SPIDERROCK ATS SUBSCRIBER MANUAL

TABLE OF CONTENTS

A. INTRODUCTION

The SpiderRock ATS is an alternative trading system for US equity options that supports trading individual option Series and option Spreads (each as defined below) in both exchange listed and exchange FLEX instruments. All products that trade within SpiderRock ATS clear at the Option Clearing Corp ("OCC") and can be delivered to Subscriber (defined below) prime broker accounts in the normal fashion.

Specifically, SpiderRock ATS presumptively matches orders in a Series or Spread entered into an auction based on the methodology described below, and routes those presumptive matches to options exchanges for execution pursuant to the rules of, and subject to the price improvement opportunities of, the applicable options exchange price improvement auction. When a presumptive match on a Spread Order contains an equity stock component, the applicable options exchange will on-route the presumptive matched orders in that stock component to an equity stock market center for execution, consistent with the exchange's usual practice for price improvement auctions with an equity stock component.

Because presumptive matches are subject to potential price improvement from the applicable exchange's price improvement auction, an order presumptively matched on SpiderRock ATS subsequently may not receive an execution (or may receive a partial, pro-rated execution) in the event that the exchange's price improvement auction provides price improvement on the same side of the market as such order.

SpiderRock ATS is operated by SpiderRock EXS, LLC ("EXS" or "SpiderRock"), a FINRA-registered broker-dealer, which licenses technology from SpiderRock Platform Services, LLC and purchases market data from SpiderRock Gateway Technologies, LLC. All three of these entities are a wholly owned subsidiaries of SpiderRock Technology Solutions, LLC.

In addition to operating SpiderRock ATS, EXS' internal brokerage desk provides its broker-dealer partners (entities that are not Subscribers to SpiderRock ATS) the ability to enter interest with EXS via phone or chat rooms, and EXS's brokerage desk will enter those interests in Block Auctions in SpiderRock ATS. Similarly, EXS will provide these broker-dealer partners with the ability to receive and respond to certain Block Auction information through either automated technology provided by EXS within a generally available commercial industry chat system or EXS's brokerage desk (in both cases in the same manner Subscribers can). The broker-dealer partners as described above are generally those entities that EXS has determined that, due to their regular activity in the options markets or otherwise, may have an interest in receiving notice of, and may be able to provide contra-side liquidity to, Block Auctions in SpiderRock ATS.

This SpiderRock ATS Subscriber Manual provides information about SpiderRock ATS, its technology, connectivity, surveillance, operations, and relevant policies. This document may be updated from time to time and, with respect to any differences in this version and a prior version, this version will control.

B. PARTICIPATION OVERVIEW OF SPIDERROCK ATS

1. Eligible Subscribers

The following types of clients (each a "Subscriber") will be able to participate on SpiderRock ATS:

- **SpiderRock Brokerage Clients ("Direct Subscriber").** This includes both institutional and broker-dealer clients of EXS that route through EXS to SpiderRock ATS requests to initiate an auction, requests for quotations, orders, and liquidity responses. Direct Subscribers must:

  - Be a client of EXS with permission to access SpiderRock ATS;
  - Execute any required customer agreements and/or addendums;
  - Maintain a prime brokerage account capable of accepting delivery of executed orders;
  - Satisfy EXS' know-your-customer requirements; and
  - Execute a Risk Limit Agreement with EXS in accordance with Securities and Exchange Commission Rule 15c3-5.

- **Clients of a Sponsoring Broker-Dealer ("Sponsored Subscriber").** This includes both institutional and broker-dealer clients of a sponsoring broker-dealer that routes through such sponsoring broker-dealer to SpiderRock ATS requests to initiate an auction, requests for quotations, orders, and liquidity responses. Sponsored Subscribers must:

  - Be a client of a broker-dealer that has a sponsorship agreement with EXS;
  - Execute any agreements required by their sponsoring broker-dealer;
  - Maintain a prime brokerage or clearing account capable of accepting delivery of executed trades; and
  - Satisfy their sponsoring broker-dealer's know-your-customer requirements.

2. Types of Auctions

SpiderRock ATS offers the following auction types:

- **Flash Auctions**: These are auctions with a 100-millisecond duration, are typically started by either SpiderRock algorithms, third party algorithms, or via the SpiderRock Connect Trade App, and are designed to elicit responses from algorithms and other trading technology that can respond timely to auction initiation requests with a short duration. Flash Auctions can be initiated for any quantity, often by individual users looking to find electronic markets/quotes inside of the publicly displayed NBBO levels.

  The handling of the order before and after a Flash Auction typically depends on the configuration of the SpiderRock or third party algorithm that initiated the order. In some cases, the order will be returned to the originating party unfilled or partially filled.

In other instances, the order will be forwarded to an exchange for handling within an exchange order book. Additionally, Subscribers can use Flash Auctions as part of a progression style algorithm (e.g. a TWAP algo) that works through a sequence of order handling steps over time.

- **Block Auctions:** SpiderRock ATS Block Auctions can be initiated for 50 contracts or more and are typically started and managed by individual initiators. These auctions are longer in duration (up to 5 minutes), allowing traders to directly participate in the auction negotiation process. They allow both the auction initiator and responding liquidity providers to dynamically update limit prices during the process, and are designed for trading option Series or Spreads in larger block quantities.

  Based upon the terms that the initiator authorizes SpiderRock ATS to disseminate to participants, a Block Auction may take different forms. For example, when initiating a Block Auction in a Series or Spread with an order that includes a limit price, side of market (buy/sell), and order size, the initiator can request that SpiderRock ATS:

  - Not disseminate to participants the **side of the market** or the **price of the order**. Subscribers responding to such Block Auction initiations can enter auction responses on either side (or both sides) of the market and may enter responses for prices different than would have been submitted if the initiator's price were disclosed. Also, only responses entered on the side of the market opposite to the initiator's order can participate in the subject Block Auction, subject to the order-interaction methodology described below.

  - Not disseminate to participants the **price of the order**. With the side disclosed, Subscribers responding to such Block Auction initiations will enter auction responses only on the contra-side of the market.

  - Disseminate to participants the side, price, and size of the order. This allows potential responders to provide responses based upon the initiator's disseminated interest, rather than only the interest shown by other potential responders in their auction responses.

Block and Flash Auctions will be offered for both single listed equity options ("Series") and qualified packages of listed equity, index or flex options ("Spreads"). Spreads generally must meet the requirements necessary for admission to exchange spread order books and exchange auctions. Spreads may also include a stock leg and such stock leg will be executed by the applicable options exchange routing such stock leg order for execution at an equity stock market center, consistent with that exchange's ordinary practice for executing stock legs as agent.

3. Dissemination of Auction Information

As further detailed below, the information pertaining to a Flash Auctions will be disseminated to ATS Subscribers, and specifically to Subscribers that are able to receive and respond electronically to messages within the short duration (100-milliseconds)

attendant to a Flash Auction. In addition, information pertaining to Block Auctions will be disseminated to both ATS Subscribers and certain broker-dealer partners of SpiderRock, both directly and indirectly via EXS brokers and/or technology. These broker-dealer partners will not be Subscribers to SpiderRock ATS, but will be enabled to receive and respond to certain Block Auction information, either through automated technology that interfaces and communicates with such partners via generally available commercial industry chat systems or through EXS's brokerage desk, in both cases in the same manner as is also available to ATS Subscribers. These broker-dealer partners, together with all ATS Subscribers, comprise the "SpiderRock ATS Network."

The broker-dealer partners within the SpiderRock ATS Network as described above are generally those broker-dealers that EXS has determined that, due to their regular activity in the options markets or otherwise, may have an interest in receiving notice of, and may be able to provide contra-side liquidity to, Block Auctions in SpiderRock ATS.

4. Auction Restrictions

- **Opening of Trading.** Auctions can be initiated during regular market hours (see the Hours of Operation section below), after the relevant underliers (the applicable underlier for a Series and all underliers for a Spread) have opened for trading on the underliers' primary exchange.

- **Exchange Trading Halts**. If an exchange halts trading for regulatory reasons in any underlier of a Series or Spread that is the subject of a pending auction on SpiderRock ATS, SpiderRock ATS will terminate that auction, cancel back any submitted orders, and stop routing any presumptive matches to an applicable options exchange. Any presumptive matches that were already routed to an options exchange will also be subject to that exchange's prohibitions on executions during trading halts. Presumptive matches determined prior to a trading halt but not executed on the options exchange due to a trading halt will cancel and will not be executed when and if the halt is lifted.

- **Exchange Result Notification Delay.** When a presumptive match occurs SpiderRock ATS will select and exchange and forward a crossing order representing the presumptive match to that exchange. Under normal circumstances this crossing attempt will either result in an immediate cross or short exchange auction process. If an exchange crossing attempt fails, SpiderRock will select another exchange and forward a crossing order to that exchange. This process will continue until the presumptive match is successfully crossed, the set of available exchange is exhausted, or one second has elapsed since the presumptive match was created. When a presumptive match successfully crosses (or fails to cross) SpiderRock will notify all cross parties of their individual cross result(s). Under certain rare circumstances it is possible for SpiderRock to send a crossing order to an exchange and fail to receive any result for the cross order (either success or failure). Should a failure of this type occur SpiderRock will make a best effort attempt to resolve the status of the pending exchange cross order and notify all parties of the result as quickly as possible.

- **Mid-Market Price Restriction**. Initiators of both Block and Flash auctions, unless otherwise exempt, are required to initiate auctions with a limit price that is at least mid-market or better (as defined below). The initiator may choose to either keep this price hidden from responders or reveal it to them, however; in either case, this limit price will be considered immediately actionable and can result in a presumptive match if appropriate response(s) are received from responders.

  Initiators that chose to reveal their identity to ALL responders are exempt from the above and may begin an auction at any price.

  Auctions for all FLEX option series and spreads are similarly exempt and may begin at any price.

  Mid-Market Restriction

  The initiator starting limit price (when buying an individual listed option series) must be equal to or greater than the least restrictive of:

  - The SpiderRock Fair Mid price (adjusted down to the nearest penny)
  - The NBBO bid/ask mid-point price (adjusted down to the nearest penny) - $0.01.
  - The NBBO bid price + $0.05

  In addition, when buying an individual listed series or spread, the initiator starting limit price must improve the current OPRA NBBO bid by, at minimum, one penny ($0.01).

  For listed option spreads the above price levels are computed by aggregating either the SpiderRock Fair Mid or NBBO levels for the individual legs of the spread.

  For all listed option series and spread legs NBBO bid/ask values will be from OPRA. For all listed equity legs that are part of a spread package NBBO bid/ask values will be from an equity NMS SIP feed.

  When selling either an individual listed option series or spread the same restrictions apply only mirrored (exchanging bid and ask) to reflect the change from BUY to SELL.

  For purposes of the Mid-Market Restriction, the SpiderRock Fair Mid price is a proprietary price that represents SpiderRock's best estimate of what a fair market price would be for the series or spread in question. This price can be understood as a statistical estimate of the price level of the next trade price, should one occur. This SpiderRock Fair Mid price may not be in an even penny increment. Also, this SpiderRock Fair Mid price level may not exist for all series or spreads, in which case any criteria based on this level will not apply when determining whether an auction can be started at a given price. Nothing about the operation of an auction depends on the existence or value of the SpiderRock Fair Mid price. At most, the Spider Rock Fair

Mid price can allow auctions to start that would not otherwise be able to start using only OPRA NBBO derived price restrictions.

- **Price Restrictions.** Subscribers can enter orders to initiate or respond to a Flash Auction or a Block Auction, but those orders will interact in the applicable SpiderRock ATS auction only if they are priced at a level that permits a presumptive match against contra-side interest in the applicable SpiderRock ATS auction. Presumptive matching in SpiderRock ATS auctions are also subject to applicable regulatory restrictions under Regulation NMS (trade through obligations, prohibitions on locking and crossing markets, etc.) and options exchange order priority. Accordingly, presumptive matches may be delayed or may not occur to the extent their execution through an options exchange auction would violate a regulatory requirement, and the responder's side of a presumptive match may be reduced as necessary to satisfy trade through and/or options exchange order priority requirements.

- **Size Restrictions.** A Flash Auction can be initiated for any size. A Block Auction must be initiated for at least 50 contracts (for a Series and/or each Spread leg). A responder can submit a response in a Block Auction for any size, but a response will not qualify for a pro-rata allocation (as defined below) in a completed Block Auction unless either the size of the response is (a) at least 10% of the aggregate size of responders presumptively matched in the completed Block Auction or (b) less than 10% of the aggregate size of responders that would permit presumptive matching, but including the undersized response would allow for a presumptive match. (Example for (b) above: Initiated order for 100 contracts, all-or-none; responses matching on all other terms for 55 contracts, 40 contracts, and 5 contracts. Although the 5 contract response is below the 10% (10 contract) limitation, including it would result in an aggregate of 100 contracts and permit a presumptive match against the all-or-none 100 contracts in the initiated order).

5. Exclusions from SpiderRock ATS Services

All Direct Subscribers and Sponsored Subscribers have access to SpiderRock ATS, although EXS, the broker-dealer operator of SpiderRock ATS, retains the discretion to determine (for credit, abusive trading practices, or other reasons) to terminate any Subscriber or to impose restrictions on Sponsored Subscribers to prevent that broker-dealer from entering orders or responses on behalf of certain of its underlying clients that raise similar concerns.

6. Fees

- SpiderRock ATS will pay all exchange fees associated with the selected exchange and will arrange for all resulting executions to be delivered via CMTA to the appropriate initiator and responder accounts. Responders and/or initiators pay commissions to, or receive commissions from, SpiderRock ATS as per their individual initiator and responder agreements.

- **EXS Commission-based Fees.** EXS, the broker-dealer operator of SpiderRock ATS, charges per-contract fees for orders it executes, including orders executed through SpiderRock ATS. The per-contract commission rate is negotiated between EXS and the applicable client, or in the case of a client of a sponsoring broker-dealer, between EXS and that sponsoring broker-dealer. EXS does not charge any fees specifically for accessing or executing through SpiderRock ATS, but rather charges fees for accessing the brokerage and other services of EXS including SpiderRock ATS. The per-contract fees EXS charges takes into account any fees charged or rebates provided by any options exchange for affecting a presumptive match, including any payments relating to or rebates of any breakup fee paid by an options exchange. For clarity, EXS does not pass along to Subscribers exchange fees or rebates for crossing presumptive matches affected through SpiderRock ATS, but rather takes these fees and/or rebates into account when negotiating per-contract commission rates with the applicable client or broker-dealer.

  Sponsoring broker-dealers may also charge their clients additional per-contract fees. Accordingly, clients of sponsoring broker-dealers should contact their broker-dealers for details regarding the allocation of per-contract fees between the sponsoring broker-dealer and EXS.

- **Disclosed Counterparty Fees.** In certain circumstances, a Subscriber or a client of a sponsoring broker-dealer may elect to disclose its identity to and seek contra-side liquidity from a counterparty (other than EXS or the sponsoring broker-dealer) with which the Subscriber or client has an existing relationship. Any fee that the counterparty elects to charge the disclosing Subscriber or client is separate and distinct from, and not included in, any fees that EXS charges, nor are such fees charged by EXS or SpiderRock ATS.

- **Technology Service Fees.** EXS charges fees for technology services, including but not limited to, network access, access to tools and user interfaces, access to computer-to-computer APIs, data processing and storage. Such fees are negotiated with each applicable client, typically charged on a monthly basis (and not on a per-transaction basis), and are in addition to, and not covered by, the Commission-based fees described above.

C. GENERAL TRADING OPERATIONS

1. Hours of Operation

SpiderRock ATS operates on weekdays from 9:30 A.M. ET to 4:15 P.M. ET and will be closed or will close early during market holidays or shortened trading days. Auctions may only be initiated and responded to during these hours of operation. At 4:15 P.M. ET (or such earlier time in the event of a shortened trading day or early closure or a closure described in the next sentence), any unexecuted orders and open auctions will be canceled. SpiderRock has discretion to close or not to open (in whole or in part) SpiderRock ATS in the event of a market disruption or technological or other issue.

2. Means of Order Entry

a. SpiderRock Connect Trade App

The SpiderRock Connect Trade App is a live order and execution management program that allows Subscribers to view live market data and analytics for a selected product complex. Via this service, these Subscribers can initiate Flash and Block Auctions in SpiderRock ATS and also interact with public exchange markets via a suite of SpiderRock algos and order types. The SpiderRock Connect Trade App also provides Subscribers with the ability to manage their own active orders as well as orders staged to them from external systems. Finally, Subscribers can use this product to view and respond to Block Auctions initiated by other parties on SpiderRock ATS.

b. FIX and MLINK

Subscribers can receive auction notification messages via FIX or SpiderRock's MLink/WebSocket API and can respond by sending new order messages to a SpiderRock Order Entry FIX Gateway using an appropriately provisioned FIX session or via the MLink/WebSocket API. To gain access via MLINK, responders must secure an MLink API Key, connect to an MLink/WebSocket server, and subscribe to both *AuctionNotice* and *AuctionState* messages.

c. SpiderRock Brokerage Desk

SpiderRock ATS offers Subscribers and non-Subscriber broker-dealers the ability to enter interests with EXS via phone or chat rooms, and SpiderRock's internal brokerage desk will enter those interests in Block Auctions in SpiderRock ATS. In addition, SpiderRock's automated technology, (the "Chat Bot") is capable of automatically forwarding Block Auction notice messages to potential responders (both Subscribers and non-Subscriber broker-dealers) via generally available commercial industry chat systems, with the ability to accept responses to these auction notices, all via the Chat Bot and SpiderRock's internal brokerage desk. The non-Subscriber broker-dealers referenced above are generally those entities that EXS has determined that, due to their regular activity in the options markets or otherwise, may have an interest in receiving notice of, and may be able to provide contra-side liquidity to, Block Auctions in SpiderRock ATS.

NOTE: Due to the technological limitations of generally available commercial industry chat systems, auction notices relayed via that medium are more limited in scope and detail than auction notices available by directly subscribing to SpiderRock ATS.

3. Order Entry by Subscriber Type

a. Direct Subscribers

Direct Subscribers can enter orders to initiate or respond to SpiderRock ATS auctions either directly or indirectly (through EXS functionality), as described below. Such Subscribers can enter orders directly:

- Via the SpiderRock Connect Trade App
  - For initiating both Flash and Block Auctions
  - For responding to Block Auctions only. (The short duration for Flash Auctions requires that responses to those auctions be submitted electronically).

- By submitting relevant instructions electronically via an appropriate computer-to-computer access API such as FIX or MLINK
  - For initiating both Flash and Block Auctions
  - For responding to both Flash and Block Auctions

Direct Subscribers can enter orders indirectly into SpiderRock ATS through EXS algos, certain generally available commercial industry chat systems, or through an EXS broker (who may also modify any such orders at the direction of such Subscriber), as follows:

- By using the "Flash to ATS" feature of EXS electronic algos to initiate a Flash Auction or the "Respond to ATS" feature of such algos to respond to either a Flash or a Block Auction.

- By entering an order with EXS for an EXS broker to initiate a Flash or Block Auction or respond to a Block Auction.

- By interacting with the Chat Bot to respond to a Block Auction.

b. Sponsored Subscribers

Sponsored Subscribers can enter orders to initiate or respond to SpiderRock ATS auctions via the tools described below and in the following manner:

- Via the SpiderRock Connect Trade App, if provided by the sponsoring broker-dealer
  - For initiating both Flash and Block Auctions
  - For responding to Block Auctions

  NOTE: The Sponsoring broker-dealer can modify and/or limit the functionality made available through the version of the SpiderRock Connect Trade App it provides.

- Via any other tools or systems the sponsoring broker-dealer may provide, including any computer-to-computer access API such as FIX or MLINK
  - For initiating both Flash and Block Auctions
  - For responding to both Flash and Block Auctions

A sponsoring broker-dealer can also interact with SpiderRock ATS via the Chat Bot, or by contacting EXS's brokerage desk to have its brokers enter into the SpiderRock Connect Trade App, either on behalf of itself or its customer, an order to initiate a Flash or Block Auction or respond to a Block Auction.

4. Order Entry by Auction Auto-Responders

a. Auto-Responder Overview

SpiderRock allows Subscribers to establish auction auto-responders capable of receiving auction notices and responding to both SpiderRock ATS and on-exchange auctions. These auto-responders are created via messages sent (and updated as needed) to SpiderRock ATS, and must be established in advance of an auction.

This feature is best utilized by Subscribers who can identify securities and total quantities (in contract, vega, or other terms) that they are generally willing to buy (or sell) in advance at mid-market or slightly better. They can be configured to respond to auctions for both listed and/or FLEX options.

Auto-responders generally allow Subscribers to specify the underliers and expiries they are willing to respond to, the levels they are willing to respond at, and also the total aggregate quantity they are willing to trade. If all of a responder's criteria are met SpiderRock auto-responders generate *SpdrParentOrders* on the responder's behalf in order to participate in the auctions. These parent order records are visible in SRSE and MLink servers and are subject to all normal SpiderRock risk controls as well as potentially triggering a SpiderRock *StageReview* sequence. In addition, drop copies of the parent orders and all associated exec reports can be delivered to Subscribers via FIX drop copy.

All auto-responder messages have primary keys allowing them to be replaced by sending a subsequent message with the same primary key. This mechanism can be used to update any auto-responder parameter including enabling or disabling it.

Auto-responder records can be uploaded to SpiderRock via MLink/REST, MLink/WebSocket, SRSE APIs, or via the SpiderRock MLink Portal webApp tool.

b. Auto-Responder Configuration Messages

Message	Use Description
AutoResponderVegaDir	Respond to auctions in which a leg(s) is going the same direction.
AutoResponderRC	Respond to option rev/con Spread (C/P/S) strategies.
AutoResponderBX	Respond to option box Spread (C/P/C/P) strategies.

Message	Use Description
AutoResponderSN	Respond to option synthetic Spread (C/P) strategies.

Each of the above are further described below.

c. Auto-Responding to VegaDir Auctions

The *VegaDir* auto-responder defines, via underlier, expiry range (min expiry to max expiry) and delta range (*minXDelta* to *maxXDelta*), and a set of strikes that a responder is willing to either buy or sell. Any auction for a strike or combination of strikes within this 'risk box' that meets a minimum surface edge requirement and has not exhausted responder cumulative risk thresholds will be responded to. Auto-hedge instructions can (optionally) be supplied that will cause any resulting trades to be automatically auto-hedged if and when they occur.

Subscribers can establish as many auto-responder records as reasonably necessary to 'cover' the set of strikes that they are willing to buy or sell at any given time.

d. Auto-Responding to Rev/Con Spread Auctions

Rev/Con Spread auto-responders define an underlier and expiry for which they are willing to execute a rev/con transaction (a transaction to lend or borrow shares by buying or selling shares versus a synthetic call/put pair that will return the shares on expiration). While rev/con transactions can be viewed in option terms, it is often simpler to analyze them as short term lend/borrow transactions. To help facilitate this analysis, auto-responders can specify their potential rev/con auction response limit price using a term stock lending rate, a term cash discount rate, and the present value of the expected term dividend stream. SpiderRock allows auto-responders to convert this information into a rev/con premium limit level for the purpose of participating in rev/con auctions.

Responders would typically use this type of record to pre-load an inventory list and expiry terms that they are willing to lend (or borrow) shares at if or when appropriate auctions occur.

e. Auto-Responding to Box Spread Auctions

Box Spread auto-responders are similar to Rev/Con auto-responders except they are involved in the buying and selling of a Box Spread (a transaction to lend or borrow cash that will return on expiration). To help support this type of auto-responder, SpiderRock allows auction response limit prices to be specified as a term cash discount rate.

Auto-responders can use this type of record to pre-load expiries for which they are willing to lend (or borrow) cash if or when appropriate auctions occur.

f. Auto-Responding to Synthetic Spread Auctions

Synthetic Spread auto-responders are willing to execute a synthetic Spread transaction (a transaction to create temporary exposure to an underlier similar to that of a single stock future). To help support this type of auto-responder, SpiderRock allows auction response limit prices to be specified as offsets to the current underlier stock NBBO price.

Auto-responders can use this type of record to pre-load underliers and expiries for which they are willing to execute synthetic Spread transactions if or when appropriate auctions occur.

5. Auction Market Data

SpiderRock ATS conducts auctions and the SpiderRock Connect Trade App permits the entry of orders taking into account market conditions such as the last sale price and NBBO of any item and/or its underlier(s); the top-of-book quotations on public options exchanges in such item; and regulatory information (such as trading halts). SpiderRock ATS obtains such market data from the public SIP feed (for stock-related data) and the data feed provided by the Options Price Reporting Authority.

6. SpiderRock ATS Allocation Policy

When allocating either a Flash or Block Auction among responders, SpiderRock ATS will cap all individual responder quantities at the presumptive match quantity and apply any responder size conditions to determine an available responder quantity. If a responder has more than one order participating in a presumptive match, then the total quantity of all of the participating Subscriber firm orders will be capped at the presumptive match quantity, with that responder's orders reduced pro-rata to ensure that its total does not exceed the presumptive match quantity.

Responder pro-rata allocation will then be:

$$Allocated\ Quantity = \frac{Match\ Quantity\ x\ Responder\ Quantity}{Sum(Responder\ Quantity)}$$

Any required rounding will be conducted to favor larger responses.

7. SpiderRock Selection of Options Exchange for Price Improvement Auction Crossing

Once SpiderRock ATS has determined a presumptive match for either a Flash or Block Auction, EXS, as the broker-dealer operator of SpiderRock ATS, will seek to execute the presumptive match by routing a crossing order to an exposure auction of the options exchange of its choosing. In choosing the exchange on which to execute and seek price improvement for a presumptive match, EXS will take into account factors including the existence and the amount of any fee that EXS may pay or rebate that EXS may receive and any obligations that EXS may have under exchange auction priority rules to satisfy an

exchange's top-of-book for a presumptive match trading at such top-of-book price and whether such obligations properly can be avoided. EXS at all times will comply with any trade-through obligations pursuant to Regulation NMS, as described above. Because EXS cannot know of undisclosed liquidity on an options exchange without seeking to access such liquidity by routing an order, EXS cannot take such undisclosed liquidity into account when choosing which options exchange to route a crossing order to, but rather will be guided by the routing factors described above.

8. Market Quality and Market Risk Controls

SpiderRock ATS carries out a series of pre-match market quality and risk checks. These consist of testing for locked and crossed markets and verifying that Subscriber configured risk checks pass. For Subscriber controlled risk checks, the following parameters are configurable within limits established by SpiderRock (including limits set pursuant to SEC Rule 15c3-5 which, when applicable, remain under the direct and exclusive control of SpiderRock):

- total notional value maximums per order
- total quantity maximums per order
- symbol restrictions
- daily haircut limit based on trades executed and pending bids/offers
- total number of duplicate orders

SpiderRock has SEC Rule 15c3-5 obligations with respect to all sponsoring broker-dealers, however it has no direct Rule 15c3-5 obligations when receiving orders from broker-dealers that originate from their sponsored clients. In those scenarios, SpiderRock may enter into agreements to implement SEC Rule 15c3-5 controls on behalf, and under the supervision of, the sponsoring broker-dealers when clients of the sponsoring broker-dealer are directly accessing SpiderRock supplied system and tools and SpiderRock ATS is best positioned to implement these controls.

D. FLASH AUCTIONS

1. Flash Auction Initiator Parameters

When initiating a Flash Auction, the initiator must first set the following parameters:

Parameter	Description
Series or Spread	The auction initiator must choose to initiate an equity option Series or Spread. This can be either a listed option Series, and exchange eligible listed option Spread, or a valid FLEX option Series or Spread. Spreads can contain up to six (6) option legs and may contain an equity leg.
Order Side	The auction initiator must identify a Series side (BUY or SELL) or a Spread side (BUY/REG, SELL/INV). Note that the initiator can choose the Spread leg package, including the leg sides. As a result, if an initiator is starting an

Parameter	Description
	auction with their side visible they would typically choose to start with their side as BUY/REG. However, they are not required to do so.
Limit Price	The auction initiator must choose either a static or formula based limit price that may be subject to the Mid-Market Restriction noted in Section B(4) above.

A Flash Auction initiator can also choose to apply the following additional parameters:

Parameter	Description
Side/Price Visibility	The auction initiator can elect to reveal their side and price, their side only, or neither.
Counterparties	The initiator can choose which counterparties will receive its auction notices. This is done by specifying a list of named counterparties (either to include or exclude), by electing to send notices to all potential responders, or some combination of the two.
Identity Disclosure	The initiator has the option of revealing their identity to potential responders, or remaining anonymous. This decision has a significant impact on whether the Initiator's limit price must be mid-market or better in order to avoid being rejected by the system (See the "Mid-Market Restriction" set forth in Section B(4) above). In this regard, if the Initiator elects to disclose their identity to all potential responders, then the Mid-Market Restriction does not apply, and their limit price is not subject to any price restriction. However, if the Initiator elects to remain anonymous, even to one potential responder, then the Mid-Market Restriction will apply to their limit price. In addition, if an initiator chooses to identify themselves to a counterparty, then that counterparty will be identified to the initiator if/when they respond. Similarly, if an initiator does not identify themselves to all potential responders, then the identity of that responder will not be revealed to the initiator if/when they respond. **Note:** In some cases, initiators that are broker-dealers and that identify themselves to a responder may also choose to receive a commission (specified on the Flash Auction notice) from the responder should the initiator and responder trade with each other.
Transfer Commission	Broker-dealers that are initiating on behalf of a client and that chose to reveal their (the broker-dealer's) identity can specify a commission amount that successful responders must pay at the conclusion of the auction. This amount (if any) will be disclosed to all responders at the start of the auction and transferred to the initiating broker-dealer upon the successful conclusion of the auction. This transfer commission is in addition to any commissions that either the initiator or responder would normally pay to SpiderRock ATS for operating the auction.

2. Flash Auction Responder Parameters

When responding to a Flash Auction, the responder must first set the following parameters:

Parameter	Description
AuctionNoticeID	Auction responders must respond with the specific (unique) ID from the associated auction notice that identifies the individual auction to which they are responding.
Order Side	Auction responders must supply a Series side (BUY or SELL) or a Spread side (BUY/REG, SELL/INV). If the initiator has revealed a side, the responder must submit a response on the opposite side of the initiator. If no side is elected by the initiator, the responder can respond on either side (or both). If the initiator subsequently reveals a side, then all incompatible (same direction) responses will be immediately cancelled.
Public Price	Auction responders must supply either a static or formula based limit price. This limit price can be changed at any time during the live auction and, if changed, will become effective in the next trial match.

A Flash Auction responder can also choose to apply the following additional parameters:

Parameter	Description
Series or Spread	(Optional) If supplied, this must be compatible with the initiator leg(s) associated with the AuctionNoticeID. If the response notice does not specify an option Series or Spread, the response will be deemed a response to the noticed option Series or option Spread package. In addition, if the initiator notice is for a Spread, the response will be deemed to be a response with the legs oriented as they were in the auction notice. When responding to Spreads it is possible for the responder to use the same order side as the initiator (eg. BUY/REG vs BUY/REG) but the opposite leg sides and limit price sign. This type of response will be accepted as valid and automatically inverted within SpiderRock ATS to align with other responses.
Best Price Offset	Responders may enter a Best Price Offset and, if elected, this Best Price Offset will only be used to join other responders. In addition, if a presumptive match occurs within SpiderRock ATS and is subject to a price improvement auction on an exchange, then any remaining Best Price Offset room will be forwarded to the exchange for consideration in the on-exchange secondary auction. If more than one responder is part of the presumptive match, then the least common remaining Best Price Offset value will be forwarded to the exchange for consideration.

3. Flash Auction Initiator and Responder Limit Types

Limit Types	Description
Static	**MatchPrice = StaticPrice** Maintains an unadjusted price for the life of the order. This is also known as “Package” for Spreads that contain more than one leg.
Delta (2-way)	**MatchPrice = Delta2WayPrice + refDelta * dUPrc + 0.5 * refGamma * dUPrc * dUPrc** WHERE: **dUPrc = uPrcNbboMid - URefPrice** (URefType=Mid) OR **dUPrc = uPrcNbboCross - URefPrice** (URefType=Cross)

Limit Types	Description
	This limit type is used to dynamically adjust the limit price on outright option Series as well as option Spreads with and without stock legs. For Spreads that include a stock leg Delta (2-way), this will allow the user to adjust on a delta that is different from the stock ratio used on the package. *refDelta*, *refGamma*, *uRefType* and *uRefPrice* can be selected by the party entering the order or they can default to SpiderRock suggested values. Note that *uPrcNbboCross* is interpreted as relative to the underlier direction that would be necessary to hedge the Series or Spread *refDelta*. (i.e. BID for positive *refDelta*, and ASK for negative *refDelta*). In addition, the initiator and responder(s) do NOT need to agree on the *refDelta*, *refGamma*, *uRefType*, or *uRefPrice.*
Delta (1-way)	**MatchPrice = Delta1WayPrice** OR **Delta1WayPrice + refDelta * dUPrc + 0.5 * refGamma * dUPrc * dUPrc** (whichever is less aggressive) where: **dUPrc = uPrcNbboMid - URefPrice** (URefType=Mid) OR **dUPrc = uPrcNbboCross - URefPrice** (URefType=Cross) This limit type differs from Delta (2-way) in that the adjustment is bounded by the original (starting) limit. This limit type is particularly useful for Subscribers that wish to take advantage of a dynamic limit, but have a level above or below which they do not want to trade.
Neutral	**MatchPrice = NeutralPrice + StockDir * 0.01 * StockShares * URefPrice** This Limit Type is available as a convenience for option Spreads that contain a stock leg. *NeutralPrice* can be interpreted as the price for the option legs of the Spread by themselves. The resulting *MatchPrice* is static for the life of the order (it does not change as all parts are also static).
RC Premium	**MatchPrice = NeutralPrice - StockDir * StrikePrice** This Limit Type is available as a convenience and only for reversal/conversion strategies. The resulting *MatchPrice* remains static for the life of the order.

4. Flash Auction Trial Match

When a Subscriber initiates a Flash Auction, SpiderRock ATS disseminates notices to prospective electronic eligible responders and 100ms later a trial match process is run. This auction notice contains only the item, side, and size (but not the limit price). At the start of this trial match, SpiderRock ATS will determine a set of valid auction responses that are able to fully execute at that time. Valid auction responses originate from an eligible responder, which is either a Direct Subscriber or a Sponsored Subscriber that has indicated to EXS that it is able to receive and respond electronically to messages within the short duration (100-milliseconds) attendant to a Flash Auction.

Responders (including technology such as electronic algorithms operating on behalf of responders) receiving an auction notice may (but are not required to) respond during the duration of the Flash Auction with contra-side response orders that include a size and limit price, which can be a dollar value or formula-priced. SpiderRock ATS will then resolve all formula based limits (if any) and round initiator and responder limits to an appropriate

potential match price level. Individual orders can either round exact (99/1) or round fuzzy (90/10) in the direction of making the order more conservative. This choice is established by Subscriber preference at the trading account level.

SpiderRock ATS will apply the following methodology at the end of the 100-millisecond auction duration to determine presumptive matches (that is, matches between the initiated order and applicable responses) to be routed to the options exchange for potential price improvement and execution in the exchange price improvement auction. During the trial match, all formula based prices are resolved and a penny price interval responder order book is formed. In most cases all potential match price levels will be two (2) decimal places. In the special case of a Spread that contains a stock leg with a leg size not equal to 100, the initiator's limit price will be rounded (50/50) to four (4) decimal places and all potential match price levels will be rounded to four (4) decimal places spaced $0.01 apart, with the 3rd and 4th decimal place being the 3rd and 4th decimal place of the initiator's rounded limit price.

Generally, SpiderRock ATS will apply price priority (but presumptively match at a single clearing price) and allocate presumptive matches pro-rata by size (as described in *Section C(6) SpiderRock ATS Allocation Policy* above). Time of order entry (other than that the order be entered within the auction duration) is not a relevant factor for presumptive matching or order priority. During the process of forming price levels, the following specific rules apply:

- No responder price level can be equal to or through the opposing OPRA NBBO level. For example, if NBBO is 1.12 - 1.17 for a single Series and a responder attempts to SELL at 1.08, that response limit will be adjusted to 1.13 (one penny inside the NBBO BID). For a Spread order, the bounding NBBO will be the NBBO level from the individual leg markets (options and stock).
- No initiator price level can be more than 0.25 through OPRA NBBO levels. For example, if NBBO is 2.54 - 2.75 for a single Series and an initiator attempts to BUY at 3.10 their limit price will be adjusted to 3.00. For a Spread order, the bounding NBBO will be the NBBO level from the individual leg markets (options and stock).
- If an initiator has already advertised their limit price, then all responder limit prices will be stopped at the initiators public price level. For example, if the initiator is advertising a willingness to BUY at 3.42 and a responder sends an order to SELL with a limit of 3.40 then the responder’s limit will be adjusted to 3.42 to match the initiators already public price. However, if a presumptive match occurs at the 3.42 level, then the initiator that offered through the initiator level will be deemed to have a best price of 3.40 less any best price offset for the purpose of notifying an exchange of the responder’s willingness to trade at a better level.
- If a responder has an active best price increment then that increment can be activated (used) only if a better competitive response is available in the trial match. A response must be for at least 100 cn or 1/4 of the initiator's size in order to be deemed competitive.

After establishing price levels, SpiderRock ATS will form all responses into a response book. This book will be one-sided if the initiator has revealed a price and two-sided if they have not. In addition, the response book price levels may be in either two (2) or four (4) decimal places (depending on the item being auctioned), but in all cases will be spaced at least $0.01 apart. Finally, all responder size conditions will be considered and an available size (to the initiator) at each response book price level will be determined.

If it is possible for the initiator to cross (trade with) one or more responders at one or more price levels, subject to all initiator and responder conditions, the best such price level (from the initiator's perspective) will become the presumptive match price. Otherwise, the auction will conclude and all non-matching initiating and responding orders will be cancelled.

5. Presumptive Match Process

Presumptive matches will be determined as follows:

At the start of the presumptive match process, a provisional responder side allocation will be determined on a size pro-rata basis (see *Section C(6) SpiderRock ATS Allocation Policy* above) and a crossing order will be forwarded to an exchange selected by SpiderRock ATS. This crossing order may include a least common residual Best Price Offset value for competitive purposes on the selected exchange. If some or all of a presumptive match is broken up on exchange, then the responder side balance (if any) will be re-allocated in a pro-rata fashion among the participating responders.

- **No Responses/No Matching Responses Received:** If no responses are received, or if no responses match or cross the initiator's limit price, the auction will terminate at the end of the 100-millisecond duration. The order initiating the Flash Auction and any non-matching responses received will be cancelled.

- **Matching/Crossing Responses Received:** SpiderRock ATS will collect all responses that match or cross the initiator's limit price and order those responses by price level, from the price most favorable to the price least favorable to the initiator. The price level most favorable to the initiator that allows the initiator to trade its full size (or, if it is not possible to trade the full size, the level that would allow the initiator to trade the largest possible size) will be the clearing price, at which price SpiderRock ATS will presumptively match certain responses with the order initiating the Flash Auction. SpiderRock ATS will presumptively match those responses priced at the clearing price or better (that is, at any price more favorable to the initiator) on a pro-rata basis (as described below) based upon the size of such response.

  If the aggregate size of matching/crossing responses do not equal the initiator's size, but such aggregate size, together with the size of any top-of-book order in the applicable item on an options exchange, would equal the initiator's size, SpiderRock ATS will access such top-of-book order and affect a presumptive match for the balance of the interest. If there is no top-of-book order interest,

SpiderRock ATS will affect a presumptive match for the aggregate size matching on SpiderRock ATS.

The prices of any presumptive matches must satisfy exchange rules for price points at which an exchange electronic or floor auction can be initiated, and as indicated, will be subject to delay in execution, non-execution, or adjustment as necessary to comply with Regulation NMS (trade through obligations, prohibitions against locking/crossing markets, etc.) and/or options exchange order priority rules.

As indicated, orders presumptively matched through SpiderRock ATS are routed to an options exchange for execution and potential price improvement for the initiator. As such, any price improvement the exchange price improvement auction provides to the initiator will result in a pro-rata reduction in the execution size of, or the lack of execution of, a corresponding presumptively matched response.

Finally, it is possible for a Flash Auction initiator that is a broker-dealer representing a client to propose and receive a transfer commission for initiating a Flash Auction on behalf of that client. To do so, the initiating firm and the expected transfer commission client must be disclosed to all responders at the start of the auction. This transfer commission is in addition to any commissions or fees paid to SpiderRock ATS for hosting the auction.

6. Flash Auction Notification

At the end of each Flash Auction (whether it crosses or not) the initiator as well as all Subscribers are shown the complete responder side order book (if any) that existed when the auction concluded. This is displayed either via either MLink servers and/or the SpiderRock Connect Trade App (if the Flash Auction was initiated from the app) and, while it contains the resulting auction book, it does not contain the original initiator side, size or limit price.

E. BLOCK AUCTIONS

1. Block Auction Initiator Parameters

When initiating a Block Auction, the initiator must first set the following parameters:

Parameter	Description
Series or Spread	The initiator must elect an equity option Series or Spread. This can be either a listed option Series, an exchange eligible listed option Spread, or a valid FLEX option Series or Spread. Spreads can contain up to six (6) option legs and may contain an equity leg.
Order Side	The initiator must identify a Series side (BUY or SELL) or a Spread side (BUY/REG, SELL/INV). Note that the initiator can choose the Spread leg package, including the leg sides. As a result, if an initiator is starting an auction with their side visible they would typically choose to start with their side as BUY/REG. However, they are not required to do so.

Parameter	Description
Public Price	The initiator must choose either a static or formula based limit price at the start of the auction process that will be visible to all auction participants as the Public Price. This limit price can be changed by the initiator at any time during the auction and, if changed, will become effective in the next trial match.
Size Condition	*All Or None* or *Quantity Or More*
Time Duration	*15 Seconds, 30 Seconds, 60 Seconds, 2 Minutes, 5 Minutes* This time selection sets the ultimate duration of the auction and encourages participants to negotiate price levels accordingly. All Block Auctions can be executed immediately at the initiator effective limit price (whether visible or not) which may result in the auction terminating before the target auction time has elapsed.

A Block Auction initiator can also choose to apply the following additional parameters:

Parameter	Description
Best Price Offset	The initiator may enter a Best Price Offset and, if provided, will only be used in the final trial match at the completion of the set auction duration in a final attempt to make a match. This Best Price Offset value is not shown to responders prior to the final trial match.
Side/Price Visibility	The initiator can elect to reveal their side and price, their side only, or neither. This choice can be changed during the auction, but only in the direction of increasing visibility.
Counterparties	The initiator can choose which counterparties will receive its auction notices. This is done by specifying a list of named counterparties (either to include or exclude), electing to send notices to the entire SpiderRock ATS Network (defined above), or some combination of the two.
Identity Disclosure	The initiator has the option of revealing their identity to potential responders, or remaining anonymous. This decision has a significant impact on whether the Initiator's limit price must be mid-market or better in order to avoid being rejected by the system (See the "Mid-Market Restriction" set forth in Section B(4) above). In this regard, if the Initiator elects to disclose their identity to all potential responders, then the Mid-Market Restriction does not apply, and their limit price is not subject to any price restriction. However, if the Initiator elects to remain anonymous, even to one potential responder, then the Mid-Market Restriction will apply to their limit price. In addition, if an initiator chooses to identify themselves to a counterparty, then that counterparty will be identified to the initiator if/when they respond. Similarly, if an initiator does not identify themselves to a responder, then the identity of that responder will not be revealed to the initiator if/when they respond. **Note:** In some cases, initiators that identify themselves to a responder may also choose to directly pay that responder a commission should the initiator and responder trade with each other.

2. Block Auction Responder Parameters

When responding to a Block Auction, the responder must first set the following parameters:

Parameter	Description
AuctionNoticeID	Responders accessing SpiderRock ATS via a generally available commercial industry chat system or an API must respond with the specific (unique) ID from the associated auction notice that identifies the individual auction to which they are responding. **Note:** Responders using the SpiderRock Connect Trade App do not need to provide the *AuctionNoticeID*.
Order Side	Responders must supply a Series side (BUY or SELL) or a Spread side (BUY/REG, SELL/INV). If the initiator has revealed a side the responder must submit a response on the opposite side of the initiator. If no side is elected by the initiator, the responder can respond on either side (or both). If the initiator subsequently reveals a side, then all incompatible (same direction) responses will be immediately cancelled.
Public Price	Responders must supply either a static or formula based limit price. This limit price can be changed at any time during the live auction and, if changed, will become effective in the next trial match.

A Block Auction responder can also choose to apply the following additional parameters:

Parameter	Description
Series or Spread	(Optional) If supplied, this must be compatible with the initiator leg(s). If the response does not specify an option Series or Spread, the response will be deemed a response to the noticed option Series or option Spread package. In addition, if the initiator notice is for a Spread, the response will be deemed to be a response with the legs oriented as they were in the auction notice. When responding to Spreads it is possible for the responder to use the same order side as the initiator (e.g. BUY/REG vs BUY/REG) but the opposite leg sides and limit price sign. This type of response will be accepted as valid and automatically inverted within SpiderRock ATS to align with other responses.
Best Price Offset	Responders may enter a Best Price Offset and, if elected, this Best Price Offset will only be used to join other responders. **Note:** Best Price Offset will not be used if another responder updates their price, thus accepting the initiator's Public Price. In addition, if a presumptive match occurs within SpiderRock ATS and is subject to a price improvement auction on an exchange, then any remaining Best Price Offset room will be forwarded to that exchange for consideration in the on-exchange secondary auction. If more than one responder is part of the presumptive match, then the least common remaining Best Price Offset value will be forwarded to the exchange for consideration.

3. Block Auction Initiator and Responder Limit Types

Limit Types	Description
Static	**MatchPrice = StaticPrice** Maintains an unadjusted price for the life of the order. This is also known as "Package" for Spreads that contain more than one leg.

Limit Types	Description
Delta (2-way)	**MatchPrice = Delta2WayPrice + refDelta * dUPrc + 0.5 * refGamma * dUPrc * dUPrc** WHERE: **dUPrc = uPrcNbboMid - URefPrice** (URefType=Mid) OR **dUPrc = uPrcNbboCross - URefPrice** (URefType=Cross) This limit type is used to dynamically adjust the limit price on outright option Series as well as option Spreads with and without stock legs. For Spreads that include a stock leg Delta (2-way), this will allow the user to adjust on a delta that is different from the stock ratio used on the package. *refDelta*, *refGamma*, *uRefType* and *uRefPrice* can be selected by the party entering the order or they can default to SpiderRock suggested values. Note that *uPrcNbboCross* is interpreted as relative to the underlier direction that would be necessary to hedge the Series or Spread *refDelta*. (ie. BID for positive refDelta, and ASK for negative *refDelta*). In addition, the initiator and responder(s) do NOT need to agree on the *refDelta*, *refGamma*, *uRefType*, or *uRefPrice*
Delta (1-way)	**MatchPrice = Delta1WayPrice** OR **Delta1WayPrice + refDelta * dUPrc + 0.5 * refGamma * dUPrc * dUPrc** (whichever is less agressive) where: **dUPrc = uPrcNbboMid - URefPrice** (URefType=Mid) OR **dUPrc = uPrcNbboCross - URefPrice** (URefType=Cross) This limit type differs from Delta (2-way) in that the adjustment is bounded by the original (starting) limit. This limit type is particularly useful for Subscribers that wish to take advantage of a dynamic limit, but have a level above or below which they do not want to trade.
Neutral	**MatchPrice = NeutralPrice + StockDir * 0.01 * StockShares * URefPrice** This Limit Type is available as a convenience for option Spreads that contain a stock leg. *NeutralPrice* can be interpreted as the price for the option legs of the Spread by themselves. The resulting *MatchPrice* is static for the life of the order (it does not change as all parts are also static).
RC Premium	**MatchPrice = NeutralPrice - StockDir * StrikePrice** This Limit Type is available as a convenience and only for reversal/conversion strategies. The resulting *MatchPrice* remains static for the life of the order.

4. Block Auction Operation

a. Dissemination of Auction Notice

Once an initiator initiates a Block Auction, SpiderRock ATS will disseminate an auction notice to potential responders (either those designated by the initiator as a Notice Party or all potential responders (including the SpiderRock ATS Network if none are designated). The auction notice will contain the item, size, size condition (if any), and, at the initiator's election, the initiator side and limit price.

The *AuctionNotice* and *AuctionState* notice messages are the primary mechanism through which information about an auction is communicated to responders. Potential responders

can subscribe to and interact with these messages in a number of ways, including via SpiderRock MLink servers (electronic notices), via automated notices to the Chat Bot, and via the SpiderRock Connect Trade App (application notices). Each individual responder notice will reflect the initiator counterparty and identity disclosure parameters regardless of delivery method. However, due to the technological limitations of generally available commercial industry chat systems, auction notices relayed via that medium will be more limited in scope and detail than electronic and application notices.

In addition, trial match notices (*AuctionState* messages) will be distributed via MLink servers and the SpiderRock Trade App at regular one second intervals (but not via generally available commercial industry chat systems). Finally, if an initiator changes something about their order (e.g. improves the public limit price or changes their visibility settings) then a new *AuctionNotice* update will be sent to all potential responders that received the original auction notice.

b. Identity of Initiator and Responders

SpiderRock ATS will not disseminate (1) the identity of the initiator to potential responders and (2) the identify of responders to the initiator or other responders, with one exception. As indicated in *Disclosed Counterparty Fees* in Section B(6) above, an initiator may have an existing brokerage or trading relationship with a Notice Party that it designates and may further agree separately to pay fees to that Notice Party for any transactions presumptively matched through SpiderRock ATS and ultimately affected on an applicable options exchange. SpiderRock ATS will disclose the initiator's identity to any responder that the initiator identifies as a Disclosed Counterparty, and will similarly disclose that responder's identity to the initiator.

c. Cancellations and Modifications

The initiator can cancel its order initiating the Block Auction at any time until SpiderRock ATS routes a presumptive match to the options exchange for execution in an options price improvement auction. If no presumptive match has occurred, an initiator can cancel its order initiating the Block Auction until the end of the stated Block Auction duration. Cancelling an order initiating a Block Auction will cause the Block Auction to terminate. The initiator can modify limit price, size (subject to any *at most* or *at least* limitations), and the amount of information it seeks to disclose in the Block Auction at any time during the stated duration of the Block Auction. The only allowable changes in the amount of information that is disclosed in the Block Auction can only be those that increase the amount of information disclosed.

Any responder can cancel its response order at any time until SpiderRock ATS routes a presumptive match to an options exchange for execution in an options price improvement auction. If no presumptive match has occurred, a responder can cancel its response until the end of the stated Block Auction duration. A responder can modify size, limit price, and any size condition of its response at any time during the stated duration of the Block Auction.

An initiator can also set a "valid range" for a Block Auction, which serves as an auto-cancellation feature. The valid range is the change in last sale price of the underlier (in basis points) from the beginning of the Block Auction. If the last sale price of the underlier trades above or below the valid range, the Block Auction will end and SpiderRock ATS will cancel back the initiating order and any responses received.

5. Block Auction Trial Match

SpiderRock ATS conducts Block Auctions by conducting interim "Trial Auctions" at regular Trial Intervals. A "Trial Interval" is one (1) second and the next Trial Auction occurs immediately following that duration plus the time necessary to process the Trial Auction. The final Trial Auction in a Block Auction occurs at or immediately before the expiration of the stated duration of the Block Auction. (For example, for a 300 second Block Auction, the final Trial Auction can occur at the 300-second mark or immediately prior to the end of the auction at the 299-second mark). While trial matches are spaced one second apart, the execution of an individual trial match process is much faster (typically < 1ms). Both initiating and responding orders can be cancelled at any time, however once a trial match begins, all orders are firm and cannot be cancelled until that trial match concludes.

At the start of a trial match, SpiderRock ATS initially determines a set of valid auction responses that are able to fully execute. Subscribers should note that it is possible for a valid response in an earlier trial match to no longer be valid in a later trial match (e.g., responder's firm has placed a symbol on its restricted list or a Spread that would result in stock being traded short no longer has a locate available).

Following this initial determination, SpiderRock ATS will identify a relevant stock NBBO level, resolve all formula based limits (if any), and round initiator and responder limits to an appropriate potential match price level. Note that individual orders can either round exact (99/1) or round fuzzy (90/10) in the direction of making the order more conservative. This choice is established by Subscriber preference at the trading account level.

In most cases all potential match price levels will be two (2) decimal places. In the special case of a Spread that contains a stock leg with a leg size not equal to 100, the initiator's limit price will be rounded (50/50) to four (4) decimal places and all potential match price levels will be to four (4) decimal places spaced $0.01 apart, with the 3rd and 4th decimal place being the 3rd and 4th decimal place of the initiator's rounded limit price.

During the process of forming price levels some specific rules apply.

- No responder price level can be equal to or through the opposing OPRA NBBO level. For example, if NBBO is 1.12 - 1.17 for a single Series and a responder attempts to SELL at 1.08 that response limit will be adjusted to 1.13 (one penny inside the NBBO BID). For a Spread order the bounding NBBO will be the NBBO level from the individual leg markets (options and stock).

- No initiator price level can be more than 0.25 through OPRA NBBO levels. For example, if NBBO is 2.54 - 2.75 for a single Series and an initiator attempts to BUY at 3.10 their limit price will be adjusted to 3.00.For a Spread order, the bounding NBBO will be the NBBO level from the individual leg markets (options and stock).
- If an initiator has already advertised their limit price (either at the start of the auction or in the immediately prior trial), then all responder limit prices will be stopped at the initiators public price level. For example, if the initiator is advertising a willingness to BUY at 3.42 and a responder sends an order to SELL with a limit of 3.40 then the responder's limit will be adjusted to 3.42 to match the initiators already public price. However, if a presumptive match occurs at the 3.42 level, then the initiator that offered through the initiator level will be deemed to have a best price of 3.40 less any best price offset for the purpose of notifying an exchange of the responders willingness to trade at a better level.
- If a responder has an active best price increment then that increment can be activated (used) only if a better competitive response is available in the trial match. A Response must be for at least 100 cn or 1/4 of the initiator's size in order to be deemed competitive.

After establishing price levels, SpiderRock ATS will form all responses into a response book. This book will be one-sided if the initiator has revealed their direction and two-sided if they have not. In addition, the response book price levels may be in either two (2) or four (4) decimal places (depending on the item being auctioned), but in all cases will be spaced at least $0.01 apart. Finally, all responder size conditions will be considered and an available size (to the initiator) at each response book price level will be determined.

If it is possible for the initiator to cross (trade with) one or more responders at one or more price levels, subject to all initiator and responder conditions, the best such price level (from the initiator's perspective) will become the presumptive match price and a presumptive match process will be started. Otherwise, the results of the presumptive match will be advertised to the initiator and the entire SpiderRock ATS Network. This notification will be via electronic message (MLink), the SpiderRock Trade App, and one or more generally available commercial industry chat systems.

6. Presumptive Match Process

At the start of the presumptive match process, a provisional responder side allocation will be determined on a size pro-rata basis (see *Section C(6) SpiderRock ATS Allocation Policy* above) and a crossing order will be forwarded to an exchange selected by SpiderRock ATS. This crossing order may include a least common residual Best Price Offset value for competitive purposes on the selected exchange. If some or all of a presumptive match is broken up on exchange, then the responder side balance (if any) will be re-allocated in a pro-rata fashion among the participating responders.

For each Trial Auction, SpiderRock ATS will:

- Calculate the discrete limit prices for any formula priced limit orders, based upon the underlier market prices and Delta and Gamma values applicable at that time, resolve all formula based prices, and form a penny price interval responder order book. SpiderRock ATS will round such calculated limit prices to the nearest valid premium crossing price (that is, a price increment that an options exchange will accept for an exchange price improvement auction), rounding to the price more favorable to the party entering such limit price unless such party requests different rounding.

- Identify all responses that match or cross the initiator's limit price and that match based upon the size conditions of the response.

- From those responses, determine the clearing price by (1) ordering the matching responses from the price most favorable to the price least favorable to the initiator, (2) evaluating in descending order the interest at each price level to identify the price level with aggregate interest (at that level or better) that can satisfy the full size and any size conditions of the initiating order. In determining the aggregate interest that can satisfy the full size of an initiating order in a Single-Option Series, SpiderRock ATS will take into account the size of any top-of-book quotations in that Series at the time of evaluation, as Regulation NMS and/or exchange priority rules would require accessing that quotation. The price level determined through this process will be the "clearing price" and all presumptively matched orders will be presumptively matched at that one clearing price.

- If the initiator's order is marked "Allow Immediate," the Block Auction will terminate and SpiderRock ATS will presumptively match the initiator's order with all matching responses used to determine the clearing price, at the clearing price.

- If the initiator's order is not marked "Allow Immediate" and the Trial Auction is not the final Trial Auction, SpiderRock ATS will disseminate the results of the Trial Auction to the initiator and all responders (maintaining anonymity as described above). This will provide the initiator and responders with the opportunity to modify its order over the Trial Interval to allow a presumptive match to occur at the next scheduled Trial Auction.

If the above steps do not result in a presumptive match, SpiderRock ATS will repeat the process above, conducting Trial Auctions at each Trial Interval until it conducts the final Trial Auction. SpiderRock ATS will conduct the final Trial Auction as described above except that: (a) the initiator's order will be eligible for a presumptive match even if the order is not marked "Allow Immediate;" (b) the initiator's limit price evaluated for matching/crossing will be the limit price plus or minus (as applicable) the Auto-Complete Premium; and (c) if the initiator has set an "UpTo" quantity, the requirement that a presumptive match be for the full size of the initiator's order will be relaxed and SpiderRock ATS will seek to presumptively match as large an amount as possible up to (but potentially less than) the "UpTo" quantity set on the initiator's order.

If the final Trial Auction results in a presumptive match, SpiderRock ATS will route that presumptive match for execution on an applicable options exchange. If the Trial Auction does not result in a presumptive match, the Block Auction will terminate.

The prices of any presumptive matches must satisfy exchange rules for price points at which an exchange electronic or floor auction can be initiated, and as indicated, will be subject to delay in execution, non-execution, or adjustment as necessary to comply with Regulation NMS (trade through obligations, prohibitions against locking/crossing markets, etc.) and/or options exchange order priority rules.

As indicated, orders presumptively matched through SpiderRock ATS are routed to an options exchange for execution and potential price improvement for the initiator. As such, any price improvement the exchange price improvement auction provides to the initiator will result in a pro-rata reduction in the execution size of, or the lack of execution of, a corresponding presumptively matched response.

Finally, it is possible for a Block Auction initiator who is a broker-dealer representing a client to propose and receive a transfer commission for initiating a Block Auction on behalf of that client. To do so, the initiating firm and the expected transfer commission client must be disclosed to all responders at the start of the auction. This transfer commission is in addition to any commissions or fees paid to SpiderRock ATS for hosting the auction.

7. Block Auction Notification

At the end of each Block Auction (whether it crosses or not) the initiator as well as all Subscribers are shown the complete responder side order book (if any) that existed when the auction concluded. This is displayed either via either MLink servers and/or the SpiderRock Trade App (if the Block Auction was initiated from the app) and, while it contains the resulting auction book, it does not contain the original initiator side, size or limit price. Finally, Subscribers and broker-dealer partners of SpiderRock (non-Subscribers) that access SpiderRock ATS via a generally available commercial industry chat system, will receive an automated notice that an auction was attempted (if it does not cross) and the price at which it crossed (if it does).

8. Compliance with Regulation NMS

If the clearing price for any presumptive match in a single options Series crosses the NBBO for that Series, SpiderRock ATS will send a sweep order to access the top-of-book quotations on all participating NMS options exchanges, reduce the size of the presumptive match accordingly, and route the balance of the presumptive match for execution on an applicable options exchange. For auctions in a Spread or presumptive matches that do not cross the NBBO for a Series (that is, auctions that do not trigger a trade through obligation under Regulation NMS), SpiderRock ATS will not seek to sweep top-of-book quotations, but rather will route the full size of presumptive match for execution on the applicable options exchange.

9. Role of EXS Brokerage Desk Personnel and Disclosure of Pending Block Auction

As indicated above, if an initiator designates that notice of an auction be disseminated to the entire SpiderRock ATS Network, then EXS brokers will receive notice of that auction, and may seek to identify interest to be entered into SpiderRock ATS for the applicable Block Auction. In seeking to identify potential interest for Block Auction responses, such brokers may contact potential counterparties via telephone, email, chat functionality (both automatically via EXS technology or manually), or other communications methods to inform such counterparties (disclosing any of the information provided in the auction notice) of the occurrence of the pending Block Auction and potentially to seek a response to be entered into the Block Auction on behalf of a potential counterparty.

A contacted potential counterparty that received the auction notification via a generally available commercial industry chat system can provide a response to be entered directly into the Block Auction via EXS technology that sits within the chat system. In addition, the contacted potential counterparty can manually, via chat, email, or telephone, request that a specific EXS brokerage person enter such response into SpiderRock ATS on behalf of such party. In both scenarios, the contacted potential counterparty will not have any information that is in addition to what would have been available to the counterparty if the counterparty had viewed the auction notice and entered such response directly into the Block Auction.

The EXS brokerage desk is permitted to broadcast the auction information automatically via generally available commercial industry chat systems or manually via chat, email or telephone, but only for the purpose of attempting to reach and in certain circumstances represent, entities that EXS has determined that may have an interest in receiving notice of, and may be able to provide contra-side liquidity to, Block Auctions. EXS and its brokers are prohibited from sharing that information other than for that purpose. Finally, it is possible that one or more of EXS' brokers may enter orders (and consequently receive information) on behalf of an initiator and one or more responders in the same Block Auction.

F. POLICIES AND PROCEDURES

1. Business Continuity Plan

SpiderRock recognizes the importance of system and process resilience in operating SpiderRock ATS and the potential for unforeseen events that may interrupt normal operation. Accordingly, the firm developed a Business Continuity Plan ("BCP") defining how we will respond to events that significantly disrupt our business, including SpiderRock ATS. A copy of our BCP Disclosure Statement is available at request from cs@spiderrock.net.

2. Acceptable Use Policy

Use of SpiderRock ATS is subject to this Acceptable Use Policy, which requires both Direct Subscribers and Sponsored Subscribers to agree that they will not themselves, nor allow third parties to, use SpiderRock ATS in a manner that:

- violates, or encourages the violation of, the legal rights of others;
- engages in, promotes, or encourages fraudulent, manipulative or other illegal activity;
- is otherwise unlawful, invasive, infringing, defamatory, or fraudulent;
- interferes with the use of SpiderRock ATS by other Subscribers; and
- disables, interferes with, or circumvents any aspect of SpiderRock ATS.

Each Subscriber's use of SpiderRock ATS is further subject to the terms and conditions of its respective Subscriber Agreement.

3. Erroneous Trades and Corrections

The terms of transactions executed on SpiderRock ATS are "clearly erroneous" when there is an obvious error in any term, such as price, number of contracts, or identification of the security. If a presumptive match is consummated on an options exchange at a price or size that is later determined to be erroneous according to that options exchange's obvious error rules, SpiderRock will, on a best-efforts basis, engage the relevant exchange to affect a trade bust or correction.

In addition, if the Securities and Exchange Commission, a self-regulatory organization, or other applicable regulatory body determines that a presumptive match executed on or through an options exchange is clearly erroneous or must otherwise be cancelled, SpiderRock will be required to cancel the trade and will not be able to honor the executed price, any price guarantee, or other terms associated with such transaction.

SpiderRock also maintains procedures for handling execution errors that may occur as a result of, for example, a SpiderRock ATS system failure or an error in the market data used in affecting a presumptive match or its execution on an options exchange. In these cases, SpiderRock personnel will contact all Subscribers that are parties to the subject transaction and determine, in its sole discretion, the appropriate course of action. This may include, but is not necessarily be limited to, engaging the relevant exchange, on a best-efforts basis, to affect a trade bust or correction.

Finally, SpiderRock may also temporarily suspend presumptive matching and/or the conduct of auctions if it detects certain error conditions that materially impact its ability to operate SpiderRock ATS. These conditions include, but are not limited to, loss or degradation of SpiderRock's presumptive matching engines, market data sources, or connectivity with applicable exchanges or trade reporting facilities.

4. Privacy Policy

When using SpiderRock ATS, you consent to the collection, use, processing, and disclosure of your information as set forth in both SpiderRock's Privacy Policy and your Subscriber Agreement.

5. Confidentiality and Confidential Trading Information of SpiderRock ATS

SpiderRock considers each Subscriber's identity, information related to orders once entered into SpiderRock ATS, and trading interests and presumptive matching on SpiderRock ATS to be confidential trading information of SpiderRock ATS. In addition, SpiderRock is a relatively small organization and does not separately employ personnel solely to operate SpiderRock ATS. As a result, certain SpiderRock employees operating SpiderRock ATS or otherwise performing functions with respect to SpiderRock activity affected through SpiderRock ATS have access to confidential trading information. SpiderRock ensures that it restricts access to this information to employees that are operating SpiderRock ATS and those whose roles require access to such information for performing their duties. Examples of SpiderRock personnel with access to SpiderRock ATS information necessary to perform their duties are personnel involved in Supervision, Billing, Account Management, Legal, Compliance, and other similar functions. The SpiderRock personnel operating SpiderRock ATS and with access to confidential trading information are only authorized to use such information as required by their job functions, and they cannot disseminate such information to anyone not authorized to receive that information.

In addition, as indicated above, if an initiator designates that notice of an auction be disseminated to the entire SpiderRock ATS Network, then EXS brokers will receive notice of that auction, and may seek to identify interest (outside of SpiderRock ATS) to be entered into SpiderRock ATS for the applicable Block Auction. In doing so, either automatically via EXS technology or manually via telephone, email, chat, EXS will share the confidential information of SpiderRock ATS, but only to those entities that EXS has determined that may have an interest in receiving notice of, and may be able to provide contra-side liquidity to, Block Auctions.

Further, an initiator can designate that notice of an auction be disseminated to EXS brokers so that such brokers can seek to identify interest to be entered into SpiderRock ATS for the applicable Block Auction. Also, Subscribers can enter orders with EXS brokers for those brokers to enter those orders in whole or in part into SpiderRock ATS (among other trading venues). As a result of their handling of such orders, such EXS brokers will have access to order information (including the identity of the party for which the order was entered) prior to such orders being entered into SpiderRock ATS and execution information regarding the execution of such orders through SpiderRock ATS. EXS and its brokers are prohibited from sharing that information other than for the purpose of identifying interests to be entered into SpiderRock ATS.

Finally, EXS aggregates post-trade execution information relating to transactions presumptively matched through SpiderRock ATS and makes that information available on an aggregated, anonymized and delayed basis for EXS and/or SpiderRock ATS to use for sales and marketing purposes. The information used for these purposes include information reported pursuant to trade reporting requirements that is therefore publicly available, as well as the fact that the transaction (including any stock component for a Spread) reported by the applicable options exchange or executing market center was presumptively matched in SpiderRock ATS. SpiderRock ATS does not consider such post-execution information to be confidential trading information of SpiderRock ATS once the post-execution information is publicly reported pursuant to trade reporting or other regulatory requirements. SpiderRock Subscribers and Sponsoring Broker-Dealers can obtain specific information regarding how such data are used by contacting the trade data team at tradedata@spiderrock.net.