SEMATECH Surface Preparation and Cleaning Conference 2009

Austin, Texas, USA
23-25 March 2009

PRESENTATION NOTES

Surface Preparation and Cleaning Conference
March 23 – 25, 2009

Vwgufc{.'Octej ''46ʸj''
"
Uguukqp''Qpg<''Mg{pqvg''I''KVTU'Ej cngpi gu''I''Uqrct'Rj qvqxqnvckeu''ó''Uguukqp''Ej ckt<''Lqgrl'Dctpgu''"
MG[PQVG''/''Ocuc{uki'Vqo q{cuw'*Vqm{q'Gngevtqp+''3"
"
"
"
KP XKVGF <'KVTU''HGR''422: ''Wrfcvg<'Vjg'Kor cev'qh'Uj khu'kp'Vgej pqnqi {'cpf 'Rj {ukecn'I cvg'Ngpi yj 'vq'vjg'HGR'
Tqcfocr ''/''Dwwgtdcwi ''*HUKKpvgtpcvkqpcn+''5"
"
"
"   "   "   "   "   "
KP XKVGF <'Qxgtxkgy ''qh'Ygv'Engcp''cpf 'Gvej 'Cr r nkecvkqpu''kp''Uqrct'Rj qvqxqnvckeu''/''Xgtj cxgtdgmg''*Cr r nkgf 'Ocvgtkcnu+''53"
"
"
"
Uguukqp''Vy q<''KKKX'Engcpu''ó''Uguukqp'Ej ckt<'Cpyj qp{'Owuecv'
KP XKVGF <'KKKX''Tgugctej ''cpf ''Uwthceg''Rtgr ctcvkqp'Ej cngpi gu''hqt''Kpvgi tcvkqp'kp'Hwwwtg'J ki j ''Ur ggf.'Nqy ''Rqy gt'
Nqi ke'Cr r nkecvkqpu''/''I qgrl'Kpvgn'Cuuki pgg''vq'UGOCVGEJ +''83"
"
"
"
KP XKVGF <'Kpvgtcevkqp''qh'Ugngevgf ''Ygv'Ej go kecn'Hqto wncvkqpu'y kj 'I cCu''/''Tci j cxcp''*Wpkxgtukv{ 'qh'Ctk| qpc+'': 3"
"
"
"
Ej go kecn'cpf ''Gngevtkecn'Ej ctcevgtk| cvkqp''qh'J ki j /mKKKX''Kpvgthcegu'Rtgr ctgf ''kp''Ukvw''/''Hgg'Nk'Nkg''*Wpkxgtukv{ 'qh'Ctk| qpc+'; : "
"
"
"
Uguukqp''Vj tgg<''O GO U''/''Rctvkeng'Tgo qxcn'htqo ''Y chgtu'cpf ''Ocuns''ó''Uguukqp''Ej ckt<'Ukrkp'Tci j cxcp.'Lkp/I qq'Rctm'
KP XKVGF <'Engcpkpi ''Rtqdngo u'Cuuqekcvgf ''y kj 'O GO U'Tgnc{ u''/''E| cr ngy usk''*UCP FKC+''337"
"
"
"
Ucetkhkekcn'Qzkf g'Gvej kpi ''hqt'Rqn{ukneqp'Ecpvkngxgtu'qh'J ki j ''Curg ev'Tcvkqu'Wukpi ''Uwr gtetkvkecn'EQ4''/''Lwpi ''*Rwt{qpi ''
P cvkqpcn'Wpkxgtukv{ +''359"
"
"
"
"
Fco ci g'Cuuguuo gpv'qh'Gzvtgo g'Wnvtcxkqngv'*GWX+'Rcwgtpgf ''O cuns'hqt'vjg'44''po ''J cnh/Rkvej ''*J R+'P qf g''/''Tcuvgi ct''
*UGO CVGEJ +''375"

Pqxgn'O gvtqnqi {'hqt'Cr r nkecvkqp'kp'Y gv'Uwthceg'Rtgr ctcvkqp'qh'Rcwgtpgf "Y chgtu'/'Fj cpg"'*Wpkxgtukv{'qh'Ctk| qpc+"397"

"

"

Tkpug'Dgj cxkqt'qp'J {ftqrj knke."J {ftqrj qdke'cpf 'O kzgf 'Rcwgtpgf "Uwthcegu"/'J cp"*Uco uwpi +"3; 3"

"

"

Uguukqp'Hqwt<'Ft{'Gvej "/'O gcuwtgo gpv'cpf "Ko r cev'qh'Eqpvco kpcvkqp"ó"Uguukqp'Ejcktu<Ejtku'Ur ctmu."Lghh'Dwwgtdcwi j "

RP XKVGF <'Y chgt'Rtqeguukpi "d{'Ngwtcn'Dgco "Gvej kpi "'lCvqo ke'Nc{gt'Gvej kpi "/'[gqo "*Uwpi m{wpny cp'Wpkxgtukv{+"433"

"

"

Fkgngevtke'Ejcti kpi 'Fwtkpi "Urki ng'Y chgt'Y gv'Encpu='lpfnwgpeg'qh'Vqqn'Rctco gvgtu'cpf 'Ejcti g'Rgtukuvgpeg'/'Rgvgtu"*Rctai qp'Eqpuwncpvu+"468"

"

"

O qpkqtkpi "Y chgt'Engcpnkpguu'cpf 'O gvcn'Eqpvco kpcvkqp'xkc'XRF "KER/O U<'Ecug'Uwdkgu'hqt'Pgzv'[gpgtcvkqp"'
Tgswktgo gpu'/'Cpf gtuqp'*Ckt/Nkswkfg+"486"

"

"

Qr vko k| cvkqp'qh'Gfi g'Engcp'Uunkpi 'Pqp/Xkuwcn'Fghgev'lpur gevkqp'/'[cdgug'*ECC/NGVK='4: 7"

"

"

Rtqeguu'Vqqn'Engcpnkpguu'/'Hqo "Uvctvkpi 'O cvgtkcnu'vq'Eqo r ngvgf 'Vqqnu'/'Ejkc'*Dcnc| u+"527"

"

"

"

"

Y gf pguf c{.'47ʸ "

"

Uguukqp'Hkxg<'"672o o "ó'GUJ "ó'Cf xcpegf 'Fgxkegu'ó'Uguukqp'Ejckt<'Lqgn'Dctpgw"

RP XKVGF <'Vj g'672o o "Vtcpukvkqp<'Rtqi tguu'Rncpu'cpf 'Ejcmgpi gu'/'Lghhgtuqp'*lpvgn'Cuuki pgg'vq'KUO K+"549"

"

"

RP XKVGF <'lpvgi tcvkpi 'I tggp'kpvq'Engcp'/'Dgcung{'*KUO K+"56: "

"

"

RP XKVGF <'Uwthceg'Rtqeguu'Kuuwgu'y kyj 'O vl 'HGVu'Fgxkegu'/'J cttku'*Vgzcu'C(O "Wpkxgtukv{+"588"

"

"

Uguukqp'Ukz<'Rquv'Gvej 'Engcpu'l'Rj qvqtgukuv'Tgo qxcn'ó'Uguukqp'Ejckt<'Fgdqtcj 'Tkng{ "

Kp-/rkpg'Eqpvtqn'qh'Uk'Nquu'chgt'Rquv'Kqp'Ko r ncpvcvkqp'Uvtkr "/'Uj co kt{cp'*KO GE+"5: : "

"

"

Cm/Y gv'Rj qvqtgukuv'Uvtkr r kpi 'hqt'Wntcuj cmqy "Lwpevkqp'Rncuo c'Ko o gtukqp'Kqp'Ko r ncpvcvkqp'/'Dwwgtdcwi j "*HUK'
Kpvgtpcvkqpcn+"627

Vj g''Kpvgtcevkqp''qh''Tqwi j pguu''cpf ''Ej go kecn''Hwpevkqpcnk| cvkqp''qh''Vj gto cn''Qzkfg''cpf ''VGQU''nc{gtu''qp''yj g''Y gwkpi ''qh''
Cs wgqwu''Engcpu''/''Tgkf { ''*Wpkxgtukv{ ''qh''P 0'Vgzcu+''645''
"
"
"
Tgo qxcrl''qh''Rquv Gvej ''3; 5''po ''Rj qvqtgukuv kp''Rqtqwu''Nqy /''m'F kgngevtic''Rcwgtpkpi ''wukpi ''WX''Ktcf kcvkqp''cpf ''Y gv'
Ej go kuvtgu''/''Xgttggemg''*KO GE+''65;
"
"
"
"

Rcpgn'F kuewuukqp''ó''O qf gtcvqt<'F cxkf ''Nco m gtu''Ugo keqpf wevqt''Kpvgtpcvkqpcn'
"
"
"

Uguukqp''Ugxgp<''EO R''/''Ew'Tgncvgf ''Engcpu''ó''Uguukqp''Ej ckt<''Tlem'Tgkf { ''
KP XKVGF <''EO R''Rtqeguu=''Ku''Ej cmgpi gu''cpf ''Hwwtg''/''L/I ''Rctm'*J cp{cpi ''Wpkxgtukv{ +''688''
"
"
"
P gy ''Engcpkpi ''Uqnwvkqpu''hqt''Cm'Y gv'Rquv Gvej ''Tgukf wg''Tgo qxcn'qp''Ew'DGQN''hqt''uwd''67po ''P qf gu''/''Mnkr r ''*DCUH'UG+
''724''
"
"
F gxgnqr o gpv'qh''Eqo r cvkdng''Y gv'Engcp''Uvtkrr gt''hqt''Kpvgi tcvkqp''qh''EqY P''O gvcn'Ecr ''kp''Ewlqy /''m'Kpvgteqppgewu''/''Y w'
*Ckt''Rtqf wevu+''744''
"
"
"
Tgf wegf ''Qz{i gp'Engcpkpi ''Rtqeguu''hqt''Cf xcpegf ''Ew'Nqy /''m'Kpvgi tcvkqp''/''Ncwtgj ccu''*HUK'Kpvgtpcvkqpcn+''762
"

RQUVGT ''UGUUKQP "
"
Rquvgtu''y km'dg''xkgy gf ''cv'yj g''P gwy qtmkpi ''Tgegr vkqp''qp''Vwguf c{.''O ctej ''46�位''cpf ''qp''Y gf pguf c{.''
O ctej ''47�位 ''yj g''r quvgtu''ecp''dg''xkgy gf ''kp''Ecr kqn'G'
"
Ej ctcevgtk| cvkqp''qh''J { f tqi gp'F kuuqnxgf ''F KY cvgt''hqt''Rctvkeng''Tgo qxcn'
Lkpi qq''Rctm''/''J cp{cpi ''Wpkxgtukv{ ''774'' "
''''''
"
"
Tgo qxcn'qh''RUN''cpf ''Uknkec''P cpqr ctvkengu''htqo ''Uwdo ketqp''Vtgpej gu''Wukpi ''O gi cuqpkeu'' "
Rgi cj ''Mctko k''/''P qtvj gcuvgtp''Wpkxgtukv{ ''789'' ''''
"
"
"
Y gv'Ej go kecn'Cr r tqcej gu''hqt''Uvtkr r kpi ''J ki j /F qug''Ko r ncpvgf ''Rj qvqtgukuv'' "
I ngpp''Y guy qqf ''/''O cknpetqf v'Dcmgt''78; '' ''''
"''
"
"
Engcpkpi ''Ej go kuvt{ ''Rncvhqto ''hqt''Cf xcpegf ''*Ö'67''po +''DGQN''Ew'Nqy /''m'Kpvgi tcvkqp''Uej go gu''
Y knkco ''I go m km'/''O cknpetqf v'Dcmgt''7: 7 ˙˙˙

Vj g''Uvtgco kpi ''Rqvgpvkcn'kp''Ugo keqpfwevqt''Uwthceg''Ej ctcevgtk| cvkqp<''Dg{qpf ''vj g'''
Rtgfkevkqp''qh''Grgevtquvcvke''Kpvgtcevkqp'''
Vj qo cu''Nwzdcej gt''/''Cpvqp/Rcct ''822''
''   ''''''
''
''
Ghhgev''qh''Uwthceg''Rtgrctcvkqp''qp''Grgevtkecn'Fgxkeg''Rgthqto cpeg''   ''
Tguj o k'O kvc''/''O CZ KO ''837'' ''''''
''
''
''
Xgtvkecn'Ukpi ng''Y chgt''Engcpkpi ''y kj ''Rwnugf ''Nkswkf ''Lgw''T/RJ CUVVO ''''
Tqd''Tcpf j cy c''/''Rncpct/Ugo k''846''   ''''''
''
''
''
Ft{kpi ''Ko r cev'qp''Ugo keqpfwevqt''Uwthcegu''chvgt''Kppqxcvkxg''Uqnxgpv'Gzr quvtg''hqt''HGQN''Kpvgi tcvkqp'''
[cpplenlNg''Vkge''/''EGC/NGVK''862'' ''
''
''''''
''
Pqxgn'O gvtqnqi {''hqt''Crr nkecvkqp''kp''Y gv'Uwthceg''Rtgr ctcvkqp''qh''Rcwgtpgf ''Y chgtu''   ''
Mgfct''Fj cpg''/''Wpkxgtuvk{''qh''Ctk| qpc'''878''
''
''
''''''''
Wukpi ''Uwd/52'po ''Hknwtcvkqp''vq ''Tgfweg''Qp''Y chgt''Fghgevu''kp''V{r kecn'Ugo keqpfwevqt''Rtqeguugu''   ''
Ctkgn'Htqo gvc''ó''Gpvgi tku''894
''
''
''   ''''''
Eqpvtqngf ''FKY cvgt''I cukhkecvkqp''U{uvgo ''hqt''Cf xcpegf ''Ugo keqpfwevqt''Engcpkpi ''Rtqeguugu''
Cpplg''Zkc''/''Gpvgi tku''8: : '' ''
''''''
''
''
O gi cuqpke''Uy ggr kpi ''cpf ''Ukrkeqp''Y chgt''Engcpkpi ''   ''
I.'O 0'I qqfuqp''/''O gi cuqpke''Uy ggr kpi ''925''   ''''''
''
''
''   ''''''
O gyj qf kecn'Fgxgnqr o gpv'qh''Pqxgn'FO UQ/dcugf ''Engcpkpi ''Ej go kuvtgu''cuukuvgf ''d{ ''O wnkeqo r qpgpv'
''''''O kzwtg''FqG''' ''
C0' U0'O eMko ''/''I c{nqtf ''Ej go kecn''93; ''   ''

''   ''''''
Gxcnwcvkqp''qh''J ki j ''Fqug''Ko r ncpv'Tgukuv'Uvtkr ''*J FKU+''wukpi ''Ncugt''Nki j v'cpf ''Tgcevkxg'I cu''   ''
Fcxkf ''Gnkqv''/''WX''Vgej ''957   ''
''
''
''''''
Rtgugtxkpi ''vj g''Kpvgi tkv{''qh''Nqy ''m'O cvgtkcnu''y kj ''Cnn'Y gv'   ''
Eqrg''Htcpmkp''/''F {pcq{ ''95: ''''''''
''
''
''
C''Pgy ''Cr r tqcej ''hqt''Etkvkecn'Y chgt''Uwthceg''Engcpkpi ''''''
Uwtcj ''Rwtk''/''Pcpq''I tggp''Vgej pqnqi { ''973···

Tgr ckt"qh'Rncuo c/fco ci gf 'r/UkQEJ 'F kgngevtke'Hkno u'kp'Uwrgtetkkecrl'EQ$_4$"

My qp"Vcgm'Nko "/"Rwm{qpi 'Pcvkqpcrl'Wpkxgtuki{ "989"

"

"

"

C'Rjqvqugpukkxg'Rqn{ogtke'Gvej 'Rtqvgevkqp'Ocum'hqt'Cpkuqvtqrke'Ygv'Gvej kpi "qh'Uknkeqp<""

Ghhgev'qh'Uwthceg'Rtgrctcvkqp'qp'Tgyqtm'Ecrcdknkv{'cpf 'Gvej 'Rtqvgevkqp'Rgthqtocpeg"

Vkpi lk'Vcpi /'Dtgygt'Uekgpeg'9:5"