

# Stakeholder Comments Template

## CASIO Straw Proposal: Phase 2 Convergence Bidding Data Release

Submitted By (Name & phone number)	Company or Entity	Date Submitted
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Southern California Edison Company ("SCE") would like to thank the California Independent System Operator Corp. ("CAISO") for providing the opportunity to submit comments on the "Straw Proposal for Phase 2 Convergence Bidding Data Release" ("Straw Proposal"), dated December 16, 2009.

### **MSC's Minimum Recommendation on Information Release Should be Adopted**

SCE cannot support the two options proposed by the CAISO in the straw proposal as they fall short of providing the minimum information recommended by MSC. SCE continues to support the MSC's recommendation of releasing the net cleared quantity of virtual bids by node to all market participants coincident or shortly after the posting of the day-ahead market results.

SCE again points to MSC's October 19, 2009 opinion paper on convergence bidding where the MSC identifies information release as a key success factor for convergence bidding increasing rather than decreasing market efficiency and system reliability. Given such a specific recommendation by its independent market advisor it is unclear why the CAISO did not propose the MSC's recommendation as an option in its straw proposal. Omission of the MSC recommendation is troubling given the fact that the CAISO has provided no evidence as to why the MSC recommendation should not be adopted.

As CAISO noted in its answers to comments on its convergence bidding policy design, virtual bids are purely financial in nature and as such are fundamentally different than physical bids<sup>1</sup>. SCE see no justification for the CAISO to require exact treatment of physical and virtual information release, but rather compelling reasons why the MSC proposal should be adopted to improve market efficiency. Virtual bids are completely voluntary while physical participation is mandatory

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<sup>1</sup> CAISO Answers to Motions to Intervene, request for Technical Conference, and Comments, and Motion to File Answers and Answer to Protests, of the California Independent System Operator Corporation, December 23, 2009. Page 35

for all load and Resource Adequacy resources. Virtual bids are purely financial and do nothing to keep the lights on or to consume power. That is, virtual bids are in no way required in order for the CAISO to perform its core function of maintaining a reliable grid, as has been proven by running MRTU to date without virtual bids. Per design virtual bids have different attributes than physical bids, some of which include:

- Virtual bids are not subject to Local Market Power Mitigation and have no underlying costs basis - unlike all physical supply bids<sup>2</sup>
- Virtual bids are not considered as supply in the Competitive Path analysis- only physical bids are considered
- Virtual bids have no operating characteristics – all physical supply bids do
- Virtual bids are not restricted to bid at specific physical locations- both physical generation and load are
- Virtual bids on the inter-ties require two constraints (physical and financial) in order to maintain reliability
- Virtual bids have different cost allocation rules than physical bids (e.g. system wide netting and threshold tests)
- Virtual bids force the CAISO to take additional “replacement” steps to maintain reliability that would not be needed if the bids were physical (e.g. RUC)
- Virtual bids are completely mobile and flexible in price, frequency, participation, quantity, and even direction of participation (e.g. buy one hour, sell the next hour, or do not participate the next hour)
- Virtual bids have different collateral requirements and create different default risks than physical bids

In sum, the roles of virtual bids and physical bids are fundamentally different – physical bids keep the light on, while financial bids attempt to improve market efficiency. Given this clear distinction and fundamental differing bid attributes we see no justification to require identical treatment of information release. We urge the CAISO to adopt the MSC recommendation of releasing the net cleared quantity of virtual bid by node.

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<sup>2</sup> SCE notes CAISO could have subjected virtual bids to LMPN using historical nodal prices as the basis for mitigation, but chose not to, realizing that virtual bids are fundamentally different than physical bids.

### **Opposition to the MSC's Minimum Recommendation is Unsupported**

SCE does not agree with concerns raised by Dynegy and WPTF that the minimum level of information release recommended by the MSC exposes physical resources hedging strategies or releases commercially sensitive information that would be harmful to virtual participants.

First, Dynegy's assertion that nobody other than Dynegy would submit virtual bids at its supply nodes is simply untrue. Virtual bids, unlike physical bids, have no restrictions on the nodes where they can be submitted. Virtual bids can be submitted by anyone, at anytime, at any node. Furthermore, Dynegy's concerns that virtual bid transparency would expose its hedging strategies are unsupported given that identification of who is bidding at a given node is not being proposed and that a supplier has multiple options (correlated nodes, DLAPS, and trading hubs) to hedge outage risks without bidding at the exact pricing node of their unit. This flexibility alone should be sufficient to dismiss any concerns that the MSC's recommendation will expose hedging strategies of suppliers. As further evidence to eliminate Dynegy's concerns, SCE provides as an appendix, a table containing pricing nodes that have a 98% or higher correlation to the LMP price of Morro Bay Unit 3 in both the day-ahead and real-time market. Given such highly correlated pricing nodes a generation owner such as Dynegy has many options to submit virtual bid to hedge outage risk at pricing points other than the specific unit with an outage risk.

Second, SCE does not agree with WPTF that the MSC recommendation on information release in anyway releases commercially sensitive information that would harm virtual participants. The MSC's proposal releases the net cleared quantity of virtual bids by node. It in no way reveals names of the participants submitting the bids or reveals the actual bid curves that were submitted. The market has no idea who submitted bids at a node, the contents of the bids that were submitted, or the number of bids submitted at a given node. All the market knows is the net megawatt quantity that cleared at that node - nothing more.

### **Daily Market Summary Reports**

SCE requests the CAISO provide further detail on its response to PG&E's request to separate in-state virtual bid transactions from virtual bids over the inter-ties. The straw proposal indicates the reason for not separating the two virtual bids is because they settle at different prices. It is unclear why the market in which the virtual bid is unwound (real-time or HASP) is relevant given that the daily summary report is solely based off of day-ahead market clearing prices.

### Appendix A – Morro Bay Unit 3 Day-Ahead and Real-Time Price Correlation<sup>3</sup>

Sink Name	Source Name	DAcorrelations.Correlation Sink to Source Price	RTcorrelations.Correlation Sink to Source Price
MORRO3_7_B1	MORRO3_7_B1	1	1
MORRO3_7_B1	TEMPLETN_2_N008	0.9999	0.9986
MORRO3_7_B1	TEMPLETN_2_N001	0.9999	0.9986
MORRO3_7_B1	SNLSOB_1_N020	0.9999	0.9984
MORRO3_7_B1	SNLSOB_1_N001	0.9999	0.9984
MORRO3_7_B1	POD_MORBAY_7_UNIT 4-APND	0.9999	0.9986
MORRO3_7_B1	POD_MORBAY_7_UNIT 3-APND	0.9999	0.9986
MORRO3_7_B1	MORROBY_1_N001	0.9999	0.9985
MORRO3_7_B1	MORROBAY_2_N015	0.9999	0.9968
MORRO3_7_B1	MORROBAY_2_N001	0.9999	0.9986
MORRO3_7_B1	MORROBAY_2_B1	0.9999	0.9986
MORRO3_7_B1	MORRO4_7_B1	0.9999	0.9986
MORRO3_7_B1	GOLDTREE_1_N002	0.9999	0.9984
MORRO3_7_B1	GOLDTREE_1_N001	0.9999	0.9984
MORRO3_7_B1	FOOTHILL_1_N001	0.9999	0.9985
MORRO3_7_B1	BKRSFLD_2_GN009	0.9999	0.9997
MORRO3_7_B1	BKRSFLD_2_GN008	0.9999	0.9997
MORRO3_7_B1	BKRSFLD_2_GN007	0.9999	0.9997
MORRO3_7_B1	BKRSFLD_2_GN006	0.9999	0.9997
MORRO3_7_B1	BKRSFLD_2_GN005	0.9999	0.9997
MORRO3_7_B1	BKRSFLD_2_GN004	0.9999	0.9997
MORRO3_7_B1	BKRSFLD_2_GN003	0.9999	0.9997
MORRO3_7_B1	BKRSFLD_2_GN002	0.9999	0.9997
MORRO3_7_B1	BKRSFLD_2_GN001	0.9999	0.9997
MORRO3_7_B1	MUSTANG_6_N001	0.9998	0.9982
MORRO3_7_B1	MESA-PGE_1_N036	0.9998	0.9983
MORRO3_7_B1	STMARIA_7_N101	0.9997	0.998
MORRO3_7_B1	SNTAMRA_1_N005	0.9997	0.9981
MORRO3_7_B1	SNTAMRA_1_N001	0.9997	0.9885
MORRO3_7_B1	DIVVIDE_1_N012	0.9997	0.9979
MORRO3_7_B1	DIVVIDE_1_N001	0.9997	0.9979
MORRO3_7_B1	DIABLOCN_2_N001	0.9997	0.9965
MORRO3_7_B1	BAYWOOD_6_N001	0.9997	0.9981

<sup>3</sup> Table includes pricing nodes that have a 98% or higher positive day-ahead and real-time price correlation to the Moro Bay Unit 3 LMP price. Time period used for analysis is April 1, 2009 through December 31, 2009.

MORRO3_7_B1	ATASCDRO_6_N001	0.9997	0.9982
MORRO3_7_B1	SURF_1_N009	0.9996	0.9976
MORRO3_7_B1	SISQUOC_1_N020	0.9996	0.998
MORRO3_7_B1	SISQUOC_1_N001	0.9996	0.998
MORRO3_7_B1	PURISIMA_1_N001	0.9996	0.9977
MORRO3_7_B1	PSARBLS_6_N005	0.9996	0.9975
MORRO3_7_B1	PALMR_1_N001	0.9996	0.9979
MORRO3_7_B1	LMPC-CTY_1_N001	0.9996	0.9976
MORRO3_7_B1	GAREY_1_N002	0.9996	0.998
MORRO3_7_B1	CAYUCOS_6_N006	0.9996	0.9972
MORRO3_7_B1	CAYUCOS_6_N001	0.9996	0.9972
MORRO3_7_B1	ZACA_1_N001	0.9995	0.9975
MORRO3_7_B1	PSARBLS_6_N007	0.9995	0.9975
MORRO3_7_B1	PSARBLS_6_N001	0.9995	0.9975
MORRO3_7_B1	MANVILLE_1_N001	0.9995	0.9965
MORRO3_7_B1	CARRIZO_1_N001	0.9995	0.9978
MORRO3_7_B1	CABRILLO_1_N001	0.9995	0.9976
MORRO3_7_B1	SNTAYNZ_1_N002	0.9994	0.9973
MORRO3_7_B1	SNTAYNZ_1_N001	0.9994	0.9973
MORRO3_7_B1	PERRY_6_N001	0.9994	0.9968
MORRO3_7_B1	CAMBRIA_6_N001	0.9994	0.9968
MORRO3_7_B1	BUELLTON_1_N003	0.9994	0.9973
MORRO3_7_B1	BUELLTON_1_N001	0.9994	0.9973
MORRO3_7_B1	TWISSLMN_6_N002	0.9993	0.9982
MORRO3_7_B1	TWISSLMN_6_N001	0.9993	0.9982
MORRO3_7_B1	SLAP_PGLP-APND	0.9993	0.9981
MORRO3_7_B1	SANMIGL_6_N001	0.9993	0.9944
MORRO3_7_B1	OCEANO_1_N004	0.9993	0.9976
MORRO3_7_B1	OCEANO_1_N001	0.9993	0.9976
MORRO3_7_B1	LSTHLLS_6_N001	0.9993	0.9982
MORRO3_7_B1	FAIRWAY_1_N002	0.9993	0.998
MORRO3_7_B1	FAIRWAY_1_N001	0.9993	0.998
MORRO3_7_B1	NTPTRL_6_N001	0.9992	0.9982
MORRO3_7_B1	MIDSUN_1_PL1X2-APND	0.9992	0.9987
MORRO3_7_B1	DEVLSDN_6_N001	0.9992	0.9982
MORRO3_7_B1	TEMBLOR_1_N004	0.9991	0.9967
MORRO3_7_B1	TEMBLOR_1_N003	0.9991	0.9967
MORRO3_7_B1	PSEMCKIT_7_B1	0.9991	0.9975
MORRO3_7_B1	KERNRDGE_1_N003	0.9991	0.9967
MORRO3_7_B1	CHEVLHLS_6_N001	0.9991	0.9982
MORRO3_7_B1	BELRIDGE_1_N001	0.9991	0.9976

MORRO3_7_B1	SUNST_2_N006	0.999	0.9972
MORRO3_7_B1	RIOBRVTM_1_N001	0.999	0.9977
MORRO3_7_B1	RIOBRVTM_1_B1	0.999	0.9977
MORRO3_7_B1	POD_TXNMID_1_UNIT 2-APND	0.999	0.9973
MORRO3_7_B1	POD_TXMCKT_6_UNIT-APND	0.999	0.9975
MORRO3_7_B1	POD_SUNSET_2_UNITS-APND	0.999	0.9975
MORRO3_7_B1	POD_SUNRIS_2_PL1X3-APND	0.999	0.9975
MORRO3_7_B1	POD_LAPLMA_2_UNIT 4-APND	0.999	0.9975
MORRO3_7_B1	POD_LAPLMA_2_UNIT 3-APND	0.999	0.9975
MORRO3_7_B1	POD_LAPLMA_2_UNIT 2-APND	0.999	0.9975
MORRO3_7_B1	POD_LAPLMA_2_UNIT 1-APND	0.999	0.9975
MORRO3_7_B1	POD_FRITO_1_LAY-APND	0.999	0.9977
MORRO3_7_B1	POD_ELKHIL_2_PL1X3-APND	0.999	0.9975
MORRO3_7_B1	NAVY35R_7_B1	0.999	0.9975
MORRO3_7_B1	NAVY35R_1_N001	0.999	0.9975
MORRO3_7_B1	MIDWAY_2_B1	0.999	0.9975
MORRO3_7_B1	MIDWAY_1_N047	0.999	0.9975
MORRO3_7_B1	MIDWAY_1_N002	0.999	0.9976
MORRO3_7_B1	MIDWAY_1_B1	0.999	0.9975
MORRO3_7_B1	MIDSUN_7_B1	0.999	0.9987
MORRO3_7_B1	LAPLMG4_7_N001	0.999	0.9969
MORRO3_7_B1	LAPLMG4_7_B2	0.999	0.9972
MORRO3_7_B1	LAPLMG3_7_N001	0.999	0.9972
MORRO3_7_B1	LAPLMG3_7_B2	0.999	0.9972
MORRO3_7_B1	LAPLMG2_7_N001	0.999	0.9972
MORRO3_7_B1	LAPLMG2_7_B2	0.999	0.9972
MORRO3_7_B1	LAPLMG1_7_N001	0.999	0.9972
MORRO3_7_B1	LAPLMG1_7_B2	0.999	0.9972
MORRO3_7_B1	JARVIS_1_GN001	0.999	0.9995
MORRO3_7_B1	GRAPEVNE_6_GN001	0.999	0.9995
MORRO3_7_B1	DIABLO1_7_N001	0.999	0.9969
MORRO3_7_B1	DIABLO1_7_B1	0.999	0.9969
MORRO3_7_B1	CYMRIC_1_N004	0.999	0.9973
MORRO3_7_B1	CYMRIC_1_B1	0.999	0.9973
MORRO3_7_B1	CLAP_LAPLMA-APND	0.999	0.9971
MORRO3_7_B1	BRRNDAA_6_N001	0.999	0.9982
MORRO3_7_B1	WESTPLAT_1_N001	0.9989	0.9978
MORRO3_7_B1	TXROSDL_1_N002	0.9989	0.9977
MORRO3_7_B1	TXROSDL_1_N001	0.9989	0.9977
MORRO3_7_B1	TXMIDST_7_N001	0.9989	0.9971
MORRO3_7_B1	TXBVHL_6_N001	0.9989	0.9974

MORRO3_7_B1	TEXSUN2G_7_N001	0.9989	0.9971
MORRO3_7_B1	TEXSUN2G_7_B2	0.9989	0.9971
MORRO3_7_B1	TEXSUN1G_7_N001	0.9989	0.9971
MORRO3_7_B1	TEXSUN1G_7_B2	0.9989	0.9971
MORRO3_7_B1	TEXMCKT_1_N101	0.9989	0.9972
MORRO3_7_B1	TEXCONM_1_N002	0.9989	0.9973
MORRO3_7_B1	TAFTA_J_6_B1	0.9989	0.9973
MORRO3_7_B1	TAFT1_1_N004	0.9989	0.9971
MORRO3_7_B1	TAFT1_1_N001	0.9989	0.9971
MORRO3_7_B1	TAFT1_1_B1	0.9989	0.9971
MORRO3_7_B1	SUNRSE3S_7_N002	0.9989	0.9971
MORRO3_7_B1	SUNRSE3S_7_B1	0.9989	0.9971
MORRO3_7_B1	SUNRIS_2_PL1X3-APND	0.9989	0.997
MORRO3_7_B1	STOCKDL_2_N101	0.9989	0.9977
MORRO3_7_B1	STOCKDL_2_N002	0.9989	0.9977
MORRO3_7_B1	STOCKDL_2_N001	0.9989	0.9977
MORRO3_7_B1	SLR-TANN_7_B1	0.9989	0.9972
MORRO3_7_B1	ROSEDAL_1_N001	0.9989	0.9977
MORRO3_7_B1	POD_UNVRSY_1_UNIT 1- APND	0.9989	0.9971
MORRO3_7_B1	POD_TANHIL_6_SOLART- APND	0.9989	0.9973
MORRO3_7_B1	POD_SIERRA_1_UNITS-APND	0.9989	0.9977
MORRO3_7_B1	POD_DOUBLC_1_UNITS- APND	0.9989	0.9977
MORRO3_7_B1	POD_CHALK_1_UNIT-APND	0.9989	0.9971
MORRO3_7_B1	PERMNNTE_6_GN001	0.9989	0.9995
MORRO3_7_B1	MTVIEW_1_GN001	0.9989	0.9995
MORRO3_7_B1	MORGAN_1_N001	0.9989	0.9971
MORRO3_7_B1	MOCO_6_N001	0.9989	0.9976
MORRO3_7_B1	MARICOPA_6_N001	0.9989	0.9975
MORRO3_7_B1	KERNPWR_1_N201	0.9989	0.9977
MORRO3_7_B1	KERNPWR_1_N002	0.9989	0.9977
MORRO3_7_B1	KERNPWR_1_B1	0.9989	0.9977
MORRO3_7_B1	GATES_1_N001	0.9989	0.9891
MORRO3_7_B1	GANSO_1_N001	0.9989	0.9977
MORRO3_7_B1	FRITOLAY_7_N002	0.9989	0.9978
MORRO3_7_B1	FELLOWSG_7_N002	0.9989	0.9971
MORRO3_7_B1	FELLOWSG_7_N001	0.9989	0.9971
MORRO3_7_B1	ELKHIL1G_7_N001	0.9989	0.9899
MORRO3_7_B1	ELKHIL1G_7_B2	0.9989	0.9899
MORRO3_7_B1	CLAP_SUNRIS-APND	0.9989	0.997
MORRO3_7_B1	CADET_6_N002	0.9989	0.9976
MORRO3_7_B1	BRYPTLM_6_N001	0.9989	0.9973

MORRO3_7_B1	BLACKWLL_6_N001	0.9989	0.9924
MORRO3_7_B1	BKRSFLD_2_N101	0.9989	0.9977
MORRO3_7_B1	BKRSFLD_2_N004	0.9989	0.9977
MORRO3_7_B1	BKRSFLD_2_N001	0.9989	0.9977
MORRO3_7_B1	ZP26SLAK_5_N001	0.9988	0.9976
MORRO3_7_B1	WSCOPRSN_1_N001	0.9988	0.9977
MORRO3_7_B1	WESTPARK_1_N009	0.9988	0.9978
MORRO3_7_B1	WESTPARK_1_N005	0.9988	0.9978
MORRO3_7_B1	WESTPARK_1_N001	0.9988	0.9978
MORRO3_7_B1	UNIVRSTY_7_B1	0.9988	0.9967
MORRO3_7_B1	TH_ZP26_GEN-APND	0.9988	0.9968
MORRO3_7_B1	TEVIS_1_N003	0.9988	0.9978
MORRO3_7_B1	TEVIS_1_N001	0.9988	0.9977
MORRO3_7_B1	STOCKDLE_1_N001	0.9988	0.9978
MORRO3_7_B1	SNJOSEB_1_GN009	0.9988	0.9995
MORRO3_7_B1	SNJOSEB_1_GN008	0.9988	0.9995
MORRO3_7_B1	SNJOSEB_1_GN007	0.9988	0.9995
MORRO3_7_B1	SNJOSEB_1_GN006	0.9988	0.9995
MORRO3_7_B1	SNJOSEB_1_GN005	0.9988	0.9995
MORRO3_7_B1	SNJOSEB_1_GN004	0.9988	0.9995
MORRO3_7_B1	SNJOSEB_1_GN003	0.9988	0.9995
MORRO3_7_B1	SNJOSEB_1_GN002	0.9988	0.9995
MORRO3_7_B1	SNJOSEB_1_GN001	0.9988	0.9995
MORRO3_7_B1	SMTRPCWS_1_N001	0.9988	0.9978
MORRO3_7_B1	SEMITRPC_1_N001	0.9988	0.9978
MORRO3_7_B1	RENFRO_1_N010	0.9988	0.9979
MORRO3_7_B1	PSE-LVOK_7_B1	0.9988	0.9975
MORRO3_7_B1	POSOMT_1_N001	0.9988	0.9977
MORRO3_7_B1	POD_VEDDER_1_SEKERN- APND	0.9988	0.9976
MORRO3_7_B1	POD_OILDAL_1_UNIT 1-APND	0.9988	0.9976
MORRO3_7_B1	POD_DISCOV_1_CHEVRN- APND	0.9988	0.9976
MORRO3_7_B1	POD_DIABLO_7_UNIT 2-APND	0.9988	0.9952
MORRO3_7_B1	POD_DIABLO_7_UNIT 1-APND	0.9988	0.9952
MORRO3_7_B1	POD_BEARMT_1_UNIT-APND	0.9988	0.9978
MORRO3_7_B1	OILDALE_1_N101	0.9988	0.9976
MORRO3_7_B1	OILDALE_1_N001	0.9988	0.9976
MORRO3_7_B1	MIDWAY_5_B2	0.9988	0.9976
MORRO3_7_B1	MIDWAY_5_B1	0.9988	0.9976
MORRO3_7_B1	KERNWTP1_1_B1	0.9988	0.9978
MORRO3_7_B1	KERNOIL_1_N012	0.9988	0.9976
MORRO3_7_B1	KERNOIL_1_N002	0.9988	0.9976



MORRO3_7_B1	KERNOIL_1_N001	0.9988	0.9976
MORRO3_7_B1	KERNOIL_1_B1	0.9988	0.9976
MORRO3_7_B1	IBMCTLE_1_GN001	0.9988	0.9994
MORRO3_7_B1	HALEJ1_1_LN001	0.9988	0.9995
MORRO3_7_B1	GATES1_5_B1	0.9988	0.9979
MORRO3_7_B1	GARDNER_6_N001	0.9988	0.9975
MORRO3_7_B1	FRUITVLE_6_N101	0.9988	0.9978
MORRO3_7_B1	FRUITVLE_6_N001	0.9988	0.9978
MORRO3_7_B1	ELKHLLS_6_N001	0.9988	0.9977
MORRO3_7_B1	EISEN_6_N001	0.9988	0.9979
MORRO3_7_B1	DIABLO_5_B1	0.9988	0.9952
MORRO3_7_B1	DEXZEL_1_N001	0.9988	0.9976
MORRO3_7_B1	CLAP_DIABLO-APND	0.9988	0.9948
MORRO3_7_B1	BUENAVT_2_N006	0.9988	0.9978
MORRO3_7_B1	BUENAVS2_7_B5	0.9988	0.9978
MORRO3_7_B1	BUENAVS2_7_B4	0.9988	0.9978
MORRO3_7_B1	BUENAVS2_7_B3	0.9988	0.9978
MORRO3_7_B1	BUENAVS2_7_B1	0.9988	0.9978
MORRO3_7_B1	BUENAVS1_7_B7	0.9988	0.9978
MORRO3_7_B1	BUENAVS1_7_B6	0.9988	0.9978
MORRO3_7_B1	BUENAVS1_7_B5	0.9988	0.9978
MORRO3_7_B1	BUENAVS1_7_B4	0.9988	0.9978
MORRO3_7_B1	BUENAVS1_7_B3	0.9988	0.9978
MORRO3_7_B1	BUENAVS1_7_B1	0.9988	0.9978
MORRO3_7_B1	BAHIA_2_GN009	0.9988	0.9994
MORRO3_7_B1	BAHIA_2_GN008	0.9988	0.9994
MORRO3_7_B1	BAHIA_2_GN007	0.9988	0.9994
MORRO3_7_B1	BAHIA_2_GN006	0.9988	0.9994
MORRO3_7_B1	BAHIA_2_GN005	0.9988	0.9994
MORRO3_7_B1	BAHIA_2_GN004	0.9988	0.9994
MORRO3_7_B1	BAHIA_2_GN003	0.9988	0.9994
MORRO3_7_B1	BAHIA_2_GN002	0.9988	0.9994
MORRO3_7_B1	BAHIA_2_GN001	0.9988	0.9994
MORRO3_7_B1	ANTELOPE_6_N001	0.9988	0.9981
MORRO3_7_B1	AMERIGAS_1_GN001	0.9988	0.9992
MORRO3_7_B1	WEEDPTCH_6_N001	0.9987	0.9982
MORRO3_7_B1	VEDDER_1_N001	0.9987	0.9978
MORRO3_7_B1	TLRELKE_6_N001	0.9987	0.9981
MORRO3_7_B1	SMYRNA2_1_N001	0.9987	0.9978
MORRO3_7_B1	SHL-KRVD_1_N001	0.9987	0.9975
MORRO3_7_B1	RICHMOND_1_GN001	0.9987	0.9994

MORRO3_7_B1	PSE-BEAR_7_B1	0.9987	0.9978
MORRO3_7_B1	POD_KERNFT_1_UNITS-APND	0.9987	0.9971
MORRO3_7_B1	POD_BDGRCK_1_UNITS-APND	0.9987	0.9971
MORRO3_7_B1	MAGUNDEN_1_N002	0.9987	0.9978
MORRO3_7_B1	MAGUNDEN_1_N001	0.9987	0.9978
MORRO3_7_B1	LAMONT_1_N002	0.9987	0.998
MORRO3_7_B1	LAMONT_1_N001	0.9987	0.998
MORRO3_7_B1	KERNRV_1_N001	0.9987	0.9975
MORRO3_7_B1	KERNFRNT_7_B1	0.9987	0.9971
MORRO3_7_B1	KERNFRNT_1_B1	0.9987	0.9971
MORRO3_7_B1	HISIERRA_7_B1	0.9987	0.9971
MORRO3_7_B1	GRIMWAY_1_N001	0.9987	0.998
MORRO3_7_B1	GOSELKE_1_N003	0.9987	0.9978
MORRO3_7_B1	GOSELKE_1_N001	0.9987	0.9978
MORRO3_7_B1	GATES2_5_B1	0.9987	0.9953
MORRO3_7_B1	DOUBLEC_7_B1	0.9987	0.9971
MORRO3_7_B1	DOUBLEC_1_B1	0.9987	0.9971
MORRO3_7_B1	DISCOVERY_7_N002	0.9987	0.9975
MORRO3_7_B1	COLUMBUS_1_N005	0.9987	0.9973
MORRO3_7_B1	COLUMBUS_1_N003	0.9987	0.9973
MORRO3_7_B1	COLUMBUS_1_N001	0.9987	0.9973
MORRO3_7_B1	CAWELOB_6_N001	0.9987	0.996
MORRO3_7_B1	BSCPLD_6_N001	0.9987	0.9976
MORRO3_7_B1	BOLTHSE_1_N009	0.9987	0.9974
MORRO3_7_B1	BEARTAP_1_N001	0.9987	0.9978
MORRO3_7_B1	BADGERCK_7_N001	0.9987	0.997
MORRO3_7_B1	ARVINED_1_N001	0.9987	0.9979
MORRO3_7_B1	WELLFILD_6_N002	0.9986	0.9981
MORRO3_7_B1	WELLFILD_6_N001	0.9986	0.9981
MORRO3_7_B1	WASCO_6_N001	0.9986	0.9979
MORRO3_7_B1	TUPMAN_1_LN001	0.9986	0.9929
MORRO3_7_B1	STAGG_2_GN009	0.9986	0.9991
MORRO3_7_B1	STAGG_2_GN008	0.9986	0.9991
MORRO3_7_B1	STAGG_2_GN007	0.9986	0.9991
MORRO3_7_B1	STAGG_2_GN006	0.9986	0.9991
MORRO3_7_B1	STAGG_2_GN005	0.9986	0.9991
MORRO3_7_B1	STAGG_2_GN004	0.9986	0.9991
MORRO3_7_B1	STAGG_2_GN003	0.9986	0.9991
MORRO3_7_B1	STAGG_2_GN002	0.9986	0.9991
MORRO3_7_B1	STAGG_2_GN001	0.9986	0.9991
MORRO3_7_B1	RENFRO_1_N001	0.9986	0.9979

MORRO3_7_B1	MCFRLND_6_N001	0.9986	0.998
MORRO3_7_B1	LERDO_1_N004	0.9986	0.9975
MORRO3_7_B1	LERDO_1_N001	0.9986	0.9975
MORRO3_7_B1	GRMWYSM_6_N001	0.9986	0.9981
MORRO3_7_B1	FAMOSO_6_N008	0.9986	0.996
MORRO3_7_B1	CLAP_CDWR07-APND	0.9986	0.994
MORRO3_7_B1	CDWR07_2_GEN-APND	0.9986	0.9978
MORRO3_7_B1	ARVIN_6_N001	0.9986	0.9982
MORRO3_7_B1	WINDGAP4_7_B3	0.9985	0.9979
MORRO3_7_B1	WINDGAP4_7_B1	0.9985	0.9979
MORRO3_7_B1	WINDGAP3_7_B3	0.9985	0.9979
MORRO3_7_B1	WINDGAP3_7_B1	0.9985	0.9979
MORRO3_7_B1	WINDGAP2_7_B3	0.9985	0.9979
MORRO3_7_B1	WINDGAP2_7_B1	0.9985	0.9979
MORRO3_7_B1	WINDGAP1_7_B4	0.9985	0.9979
MORRO3_7_B1	WINDGAP1_7_B3	0.9985	0.9979
MORRO3_7_B1	WINDGAP1_7_B1	0.9985	0.9979
MORRO3_7_B1	WINDGAP_2_N003	0.9985	0.9979
MORRO3_7_B1	WHLRRD1_7_B6	0.9985	0.9979
MORRO3_7_B1	WHLRRD1_7_B5	0.9985	0.9979
MORRO3_7_B1	WHLRRD1_7_B4	0.9985	0.9979
MORRO3_7_B1	WHLRRD1_7_B3	0.9985	0.9979
MORRO3_7_B1	WHLRRD1_7_B1	0.9985	0.9979
MORRO3_7_B1	SNBRNRD_6_N001	0.9985	0.9981
MORRO3_7_B1	SANRAMON_2_GN011	0.9985	0.9994
MORRO3_7_B1	SANRAMON_2_GN010	0.9985	0.9994
MORRO3_7_B1	SANRAMON_2_GN009	0.9985	0.9994
MORRO3_7_B1	SANRAMON_2_GN008	0.9985	0.9994
MORRO3_7_B1	SANRAMON_2_GN007	0.9985	0.9994
MORRO3_7_B1	SANRAMON_2_GN006	0.9985	0.9994
MORRO3_7_B1	SANRAMON_2_GN005	0.9985	0.9994
MORRO3_7_B1	SANRAMON_2_GN004	0.9985	0.9994
MORRO3_7_B1	SANRAMON_2_GN003	0.9985	0.9994
MORRO3_7_B1	OLDRIVR_6_N006	0.9985	0.998
MORRO3_7_B1	OLDRIVR_6_N001	0.9985	0.998
MORRO3_7_B1	LAKEVIEW_6_N101	0.9985	0.9981
MORRO3_7_B1	BAYMDWS_1_GN009	0.9985	0.9991
MORRO3_7_B1	BAYMDWS_1_GN008	0.9985	0.9991
MORRO3_7_B1	BAYMDWS_1_GN007	0.9985	0.9991
MORRO3_7_B1	BAYMDWS_1_GN006	0.9985	0.9991
MORRO3_7_B1	BAYMDWS_1_GN005	0.9985	0.9991

MORRO3_7_B1	BAYMDWS_1_GN004	0.9985	0.9991
MORRO3_7_B1	BAYMDWS_1_GN003	0.9985	0.9991
MORRO3_7_B1	BAYMDWS_1_GN002	0.9985	0.9991
MORRO3_7_B1	BAYMDWS_1_GN001	0.9985	0.9991
MORRO3_7_B1	TECUYA_6_N001	0.9984	0.9981
MORRO3_7_B1	RIOBRVQF_6_N001	0.9984	0.9978
MORRO3_7_B1	MDWYPS_6_N001	0.9984	0.9953
MORRO3_7_B1	KRNCNYN_6_N001	0.9984	0.9977
MORRO3_7_B1	JM_6_GN001	0.9984	0.9992
MORRO3_7_B1	FAMOSO_1_N001	0.9984	0.9972
MORRO3_7_B1	CAWELOC_1_N001	0.9984	0.9967
MORRO3_7_B1	VALPREDO_6_N001	0.9983	0.9981
MORRO3_7_B1	ULTRAOGL_7_N001	0.9983	0.9965
MORRO3_7_B1	ULT_OGLE_1_B1	0.9983	0.9965
MORRO3_7_B1	TEJON_6_N001	0.9983	0.9981
MORRO3_7_B1	POD_MTNPOS_1_UNIT-APND	0.9983	0.9965
MORRO3_7_B1	MTPOSO_7_N001	0.9983	0.9965
MORRO3_7_B1	ROSE_6_N001	0.9982	0.9981
MORRO3_7_B1	PRAXAIR_1_GN001	0.9982	0.999
MORRO3_7_B1	PAULSWT_1_GN011	0.9982	0.9991
MORRO3_7_B1	PAULSWT_1_GN010	0.9982	0.999
MORRO3_7_B1	PAULSWT_1_GN009	0.9982	0.9991
MORRO3_7_B1	PAULSWT_1_GN008	0.9982	0.9991
MORRO3_7_B1	PAULSWT_1_GN007	0.9982	0.9991
MORRO3_7_B1	PAULSWT_1_GN006	0.9982	0.9991
MORRO3_7_B1	PAULSWT_1_GN005	0.9982	0.999
MORRO3_7_B1	PAULSWT_1_GN004	0.9982	0.9991
MORRO3_7_B1	PAULSWT_1_GN003	0.9982	0.9991
MORRO3_7_B1	DIABLO2_7_N001	0.9982	0.9956
MORRO3_7_B1	DIABLO2_7_B1	0.9982	0.9956
MORRO3_7_B1	DIABLO1_7_LN001	0.9982	0.9922
MORRO3_7_B1	CHARKA_1_LN001	0.9982	0.9925
MORRO3_7_B1	PANAMA_6_N001	0.9981	0.9979
MORRO3_7_B1	CARNATIO_6_N001	0.9981	0.9979
MORRO3_7_B1	3EMIDIO_6_N003	0.9981	0.9981
MORRO3_7_B1	3EMIDIO_6_N002	0.9981	0.9981
MORRO3_7_B1	3EMIDIO_6_N001	0.9981	0.9981
MORRO3_7_B1	SYCAMORE_1_GN009	0.998	0.9986
MORRO3_7_B1	SYCAMORE_1_GN008	0.998	0.9987
MORRO3_7_B1	SYCAMORE_1_GN007	0.998	0.9986
MORRO3_7_B1	SYCAMORE_1_GN006	0.998	0.9986

MORRO3_7_B1	SYCAMORE_1_GN005	0.998	0.9986
MORRO3_7_B1	SYCAMORE_1_GN004	0.998	0.9986
MORRO3_7_B1	SYCAMORE_1_GN003	0.998	0.9986
MORRO3_7_B1	SYCAMORE_1_GN002	0.998	0.9986
MORRO3_7_B1	SYCAMORE_1_GN001	0.998	0.9986
MORRO3_7_B1	SHAFTER_1_N001	0.998	0.9978
MORRO3_7_B1	COPUS_6_LN001	0.998	0.993
MORRO3_7_B1	BUTTE_1_GN009	0.998	0.9985
MORRO3_7_B1	BUTTE_1_GN008	0.998	0.9985
MORRO3_7_B1	BUTTE_1_GN007	0.998	0.9985
MORRO3_7_B1	BUTTE_1_GN006	0.998	0.9985
MORRO3_7_B1	BUTTE_1_GN005	0.998	0.9985
MORRO3_7_B1	BUTTE_1_GN004	0.998	0.9985
MORRO3_7_B1	BUTTE_1_GN003	0.998	0.9985
MORRO3_7_B1	BUTTE_1_GN002	0.998	0.9985
MORRO3_7_B1	BUTTE_1_GN001	0.998	0.9985
MORRO3_7_B1	PACIPIP_6_N001	0.9979	0.998
MORRO3_7_B1	KELLEY_6_N001	0.9979	0.998
MORRO3_7_B1	GRAPEVNE_6_N001	0.9979	0.9979
MORRO3_7_B1	EMBRCDR_2_GN009	0.9979	0.9988
MORRO3_7_B1	EMBRCDR_2_GN008	0.9979	0.9988
MORRO3_7_B1	EMBRCDR_2_GN007	0.9979	0.9988
MORRO3_7_B1	EMBRCDR_2_GN006	0.9979	0.9988
MORRO3_7_B1	EMBRCDR_2_GN005	0.9979	0.9988
MORRO3_7_B1	EMBRCDR_2_GN004	0.9979	0.9988
MORRO3_7_B1	EMBRCDR_2_GN003	0.9979	0.9988
MORRO3_7_B1	EMBRCDR_2_GN002	0.9979	0.9988
MORRO3_7_B1	EMBRCDR_2_GN001	0.9979	0.9988
MORRO3_7_B1	CALLENDR_1_N001	0.9979	0.9978
MORRO3_7_B1	GATES_2_LN001	0.9977	0.9935
MORRO3_7_B1	LEBEC_6_N001	0.9976	0.9977
MORRO3_7_B1	PFARMS_6_LN001	0.9974	0.9819
MORRO3_7_B1	RIOBRVO_1_N006	0.9972	0.9977
MORRO3_7_B1	RIOBRVO_1_N001	0.9972	0.9977
MORRO3_7_B1	JRWOOD_1_GN001	0.9972	0.9987
MORRO3_7_B1	CUYAMA_6_N004	0.9971	0.9974
MORRO3_7_B1	CUYAMA_6_N003	0.9971	0.9977
MORRO3_7_B1	CHOLAME_6_N002	0.9971	0.9974
MORRO3_7_B1	CHOLAME_6_N001	0.9971	0.9974
MORRO3_7_B1	CELERON_6_N002	0.997	0.9958
MORRO3_7_B1	CELERON_6_N001	0.997	0.9958

MORRO3_7_B1	BARTON_1_GN009	0.9969	0.9983
MORRO3_7_B1	BARTON_1_GN008	0.9969	0.9983
MORRO3_7_B1	BARTON_1_GN007	0.9969	0.9983
MORRO3_7_B1	BARTON_1_GN006	0.9969	0.9983
MORRO3_7_B1	BARTON_1_GN005	0.9969	0.9983
MORRO3_7_B1	BARTON_1_GN004	0.9969	0.9983
MORRO3_7_B1	BARTON_1_GN003	0.9969	0.9983
MORRO3_7_B1	BARTON_1_GN002	0.9969	0.9983
MORRO3_7_B1	BARTON_1_GN001	0.9969	0.9983
MORRO3_7_B1	ASHLAN_2_GN009	0.9968	0.998
MORRO3_7_B1	ASHLAN_2_GN008	0.9968	0.998
MORRO3_7_B1	ASHLAN_2_GN007	0.9968	0.998
MORRO3_7_B1	ASHLAN_2_GN006	0.9968	0.998
MORRO3_7_B1	ASHLAN_2_GN005	0.9968	0.998
MORRO3_7_B1	ASHLAN_2_GN004	0.9968	0.998
MORRO3_7_B1	ASHLAN_2_GN003	0.9968	0.998
MORRO3_7_B1	ASHLAN_2_GN002	0.9968	0.998
MORRO3_7_B1	ASHLAN_2_GN001	0.9968	0.998
MORRO3_7_B1	CLOVIS_1_GN009	0.9966	0.998
MORRO3_7_B1	CLOVIS_1_GN008	0.9966	0.998
MORRO3_7_B1	CLOVIS_1_GN007	0.9966	0.998
MORRO3_7_B1	CLOVIS_1_GN006	0.9966	0.998
MORRO3_7_B1	CLOVIS_1_GN005	0.9966	0.998
MORRO3_7_B1	CLOVIS_1_GN004	0.9966	0.998
MORRO3_7_B1	CLOVIS_1_GN003	0.9966	0.998
MORRO3_7_B1	CLOVIS_1_GN002	0.9966	0.998
MORRO3_7_B1	CLOVIS_1_GN001	0.9966	0.998
MORRO3_7_B1	CLRKSVLE_1_GN009	0.9965	0.9945
MORRO3_7_B1	CLRKSVLE_1_GN008	0.9965	0.9945
MORRO3_7_B1	CLRKSVLE_1_GN007	0.9965	0.9945
MORRO3_7_B1	CLRKSVLE_1_GN006	0.9965	0.9945
MORRO3_7_B1	CLRKSVLE_1_GN005	0.9965	0.9945
MORRO3_7_B1	CLRKSVLE_1_GN004	0.9965	0.9945
MORRO3_7_B1	CLRKSVLE_1_GN003	0.9965	0.9945
MORRO3_7_B1	CLRKSVLE_1_GN002	0.9965	0.9945
MORRO3_7_B1	CLRKSVLE_1_GN001	0.9965	0.9945
MORRO3_7_B1	BULLARD_1_GN009	0.9965	0.9982
MORRO3_7_B1	BULLARD_1_GN008	0.9965	0.9982
MORRO3_7_B1	BULLARD_1_GN007	0.9965	0.9982
MORRO3_7_B1	BULLARD_1_GN006	0.9965	0.9982
MORRO3_7_B1	BULLARD_1_GN005	0.9965	0.9982

MORRO3_7_B1	BULLARD_1_GN004	0.9965	0.9982
MORRO3_7_B1	BULLARD_1_GN003	0.9965	0.9982
MORRO3_7_B1	BULLARD_1_GN002	0.9965	0.9982
MORRO3_7_B1	BULLARD_1_GN001	0.9965	0.9982
MORRO3_7_B1	QUEBEC_1_N001	0.9963	0.9961
MORRO3_7_B1	DIABLO2_7_LN001	0.9963	0.9874
MORRO3_7_B1	ALPAUGH_1_N001	0.9962	0.996
MORRO3_7_B1	CARNERAS_6_N001	0.9945	0.9957
MORRO3_7_B1	BRUNSWCK_1_GN009	0.9917	0.9953
MORRO3_7_B1	BRUNSWCK_1_GN008	0.9917	0.9953
MORRO3_7_B1	BRUNSWCK_1_GN007	0.9917	0.9953
MORRO3_7_B1	BRUNSWCK_1_GN006	0.9917	0.9953
MORRO3_7_B1	BRUNSWCK_1_GN005	0.9917	0.9953
MORRO3_7_B1	BRUNSWCK_1_GN004	0.9917	0.9953
MORRO3_7_B1	BRUNSWCK_1_GN003	0.9917	0.9953
MORRO3_7_B1	BRUNSWCK_1_GN002	0.9917	0.9953
MORRO3_7_B1	BRUNSWCK_1_GN001	0.9917	0.9953
MORRO3_7_B1	WHEELER_6_N001	0.987	0.998