### FORM FBOT—EXHIBIT D-1

**Request:** Attach a description of (or where appropriate, documentation addressing) the following, separately labeling each description:

(1) The order matching/trade execution system, including a complete description of all permitted ways in which members or other participants (or their customers) may connect to the trade matching/execution system and the related requirements (for example, authorization agreements).

(2) The architecture of the systems, including hardware and distribution network, as well as any pre- and post-trade risk-management controls that are made available to system users.

- (3) The security features of the systems.
- (4) The length of time such systems have been operating.
- (5) Any significant system failures or interruptions.

(6) The nature of any technical review of the order matching/trade execution system performed by the foreign board of trade, the home country regulator, or a third party.

- (7) Trading hours.
- (8) Types and duration of orders accepted.
- (9) Information that must be included on orders.
- (10) Trade confirmation and error trade procedures.
- (11) Anonymity of participants.
- (12) Trading system connectivity with clearing system.
- (13) Response time.
- (14) Ability to determine depth of market.
- (15) Market continuity provisions.
- (16) Reporting and recordkeeping requirements.

### **Response:**

**1.** The order matching/trade execution system, including a complete description of all permitted ways in which members or other participants (or their customers) may

### connect to the trade matching/execution system and the related requirements (for example, authorization agreements).

Participants can trade on the Exchange only through the SOLA platform. Participants can connect to SOLA through the SAIL front-end, or through non-SAIL protocols such as STAMP, FIX, or FIX TT gateways.

The SAIL front-end supports all order management functionality offered by SOLA. It is the only front end to which market makers can connect to manage bulk quotes. It also supports two-way messaging functionality and such technical validations as message rate limits and allowable message type enforcement.

The STAMP, FIX, and FIX TT gateways offer two-way communication between the trading engine and client applications. Market participants who use any one of these protocols may use the appropriate gateway to manage orders on the trading system. These gateways translate client inbound messages to SAIL messages, and the trading system responds back to the originating participant's protocol. In addition, to compensate for imperfect mapping between SAIL and other protocols, these gateways keep and manage extensive information about participants' orders.

Market participants must adhere to MX's certification testing requirements and authorization process.

SOLA executes orders on a first in, first out strict price and time priority. The highest priority is assigned by price; that is, the buy order with the highest price has the highest order priority, and the sell order with the lowest price has the highest priority. At equal prices, priority is determined based upon the order timestamp.

An incoming order is added to a product's Order Book if:

- The order's product state allows trading and the order limit price does not cross or lock the opposite limit price;
- The market allows order entries but the product state does not allow trading; or
- If the configuration is set to accept market price without opposite, then if the product state allows trading and the order price type equals to market, and there is no quantity available on the opposite side, then the order is booked at the product limit price (maximum for a buy order, minimum for a sell order).

As discussed previously, all users of the System must be properly authorized to do so, and as discussed below, the security feature of the trading system ensures that only authorized users are permitted to access the system.

2. The architecture of the systems, including hardware and distribution network, as well as any pre- and post-trade risk-management controls that are made available to system users.

The SOLA trading engine operates with two sets of trading engine interfaces, one for the futures market, and one for the (equity) options market. This arrangement allows each market to be managed separately and independently, ensuring better availability for each market.

As described above, the SAIL front-end, the FIX, FIX TT, and STAMP gateways connect market participants to MX. These interfaces support two-way order management messaging.

Units within MX use a variety of monitoring tools. MBO Watch is a GUI application used by the Technical Help Desk, the Monitoring team, and the Surveillance team to manage orders. Trade Management System is a GUI application used by Market Operations, the Technical Help Desk, and market participants to manage trades, give-ups, and allocations. Monitor Watch is a GUI application used by the Technical Help Desk and the Technical Operation team to monitor all gateways in SOLA. Market Watch is a GUI application that offers up-to-date market information, on an instrument or class basis, to Market Monitoring and Surveillance. It also provides delayed information to the MX web site.

Several configuration tools are used for the trading system. The Config Manager GUI application is used for the configuration and management of all business objects. The Config Gateway is responsible for the dissemination of business objects information to connected gateways, including the Trading Engine.

MX trading environment runs, on the server application side, on a single type of hardware. HP Proliant BL 685 (Blade Servers) are used to host SOLA front ends, routing engine, trading engine, and integration components.

MX network is comprised of several sites, including their sub-networks, and the telecom lines between them. Trading, monitoring, and surveillance systems are hosted in Markham. The disaster recovery site is located in Toronto. POP sites, where participants can access the production network, are located in Toronto, Markham, Chicago, New York, and London.

### A. Risk Management

Risk management is addressed by several mechanisms used to mitigate participant risk. The system implements market protection mechanisms such as price limit controls, with automatic suspension of instruments, or rejection of orders that are out of limits. Market makers implement protection mechanisms such as automatic cancellation of quotes in case of exceptional business, technical conditions, or clobbering, to avoid quote-on-quote sweeping events. The system also implements risk tools such as drop copy feed capabilities, "while connected" order duration that enables the cancellation of orders in case of system failure, and a flexible global order cancellation feature to instantly cancel orders that meet configurable parameters.

### **3.** The security features of the systems.

Users can access the system through either a dedicated connection or a VPN. Access to the system functions can be through GUI applications or messaging protocols. All accesses must go through a software authentication module that validates usernames and passwords. Messaging protocol access must be initiated from a registered environment that is part of a control access list maintained within the configuration. Changes to access privileges are authorized, documented, and logged in the internal audit trail.

### 4. The length of time such systems have been operating.

The SOLA trading system has been operating since October 2005. The SAIL messaging protocol has been operating since November 2007.

### 5. Any significant system failures or interruptions.

On February 19, 2008, operations on the SOLA Trading System were interrupted for 240 minutes. The root cause has been identified as human error during the reinstatement of the open order book on the server following a scheduled upgrade of the hardware. The system administrator did not replace the previous week's open order book with the required open order book for the week of February 19, 2008 on the primary servers. The open order book was correct on the secondary servers. This issue was successfully resolved on the futures open order book.

On May 26, 2009, the SOLA Trading System was interrupted for 16 minutes for Futures and 9 minutes for Options. The root cause has been identified as a hardware error with the content switches where both of them stopped working for 16 minutes. There is an issue where content switches cannot work more than 828 consecutive days without rebooting. A manual reboot of the hardware needs to be performed on a regular basis. On May 6, 2010, HSVFFix was interrupted for 17 minutes, 11 seconds. After the master instances crashed at 4 GB memory, the slave should have taken over. However, due to a software bug, instead the slave gateway triggered an End-Of-Day event and shut itself down. It had to be restarted manually. The software issue was fixed and reinstalled on the evening of May 6, 2010.

On March 23, 2011, HSVFFix was interrupted for 43 minutes. There was no service for HSVFFix. In the short term, HSVFFix was connected on HSVFRepeater. In the mid-term, a new HSVFFix was connected directly on the HSVF gateway.

# 6. The nature of any technical review of the order matching/trade execution system performed by the foreign board of trade, the home country regulator, or a third party.

External auditors perform a yearly full system audit. The auditor's review of internal controls is designed to provide reasonable assurance that the following systems are satisfactory:

- Availability management;
- Data management;
- Change management;
- Disaster recovery;

- Incident management;
- IT security;
- Capacity and performance management;
- Problem management;
- Project delivery; and
- Project initiation (corporate initiative development).

The current system satisfied these controls in the last audit.

### 7. Trading hours.

For a full description of trading hours and stages, please see Attachment 20: MX Products Trading Hours and Stages.<sup>1</sup>

### 8. Types and duration of orders accepted.

Participants can trade an array of order types and durations on the SOLA trading platform. Order types and duration qualifiers vary according to product and each client's trading application.

### A. Price Type

- Limit order: Order for which a limit price is specified;
- Market order: Order for execution at the best price available in the market for the total quantity available from any contract bid (offer). Any residual volume, left after part of a market order has been executed, is automatically converted to a limit order at the price at which it was just executed;
- Stop-limit order (only supported on the S&P/TSX 60 Index Mini (SXM) and Standard (SXF) Futures contracts): Order that is meant to limit a participant's loss or to lock in a gain in the market. A participant specifies that if the price of the contract drops (rises) and trades at or below (above) a specified price (the "trigger" price), a limit order to sell (buy) will be created and sent to the market. Note that stop orders that do not specify a triggering limit price will not be accepted by the system. In addition, a participant wishing to change the trigger price of a stop order must cancel the original order and send in a new one;
- Market-on-open order: Order for execution at the market opening at the CTO (Calculated Theoretical Opening) price. If a market-on-open order is only partially filled, any residual quantity is automatically converted to a limit order at the price at which the original order was executed. Market-on-open orders have priority over limit orders; and
- Iceberg order (hidden quantity): Using this facility provides the flexibility to display sequential pre-determined portions of a single large order. The minimum required quantity to be displayed for futures contracts is 25 contracts (50 contracts for the CGB futures). This facility allows for an efficient execution of large size orders without disrupting market's supply and demand.

<sup>&</sup>lt;sup>1</sup> See also Attachment 14, Montréal Exchange Rules 6367-68.

### B. **Duration Type**

- Day order: Order that must be filled on the day it was sent or it will be cancelled at the close of trading. Unless specified otherwise, an order is always a day order;
- Good 'til date (GTD): Order that will remain valid in the book until a specified date, after which it will be cancelled;
- Good 'til cancelled (GTC): Order that will remain valid in the book until it is cancelled; and
- Fill and kill order: Order that will be executed at the specified price. If it is not filled completely, the remaining quantity will be cancelled.

### 9. Information that must be included on orders.

Any order entered into the trading system must indicate if the order is for the account of a firm, of a client, or of a professional.<sup>2</sup> All orders must be time stamped.<sup>3</sup> If an order is for an insider with respect to the derivative instrument, it must be identified as such.<sup>4</sup>

To ensure compliance with MX's order management priorities, orders must be properly identified.

- "Order for the account of a customer" means an order for a security or a derivative instrument entered for the account of a customer of any approved participant or of a related firm of an approved participant, but does not include an order entered for an account in which an approved participant, a related firm of an Approved Participant, a person approved by MX or a restricted trading permit holder has a direct or indirect interest, other than an interest in a commission charged;
- "Order for the account of a professional" means an order for a security or a derivative instrument for an account in which a director, officer, partner, employee or agent of an Approved Participant or of a related firm of the approved participant, a person approved by MX or a restricted trading permit holder has a direct or indirect interest, other than an interest in a commission charged. MX may designate any order as being an order for the account of a professional if, in its opinion, circumstances justify it;
- "Order for the account of the firm" means an order for a security or a derivative • instrument for an account in which the Approved Participant or a related firm of the approved participant has a direct or indirect interest, other than an interest in a commission charged;
- "Order for an insider or significant shareholder" means an order for a security or a • derivative instrument for the account of a client, a professional or a firm who is an insider and/or significant shareholder of the issuer of the underlying security which is the subject of the order. If such client, professional or firm is both an insider and a significant shareholder, the significant shareholder designation must be used.<sup>5</sup>

Rule 6379.

<sup>&</sup>lt;sup>3</sup> Rule 6378. <sup>4</sup> Rule 6379.

<sup>&</sup>lt;sup>5</sup> Rule 6376.

#### 10. Trade confirmation and error trade procedures.

Trade confirmations are issued by the CDCC to a clearing member, detail the attributes of a transaction, and signal that the CDCC has accepted the transaction for clearing.

A trade on the trading system resulting from an input error can be cancelled by the parties agreeing to it within 15 minutes following execution.<sup>6</sup> The error and the request to cancel the resulting transaction must be verbally communicated (by telephone) by the Approved Participant to a Market Supervisor of MX.<sup>7</sup> The Market Supervisor will decide to cancel or refuse to cancel a transaction and will inform each party to the trade of his decision.<sup>8</sup> This will be done within thirty minutes following the communication of the error and of the cancellation request by the approved participant, within the same day.<sup>9</sup> An Approved Participant can enter into transactions off MX to correct an error.<sup>10</sup>

### 11. Anonymity of participants.

Counterparty information is not revealed to participants in real-time.<sup>11</sup> However, posttrade counterparty information is provided to participants for compliance and audit-trail purposes on a delayed basis.<sup>12</sup> MX makes available to each participant a file that includes detailed information about each trade, as well as the counterparty's identification number.<sup>13</sup> This file is available for download by participants early in the morning on the business day following the trade (T+1) on an FTP server of MX.<sup>14</sup>

### 12. Trading system connectivity with clearing system.

The CDCC Gateway is responsible for two-way communication between MX and the CDCC. It sends trading and position information, and updates instrument information, such as open interest, in SIC, in response to messages from the corporation. All data exchange between this gateway and the CDCC uses the corporation's protocol. Trades, allocations, and give-ups are sent from the trading system to the clearing system. Market data such as price and products are sent to the clearing system, and the exchange receives positions and products' open interest.

### 13. **Response time.**

On an average day, the SOLA trading system currently has a response time of less than 2 ms. Under exceptional market activity, the SOLA trading system currently has a response time of less than 3 ms.

 $<sup>^{6}</sup>_{7}$  Rule 6381. *Id.* 

Rule 6385.

 $<sup>^{9}</sup>$  *Id.* Rule 6005.

<sup>&</sup>lt;sup>11</sup> Attachment 21, Post-Trade Anonymity Circular, 046-2011, available at: <u>http://www.m-</u> x.ca/publi circulaires en.php?.

 $<sup>^{13}</sup>$  *Id.* 

<sup>&</sup>lt;sup>14</sup> Id.

### 14. Ability to determine depth of market.

The High Speed Vendor Feed disseminates depth of market messages. Market participants and vendors that subscribe to the feed have access to the following messages for market depth:

- Option market depth
- Future options market depth
- Future market depth
- Strategy market depth.

These messages all contain the first 5 limits for all exchange traded products. The level of the market depth, the bid/ask prices, sizes, number of orders, instrument identifiers, and instrument characteristics are contained in each message.

The Market Operations Center has access to the MBO Watch solution to monitor and provide information on all exchange traded instrument prices and market depth.

All market data is logged and is available for seven years.

### **15.** Market continuity provisions.

MX maintains Business Continuity Plans and Disaster Recovery Plans in order to minimize the negative effects of unexpected human, computer, or telecommunications problems, and to ensure that in times of major incidents affecting the operations of MX, proper conduct of trading sessions are maintained in real time. The responsibilities of the relief team and the market operations team are: ensuring the orderly start of trading, supervising the trading sessions, and ensuring the orderly shutdown of trading. MX's backup site is Hypertec, and is located south of the Transcanadian road outside of Montréal

### 16. Reporting and recordkeeping requirements.

With the exception of orders entered by a market maker to comply with obligations required by his roles and responsibilities, a record must be kept by each Approved Participant of each order received for the purchase or sale of derivative instruments traded on MX.<sup>15</sup>

The record of each order executed must indicate the person who received the order, the time the order was received, the time it was entered into the electronic trading system of MX, the price at which it was executed, its time of execution, its classification, the approved participant from or to or through whom the security or derivative instrument traded on MX was purchased or sold and, as the case may be, if the order was executed as a cross transaction, a prearranged transaction, or a block trade.<sup>16</sup> This record must be retained for seven years.<sup>17</sup>

<sup>&</sup>lt;sup>15</sup> Rule 6377.

 $<sup>^{16}</sup>$  Id.  $^{17}$  Id.

The record of each order which remains unfilled must indicate the person who received the order, its time of receipt, and its classification.<sup>18</sup> The record must be retained for seven years.

All telephone conversations related to trading in derivative instruments listed on the Exchange must be recorded.<sup>19</sup> Recordings must be kept by approved participants for one year.<sup>20</sup> Authorization to consult the recordings of telephone conversations shall be granted in the case of an Exchange, AMF, or other regulatory investigation.<sup>21</sup> These recordings may be filed as evidence in the case of litigation or disciplinary matters.<sup>22</sup>

 <sup>&</sup>lt;sup>18</sup> Id.
<sup>19</sup> Id.
<sup>20</sup> Id.
<sup>21</sup> Id.
<sup>22</sup> Id.

### FORM FBOT—EXHIBIT D-2

**Request:** Attach a description of the manner in which the foreign board of trade assures the following with respect to the trading system, separately labeling each description:

(1) Algorithm. The trade matching algorithm matches trades fairly and timely.

(2) IOSCO Principles. The trading system complies with the Principles for the Oversight of Screen-Based Trading Systems for Derivative Products developed by the Technical Committee of the International Organization of Securities Commissions (IOSCO Principles). Provide a copy of any independent certification received or self-certification performed and identify any system deficiencies with respect to the IOSCO Principles.

(3) Audit Trail.

(i) The audit trail timely captures all relevant data, including changes to orders.

(ii) Audit trail data is securely maintained and available for an adequate time period.

(4) Public Data. Adequate and appropriate trade data is available to users and the public.

- (5) Reliability. The trading system has demonstrated reliability.
- (6) Secure Access. Access to the trading system is secure and protected.

(7) Emergency Provisions. There are adequate provisions for emergency operations and disaster recovery.

(8) Data Loss Prevention. Trading data is backed up to prevent loss of data.

(9) Contracts Available. Mechanisms are available to ensure that only those futures, option or swap contracts that have been identified to the Commission as part of the application or permitted to be made available for trading by direct access pursuant to the procedures set forth in § 48.10 are made available for trading by direct access.

(10) Predominance of the Centralized Market. Mechanisms are available that ensure a competitive, open, and efficient market and mechanism for executing transactions.

### **Response:**

### 1. Algorithm.

SOLA executes orders on a first in, first out strict price and time priority. The highest priority is assigned by price; that is, the buy order with the highest price has the highest order priority, and the sell order with the lowest price has the highest priority. At equal prices, priority is determined based upon the order timestamp.

The time priority is assigned to an order's disclosed quantity. Any time the disclosed quantity is changed, the order loses its time priority. However, at all times orders with disclosed quantity keep their price priority.

An order's time priority is lost if the order is modified by an increase in the order quantity, a change in the limit price, or an increase in the disclosed quantity.

The system also produces a number of daily statistics. These include order matching latency benchmarks, technical and business error message count, and number of trades per second, as well as many others. These statistics are published daily in a dashboard reviewed across the organization from technical teams to upper management. The data is also available in a GUI application, to access current and historical statistics.

### 2. IOSCO Principles.

MX has engaged an independent outside technology audit to determine whether the Trading System meets the requirements of the Principles for the Oversight of Screen-Based Trading Systems for Derivative Products developed by the Technical Committee of the International Organization of Securities Commissions (IOSCO Principles). External auditors perform a yearly full system audit. The auditor's review of internal controls is designed to provide reasonable assurance that the Trading System meets the IOSCO Principles.

Below is a brief overview of MX's compliance with the IOSCO Principles.

Appendix 1: IOSCO Technical Committee 1990 Principles for the Oversight of Screen-Based Trading Systems for Derivative Products

## 1. The system sponsor should be able to demonstrate to the relevant regulatory authorities that the system meets and continues to meet applicable legal standards, regulatory policies, and / or market customer or practice where relevant.

Please see the discussion in Exhibit F.

# 2. The system should be designed to ensure the equitable availability of accurate and timely trade and quotation information to all system participants and the system sponsor should be able to describe to the relevant regulatory authorities the processing, prioritization, and display of quotations within the system.

Market dissemination messages generated by the Trading Engine are available in Real-Time to participants and data vendors through the High Speed Vendor Feed (HSVF) which is comprised of trades, quotes, market depth, strategies, bulletins, summaries and other statistics.

3. The system sponsor should be able to describe to the relevant regulatory authorities the order execution algorithm used by the system, i.e. the set of rules governing the processing, including prioritization, and execution of orders.

Please see discussion in Exhibit D-2(1) for description of details on priority and matching rules.

# 4. From a technical perspective, the system should be designed to operate in a manner which is equitable to all market participants and any differences in treatment aiming classes of participants should be identified.

All Market Participants are offered the same priority and operate in a fair and orderly Market. No differences are made on participant classes with the exception of market makers which have access to features in support of their Market Making obligations, including various protections against risk and mass quoting capabilities.

### 5. Before implementation, and on periodic basis thereafter, the system and system interfaces should be subject to an objective risk assessment to identify vulnerabilities (e.g. the risk of unauthorized access, internal failures, human errors, attacks, and natural catastrophes) which may exist in the system design, development, or implementation.

As discussed in greater detail in Exhibit D-1(6), MX engages an independent firm to conduct an annual technology audit.

# 6. Procedures should be established to ensure the competence, integrity, and authority of system users, to ensure that systems users are adequately supervised and that access to the system is not arbitrarily of discriminatorily denied.

Please see discussion in Exhibit D-1-3 with respect to System security features relating to access and the discussion in Exhibit B relating to access requirements, generally. As discussed in Exhibit B, access is defined by MX rules which are applied in a non-discriminatory manner.

# 7. The relevant regulatory authorities and the system sponsor should consider any additional risk management exposures pertinent to the system, including those arising from interactions with related financial systems.

Please note, as discussed above, that MX engages an independent firm to conduct a yearly assessment. This assessment includes an assessment of potential risks emanating from outside systems.

# 8. Mechanisms should be in place to ensure that the information necessary to conduct adequate surveillance of the system for supervisory and enforcement purposes is available to the system sponsor and the relevant regulatory authorities on a timely basis.

The System ensures that a full audit trail is created and logged. Specifically, all SOLA messages, internal and external market data and referential information that go through the System are logged. The SOLA Surveillance System runs daily batches against the

logs to produce Exception Reports that are made available to the Regulatory Division on t+1. All data used to produce the report is also made available to the Regulatory Division.

9. The relevant regulatory authorities and / or the system sponsor should ensure that system users and system customers are adequately informed of the significant risks particular to trading through the system. The liability of the system sponsor, and / or the system providers to system users and system customers should be described; especially any agreements that seek to vary the allocation of losses that otherwise would result by operation of law.

Liability issues are addressed in the MX Rule Book. Please see Rule 2, Attachment 14. The Rule Book is publicly available on the MX website.

# 10. Procedures should be developed to unsure that the system sponsor, system providers, and system users are aware of and will be responsive to the directives and concerns of relevant regulatory authorities.

MX has in place procedures to track directives and concerns of relevant regulatory authorities. MX publishes notices on its website which are publicly available to inform system uses of procedures and requirements relating to trading. These circulars can be accessed at: http://www.m-x.ca/publi\_circulaires\_en.php.

### 3. Audit Trail.

### A. The audit trail timely captures all relevant data, including changes to orders.

The SOLA trading system captures a complete audit trail of all orders entered into the trading system and all trades that are executed.

## **B.** Audit trail data is securely maintained and available for an adequate time period.

The audit trail capabilities are composed of system logs and data logs that cover all system interventions, modifications, and deployments. These logs are viewable with the monitoring tools discussed in exhibit D-1. The data is retained for seven years.

### 4. Public Data.

MX participants have access to trade data through many channels. All trade executions are acknowledged to the sender, using the appropriate message in the sender's messaging protocol. Participants can also choose to receive drop copy messages of their trading activity messages to additional systems (such as, for example, a risk system). Executing market participants can view their trades in the Trade Management System for up to seven years. The Trade Management System can also produce reports on participants' activities. The Automated Trade Reporting Gateway provides live confirmation of all transaction executed on the trading system. Participants' back offices can subscribe to this service to feed their risk and position management applications in real-time. A trade report file is generated for each participant daily,

at the end of the day. The report contains all the attributes for participants' trades and allocations for the day.

The High Speed Vendor Feed Gateway is available to participants and data vendors, and broadcasts real-time trading and statistical information. Its feed is comprised of trades, quotes, market depth, strategies, bulletins, summaries, and other statistics. It offers various feeds from which subscribers can choose, and allows for protocol optimization requests from subscribing market participants.

The High Speed Vender Feed FIX Gateway also provides option summaries, dictionary information, trade, market depth, and group status messages to trading technologies FIX users.

MX website, at <u>http://www.m-x.ca/</u>, can be consulted by the public for information such as prices, open interest, and product definitions.

### 5. Reliability.

The reliability of the SOLA trading system is grounded in the hardware, data center, and network infrastructure, as well as the robust nature of its software. The hardware specification for the trading system includes a duplicate, backup data center capable of conducting all essential trading and clearing functions. All proprietary software and databases are duplicated in the backup system, with the backup being substantially a mirror image of the primary system. We confirm

With every new initiative and release, the system is tested to maintain non-regression for availability, disaster recovery, monitoring of the disaster recovery plan, and automated failover. These testing activities are audited yearly.

Please see Exhibit D-1 for a summary of system downtimes.

### 6. Secure Access.

The System is based on a four level security approach:

### - Outer limit: Private network (client) to private network (exchange) connection.

Access to MX is possible only by connecting to MX's private network. Only approved private networks can access MX's private network using approved connections.

### - Access control list

Traffic arriving from external private networks must pass through a first level of security filtering at the point of connection. Access control lists are applied to each connection and filter source and destination IP and port address ranges

### - Firewall

Once traffic has passed the access control lists and been authorized to enter MX's private network, it must then pass through the firewall layer before reaching MX's trading system. The

firewall filters at a more granular level than the access control lists, and only allows access to specific services if the traffic has been explicitly permitted in the firewall rules.

### - Application level security

Application layer security is the final security checkpoint before access to the trading system is permitted. It is at list level where user credentials are for each Participant's connection in order to control access to services and information.

### 7. Emergency Provisions.

MX maintains and periodically tests a disaster recovery plan designed to ensure that execution and clearing services will not be significantly affected in the event of operational problems at the primary site, the inability to access office space, and/or major staffing problems.

The main site for all MX servers is in Markham, Ontario, at the Markham Computing Center. The disaster recovery site is in Toronto, Ontario, at the Toronto Computer Facility. The disaster recover facility has a mirror environment (both the hardware and software configuration) that is synchronized daily with the production environments, thereby providing the same performance and capacity as the main system.

Internal disaster recovery tests are performed at least once a year. The disaster recovery plan is also subject to several industry tests, including by FIA, SIFMA, and IIROC. For a discussion of MX's business continuity plan, please see Form FBOT Exhibit D-1.

### 8. Data Loss Prevention.

MX employs multiple systems to prevent loss of data. The system relies on a two-phase commit that saves all messages and operations on two distinct infrastructures before processing is done. All data is copied from the main servers to the disaster recovery servers daily by an off-hours batch job. A daily incremental hot backup is performed. A full cold backup is performed during the weekend. All data is copied in real-time from the trading to the surveillance environments.

### 9. Contracts Available.

The trading system is built to ensure that of those contracts subject to the Act, only those that have been deemed available for trading by direct access pursuant to the procedures set forth in § 48.10 are made available for trading by direct access. SOLA provides MX with the ability to configure participants' accounts and limit participants' ability to trade in particular instruments. Access to products is configurable at the Firm level, hence US Firms do not have the ability to access/trade contracts other than the contracts configured for the Firm.

### 10. Predominance of the Centralized Market. Mechanisms are available that ensure a competitive, open, and efficient market and mechanism for executing transactions.

The structure and operations of the trading system ensure a competitive, open, and efficient market and mechanism for executing transactions.

MX provides for a block trading procedure which would be available to FAPs. The procedure to do this type of transactions is exactly the same for Canadian and foreign participants. The process is a manual one, the approved participant having to contact the Market Operations Department (MOD) before doing the transaction. The MOD will then validate the transaction and this one will be entered by the MOD in the system once validation has been made. In other words, the transaction is done between participants, outside of the central limit order book and reported to the Bourse for validation and entry into the system. The amount and level of block trades is small relative to trading through the central limit order book. Conditions that must be complied with to execute block trades are specified in Rule 6380 of MX and can be summarized as follows:

- i) The number of contracts to be traded must be in an eligible derivative instrument and be equal to or greater than the applicable minimum volume threshold. Eligible instruments and applicable quantity thresholds are specified in the "*Procedures for the execution of block trades*" (see <a href="http://www.m-x.ca/f\_en/proce\_block\_trading\_en.pdf">http://www.m-x.ca/f\_en/proce\_block\_trading\_en.pdf</a>).
- ii) A block trade may be arranged only during the trading hours and business days authorized by MX. Once a block trade has been arranged, an approved participant must submit details of the trade to MX as soon as practicable and in any event within the period of time prescribed by MX (currently 15 minutes).
- iii) Where a strategy involves the trading of two or more different derivative instruments, the smaller of the minimum volume thresholds of the derivative instruments comprised in the block trade will be applied to each of these derivative instruments. Where the strategy involves the trading of two or more different contract months and/or strike prices of the same contract month, the minimum volume threshold will apply to each leg of the trade, except where specific provision has been made within the published minimum thresholds.
- iv) Approved participants may not aggregate separate orders in order to meet the minimum volume thresholds.
- v) The price at which a block trade is arranged must be "fair and reasonable" in light of (i) the size of such a block trade; (ii) currently traded prices and bid and ask prices in the same contract, at the relevant time; (iii) currently traded prices and bid and ask prices in other contract months for futures contracts or other option series for options contracts; (iv) currently traded prices and bid and ask prices in other relevant markets, including without limitation the underlying markets; (v) the volatility and liquidity of the relevant market; and (vi) general market conditions.
- vi) Block trades shall not set off special terms orders or otherwise affect orders in the regular market.
- vii) It is strictly prohibited for an approved participant, for both the buyer and the seller, to enter into a block trade to circumvent the contract month roll in the corresponding security or derivative instrument.