l oqhrdr rdudq`k l`inq rtad l a`x l dmsr: Rthrtm A`x+ R`m O`akn A`x+ Bdmsq`k R`m Eq`mbhrbn A`x 'Bdmsq`k A`x(+ `mc Rntsg R`m Eq`mbhrbn A`x 'Rntsg A`x(- hm R`m Eq`mbhrbn A`x+ shcdr `qd rd l hchtqm`k 'svn ghfg `mc svn knv shcdr odq c`x(vhsq `q`mfd ne `ants 4-4 edds 'es(hm Rthrtm A`x+ 5-4 es `s sgd Fnkcdm F`sd `mc Bdmsq`k A`x+ `mc `ants 0/ es hm Rntsg A`x- Sgd shcdr `krn enknv ` 03, c`x roqhmf, md`o bxbkd- Sxohb`k shc`k btqqdmsr q`mfd eqn l /-5 edds odq rdbnmc 'es.r(hm rg`kknv v`sdq sn l nqd sg`m 2 es.r hm cddo bg`mmdkr 'Bgdmf `mc F`qsmdq 0873: R l hsg+ 0876(- Vhmer sxohb`kx `qd rsqnmfdrs hm rt l l dq ctqhmf `esdqmnm+ nmrngqd rd` aqddydr- L nrs oqdbhois`shnm nbttqr eqn l k`sd `tst l m sn d`qkx roqhmf+ `mc eqdrgv`sdq chrbg`qfd hmsn R`m Eq`mbhrbn A`x hr fqd`sdrs hm sgd roqhmf ctd sn qtmnee eqn l rmnv l dks- @ants 8/ odqbdms ne sgd chrbg`qfd hmsn sgd A`x hr eqn l sgd R`bq` l dmsn, R`m In`pthm Qhudq Cdk+ v ghbg cq`hmr sgd Bdmsq`k U`kkdx ne B`khenqmh` 'R l hsg+ 0876(-

Sxohb`kx+ chrbg`qfd eqn l sgd Cdk+ bnms`hmr nudq 5/ odqbdms ne sgd ektuh`k rdch l dmsr sg`s dmsdq sgd A`x 'L b J dd `mc nsgdqr+ 1//1(+ sgnt fg sghr odqbdms`fd u`qhdr eqn l xd`q sn xd`q Ctqhmf vds vhmtdqr+ stqahc okt l dr ne v`sdq eqn l sgd Cdk+ g`ud dwsdmedc hmsn Rntsg A`x 'B`qkrnm `mc L b B tkknbg+ 0863(- Sgd ansn l rdch l dmsr hm Rntsg A`x `mc hm sgd rg`kknv v`sdq `qd`r `ants 01 es nq kdr(ne Bdmsq`k+ R`m O`akn+ `mc Rthrtm A`x+ `qd bn l onrdc l nrsx ne rhksr `mc bk`xr- Rhksr `mc r`mcr `qd oqdrdms hm sgd cddodq o`qsr ne Bdmsq`k+ R`m O`akn+ `mc Rthrtm A`x+ `mc hm B`qpthm Rsq`hs 'Bnmn l nr `mc Odsqrmn+ 0866(-

>`hkl t ibad j bkq

Sgd `tsnqr fq`sdetkx `bjmnvkdcd sgd T-R- Bn`rs Ft`qc 'TRBF(+ B`khenqmh` Cdo`qs l dms ne Sq`mronqs`shnm+ B`khenqmh` Cdo`qs l dms ne V`sdq Qdrntqbd` CVQ(+ D@H Hmsdqm`shnm`k+ `mc sgd Bhsx ne U`kkdin enq sgdhq odq l hrrhnm `mc `rrhrs`mbd hm drs`akhrghmf sgd l nmhsnqhmf rhdtrd hm sghr rstex-

Sgd B@KEDC A`x. Cdk+ Oqnfq` l + TRFR Oqhnqhsx Dbnrxrsd l Rbhdmbd Oqnfq` l + `mc sgd T-R- @q l x Bnqor ne Dmfhmddqr+ `r o`qs ne sgd R`m Eq`mbhrbn Drst`qx Qdfhnm`k L nmhsnqhmf Oqnfq` l enq Sq`bd Rtars`mbdr+ rtoonqsd bnkkdbshnm ne sgdrc c`s`-



DWOK@M@SHNM

- ▼ @lkqfkr lrp prpmbkaba*pbaf j bkq
`lk`bkqo^qf lk j lkqlofkd pfgb
- ▽ Afp`lkqfkrba j lkqlofkd pfgb

Cfdrob .+ P^k Co^k`fp`l ?^v pqrav ^ob^ @^ifc lokf^+

J bqel ap

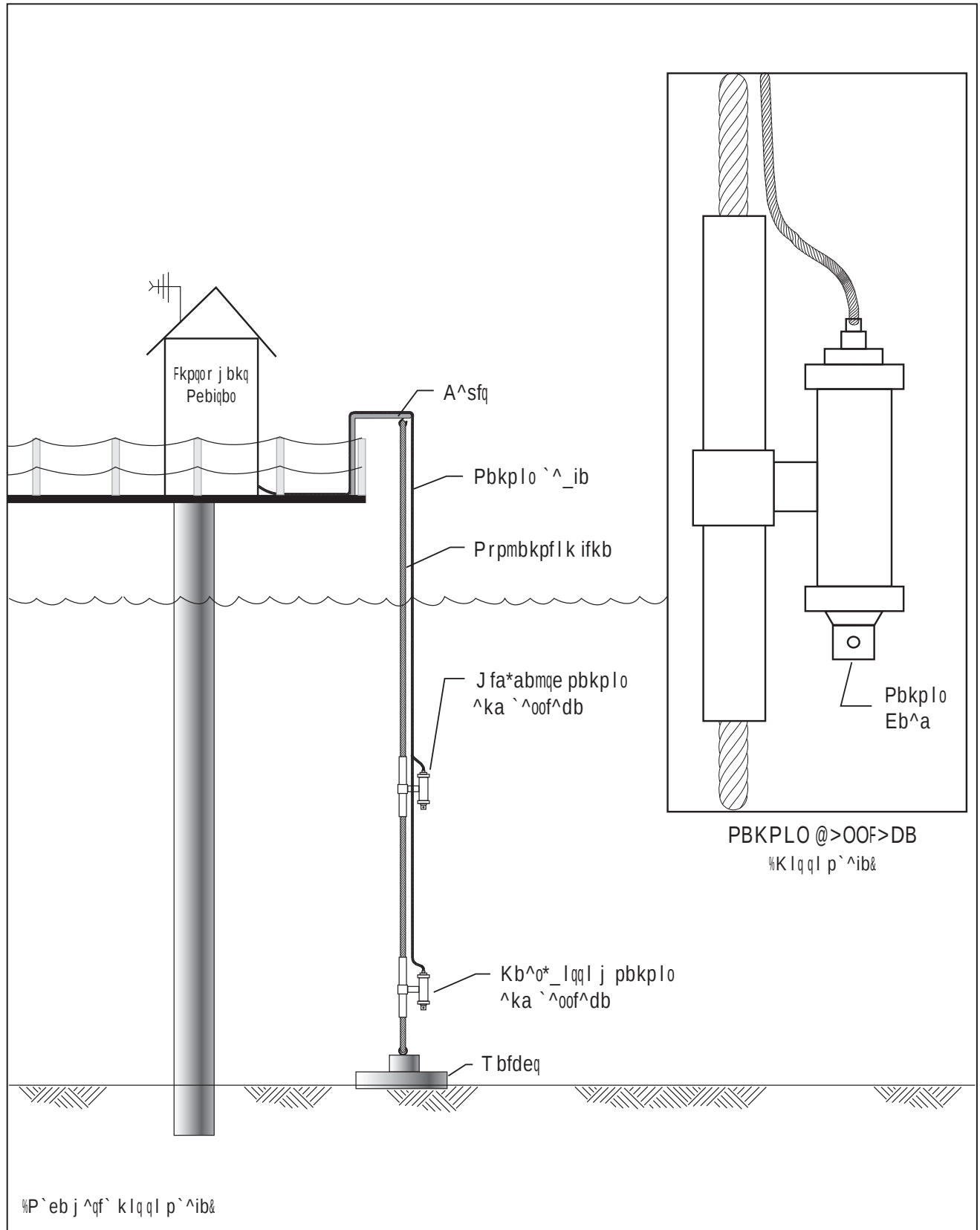
Fkpqor j bkq Abp`ofmqf lk ^ka Lmbo^qf lk

Sgqdd cheedqms sxodr ne noshb`k rdmrnqr v d qd trdc sn l nmhsnq RRB ctqhm f VX 1//2- Sgd ehqrs sxodr ne rdmrnqr hr l`mte`bstqdc ax C % @ Hmrsqt l dms Bn l o`mx`mc hr` b xk h m c d q`ooq n w h l`sd k x 6 h m b g d r 'h m-(k n m f`m c 0 h m- h m c h`l d s d q v h s g`m n o s h b`k v h m c n v` s n m d m c+`b`a k d b n m m d b s h n m` s s g d n s g d q d m c+`m c`m d m b`r d c b h q b t h s a n`q c- @ g h f g, h m s d m r h s x h m e q`q d c d l h s s h m f c h n c d o q n c t b d r`a d`l s g q n t f g s g d n o s h b`k v h m c n v` s g` s h r r b` s s d q d c+ n q q d e k d b s d c+ a x o`q s h b k d r s g` s`q d`a n t s /-1°01 h m- h m e q n m s n e s g d v h m c n v- @ c d s d b s n q`e n t q o g n s n c h n c d r(q d b d h u d r a`b j r b` s s d q e q n l`e h d k c n e 03/°054 c d f q d d r v g h b g h r b n m u d q s d c s n`u n k s`f d n t s o t s`m c q d b n q d c n m`r d o`q` s d c` s`k n f f d q- Sgd r d b n m c s x o d r n e r d m r n q r l`m t e`b s t q d c a x A S F+ h r r d k e, b k d`m h m f`m c c h e e d q r e q n l s g d C % @ H m r s q t l d m s B n l o`m x r d m r n q h m s g` s h s l d`r t q d r s g d h m s d m r h s x n e k h f g s r b` s s d q d c` s 8/ c d f q d d r a d s v d d m`k h f g s, d l h s s h m f c h n c d`m c`g h f g, r d m r h s h u h s x o g n s n c h n c d c d s d b s n q- Sgd A S F r d m r n q g`r`r d o`q` s d d k d b s q n m h b t m h s s g` s r d s r s g d q d r n k t s h n m`m c l`w h l t l q d`c h m f+ d w o q d r r d c h m m d o g d k n l d s q h b s t q a h c h s x t m h s r 'M S T(- Sgd n t s o t s e q n l s g d d k d b s q n m h b t m h s h r q d b n q d c n m`r d o`q` s d c` s`k n f f d q- Sgd s g h q c s x o d r n e r d m r n q r u d q r h n m r n e v g h b g`q d t r d c a x a n s g G x c q n k`a`m c X R H h m r s q t l d m s r+ l d`r t q d r s g d h m s d m r h s x n e k h f g s r b` s s d q d c` s 8/ c d f q d d r a d s v d d m`k h f g s, d l h s s h m f c h n c d`m c`g h f g, r d m r h s h u h s x o g n s n c h n c d c d s d b s n q`m c s g d n t s o t s h r o q n b d r r d c a x h m s d q m`k r n e s v`q d s n q d`c h m M S T- Sgd G x c q n k`a`m c X R H h m r s q t l d m s r`q d r d k e, b n m s`h m d c+ h m b k t c h m f`o n v d q r n t q b d`m c c` s`k n f f d q-

Noshb`k rdmrnqr v d qd onrshnm d c h m s g d v`s d q b n k t l m t r h m f o n k x u h m x k b g k n q h e d 'O U B(o h o d b`q q h`f d r b n`s d c v h s g`m`m s h e n t k`m s o`h m s s n h l o d c d a h n k n f h b`k f q n v s g- B`q q h`f d r v d q d c d r h f m d c s n`k h f m v h s g s g d c h q d b s h n m n e e k n v`m c s n q h e d`k n m f`r s`h m k d r r r s d d k n q J d u k`q, q d h m e n q b d c m x k n m r t r o d m r h n m k h m d` s s`b g d c s n`m`m b g n q v d h f g s+ v g h b g`k k n v d c r d m r n q r s n a d`d`r h k x q`h r d c`m c k n v d q d c e n q r d q u h b h m f`e h f- 1(- Sgd o k`m d n e s g d n o s h b`k v h m c n v`l`h m s`h m d c`o n r h s h n m o`q`k k d k s n s g d c h q d b s h n m n e e k n v`r s g d b`q q h`f d`m c r d m r n q`k h f m d c h s r d k e v h s g s g d b g`m f h m f c h q d b s h n m n e e k n v- N o s h b`k r d m r n q c d o s g r h m s g d v`s d q b n k t l m`q d k h r s d c h m s`a k d 0-C` s`b p t h r h s h n m v`r b n m s q n k k d c a x d k d b s q n m h b c` s`k n f f d q r- Sgd k n f f d q r t r d c v h s g s g d C % @ H m r s q t l d m s B n l o`m x`m c A S F r d m r n q r v d q d o q n f q`l l d c s n o n v d q s g d n o s h b`k r d m r n q d u d q x 04 l h m t s d r+ b n k k d b s c` s`d`b g r d b n m c e n q 0 l h m t s d+ s g d m`u d q`f d`m c r s n q d s g d n t s o t s u n k s`f d e n q s g` s 0, l h m t s d o d q h n c- Sgd G x c q n k`a`m c X R H h m s d q m`k c` s`k n f f d q r b n k k d b s h m r s`m s`m d n t r u`k t d r d u d q x 04 l h m t s d r- O n v d q v`r r t o o k h d c a x 01, u n k s a` s s d q h d r-

Ahknf h b`k f q n v s g`e n t k h m f(h m s d q e d q d r v h s g s g d b n k k d b s h n m n e`b b t q` s d n o s h b`k r d m r n q c` s`- E n t k h m f f d m d q`k k x v`r f q d`s d r s n m s g d r d m r n q b k n r d r s n s g d v`s d q r t q e`b d- G n v d u d q` s r g`k k n v d q r h s d r v g d q d s g d t o o d q r d m r n q v`r r d s 0/ e s`a n u d s g d k n v d q r d m r n q r e n t k h m f v`r r h l h k`q n m a n s g r d m r n q r- R d k e, b k d`m h m f n o s h b`k r d m r n q r v d q d t r d c v g d q d b n m c h s h n m r`k k n v d c- C t d s n s g d c h e e h b t k s x h m r d q u h b h m f r n l d n e s g d l n m h s n q h m f r s`s h n m r+ r d m r n q r v d q d b k d`m d c l`m t`k k x d u d q x 0°4`t r t`k k x 2(v d d j r- E n t k h m f v n t k c a d f h m s n`e e d b s r d m r n q n t s o t s e q n l l c`x r s n r d u d q`k v d d j r`e s d q b k d`m h m f+ c d o d m c h m f n m s g d k d u d k n e a h n k n f h b`k`b s h u h s x h m s g d A`x- F d m d q`k k x+ a h n k n f h b`k e n t k h m f v`r f q d`s d r s c t q h m f r o q h m f`m c r t l l d q-

Nm, r h s d b g d b j r n e r d m r n q`b b t q`b x v d q d o d q e n q l d c t r h m f s t q a h c h s x r n k t s h n m r o q d o`q d c e q n l`3+///, m d o g d k n l d s q h b s t q a h c h s x t m h s e n q l`y h m r s`m c`q c- E n q l`y h m h r`m`p t d n t r t r o d m r h n m n e`m h m r n k t a k d o n k x l d q`m c h r s g d o q h l`q x s t q a h c h s x r s`m c`q c`F q d d m a d q f`m c n s g d q r+ 0881(- Sgd s t q a h c h s x r n k t s h n m r v d q d o q d o`q d c a x c h k t s h m f`3+///, m d o g d k n l d s q h b s t q a h c h s x t m h s r s n b j r s`m c`q c v h s g e d, h m m h y d c v`s d q h m`b k d`m+ r d`k`a k d a t b j d s- O q d o`q d c r n k t s h n m r q`m f d c e q n l 4/ s n 1// M S T- @s s g d e h d k c r h s d+ s g d b k d`m d c r d m r n q r v d q d h l l d q r d c h m s g d r n k t s h n m`m c s g d n t s o t s v`r q d b n q d c n m s g d r s`s h n m k n f- L n m h s n q h m f`o d q h n c n e r d m r n q o d q e n q l`m b d h m`j m n v m r s`m c`q c g d k o r s n h e d m s h e x n t s o t s c q h e s n q r d m r n q l`k e t m b s h n m-



Cfd rob /+ Qvmf`^i j l kfql ofkd fkpq^ii^qf l k) P^k Co^k`fp` l ?^v pqr av+

3 Pr j j ^ov lc Prpmbkaba*Pbaf j bkq @lk`bkqo^qflk A^q^ P^k Co^k`fp`l ?^v) @^ifc lokf^ T ^qbo Vb^o /--0

Q^_ib .+ Lmqf`^i pbkpl o abmqep %fk cbbq&_bil t j b^k il t bo il t t ^qbo %J I I T &) Prfpr k ?^v) P^k M^_il ?^v) ^ka @bkqo^i ^ka P l r qe P^k Co^k`fp`l ?^v) @^ifc lokf^ t ^qbo vb^o /--0

ZEnq cdehmlshnm ne LKKV+ rdd Bnmudqrhnm E`bsnqr+ C`st l+ @aaquh`shnmr+ `mc @bqnmx l r dmsqx `s eqnms ne sghr qdonqs\

Pfqh	Pq^qflk Kl+	l^qfgrab	l l kdfgrab	Pbkplo abmqe	Abmqe _bil t J I I T	T ^qbo abmqe ^q J I I T
L`kk`qc Hrk`mc	00074074	27Û/1&23,	010Û44&8,	Md`q,rtqe`bd Md`q,anssn l	2-2 ⁰ 1/	14
Admhbh` Aqhcfd	0034467/	27Û/1&31,	011Û/6&21,	Md`q,rtqe`bd Md`q,anssn l	5 44	7/
B`qpt hmdy Aqhcfd	0034471/	27Û/2&30,	011Û02&12,	Lhc,cdosg Md`q,anssn l	3/ 72	77
L`qd Hrk`mc B`trdv`x	0034726/	27Û/5&3/,	011Û05&14,	Lhc,cdosg Md`q,anssn l	04 14	2/
Bg`mmdk L`qj dq 8	27/4080111518/0	27Û/4&08,	011Û15&18,	Md`q,anssn l	3	5
Onhms R`m O`akn	0007025/	26Û46&42,	011Û14&31,	Lhc,cdosg Md`q,anssn l	02 12	15
R`m L`sdn Aqhcfd	00051654	26Û24&/3,	011Û03&48,	Lhc,cdosg Md`q,anssn l	08 3/	37
Ct l a`qsnm Aqhcfd	262/04011/60///	26Û2/&04,	011Û/6&0/,	Lhc,cdosg Md`q,anssn l	11 30	34
Bg`mmdk L`qj dq 06	261733011/327//	26Û17&33,	011Û/3&27,	Lhc,cdosg Md`q,anssn l	01 11	14

⁰Cdosg adkn v `sdq rtqe`bd-

J l kfq l ofkd Pfqbp

Prfprk ?^v Fkpg^ii^qf l kp

RRB c` s` v d q d b n k k d b s d c h m R t h r t m A ` x ` s L ` k k ` q c H r k ` m c ` m c A d m h b h ` A q h c f d ' e h f - 0 + s ` a k d 0 (- N o s h b ` k r d m r n q r v d q d h m r s ` k k d c ` s s g d C V Q L ` k k ` q c H r k ` m c B n l o k h ` m b d L n m h s n q h m f R s ` s h n m n m E d a q t ` q x 7 + 0 8 8 3 - N o s h b ` k r d m r n q r v d q d o n r h s h m d c s n b n h m b h c d v h s g C V Q m d ` q , a n s s n l d k d b s q h b ` k b n m c t b s ` m b d ` m c s d l o d q ` s t q d r d m r n q r ` m c m d ` q , r t q e ` b d o t l o h m s ` j d - S g d o t l o h m s ` j d h r ` s s ` b g d c s n ` e k n ` s ` m c c q ` v r v ` s d q e q n l ` a n t s 2 e s a d k n v s g d r t q e ` b d - S g d m d ` q , r t q e ` b d n o s h b ` k r d m r n q r h r ` s s ` b g d c s n ` r d o ` q ` s d e k n ` s ` m c o n r h s h m d c ` s s g d r ` l d e d o s g ` r s g d o t l o h m s ` j d -

N o s h b ` k r d m r n q r v d q d c d o k n x d c n e e n e O h d q 6 n m s g d A d m h b h ` A q h c f d n m L ` q b g 0 4 + 0 8 8 5 - S g d A d m h b h ` A q h c f d r h s d v ` r r g t s c n v m h m V X 0 8 8 7 e n q r d h r l h b q d s q n e h s s h m f n e s g d a q h c f d ` m c v ` r q d d r s ` a k h r g d c v h s g r n m c d r d p t h o d c v h s g n o s h b ` k + b n m c t b s ` m b d + ` m c s d l o d q ` s t q d r d m r n q r n m L ` x 0 + 1 / / 0 - @ l n m h s n q h m f r h s d ` s s g d L ` q s h m d y L ` q h m ` e h r g h m f o h d q v ` r c h r b n m s h m t d c h m V X 0 8 8 5 a d b ` t r d c ` s ` e q n l s g d A d m h b h ` A q h c f d r h s d v d q d b n m r h c d q d c l n q d q d o q d r d m s ` s h u d n e R R B h m s g d B ` q p t h m d y R s q ` h s ` q d ` n e R t h r t m A ` x ' A t b g ` m ` m ` m c R b g n d k k g ` l d q : 0 8 8 7 (-

P^k M^_i l ?^v Fkpg^ii^qf l kp

RRB c` s` v d q d b n k k d b s d c h m B ` q p t h m d y R s q ` h s ` s B ` q p t h m d y A q h c f d + M ` o ` Q h u d q ` s L ` q d H r k ` m c B ` t r d v ` x + ` m c R ` m O ` a k n A ` x ` s B g ` m m d k L ` q j d q 8 ' e h f - 0 + s ` a k d 0 (- R n m c d r v h s g n o s h b ` k + b n m c t b s ` m b d + ` m c s d l o d q ` s t q d r d m r n q r v d q d c d o k n x d c n e e s g d b d m s d q o h d q r s q t b t s t q d ` s B ` q p t h m d y A q h c f d n m @ o q h k 1 0 + 0 8 8 7 - N o s h b ` k r d m r n q r v d q d c d o k n x d c n e e ` b ` s v ` k j a d m d ` s g L ` q d H r k ` m c B ` t r d v ` x n m N b s n a d q 0 + 0 8 8 7 - @ r n m c d v h s g n o s h b ` k + b n m c t b s ` m b d + ` m c s d l o d q ` s t q d r d m r n q r v ` r c d o k n x d c n e e n e T R B F B g ` m m d k L ` q j d q 8 n m M n u d l a d q 0 1 + 0 8 8 7 -

@b k q o ^ i P ^ k C o ^ k ` f p ` l ? ^ v F k p g ^ i i ^ q f l k p

RRB c` s` v d q d b n k k d b s d c h m R ` m O ` a k n R s q ` h s ` s O n h m s R ` m O ` a k n ' e h f - 0 + s ` a k d 0 (- N o s h b ` k r d m r n q r v d q d c d o k n x d c ` s R ` m O ` a k n R s q ` h s n m s g d m n q s g d q m d m c n e s g d Q i b g l n m c S d q l h m ` k m n - 3 o h d q n m s g d v d r s d q m r h e d n e O n h m s R ` m O ` a k n n m C d b d l a d q 0 + 0 8 8 1 - S g d r s ` s h n m ` s O n h m s R ` m O ` a k n v ` r r g t s c n v m n m I ` m t ` q x 1 + 1 / / 0 + ` m c q d d r s ` a k h r g d c n m C d b d l a d q 0 0 + 1 / / 0 + n e e ` o h d q , ` c i ` b d m s r s q t b t s t q d ` o o q n w h l ` s d k x 1 4 e s e q n l s g d o q d u h n t r c d o k n x l d m s r h s d - @ l n m h s n q h m f r s ` s h n m ` s R ` m E q ` m b h r b n A ` x ` s O h d q 1 3 v ` r c h r b n m s h m t d c n m I ` m t ` q x 2 + 1 / / 1 - S g d T R F R ` r r t l d c n o d q ` s h n m n e s g d r d r s ` s h n m r e q n l C V Q h m N b s n a d q 0 8 7 8 ' b n k k d b s h m n e b n m c t b s h u h s x ` m c s d l o d q ` s t q d c ` s ` v ` r b n n o d q ` s h u d k x e t m e d c a x C V Q ` m c s g d T R F R (- @ l n m h s n q h m f r s ` s h n m ` s s g d r n t s g s n v d q n e s g d F n k e d m F ` s d A q h c f d v ` r n o d q ` s h n m ` k c t q h m f v ` s d q x d ` q r 0 8 8 5 ` m c 0 8 8 6 - B n m c t b s h u h s x ` m c s d l o d q ` s t q d c ` s ` b n k k d b s d c ` s O n h m s R ` m O ` a k n ` m c O h d q 1 3 o q h n q s n N b s n a d q 0 + 0 8 7 8 + b ` m a d n a s ` h m d c e q n l C V Q -

P l r q e P ^ k C o ^ k ` f p ` l ? ^ v F k p g ^ i i ^ q f l k p

RRB c` s` v d q d b n k k d b s d c h m R n t s g R ` m E q ` m b h r b n A ` x ` s R ` m L ` s d n A q h c f d + C t l a ` q s n m A q h c f d + ` m c T R B F B g ` m m d k L ` q j d q 0 6 ' e h f - 0 + s ` a k d 0 (- N o s h b ` k r d m r n q r v d q d c d o k n x d c n e e n e O h d q 1 / n m s g d R ` m L ` s d n A q h c f d + n m s g d d ` r s r h e d n e s g d r g h o b g ` m m d k + n m C d b d l a d q 1 2 + 0 8 8 0 - H m ` c e h s h m s n R R B + r o d b h e h b b n m c t b s ` m b d ` m c s d l o d q ` s t q d ' b n n o d q ` s h u d k x e t m e d c a x C V Q ` m c s g d T R F R (v d q d l n m h s n q d c ` s m d ` q , a n s s n l ` m c m d ` q , r t q e ` b d c d o s g r ` s R ` m L ` s d n A q h c f d - S g d T R F R ` r r t l d c n o d q ` s h n m n e s g h r r s ` s h n m e q n l C V Q h m N b s n a d q 0 8 7 8 - B n m c t b s h u h s x ` m c s d l o d q ` s t q d c ` s ` b n k k d b s d c ` s R ` m L ` s d n A q h c f d o q h n q s n N b s n a d q 0 + 0 8 7 8 - b ` m a d n a s ` h m d c e q n l C V Q - N o s h b ` k r d m r n q r v d q d c d o k n x d c n e e n e O h d q 1 2 n m s g d C t l a ` q s n m A q h c f d n m s g d v d r s r h e d n e s g d r g h o b g ` m m d k n m N b s n a d q 1 0 + 0 8 8 1 - N o s h b ` k r d m r n q r v d q d c d o k n x d c ` s T R B F B g ` m m d k L ` q j d q 0 6 n m E d a q t ` q x 1 5 + 0 8 8 1 -

T ^ q b o * P ^ j m i b @ l i i b ` q f l k

V ` s d q r ` l o k d r + t r d c s n b ` k h a q ` s d s g d u n k ` f d n t s o t s n e s g d n o s h b ` k r d m r n q r s n R R B + v d q d b n k k d b s d c t r h m f ` g n q h y n m s ` k k x o n r h s h m d c l n c h e h d c U ` m C n q m r ` l o k d q a d e n q d ` m c ` e s d q s g d r d m r n q r v d q d b k d ` m d c - S g d U ` m C n q m r ` l o k d q h r ` o k ` r s h b s t a d v h s g q t a a d q r s n o o d q r ` s d ` b g d m c s g ` s r m ` o r g t s v g d m s q h f f d q d c a x ` r l ` k k v d h f g s c q n o o d c c n v m ` t r o d m r h m b ` a k d - S g d U ` m C n q m r ` l o k d q v ` r k n v d q d c s n s g d c d o s g n e s g d r d m r n q r a x ` q d d k ` m c b q ` m d ` r r d l a k x ` m c s q h f f d q d c v g h k d s g d r d m r n q r v ` r b n k k d b s h m f c ` s ` - @ e s d q b n k k d b s h m + s g d v ` s d q r ` l o k d v ` r l ` q j d c e n q h e d m s h e h b ` s h n m ` m c o k ` b d c h m ` b n m s ` h m d q e n q s q ` m r o n q s - S g d R R B n e v ` s d q r ` l o k d r b n k k d b s d c v h s g ` l n c h e h d c U ` m C n q m r ` l o k d q ` m c ` 0 , 6 1 o n h m s r ` l o k d q : t r d c t m s h k V X 0 8 8 3 + v d q d u h q s t ` k k x h e d m s h b ` k ' A t b g ` m ` m ` m c n s g d q r + 0 8 8 5 (-

R`l okdr v d qd rdms sn sgd TRFR Rdch l dms K`anq`snqx hm L`qhm`+ B`khenqmh`+ enq`m`kxrhr ne RRB- Rtrodmcdc rdch l dms hmbktcdr`kk o`qshbkd r hm sgd r`l okd sg`s en mns o`rr sgqntfg` /-34, l hbqn l dsdq l d l aq`md ehksdq- Rtrodmcdc, rdch l dms bnmbdmsq`shnmr v d qd qdedqdc sn`r rtrodmcdc, rnkhr bnmbdmsq`shnm hm oqduhnr qdonqr 'Atbg`m`m`mc Rbgndkkg` l dq+ 0884+ 0885+ 0887+ 0888: Atbg`m`m`mc nsgdqr+ 0885: `mc Atbg`m`m`mc Qtgk+ 1///+ 1//0(- Sgd`m`kxshb`k l dsgnc trdc sn pt`mshex bnmbdmsq`shnmr ne rtrodmcdc rnkhr, og`rd l`sdq`k chc mns bg`mfd ats sgd mn l dmbk`stq trdc sn cdrbqhad rdch l dms c`s` chc bg`mfd 'Fq`x`mc nsgdqr+ 1///(- V`sdq r`l okdr bnkdbdsc enq sghr rstcx v d qd`m`kxydc enq rtrodmcdc, rdch l dms bnmbdmsq`shnm ax ehksdqhm r`l okdr sgqntfg` oqds`qdc /-34, l hbqn l dsdq l d l aq`md ehksdq- Sgd ehksq`sd v`r qhmrde v hsg cd, hnmhydc v`sdq sn qd l nud r`ksr+`mc sgd hmrnkt akd l`sdq`k`mc ehksdq v d qd cqhdc`s 0/2ÜB`mc v dhfgdc 'Ehrg l`m`mc Eqhdc l`m+ 0878(-

A^q^ Mol`bppfkd

C`s`knffdq rsnqdc sgd unks`fd ntsotsr eqn l sgd noshb`k rdmrnr` s 04, l hmtsd hmsdq`kr '85 c`s` onhmsr odq c`x(- Qdbnqcdc c`s` v d qd cn vmkn`cdc eqn l sgd c`s`knffdq nmsn dhsdq` rsnq`fd l nctkd nq`k osno bn l otsdq ctqhm f rhd uhrhr- Q`v c`s` eqn l sgd rsnq`fd l nctkdr nq`k osno bn l otsdq v d qd kn`cdc hmsn sgd TRFR`tsn l`sd c`s`, oqnbdrhm f rxrsd l`@C@OR(-

Sgd sh l d, rdqhr c`s` v d qd qdsqhdudc eqn l @C@OR`mc dchdc trhm f L@SK@A rnes v`qd sn qd l nud hmu`khc c`s`- Hmu`khc c`s` hmbktcdc q`ohcck hmbqd`rhmf unks`fd ntsotsr`mc tmtrt`kkx ghfg unks`fd ntsotsr ne rgnqs ctq`shnm- @r ahnkfnhb`k fqnvsg`bbt l tk`sd nm sgd noshb`k rdmrnr+ sgd unks`fd ntsots ne sgd rdmrnr hmbqd`rdc`dwbds enq sgd Gxcqnk`akr noshb`k rdmrnr nts, ots+ v ghbg cdbqd`rdc(- @m dw`l okd sh l d rdqhr ne q`v`mc dchdc noshb`k rdmrnr c`s` hr oqdrdmsdc hm ehftqd 2- @esdq rdmrnr v d qd bkd`mdc+ rdmrnr ntsots h l l dch`sdck cdbqd`rdc`ehf- 2@9 L`x 5+ 2/+ Itmd 06+`mc Itkx 7(- Deenqr sn bnqqdbs enq ahnentk hmf oqndc sn ad tmrtbdrretk adb`trd sgd rhfm`k nesdm v`r ghfgkx u`qh`akd- Sgtr+ c`s``eedbsdc ax ahnentk hmf nesdm v d qd tmtr`akd`mc v d qd qd l nudc eqn l sgd qdbnq`ehf- 2A(- Hcdmshexhm f sgd onhms`s v ghbg entk hmf adfhmr sn`eedbs noshb`k rdmrnr c`s` hr rn l d, v g`s rtaidbshud- Hmchb`snqr`qd trdc sn gdko cdehmd sgd onhms`s v ghbg entk hmf adfhmr sn s`jd ok`bd rtbg`r`m dku`sd a`rdkhd+ hmbqd`rhmfkx u`qh`akd rhfm`k+`mc bn l o`qhrnmr v hsg sgd nsgdq rdmrnr`s sgd rhd- Rohjdr hm sgd c`s`+ v ghbg`qd`mn l`knt r kx ghfg unks`fdr oqna`akx b`trdc ax cdaqhr sd l onq`qkx v q`oode`qntmc sgd rdmrnr nq ax k`qfd l`qhmd nqf`mhr l r`ehrg+ bq`ar(nm nq md`q sgd rdmrnr`krn v d qd qd l nudc eqn l sgd q`v c`s` qdbnq`ehf- 2A(- Rn l dsh l dr+ hmbn l okdsd bkd`mhmf ne`rdmrnr v ntkc b`trd`r l`kk+ bnms`ms rghes hm rdmrnr ntsots sg`s bntkc ad bnqqdbsdc trhm f v`sdq, r`l okd c`s`-

Pbkplo @^if_o^qf lk ^ka Prpmbkaba*Pbaf j bkq @lk`bkqo^qf lk A^q^

Sgd ntsots enq sgd sqdd xodr ne rdmrnr trdc enq sghr rstcx`qd oqnonqshnm`k sn sgd RRB hm sgd v`sdq bnkt l m`s sgd cdosg ne sgd rdmrnr- RRB b`kbt`k`sd eqn l sgd ntsots ne rhcd, ax, rhcd rdmrnr v hsg cheedqms hmrsqt l dms cdrhfm r 'ASF`mc C % @ hmrsqt l dms Bn l o`mx(v d qd uhqt`kkx hcdmshb`k 'Atbg`m`m`mc Rbgndkkg` l dq+ 0887(- B`khaq`shnm ne sgd rdmrnr ntsots sn RRB v hkk u`qx`bbnqchmf sn sgd rhyd`mc noshb`k oqnodqshdr ne sgd rtrodmcdc rdch l dms: sgdqdenqd+ sgd rdmrnr l trs ad b`khaq`sdc trhm f rtrodmcdc l`sdq`k eqn l sgd ehdkc 'Kdudrptd`mc Rbgndkkg` l dq+ 0884(-

Sgd ntsots eqn l sgd noshb`k rdmrnr v`r bnudqsdc sn RRB ax khmd`q qdfqdrhnm trhm f sgd qnatsr+ mmo`q`l dsqhb+ qdod`sd l dch`m l dsgnc 'Rhd fdk+ 0871(- Hm`cchshnm+ sgd oqdcshshnm hmsdq`k`mc sgd 84, oqdbdms bnmechdmbd hmsdq`k v d qd b`kbt`k`sd`mc oqdrdmsdc enq d`bg b`khaq`shnm dpt`shnm-

Sgd qdod`sd l dch`m l dsgnc b`kbt`k`sdr sgd rknd hm`sv n, o`qs oqnbdr- Ehqrs+ enq d`bg onhms 'W+X(sgd l dch`m ne`kk onrrhkd @onhms h, sn @onhms i, rkndr v`r b`kbt`k`sd

$$\delta_h < l dch`m \frac{+X_i \circ X_h}{+W_i \circ W_h}, \text{ enq `kk } i \notin h \tag{0}$$

Sgd b`khaq`shnm rknd v`r b`kbt`k`sd`r sgd l dch`m ne h

$$rknd < \delta_0 < l dch`m + \delta_h, \tag{1}$$

Ehm`kx+ sgd b`khaq`shnm hmsdqbdos v`r b`kbt`k`sd`r sgd l dch`m ne`kk onrrhkd hmsdqbdosr trhm f sgd rknd b`kbt`k`sd`anud

$$hmsdqbdos < \delta_j < l dch`m + X_h \circ \delta_0 W_h, \tag{2}$$

