

October 18, 2017

By Email

Eduardo A. Aleman
Assistant Secretary
U.S. Securities and Exchange Commission
100 F Street, NE
Washington, DC 20549

Re: File No. SR-CHX-2017-04; Self-Regulatory Organizations; Chicago Stock Exchange, Inc.; Notice of Filing of Proposed Rule Change to Adopt the CHX Liquidity Enhancing Access Delay (Release No. 34-80041; File No. SR-CHX-2017-04)

Dear Mr. Aleman:

The Chicago Stock Exchange, Inc. (the “Exchange” or “CHX”) submits this letter regarding the proposed rule change¹ to adopt the CHX Liquidity Enhancing Access Delay (“LEAD”).

On October 18, 2017, the Exchange filed partial amendment no. 2 to SR-CHX-2017-04.

The Exchange is submitting this comment letter to facilitate notice of partial amendment no. 2 to the public, which is attached herein.

Sincerely,



Albert J. Kim

¹ See Securities Exchange Act Release No. 80041 (February 14, 2017), 82 FR 11252 (February 21, 2017).

Required fields are shown with yellow backgrounds and asterisks.

Page 1 of * 52	SECURITIES AND EXCHANGE COMMISSION WASHINGTON, D.C. 20549 Form 19b-4		File No.* SR - 2017 - * 04	Amendment No. (req. for Amendments *) 2
Filing by Chicago Stock Exchange Pursuant to Rule 19b-4 under the Securities Exchange Act of 1934				
Initial * <input type="checkbox"/>	Amendment * <input checked="" type="checkbox"/>	Withdrawal <input type="checkbox"/>	Section 19(b)(2) * <input checked="" type="checkbox"/>	Section 19(b)(3)(A) * <input type="checkbox"/>
			Section 19(b)(3)(B) * <input type="checkbox"/>	
			Rule	
Pilot <input type="checkbox"/>	Extension of Time Period for Commission Action * <input type="checkbox"/>	Date Expires * <input type="text"/>	<input type="checkbox"/> 19b-4(f)(1) <input type="checkbox"/> 19b-4(f)(2) <input type="checkbox"/> 19b-4(f)(3)	<input type="checkbox"/> 19b-4(f)(4) <input type="checkbox"/> 19b-4(f)(5) <input type="checkbox"/> 19b-4(f)(6)
Notice of proposed change pursuant to the Payment, Clearing, and Settlement Act of 2010			Security-Based Swap Submission pursuant to the Securities Exchange Act of 1934	
Section 806(e)(1) * <input type="checkbox"/>		Section 806(e)(2) * <input type="checkbox"/>	Section 3C(b)(2) * <input type="checkbox"/>	
Exhibit 2 Sent As Paper Document <input type="checkbox"/>		Exhibit 3 Sent As Paper Document <input type="checkbox"/>		
Description				
Provide a brief description of the action (limit 250 characters, required when Initial is checked *).				
<input type="text" value="Proposed Rule Change to Adopt the CHX Liquidity Enhancing Access Delay"/>				
Contact Information				
Provide the name, telephone number, and e-mail address of the person on the staff of the self-regulatory organization prepared to respond to questions and comments on the action.				
First Name * <input type="text" value="Albert (A.J.)"/>		Last Name * <input type="text" value="Kim"/>		
Title * <input type="text" value="VP and Associate General Counsel"/>				
E-mail * <input type="text" value=""/>				
Telephone * <input type="text" value=""/>		Fax <input type="text" value=""/>		
Signature				
Pursuant to the requirements of the Securities Exchange Act of 1934,				
has duly caused this filing to be signed on its behalf by the undersigned thereunto duly authorized.				
(Title *)				
Date	<input type="text" value="10/18/2017"/>	<input type="text" value="VP and Associate General Counsel"/>		
By	<input type="text" value="Albert J. Kim"/>	<input type="text" value=""/>		
(Name *)				
NOTE: Clicking the button at right will digitally sign and lock this form. A digital signature is as legally binding as a physical signature, and once signed, this form cannot be changed.				

SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549

For complete Form 19b-4 instructions please refer to the EFFF website.

Form 19b-4 Information *

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The self-regulatory organization must provide all required information, presented in a clear and comprehensible manner, to enable the public to provide meaningful comment on the proposal and for the Commission to determine whether the proposal is consistent with the Act and applicable rules and regulations under the Act.

Exhibit 1 - Notice of Proposed Rule Change *

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The Notice section of this Form 19b-4 must comply with the guidelines for publication in the Federal Register as well as any requirements for electronic filing as published by the Commission (if applicable). The Office of the Federal Register (OFR) offers guidance on Federal Register publication requirements in the Federal Register Document Drafting Handbook, October 1998 Revision. For example, all references to the federal securities laws must include the corresponding cite to the United States Code in a footnote. All references to SEC rules must include the corresponding cite to the Code of Federal Regulations in a footnote. All references to Securities Exchange Act Releases must include the release number, release date, Federal Register cite, Federal Register date, and corresponding file number (e.g., SR-[SRO]-xx-xx). A material failure to comply with these guidelines will result in the proposed rule change being deemed not properly filed. See also Rule 0-3 under the Act (17 CFR 240.0-3)

Exhibit 1A- Notice of Proposed Rule Change, Security-Based Swap Submission, or Advance Notice by Clearing Agencies *

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The Notice section of this Form 19b-4 must comply with the guidelines for publication in the Federal Register as well as any requirements for electronic filing as published by the Commission (if applicable). The Office of the Federal Register (OFR) offers guidance on Federal Register publication requirements in the Federal Register Document Drafting Handbook, October 1998 Revision. For example, all references to the federal securities laws must include the corresponding cite to the United States Code in a footnote. All references to SEC rules must include the corresponding cite to the Code of Federal Regulations in a footnote. All references to Securities Exchange Act Releases must include the release number, release date, Federal Register cite, Federal Register date, and corresponding file number (e.g., SR-[SRO]-xx-xx). A material failure to comply with these guidelines will result in the proposed rule change, security-based swap submission, or advance notice being deemed not properly filed. See also Rule 0-3 under the Act (17 CFR 240.0-3)

Exhibit 2 - Notices, Written Comments, Transcripts, Other Communications

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Exhibit Sent As Paper Document

Copies of notices, written comments, transcripts, other communications. If such documents cannot be filed electronically in accordance with Instruction F, they shall be filed in accordance with Instruction G.

Exhibit 3 - Form, Report, or Questionnaire

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Exhibit Sent As Paper Document

Copies of any form, report, or questionnaire that the self-regulatory organization proposes to use to help implement or operate the proposed rule change, or that is referred to by the proposed rule change.

Exhibit 4 - Marked Copies

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The full text shall be marked, in any convenient manner, to indicate additions to and deletions from the immediately preceding filing. The purpose of Exhibit 4 is to permit the staff to identify immediately the changes made from the text of the rule with which it has been working.

Exhibit 5 - Proposed Rule Text

Add Remove View

The self-regulatory organization may choose to attach as Exhibit 5 proposed changes to rule text in place of providing it in Item I and which may otherwise be more easily readable if provided separately from Form 19b-4. Exhibit 5 shall be considered part of the proposed rule change.

Partial Amendment

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If the self-regulatory organization is amending only part of the text of a lengthy proposed rule change, it may, with the Commission's permission, file only those portions of the text of the proposed rule change in which changes are being made if the filing (i.e. partial amendment) is clearly understandable on its face. Such partial amendment shall be clearly identified and marked to show deletions and additions.

The Chicago Stock Exchange, Inc. (“CHX” or the “Exchange”) is filing with the U.S. Securities and Exchange Commission (“SEC” or “Commission”) this Partial Amendment no. 2 to SR-CHX-2017-04, a proposed rule change to amend the rules of the Exchange (“CHX Rules”) to adopt the CHX Liquidity Enhancing Access Delay (“LEAD”), which was originally filed on February 10, 2017 (“Initial Filing”) and amended by Partial Amendment No. 1 filed on September 19, 2017. The Initial Filing was published for comment in the Federal Register on February 21, 2017.¹ On May 22, 2017, the Commission instituted proceedings to determine whether to approve or disapprove the proposed rule change,² pursuant to Section 19(b)(2) of the Securities Exchange Act of 1934 (“Exchange Act”).³ On June 6, 2017, the Commission designated a longer period for Commission action on the proceedings,⁴ pursuant to Section 19(b)(2) of the Exchange Act.⁵

Prior to the date on which Partial Amendment No. 1 was filed, the Commission received 17 comment letters related to the Initial Filing,⁶ including two response letters

¹ See Securities Exchange Act Release No. 80041 (February 14, 2017), 82 FR 11252 (February 21, 2017) (SR-CHX-2017-04) (“Notice”).

² See Securities Exchange Act Release No. 80740 (May 22, 2017), 82 FR 24412 (May 26, 2017) (“Proceedings Order”).

³ 15 U.S.C. 78s(b)(2).

⁴ See Securities Exchange Act Release No. 80864 (June 6, 2017), 82 FR 26966 (June 12, 2017).

⁵ 15 U.S.C. 78s(b)(2).

⁶ See Letter to Commission, from Ryan Hitch, Head of Equities Trading, XR Securities LLC (February 24, 2017) (“XR Letter”); see also Letter to Robert W. Errett, Deputy Secretary, Commission, from Douglas A. Cifu, Chief Executive Officer, Virtu Financial (February 27, 2017) (“Virtu Letter”); see also Letter to Brent J. Fields, Secretary, Commission, from Joanna Mallers, Secretary, FIA Principal Traders Group (March 13, 2017) (“First FIA Letter”); see also Letter to Brent J. Fields, Secretary,

from the Exchange. On September 19, 2017, the Exchange submitted a response letter that notified the public of Partial Amendment No. 1.⁷ Thereafter, the Commission received one comment letter related to Partial Amendment No. 1.⁸

Commission, from Adam Nunes, Head of Business Development, Hudson River Trading LLC (March 13, 2017) (“HRT Letter”); see also Letter to Brent J. Fields, Secretary, Commission, from R.T. Leuchtkafer (March 14, 2017) (“First Leuchtkafer Letter”); see also Letter to Eduardo A. Aleman, Assistant Secretary, Commission, from Stephen John Berger, Managing Director, Government & Regulatory Policy, Citadel Securities (March 14, 2017) (“First Citadel Letter”); see also Letter to Brent J. Fields, Secretary, Commission, from Tyler Gellasch, Executive Director, Health Markets Association (March 17, 2017) (“Healthy Markets Letter”); see also Letter to Brent J. Fields, Secretary, Commission, from Elizabeth K. King, General Counsel and Corporate Secretary, New York Stock Exchange (March 20, 2017) (“NYSE Letter”); see also Letter to Eduardo A. Aleman, Assistant Secretary, Commission, from James G. Ongena, Executive Vice President and General Counsel, CHX (March 24, 2017) (“First CHX Response”); see also Letter to Brent J. Fields, Secretary, Commission, from Steve Crutchfield, Head of Market Structure, Chicago Trading Company (April 4, 2017) (“CTC Letter”); see also Letter to Brent J. Fields, Secretary, Commission, from Theodore R. Lazo, Managing Director and Associate General Counsel, SIFMA (May 17, 2017) (“SIFMA Letter”); see also Letter to Brent J. Fields, Secretary, Commission, from R.T. Leuchtkafer (June 15, 2017) (“Second Leuchtkafer Letter”); see also Letter to Eduardo A. Aleman, Assistant Secretary, Commission, from Stephen John Berger, Managing Director, Government & Regulatory Policy, Citadel Securities (June 16, 2017) (“Second Citadel Letter”); see also Letter to Brent J. Fields, Secretary, Commission, from Joanna Mallers, Secretary, FIA Principal Traders Group (June 16, 2017) (“Second FIA Letter”); see also Letter to Eduardo A. Aleman, Assistant Secretary, Commission, from James G. Ongena, Executive Vice President and General Counsel, CHX (June 30, 2017) (“Second CHX Response”); see also Letter to Brent J. Fields, Secretary, Commission, from R.T. Leuchtkafer (July 7, 2017) (“Third Leuchtkafer Letter”); see also Letter to Brent J. Fields, Secretary, Commission, from R.T. Leuchtkafer (July 10, 2017) (“Fourth Leuchtkafer Letter”). All comment letters on the Initial Filing may be found at <https://www.sec.gov/comments/sr-chx-2017-04/chx201704.htm>.

⁷ See Letter to Eduardo A. Aleman, Assistant Secretary, Commission, from Albert J. Kim, Vice President and Associate General Counsel, CHX (September 19, 2017) (“Third CHX Response Letter”).

⁸ See Letter to Brent J. Fields, Secretary, Commission, from R.T. Leuchtkafer (October 7, 2017) (“Fifth Leuchtkafer Letter”).

The Exchange is now submitting this Partial Amendment No. 2 to amend the Initial Filing and Partial Amendment No. 1, as applicable, to effect the following changes:

- LEAD shall apply during the regular trading session only.⁹ Initially, the Exchange proposed applying LEAD throughout the trading day.¹⁰ The Exchange believes it is appropriate to limit the application of the LEAD to the regular trading session only as the LEAD MM¹¹ quoting obligations, described under proposed Article 16, Rule 4(f)(2)(A) and (B), apply during the regular trading session only, and LEAD MMs have no quoting obligations outside of the regular trading session. Also, in order to ensure that the proposed Minimum Performance Standards only apply during the regular trading session, the Exchange amends proposed Article 16, Rule 4(f)(1)(D) to provide that “Qualified Executions” means all executed shares at CHX, during the regular trading session, resulting from single-sided orders, excluding any executed shares resulting from auctions. The Exchange believes these amendments will better ensure that the proposed benefits conferred to LEAD MMs will be proportionate to the proposed Minimum Performance Standards.
- Trading days on which a LEAD MM was prohibited by CHX Rules from submitting orders to the Exchange from its Valid LEAD MM Trading Account shall be excluded from the Exchange’s monthly review of the LEAD MM’s compliance with the proposed Minimum Performance Standards.
- Clarify how LEAD Pilot data to be published on the CHX website pursuant to proposed Article 20, Rule 8(h)(3)(C) will be anonymized.
- Amend proposed Article 20, Rule 8(h)(7) (Variable Processing Delay Statistics) as follows:
 - Amend the proposed third “order origin category” to be described as “undelayed liquidity providing orders from LEAD MMs,” which is stylistically consistent with the description of the other two order origin categories for the Variable Processing Delay Statistics.

⁹ The Exchange has four trading sessions per trading day: early, regular trading, late trading and late crossing sessions. See CHX Article 20, Rule 1(b).

¹⁰ See Notice, supra note 1, at 11252.

¹¹ All capitalized terms are defined under the Initial Filing or Partial Amendment No. 1, unless specifically noted otherwise.

- Amend the third delay range and add two additional delay ranges for a total of five delay ranges, which are proposed as follows: -1- less than 50 μ s and the average delay time; -2- equal to or greater than 50 μ s, but less than 150 μ s, and the average delay time; -3- equal to or greater than 150 μ s, but less than 250 μ s, and the average delay time; -4- equal to or greater than 250 μ s, but less than 350 μ s, and the average delay time; -5- equal to or greater than 350 μ s and the average delay time.
- Additional non-substantive amendments to the Partial Amendment No. 1:
 - Correct typographical errors under proposed Article 20, Rule 8(h)(3)(A), Field #2A of proposed Article 20, Rule 8(h)(4), Field #2A of proposed Article 20, Rule 8(h)(5)(B) and Field #2A of proposed Article 20, Rule 8(h)(8), by replacing each erroneous reference to “greater 5 σ ” with “greater than or equal to 5 σ .”
 - Under proposed Article 20, Rule 8(h)(3)(A), eliminate all references to “if applicable,” and eliminate the phrase “and per PEV Range” under proposed subparagraphs (A)(iii) and (iv), as PEV Range is not a data field that is applicable to the Volume Statistics or the Variable Delay Statistics.

Accordingly, the Exchange partially amends Partial Amendment no. 1 as follows:

1. Amend pages 13 and 14 of Partial Amendment No. 1 with the following text:

Replace the last paragraph on page 13 that carries over to page 14 with the following text:

Proposed paragraph (h)(3) describes the LEAD Pilot Program data collection, analysis and publication requirements. Proposed subparagraph (A) provides that in connection with the Program, the Exchange shall collect (i) Quote Quality Statistics, as defined under proposed paragraph (h)(4) below, for each security per trading day and per Period of Exceptional Volatility* Range (“PEV Range”), for the six months immediately preceding the Program date of implementation and the duration of the Program; (ii) Matched Trade Difference Statistics, as defined under proposed paragraph (h)(5) below, for each LEAD MM Security per trading day and per PEV Range, for the duration of the Program; (iii) Volume Statistics, as defined under proposed paragraph (h)(6) below, for each LEAD MM Security per trading day, for the duration of the Program; (iv) Variable Processing Delay Statistics, as defined under proposed paragraph (h)(7) below, for each LEAD MM Security per trading day, for the duration of the Program; and (v) Effective Spread Statistics, as defined under proposed paragraph (8) below, for each LEAD MM Security per trading day and per PEV Range, for the duration of the Program. By no later than the end of the 18th month of the Program, the Exchange will provide

the Commission with an analysis of data collected pursuant to the Program, which will be made publically available.

2. Amend page 14 of Partial Amendment No. 1:

Replace the first full paragraph with the following text:

Subparagraph (A) further provides that Period of Exceptional Volatility (“PEV”) means a one second interval during which a percentage change in the NBBO midpoint for the security equaled or exceeded two standard deviations (“ σ ”) from the mean. Each trading day, the Exchange will calculate a reference mean and standard deviation from consecutive one second time intervals during the regular trading session. Each daily reference mean and standard deviation will be applied to measure PEV on the following trading day. Each PEV will be categorized into one of five PEV Ranges, which are as follows: 2 = PEV greater than or equal to 2σ and less than 3σ ; 3 = PEV greater than or equal to 3σ and less than 4σ ; 4 = PEV greater than or equal to 4σ and less than 5σ ; and 5 = PEV greater than or equal to 5σ .

3. Amend pages 15 and 16 of Partial Amendment No. 1:

Replace the fourth full paragraph on page 15 and the last paragraph on page 15 that carries over to page 16 with the following text:

Proposed subparagraph (C) provides by no later than the end of the sixth month of the Program, the Exchange shall publish on the CHX website an anonymized version of the data collected pursuant to proposed paragraphs (h)(4) – (8), in a manner consistent with CHX Rules, for each prior month of the Program. By the end of each month thereafter, the Exchange shall publish on the CHX website an anonymized version of the data collected pursuant to proposed paragraphs (h)(4) – (8) from the previous month. On the first day of the Program, the Exchange shall publish on the CHX website each LEAD MM Security and the number of LEAD MMs assigned to each security, which will be updated daily for the duration of the Program.

The Exchange submits that a six-month publication delay is appropriate as it would permit the Exchange and the Commission to evaluate the effectiveness of certain proposed data fields, as well as the need for additional fields to provide better context for the data, which would further a more efficient analysis of the data.

Moreover, any publication of data on the CHX website must comply with Section 3 of Article X of the Bylaws of the Exchange, which governs confidentiality of information and records relating to the Exchange’s self-regulatory function. The Exchange believes that anonymizing the data that will be published on the CHX

website such that the data would not reveal the identity of a specific Participant will ensure that the Exchange meets its Participant confidentiality obligations under Section 3 of Article X of the Bylaws of the Exchange. Such anonymization will be achieved by inserting no value (or a non-Trading Account symbol value) for any data fields that would reveal the Trading Account symbol for a particular order sender, such as proposed Field #3 of the Matched Trade Difference Statistics (“MTDS”) under proposed Article 20, Rule 8(h)(5)(B). The result is that one would not be able to aggregate data entries per Trading Account symbol or per order sender by viewing the published anonymized data. Also, in furtherance of protecting the identity of LEAD MMs, the Exchange will not publicly disclose the identity of any LEAD MMs and, instead, will only publish the number of LEAD MMs assigned to a particular LEAD MM Security. As such, the Exchange believes that proposed subparagraph (C) is consistent with the Exchange’s Participant confidentiality obligations under CHX Rules.

4. Amend page 16 of Partial Amendment No. 1:

Replace the row for “Field # 2A” with the following row:

2A	PEVRange	Blank = All regular session data 2 = PEV data greater than or equal to 2σ and less than 3σ 3 = PEV data greater than or equal to 3σ and less than 4σ 4= PEV data greater than or equal to 4σ and less than 5σ 5 = PEV data greater than or equal to 5σ
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5. Amend page 23 of Partial Amendment No. 1:

Replace the row for “Field # 2A” with the following row:

2A	PEVRange	Blank = All regular session data 2 = PEV data greater than or equal to 2σ and less than 3σ 3 = PEV data greater than or equal to 3σ and less than 4σ 4= PEV data greater than or equal to 4σ and less than 5σ 5 = PEV data greater than or equal to 5σ
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6. Amend pages 26 and 27 of Partial Amendment No. 1:

Replace the last paragraph on page 26 that carries over to page 27 with the following text:

Proposed paragraph (h)(7) provides that the purpose of the Variable Processing Delay Statistics is to provide comparative data regarding the variable delay between the initial receipt of an order and the time at which the order is eligible to be matched by Matching System. The statistics will be divided into three order origin categories: -1- orders from Participants that are not LEAD MMs; -2- liquidity taking orders from LEAD MMs; and -3- undelayed liquidity providing orders from LEAD MMs. For each order origin category, the Exchange will collect the following: the number of orders with a variable delay -1- less than 50 μ s and the average delay time; -2- equal to or greater than 50 μ s, but less than 150 μ s, and the average delay time; -3- equal to or greater than 150 μ s, but less than 250 μ s, and the average delay time; -4- equal to or greater than 250 μ s, but less than 350 μ s, and the average delay time; -5- equal to or greater than 350 μ s and the average delay time.

7. Amend page 28 of Partial Amendment No. 1:

Replace the row for “Field # 2A” with the following row:

2A	PEVRange	Blank = All regular session data 2 = PEV data greater than or equal to 2σ and less than 3σ 3 = PEV data greater than or equal to 3σ and less than 4σ 4 = PEV data greater than or equal to 4σ and less than 5σ 5 = PEV data greater than or equal to 5σ
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The Exchange also amends the Initial Filing as follows:

8. Amend page 4 of the Initial Filing (pages 77 and 78 of the Exhibit 1):

Replace the second and third sentences of the first paragraph (second full paragraph on page 77 carrying over to page 78 of the Exhibit 1) with the following text, while retaining footnotes 3, 4 and 5:

In sum, LEAD will require all new incoming orders, cancel and cancel/replace messages received during the regular trading session only to be subject to a 350-

microsecond intentional access delay; provided, however, that (1) new incoming orders³ submitted by LEAD Market Makers (“LEAD MM”), a new class of CHX Market Maker⁴ with heightened quoting and trading obligations, that would be immediately ranked on the CHX book without executing against any resting orders on the CHX book and (2) certain cancel messages related to resting orders that were submitted by LEAD MMs will not be delayed. LEAD will be applied to all securities traded on the Exchange.⁵

Also, delete all text under footnote 5 (page 78 of the Exhibit 1).

9. Amend pages 9 and 10 of the Initial Filing (page 83 of the Exhibit 1):

Replace the first sentence of the last paragraph on page 9 that carries over to page 10 (first full paragraph on page 83 of the Exhibit 1) with the following text, while retaining footnotes 20, 21 and 22:

Specifically, LEAD will require the following messages in all securities received by the Exchange during the regular trading session only to be subject to a 350-microsecond intentional delay, the same length as the Investors Exchange LLC (“IEX”) POP/coil delay (“IEX Delay”) recently approved by the Commission,²⁰ before such delayed messages would be processed²¹ by the Matching System:²²

10. Amend pages 12 and 13 of the Initial Filing (page 86 of the Exhibit 1):

Replace the last paragraph on page 12 that carries over to page 13 (first full paragraph on page 86 of the Exhibit 1) with the following text, while retaining footnote 33:

Proposed Article 16, Rule 4(f) provides rules regarding the proposed LEAD MM Program. Specifically, proposed paragraph (f)(1) provides defined terms for the purposes of paragraph (f). Thereunder, proposed paragraph (f)(1)(A) provides that “LEAD” means the Liquidity Enhancing Access Delay, as described under proposed Article 20, Rule 8(h); proposed paragraph (f)(1)(B) provides that “LEAD MM” means a Market Maker assigned to a particular security that has committed to maintaining Minimum Performance Standards, described under proposed paragraph (f)(2), in the security; proposed paragraph (f)(1)(C) provides that “LEAD MM Security” means a security assigned to a LEAD MM; and proposed paragraph (f)(1)(D) provides that “Qualified Executions” means all executed shares at CHX, during the regular trading session,³³ resulting from single-sided orders, excluding any executed shares resulting from auctions.

11. Amend page 13 of the Initial Filing (pages 86 and 87 of the Exhibit 1):

Replace the first full paragraph (last paragraph on page 86 carrying over to page 87 of the Exhibit 1) with the following text, while retaining footnotes 34 and 35:

Proposed paragraph (f)(2) provides that “Minimum Performance Standards” means the Quotation Requirements and Obligations described under current paragraph (d),³⁴ which provides the current quoting and pricing obligations for Market Makers, with the following modifications, which are subject to monthly compliance reviews by the Exchange and certain trading day exclusions described under proposed paragraph (f)(3)(D) below.³⁵

12. Amend page 18 of the Initial Filing (pages 91 and 92 of the Exhibit 1):

Replace the first paragraph (last paragraph on page 91 carrying over to page 92 of the Exhibit 1) with the following text:

Proposed paragraph (f)(3)(D) provides that the Exchange will review each LEAD MM’s quoting and trading activity on a monthly basis to determine whether the LEAD MM has met the Minimum Performance Standards for each of its LEAD MM Securities; provided, however, that trading days on which a LEAD MM was prohibited by CHX Rules from submitting orders from its applicable Valid LEAD MM Trading Account shall be excluded from such review. Also, a LEAD MM’s failure to meet the Minimum Performance Standards during any given month will result in the Exchange (i) suspending or terminating a LEAD MM’s registration as a Market Maker pursuant to current Article 16, Rule 1(d) or (ii) suspending or terminating assignment to a LEAD MM Security pursuant to proposed subparagraph (A) above. In addition, nothing in proposed subparagraph (D) will limit any other power of the Exchange to discipline a LEAD MM pursuant to CHX Rules.

The Exchange believes that excluding trading days on which a LEAD MM was prohibited by CHX Rules from submitting orders (e.g., trading days on which LEAD MMs were suspended from LEAD MM activities or was subject to a voluntary withdrawal) from the monthly review is appropriate, as a LEAD MM would not be permitted to submit orders or maintain quotes on such days and it would be unreasonable to include such days in the Exchange’s review of a LEAD MM’s compliance with the proposed Minimum Performance Standards.

13. Amend page 22 of the Initial Filing (page 96 of the Exhibit 1):

Replace the second to last sentence of the first carryover paragraph from the previous page with the following text, while retaining footnote 59:

LEAD shall apply to all securities traded on the Exchange.⁵⁹

* * *

EXHIBIT 4

Text that has been added to the Partial Amendment No. 1 of September 19, 2017 is double underlined; text that has been deleted has been identified with ~~strike-through~~ formatting.

RULES OF THE CHICAGO STOCK EXCHANGE, INC.

* * *

ARTICLE 1. Definitions and General Information

* * *

Rule 2. Order Types, Modifiers, and Related Terms

Unless otherwise specifically defined elsewhere in the CHX Rules, the following terms shall have the respective meanings ascribed to them, for purposes of all CHX Rules. Order modifiers listed under Article 18, Rule 1(b)(2)(D) shall not be active for a security that is subject to a SNAP Cycle, as described under Article 18, Rule 1.

* * *

(b) *Order Execution Modifiers.* One or more order execution modifiers may be applied to a general order type, subject to the requirements of Article 20, Rule 4, so long as the modifier is compatible with the general order type and other applicable order modifiers/terms.

(1) – (2) Unchanged

(3) *Applicable to Multiple Order Types*

(A) – (E) Unchanged

(F) Match Trade Prevention (“MTP”) Modifier

(i) – (ii) Unchanged

(iii) *MTP Actions.* An MTP Trading Group must be assigned a default MTP Action. The following MTP Actions may be applied to any incoming limit or market orders at the MTP Trading Group level as a default or at the individual order level *ad hoc*:

(a) *MTP Cancel New[Incoming] (“N”)*: An incoming limit or market order marked “N” will not execute against opposite side resting interest originating from the same MTP Trading Group or MTP sublevel, if applicable. Only the newer[incoming] order will be cancelled pursuant to MTP; provided, however, that the incoming order will be cancelled, even if it is not the newer order, in the event MTP is triggered by the incoming order being price slid pursuant to the CHX Only Price Sliding Processes.

(b) *MTP Cancel Old[Resting] (“O”)*: An incoming limit or market order marked “O” will not execute against opposite side resting interest originating from the same MTP Trading Group or MTP sublevel, if applicable. Only the older[resting] order will be cancelled pursuant to MTP; provided, however, that the resting order will be cancelled, even if it is not the older order, in the event MTP is triggered by the incoming order being price slid pursuant to the CHX Only Price Sliding Processes.

* * *

ARTICLE 16. Market Makers

* * *

Rule 4. Obligations of Market Makers

(a) – (e) Unchanged

(f) LEAD Market Maker Program

(1) Definitions. For the purposes of this paragraph (f), the terms set forth below shall have the following meanings:

(A) “LEAD” means the Liquidity Enhancing Access Delay, as described under Article 20, Rule 8(h).

(B) “LEAD MM” means a Market Maker assigned to a LEAD MM Security that has committed to maintaining Minimum Performance Standards, described under paragraph (f)(2) below, in the security.

(C) “LEAD MM Security” means a security assigned to a LEAD MM.

(D) “Qualified Executions” means all executed shares at CHX, during all trading the regular trading sessions, resulting from single-sided orders, excluding any executed shares resulting from auctions.

(2) “Minimum Performance Standards” means the Quotation Requirements and Obligations described under paragraph (d) above with the following modifications, which are subject to monthly compliance reviews by the Exchange and certain trading day exclusions described under paragraph (f)(3)(D) below:

(A) The Designated Percentages described under paragraph (d)(2)(D) shall be halved.

(B) LEAD MMs shall maintain a Monthly Average NBBO Quoting Percentage, as defined below, in each of its LEAD MM Securities, of at least 10% over the course of a calendar month. For each such security, the Exchange will determine:

(i) the "Daily NBB Quoting Percentage" by determining the percentage of time the LEAD MM has at least one Round Lot of displayed interest in an Exchange bid at the NBB during the Open Trading State of each trading day for a calendar month;

(ii) the "Daily NBO Quoting Percentage" by determining the percentage of time the LEAD MM has at least one Round Lot of displayed interest in an Exchange offer at the NBO during the Open Trading State of each trading day for a calendar month;

(iii) the "Average Daily NBBO Quoting Percentage" for each trading day by summing the "Daily NBB Quoting Percentage" and the "Daily NBO Quoting Percentage" then dividing such sum by two; and

(iv) the "Monthly Average NBBO Quoting Percentage" for each security by summing the security's "Average Daily NBBO Quoting Percentages" for each trading day in a calendar month then dividing the resulting sum by the total number of trading days in such calendar month.

(C) A LEAD MM’s Qualified Executions in each of its LEAD MM Securities must comprise on an equally-weighted daily average at least 2% of all Qualified Executions in the same security over the course of a calendar month.

(D) At least 80% of the LEAD MM’s Qualified Executions in each of its LEAD MM Securities must result from its resting orders that originated from the corresponding LEAD MM Trading Account over the course of a calendar month.

(3) LEAD Market Makers

(A) Assignment of securities. Only a Market Maker may apply to be assigned one or more securities as a LEAD MM. Market Makers must receive written approval from the Exchange to be assigned securities as a LEAD MM. LEAD MMs shall be selected by the Exchange based on factors including, but not limited to, experience with making markets in securities, adequacy of capital, willingness to promote the Exchange as a marketplace, issuer preference, operational capacity, support personnel and history of adherence to Exchange rules and securities laws. Rules 2(c)-(e) above regarding withdrawal from assigned securities shall also apply to LEAD MMs and LEAD MM Securities.

(B) LEAD MM Trading Accounts. Before beginning LEAD market making activities in a security, a LEAD MM shall complete the following, subject to Exchange approval:

(i) Establish at least one separately designated LEAD MM Trading Account through which all and only LEAD market making activities in LEAD MM Securities shall originate.

(ii) Register each of its LEAD MM Securities to precisely one LEAD MM Trading Account (“Valid LEAD MM Trading Account”); provided, however, that a LEAD MM Trading Account may be registered with one or more LEAD MM Securities. All messages related to a single LEAD MM Security must originate from the Valid LEAD MM Trading Account on a given day. In the event a LEAD MM wishes to change the Valid LEAD MM Trading Account for a given LEAD MM Security, the LEAD MM shall so notify the Exchange in writing by no later than 9 a.m. on the trading day immediately preceding the effective date of the change; provided, however, that the Exchange may, at its discretion, delay or deny the change. No change of a Valid LEAD MM Trading Account for a given LEAD MM Security may be effected intraday.

(C) Number of LEAD MMs. The Exchange may, at its discretion, approve more than one LEAD MM to be assigned to any LEAD MM Security and limit the number of LEAD MMs assigned to any security.

(D) *Review of Minimum Performance Standards.* The Exchange will review each LEAD MM’s quoting and trading activity on a monthly basis to determine whether the LEAD MM has met the Minimum Performance Standards for each of its LEAD MM Securities; provided, however, that trading days on which a LEAD MM was prohibited by CHX Rules from submitting orders from its applicable Valid LEAD MM Trading Account shall be excluded from such review. A LEAD MM’s failure to meet the Minimum Performance Standards during any given month will result in the Exchange (i) suspending or terminating a LEAD MM’s registration as a Market Maker pursuant to Rule 1(d) above or (ii) suspending or terminating assignment to a LEAD MM Security pursuant to subparagraph (A) above. Nothing in this subparagraph (D) will limit any other power of the Exchange to discipline a LEAD MM pursuant to CHX Rules.

* * *

ARTICLE 20. Operation of the CHX Matching System

* * *

Rule 8. Operation of the Matching System

The Exchange's Matching System shall operate in the following manner:

* * *

(b) *Ranking and display of orders.* Orders shall be ranked and displayed as follows:

* * *

(7) Priority of unexecuted remainders of routed orders returned to the Matching System. An unexecuted remainder of a routed order returned to the Matching System in one or more parts shall be added to the existing balance of the related Routable Order already posted to the CHX book, the SNAP CHX book or the SNAP AOO Queue, as applicable. If no balance exists at the time a part of an unexecuted remainder of a routed order is returned to the Matching System, it shall be treated as an[new] incoming order, subject to Article 18, Rule 1(b)(3)(C).

* * *

(d) *Automated matching of orders.* Orders shall automatically match against each other, as follows:

(1) Except for certain orders which shall be executed as described in Rule 8(e), below, an incoming order shall be matched against one or more resting orders in the Matching System, in the order in which the resting orders are ranked on the CHX book, pursuant to Rule 8(b) above, at the Working Price of each resting order, as defined under Article 1, Rule 1(pp), for the full amount of shares available at that price, or for the size of the incoming order, if smaller; subject to paragraph (h) below.

* * *

(f) *Cancellation of orders.* Order cancellation messages submitted by Participants shall be handled as follows:

(1) Orders resting on the CHX book shall be immediately and automatically cancelled upon receipt of a cancellation message, subject to paragraph (h) below; provided, however, that cross orders cannot be cancelled or changed because they are always handled IOC; and

* * *

(h) *Liquidity Enhancing Access Delay* (“LEAD”). LEAD shall apply during the regular trading session only.

After initial receipt of a new incoming message, the Matching System will evaluate the message to determine whether it is a Delayable Message, as defined under paragraph (h)(1) below. For the purposes of this evaluation only, the Matching System shall not consider Match Trade Prevention (“MTP”), as defined under Article 1, Rule 2(b)(3)(F).

If not delayable, the Matching System will immediately process the message without delay.

If delayable, the message will be diverted into the LEAD queue and will remain delayed until it is released for processing. A delayed message shall become releasable 350 microseconds after initial receipt by the Exchange (“Fixed LEAD Period”), but shall only be processed after the Matching System has evaluated and processed, if applicable, all messages in the security received by the Exchange during the Fixed LEAD Period for the delayed message. A message may be delayed for longer than the Fixed LEAD Period depending on the then-current messaging volume at CHX. The Matching System will utilize a new market snapshot to process a released order.

A delayed message shall retain its original sequence number and may only be delayed once. LEAD shall apply to all securities traded on the Exchange throughout the trading day. LEAD shall not apply to messages received during an auction.

(1) For the purposes of this paragraph (h), “Delayable Messages” means all new incoming order, cancel and cancel/replace messages, except as follows:

(A) Any new incoming order or unrouted balance, as described under subparagraph (D) below, that originates from a Valid LEAD MM Trading Account, as described under Article 16, Rule 4(f)(3)(B)(ii), that would, by its terms, immediately be ranked on the CHX book without executing against any existing resting orders on the CHX book shall not be a Delayable Message.

(B) A cancel message related to a resting order that originates from a Valid LEAD MM Trading Account shall not be a Delayable Message.

(C) A cancel/replace message related to a resting order that originates from a Valid LEAD MM Trading Account shall not be a Delayable Message; provided, however, that if any part of the replace portion would immediately execute against existing resting orders on the CHX book, the replace portion shall be a Delayable Message.

(D) The portion of a Routable Order that is to be routed away pursuant to Article 19, Rule 3(a) shall not be diverted into the LEAD; provided, however, that the entire unrouted balance of the Routable Order shall be diverted into the LEAD, subject to subparagraph (A).

(2) *LEAD Pilot Program Generally.* This Article 20, Rule 8(h) and Article 16, Rule 4(f) (“LEAD Rules”) shall operate for a pilot period of 24 months from the date of implementation, which shall occur on a date after the approval of the LEAD Rules by the Commission, pursuant to notice to Participants.

(3) *LEAD Pilot Program Data Collection, Analysis and Publication*

(A) *Data Collection and Analysis.* In connection with the Program, the Exchange shall collect (i) Quote Quality Statistics, as defined under paragraph (h)(4) below, for each security per trading day and per Period of Exceptional Volatility* Range (“PEV Range”)~~(if applicable)~~, for the six months immediately preceding the Program date of implementation and the duration of the Program; (ii) Matched Trade Difference Statistics, as defined under paragraph (h)(5) below, for each LEAD MM Security per trading day and per PEV Range~~(if applicable)~~, for the duration of the Program; (iii) Volume Statistics, as defined under

paragraph (h)(6) below, for each LEAD MM Security per trading day and per PEV Range (if applicable), for the duration of the Program; (iv) Variable Processing Delay Statistics, as defined under paragraph (h)(7) below, for each LEAD MM Security per trading day and per PEV Range (if applicable), for the duration of the Program; and (v) Effective Spread Statistics, as defined under paragraph (8) below, for each LEAD MM Security per trading day and per PEV Range (if applicable), for the duration of the Program. By no later than the end of the 18th month of the Program, the Exchange will provide the Commission with an analysis of data collected pursuant to the Program, which will be made publically available.

*Period of Exceptional Volatility (“PEV”) means a one second interval during which a percentage change in the NBBO midpoint for the security equaled or exceeded two standard deviations (“ σ ”) from the mean. Each trading day, the Exchange will calculate a reference mean and standard deviation from consecutive one second time intervals during the regular trading session. Each daily reference mean and standard deviation will be applied to measure PEV on the following trading day. Each PEV will be categorized into one of five PEV Ranges, which are as follows: 2 = PEV greater than or equal to 2σ and less than 3σ ; 3 = PEV greater than or equal to 3σ and less than 4σ ; 4 = PEV greater than or equal to 4σ and less than 5σ ; and 5 = PEV greater than or equal to 5σ .

(B) *Data to the Commission.* By no later than the end of the second month of the Program, the Exchange shall provide the Commission with the data described under paragraphs (h)(4) – (8) for the first month of the Program. By the end of each month thereafter, the Exchange shall provide the Commission with the data described under paragraphs (h)(4) – (8) from the previous month.

(C) *Data Publication.* By no later than the end of the sixth month of the Program, the Exchange shall publish on the CHX website an anonymized version of the data collected pursuant to ~~statistics based on~~ paragraphs (h)(4) – (8), in a manner consistent with CHX Rules, for each prior month of the Program. By the end of each month thereafter, the Exchange shall publish on the CHX website an anonymized version of the data collected pursuant to ~~statistics based on~~ paragraphs (h)(4) – (8) from the previous month. On the first day of the Program, the Exchange shall publish on the CHX website each LEAD MM Security and the number of LEAD MMs assigned to each security, which will be updated daily for the duration of the Program.

(4) *Quote Quality Statistics.* The purpose of the Quote Quality Statistics is to provide comparative data regarding the effect of LEAD on market quality. Quote Quality Statistics shall include, at least, the following data fields, as applicable:

<u>Field #</u>	<u>Field Name</u>	<u>Description</u>
<u>1</u>	<u>Symbol</u>	
<u>1A</u>	<u>Primary Matching Location</u>	C = Chicago (CH2) N = New Jersey (NY4)
<u>2</u>	<u>TradeDate</u>	
<u>2A</u>	<u>PEVRange</u>	Blank = All regular session data 2 = PEV data greater than or equal to 2σ and less than 3σ 3 = PEV data greater than or equal to 3σ and less than 4σ 4 = PEV data greater than or equal to 4σ and less than 5σ 5 = PEV data greater than or equal to 5σ
<u>3</u>	<u>NLMMs</u>	The number of LMMs assigned to this Symbol on this Trade Date.
<u>4A</u>	<u>TimeRegSessScheduled</u>	The total scheduled time of the regular trading session for this Symbol for this TradeDate.
<u>4B</u>	<u>TimeRegSessActual</u>	The total actual time of the regular trading session for this Symbol for this TradeDate. Time during regulatory trading halts is not included in this total.
<u>5</u>	<u>TimeCHXBidPresent</u>	The total time during the regular trading session that CHX has a protected bid.
<u>5L</u>	<u>TimeCHXBidPresentLMM</u>	The total time during the regular trading session that CHX has a protected bid and one or more LMMs are included in the CHX protected bid price.
<u>6</u>	<u>TimeCHXBidMissing</u>	The total time during the regular trading session that CHX does not have a protected bid.

<u>Field #</u>	<u>Field Name</u>	<u>Description</u>
<u>7</u>	<u>TimeCHXBidOnNBB</u>	<u>The total time during the regular trading session that CHX has a protected bid equal to the NBB price.</u>
<u>7L</u>	<u>TimeCHXBidOnNBBLMM</u>	<u>The total time during the regular trading session that CHX has a protected bid equal to the NBB price and one or more LMMs are included in the NBB price.</u>
<u>8</u>	<u>TimeCHXBidNamed</u>	<u>The total time during the regular trading session that CHX has a protected bid equal to the NBB price and CHX is shown as the NBB.</u>
<u>8L</u>	<u>TimeCHXBidNamed</u>	<u>The total time during the regular trading session that CHX has a protected bid equal to the NBB price and CHX is shown as the NBB and one or more LMMs are included in the NBB price.</u>
<u>9</u>	<u>TimeCHXBidAlone</u>	<u>The total time during the regular trading session that CHX has a protected bid that is the only bid at the NBB price.</u>
<u>9L</u>	<u>TimeCHXBidAloneLMM</u>	<u>The total time during the regular trading session that CHX has a protected bid that is the only protected bid at the NBB price and one or more LMMs are included in the NBB price.</u>
<u>10</u>	<u>TimeCHXAskPresent</u>	<u>The total time during the regular trading session that CHX has a protected offer.</u>
<u>10L</u>	<u>TimeCHXAskPresentLMM</u>	<u>The total time during the regular trading session that CHX has a protected offer and one or more LMMs are included in the CHX protected offer.</u>

<u>Field #</u>	<u>Field Name</u>	<u>Description</u>
<u>11</u>	<u>TimeCHXAskMissing</u>	<u>The total time during the regular trading session that CHX does not have a protected offer.</u>
<u>12</u>	<u>TimeCHXAskOnNBO</u>	<u>The total time during the regular trading session that CHX has a protected offer equal to the NBO price.</u>
<u>12L</u>	<u>TimeCHXAskOnNBOLMM</u>	<u>The total time during the regular trading session that CHX has a protected offer equal to the NBO price and one or more LMMs are included in the NBO price.</u>
<u>13</u>	<u>TimeCHXAskNamed</u>	<u>The total time during the regular trading session that CHX has a protected offer equal to the NBO price and CHX is shown as the NBO.</u>
<u>13L</u>	<u>TimeCHXAskNamedLMM</u>	<u>The total time during the regular trading session that CHX has a protected offer equals to the NBO price and CHX is shown as the NBO and one or more LMMs are included in the NBO price.</u>
<u>14</u>	<u>TimeCHXAskAlone</u>	<u>The total time during the regular trading session that CHX has a protected offer that is the only protected offer at the NBO price.</u>
<u>14L</u>	<u>TimeCHXAskAloneLMM</u>	<u>The total time during the regular trading session that CHX has a protected offer that is the only protected offer at the NBO price and one or more LMMs are included in the NBO price.</u>
<u>15</u>	<u>TimeCHXNoQuote</u>	<u>The total time during the regular trading session that CHX has neither a protected bid nor a protected offer.</u>

<u>Field #</u>	<u>Field Name</u>	<u>Description</u>
<u>16</u>	<u>TimeCHXTwoSided</u>	<u>The total time during the regular trading session that CHX has both a protected bid and a protected offer.</u>
<u>17</u>	<u>TimeNBBOUncrossed</u>	<u>The total time during the regular trading session that the NBBO is not crossed.</u>
<u>18</u>	<u>Time-weightedCHXBid Differential</u>	<u>The time-weighted average difference between the CHX protected bid price and the NBB price when a CHX protected bid is present during the regular trading session.</u>
<u>19</u>	<u>Time-weightedCHXBid SizeOnNBB</u>	<u>The time-weighted average CHX protected bid size when the CHX protected bid price equals the NBB price during the regular trading session.</u>
<u>19L</u>	<u>Time-weightedCHXBid SizeOnNBBLMM</u>	<u>The time-weighted average LMM percentage of the CHX protected bid size when the CHX protected bid price equals the NBB price during the regular trading session.</u>
<u>20</u>	<u>Time-weightedCHXBid SizeWhenNamed</u>	<u>The time-weighted average CHX protected bid size when the CHX protected bid price equals the NBB price during the regular trading session.</u>
<u>20L</u>	<u>Time-weightedCHXBid SizeWhenNamed</u>	<u>The time-weighted average LMM percentage of CHX protected bid size when the CHX protected bid price equals the NBB price during the regular trading session.</u>

<u>Field #</u>	<u>Field Name</u>	<u>Description</u>
<u>21</u>	<u>Time-weightedCHXBid SizeWhenAlone</u>	<u>The time-weighted average LMM percentage of CHX protected bid size when the CHX protected bid is the only protected bid at the NBB price during the regular trading session.</u>
<u>21L</u>	<u>Time-weightedCHXBid SizeWhenAloneLMM</u>	<u>The time-weighted average CHX protected bid size when the CHX protected bid is the only protected bid at the NBB price during the regular trading session.</u>
<u>22</u>	<u>Time-weightedCHXPctOfBid SizeWhenOnNBB</u>	<u>The time-weighted average percentage of all protected quotations at the NBB price when the CHX protected bid price equals the NBB price.</u>
<u>23</u>	<u>Time-weightedCHXAsk Differential</u>	<u>The time-weighted average difference between the CHX protected offer price and the NBO price when a CHX protected offer is present during the regular trading session.</u>
<u>24</u>	<u>Time-weightedCHXAsk SizeOnNBO</u>	<u>The time-weighted average CHX protected offer size when the CHX protected offer price equals the NBO price during the regular trading session.</u>
<u>24L</u>	<u>Time-weightedCHXAsk SizeOnNBOLMM</u>	<u>The time-weighted average LMM percentage of CHX protected offer size when the CHX protected offer price equals the NBO price during the regular trading session.</u>
<u>25</u>	<u>Time-weightedCHXAsk SizeWhenNamed</u>	<u>The time-weighted average CHX protected offer size when the CHX protected offer price equals the NBO price during the regular trading session.</u>

<u>Field #</u>	<u>Field Name</u>	<u>Description</u>
<u>25L</u>	<u>Time-weightedCHXAsk SizeWhenNamedLMM</u>	<u>The time-weighted average LMM percentage of CHX protected offer size when the CHX protected offer price equals the NBO price during the regular trading session.</u>
<u>26</u>	<u>Time-weightedCHXAsk SizeWhenAlone</u>	<u>The time-weighted average CHX protected offer size when the CHX protected offer is the only protected offer at the NBO price during the regular trading session.</u>
<u>26L</u>	<u>Time-weightedCHXAsk SizeWhenAloneLMM</u>	<u>The time-weighted average LMM percentage of CHX protected offer size when the CHX protected offer is the only protected offer at the NBO price during the regular trading session.</u>
<u>27</u>	<u>Time-weightedCHXPctOfAsk SizeWhenOnNBO</u>	<u>The time-weighted average percentage of all protected quotation size at the NBO price when CHX protected offer price equals the NBO price.</u>
<u>28</u>	<u>Time-weightedCHX BBOSpread</u>	<u>The time-weighted average difference between the CHX protected bid price and the CHX protected offer price when CHX is displaying a two-sided protected quotation.</u>
<u>29</u>	<u>Time-WeightedNBBOSpread</u>	<u>The time-weighted average difference between the NBB price and the NBO price when a two-sided NBBO exists.</u>

(5) Matched Trade Difference Statistics. The purpose of the Matched Trading Difference Statistics is to provide comparative data regarding how Qualified Orders received by CHX would have been handled if LEAD had not been in effect. For the purposes of this rule, “Qualified Orders” shall mean all new single-sided orders received by the Exchange during the regular trading session that were delayed, including cancel/replace messages where one or both of the components were delayed, excluding

orders that would not have been immediately executable upon initial receipt and any orders that could only be executed within an auction.

(A) Groups. Each Qualified Order will be categorized into one of the following four groups:

(i) Group 1: orders with at least a partial execution upon initial processing by the Matching System that would have had the same number of shares executed with or without LEAD;

(ii) Group 2: orders with at least a partial execution upon initial processing by the Matching System that had fewer executed shares with LEAD than it would have had without LEAD;

(iii) Group 3: orders with at least a partial execution upon initial processing by the Matching System that had more executed shares with LEAD than it would have had without LEAD; and

(iv) Group 4: orders with no executed shares upon initial processing by the Matching System with LEAD.

(B) Match Trade Difference Statistics shall include, at least, the following data fields, as applicable:

<u>Field #</u>	<u>Field Name</u>	<u>Description</u>
<u>1</u>	<u>Symbol</u>	
<u>1A</u>	<u>Primary Matching Location</u>	<u>C = Chicago (CH2)</u> <u>N = New Jersey (NY4)</u>
<u>2</u>	<u>TradeDate</u>	

<u>Field #</u>	<u>Field Name</u>	<u>Description</u>												
<u>2A</u>	<u>PEVRange</u>	<p><u>Blank = All regular session data</u> <u>2 = PEV data greater than or equal to 2σ and less than 3σ</u> <u>3 = PEV data greater than or equal to 3σ and less than 4σ</u> <u>4 = PEV data greater than or equal to 4σ and less than 5σ</u> <u>5 = PEV data greater than or equal to 5σ</u></p>												
<u>3</u>	<u>InboundTradingAccount</u>	<u>The Trading Account of the inbound order.</u>												
<u>3A</u>	<u>NLMMs</u>	<u>The number of LMMs assigned to this Symbol on this Trade Date.</u>												
<u>4</u>	<u>CapacityCode</u>	<p><u>This field will include the following codes:</u></p> <table> <thead> <tr> <th><u>Code</u></th> <th><u>Meaning</u></th> </tr> </thead> <tbody> <tr> <td><u>A</u></td> <td><u>Agency</u></td> </tr> <tr> <td><u>L</u></td> <td><u>LEAD Market Maker</u></td> </tr> <tr> <td><u>M</u></td> <td><u>Market Maker (not LEAD)</u></td> </tr> <tr> <td><u>P</u></td> <td><u>Principal</u></td> </tr> <tr> <td><u>R</u></td> <td><u>Riskless Principal</u></td> </tr> </tbody> </table>	<u>Code</u>	<u>Meaning</u>	<u>A</u>	<u>Agency</u>	<u>L</u>	<u>LEAD Market Maker</u>	<u>M</u>	<u>Market Maker (not LEAD)</u>	<u>P</u>	<u>Principal</u>	<u>R</u>	<u>Riskless Principal</u>
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<u>5</u>	<u>ISOCode</u>	<table> <thead> <tr> <th><u>Code</u></th> <th><u>Meaning</u></th> </tr> </thead> <tbody> <tr> <td><u>N</u></td> <td><u>Not an ISO order</u></td> </tr> <tr> <td><u>Y</u></td> <td><u>An ISO order</u></td> </tr> </tbody> </table>	<u>Code</u>	<u>Meaning</u>	<u>N</u>	<u>Not an ISO order</u>	<u>Y</u>	<u>An ISO order</u>						
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<u>Field #</u>	<u>Field Name</u>	<u>Description</u>										
<u>6</u>	<u>TimeInForceCode</u>	<table> <tr> <td><u>Code</u></td> <td><u>Meaning</u></td> </tr> <tr> <td><u>0</u></td> <td><u>DAY or equivalent</u></td> </tr> <tr> <td><u>3</u></td> <td><u>IOC</u></td> </tr> <tr> <td><u>4</u></td> <td><u>FOK</u></td> </tr> <tr> <td><u>9</u></td> <td><u>Other (includes auction)</u></td> </tr> </table>	<u>Code</u>	<u>Meaning</u>	<u>0</u>	<u>DAY or equivalent</u>	<u>3</u>	<u>IOC</u>	<u>4</u>	<u>FOK</u>	<u>9</u>	<u>Other (includes auction)</u>
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<u>4</u>	<u>FOK</u>											
<u>9</u>	<u>Other (includes auction)</u>											
<u>7</u>	<u>GROUP1_NO</u>	<u>The number of orders (“NO”) in Group 1.</u>										
<u>8</u>	<u>GROUP1_NTS</u>	<u>The total number of shares on all orders (“NTS”) in Group 1.</u>										
<u>9</u>	<u>GROUP1_NSE = GROUP1_NSEW</u>	<u>The total number of shares immediately executed upon initial processing by the Matching System on all orders (“NSE”) in Group 1, which will always be equal to the total number of shares that would have been immediately executed upon initial processing by the Matching System had LEAD not been in effect (“NSEW”).</u>										
<u>10</u>	<u>GROUP2_NO</u>	<u>NO in Group 2.</u>										
<u>11</u>	<u>GROUP2_NTS</u>	<u>NTS in Group 2.</u>										
<u>12</u>	<u>GROUP2_NSE</u>	<u>NSE in Group 2.</u>										
<u>13</u>	<u>GROUP2_NSEW</u>	<u>NSEW on all orders in Group 2.</u>										
<u>14</u>	<u>GROUP3_NO</u>	<u>NO in Group 3.</u>										
<u>15</u>	<u>GROUP3_NTS</u>	<u>NTS in Group 3.</u>										
<u>16</u>	<u>GROUP3_NSE</u>	<u>NSE in Group 3.</u>										
<u>17</u>	<u>GROUP3_NSEW</u>	<u>NSEW on all orders in Group 3.</u>										
<u>18</u>	<u>GROUP4_NO</u>	<u>NO in Group 4.</u>										

<u>Field #</u>	<u>Field Name</u>	<u>Description</u>
<u>19</u>	<u>GROUP4_NTS</u>	<u>NTS in Group 4.</u>
<u>:</u>	<u>GROUP4_NSE</u>	<u>This value will always be zero and not included.</u>
<u>20</u>	<u>GROUP4_NSEW</u>	<u>NSEW on all orders in Group 4.</u>
<u>21</u>	<u>LMMProvideOrderExecutedAheadOfDelayedNonLMMProvideOrder</u>	<u>Frequency at which an LMM provider order ranked on the CHX book executes ahead of a precedent non-LMM order (with the same side and price as the LMM order) that would have been immediately ranked on the CHX book if it had originated from a LEAD MM Trading Account, but was delayed.</u>

(6) Volume Statistics. The purpose of the Volume Statistics is to measure the impact of LEAD on execution volume in an LEAD MM Security, which includes the following: (A) daily number of LEAD MMs assigned; (B) total single-sided volume on CHX; (C) total market wide single-sided volume; (D) total single-sided volume on CHX attributed to LEAD MMs as providers; and (E) the primary matching location for the security.

(7) Variable Processing Delay Statistics. The purpose of the Variable Processing Delay Statistics is to provide comparative data regarding the variable delay between the initial receipt of an order and the time at which the order is eligible to be matched by Matching System. The statistics will be divided into three order origin categories: -1- orders from Participants that are not LEAD MMs; -2- liquidity taking orders from LEAD MMs; and -3- undelayed liquidity providing orders that would provide liquidity only from LEAD MMs. For each order origin category, the Exchange will collect the following: the number of orders with a variable delay -1- the number of orders with a variable delay less than 50 μ s and the average delay time; -2- the number of orders with a variable delay equal to or greater than 50 μ s, but less than 150 μ s, and the average delay time; and -3- the number of orders with a variable delay equal to or greater than 150 μ s, but less than 250 μ s and the average delay time; -4- equal to or greater than 250 μ s, but less than 350 μ s, and the average delay time; -5- equal to or greater than 350 μ s and the average delay time.

(8) Effective Spread Statistics. The purpose of the Effective Spread Statistics is to measure the impact of LEAD on CHX and NMS Effective Spreads. For the purposes of this rule, “Eligible Trades” shall mean executions attributed to single-sided orders with regular settlement terms received during the regular trading session when a two-sided and uncrossed NBBO disseminated by the relevant Securities Information Processor (“SIP NBBO”) was present. The Effective Spreads Statistics shall include, at least, the following data fields, as applicable:

<u>Field #</u>	<u>Field Name</u>	<u>Description</u>
<u>1</u>	<u>Symbol</u>	
<u>1A</u>	<u>Primary Matching Location</u>	C = Chicago (CH2) N = New Jersey (NY4)
<u>2</u>	<u>Date</u>	
<u>2A</u>	<u>PEVRange</u>	Blank = All regular session data <u>2 = PEV data greater than or equal to 2σ and less than 3σ</u> <u>3 = PEV data greater than or equal to 3σ and less than 4σ</u> <u>4 = PEV data greater than or equal to 4σ and less than 5σ</u> <u>5 = PEV data greater than or equal to 5σ</u>
<u>3</u>	<u>NLMMs</u>	Number of LMMs assigned to symbol
<u>4</u>	<u>TradeSizeBracket</u>	<u>1 = 1 – 499</u> <u>2 = 500-1999</u> <u>3 = 2000 – 4999</u> <u>4 = 5000 – 9999</u> <u>5 = =10,000 or more</u>
<u>5</u>	<u>CHXNTrades</u>	<u>For Eligible Trades reported by CHX in TradeSizeBracket, the number of Eligible Trades reported.</u>

<u>Field #</u>	<u>Field Name</u>	<u>Description</u>
<u>6</u>	<u>CHXNShares</u>	For Eligible Trades reported by CHX in <u>TradeSizeBracket</u> , number of shares attributed to Eligible Trades reported.
<u>7</u>	<u>SW CHX EffectiveSpread</u>	For Eligible Trades reported by CHX in <u>TradeSizeBracket</u> : Share-Weighted ($2 * Trade Price - SIP NBBO Midpoint $)
<u>8</u>	<u>SW CHX EffectiveSpreadIndex</u>	For qualified trades reported by CHX in <u>TradeSizeBracket</u> : CHX Effective Spread divided by the SIP NBBO at Participant Trade Report Time
<u>9</u>	<u>NMSNTrades</u>	For Eligible Trades reported by SIP, the number of trades reported.
<u>10</u>	<u>NMSNShares</u>	For Eligible Trades reported by SIP in <u>TradeSizeBracket</u> , the number of shares reported.
<u>11</u>	<u>SW NMS EffectiveSpread</u>	For Eligible Trades reported by SIP in <u>TradeSizeBracket</u> : Share-Weighted ($2 * Trade Price - SIP NBBO Midpoint $)
<u>12</u>	<u>SW NMS EffectiveSpreadIndex</u>	For Eligible Trades reported by SIP in <u>TradeSizeBracket</u> : NMS Effective Spread divided by the SIP NBBO at Participant Trade Report Time

* * *

EXHIBIT 5

Additions are underlined; deleted text is [in brackets]

RULES OF THE CHICAGO STOCK EXCHANGE, INC.

* * *

ARTICLE 1. Definitions and General Information

* * *

Rule 2. Order Types, Modifiers, and Related Terms

Unless otherwise specifically defined elsewhere in the CHX Rules, the following terms shall have the respective meanings ascribed to them, for purposes of all CHX Rules. Order modifiers listed under Article 18, Rule 1(b)(2)(D) shall not be active for a security that is subject to a SNAP Cycle, as described under Article 18, Rule 1.

* * *

(b) *Order Execution Modifiers.* One or more order execution modifiers may be applied to a general order type, subject to the requirements of Article 20, Rule 4, so long as the modifier is compatible with the general order type and other applicable order modifiers/terms.

(1) – (2) Unchanged

(3) *Applicable to Multiple Order Types*

(A) – (E) Unchanged

(F) Match Trade Prevention (“MTP”) Modifier

(i) – (ii) Unchanged

(iii) *MTP Actions.* An MTP Trading Group must be assigned a default MTP Action. The following MTP Actions may be applied to any incoming limit or market orders at the MTP Trading Group level as a default or at the individual order level *ad hoc*:

(a) *MTP Cancel New[Incoming]* (“N”): An incoming limit or market order marked “N” will not execute against opposite side resting interest originating from the same MTP Trading Group or MTP sublevel, if applicable. Only the newer[incoming] order will be cancelled pursuant to MTP; provided, however, that the incoming order will be cancelled, even if it is not the newer order, in the event MTP is triggered by the incoming order being price slid pursuant to the CHX Only Price Sliding Processes.

(b) *MTP Cancel Old[Resting]* (“O”): An incoming limit or market order marked “O” will not execute against opposite side resting interest originating from the same MTP Trading Group or MTP sublevel, if applicable. Only the older[resting] order will be cancelled pursuant to MTP; provided, however, that the resting order will be cancelled, even if it is not the older order, in the event MTP is triggered by the incoming order being price slid pursuant to the CHX Only Price Sliding Processes.

* * *

ARTICLE 16. Market Makers

* * *

Rule 4. Obligations of Market Makers

(a) – (e) Unchanged

(f) LEAD Market Maker Program

(1) Definitions. For the purposes of this paragraph (f), the terms set forth below shall have the following meanings:

(A) “LEAD” means the Liquidity Enhancing Access Delay, as described under Article 20, Rule 8(h).

(B) “LEAD MM” means a Market Maker assigned to a LEAD MM Security that has committed to maintaining Minimum Performance Standards, described under paragraph (f)(2) below, in the security.

(C) “LEAD MM Security” means a security assigned to a LEAD MM.

(D) “Qualified Executions” means all executed shares at CHX, during the regular trading session, resulting from single-sided orders, excluding any executed shares resulting from auctions.

(2) “Minimum Performance Standards” means the Quotation Requirements and Obligations described under paragraph (d) above with the following modifications, which are subject to monthly compliance reviews by the Exchange and certain trading day exclusions described under paragraph (f)(3)(D) below:

(A) The Designated Percentages described under paragraph (d)(2)(D) shall be halved.

(B) LEAD MMs shall maintain a Monthly Average NBBO Quoting Percentage, as defined below, in each of its LEAD MM Securities, of at least 10% over the course of a calendar month. For each such security, the Exchange will determine:

(i) the "Daily NBB Quoting Percentage" by determining the percentage of time the LEAD MM has at least one Round Lot of displayed interest in an Exchange bid at the NBB during the Open Trading State of each trading day for a calendar month;

(ii) the "Daily NBO Quoting Percentage" by determining the percentage of time the LEAD MM has at least one Round Lot of displayed interest in an Exchange offer at the NBO during the Open Trading State of each trading day for a calendar month;

(iii) the "Average Daily NBBO Quoting Percentage" for each trading day by summing the "Daily NBB Quoting Percentage" and the "Daily NBO Quoting Percentage" then dividing such sum by two; and

(iv) the "Monthly Average NBBO Quoting Percentage" for each security by summing the security's "Average Daily NBBO Quoting Percentages" for each trading day in a calendar month then dividing the resulting sum by the total number of trading days in such calendar month.

(C) A LEAD MM’s Qualified Executions in each of its LEAD MM Securities must comprise on an equally-weighted daily average at least 2% of all Qualified Executions in the same security over the course of a calendar month.

(D) At least 80% of the LEAD MM’s Qualified Executions in each of its LEAD MM Securities must result from its resting orders that originated from

the corresponding LEAD MM Trading Account over the course of a calendar month.

(3) LEAD Market Makers

(A) Assignment of securities. Only a Market Maker may apply to be assigned one or more securities as a LEAD MM. Market Makers must receive written approval from the Exchange to be assigned securities as a LEAD MM. LEAD MMs shall be selected by the Exchange based on factors including, but not limited to, experience with making markets in securities, adequacy of capital, willingness to promote the Exchange as a marketplace, issuer preference, operational capacity, support personnel and history of adherence to Exchange rules and securities laws. Rules 2(c)-(e) above regarding withdrawal from assigned securities shall also apply to LEAD MMs and LEAD MM Securities.

(B) LEAD MM Trading Accounts. Before beginning LEAD market making activities in a security, a LEAD MM shall complete the following, subject to Exchange approval:

(i) Establish at least one separately designated LEAD MM Trading Account through which all and only LEAD market making activities in LEAD MM Securities shall originate.

(ii) Register each of its LEAD MM Securities to precisely one LEAD MM Trading Account (“Valid LEAD MM Trading Account”); provided, however, that a LEAD MM Trading Account may be registered with one or more LEAD MM Securities. All messages related to a single LEAD MM Security must originate from the Valid LEAD MM Trading Account on a given day. In the event a LEAD MM wishes to change the Valid LEAD MM Trading Account for a given LEAD MM Security, the LEAD MM shall so notify the Exchange in writing by no later than 9 a.m. on the trading day immediately preceding the effective date of the change; provided, however, that the Exchange may, at its discretion, delay or deny the change. No change of a Valid LEAD MM Trading Account for a given LEAD MM Security may be effected intraday.

(C) Number of LEAD MMs. The Exchange may, at its discretion, approve more than one LEAD MM to be assigned to any LEAD MM Security and limit the number of LEAD MMs assigned to any security.

(D) Review of Minimum Performance Standards. The Exchange will review each LEAD MM’s quoting and trading activity on a monthly basis to

determine whether the LEAD MM has met the Minimum Performance Standards for each of its LEAD MM Securities; provided, however, that trading days on which a LEAD MM was prohibited by CHX Rules from submitting orders from its applicable Valid LEAD MM Trading Account shall be excluded from such review. A LEAD MM’s failure to meet the Minimum Performance Standards during any given month will result in the Exchange (i) suspending or terminating a LEAD MM’s registration as a Market Maker pursuant to Rule 1(d) above or (ii) suspending or terminating assignment to a LEAD MM Security pursuant to subparagraph (A) above. Nothing in this subparagraph (D) will limit any other power of the Exchange to discipline a LEAD MM pursuant to CHX Rules.

* * *

ARTICLE 20. Operation of the CHX Matching System

* * *

Rule 8. Operation of the Matching System

The Exchange's Matching System shall operate in the following manner:

* * *

(b) *Ranking and display of orders.* Orders shall be ranked and displayed as follows:

* * *

(7) *Priority of unexecuted remainders of routed orders returned to the Matching System.* An unexecuted remainder of a routed order returned to the Matching System in one or more parts shall be added to the existing balance of the related Routable Order already posted to the CHX book, the SNAP CHX book or the SNAP AOO Queue, as applicable. If no balance exists at the time a part of an unexecuted remainder of a routed order is returned to the Matching System, it shall be treated as an an[new] incoming order, subject to Article 18, Rule 1(b)(3)(C).

* * *

(d) *Automated matching of orders.* Orders shall automatically match against each other, as follows:

(1) Except for certain orders which shall be executed as described in Rule 8(e), below, an incoming order shall be matched against one or more resting

orders in the Matching System, in the order in which the resting orders are ranked on the CHX book, pursuant to Rule 8(b) above, at the Working Price of each resting order, as defined under Article 1, Rule 1(pp), for the full amount of shares available at that price, or for the size of the incoming order, if smaller; subject to paragraph (h) below.

* * *

(f) *Cancellation of orders.* Order cancellation messages submitted by Participants shall be handled as follows:

(1) Orders resting on the CHX book shall be immediately and automatically cancelled upon receipt of a cancellation message, subject to paragraph (h) below; provided, however, that cross orders cannot be cancelled or changed because they are always handled IOC; and

* * *

(h) *Liquidity Enhancing Access Delay* (“LEAD”). LEAD shall apply during the regular trading session only.

After initial receipt of a new incoming message, the Matching System will evaluate the message to determine whether it is a Delayable Message, as defined under paragraph (h)(1) below. For the purposes of this evaluation only, the Matching System shall not consider Match Trade Prevention (“MTP”), as defined under Article 1, Rule 2(b)(3)(F).

If not delayable, the Matching System will immediately process the message without delay.

If delayable, the message will be diverted into the LEAD queue and will remain delayed until it is released for processing. A delayed message shall become releasable 350 microseconds after initial receipt by the Exchange (“Fixed LEAD Period”), but shall only be processed after the Matching System has evaluated and processed, if applicable, all messages in the security received by the Exchange during the Fixed LEAD Period for the delayed message. A message may be delayed for longer than the Fixed LEAD Period depending on the then-current messaging volume at CHX. The Matching System will utilize a new market snapshot to process a released order.

A delayed message shall retain its original sequence number and may only be delayed once. LEAD shall apply to all securities traded on the Exchange. LEAD shall not apply to messages received during an auction.

(1) For the purposes of this paragraph (h), “Delayable Messages” means all new incoming order, cancel and cancel/replace messages, except as follows:

(A) Any new incoming order or unrouted balance, as described under subparagraph (D) below, that originates from a Valid LEAD MM Trading Account, as described under Article 16, Rule 4(f)(3)(B)(ii), that would, by its terms, immediately be ranked on the CHX book without executing against any existing resting orders on the CHX book shall not be a Delayable Message.

(B) A cancel message related to a resting order that originates from a Valid LEAD MM Trading Account shall not be a Delayable Message.

(C) A cancel/replace message related to a resting order that originates from a Valid LEAD MM Trading Account shall not be a Delayable Message; provided, however, that if any part of the replace portion would immediately execute against existing resting orders on the CHX book, the replace portion shall be a Delayable Message.

(D) The portion of a Routable Order that is to be routed away pursuant to Article 19, Rule 3(a) shall not be diverted into the LEAD; provided, however, that the entire unrouted balance of the Routable Order shall be diverted into the LEAD, subject to subparagraph (A).

(2) LEAD Pilot Program Generally. This Article 20, Rule 8(h) and Article 16, Rule 4(f) (“LEAD Rules”) shall operate for a pilot period of 24 months from the date of implementation, which shall occur on a date after the approval of the LEAD Rules by the Commission, pursuant to notice to Participants.

(3) LEAD Pilot Program Data Collection, Analysis and Publication

(A) Data Collection and Analysis. In connection with the Program, the Exchange shall collect (i) Quote Quality Statistics, as defined under paragraph (h)(4) below, for each security per trading day and per Period of Exceptional Volatility* Range (“PEV Range”), for the six months immediately preceding the Program date of implementation and the duration of the Program; (ii) Matched Trade Difference Statistics, as defined under paragraph (h)(5) below, for each LEAD MM Security per trading day and per PEV Range, for the duration of the Program; (iii) Volume Statistics, as defined under paragraph (h)(6) below, for each LEAD MM Security per trading day, for the duration of the Program; (iv) Variable Processing Delay Statistics, as defined under paragraph (h)(7) below, for each LEAD MM Security per trading day, for the duration of the Program; and (v) Effective Spread Statistics, as defined under paragraph (8) below, for each

LEAD MM Security per trading day and per PEV Range, for the duration of the Program. By no later than the end of the 18th month of the Program, the Exchange will provide the Commission with an analysis of data collected pursuant to the Program, which will be made publically available.

*Period of Exceptional Volatility (“PEV”) means a one second interval during which a percentage change in the NBBO midpoint for the security equaled or exceeded two standard deviations (“ σ ”) from the mean. Each trading day, the Exchange will calculate a reference mean and standard deviation from consecutive one second time intervals during the regular trading session. Each daily reference mean and standard deviation will be applied to measure PEV on the following trading day. Each PEV will be categorized into one of five PEV Ranges, which are as follows: 2 = PEV greater than or equal to 2σ and less than 3σ ; 3 = PEV greater than or equal to 3σ and less than 4σ ; 4 = PEV greater than or equal to 4σ and less than 5σ ; and 5 = PEV greater than or equal to 5σ .

(B) *Data to the Commission.* By no later than the end of the second month of the Program, the Exchange shall provide the Commission with the data described under paragraphs (h)(4) – (8) for the first month of the Program. By the end of each month thereafter, the Exchange shall provide the Commission with the data described under paragraphs (h)(4) – (8) from the previous month.

(C) *Data Publication.* By no later than the end of the sixth month of the Program, the Exchange shall publish on the CHX website an anonymized version of the data collected pursuant to paragraphs (h)(4) – (8), in a manner consistent with CHX Rules, for each prior month of the Program. By the end of each month thereafter, the Exchange shall publish on the CHX website an anonymized version of the data collected pursuant to paragraphs (h)(4) – (8) from the previous month. On the first day of the Program, the Exchange shall publish on the CHX website each LEAD MM Security and the number of LEAD MMs assigned to each security, which will be updated daily for the duration of the Program.

(4) *Quote Quality Statistics.* The purpose of the Quote Quality Statistics is to provide comparative data regarding the effect of LEAD on market quality. Quote Quality Statistics shall include, at least, the following data fields, as applicable:

<u>Field #</u>	<u>Field Name</u>	<u>Description</u>
<u>1</u>	<u>Symbol</u>	
<u>1A</u>	<u>Primary Matching Location</u>	C = Chicago (CH2) N = New Jersey (NY4)
<u>2</u>	<u>TradeDate</u>	
<u>2A</u>	<u>PEVRange</u>	Blank = All regular session data 2 = PEV data greater than or equal to 2σ and less than 3σ 3 = PEV data greater than or equal to 3σ and less than 4σ 4 = PEV data greater than or equal to 4σ and less than 5σ 5 = PEV data greater than or equal to 5σ
<u>3</u>	<u>NLMMs</u>	The number of LMMs assigned to this Symbol on this Trade Date.
<u>4A</u>	<u>TimeRegSessScheduled</u>	The total scheduled time of the regular trading session for this Symbol for this TradeDate.
<u>4B</u>	<u>TimeRegSessActual</u>	The total actual time of the regular trading session for this Symbol for this TradeDate. Time during regulatory trading halts is not included in this total.
<u>5</u>	<u>TimeCHXBidPresent</u>	The total time during the regular trading session that CHX has a protected bid.
<u>5L</u>	<u>TimeCHXBidPresentLMM</u>	The total time during the regular trading session that CHX has a protected bid and one or more LMMs are included in the CHX protected bid price.
<u>6</u>	<u>TimeCHXBidMissing</u>	The total time during the regular trading session that CHX does not have a protected bid.

<u>Field #</u>	<u>Field Name</u>	<u>Description</u>
<u>7</u>	<u>TimeCHXBidOnNBB</u>	<u>The total time during the regular trading session that CHX has a protected bid equal to the NBB price.</u>
<u>7L</u>	<u>TimeCHXBidOnNBBLMM</u>	<u>The total time during the regular trading session that CHX has a protected bid equal to the NBB price and one or more LMMs are included in the NBB price.</u>
<u>8</u>	<u>TimeCHXBidNamed</u>	<u>The total time during the regular trading session that CHX has a protected bid equal to the NBB price and CHX is shown as the NBB.</u>
<u>8L</u>	<u>TimeCHXBidNamed</u>	<u>The total time during the regular trading session that CHX has a protected bid equal to the NBB price and CHX is shown as the NBB and one or more LMMs are included in the NBB price.</u>
<u>9</u>	<u>TimeCHXBidAlone</u>	<u>The total time during the regular trading session that CHX has a protected bid that is the only bid at the NBB price.</u>
<u>9L</u>	<u>TimeCHXBidAloneLMM</u>	<u>The total time during the regular trading session that CHX has a protected bid that is the only protected bid at the NBB price and one or more LMMs are included in the NBB price.</u>
<u>10</u>	<u>TimeCHXAskPresent</u>	<u>The total time during the regular trading session that CHX has a protected offer.</u>
<u>10L</u>	<u>TimeCHXAskPresentLMM</u>	<u>The total time during the regular trading session that CHX has a protected offer and one or more LMMs are included in the CHX protected offer.</u>

<u>Field #</u>	<u>Field Name</u>	<u>Description</u>
<u>11</u>	<u>TimeCHXAskMissing</u>	<u>The total time during the regular trading session that CHX does not have a protected offer.</u>
<u>12</u>	<u>TimeCHXAskOnNBO</u>	<u>The total time during the regular trading session that CHX has a protected offer equal to the NBO price.</u>
<u>12L</u>	<u>TimeCHXAskOnNBOLMM</u>	<u>The total time during the regular trading session that CHX has a protected offer equal to the NBO price and one or more LMMs are included in the NBO price.</u>
<u>13</u>	<u>TimeCHXAskNamed</u>	<u>The total time during the regular trading session that CHX has a protected offer equal to the NBO price and CHX is shown as the NBO.</u>
<u>13L</u>	<u>TimeCHXAskNamedLMM</u>	<u>The total time during the regular trading session that CHX has a protected offer equals to the NBO price and CHX is shown as the NBO and one or more LMMs are included in the NBO price.</u>
<u>14</u>	<u>TimeCHXAskAlone</u>	<u>The total time during the regular trading session that CHX has a protected offer that is the only protected offer at the NBO price.</u>
<u>14L</u>	<u>TimeCHXAskAloneLMM</u>	<u>The total time during the regular trading session that CHX has a protected offer that is the only protected offer at the NBO price and one or more LMMs are included in the NBO price.</u>
<u>15</u>	<u>TimeCHXNoQuote</u>	<u>The total time during the regular trading session that CHX has neither a protected bid nor a protected offer.</u>

<u>Field #</u>	<u>Field Name</u>	<u>Description</u>
<u>16</u>	<u>TimeCHXTwoSided</u>	<u>The total time during the regular trading session that CHX has both a protected bid and a protected offer.</u>
<u>17</u>	<u>TimeNBBOUncrossed</u>	<u>The total time during the regular trading session that the NBBO is not crossed.</u>
<u>18</u>	<u>Time-weightedCHXBid Differential</u>	<u>The time-weighted average difference between the CHX protected bid price and the NBB price when a CHX protected bid is present during the regular trading session.</u>
<u>19</u>	<u>Time-weightedCHXBid SizeOnNBB</u>	<u>The time-weighted average CHX protected bid size when the CHX protected bid price equals the NBB price during the regular trading session.</u>
<u>19L</u>	<u>Time-weightedCHXBid SizeOnNBBLMM</u>	<u>The time-weighted average LMM percentage of the CHX protected bid size when the CHX protected bid price equals the NBB price during the regular trading session.</u>
<u>20</u>	<u>Time-weightedCHXBid SizeWhenNamed</u>	<u>The time-weighted average CHX protected bid size when the CHX protected bid price equals the NBB price during the regular trading session.</u>
<u>20L</u>	<u>Time-weightedCHXBid SizeWhenNamed</u>	<u>The time-weighted average LMM percentage of CHX protected bid size when the CHX protected bid price equals the NBB price during the regular trading session.</u>

<u>Field #</u>	<u>Field Name</u>	<u>Description</u>
<u>21</u>	<u>Time-weightedCHXBid SizeWhenAlone</u>	<u>The time-weighted average LMM percentage of CHX protected bid size when the CHX protected bid is the only protected bid at the NBB price during the regular trading session.</u>
<u>21L</u>	<u>Time-weightedCHXBid SizeWhenAloneLMM</u>	<u>The time-weighted average CHX protected bid size when the CHX protected bid is the only protected bid at the NBB price during the regular trading session.</u>
<u>22</u>	<u>Time-weightedCHXPctOfBid SizeWhenOnNBB</u>	<u>The time-weighted average percentage of all protected quotations at the NBB price when the CHX protected bid price equals the NBB price.</u>
<u>23</u>	<u>Time-weightedCHXAsk Differential</u>	<u>The time-weighted average difference between the CHX protected offer price and the NBO price when a CHX protected offer is present during the regular trading session.</u>
<u>24</u>	<u>Time-weightedCHXAsk SizeOnNBO</u>	<u>The time-weighted average CHX protected offer size when the CHX protected offer price equals the NBO price during the regular trading session.</u>
<u>24L</u>	<u>Time-weightedCHXAsk SizeOnNBOLMM</u>	<u>The time-weighted average LMM percentage of CHX protected offer size when the CHX protected offer price equals the NBO price during the regular trading session.</u>
<u>25</u>	<u>Time-weightedCHXAsk SizeWhenNamed</u>	<u>The time-weighted average CHX protected offer size when the CHX protected offer price equals the NBO price during the regular trading session.</u>

<u>Field #</u>	<u>Field Name</u>	<u>Description</u>
<u>25L</u>	<u>Time-weightedCHXAsk SizeWhenNamedLMM</u>	<u>The time-weighted average LMM percentage of CHX protected offer size when the CHX protected offer price equals the NBO price during the regular trading session.</u>
<u>26</u>	<u>Time-weightedCHXAsk SizeWhenAlone</u>	<u>The time-weighted average CHX protected offer size when the CHX protected offer is the only protected offer at the NBO price during the regular trading session.</u>
<u>26L</u>	<u>Time-weightedCHXAsk SizeWhenAloneLMM</u>	<u>The time-weighted average LMM percentage of CHX protected offer size when the CHX protected offer is the only protected offer at the NBO price during the regular trading session.</u>
<u>27</u>	<u>Time-weightedCHXPctOfAsk SizeWhenOnNBO</u>	<u>The time-weighted average percentage of all protected quotation size at the NBO price when CHX protected offer price equals the NBO price.</u>
<u>28</u>	<u>Time-weightedCHX BBOSpread</u>	<u>The time-weighted average difference between the CHX protected bid price and the CHX protected offer price when CHX is displaying a two-sided protected quotation.</u>
<u>29</u>	<u>Time-WeightedNBBOSpread</u>	<u>The time-weighted average difference between the NBB price and the NBO price when a two-sided NBBO exists.</u>

(5) Matched Trade Difference Statistics. The purpose of the Matched Trading Difference Statistics is to provide comparative data regarding how Qualified Orders received by CHX would have been handled if LEAD had not been in effect. For the purposes of this rule, “Qualified Orders” shall mean all new single-sided orders received by the Exchange during the regular trading session that were delayed, including cancel/replace messages where one or both of the components were delayed, excluding

orders that would not have been immediately executable upon initial receipt and any orders that could only be executed within an auction.

(A) Groups. Each Qualified Order will be categorized into one of the following four groups:

(i) Group 1: orders with at least a partial execution upon initial processing by the Matching System that would have had the same number of shares executed with or without LEAD;

(ii) Group 2: orders with at least a partial execution upon initial processing by the Matching System that had fewer executed shares with LEAD than it would have had without LEAD;

(iii) Group 3: orders with at least a partial execution upon initial processing by the Matching System that had more executed shares with LEAD than it would have had without LEAD; and

(iv) Group 4: orders with no executed shares upon initial processing by the Matching System with LEAD.

(B) Match Trade Difference Statistics shall include, at least, the following data fields, as applicable:

<u>Field #</u>	<u>Field Name</u>	<u>Description</u>
<u>1</u>	<u>Symbol</u>	
<u>1A</u>	<u>Primary Matching Location</u>	<u>C = Chicago (CH2)</u> <u>N = New Jersey (NY4)</u>
<u>2</u>	<u>TradeDate</u>	

<u>Field #</u>	<u>Field Name</u>	<u>Description</u>												
<u>2A</u>	<u>PEVRange</u>	<p><u>Blank = All regular session data</u> <u>2 = PEV data greater than or equal to 2σ and less than 3σ</u> <u>3 = PEV data greater than or equal to 3σ and less than 4σ</u> <u>4 = PEV data greater than or equal to 4σ and less than 5σ</u> <u>5 = PEV data greater than or equal to 5σ</u></p>												
<u>3</u>	<u>InboundTradingAccount</u>	<u>The Trading Account of the inbound order.</u>												
<u>3A</u>	<u>NLMMs</u>	<u>The number of LMMs assigned to this Symbol on this Trade Date.</u>												
<u>4</u>	<u>CapacityCode</u>	<p><u>This field will include the following codes:</u></p> <table> <thead> <tr> <th><u>Code</u></th> <th><u>Meaning</u></th> </tr> </thead> <tbody> <tr> <td><u>A</u></td> <td><u>Agency</u></td> </tr> <tr> <td><u>L</u></td> <td><u>LEAD Market Maker</u></td> </tr> <tr> <td><u>M</u></td> <td><u>Market Maker (not LEAD)</u></td> </tr> <tr> <td><u>P</u></td> <td><u>Principal</u></td> </tr> <tr> <td><u>R</u></td> <td><u>Riskless Principal</u></td> </tr> </tbody> </table>	<u>Code</u>	<u>Meaning</u>	<u>A</u>	<u>Agency</u>	<u>L</u>	<u>LEAD Market Maker</u>	<u>M</u>	<u>Market Maker (not LEAD)</u>	<u>P</u>	<u>Principal</u>	<u>R</u>	<u>Riskless Principal</u>
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<u>M</u>	<u>Market Maker (not LEAD)</u>													
<u>P</u>	<u>Principal</u>													
<u>R</u>	<u>Riskless Principal</u>													
<u>4A</u>	<u>ExchangeCode</u>	<table> <thead> <tr> <th><u>Code</u></th> <th><u>Meaning</u></th> </tr> </thead> <tbody> <tr> <td><u>N</u></td> <td><u>Not from an exchange</u></td> </tr> <tr> <td><u>Y</u></td> <td><u>From an exchange</u></td> </tr> </tbody> </table>	<u>Code</u>	<u>Meaning</u>	<u>N</u>	<u>Not from an exchange</u>	<u>Y</u>	<u>From an exchange</u>						
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<u>Y</u>	<u>From an exchange</u>													
<u>5</u>	<u>ISOCODE</u>	<table> <thead> <tr> <th><u>Code</u></th> <th><u>Meaning</u></th> </tr> </thead> <tbody> <tr> <td><u>N</u></td> <td><u>Not an ISO order</u></td> </tr> <tr> <td><u>Y</u></td> <td><u>An ISO order</u></td> </tr> </tbody> </table>	<u>Code</u>	<u>Meaning</u>	<u>N</u>	<u>Not an ISO order</u>	<u>Y</u>	<u>An ISO order</u>						
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<u>Y</u>	<u>An ISO order</u>													

<u>Field #</u>	<u>Field Name</u>	<u>Description</u>										
<u>6</u>	<u>TimeInForceCode</u>	<table> <tr> <td><u>Code</u></td> <td><u>Meaning</u></td> </tr> <tr> <td><u>0</u></td> <td><u>DAY or equivalent</u></td> </tr> <tr> <td><u>3</u></td> <td><u>IOC</u></td> </tr> <tr> <td><u>4</u></td> <td><u>FOK</u></td> </tr> <tr> <td><u>9</u></td> <td><u>Other (includes auction)</u></td> </tr> </table>	<u>Code</u>	<u>Meaning</u>	<u>0</u>	<u>DAY or equivalent</u>	<u>3</u>	<u>IOC</u>	<u>4</u>	<u>FOK</u>	<u>9</u>	<u>Other (includes auction)</u>
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<u>9</u>	<u>Other (includes auction)</u>											
<u>7</u>	<u>GROUP1_NO</u>	<u>The number of orders (“NO”) in Group 1.</u>										
<u>8</u>	<u>GROUP1_NTS</u>	<u>The total number of shares on all orders (“NTS”) in Group 1.</u>										
<u>9</u>	<u>GROUP1_NSE = GROUP1_NSEW</u>	<u>The total number of shares immediately executed upon initial processing by the Matching System on all orders (“NSE”) in Group 1, which will always be equal to the total number of shares that would have been immediately executed upon initial processing by the Matching System had LEAD not been in effect (“NSEW”).</u>										
<u>10</u>	<u>GROUP2_NO</u>	<u>NO in Group 2.</u>										
<u>11</u>	<u>GROUP2_NTS</u>	<u>NTS in Group 2.</u>										
<u>12</u>	<u>GROUP2_NSE</u>	<u>NSE in Group 2.</u>										
<u>13</u>	<u>GROUP2_NSEW</u>	<u>NSEW on all orders in Group 2.</u>										
<u>14</u>	<u>GROUP3_NO</u>	<u>NO in Group 3.</u>										
<u>15</u>	<u>GROUP3_NTS</u>	<u>NTS in Group 3.</u>										
<u>16</u>	<u>GROUP3_NSE</u>	<u>NSE in Group 3.</u>										
<u>17</u>	<u>GROUP3_NSEW</u>	<u>NSEW on all orders in Group 3.</u>										
<u>18</u>	<u>GROUP4_NO</u>	<u>NO in Group 4.</u>										

<u>Field #</u>	<u>Field Name</u>	<u>Description</u>
<u>19</u>	<u>GROUP4_NTS</u>	<u>NTS in Group 4.</u>
<u>:</u>	<u>GROUP4_NSE</u>	<u>This value will always be zero and not included.</u>
<u>20</u>	<u>GROUP4_NSEW</u>	<u>NSEW on all orders in Group 4.</u>
<u>21</u>	<u>LMMProvideOrderExecutedAheadOfDelayedNonLMMProvideOrder</u>	<u>Frequency at which an LMM provider order ranked on the CHX book executes ahead of a precedent non-LMM order (with the same side and price as the LMM order) that would have been immediately ranked on the CHX book if it had originated from a LEAD MM Trading Account, but was delayed.</u>

(6) Volume Statistics. The purpose of the Volume Statistics is to measure the impact of LEAD on execution volume in an LEAD MM Security, which includes the following: (A) daily number of LEAD MMs assigned; (B) total single-sided volume on CHX; (C) total market wide single-sided volume; (D) total single-sided volume on CHX attributed to LEAD MMs as providers; and (E) the primary matching location for the security.

(7) Variable Processing Delay Statistics. The purpose of the Variable Processing Delay Statistics is to provide comparative data regarding the variable delay between the initial receipt of an order and the time at which the order is eligible to be matched by Matching System. The statistics will be divided into three order origin categories: -1- orders from Participants that are not LEAD MMs; -2- liquidity taking orders from LEAD MMs; and -3- undelayed liquidity providing orders from LEAD MMs. For each order origin category, the Exchange will collect the following: the number of orders with a variable delay -1- less than 50 μ s and the average delay time; -2- equal to or greater than 50 μ s, but less than 150 μ s, and the average delay time; -3- equal to or greater than 150 μ s, but less than 250 μ s and the average delay time; -4- equal to or greater than 250 μ s, but less than 350 μ s, and the average delay time; -5- equal to or greater than 350 μ s and the average delay time.

(8) Effective Spread Statistics. The purpose of the Effective Spread Statistics is to measure the impact of LEAD on CHX and NMS Effective Spreads. For the purposes of this rule, “Eligible Trades” shall mean executions attributed to single-sided orders with

regular settlement terms received during the regular trading session when a two-sided and uncrossed NBBO disseminated by the relevant Securities Information Processor (“SIP NBBO”) was present. The Effective Spreads Statistics shall include, at least, the following data fields, as applicable:

<u>Field #</u>	<u>Field Name</u>	<u>Description</u>
<u>1</u>	<u>Symbol</u>	
<u>1A</u>	<u>Primary Matching Location</u>	<u>C = Chicago (CH2)</u> <u>N = New Jersey (NY4)</u>
<u>2</u>	<u>Date</u>	
<u>2A</u>	<u>PEVRange</u>	<u>Blank = All regular session data</u> <u>2 = PEV data greater than or equal to</u> <u>2σ and less than 3σ</u> <u>3 = PEV data greater than or equal to</u> <u>3σ and less than 4σ</u> <u>4 = PEV data greater than or equal to</u> <u>4σ and less than 5σ</u> <u>5 = PEV data greater than or equal to</u> <u>5σ</u>
<u>3</u>	<u>NLMMs</u>	<u>Number of LMMs assigned to symbol</u>
<u>4</u>	<u>TradeSizeBracket</u>	<u>1 = 1 – 499</u> <u>2 = 500-1999</u> <u>3 = 2000 – 4999</u> <u>4 = 5000 – 9999</u> <u>5 = =10,000 or more</u>
<u>5</u>	<u>CHXNTrades</u>	<u>For Eligible Trades reported by CHX</u> <u>in TradeSizeBracket, the number of</u> <u>Eligible Trades reported.</u>
<u>6</u>	<u>CHXNShares</u>	<u>For Eligible Trades reported by CHX</u> <u>in TradeSizeBracket, number of</u> <u>shares attributed to Eligible Trades</u> <u>reported.</u>

<u>Field #</u>	<u>Field Name</u>	<u>Description</u>
<u>7</u>	<u>SW_CHX_EffectiveSpread</u>	For Eligible Trades reported by CHX in TradeSizeBracket : Share-Weighted ($2 * Trade Price - SIP NBBO Midpoint $)
<u>8</u>	<u>SW_CHX_EffectiveSpreadIndex</u>	For qualified trades reported by CHX in TradeSizeBracket : CHX Effective Spread divided by the SIP NBBO at Participant Trade Report Time
<u>9</u>	<u>NMSNTrades</u>	For Eligible Trades reported by SIP, the number of trades reported.
<u>10</u>	<u>NMSNShares</u>	For Eligible Trades reported by SIP in TradeSizeBracket , the number of shares reported.
<u>11</u>	<u>SW_NMS_EffectiveSpread</u>	For Eligible Trades reported by SIP in TradeSizeBracket : Share-Weighted ($2 * Trade Price - SIP NBBO Midpoint $)
<u>12</u>	<u>SW_NMS_EffectiveSpreadIndex</u>	For Eligible Trades reported by SIP in TradeSizeBracket : NMS Effective Spread divided by the SIP NBBO at Participant Trade Report Time

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