December 22, 2014

VIA ELECTRONIC MAIL

Mr. Brent J. Fields
Secretary
U.S. Securities and Exchange Commission
100 F Street, NE
Washington, DC 20549-1090
rule-comments@sec.gov

Re: File No. 4-657; Notice of Filing of a Proposed National Market System Plan to Implement a Tick Size Pilot Program On a One-Year Pilot Basis

Dear Mr. Fields:

Chicago Stock Exchange, Inc. (the "CHX" or "Exchange") respectfully submits this letter in connection with the Securities and Exchange Commission's (the "SEC" or "Commission") solicitation of comments regarding the proposed National Market System plan to implement a tick size pilot program (the "Tick Size Pilot" or "Plan").[1] The Exchange's comments regarding the Plan are summarized below and its answers to the specific questions posed by the Commission are attached as Appendix 1. All capitalized terms that are not defined herein shall have the meaning ascribed to them in the Plan.

CHX believes that the Tick Size Pilot will be a useful tool to assess the impact of increment conventions on the liquidity and trading of certain small capitalization securities. As a participant in drafting the proposed Plan, CHX strongly supports the implementation of the Tick Size Pilot with the following clarifications and modifications.

Implementation

CHX believes that the requirements of the Tick Size Pilot should be finalized prior to determining the implementation schedule. Because the scope of the modifications necessary to support the Plan could vary significantly among the Participants, CHX supports finalizing the requirements of the Plan and then, based upon feedback from the Participants, determining an appropriate implementation schedule.

[1] See Exchange Act Release No. 34-73457; File No. 4-657 (November 3, 2014), 79 FR 66423 (November 7, 2014).

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Pilot Securities that trade below $1.00 per share

Although the selection criteria for Pilot Securities specifies a closing price of not less than $1.50 every day during the Measurement Period,[2] it is reasonable to expect a small number of Pilot Securities to trade below $1.00 during the Pilot. CHX believes that the Plan should clearly define how Pilot Securities will be treated under such circumstances.

It is CHX's recommendation that any Pilot Security, whether in a Test Group or a Control Group, be eliminated from the Pilot if it trades below $1.00 per share. CHX believes that it is unreasonable to require Test Group securities to trade in $0.05 increments at a price below $1.00 per share. Furthermore, if these securities trade at an increment of $0.0001 at prices below $1.00 per share, the latter data would tend to bias statistics such as effective spread and effective spread index. Also, this is likely to bias statistics related to the frequency of price improvement. Rather than complicate the analysis, CHX recommends removing the data for any Test Group or Control Group Securities that trade below $1.00 per share during the 18 month pre-Pilot and Pilot periods. CHX believes that the removal of this data would not significantly affect the population size for the purpose of statistical analysis.

Appendix B Data

CHX recommends using already available Rule 605 and SIP data to assess the quality of markets instead of the data described in Appendix B.[3] CHX believes that the requirements associated with gathering the data described in Appendix B would impose significant costs on each of the Pilot Participants while providing minimal incremental benefit as compared to using Rule 605 and SIP data.

Appendix C Data

CHX recommends completely eliminating the requirements described in Appendix C[4] from the Tick Size Pilot. CHX does not believe that market maker profitability is an appropriate metric for assessing the impact of increment conventions on liquidity and trading. Furthermore, the collection and transmission of this data to Designated Examining Authorities may be costly and unduly burdensome for some Market Makers. CHX is concerned that the cost to Market Makers to comply with the Appendix C requirements could result in some Market Makers simply abandoning trading in Pilot Securities; this "observer effect" could further negatively impact liquidity while introducing bias into the analysis of Pilot results.

With the above described clarifications and modifications, CHX strongly supports the implementation of the Tick Size Pilot and believes that it will be a useful tool to assess the impact of increment conventions on the liquidity and trading of certain small capitalization

[2] *Id.* at Exhibit A, Section V(A)(3).

[3] *Id.* at Exhibit A, Appendix B.

[4] *Id.* at Exhibit A, Appendix C.

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securities. CHX thanks the Commission and other interested parties for their consideration of the proposed Tick Size Pilot and these associated comments.

Sincerely,

James G. Ongena
General Counsel, CHX

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Appendix 1

Specific Questions Posed (in Bold)
CHX Comments immediately following

A. General Questions

• How well does the structure of the proposed Tick Size Pilot Program, generally, facilitate analysis of the tradeoffs associated with increasing the quote increment for certain small capitalization securities? How could the proposed Pilot structure change to better facilitate such analysis? Please provide any other comments on the structure and selection process of the proposed Pilot.

CHX believes that the structure of the Tick Test Pilot Program will be adequate to facilitate an analysis of the tradeoffs associated with proposed changes. CHX supports the proposed selection process; however, CHX believes that certain aspects of the data to be gathered and reported may be quite costly and exceed what is necessary to perform adequate analysis. (See comments on data gathering and reporting requirements related to Appendix B and Appendix C below.)

To better facilitate analysis, CHX believes that the Tick Test Pilot Program should clearly articulate the following:

- All Test Group securities should trade and quote in increments of $0.0001 per share below a price of $1.00 per share, as is the case today. CHX feels that it is unreasonable to require Test Group securities to trade in $0.05 increments at a price below $1.00 per share. Furthermore, if Test Group securities remain in the Pilot after trading below a price of $1.00 per share, comparing quality of market statistics for those securities (trading at an increment of $0.05) with Control Group securities (trading at an increment of $0.0001) would not be meaningful.

- Any Pilot security – whether in a Test Group or the Control Group – should be eliminated from the Pilot program if any trade is executed at a price below $1.00 per share. It can reasonably be expected that some small number of Test Group and Control Group securities will trade below $1.00 per share during the 18 month period during the pre-Pilot data gathering period and the Pilot test period. These securities will have quality of markets data for times when their trading increment is $0.01 or $0.05 <u>and also for times when their trading increment is $0.0001.</u> The latter data will tend to bias statistics such as effective spread and effective spread index.

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Also this is likely to bias statistics related to the frequency of price improvement. Rather than complicate the analysis, CHX believes that the analysis should be simplified by remove data for any Test Group or Control Group security from analysis if a single trade occurs at a price below $1.00 during the pre-Pilot data gathering period and the Pilot test period. More than enough securities should remain in each Test Group and in the Control Group to perform meaningful analysis even if stocks trading below $1.00 per share are removed from analysis.

- Assuming that Test Group securities which trade below $1.00 per share are eliminated from the data analysis, the Plan should explicitly state whether such securities will continue to trade and quote in increments of $0.05 at prices above $1.00 per share, or whether they should revert to trading and quoting in increments of $0.01 at prices above $1.00 per share. Reasonable arguments could be made for either choice. What is important is that the Plan articulates its choice to avoid ambiguity.

• Does the structure of the proposed Pilot allow for a robust analysis of alternative quote increments in securities, including the determination of thresholds that distinguish stocks that should have different quote increments? How could the structure change to better facilitate such analysis?

CHX believes that the proposed structure supports a robust analysis of the three alternative sets of changes which are implemented in Test Group 1, Test Group 2, and Test Group 3. Regarding the thresholds proposed to select securities for these three Test Groups, CHX believes that the thresholds are a reasonable basis for differentiating small cap common stocks from the universe of listed common stocks. However, CHX believes that this threshold set for the selection of securities for the Tick Test Pilot Program should be viewed solely as a differentiator for the purpose of selecting common stocks for the Tick Test Pilot Program rather than as a long-term, bright line differentiator defining securities which should be subject to a tick size of other than one penny.

Assuming the Tick Test Pilot Program produces results which support a permanent change to market structure in which two (or more) tick size increments are deemed to be appropriate, CHX believes that consideration should be given – at that time –to the number of different tick sizes that should be permitted for various securities, which types and characteristics of securities should be eligible for using each of the tick sizes, and the proper methodology for determining which securities trade in each eligible tick size. CHX believes that it is premature to reach any conclusions regarding many of these issues until the proposed Tick Test Pilot Program is complete and the data is available for analysis.

• What are the anticipated costs for implementing and operating the proposed Pilot? Are any components of the Pilot structure particularly costly? If so, please describe which market participants could be impacted.

Until all details of the Tick Test Pilot Program have been decided, it is problematic to develop detailed costs for any component of the proposal. That said, CHX's initial assessment of certain components of the proposal is as follows:

Test Group 1 Requirements

The cost of modifying CHX's systems to support the requirements for trading securities in Test Group 1 is approximately $40,000.

Test Group 2 Requirements

The cost of modifying CHX's systems to support the requirements for trading securities in Test Group 2 is approximately an additional $30,000.

Test Group 3 Requirements

The cost of modifying CHX's systems to support the requirements for trading securities in Test Group 3 is approximately an additional $70,000. Compliance with the proposed Trade At requirements of Test Group 3 securities will also come at a significant cost to all participants and other trading centers. CHX believes that the benefits of implementing Test Group 3 will exceed the total cost of implementing Test Group 3.

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Test Group 1, Test Group 2, and Test Group 3 Costs

CHX estimates its cost to meet trading requirements for all three test groups is $140,000. CHX believes that this is an acceptable cost for even a small SRO to support a pilot program with such significant potential benefits to investors and the industry.

However, CHX notes that costs such as these will also have to be met by each exchange, FINRA, and any market center (e.g., ATS) that offers trading in equity securities including even one Pilot security. There are approximately 60 such market centers. Thus, the Commission should recognize that the cost to market centers to modify their systems is likely to be in excess of $8 million.

Even at that cost, CHX believes that the benefits of conducting the Pilot Program justify the costs.

Appendix A Requirements

CHX has no primary listings. Therefore, CHX will not be required to create any of the data identified in Appendix A. However, all trading centers – not just Participants to the NMS Plan creating the Tick Test Pilot Program – will have to modify their trading systems to incorporate the data identified in Appendix A. Incorporating that data to assure that orders are accepted only at permitted prices for Test Group 1, Test Group 2, and Test Group 3 securities, will, collectively, come at significant cost to market participants and other trading centers. The cost of modifying CHX's trading environment to import this data is approximately $20,000

CHX notes that every broker dealer trading in US equities products will need to modify systems to gather the data described in Appendix A. It is essential for the broker dealer to know which securities are involved in the Tick Test Pilot Program. Broker dealers will have to substantially modify their order processing systems to assure that their systems restrict acceptance of limit orders to limit prices at which those orders are permitted to be submitted to market centers. Registered representatives will require this data so that the orders they accept from their customers are only accepted at permitted prices. Automated order acceptance systems (e.g., those provided to customers of online broker dealers for direct order entry) will need to be modified to identify which securities have nickel price increments for limit prices. These systems will also need to reject

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orders submitted at impermissible prices. These undertakings result in significant cost to the broker dealer community.

In total, CHX's costs to meet the requirements of Appendix A are relatively small; however, the cost to other market centers to modify their systems to meet this requirement may be greater.

Appendix B Requirements

The data identified in Appendix B Item I and Item II are significantly different from any data which CHX currently gathers. The cost of modifying CHX's systems to produce this data is approximately $40,000. (See comments on data gathering and reporting requirements related to Appendix B below.)

Although CHX has rules in place which permit registration of market makers, at the present time there are no registered market makers at CHX. If this continues to be the case, then CHX will not need to make any changes related to Appendix B Item III. However, should any CHX Participant subsequently register as a market maker, CHX will need to make changes to its systems to provide the data required under Appendix B Item III which will have an approximate cost of $10,000 to CHX.

CHX will also have to make changes to its system to provide the data required under Appendix B Item IV which will cost CHX approximately $30,000.

In total, CHX's costs to meet the requirements of Appendix B are approximately $80,000. Every market center trading one or more Pilot securities will need to bear similar costs. This is a 57% increment to the estimated $140,000 to modify trading systems. As discussed below, CHX believes that this increment is a high cost with minimal benefits.

Appendix C Requirements

CHX is the Designated Examining Authority (DEA) for two broker dealers which are registered as market makers at other trading centers. As the DEA for these market makers, CHX is required by Appendix C Item I and Item II to collect and report certain data on a monthly basis. Assuming that any processing that CHX must perform is simple, CHX will have an approximate cost of $10,000 associated with this requirement.

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CHX believes that there will be a significant cost to market makers to gather identified in Appendix C. (See comments on data gathering and reporting requirements related to Appendix C below.)

• Could investors of the small capitalization securities included in the Pilot be harmed by the widening of quoting and trading increments?

The purpose of the Tick Test Pilot Program is, in part, to determine whether this will happen. CHX believes that the benefits of conducting the Tick Test Pilot Program to respond to questions such as this outweigh the risks.

• Is the proposed one-year Pilot Period too long or too short? Should the Pilot Period be different? Is it appropriate that the proposed Pilot is structured to end before completion of the assessments by the Participants?

CHX supports the six month data gathering period prior to starting the one year test as well as the one year test period with the understanding that the start of this six month period will come after the issues which qualify for the Pilot have been publicized. This assures that there will be at least six months for necessary systems changes to be made prior to the start of trading in the Test Group 1, Test Group 2, and Test Group 3 regimens. Announcing the eligible securities prior to the start of data gathering should enable those required to gather data ample notice as to what data needs to be retained. Retaining data for all listed common stocks would be wasteful and unduly burdensome.

While CHX supports continued data gathering after the Pilot has been in effect for one year, CHX believes that – absent demonstrable evidence of harm in continuing the operation of Test Group 1, Test Group 2, and Test Group 3 beyond one year – the operation of those Test Groups should continue past the formal end of the test period (one year) until such time as the Commission makes a final determination of the result of the test period and what, if any, changes to make to market structure related to the Tick Test Pilot Program for the long term. Reverting back to the pre-Pilot trading regimen for a few months, only to then change to a trading regimen akin to one or more of the Tick Test Pilot Program Test Groups would be needlessly disruptive and costly to the market.

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• What is the risk of unintended consequences from the Pilot? What might they be? Are these issues that could be tested during the Pilot, or do they raise more fundamental questions about the advisability of the Pilot? Will the Pilot lead to changes in trading behavior by market makers or other market participants?

Potential unintended consequences of the Pilot would include a significantly lower quality of markets in one or more of the Test Groups. CHX believes that the risk of this result is outweighed by the potential benefit of improving the quality of markets in these securities.

CHX believes that the Pilot will result in changes to trading behavior by market makers and other market participants. CHX believes that the size of displayed liquidity will certainly improve. What is unknown is whether the increased size of displayed liquidity will result in improvement in other quality of market metrics. Gathering those metrics is, after all, the reason for the Pilot.

There are two likely, unintended consequences from the Pilot.

- First, there is some risk of trading centers no longer trading in Pilot securities to avoid costs associated with the Pilot program. (See comments on the cost of modifying systems to support trading in Test Group 1, Test Group 2, and Test Group 3 securities above. Also see comments on data gathering and reporting requirements related to Appendix B below.)

- Second, there is a risk of market makers deregistering from Pilot Securities to avoid the costs associated with providing data required under Appendix C. These firms can continue to make markets in Pilot issues after deregistering as a market maker in these issues. However, absent the obligations associated with market maker registration, the deregistered market maker may not provide the same level of liquidity that would have been provided had the market maker registration been maintained. If the cost to comply with providing data under Appendix C is sufficient to result in market maker deregistration, the Pilot metrics could be significantly biased. (See comments on data gathering and reporting requirements related to Appendix C below.)

• As noted above, the Commission preliminarily believes the Pilot would produce data that would allow the Commission and others to conduct

studies on the effect of increased tick size on liquidity, execution quality for investors, volatility, market maker profitability, competition, transparency and institutional ownership. Should the Pilot be designed to produce data to allow the Commission and others to conduct studies in other areas? If so, how should the proposed Pilot be changed to accommodate these other studies?

CHX believes that the Pilot, as proposed, would produce data to conduct studies on the topics listed above. However, CHX believes that the incremental data gathering requirements under Appendix B and Appendix C are too costly to justify any incremental analytical benefits which could result from gathering and reporting that data. (See comments on data gathering and reporting requirements related to Appendix B and Appendix C below.)

B. Proposed Selection Process for Pilot Securities

• In the Order, the Commission set forth the criteria that it preliminarily believed would identify securities that should be included in a proposed Pilot. Are these criteria appropriate and sufficient for selecting securities to be included in the Pilot? The Commission requests comment on whether small capitalization securities would benefit from the proposed Tick Size Pilot Program and if so, what types of small capitalization securities would benefit most. Should the proposed Tick Size Pilot Program assess different or additional criteria for identifying Pilot Securities? For example, should the market capitalization be higher or lower than $5 billion? Should the CADV be more or less than one million shares? Should securities other than stocks of operating companies be included in the Plan, such as exchange-traded products?

CHX supports the proposed selection criteria. CHX notes that these should not be deemed to be a set of permanent, bright-line selection criteria to automatically be used in a permanent change to market structure. Rather, CHX believes that they are one of many reasonable sets of parameters which could be used to select securities to participate in the Pilot Test Groups.

• The Participants have proposed to exclude securities that have recently completed an initial public offering from the proposed Pilot. Should these securities be included?

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CHX supports the proposed exclusion of securities which have recently completed an initial public offering. CHX believes that the Pilot should include more seasoned securities having a longer trading history to provide a better set of measurements of market quality – unaffected by the potential volatility of a security which is only recently be available for trading on a national securities exchange.

• Should the proposed Pilot exclude any other small capitalization securities? For example, should small capitalization securities that are cross-listed in another jurisdiction be excluded from the Pilot?

CHX believes that the limited scope of securities proposed in the Pilot is a good first step in assessing in the impact on market quality which might occur after a change to tick size and other trading rules. If, however, the Tick Test Pilot Program results indicate the need for a permanent change to the trading rules of small cap common stocks, we believe that the Commission should revisit how such securities are chosen. Upon revisiting the issue, consideration should include how such securities are selected as well as whether different types of securities (e.g., ADRs, ADSs, preferred stocks, ETFs, ETNs, etc.) should also be allowed to trade at a wider tick size.

By limiting the scope of securities in the Tick Test Pilot Program, the resulting data will be simpler to analyze.

• Should companies whose securities are included in the Pilot be allowed to opt-out of participating in the Pilot? If so, how should such an opt-out work and what impact would it have on the ability of the Commission and others to analyze the Pilot?

CHX believes that an opt-out provision by listed companies should not be adopted unless an opt-in provision is also adopted. If the Commission accepts the fact that the issuer of a security should be able to control whether to opt to move from a five penny tick size to a one penny tick size (i.e., opting out of the Pilot), then it should also accept that the issuer of a security should also be able to control whether to opt to move from a one penny tick size to a five penny tick size (i.e., opting into of the Pilot).

CHX believes that allowing an issuer to opt-out or opt-in of a different tick size before data is gathered and made available to issuers is premature.

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CHX is open to the concept of listed companies deciding among a set of alternative trading regimens (e.g., one-, five-, or ten-cent tick sizes) may be appropriate if aspects of the Pilot become a permanent feature of the National Market System. However, it is premature to offer that option to listing companies prior to gathering data.

• As noted above, the proposed Tick Size Pilot Program contains different terms and conditions than specified in the Order. In particular, the Participants proposed to evaluate potential Pilot Securities over a Measurement Period. Is this period sufficient to evaluate and identify potential Pilot Securities?

CHX supports the use of a measurement period for the reasons stated in the NMS Plan filed by the participants.

• With regard to the selection of Pilot Securities, the Participants have proposed to consider two additional elements related to the price of potential Pilot Securities. First, the Participants proposed that the Closing Price on every trading day during the Measurement Period not be less than $1.50. In addition, Participants proposed that the Measurement Period VWAP be at least $2.00. Are these additional criteria useful? Are there other criteria related to the price of potential Pilot Securities that should be considered?

CHX supports both additional elements. The purpose of these elements is to minimize the number of issues in any Test Group which trade below a price of $1.00 per share during the Pilot period. Securities trading below $1.00 per share would trade in a tick size of $0.0001. It would be a statistical complication to include data for days when a security trades and quotes in price increments of $0.05 with data for days when a security trades and quotes in price increments of $0.0001.

CHX believes that when a Pilot security trades below a price of $1.00, it should be permanently removed from the Pilot's data gathering requirements to avoid this statistical problem. To minimize the number of securities that will trade below $1.00 per share during the one year Pilot period, the participants proposed these two elements which attempt to minimize the number of Pilot Securities which would trade below that price.

As discussed above, CHX believes that any Test Group or Control Group security that trades at a price below $1.00 per share at any time should be excluded from any data analysis. CHX believes that the Commission should explicitly state whether a Test Group security that trades below $1.00 should revert to trading in increments of $0.01 per share (the same as Test Group securities).

C. Proposed Control and Test Groups

• The Order specified that there should be three Test Groups. Would the three proposed Test Groups provide sufficient information to allow for analysis of quote increments in certain small capitalization stocks? Would different Test Groups with different criteria better facilitate such an analysis?

CHX supports the use of the three Test Groups identified in the proposed Pilot. Changes from the current trading regimen to Test Group 1, from Test Group 1 to Test Group 2, and from Test Group 2 to Test Group 3 represent logical steps from the current trading environment to Test Group 3. If there is an incremental effect that each change has on various quality of markets metrics, it should be apparent from the Pilot data. Any such differences should help the Commission identify the incremental effect of each such step.

• Participants have proposed to include 400 securities per Test Group. The Commission preliminarily believed that 300 securities per Test Group was sufficiently large number to generate statistically reliable data, yet a number small enough to minimize potential disruption to the market. The Commission requests comment on whether the proposed inclusion of 400 securities per Test Group satisfies these goals. If not, what Test Group size should be required?

Larger sample sizes should provide data more predictive of the entire population. Given the large number of securities available for the Control Group and the three Test Groups, CHX supports the larger (i.e., 400 security) size for each Test Group.

Furthermore, a larger sample size reduces the consequences of securities being eliminated from the Pilot data by virtue of trading below $1.00 per share.

• Specifically, please describe whether the size of the three Test Groups is large enough to draw reliable conclusions from statistical tests of the tradeoffs associated with increasing the quote increment for certain small securities, including tests that attempt to identify approximate thresholds for changes in the quote increment. Is the control Group size large enough to draw reliable conclusions? If not, what size should be required?

CHX believes that a Test Group size of 400 is sufficient to provide meaningful, accurate statistics.

• How likely is it that the process for selection will result in three representative Test Groups that can be compared to each other and the Control Group or matched stocks from the Control Group? How important is it that the three Test Groups be representative and be suitable for comparison with each other and the Control Group? Is the selection plan for the categories with fewer than 10 securities reasonable for allocating potential Pilot Securities among the Test Groups? If not, please specify a more appropriate selection plan and explain how it improves on the Plan.

The NMS Plan which proposes the Tick Test Pilot describes how the 400 securities in each Test Group will be selected to balance numerous characteristics. CHX believes that this methodology will help assure that the Test Groups are representative of the broader population (see below).

• With regard to assigning potential Pilot Securities to each Test Group and the Control Group, Participants have proposed to consider the trading volume of a security, in addition to price and market capitalization as specified in the Order. Is this additional criterion reasonable? Are there other criteria that would be useful? Would these additional criteria help to achieve representative samples of Pilot Securities in the Test Groups?

The proposed NMS Plan for the Tick Test Pilot Program describes how the 400 securities in each Test Group will be selected to balance numerous characteristics. CHX believes that this methodology will help assure that the Test Groups are representative of the broader population.

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• The Commission designated $0.05 as the increment to be tested in the proposed Pilot. Is the $0.05 increment appropriately wide enough to encourage trading and liquidity in small capitalization securities? Should the increment be another amount? If so, please specify that increment and explain why it is preferable.

CHX believes that an increment of $0.05 is a reasonable tick size to perform the Pilot.

After the Pilot data has been gathered, further analysis may suggest a narrower tick size (e.g., $0.02 or $0.025) for small cap securities with relatively low prices (e.g., between $1.00 and $5.00 per share) or may suggest a wider tick size (e.g., $0.10 or more) for securities – possibly not small cap, but low trading volume securities – with relatively high prices (e.g., above $1000.00 per share).

CHX believes that it is premature to make any determination regarding the optimal tick size until the Pilot data is gathered and analyzed.

i. Test Group 1

• In the Order, the Commission stated that quoting of securities in Test Group 1 should be in $0.05 increments but that trading would continue to occur at any price that is permitted today. The Participants proposed to include two quoting exceptions for orders priced to execute at the midpoint and orders entered into a Participant-operated retail liquidity program. Do you agree with these proposed exceptions? Why or why not?

CHX supports these two exceptions.

Existing retail liquidity programs provide significant price improvement to the extent they are utilized. Eliminating them from Test Group 1 could likely artificially bias certain quality of market statistics – in particular the frequency of price improvement, effective spread, and effective spread index.

The midpoint execution exception provides significant price improvement and comprises a significant percentage of trading volume in certain trading centers.[1] Absent these two exceptions, statistics relating to the frequency of price

[1] One exchange has reported that midpoint orders comprise 8% of its reported trading volume.

improvement, effective spread, and effective spread index would be negatively biased.

ii. Test Group 2

• The Order stated that quoting and trading should be in $0.05 increments in Test Group 2 with three exceptions: (1) trading could occur at the midpoint between the NBBO; (2) retail investor orders could be provided price improvement that is at least $0.005 better than the NBBO; and (3) certain negotiated trades such as VWAP, TWAP, and qualified contingent trades, could continue at any increment permitted today. In the Order, the Commission noted that it preliminarily believed that Test Group 2 should be established to examine the potential impact on displayed liquidity in conjunction with Test Group 1. The Commission requests comment on whether the structure of Test Group 2 supports this goal. Is Test Group 2 necessary for the proposed Pilot?

CHX supports these three exceptions.

CHX supports the exception for price improvement for retail investor orders of at least $0.005 as well. The current retail liquidity programs generally require price improvement of $0.001 where the minimum tick size is $0.01. Thus the minimum price improvement for current retail liquidity programs is 10% of the tick size. The minimum price improvement proposed for Test Group 2 securities is $0.005 which is 10% of the minimum tick size of $0.05. Thus, this is in line with the Test Group 1 exemption for current retail liquidity program.

CHX supports the exception for midpoint executions for the same reason stated above.

CHX supports the exception for negotiated trades (e.g., VWAP, TWAP, qualified contingent trades). A significant volume of trading activity occurs in negotiated trades. Disrupting this trading activity would have a serious, negative impact on those engaged in this activity. The Pilot should avoid serious disruption of market activities for which no potential benefit resulting from such a disruption can be shown. Clearly there is no potential benefit from requiring negotiated trades to take place at five cent or midpoint price increments.

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• The Commission noted that it preliminarily believed that these three exceptions should be allowed so as not to prohibit certain categories of trades that are broadly beneficial to market participants today. The Commission requests comment on whether these exceptions are necessary. Should there be other exceptions? If so, please describe those exceptions and explain why they are advisable.

As stated above, CHX supports the Commission's preliminary view regarding excepting these three categories of trades from prohibition of trading at prices which are not in an increment of $0.05. CHX believes that the exceptions are necessary to avoid disruption of the marketplace.

• The Participants proposed additional exceptions and terms for Test Group 2. First, the Participants proposed to clarify that the $0.05 trading increment would apply to brokered cross trades. Is this clarification necessary? Second, the Participants proposed that midpoint trades could occur between the best protected bid and best protected offer, in addition to the NBBO as the Commission Order specified. Should these additional midpoint trades be excepted from the trading increment requirement? Third, the Participants proposed that the price improvement for retail investor orders be calculated against the best protected bid or the best protected offer, rather than the NBBO as the Commission Order specified. Finally, the Participants proposed that qualified contingent trades would not include block size criteria, as specified in the Commission Order. Do you agree with the additional exceptions and terms proposed by the Participants? Why or why not?

CHX supports the proposed exception for brokered cross trades. CHX's Participants are actively engaged in brokering institutional orders to find a contra party. Some of these brokered trades take place at prices different from the normal tick size. To assure that customers can continue to have their orders brokered to find a willing contra party, CHX feels that it is both necessary and appropriate to grant this exception to Test Group 2.

CHX supports the proposal to allow midpoint trades to take place between the best protected bid and the best protected offer.

CHX also supports the proposal to allow price improvement for retail orders as proposed in the NMS Plan.

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Regarding the exception of qualified contingent trades (QCTs), the need for flexibility in the execution price of the equity leg of a QCT, acknowledged by the Commission in its Order granting the QCT exemption from the Rule 611, is well established. The trade through exception does not require that the QCT be of block size and, similarly, the exception for the Tick Test Pilot Program should not require a QCT to be of block size.

iii. Test Group 3

The Order stated that the quoting and trading increments (and the exceptions thereto) in Test Group 3 would be the same as Test Group 2, but Test Group 3 would include a trade-at requirement. In the Order, the Commission generally described a trade-at requirement as one that is intended to prevent price matching by a trading center not displaying the NBBO. The Commission further stated that under a trade-at requirement, a trading center that was not displaying the NBBO at the time it received an incoming marketable order could either: (1) execute the order with significant price improvement ($0.05 or the midpoint between the NBBO); (2) execute the order at the NBBO if the size of the incoming marketable order is of block size; or (3) route intermarket sweep orders to execute against the full displayed size of the protected quotations at the NBBO and then execute the balance of the order at the NBBO price.

The Commission notes that, in the context of the Pilot, an important purpose of a trade-at requirement would be to test whether, in a wider tick size environment, the ability of market participants to match displayed prices, without quoting, would disproportionately affect market makers' quoting practices. If quoting practices are affected negatively, then it could undermine one of the central purposes of the Pilot, namely to determine whether wider tick sizes positively affect market maker participation and pre-trade transparency.

- **The Commission generally requests comment on the advisability of testing a trade-at requirement as part of the Pilot. Is a trade-at requirement necessary to effectively analyze the impact of widened ticks on the trading and liquidity of small capitalization securities? If a trade-at requirement is advisable, has the Commission appropriately described such a requirement in the Order? Are exceptions to the trade-at requirement set forth in the Order appropriate?**

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CHX supports the Commission's proposal to include a trade-at provision for Test Group 3.[2] CHX supports these operational aspects. CHX also supports the Commission's vision as to how the trade-at requirement should operate.

CHX also supports the exceptions to the trade-at requirement set forth in the Order.

• The Commission noted that a trade-at requirement could stem the possible migration of trading volume away from "lit" venues to "dark" venues. Is a trade-at requirement an appropriate regulatory tool for the proposed Pilot to address this potential concern? Are there other tools that could achieve the same goals? Would a trade-at requirement improve trading and liquidity of small capitalization securities and benefit investors? How difficult and costly would it be to implement the trade-at restriction?

CHX agrees with the Commission that the Test Group 3 trade-at requirement could act to reduce the migration of trading volume away from "lit" venues to "dark" venues. CHX believes that, left unchecked, this migration could rise to a level where the price discovery mechanism provided by "lit" venues could be compromised. CHX believes that this should be addressed and welcomes the action the Commission has proposed.

CHX is not aware of any less onerous action the Commission could take which would achieve the same goals.

CHX believes that the trade-at requirement will improve trading and liquidity of small cap securities and benefit investors by incentivizing displayed liquidity which would support the price discovery mechanism. Less active small cap securities are the most threatened by any impairment of the price discovery mechanism. Therefore, this is a critically important element of the Test Group 3 trading regimen.

CHX believes that implementation of the trade-at restriction will be costly, but also believes that its benefits will exceed the costs. CHX believes that the trade-at implementation proposed is conceptually very simple. The industry is very familiar with the Regulation NMS trade <u>through</u> prohibition which requires

[2] The operational aspects of the Test Group 3's trade-at requirement are presented in the proposed NMS Plan to operate exactly as described by Commission staff to the NMS Plan participants.

satisfaction of displayed liquidity before that displayed liquidity can be traded through. The proposed trade-at restriction requires satisfaction of any displayed liquidity before a market center can trade at that price by matching against undisplayed liquidity. Conceptually these are very similar processes and are not at all complex. Further, the exception to the trade-at restriction for block size transactions should avoid difficulties in executing large transactions priced at the NBBO in "dark" venues as well as executing large transactions in "lit" venues when the size of the transaction is not displayed.

CHX believes that Test Group 3 is the most important aspect of the Tick Test Pilot Program.

• The Participants have proposed several deviations from, or additions to, the trade-at component of Test Group 3 that differ from or go beyond those specified in the Commission Order. First, the Participants proposed that the trade-at requirement apply to any protected bid or protected offer, rather than just the NBBO. Should the trade-at requirement apply to all protected quotes?

CHX supports the proposal that the trade-at requirement apply to any protected bid or protected offer rather than just the NBBO. This is clearly analogous to the Rule 611 requirement to satisfy all protected quotations, not just those at the NBBO. As described above, the logic and methodology for complying with this requirement is simple to understand and implement. While there are associated costs, these costs are exceeded by the benefits of protecting displayed liquidity which supports the price discovery process in the National Market System.

• Second, the Participants proposed that a trading center be permitted to execute an order at the price of a protected quotation, so long as it is displaying a quotation at that price through a processor or an SRO quotation feed. Should the display requirement be satisfied by displaying only through a proprietary market data feed and not a processor? In other words, should a trade-at requirement permit price matching through displayed quotes that are not protected quotes? Why or why not?

CHX supports this aspect of the proposal. Its purpose is to allow a trading center which cannot publish its own protected quotation to publish it on a national securities exchange or FINRA's ADF and still be permitted to trade up to the size of that published, protected quotation on its own trading center.

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CHX believes that the existence of the FINRA ADF requires such a provision.[3] If an OTC firm is publishing a protected bid matching the NBB on the FINRA ADF, it would be unreasonable for the trade-at requirement to prohibit that OTC firm from trading at its protected bid by matching the NBB without satisfying all protected bids at that price on national securities exchanges. As the OTC firm cannot trade on the ADF, a method to trade at its protected ADF bid must be provided. However, it is necessary that the OTC firm be prohibited from trading more than its displayed size against another order without first satisfying all displayed liquidity at that price elsewhere. This levels the playing field among all trading centers.

• Third, the Participants proposed that a trading center be permitted to execute an order at the price of a protected quotation, if it is displaying a quotation at that price, but only up to its displayed size. Is this restriction necessary to achieve the purpose of the Pilot's trade-at requirement? Why or why not?

CHX believes that this is necessary to accomplish a meaningful trade-at requirement. If a protected quotation for 100 shares (i.e., a round lot) permitted the trading center to trade 4000 shares (i.e., less than block size) at that price, such a trade-at restriction would do little if anything to promote displayed liquidity and reinforce the price discovery mechanism. When less than a block size trade is to take place, limiting the size that a trading center may execute to its displayed size creates a strong incentive to display liquidity rather than hide it.

• Fourth, the Participants proposed to restrict where and how a trading center that is displaying a quotation at the price of a protected quotation may execute orders at that price. Specifically, where a quotation is displayed through a national securities exchange, the execution must occur against the displayed size on that exchange; where a quotation is displayed on the Alternative Display Facility ("ADF") or other Commission-approved facility, the execution must occur in accordance with the rules of the ADF or other such facility. Is this restriction necessary to achieve the purpose of the Pilot's trade-at requirement? Why or why not?

[3] CHX notes that the only market participant using the FINRA ADF has announced that it will cease operations in January 2015. Nonetheless it is important that the proposed NMS Plan has addressed how any user of the FINRA ADF would need to operate under the Plan.

CHX believes that this is necessary for the reasons described in detail above. The only reason to allow the trade related to an ADF-protected quote to trade away from the location where the protected quote is displayed is the simple fact that no trades take place on the ADF. If trades were actually executed on the ADF, then the proposal would have required that trades related to protected quotes on the ADF must execute on the ADF to meet the trade-at requirement.

• Fifth, the Participants proposed 13 exceptions to the trade-at restrictions, many of which are modeled after the trade-through exceptions in Rule 611 of Regulation NMS. Does it make sense to apply the trade-through exceptions in Rule 611 to a trade-at restriction? Why or why not?

CHX believes that these 13 exceptions, modeled in large part after exceptions in Rule 611, are appropriate for the trade-at restriction. As described above, the concept of protecting and incentivizing displayed liquidity is a core goal of Rule 611 and the Pilot's trade-at restriction. For that reason, adopting similar exceptions make sense.

• Finally, the Participants proposed to except fractional shares from the trade-at requirement. Is this proposed exception reasonable? Why or why not?

CHX believes that this exception is reasonable. Fractional shares cannot be displayed. They cannot be protected. Unless the clear intent of this exception is violated by breaking up a larger order into fractional shares, the effect of providing this exception should be *de minimis* on the marketplace.

D. Proposed Data

As noted above, the Commission stated that one of the goals of a proposed Pilot would be to generate data on the impact of widened tick sizes on the trading and liquidity for certain small capitalization stocks. Therefore, in the Order, the Commission set forth details on the data that it preliminarily believed to be necessary to support analysis. This data is meant to supplement publicly available data such as data available on the Commission's market structure website and should allow the Commission and others to conduct studies on the effect of increased tick size on liquidity, execution quality for investors, volatility,

market maker profitability, competition, transparency and institutional ownership. The Commission requests comment on the data to be generated.

• How important is the public release of the data that is collected during the Pilot ("pilot data") to the usefulness of the Pilot (i.e., to achieve a reliable analysis of the tradeoffs associated with increasing the quote increment in certain small capitalization securities)? Are there readily available data that are already public and could substitute for the pilot data? If so, what are they and how well could they facilitate tests of the tradeoffs associated with changing quote increments? What are the most important tradeoffs to examine during the Pilot?

CHX supports the public release of data that is collected during the Pilot. This is a vital aspect of the Pilot which will allow the Commission, the participants, and other interested parties an opportunity to analyze the data, draw conclusions, and provide feedback and comment to the Commission when it deliberates possible actions after the one year data gathering period has concluded.

CHX believes that existing, publicly-available data (e.g., Rule 605 data and SIP data) are sufficient to analyze whether the Pilot has significantly affected the quality of markets in the three Test Groups. We urge the Commission to include in its final order a method for public access to corresponding historical SIP data to facilitate analysis of the effect of the Pilot Program.

CHX is concerned that the cost of providing certain data exceeds the incremental benefits of that data. CHX is also concerned that the cost of providing certain data may change the behavior of certain market participants and, therefore, bias the Pilot results. (See comments below regarding Appendix B and Appendix C.)

• Are researchers other than those in the securities industry or regulators likely to study the pilot data? Are they likely to use the pilot data to study the Pilot? If so, which sets of data are likely to be the most useful?

CHX believes that researchers are likely to study the pilot data if they believe it is relevant to an important topic and the data is not flawed.

CHX believes that there is no question that Rule 605 data is relevant to the important topic of whether modifying the tick size for certain securities would improve the quality of markets. CHX also believes many of the requirements of

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Appendix B should be eliminated and replaced by a reliance on Rule 605 data and SIP data to analyze the results of the Pilot. This is discussed in detail below.

CHX believes that the inherent flaws in the data defined in Appendix C will discourage researcher from outside the securities industry from using it. For this reason, as well, CHX recommends elimination of Appendix C. This is also discussed in detail below.

• How costly will the Pilot data be to produce and make public? Are there any components of the pilot data that are particularly costly? If so, which ones? Are there any unintended consequences of releasing the pilot data?

Virtually all of the data in Appendix B and Appendix C will be very costly to provide. CHX believes that the data in Appendix C is fundamentally flawed as well. While CHX sees no unintended consequences in releasing the data in Appendix C, we comment below on the unintended consequence of attempting to gather this data.

• The data is to be available starting six months prior to the start of the Pilot, and continue until six months after the Pilot ends. How valuable is the data availability before and after the proposed Pilot, and is six months the appropriate time frame? Please explain.

CHX believes that data gathered for six months prior to the Pilot (e.g., Rule 605 data and SIP data) will be very helpful in measuring changes in market quality which occur between the time immediately preceding the one year Pilot period and the data during the Pilot period. The pre-Pilot data will provide the baseline quality of market statistics against which test period data can be compared.

By providing data for the Control Group as well, quality of market changes in the Control Group from the pre-pilot period to the test period can be used to adjust changes arising from changes in overall market conditions which are unrelated to the changes resulting from instruction of Test Group 1, Test Group 2, or Test Group 3 trading regimens.

CHX does not see value in providing data after the one year test period concludes unless the decision is made to continue the Pilot treatment of Test Group 1, Test Group 2, and Test Group 3 stocks after the one year test period has expired to gather additional data. CHX believes that at the end of the one

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year test period, the Pilot securities should continue to trade as they did during the one year test period until a determination is made as to how these securities will trade going forward. CHX believes that the trading regimen for these securities should only be changed back to their pre-Pilot state if a decision is made not to trade in different increments.

• Is the frequency of the Pilot data, and delay in its release, appropriate to balance the cost of the data, including the potential for unintended consequences, against the value of the data to the pilot analysis and the timeliness of Pilot analyses by researchers? If not, what would be more appropriate? Please explain.

CHX supports the frequency of the Pilot data and the delay in its release.

CHX, for the detailed reasons given below, believes that the cost of much of the data required by Appendix B and Appendix C far outweighs the benefits of having this data available for analysis.

Furthermore, CHX believes that unintended consequences may result from requiring all of the data listed in Appendix B and Appendix C and that those unintended consequences could bias the Pilot results.

i. Assessments

• How important are the Participant assessments of the proposed Pilot to the success of the Pilot? Are the Participants able to examine unique data or offer a unique perspective such that certain results would only be observed because the Participants assessed the Pilot? Should the Participants assess any additional issues beyond those specified in the plan? If so, what issues?

As one of the Participants, CHX believes that Participant assessments should be one of many assessments which the Commission should consider in reaching a determination as to what, if any, permanent action to take as a result of the Pilot.

CHX believes that the Participants have a unique perspective regarding the operation of the national market system. Therefore, we believe that the analysis of Participants should be one among many things that the Commission take into

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consideration before deciding what, if any, permanent action to take as a result of the Pilot.

CHX believes that all Participants will be in a much better position to consider additional issues to bring to the Commission's attention after the one year test period has concluded.

• The Order stated that the Participants would conduct an assessment of market maker profitability. The Participants did not propose to study market maker profitability. Should the Participants produce an assessment of market maker profitability as contemplated by the Order? Why or why not?

CHX believes, as stated above, that market maker profitability is irrelevant to the purpose of the Tick Test Pilot Program. CHX does not support having Participants perform any assessment of market maker profitability. The Pilot does not need to gather market maker profitability data in order to have all relevant data required to make an information assessment concerning market quality.

ii. Appendix A

• Will the data requirements specified in Appendix A allow market participants to effectively implement the Pilot? How could the data requirements be more useful? Is pipe-delimited ASCII the best format of the data for this purpose? If not, what other format would be more appropriate and why? Should the data in Appendix A have a common naming convention? Why or why not?

CHX believes that the data requirements of Appendix A are well described and wholly appropriate.

• Will the pilot data in Appendix A facilitate the analysis of the tradeoffs associated with increasing the quote increment for certain small capitalization securities? How could this data be more useful? Is pipe-delimited ASCII the best format of the data for this purpose? If not, what other format would be more appropriate and why?

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CHX believes that the pilot data defined in Appendix A is sufficient and useful in performing its intended purpose. CHX believes that pipe-delimited ASCII is one of several simple and reliable formats to use to distribute this data.

• How costly is the data in Appendix A to produce? Are there any unintended consequences of releasing the data in Appendix A? Please explain.

CHX believes that the cost to provide the data in Appendix A is small, that the benefits outweigh the cost, and that there are no unintended consequences of releasing the data in Appendix A.

iii. Appendices B and C

• Will each set of pilot data specified in Appendices B and C facilitate analysis of the tradeoffs associated with increasing the quote increment for certain small securities, including liquidity, execution quality for investors, market maker profitability, competition, and transparency? How much does each set of pilot data specified in Appendices B and C add to potential analyses of the proposed Pilot compared to what can be learned with publicly available data? How much does each set of pilot data specified in Appendices B and C add to potential analyses of the proposed Pilot compared to what can be learned with other pilot data? How could each set of data be more useful or how can the combinations of data be more useful? Is pipe-delimited ASCII the best format of the data? If not, what other format would be more appropriate and why? Should the data in Appendices B and C have common naming conventions? Why or why not?

CHX comments on this topic appear below.

• How costly is the data in Appendices B and C to produce? Are there any unintended consequences of releasing the data in Appendices B and C? Please explain. Are there ways to reduce the cost of the data in Appendices B and C without sacrificing its value to the Pilot? Please explain.

CHX comments on this topic appear below.

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• The data specified in Appendix B.1 provides data similar to Rule 605 market quality data, but with a few key differences. For example, the Pilot data specified in Appendix B.1 would provide daily data whereas Rule 605 provides for monthly disclosure. Further, the Pilot data would include more order types and sizes than what Rule 605 data includes, and provides additional time to execution and order size buckets than Rule 605 data. How important are the expansions to the Rule 605 data, such as the daily frequency and the inclusion of orders that are excluded from Rule 605 statistics? Please explain. On the other hand, the pilot data does not include orders that are routed to other trading venues and executed in full by those other trading venues. Should the Pilot data also include orders that are routed to other trading venues and executed in full by those other trading venues? Please explain. The data specified in Appendix B.1 includes only resting orders. This excludes "Immediate or cancel" orders. Should immediate or cancel orders be included in the data in Appendix B.1?

CHX anticipates considerable incremental costs to provide the Appendix B.1 data without a significant incremental benefit over using currently available Rule 605 data. Every trading center will face a similar cost. CHX believes that the cost of providing Appendix B.1 data may result in certain trading centers no longer offer trading in Pilot securities to avoid the cost of providing this data. If enough trading centers exercise this option, it could significantly bias the results of the Pilot Program.

• Can the data in Appendix B.1 be built from the same infrastructure that currently supports Rule 605 data? Why or why not? Would the costs of Appendix B.1 data depend on whether it can be built from the same infrastructure as Rule 605 data?

CHX estimates the incremental costs for it to provide the data required by Appendix B.1 and B.2 to be approximately $40,000. We note that every trading center which trades at least one Pilot security will have to meet these data gathering requirements.

• The data specified in Appendix B.2 provides information on market and marketable limit orders. The data includes statistics for only the non-resting portion of the Marketable Limit Orders. Is this appropriate in light of potential Pilot analysis and data that are currently available? If not, why

not? Should this data contain additional order information? If so, what other order information should be included? Please also specify which data items, if any, are less valuable or potentially problematic.

CHX believes that the data requirements in Appendix B.2 will be burdensome for many trading centers to meet. New data is sought for the purpose of evaluating the quality of markets during the Pilot Program and will be of little value after the Pilot is completed. CHX believes that the incremental value of the new data does not justify the significant costs which must be borne by each trading center. CHX believes that data already provided under Rule 605 – augmented by SIP data – is adequate to determine whether there is a material change in the quality of markets resulting from the Pilot Program.

• The data specified in Appendix B.3 provides the number of registered market makers. Should this data also include a separate count of the number of unregistered market makers that provide liquidity in the Pilot Securities? Please explain.

Gathering statistics on the number of registered market makers systematically understates the number of liquidity providers. It omits unregistered liquidity providers – both registered broker dealers and parties that are not broker dealers but behave like traditional market makers.

For this reason, the statistics sought under Appendix B.3 – while relatively simple to gather and report – are of dubious value in measuring the number of parties providing liquidity on a security-by-security basis.

• The data specified in Appendix B.4 provides aggregate participation statistics for registered market makers. Should this data also include separate participation statistics for unregistered market makers that provide liquidity in the Pilot Securities? Please explain.

For the reasons stated above regarding Appendix B.3 data, gathering aggregated participation statistics only for registered market makers falls significantly short of reflecting the aggregate liquidity providing function of the marketplace.

Adding unregistered market makers would improve the data; however, the Commission would need to provide a set of objective criteria to identify which

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market participants act as unregistered market makers. These criteria would apply to registered broker dealers which behave like traditional market makers in Pilot securities. Exchanges do not have the data required to identify all of these parties and may have jurisdictional limitations to compel that such parties provide data to them.

• Should the data in Appendix B exclude orders entered or executed while a trading halt is in effect? Please explain.

CHX believes that the requirements of Appendix B could have a chilling effect on bringing new market makers to any trading center

For the reasons stated above, CHX contends that existing Rule 605 data and SIP data are sufficient to determine whether a meaningful change in quality of markets has taken place.

• The Participants have proposed that each market maker shall provide to its Designated Examining Authority the market maker profitability data set forth in Appendix C of the Plan. The Designated Examining Authority will then aggregate the data, report it to the Commission, and make it publicly available on the Designated Examining Authority's website. This aspect differs from the Order, which required the Participants to collect such data, make it public, and conduct an assessment. Is market maker profitability data necessary to analyze the effect of the Tick Size Pilot Program and to reach a conclusion about the tradeoffs associated with increasing the quote increment in certain small capitalization securities? Are there better ways to collect such Pilot data?

CHX believes that this data is irrelevant to assessing the quality of markets before, during, and after the Pilot Program in all securities eligible for the Pilot Program. Relevant and accurate quality of markets data is imperative to the evaluation of some or all aspects of the Pilot Program. Irrelevant or inaccurate data could hinder the goal of assessing the impact of the Pilot on market quality.

While aggregating the data which market makers are required to provide to their DEA is not particularly burdensome for the DEA, CHX believes that the cost required for market makers to gather the data and report it to DEAs is significant and that market makers may elect to terminate market making activity in Pilot Securities rather than incur these costs. If this occurs, the Pilot results could be

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significantly and negatively biased due to this unintended consequence of imposing this requirement on market makers.

CHX remains convinced that the optimal way to assess any impact that the Pilot Program may have on the quality of markets is to rely on data already available through Rule 605 and SIP data. Rule 605 data has been well crafted with the intent of using it to assess quality of markets for important decisions such as determining best execution venues. Surely if Rule 605 data is appropriate to use as part of an overall assessment whether best execution requirements have been met, then Rule 605 data should be sufficient to be used to determine whether significant changes to the quality of markets in Pilot Securities have occurred as a result of the Pilot Program.

“Observer effect” refers to the phenomenon that sometimes measuring aspects of a system changes the behavior of that system. CHX believes that the Tick Test Pilot Program is susceptible to observer effect which would result in biasing the results of the Pilot Program.

If CHX’s recommendation is adopted, the likelihood of observer effect injecting a bias on the Pilot data can be minimized by relying on Rule 605 data and SIP data. By minimizing the cost of trading centers to meet the requirements required to continue trading in Pilot securities, the likelihood that some trading centers will cease offering trading in these securities as a means to avoid significant fixed costs to support trading of infrequently-traded securities will be minimized.

• The data specified in Appendix C provides aggregate market maker profitability statistics. Should this data also include separate profitability statistics for unregistered market makers that provide liquidity in the Pilot Securities? Please explain.

As stated above, CHX believes that market maker profitability statistics are burdensome to produce and irrelevant to the question as to whether the various embodiments of the Pilot Program have had effect on the quality of markets in Pilot Securities.

For this reason, CHX believes that Appendix C should be stricken in its entirety in the final Order.

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However, if market maker profitability statistics are to be gathered for registered market makers, they should also be gathered for unregistered market makers who provide liquidity in Pilot Securities as well as for market participants who are not broker dealers but behave like traditional market makers. Excluding any of these market participants from any analysis of profitability of liquidity providers will bias any such analysis.