

Part III: Manner of Operations

Item 7: Order Types and Attributes

- a. Identify and explain each order type offered by the NMS Stock ATS. In your explanation, include the following:
 - i. priority, including the order type's priority upon order entry and any subsequent change to priority (if applicable); whether and when the order type can receive a new time stamp; the order type's priority vis-à-vis other orders on the book due to changes in the NBBO or other reference price; and any instance in which the order type could lose execution priority to a later arriving order at the same price;
 - ii. conditions, including any price conditions (e.g., how price conditions affect the rank and price at which it can be executed; conditions on the display or non-display of an order; or conditions on executability and routability);
 - iii. order types designed not to remove liquidity (e.g., post-only orders), including what occurs when such order is marketable against trading interest on the NMS Stock ATS when received;
 - iv. order types that adjust their price as changes to the order book occur (e.g., price sliding orders or pegged orders) or have a discretionary range, including an order's rank and price upon order entry and whether such prices or rank may change based on the NBBO or other market conditions when using such order type; when the order type is executable and at what price the execution would occur; whether the price at which the order type can be executed ever changes; and if the order type can operate in different ways, the default operation of the order type;
 - v. whether an order type is eligible for routing to other Trading Centers;
 - vi. the time-in-force instructions that can be used or not used with each order type;
 - vii. the circumstances under which order types may be combined with another order type, modified, replaced, canceled, rejected, or removed from the NMS Stock ATS; and
 - viii. the availability of order types across all forms of connectivity to the NMS Stock ATS and differences, if any, in the availability of an order type across those forms of connectivity.

Conditional and Firm Orders. The algorithms/SOR and Subscribers that access JPB-X directly can route to JPB-X (i) conditional orders and (ii) if any of the conditional orders match with other conditional orders in JPB-X, firm orders routed in response to firm-up invitations received

directly from JPB-X (in the case of the SOR with respect to orders designated for Close Price Match and in the case of Subscribers that access JPB-X directly) or from JPB-X via the SOR (in the case of JPMS algorithmic trading strategies).

Matching Types. JPB-X accepts Firm/Conditional Orders designated for the following two matching types:

- Volume-Weighted Average Price Match ("VWAP Price Match"), which matches orders, using the conditional order process described in Part III, Item 9, and crosses them at a VWAP price determined by JPB-X over the course of a pre-determined match period; and
- Close Price Match, which matches orders, using the conditional order process described in Part III, Item 9, and crosses them at the security's official closing price as determined by the closing auction at the primary exchange for the security.

Firm/Conditional Orders designated for each matching type are maintained in separate order books within JPB-X and do not interact with each other.

Firm/Conditional Order Types. JPB-X accepts (1) limit and market Firm/Conditional Orders for the VWAP Price Match matching type and (2) market-on-close Firm/Conditional Orders for the Close Price Match matching type. A limit Firm/Conditional Order is a Firm/Conditional Order to buy or sell stock at a specific price or better. A market Firm/Conditional Order is a Firm/Conditional Order to buy or sell stock at the best available price. A market-on-close Firm/Conditional Order is a Firm/Conditional Order to buy or sell stock at its closing price as determined by the primary exchange for the stock. JPB-X does not offer post-only Firm/Conditional Order types, and none of the above Firm/Conditional Order types is eligible for routing to other Trading Centers. The above Firm/Conditional Order types cannot be combined (i.e., a Firm/Conditional Order cannot be more than one Firm/Conditional Order type).

Time-In-Force Instructions. For both VWAP Price Match and Close Price Match matching types, JPB-X only accepts a "day" time-in-force instruction. A day Firm/Conditional Order is a Firm/Conditional Order intended to rest in an order book maintained by JPB-X until the Firm/Conditional Order is executed or cancelled at the end of the trading day or earlier.

Modifications, Replacements, and Cancellations. The algorithms/SOR and Subscribers that access JPB-X directly can modify, replace, or cancel day Firm/Conditional Orders routed to JPB-X, whether designated for VWAP Price Match or Close Price Match, as described below. The modification or replacement of a day conditional order results in the entry of a replacement conditional order with a new time

stamp and lower priority in time than the original conditional order, unless the modification is a reduction in the quantity of the conditional order, in which case the replacement conditional order has a new time stamp but the same priority in time that the original conditional order had prior to its replacement. Note, however, that conditional orders designated for Close Price Match cannot be modified, replaced, or cancelled once the Close Price Match matching time is reached. The algorithms/SOR and Subscribers that access JPB-X directly can cancel or reduce the quantity of a firm-up order prior to its execution.

Rejections. JPB-X rejects (i) short sale exempt Firm/Conditional Orders, (2) short sale Firm/Conditional Orders designated for Close Price Match, (3) Firm/Conditional Orders priced at or above \$1.00 per share if priced in a sub-penny increment, (4) Firm/Conditional Orders priced below \$1.00 per share if priced in an increment of less than \$.0001, and (5) odd lot Firm/Conditional Orders designated for the VWAP Price Match, and (6) Firm/Conditional Orders that exceed limits imposed by JPMS pursuant to its obligations under SEC Rule 15c3-5.

Eligibility for Matching and Execution. A Firm/Conditional Order is ineligible for matching in JPB-X unless the price, minimum quantity, and counterparty preference instructions associated with the Firm/Conditional Order, if any, are satisfied. Conditional orders, but not firm orders, can have minimum match size requirements. As described in response to Part III, Item 9, when JPB-X sends a firm-up invitation, JPB-X cancels the corresponding conditional order, irrespective of the conditional order's minimum quantity instruction. As also described in response to Part III, Item 9, a firm-up order is ineligible for execution in JPB-X during the order's applicable firm-up period.

Matching of VWAP Price Match Orders. As described in response to Part III, Item 11, once JPB-X matches firm-up orders designated for VWAP Price Match and the match period has elapsed, the firm-up orders are crossed, ~~based on equal split time priority (i.e., all orders on the same side are given equal allocations with any remaining quantity allocated equally to earlier in time orders)~~, at the VWAP determined by JPB-X. In the event of (1) the cancellation of a firm-up order by the algorithms/SOR or a Subscriber that accesses JPB-X directly, (2) a response to a production issue, (3) the National Best Bid moving lower than or becoming equal to the limit of a matched sell order or the National Best Offer moving higher than or becoming equal to the limit of a matched buy order, (4) the triggering of a Rule 201 price test, or (5) the stock closing at the primary exchange, JPB-X will terminate the match period and issue partial fills before cancelling all matched firm-up orders. The quantity of a matched order's fill will be proportional to the duration of the match period and the price of the fill will be the VWAP over the duration of the match period (or, if a Rule

201 price test is in effect, at a price that is allowed by the rule). In addition, JPB-X does not execute a cross in any NMS stock that is subject to a regulatory or trading halt (a "Halt"), although, as described in response to Part III, Item 20, JPB-X will continue to accept Firm/Conditional Orders in such an NMS stock and instructions to modify, cancel, or replace Firm/Conditional Orders in that NMS stock using the priority logic described in response to Part III, Item 11(c). Firm-up orders that were matched but for which the match period has not elapsed will be cancelled by JPB-X immediately after the Halt goes into effect. If a Halt in an NMS stock occurs during regular trading hours while a firm-up period for one or more conditional orders in that security is underway, JPB-X rejects any firm-up order received during the firm-up period while the halt is in place.

Matching of Close Price Match Orders. As described in response to Part III, Item 11, once JPB-X matches firm-up orders designated for Close Price Match in a NMS stock, they are crossed, based on time priority, at the closing price as determined by the closing auction and published by the primary exchange for the NMS stock after the exchange closes. As described in response to Part III, Item 20, when a Halt is in effect for an NMS stock, JPB-X will continue to accept and match conditional orders designated for Close Price Match and to accept instructions to modify, cancel, or replace conditional orders in that NMS stock using the priority logic described in response to Part III, Item 11(c) but will not execute orders if the primary exchange does not publish a close price as determined by the closing auction for the stock, in which case JPB-X will cancel the unexecuted orders immediately after JPMS determines that the primary exchange has not published a close price as determined by the closing auction for the stock and has been delayed in doing so as a result of the Halt. Firm-up orders that were matched but have not yet been executed will be cancelled by JPB-X immediately after the Halt goes into effect.

Changes in NBBO. Although a change in the NBBO would not affect the relative priority of matched firm-up orders that remain eligible for execution after the change, the change could affect whether a firm-up order designated for VWAP Price Match with a price instruction associated with it is eligible for execution and the execution price at which orders that remain eligible for execution are crossed

Item 8: Order Sizes

- a. Does the NMS Stock ATS require minimum or maximum sizes for orders or trading interest?

☒ Yes ☐ No

If yes, specify any minimum or maximum order or trading interest size requirements and any related handling procedures.

JPB-X requires a minimum Firm/Conditional Order size of one round lot for Firm/Conditional Orders designated for the VWAP Price Match, but JPB-X does not require a minimum Firm/Condition Order size for Firm/Condition Orders designated for the Close Price Match. JPB-X does not have a ~~minimum or~~ maximum Firm/Conditional Order size requirement; however, JPMS prevents the entry of Firm/Conditional Orders that exceed limits imposed by JPMS pursuant to, e.g., its obligations under SEC Rule 15c3-5 maintain reasonably designed risk management controls.

- b. If yes to Item 8(a), are the requirements and procedures required to be identified in Item 8(a) the same for all Subscribers and the Broker-Dealer Operator?

☐ Yes ☒ No

If no, identify and explain any differences.

JPB-X applies the minimum Firm/Conditional Order size limit referenced in response to Part III, Item 8(a) to all Subscribers and the Broker-Dealer Operator. Certain limits referenced in response to Part III, Item 8(a) are based on Subscriber-specific credit thresholds maintained JPMS pursuant to its obligations under SEC Rule 15c3-5.

- c. Does the NMS Stock ATS accept or execute odd-lot orders?

☒ Yes ☐ No

If yes, specify any odd-lot order requirements and related handling procedures (e.g., odd lot treated the same as round lot).

~~Odd lot orders~~ JPB-X will not accept odd lot orders for Firm/Conditional Orders designated for the VWAP Price Match. Odd lot Firm/Conditional Orders designated for the Close Price Match are handled in the same manner as round lot orders.

Item 9: Conditional Orders and Indications of Interest

- a. Does the NMS Stock ATS send or receive any messages indicating trading interest (e.g., IOIs, actionable IOIs, or conditional orders)?

☒ Yes ☐ No

If yes, identify and explain the use of the messages, including information contained in messages (e.g., price or size minimums), how the message is transmitted (e.g., order management system, smart order router, FIX), when the message is transmitted (e.g., automatically by the ATS, or upon the sender's request), the type of Persons that receive the message (e.g., Subscribers, Trading Centers), responses to conditional orders or IOIs (e.g., submission to firm-up conditional orders), and the conditions under which the message might result in an execution in the ATS (e.g., response time parameters, interaction, and matching).

JPB-X receives conditional orders routed to it by the SOR, by JPMS trading algorithms via the SOR, or by Subscribers that access JPB-X directly. A conditional order describes the price, size, side, symbol, and minimum match size of the trading interest. Conditional orders can take the form of the Firm/Conditional Order types described in response to Part III, Item 7 JPB-X matches conditional orders designated for the VWAP Price Match and Close Price Match as described in response to Part III, Item 11. If two or more conditional orders match (as applicable), JPB-X sends a firm-up invitation to (i) the SOR, if it had routed one of the matched conditional orders without instruction to do so from a JPMS algorithmic trading strategy, (ii) any JPMS algorithmic trading strategy that instructed the SOR to route one of the matched conditional orders, and/or (iii) any Subscriber that routed one of the matched conditional orders directly to JPB-X (with multiple firm-up invitations being sent to ~~(i)~~ any JPMS algorithmic trading strategy that routed more than one of the matched conditional orders or ~~(ii)~~ the SOR if it had routed more than one of the matched conditional orders without instruction to do so from a JPMS algorithmic trading strategy). The firm-up invitation includes the symbol, quantity, and price of the associated same-side conditional order that prompted the firm-up invitation and the matched size of contra-side trading interest.

When JPB-X sends a firm-up invitation, JPB-X cancels the corresponding conditional order, and the recipient of the firm-up invitation (i.e., the SOR, a JPMS algorithmic trading strategy, or a Subscriber) has the duration of the firm-up period to determine whether to send a firm-up order in response to the firm-up invitation. The price and size attributes reflected in Subscriber's firm-up order may differ from the corresponding attributes reflected in the Subscriber's earlier conditional order. The firm-up period is the shorter of (i) the time it takes for JPB-X to receive firm-up orders corresponding to ~~all of~~ the matched conditional orders or (ii) the default firm-up period, which is one second for both the Close Price Match and ~~two seconds for the~~ VWAP Price Match. JPB-X does not match any firm-up orders until the firm-up period elapses. When the firm-up period elapses, JPB-X matches the firm-up orders designated for the VWAP Price Match and

Close Price Match as described in response to Part III, Item 11.

By default, the algorithms/SOR can route conditional orders to JPB-X. Subscribers can opt out of the routing of conditional orders on their behalf. Subscribers can opt out in whole or in part (with respect to a subset of conditional orders or all conditional orders) by contacting their JPMS sales representatives. JPMS implements such restrictions as soon as reasonably practicable. In addition, JPMS reserves the right to limit or prohibit the use of conditional orders for Subscribers at JPMS' discretion if, as described in response to Part III, Item 3, ECS Liquidity Product Specialists responsible for the operation of JPB-X detect systematic behavior resulting in a materially negative impact to the operation of JPB-X or to other Subscribers as evidenced by, e.g., a high cancellation rate or, with respect to orders designated for VWAP Price Match, high VWAP slippage of the Subscriber's algorithmic orders.

Item 11: Trading Services, Facilities and Rules

- c. Explain the established, non-discretionary rules and procedures of the NMS Stock ATS, including order interaction rules for the priority, pricing methodologies, allocation, matching, and execution of orders and trading interest, and other procedures governing trading, such as price improvement functionality, price protection mechanisms, short sales, locked-crossed markets, the handling of execution errors, and the time-stamping of orders and executions.

JPB-X rejects (i) short sale exempt Firm/Conditional Orders, (2) short sale Firm/Conditional Orders designated for Close Price Match, (3) Firm/Conditional Orders priced at or above \$1.00 per share if priced in a sub-penny increment, (4) Firm/Conditional Orders priced below \$1.00 per share if priced in an increment of less than \$.0001, ~~and~~ (5) odd lot Firm/Conditional Orders designated for the VWAP Price Match, and (6)

Firm/Conditional Orders that exceed limits imposed by JPMS pursuant to its obligations under SEC Rule 15c3-5.

A Firm/Conditional Order is ineligible for matching in JPB-X unless the price, minimum quantity, and counterparty preference instructions (see Part III, Items 13-14) associated with the Firm/Conditional Order, if any, are satisfied. Conditional orders, but not firm orders, can have minimum match size requirements. As described in response to Part III, Item 9, a firm-up order is ineligible for execution in JPB-X during the order's applicable firm-up period.

VWAP Price Match Rules and Procedures:

When two or more conditional orders designated for VWAP Price Match on opposite sides are eligible for matching in JPB-X, JPB-X matches them based on one-to-one random matching logic and sends

firm-up invitations to the algorithms/SOR or Subscribers (as described in response to Part III, Item 9) ~~based on equal split / time priority (i.e., all~~ Specifically, when assessing all eligible conditional orders on the same side are given equal allocations with any remaining quantity allocated equally to earlier in time conditional orders) able to be matched, JPB-X will, beginning with the side with fewer orders, randomly choose one conditional order on one side and one conditional order on the other side. A conditional order routed by the algorithms/SOR or directly by a Subscriber can be cancelled by the algorithms/SOR or Subscriber, respectively, before the conditional order is matched. Short sale conditional orders are not eligible for matching when a price test under Rule 201 of Regulation SHO is in effect.

Once the firm-up period described in Part III, Item 9 has elapsed, JPB-X matches the firm-up orders it received during the firm-up period (subject to the eligibility criteria for the firm-up orders discussed above and the firm-up orders' participation instructions) ~~based on equal split / time priority (i.e., all orders on the same side are given equal allocations with any remaining quantity allocated equally to earlier in time orders.~~ If either firm-up order quantity is less than the firm-up invitation quantity, JPB-X will match the firm-up orders (for the quantity that will satisfy the smaller firm-up order) at the end of the match period and cancel back any residual (see example below). A pre-determined default match period commences upon the earlier of (i) JPB-X's receipt of firm-up orders corresponding to all firm-up invitations sent by JPB-X or (ii) the expiration of the firm-up period. The default match period is currently five minutes for all firm-up orders.

As noted above, for the VWAP Price Match, JPB-X will commence the five minute match period with a match quantity that will satisfy the smaller firm-up order. For example, JPB-X can match a Conditional Order to buy 1000 shares of ABC designated for the VWAP Price Match ("Order 1") with a Conditional Order to sell 500 shares of ABC designated for the VWAP Price Match ("Order 2") with a match quantity of 500 shares. If Order 1 firms up with 500 shares and Order 2 firms up with 300 shares, JPB-X will commence the five minute match period with a final match quantity of 300 shares. JPB-X will indicate the final match quantity of 300 shares on the firm-up order acknowledgement for Order 1 and Order 2 and will indicate the cancellation of 200 shares for Order 1 at the end of the match period.

During the match period, JPB-X monitors market data reported via the SIP (see Part III, Item 23) and any changes to parent order attributes. Once the match period elapses, JPB-X crosses the matched firm-up orders at the VWAP (if one exists and it is within the matched orders' price limits, if any), determined by JPB-X based on executed trades reported via the SIP during the match period. Trade prices reported pursuant to the UTP Plan with the following sale conditions will be

excluded when calculating the VWAP for the match period: Price Variation Trade, Market Center Official Close, Next Day Market Center Official Open, Extended trading hours (Sold Out of Sequence), Average Price Trade, Sold (out of sequence), Derivatively priced, Qualified Contingent Trade (QCT). Trade prices reported pursuant to the CTA Plan with the following sale conditions will be excluded when calculating the VWAP for the match period: Average Price Trade, Price Variation Trade, Market Center Official Close, Next Day Trade (Next Day Clearing), Market Center Official Open, Extended Hours Trade, Extended Hours Sold (Out of Sequence), Sold (Out of Sequence), Derivatively Priced, and Qualified Contingent Trade. If there are no eligible trades in the security during the match period for VWAP Price Match firm-up orders and therefore a VWAP cannot be determined, the matched firm-up orders are cancelled without a fill.

In the event of (1) the cancellation of a firm-up order by the algorithms/SOR or a Subscriber that accesses JPB-X directly (2) a response to a production issue, (3) the National Best Bid moving lower than or becoming equal to the limit of a matched sell order or the National Best Offer moving higher than or becoming equal to the limit of a matched buy order, (4) the triggering of a Rule 201 price test, or (5) the stock closing at the primary exchange, JPB-X will terminate the match period and issue partial fills before cancelling all matched firm-up orders. The quantity of a matched order's fill will be proportional to the duration of the match period and the price of the fill will be the VWAP over the duration of the match period (or, if a Rule 201 price test is in effect, at a price that is allowed by the rule). For example, if the full match quantity is 5,000 shares over five minutes and one of the firm-up orders is cancelled two minutes after the match period began, JPB-X will end the match period and will execute 2,000 shares ~~will be allocated across the matched firm-up orders on each side.~~ The price of the fill will be the VWAP over the duration of the match period up until the time of cancellation of the matched firm-up order.

JPB-X does not execute a cross in any NMS stock that is subject to a Halt (although, as described in response to Part III, Item 20, JPB-X will continue to accept Firm/Conditional Orders in such an NMS stock and instructions to modify, cancel, replace Firm/Conditional Orders in that NMS stock ~~using the priority logic described in this response~~). Firm-up orders that were matched but for which the match period has not elapsed are cancelled by JPB-X immediately after the Halt goes in effect. If a Halt in an NMS stock occurs during regular trading hours while a firm-up period for one or more conditional orders in that security is underway, JPB-X rejects any firm-up order received during the firm-up period while the halt is in place.

Close Price Match Rules and Procedures:

A conditional order routed by the algorithms/SOR or directly by a Subscriber can be cancelled by the algorithms/SOR or Subscriber, respectively, before the Close Price Match matching time.

Following the Close Price Match matching time (see response to Part III, Item 4), JPB-X (i) matches conditional orders designated for Close Price Match on opposite sides that are eligible for matching in JPB-X based on time priority and (ii) sends firm-up invitations to the algorithms/SOR or Subscribers (as described in response to Part III, Item 9). JPB-X does not accept conditional orders or amendments or cancellations of conditional orders after the Close Price Match matching time. JPB-X accepts firm-up orders and amendments to firm-up orders (to reduce quantity) after the Close Price Match matching time, during the firm-up period. JPB-X does not accept cancellations of firm-up orders designated for Close Price Match from the algorithms/SOR or Subscribers.

Once the firm-up period described in Part III, Item 9 has elapsed, JPB-X matches the firm-up orders designated for Close Price match received during the firm-up period (subject to the eligibility criteria for the firm-up orders discussed above and the firm-up orders' participation instructions) based on the time priority previously afforded the corresponding same-side conditional orders that preceded the firm-up orders, respectively. Unmatched firm-up orders are cancelled back to the SOR or, for any unmatched firm-up orders routed directly by a Subscriber, the Subscriber. Once the official closing price as determined by the closing auction is published by the primary exchange for the NMS stock, JPB-X crosses the matched firm-up orders at that closing price as reported by the SIP (see Part III, Item 23). A Close Price Match firm-up order (a) will be cancelled if the primary exchange does not publish a close price as determined by the closing auction for the stock and (b) may not be executed fully or at all if it is partially or fully cancelled as a result of a response to a production issue.

As described in response to Part III, Item 20, when a Halt is in effect for an NMS stock, JPB-X will continue to accept and match conditional orders designated for Close Price Match and to accept instructions to modify, cancel, or replace conditional orders in that NMS stock using the priority logic described in this response but will not execute orders if the primary exchange does not publish a close price as determined by the closing auction for the stock, in which case JPB-X will cancel the unexecuted orders immediately after JPMS determines that the primary exchange has not published a close price as determined by the closing auction for the stock and has been delayed in doing so as a result of the Halt. Firm-up orders that were matched but have not yet been executed will be cancelled by JPB-X immediately after the Halt goes into effect.

Additional Rules and Procedures for JPB-X Generally:

JPMS, at the request of a Subscriber or on JPMS' own initiative, may determine to review any transaction in JPB-X to assess whether it was adversely affected by a technical issue or "clearly erroneous" as defined by relevant regulators (e.g., under FINRA Rule 11891, "the terms of a transaction are 'clearly erroneous' when there is an obvious error in any term, such as price, number of shares, or other unit of trading, or identification of the security"). If JPMS determines that a transaction was adversely affected by a technical issue or clearly erroneous, whether or not as a result of JPMS or Subscriber error, JPMS, depending on the facts and circumstances, may work with the affected Subscriber(s) to resolve the error and may cancel (bust) the transaction or assume responsibility for one side of the transaction and work to cover the resulting position as soon as is practicable. JPB-X also may suspend matching in the event of volatile market conditions (e.g., wide bid/offer spreads).

JPB-X time stamps orders upon receipt and executions at the time they occur and reports them in milliseconds in accordance with applicable FINRA Order Audit Trail System and trade reporting rules. JPB-X determines queue position based on new order receipt times with microsecond precision, except in the case of a reduction in the quantity of an order in which case, the replacement order assumes the queue position of the original order.