30" Kpvtqfwevkqp

 $Xctkqwu"\ ugtxkegu"\ cpf"\ crrnkecvkqpu"\ wvknk\ |\ kpi"\ y\ ktgnguu"\ nqecn"\ ctgc"\ pgv\ y\ qtm"\ *NCP+"\ j\ cxg"\ dggp"\ y\ kfgn\{\ cfq\ rvgf''\ kp''\ tgegpv"\{gctu."uwrrqtvgf"\ d\{\ "vjg"\ rqrwnctk\ |\ cvkqp"\ qh''eqo\ rcev''\ y\ ktgnguu"\ vcdngv''\ vgt\ o\ kpcnu."\ cu''\ tgrtgugpvgf''\ d\{\ "vjg''\ u\ o\ ctv/rjqpg0$

 $LHG"Gpikpggtkpi"ku"gpicigf"kp"vjg"fgxgnqrogpv"cpf"ucng"qh"yktgnguu"NCP"fgxkegu"yjkej"ecp"dg"wugf"kp"jc|/ctfqwu"ctgcu0"Vjku"tgrqtv"kpvtqfwegu"vjg"hgcvwtgu"qh"xctk/qwu"fgxkegu"cpf"gzcorngu"qh"u{uvgo"kpvtqfwevkqp0}$

40" U { uvg o "Eqphk i wtcvkqp

403" Cfxcpvcigu"qh"U{uvgo "Kpvtqfwevkqp

$$\label{eq:continuous} \begin{split} & Eqpxgpvkqpcnn\{."\ u\{uvg\ o\ "\ hqt"\ xqkeg"\ eq\ o\ o\ wpkecvkqp"\ uwej"\ cu"\ rgtuqpcn"\ j\ cpf\ \{/r\ j\ qpg"u\{uvg\ o\ "*R\ J\ U+."\ vtcpuegkx/\ gtu."\ gve0"\ y\ gtg"vjg"\ o\ ckp"uvtgc\ o\ "kp"\ o\ qdkng"eq\ o\ o\ wpkecvkqp"\ u\{uvg\ o\ u"\ hqt"\ wug"\ kp"\ j\ c\ |\ ctfqwu"\ ctgcu0"\ J\ q\ y\ gxgt."\ y\ kvj"vjg"\ rtq\ i\ tguu"\ qh"\ kphqt\ o\ cvkqp"\ vgej\ pqnqi\ \{"\ kp"\ tgegpv"\ \{gctu."\ pggfu"hqt"\ o\ qdkng"uqnwvkqpu"\ j\ cxg"gzrcpfgf"htq\ o"u\ \{uvg\ o\ u"\ dcugf"\ o\ ckpn\{"\ qp"\ ecdng"\ eq\ o\ o\ wpkecvkqplxqkeg"\ eq\ o\ o\ wpk/\ ecvkqp"vq"\ y\ ktgnguu"NCP"u\ \{uvg\ o\ u"\ y\ j\ kej\ "gpcdng"\ kpvg\ i\ tcvg\ f"\ nctig/xqnw\ o\ g"\ fcvc"\ vtcpu\ o\ kuukqplxqkeg"\ eq\ o\ o\ wpkecvkqp"\ *Hki0"3+0 \end{split}$$

404" Hgcvwtgu"qh"Gzrnqukqp/Rtqqh""
Yktgnguu"NCP"U{uvg o "Fgxkegu

40403" Gzrnqukqp/rtqqh"ceeguu"rqkpv"" õNCPGZ^{VO}/CRö

Cp"ceeguu"rqkpv"*jgtgkpchvgt."CR+"ku"c"tgnc{"fgxkeg"hqt" vtcpu o kuukqp"qh" fcvc"htq o "xctkqwu"v{rgu"qh" yktgnguu"vgt/

 $\label{eq:control_obj} o \ kpcnu" \ vq" \ qv \ j \ gt" \ f \ gxkegu" \ xkc" \ c"NCP." \ gve0" \ V \ j \ g"hgcvwtgu" \ qh" \ NCPGZ^{VO}/CR"* \ R \ j \ qvq" \ 3+"ctg" \ f \ guetkdg \ f"dgnq \ y0$

*3+ Rquukdng" vq" ugngev" vjg" oquv"crrtqrtkcvg" cpvgppc" hqt" vjg"kpuvcnncvkqp"nqecvkqp0

Vjg"nkpgwr" qh" NCPGZ^{VO}/CR" rtqfwevu" kpenwfgu" fktgevkqpcn" cpvgppcu." yjkej" ctg" ghhgevkxg" kp" ecugu" yjgtg"vjg"wugt" ykujgu"vq"ugewtg"c"nkpgct"eqoowpk/ecvkqp" ctgc." hqt" gzcorng." cnqpi" tqcfu." kp" vwppgnu." gve0."cpf"vjg"qrvkowo"qopkfktgevkqpcn" cpvgppcu"hqt" ugewtkpi" c" 582Å" qopkfktgevkqpcn" eqoowpkecvkqp" ctgc"htqo"vjg"CR0" Ugngevkqp"qh"cpvgppcu"ku" rquukdng" ceeqtfkpi"vq"vjg"kpuvcnncvkqp"rwtrqug0

*4+ Rquukdng"vq"wug"kp" j c | ctfqwu"ctgcu"wr "vq" \ qpg"30

Gzrnqukqp/rtqqh" egtvkhkecvkqp" hqt" vjg" _ tv

quecveq o

pqnqi { " Kpuvkvwvkqp" qh" Kpfwuvtkcn" Uchgv{." vjg" fqog/v{rg"KR"ecogtc"ecp"dg"wugf"kp"jc|ctfqwu"ctgcu"wr"vq" \qpg"30

*4+ Rtqxkfgu"engct"kocig"swcnkv{."cpf"oqpkvqtkpi"ku"cnuq"rquukdng"wpfgt"nqy"nkijv"kpvgpukv{0

 $\label{eq:condition} $$ Kocig" o qpkvqtkpi"*305 32^8"rkzgnu."Vtcpu o kuukqp" tcvg<" o cz0"52"htc o gu" rgt"ugeqpf+"ecp" dg" rgthqt o gf" d{"ugngevkpi"htq o "vjg" ORG I /6." O/LRG I ."cpf" J 486" k o cig" eq o rtguukqp" o gvjqfu0" Kp" cffkvkqp." d{"wukpi" vjg" gngevtqpke" kpvgpukhkecvkqp" hwpevkqp." o qpkvqtkpi" ykvj"vjg"uc o g"dtkijvpguu"cu"kp"fc{vk o g"ku"cnuq"rquuk/dng."gxgp"wpfgt"nqy"nkijv"kpvgpukv{"*2028"nwz+0}$

 $*5 + Rquukdng"vq"wug"qwvfqqtu"kp"eqnf"tgikqpu"* 42 \mathring{A}E + 0$

 $C"dwknv/kp"urceg"\,j\,gcvgt"ku"\,rtqxkfgf."gpcdnkp\,i\,"wug"\,kp"eqnf"tg\,i\,kqpu0$

50" Gzc o rngu"qh"U{uvg o "

hqt" jg" wtrqugu" jg kpi" $\boldsymbol{x}^{\shortparallel}$ cnc gu" fwtkpi" p " cejkgxkpi" yqt Gw pcdnkpi" $\mathbf{w} \mathbf{kfq}$ $\mathbf{p}^{"}$ ncpv" g c ncpv"