

Policies and Guidelines of the Storage Performance Council (SPC)

**VERSION 5.0
OFFICIAL
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TABLE OF CONTENTS

REVISION RECORD	VII
INTENDED AUDIENCE	VII
COPYRIGHT	VII
<u>SECTION 1</u> <u>SPC MISSION.....</u>	<u>8</u>
<u>SECTION 2</u> <u>GOALS AND OBJECTIVES.....</u>	<u>9</u>
<u>SECTION 3</u> <u>MEMBERSHIP.....</u>	<u>10</u>
3.1 QUALIFICATIONS OF MEMBERSHIP.....	10
3.2 MEMBERSHIP DUES	10
3.2.1 DUES SCHEDULE	10
3.2.2 PRO-RATED DUES	10
3.2.3 TERMINATION OF MEMBERSHIP	11
3.3 RIGHTS OF MEMBERSHIP	11
3.3.1 CLASSES OF MEMBERSHIP.....	11
3.3.2 TOOLKIT LICENSES.....	11
3.4 ANTITRUST REQUIREMENTS FOR MEMBERS.....	12
3.5 PROCEDURE FOR EXPULSION OF MEMBERSHIP	12
<u>SECTION 4</u> <u>VOTING RULES.....</u>	<u>13</u>
4.1 QUORUM	13
4.2 PHRASING.....	13
4.3 TYPES OF VOTES.....	13
4.3.1 GENERAL GUIDELINES	13
4.3.2 SIMPLE MAJORITY VOTE.....	13
4.3.3 MEMBERSHIP VOTE.....	13
<u>SECTION 5</u> <u>SPC ORGANIZATION.....</u>	<u>15</u>
5.1 OVERVIEW.....	15
5.1.1 STRUCTURE	15

5.1.2	LANGUAGE	15
5.2	STEERING COMMITTEE.....	15
5.2.1	COMPOSITION.....	15
5.2.2	STEERING COMMITTEE CHAIR	15
5.2.3	OFFICERS OF THE SPC.....	15
5.2.4	VOTING RULES	15
5.2.5	APPOINTMENTS AND RESIGNATIONS	15
5.2.6	DUTIES OF THE STEERING COMMITTEE.....	15
5.2.7	MEETINGS OF THE STEERING COMMITTEE.....	16
5.2.8	STEERING COMMITTEE OPERATING PROCEDURES.....	17
5.3	SPC TOOLKITS	18
5.3.1	MEMBERSHIP REQUIREMENTS	18
5.3.2	TOOLKIT ACCESS	18
5.3.3	TOOLKIT LICENSES.....	18
5.3.4	OFF-SITE LICENSE	19
5.4	MODIFICATIONS TO THE SPC POLICIES.....	20
<u>SECTION 6 SPC EXECUTIVE DIRECTOR.....</u>		<u>22</u>
6.1	GENERAL RESPONSIBILITIES	22
6.2	ADMINISTRATIVE SUPPORT	22
6.3	FINANCIAL MANAGEMENT.....	22
6.4	CONTRACTED SERVICES	22
6.5	MEMBER SERVICES.....	23
6.6	TECHNICAL SUPPORT.....	23
6.7	MARKETING.....	24
6.8	ELECTION	24
6.9	OVERSIGHT	24
6.10	COMPENSATION.....	24
<u>SECTION 7 MEETINGS.....</u>		<u>25</u>
7.1	FREQUENCY OF MEETINGS.....	25

7.2	ATTIRE.....	25
7.3	LOCATION	25
7.4	MEETING COSTS	25
7.5	GENERAL MEETING CONDUCT	25
<u>SECTION 8 BENCHMARK STANDARDS</u>		<u>26</u>
8.1	BENCHMARK DEVELOPMENT CYCLE.....	26
8.2	BENCHMARK EXTENSIONS.....	27
8.2.1	DEFINITION.....	27
8.2.2	EXTENSION TYPES.....	27
8.2.3	EXTENSION DEVELOPMENT PROCESS	28
8.2.4	EXTENSION LIFECYCLE	29
8.2.5	EXTENSIONS AND PERMITTED USE	30
<u>SECTION 9 AUDITORS AND AUDITING</u>		<u>31</u>
9.1	AUDITOR POOL	31
9.2	AUDITOR CERTIFICATION.....	31
9.2.1	OVERVIEW	31
9.2.2	STAGE I – APPLICATION	31
9.2.3	STAGE II – EXAM AND INTERVIEW.....	32
9.2.4	STAGE III – APPRENTICESHIP	32
9.2.5	STAGE IV – CERTIFICATION	33
9.2.6	STAGE V – MAINTAINING CERTIFICATION.....	33
9.3	SPC AUDIT PROCESS	34
9.3.1	OVERVIEW	34
9.3.2	AUDITOR SELECTION AND PAYMENT.....	35
9.3.3	AUDIT PROCESS.....	35
9.3.4	AUDITOR'S DECISION AND APPEAL.....	36
9.3.5	CONFIDENTIALITY OF INFORMATION	36

SECTION 10 RESULTS SUBMISSION AND PUBLICATION 38

10.1 MANDATORY AUDITS 38

10.2 MEASUREMENT SUBMISSION 38

10.3 PEER REVIEW PROCESS 39

 10.3.1 OVERVIEW 39

 10.3.2 RESULT REVIEW 39

10.4 CHALLENGING A RESULT 39

 10.4.1 CHALLENGE SUBMISSION 39

 10.4.2 STATUS OF CHALLENGED RESULTS 40

 10.4.3 EFFECT OF COMPLIANCE RECOMMENDATIONS 40

10.5 ACTIVE, ACCEPTED SPC RESULTS 41

10.6 INACTIVE SPC RESULTS 42

10.7 WITHDRAWING A RESULT 42

10.8 RESULTS SUBMITTED ON ANOTHER VENDOR'S PRODUCT 43

10.9 AVAILABILITY OF FULL DISCLOSURE REPORTS 44

 10.9.1 TIMELY ANNOUNCEMENT OF SPC RESULTS 44

 10.9.2 CHANGE IN RESULTS STATUS ALERT 44

 10.9.3 NON-DELIVERY OF FULL DISCLOSURE REPORTS 44

 10.9.4 COPYRIGHT OF FULL DISCLOSURE REPORTS 45

 10.9.5 STANDARD DISCLOSURE REPORT SUMMARY 45

10.10 REVISIONS TO AN APPROVED SPC SPECIFICATION 45

 10.10.1 GENERAL GUIDELINES 45

 10.10.2 REVISION SCOPE AND REFERENCES 45

 10.10.3 THIRD TIER CHANGES 46

 10.10.4 MINOR CHANGE 46

 10.10.5 MAJOR CHANGE 46

 10.10.6 SPECIFICATION REVISIONS AND SPC RESULTS 46

 10.10.7 RESULT OBSELESCENCE 47

<u>SECTION 11</u>	<u>PUBLIC RELATIONS</u>	<u>48</u>
11.1	CONFIDENTIALITY RULE	48
11.2	SPC SPOKESPERSON	48
11.3	SPC PRESS RELEASES	49
11.4	MEMBER PRESS RELEASES	49
11.5	SPC WEB SITE	49
<u>SECTION 12</u>	<u>USE OF SPC RESULTS AND SPECIFICATIONS</u>	<u>50</u>
12.1	SPC COPYRIGHT NOTICE	50
12.2	PERMITTED USE OF SPC RESULTS	50
12.2.1	APPLICABILITY	51
12.2.2	“PERMITTED USE” OF SPC RESULTS	51
12.2.3	INVALID USE OF SPC RESULTS	52
12.3	PERMITTED USE OF SPC SPECIFICATIONS	53
<u>SECTION 13</u>	<u>REVIEW AND RESPONSE TO POLICY VIOLATIONS</u>	<u>54</u>
13.1	OVERVIEW	54
13.2	REVIEW PHASE	54
13.2.1	INITIAL ASSESSMENT	54
13.2.2	FORMAL REVIEW	54
13.3	RESPONSE PHASE	55
13.3.1	OVERVIEW	55
13.3.2	RESPONSES TO VIOLATIONS	55

REVISION RECORD

Revision	Date	Description of Change
Draft 1.0	14 Mar1998	Draft Release
1.0	22 Sep1998	Approved by Council
2.0	8 Nov 2000	Approved by Council
3.0	23 Jan 2008	Approved by Council Sections 3.2, 9.1, 9.2, 9.6, 9.7, and 11.2.1
4.0	1 Jan 2013	Dues payment schedule Reorganization of CRC section Inactive results Clarified voting rules
5.0	1 November 2020	Change to simplified organizational structure Align with Bylaws v3.0

INTENDED AUDIENCE

This document is intended for use by members of the Storage Performance Council (SPC).

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SECTION 1 SPC MISSION

The mission of the Storage Performance Council (“SPC” or “Council”) is defined in Article I of the *SPC Bylaws*.

SECTION 2 GOALS AND OBJECTIVES

The goal of the SPC is to serve as a catalyst for performance improvement in storage subsystems. It works to foster the free and open exchange of ideas and information, and to ensure fair and vigorous competition between vendors as a means of improving the products and services available to the general public. As set forth in Article I of the Bylaws, it is the policy of SPC to comply fully with U.S. Federal state and local laws, including the antitrust laws and applicable foreign competition laws. In support of its goals the SPC develops benchmarks focusing on storage subsystems. These subsystems include components like: electronic disks, magnetic disks, magnetic tapes, optical disks, media robots, media robot software systems, media library software systems, backup/archival software systems, hierarchical storage management systems, as well as the adapters, controllers, and networks that connect storage devices to the computer system.

The SPC is also focused on expanding the recognition and use of its industry-standard benchmarks, as well as publicizing those benchmark results. As a result, customers will be able to more accurately assess the performance and price/performance of competing storage products prior to acquisition.

SECTION 3 MEMBERSHIP

3.1 QUALIFICATIONS OF MEMBERSHIP

Article III of the *SPC Bylaws* contains the formal definitions and requirements for membership in the SPC.

3.2 MEMBERSHIP DUES

3.2.1 DUES SCHEDULE

Invoices for a given year's membership dues shall be issued prior to January 15 of that year. Payment of dues should be received by the SPC prior to April 1st of the year for which they were assessed. Table 3-1 summarizes the consequences for payments not received by that time.

Table 3-1 Payment Schedule

Dues Unpaid as of	Actions
1 April	Dues are past due. SPC toolkit licenses expire
1 July	Membership suspended
1 September	Membership terminated

If dues payment has not been received by 1 April, but the member can demonstrate that the payment process is underway, they may request a single, 30-day extension for their toolkit licenses. The extension may be granted at the sole discretion of the Executive Director.

A member, on learning of the dues assessed for a given year, may avoid liability for the dues by resigning from membership within the first ninety (90) days of given year. However, should a member be liable for the dues from a prior year, said liability cannot be avoided through resignation.

3.2.2 PRO-RATED DUES

A new member shall be liable for a full year's membership dues at the then-current rate for their membership class upon acceptance of their membership application. If the member renews their membership the next year, they are entitled to a one-time reduction in annual dues during their second year of membership, based on the calendar quarter in which their membership application was approved. The discounts to be applied are summarized in Table 3-2.

Dues levels for all subsequent years shall not be discounted.

Table 3-2 Pro-Rated Dues Schedule

Date Approved	Membership Dues Discount
First Quarter	0%
Second Quarter	25%
Third Quarter	50%
Fourth Quarter	75%

3.2.3 TERMINATION OF MEMBERSHIP

If a member resigns during the first three months of the Corporation's fiscal year, the Corporation shall, unless prohibited by applicable law, refund to the resigning member one-half of the annual dues previously paid by such member for such fiscal year. If such resignation is delivered after the first three months of the Corporation's fiscal year no portion of such dues shall be refunded.

3.3 RIGHTS OF MEMBERSHIP

3.3.1 CLASSES OF MEMBERSHIP

The SPC has four classes of members: Full, Associate, Academic, and Emeritus. The rights and privileges of membership are defined in the following articles of *SPC Bylaws*:

- (a) **Full Member:** Article 3.01 (a)
- (b) **Associate Member:** Article 3.01 (b)
- (c) **Academic Member:** Article 3.01 (c)
- (d) **Member Emeritus:** Article 3.01 (d)

3.3.2 TOOLKIT LICENSES

SPC Toolkit licensing is defined in 5.3.3. Each class of members shall have access to released SPC Toolkits as follows:

- (a) **Full Member or Associate Member:** One Unlimited License for each Benchmark shall be included at no additional cost beyond annual membership dues.
- (b) **Academic Member:** SPC Toolkits are not included as a “no cost” component of Academic Membership.
- (c) **Member Emeritus:** Upon request, one Limited License for each Benchmark shall be granted at no cost. The license is valid to the end of the calendar year. Renewals are by request only.

Members may purchase additional licenses for any Benchmark. Pricing for the acquisition of additional licenses shall be assessed annually, and shall be set by the Executive Director.

3.4 ANTITRUST REQUIREMENTS FOR MEMBERS

3.4.1 The most current version of the SPC Antitrust Compliance Policy is included in this document by reference.

3.4.2 The most current revision of the SPC Antitrust Compliance Policy shall be distributed to the Primary Representative of each member annually, as part of the membership renewal process.

3.5 PROCEDURE FOR EXPULSION OF MEMBERSHIP

If the grounds appear to exist for expulsion of a member under Article 3.13 (a) (6) of the *SPC Bylaws*, the procedure set forth below shall be followed:

1. The Executive Director can initiate the expulsion process. A Membership Vote (see 4.3.3 and *SPC Bylaws, Article V*) is required to complete that process and expel a member.
2. Once the Executive Director initiates the expulsion procedure, the affected member shall be given an opportunity to send a letter or presentation to the entire membership via the Executive Director.
3. The Executive Director shall conduct a Membership Vote to determine if the member is to be expelled. A vote to expel shall have immediate effect. The Executive Director will inform all members of the result of the vote.

SECTION 4 VOTING RULES

4.1 QUORUM

Unless otherwise stated in the *SPC Bylaws* or this document, quorum for all actions of the SPC shall be defined as one-third of the members of the body in which the power for said action is vested, including the Steering Committee, Board of Directors and any technical or standing committee which they may create.

4.2 PHRASING

All votes of the SPC shall be phrased in the affirmative, such that a ballot cast in favor of a vote shall be in support of action by the voting body.

4.3 TYPES OF VOTES

4.3.1 GENERAL GUIDELINES

Unless otherwise noted, only affirmative and negative ballots will be used to determine the passage or failure of a vote. Abstentions shall be recorded for all votes, even when they have no impact on the outcome of the vote.

Only votes taken when a valid quorum is present shall be binding on the voting body.

Unless otherwise required in the *SPC Bylaws*, all procedural questions with regard to voting shall be governed by Roberts Rules of Order.

Any vote may, and upon request of a member eligible to cast a ballot shall, be conducted via secret ballot.

Unless other voting rules are defined for a body in which the power for a given action is vested, the SPC will conduct itself through two types of binding votes:

- Simple Majority Votes and
- Membership Votes.

4.3.2 SIMPLE MAJORITY VOTE

Simple Majority Votes may be conducted via acclamation or by a roll call as determined by the chair of the voting body. However, the vote is conducted, all Simple Majority Votes for which at least a majority of the ballots cast are in the affirmative shall be deemed to have passed. While abstentions are to be recorded for all Simple Majority Votes, they shall not be counted in determining whether or not a vote has passed.

4.3.3 MEMBERSHIP VOTE

Membership Votes are those votes that are presented to the entire membership of the SPC, and are conducted by the Executive Director. The process for a Membership Vote

is defined in the *SPC Bylaws, Article V*.

SECTION 5 SPC ORGANIZATION

5.1 OVERVIEW

5.1.1 STRUCTURE

The business of the SPC is delegated by the Members to the Executive Director (see SECTION 6), whose actions are subject to the review of the Board, and the Board-selected Steering Committee (see 5.2).

In addition, the SPC relies on a group of Certified Auditors (see 9.2).

5.1.2 LANGUAGE

All business of the Council shall be conducted in English.

5.2 STEERING COMMITTEE

5.2.1 COMPOSITION

As defined by Article 6.01 of the *SPC Bylaws*, the Steering Committee consists of three (3) Primary Representatives from the membership of the SPC and the Executive Director.

5.2.2 STEERING COMMITTEE CHAIR

The role of the chairman of the Steering Committee, as defined by XREF in the Bylaws, is open to any Primary Representative serving on the committee, but shall not be held by the Executive Director.

5.2.3 OFFICERS OF THE SPC

As defined in the *SPC Bylaws*, the duties of officers of the SPC (President and Chief Executive Officer, Secretary, and Chief Financial Officer) reside in the Executive Director. The Executive Director is the legal representative of the SPC.

5.2.4 VOTING RULES

Motions of the Steering Committee shall be passed by Simple Majority Vote.

5.2.5 APPOINTMENTS AND RESIGNATIONS

The process for appointment to and resignation from the Steering Committee is defined in the Article 6.02 of the *SPC Bylaws*.

5.2.6 DUTIES OF THE STEERING COMMITTEE

5.2.6.1 Executive Director

The Steering Committee appoints the Executive Director, and negotiates the Executive

Director’s annual contract with the SPC.

5.2.6.2 Direction

The Steering Committee reviews the direction and work items for the SPC, as set by the Executive Director, and ensures that administrative and support requirements are satisfied.

5.2.6.3 Financials

The Steering Committee reviews the financials of the SPC, and assures that its resources are being appropriately applied in furtherance of the Council’s mission and goals.

5.2.6.4 Membership Representatives

The Steering Committee represents that membership of the SPC and provides review mechanism in the event of a disagreement between the Executive Director and a member company.

5.2.7 MEETINGS OF THE STEERING COMMITTEE

5.2.7.1 Call of Meetings

Meetings of the Steering Committee may be called by the Chairman.

5.2.7.2 Meeting Schedule

The regular meeting schedule for the Steering Committee is summarized in Table 5-1. Additional meetings may be held as required.

Table 5-1 Steering Committee Meeting Schedule

Date	Type	Notes (Duration)
January	Face-to-Face	New SC convened (1 day)
April	Teleconference	General business (2 hours)
July	Teleconference	ED Contract renewed (2 hours)
October	Teleconference	Draft Budget approved (2 hours)

Face-to-face meetings shall be held at a mutually agreed time and/or location.

Upon approval of the Steering Committee, the SPC shall underwrite any costs associated with the attending the face-to-face meeting that are not covered by a Steering Committee member’s company.

5.2.7.3 Notice of Meetings

Members shall be provided at least seven (7) days' notice for all meetings, whenever possible. Notice of the meeting need not be given to any Steering Committee member who signs a waiver of notice or a written consent to holding the meeting or an approval of the minutes thereof, whether before or after the meeting, or who attends the meeting without protesting, prior thereto or at its commencement, the lack of such notice to such Director. All such waivers, consents, and approval shall be filed with the corporate record or made a part of the minutes of the meetings.

5.2.7.4 Quorum

Three or more members of the Steering Committee constitute a quorum of the Steering Committee for the transaction of business. Steering Committee members may participate either in person or via teleconference.

5.2.7.5 Transactions of Steering Committee

Except as otherwise provided in this document, the *SPC Bylaws*, or by law, every act or decision done or made by means of a simple majority vote is the act of the Steering Committee.

5.2.7.6 Conduct of Meetings

The Chairman of the Steering Committee or, in his or her absence, any Steering Committee member selected by the Chair of the Steering Committee, shall preside at meetings. The Secretary of SPC or such other person appointed by the presiding officer shall act as Secretary of the Steering Committee.

5.2.7.7 Adjournment

A majority of the Steering Committee members present, whether or not a quorum is present, may adjourn any meeting to another time and place. If the meeting is adjourned for more than twenty-four (24) hours, notice of the adjournment to another time or place must be given to the members who were not present at the time of the adjournment prior to the meeting's being reconvened.

5.2.8 STEERING COMMITTEE OPERATING PROCEDURES

The Steering Committee's operating procedures are:

- (a) All Steering Committee meetings are open to SPC members, except where participation would violate the confidentiality of another member.
- (b) Each Steering Committee meeting has minutes that are published and distributed to the Directors. The minutes capture actions taken and decisions reached in the Steering Committee meetings.
- (c) Each annual meeting of the SPC will have a session devoted to discussing Steering Committee status and issues.
- (d) Input on any open issues and/or suggestions for items to be considered by the

Steering Committee is open to the general membership at all times.

- (e) The above formalization is not intended to limit the Steering Committee. Provided its actions are well documented and in-line with its responsibilities as defined in 5.2.6, the goal is to provide the Steering Committee the flexibility to react when needed.

5.3 SPC TOOLKITS

5.3.1 MEMBERSHIP REQUIREMENTS

SPC Toolkits are only available to SPC members, Certified Auditors, and Auditor Candidates. Members will only be granted access to toolkits if their membership dues are paid. Members who are granted access to SPC toolkits shall adhere to all licensing and usage requirements.

Upon termination of membership for any reason, the member shall forfeit their right to SPC toolkits for which they have been granted access.

5.3.2 TOOLKIT ACCESS

Members shall be granted access to toolkits on the basis of one or more of the following:

- a) **Membership Rights:** each class of membership defines the level of toolkit access provided as a right of membership class (see 3.3.2).
- b) **Toolkit Development:** Members may be granted limited access to pre-release or proposed toolkits. Licenses granted on this basis are for development purposes only, and may not be used for the production of SPC Results.
- c) **Auditors:** Certified Auditor and Auditor Candidates (see SECTION 9) may be granted a Limited License for the Benchmark Families for which they are certified, or are seeking certification.

5.3.3 TOOLKIT LICENSES

5.3.3.1 License Types

SPC Toolkits require current licenses. Toolkit licenses are granted for a Benchmark Family (see **Error! Reference source not found.**), and allow the licensee to execute all of the benchmark toolkits within the Benchmark Family, subject to the limits defined for the license granted.

The SPC grants two types of toolkit licenses to its members:

- a) Limited Licenses defined in 5.3.3.2, and
- b) Unlimited Licenses, defined in 5.3.3.3.

All licenses are granted for a period of time determined by the Executive Director at the

time of issue. Licenses shall be re-issued annually as part of membership renewal.

5.3.3.2 Limited Licenses

Each Limited License grants the licensee:

- Use of licensed toolkit(s), on an unlimited number of machines owned and operated by the licensee, for internal measurements only;
- A single Support Contact (see 5.3.3.4), who is entitled to 1 hour of support per-year.

A Limited License does not provide the licensee with the ability to produce SPC Results.

Additional support will be billed on a time and materials basis, at a rate set by the Executive Director.

5.3.3.3 Unlimited Licenses

Each Unlimited License grants the licensee:

- Use of licensed toolkit(s), on an unlimited number of machines owned and operated by the licensee;
- The ability to produce SPC Results with any licensed toolkit;
- A single Support Contact (see 5.3.3.4), who is entitled to 10 hours of support per-year.

Additional support will be billed on a time and materials basis, at a rate set by the Executive Director.

5.3.3.4 Support Contacts

Each toolkit license is linked to a designated Support Contact. All support requests for a given licensed SPC toolkit must originate from the Support Contact identified for that toolkit's license.

The Primary Representative of the licensee shall designate the Support Contact for a given license, and provide the Executive Director with the contact information for the designee. The Support Contact for a given license may be changed upon written notice to the Executive Director.

5.3.4 OFF-SITE LICENSE

5.3.4.1 An Off-Site License is intended to enable the use of an SPC Toolkit at non-member's location for purposes other than the production of SPC Results (e.g., capacity planning, assessment of customer configurations). The usage shall be under the direct supervision of an appropriate representative of the SPC member company an Off-Site License was granted to.

5.3.4.2 Data produced using an Off-Site License cannot be disclosed publicly.

- 5.3.4.3 Pricing for Off-Site licenses shall be set by the Executive Director.
- 5.3.4.4 An Off-Site License must be requested by a SPC member company in good standing that is entitled to use of the SPC Toolkit that the Off-Site license will activate. The member company must submit a written request to the Executive Director no less than 10 days prior to the intended first use of the license. The request must be signed by the Primary Representative of the requesting member company and by a suitable representative of the non-member at whose site the testing will occur. The request must include:
- a) The address where the toolkits will be used.
 - b) The contact information for the SPC Member company employee(s) who will be responsible for supervising the testing.
 - c) The contact information for an appropriate non-member individual who will be on-site during the testing.
 - d) The first and last dates of use for the SPC toolkit at this location. An Off-Site License will be granted for a maximum of 60 days. Extensions will be considered on a case-by-case basis.
 - e) A detailed description of the benchmark configuration to be tested, and the estimated performance level.
- 5.3.4.5 An Off-Site License provides an SPC member company with the right to use an SPC Toolkit for a limited time, at a specific non-member location. It includes support for the installation and initial configuration of the toolkit on the specified non-member configuration. Any additional support or consulting for analysis and/or optimization beyond the basic operation of the SPC Toolkit is not included with the license and must be separately negotiated.

5.4 MODIFICATIONS TO THE SPC POLICIES

- 5.4.1 A proposed modification to the SPC Policies and Guidelines (“Policies”) may be submitted by any Full Member, or by a duly formed committee (i.e., Board or Standing Committee).
- 5.4.2 All proposed modifications shall be submitted to the Executive Director in writing, and must include the complete wording change being requested, relative to the then-current version of the Policies.
- 5.4.3 The Executive Director shall decide on the disposition of any proposed modifications. The disposition of any proposed modification shall be communicated to the Steering Committee and to the membership at large.
- 5.4.4 The member who proposed a change that was declined may appeal to the Steering Committee within 30 days of notification of the decision to decline the proposed change.

5.4.5 The current version of the SPC Policies shall always be available on the SPC web site. All members shall be notified of any revisions to this document.

SECTION 6 SPC EXECUTIVE DIRECTOR

6.1 GENERAL RESPONSIBILITIES

The Executive Director of the SPC is responsible for the administrative and operational activities of the SPC. That responsibility includes the day-to-day tasks, as well as longer-term activities, and the general success of the SPC. The Executive Director is selected by the Steering Committee and is a member of the SPC.

In general, all authority within the SPC that is not expressly reserved to the membership or the Steering Committee accrues to the Executive Director.

The Executive Director is solely responsible for the activities set forth in this section, and is given considerable freedom by the Steering Committee to execute these and other activities in a timely and efficient manner, in furtherance of the SPC's mission.

6.2 ADMINISTRATIVE SUPPORT

The Executive Director provides day to day administrative support for the SPC, including:

- meeting preparation, arrangement, and logistics;
- distribution and maintenance of minutes of board meetings, steering committee meetings;
- mail ballots;
- creation and publication of meeting minutes;
- maintenance of records of all SPC activities and transactions;
- maintenance of the master copy of any SPC specification and benchmarks;
- internal distribution of all Corporate materials to the SPC;
- contact point for all SPC correspondence.

6.3 FINANCIAL MANAGEMENT

The Executive Director provides financial management for the SPC, including:

- establishing banking agreements and practices for the SPC.
- collecting membership dues and their deposit in a corporate account;
- paying external organizations and receiving payment from external organizations;
- working with the Steering Committee to develop and track an annual budget.

6.4 CONTRACTED SERVICES

The Executive Director is free to contract with outside entities to execute goals and

objectives set by the Steering Committee including, marketing, public relations, technical support, legal counsel, and accounting functions.

All outside entities that provide contracted services shall comply with the SPC Antitrust Compliance Policy.

The Executive Director is to assure that the following minimal functions are accomplished by these support activities:

- Legal. Represent the legal interests of the SPC, including: securing of corporate status; tax exemption; reviewing all legal agreements between members and the SPC; reviewing all legal agreements between the SPC and other outside organizations; and legal compliance, including compliance with United States federal and state antitrust and applicable foreign competition laws.
- Accounting. Compile accounting reviews and reports, including: preparing and submitting tax returns; publishing financial report; and compiling financial statements of corporate income and expenses.
- Auditing. Creation and maintenance of a pool of Certified Auditors as detailed in 9.1.

6.5 MEMBER SERVICES

The Executive Director shall review and approve all membership applications, in accordance with section 3.04(c) of the *SPC Bylaws*. To assure an appropriate review, all applications shall include:

- The URL for the English-language version of the applicant's website; if an applicant does not have a public web site, they shall provide a written summary of their role in the storage industry;
- An attestation from an appropriate representative of the applicant that they will abide by all appropriate SPC Policies and Bylaws.

6.6 TECHNICAL SUPPORT

The Executive Director provides technical support to the SPC including consulting on the development and maintenance of new benchmarks. In addition, the Executive Director shall:

- Create and manage subcommittees and workgroups, as needed, in the development and support of SPC Benchmarks;
- Assure that all fees associated with benchmark Results are paid in a timely manner, and maintain a full and complete record of all Results and their status.

6.7 MARKETING

The Executive Director provides marketing support to the SPC including:

- Representing the SPC at industry, technical and trade forums;
- Publishing technical papers and articles the SPC's products, results, and services;
- Maintaining an active Internet Web site; publishing any news letters or periodicals required to promote the SPC;
- Publishing any manuals, texts, or documentation required to promote the mission and objectives of the SPC;
- Promoting the SPC at industry conferences;
- Public relations services including communicating with industry analysts and press.
- Promoting and selling the products and services of the SPC.

6.8 ELECTION

The Executive Director is hired by the Steering Committee, and serves for a term of one year.

6.9 OVERSIGHT

All actions of the Executive Director are subject to the review of the Steering Committee, and the Executive Director shall make every effort to advise the Steering Committee prior to undertaking any significant activity.

6.10 COMPENSATION

The Executive Director is a contract employee of the SPC. The Executive Director will be paid in accordance with an annual contract negotiated by the Steering Committee. The Executive Director shall prepare an annual summary of services rendered to assist the Steering Committee in its assessment of the SPC's administrative needs.

SECTION 7 MEETINGS

7.1 FREQUENCY OF MEETINGS

The Board of Directors shall meet once a year ("annual meeting"), typically in November. The Executive Director shall schedule the Annual Meeting six months in advance. In addition to ad hoc agenda items, the meeting will:

- review the progress of the Council and the effectiveness of the Executive Director;
- elect the Steering Committee for the coming calendar year;
- approve the budget for the coming calendar year.

In addition to the annual meeting, the Executive Director may hold one or more technically-focused meetings to facilitate benchmark development and maintenance. Technical meetings are open to all members.

7.2 ATTIRE

Attire at all SPC meetings is informal.

7.3 LOCATION

The annual meeting will be held as a teleconference.

7.4 MEETING COSTS

Costs associated with hosting the meeting are the responsibility of the SPC. Costs associated with attendance at SPC annual meetings are the responsibility of each member.

7.5 GENERAL MEETING CONDUCT

General meetings shall be conducted in accordance with documented SPC policies/bylaws. In situations not covered by documented SPC policies/bylaws, Robert's Rules of Order shall apply.

SECTION 8 BENCHMARK STANDARDS

8.1 BENCHMARK DEVELOPMENT CYCLE

The following outlines the steps for submitting a benchmark proposal and securing approval.

Step 1: Proposal Submission

Member companies may submit a proposal for a new benchmark specification to the Executive Director for consideration. The Executive Director will review the contents, applicability and potential of the proposal, identifying advantages/disadvantages and a proposed course of action.

Step 2: Creation of a Workgroup

In cases where a proposal has merit, the Executive Director may create a technical workgroup to further develop the proposal into a draft benchmark specification.

To speed-up the benchmark development cycle, the workgroup is authorized to brief non-members on the benchmark in order to obtain timely feedback.

Step 3: Public release of Draft Specification

The Executive Director may release a draft benchmark to the public. The principal goals of releasing a draft specification are to encourage companies to implement the draft specification, to gather more experimental data, and to speed-up the release and adoption of an official SPC specification. Companies are encouraged to run the draft specification benchmark, document the results, and discuss the results with SPC members and customers. Companies may also publish technical articles or make presentations to industry conferences in which they discuss results.

Companies are strictly prohibited from publicizing results using this draft specification for marketing and/or competitive purposes. (In other words, results using a draft specification, whether referencing the SPC or not, should not appear in any of the company's marketing literature, press releases, press conferences, or advertising.) Any violation of this policy will be considered a major violation of the SPC's Permitted Use policies (see 12.2).

Note: Companies are reminded that a draft benchmark is not an official SPC benchmark, and companies must adhere fully to all the provisions and restrictions of the SPC's Permitted Use policies.

If the draft specification is based on an existing workload or benchmark, companies may continue to publicize results of that existing workload or benchmark. In those cases, there must be no mention of the SPC or of any relationship between the existing workload/benchmark and the SPC draft specification.

Step 4: Formal Review

During this phase, the proposed specification will be made available for final review by SPC member companies and the public. All comments and proposed changes generated from the review will be made available to all SPC members.

Step 5: Formal Approval of a Proposed Specification

Once all comments have been resolved, and any changes to the proposed specification have been completed, the completed draft will be submitted to the Council for approval. The proposed specification will become an SPC benchmark standard upon passage of a Membership Vote.

Step 6: Benchmark Retirement and Dissolution of a Maintenance Subcommittee

The Executive Director may choose to retire a benchmark. If a benchmark is to be retired, the Executive Director shall notify the membership of three dates:

1. Deprecation Date. On this date, the intent to retire the benchmark is made public. No more changes to the specification may be made after this date. This date must be at least 60 days past the date of notification.
2. Last publication date. This is the last day on which a new result may be published. This date must be at least 60 days after the Deprecation Date.
3. Retirement Date. All remaining results on the website become inactive results on this date.

A Membership Vote will be required to begin the retirement process.

The dates in the Membership Vote may be modified by the Executive Director, but only changes that slow the process are permitted. Changes may neither accelerate nor stop the retirement process.

8.2 BENCHMARK EXTENSIONS

8.2.1 DEFINITION

Benchmark extensions are optional additions to an existing benchmark (“the underlying benchmark specification”) that are designed to showcase a feature or set of features, and to provide vendors with a means to differentiate their products across dimensions other than the existing performance or price-performance metrics of the benchmark

Benchmark extensions are developed as stand-alone documents, but rely on the specification wording of an underlying benchmark standard.

8.2.2 EXTENSION TYPES

There are several ways in which a benchmark extension can be integrated into an existing benchmark. The following is a partial list, which is intended to guide extension

development, but not to be prescriptive:

- Repeated measurements to highlight an optional feature or function: after a standard benchmark measurement, configuration changes are made (e.g., enabling a feature), and then some or all of the standard measurement is repeated to highlight performance changes;
- Supplemental testing to demonstrate a feature active during a measurement: once a standard benchmark measurement is complete, additional testing and disclosure is performed (e.g., failing one or more drives in a RAID rank, replacing them, verifying data integrity) to illustrate the effectiveness of a feature that was active during the measurement;
- Operational constraints, which differentiate benchmark results and highlight additional features or functionality: a configuration could be held to a higher standard than that required by the baseline specification (e.g., less than 1% of total storage capacity is unused). No additional testing would be required, since required documentation and audit procedures would be sufficient to satisfy the constraint.

While the presence of one or more extensions may add required tests, techniques or metrics, they shall not remove any requirements defined by the underlying benchmark, and shall be published in conjunction with a full, audited result submission.

8.2.3 EXTENSION DEVELOPMENT PROCESS

- 8.2.3.1 Any member may propose an extension, by forwarding a proposal to the Executive Director.
- 8.2.3.2 The proposal must be fully formed, including detailed test procedures, metrics, and disclosure requirements, but need not be written in formal language.
- 8.2.3.3 The Executive Director will review the proposed extension, working with the proposing member to amend and revise the proposal, as needed. If the proposal has merit, the Executive Director will work with interested members to develop the standalone document that formally defines the extension, and to identify and implement any required tools or supporting infrastructure.
- 8.2.3.4 The formal language to implement a benchmark extension is subject to two levels of approval:
 - a) The Executive Director shall approve the benchmark extension implementation. If the Executive Director does not approve the benchmark extension implementation, the proposal is rejected, and no further action is taken.
 - b) The auditor(s) certified on the underlying benchmark shall review the audit requirements of the proposed extension, and conduct a Simple Majority Vote on accepting or rejecting the wording. The proposed wording must receive a

majority vote in favor of acceptance. If the wording does not receive a majority vote in favor of acceptance, the auditor(s) shall attempt to reach consensus on suggested improvements to the wording that deem would be sufficient to satisfy audit requirements. If a majority of the auditor(s) cannot agree on wording appropriate to make auditing feasible, the proposal is rejected, and no further action is taken.

Once proposed wording has been approved by the Executive Director and the auditors certified for the underlying benchmark, the wording is adopted as a provisional extension.

8.2.3.5 If a proposed benchmark extension is rejected, the same or similar extension may not be re-submitted for six (6) months.

8.2.4 EXTENSION LIFECYCLE

8.2.4.1 Once approved, a provisional benchmark extension considered part of the underlying benchmark specification, is available to all Test Sponsors, and may be included in any published result based on the underlying benchmark, until such time as it is withdrawn (see 8.2.4.4).

8.2.4.2 If published results have included the provisional extension, the extension moves to an accepted status.

8.2.4.3 If no results have been published with the provisional extension eighteen (18) months after its approval, then the extension shall be withdrawn.

8.2.4.4 Benchmark extensions, whether provisional or accepted, shall be reviewed at the Council's Annual Meeting, provided at least twelve (12) months have elapsed since the extension was provisionally accepted. The extension can either be affirmed, or the Council may set an effective date for the withdrawal of the extension.

8.2.4.5 No result which includes a withdrawn benchmark extension may be published after that extension's withdrawal date.

8.2.4.6 Once approved, a benchmark extension shall remain valid until it is withdrawn, or a major revision of the underlying benchmark is published (see 10.10). A major revision of a specification may include benchmark extensions, but they shall be subject to the same approval process as the underlying specification.

8.2.4.7 Revisions to a benchmark extension shall shall not introduce a non-comparable change from one revision to the next. If a non-comparable change is required, a new extension shall be created.

8.2.5 EXTENSIONS AND PERMITTED USE

- 8.2.5.1 Benchmark results may include one or more benchmark extensions, whether provisional or accepted.
- 8.2.5.2 All benchmark results that include one or more benchmark extensions are subject to the permitted use rules defined in 12.2.
- 8.2.5.3 A result that includes a provisional benchmark extension may publish the metrics and reported data that are defined by that extension, and use them to compare with other results that include that extension.
- 8.2.5.4 The extension shall define whether or not it is a violation of permitted- use to use a benchmark extension, the extension's metrics or reported data to compare with a result that did not include that extension.

SECTION 9 Auditors and Auditing

9.1 AUDITOR POOL

- 9.1.1 The purpose of an SPC Auditor is to certify that SPC Measurements are compliant with the relevant benchmark specification.
- 9.1.2 The Executive Director has the responsibility to manage a pool of certified Auditors and may:
- Expand the pool to ensure that an adequate number of Auditors is available to provide coverage in a timely manner, or
 - Restrict the size of the pool to maintain quality.

9.2 AUDITOR CERTIFICATION

9.2.1 OVERVIEW

The following defines the certification process for Auditor candidates. Candidates are certified for a specific SPC Benchmark. Auditor candidates may seek, and can obtain, certification for multiple SPC Benchmarks. Candidates must be individuals and not organizations.

9.2.2 STAGE I – APPLICATION

- 9.2.2.1 A prospective Auditor candidate shall submit an application to the Executive Director including:
- The specific SPC benchmark for which they would like to be certified,
 - A summary of the candidate's background (e.g., education, work experience, other related skills)
 - An attestation of their suitability for audit work (e.g., freedom to travel, lack of any conflict of interest).
- 9.2.2.2 The Executive Director reviews the application and decides if the candidate is appropriate for further consideration, and if their certification as an Auditor would enhance the Auditor Pool.
- 9.2.2.3 If the Executive Director approves the application, the candidate then progresses to Stage II. If the application is rejected, the candidate must wait at least six months before reapplying, except if this delay is waived by the Executive Director.

9.2.3 STAGE II – EXAM AND INTERVIEW

- 9.2.3.1 An Auditor candidate is required to take a written exam specific to each Benchmark for which they are seeking certification. The purpose of the written exam is to establish that the candidate has a full understanding of the Benchmark, the operation of the SPC, and the auditing process. It should be possible to pass the exam by studying publicly available documents such as the SPC benchmark specifications and the SPC Policies and Bylaws. The exam is administered in person, at a time and place designated by the Executive Director. The Executive Director may waive the exam based on a review of a candidate's qualifications.
- 9.2.3.2 The Executive Director will work with members to develop and maintain at least 30 questions and associated answers for each Benchmark. At least 15 questions are chosen for a given exam to avoid using the same questions and answers for each exam.
- 9.2.3.3 A passing score for the exam is at least 85% of the maximum score. If a candidate fails to pass the exam, the Steering Committee will inform the candidate in writing within seven days. A second, different exam may be scheduled no sooner than four weeks after the first exam. A subsequent failure will result in a loss of the Executive Director's approval of the candidate.
- 9.2.3.4 The Executive Director interviews any candidate who has passed the exam and votes on whether to accept the candidate as an apprentice Auditor. The Executive Director may vote to waive the interview based on a review of a candidate's qualifications.

9.2.4 STAGE III – APPRENTICESHIP

- 9.2.4.1 An apprentice Auditor must work with a certified Auditor to gain hands-on experience with the audit process and the particular Benchmark in question. It is incumbent upon certified Auditors to provide reasonable opportunities for apprentices to gain such experience. When the certified Auditor feels that the apprentice has demonstrated the capacity to work independently, the certified Auditor provides a written endorsement of the apprentice toward their certification. The endorsement must indicate how long the apprentice worked with the certified Auditor and the work performed during the apprenticeship.
- 9.2.4.2 The Executive Director will monitor the progress that an apprentice is making toward certification, and may remove a candidate Auditor from future consideration if timely progress is not made.
- 9.2.4.3 The Executive Director may waive the apprenticeship requirement based on a review of a candidate's qualifications and experience.

9.2.5 STAGE IV – CERTIFICATION

- 9.2.5.1 Candidates who have been endorsed by a certified Auditor or whose internship has been waived may be asked to meet with the Executive Director for a certification interview. The certification interview includes technical questions to verify that the candidate has a solid understanding of the specific benchmark and the technologies and products that can potentially be used in the benchmark implementation. In addition, the certification interview will include specific questions on the audit requirements of the benchmark and on the candidate's approach to auditing benchmark results.
- 9.2.5.2 Following the certification interview, if any, the Executive Director will decide whether to certify the candidate as Auditor of the specific benchmark. In addition to the technical knowledge of the specific SPC Benchmark that the candidate has demonstrated, the Steering Committee shall also consider the candidates general suitability as an SPC Auditor including:
- Prior knowledge of the SPC organization and SPC benchmarks.
 - Capability to provide adequate auditing coverage (e.g., time, location, ability to travel).
 - Knowledge and experience in storage subsystem technology.
 - Ability to perform the duties of the job in an independent manner (i.e., free of conflicts-of-interest).
- 9.2.5.3 The Executive Director may constrain the certification, but must define the additional work required of the candidate to remove those constraints.
- 9.2.5.4 The Executive Director shall notify the candidate of a certification decision within 3 days, including a brief summary of its findings, and any constraints or limitations that have been put on the candidate's certification.
- 9.2.5.5 If the Executive Director fails to certify a candidate, the candidate must wait a minimum of two weeks, and may then ask for reconsideration. If the request is granted, the reconsidering process must include a certification interview.

9.2.6 STAGE V – MAINTAINING CERTIFICATION

- 9.2.6.1 Maintaining certification requires that the certified Auditor fulfills the following responsibilities:
- To work with and review the work of apprentice auditors.
 - To stay current with changes in the Policies and SPC benchmark specifications.
 - To work closely with other Auditors in order to maintain consistency between audits.

- To provide adequate auditing coverage (e.g., availability, turnaround time, travel).
- To work closely with the Maintenance Subcommittee(s) to maintain and enhance the benchmark specifications.
- To perform the duties of the job in a professional and independent manner.
- To support the best interests of the SPC and its mission.

9.2.6.2 Auditors agree to comply with the SPC Antitrust Compliance Policy. The certification of an Auditor who violates or fails to comply with the SPC Antitrust Compliance Policy shall be immediately revoked.

9.2.6.3 Certified Auditors may relinquish their certification by informing the Executive Director of their decision in writing.

9.2.6.4 The certified Auditors may be required physically attend the annual meetings to maintain their certification. In case of such requirement the Executive Director will negotiate with the certified Auditors to establish a reasonable compensation for their attendance.

9.2.6.5 An Auditor's certification may be revoked by the Executive Director, if the Auditor fails to meet any of the requirements defined in this document.

9.3 SPC AUDIT PROCESS

9.3.1 OVERVIEW

9.3.1.1 The audit process is a complete review of an SPC Measurement, to assess the compliance of that Measurement against the corresponding specification. The audit encompasses more than just the outcome of the benchmark tests. It also includes a review of any other item that may affect the compliance of the result.

A successful audit does not guarantee compliance. The SPC Peer Review process is used as an additional mechanism for determining compliance (see 9.3). The audit is intended to reduce the probability that a new SPC Result will be found non-compliant during the SPC Peer Review process.

9.3.1.2 The main components of the audit process are:

- Establish an audit protocol to document in detail the required set of steps to produce a Measurement compliant with the benchmark specification. The protocol also documents the automation level of the test methodology and the resulting test data to be captured and communicated to the auditor.
- Verify the compliance of all components of the implementation (e.g., benchmark kit, hardware configurations, component pricing).

- Verify that the tested configuration falls within the intended scope stated by the benchmark specification, as reflected by its appropriateness, availability and usability within the intended segment of the storage marketplace.
- Obtain a reasonable confidence level that the methodology used to execute the benchmark tests produces reliable measurement results.
- Verify the compliance of a Measurement by examining those results.
- Verify the compliance of the result based on applicable CRC rulings not yet reflected in the benchmark specification.
- Produce an FDR that accurately reflects and discloses all required details about the result.

9.3.2 AUDITOR SELECTION AND PAYMENT

- 9.3.2.1 The Test Sponsor selects an Auditor from the list of certified Auditors maintained by the Executive Director.
- 9.3.2.2 The Test Sponsor contracts directly with their selected certified Auditor to obtain audit and FDR production services.
- 9.3.2.3 The service fees charged by the Auditor and related payment terms are determined by negotiation between the Test Sponsor and the Auditor.
- 9.3.2.4 The Test Sponsor pays the fees for audit and FDR production services directly to the Auditor based on the negotiated terms.
- 9.3.2.5 An Auditor may refuse to provide services to a Test Sponsor that has failed to make timely payments for services previously rendered.
- 9.3.2.6 An Auditor may request that the Executive Director withdrawal of a published result when the audit and FDR production services fee for that result have not been timely paid by the Test Sponsor.

9.3.3 AUDIT PROCESS

- 9.3.3.1 The audit process for the specific benchmark is documented in that Benchmark's specification.
- 9.3.3.2 The Auditor may, at his or her discretion, adjust or alter the documented audit process to meet the specific needs of an audit.
- 9.3.3.3 It is the responsibility of the Test Sponsor to attest to the veracity of all information disclosed to the Auditor as part of the audit.
- 9.3.3.4 The Auditor may choose to examine, verify and test any information disclosed by the Test Sponsor.

9.3.3.5 In cases where the Auditor identifies a need for further documentation not produced as part of a pre-existing protocol, it is the joint responsibility of the Auditor and Test Sponsor to identify or develop such documentation (e.g. through screen shots or added reports).

9.3.4 AUDITOR'S DECISION AND APPEAL

9.3.4.1 The Auditor has the authority to make all compliance-related decisions during the course of an audit.

9.3.4.2 In case of a benchmark implementation where the letter and the spirit of a benchmark specification are found to be ambiguous and no preponderance of evidence can be established to resolve the ambiguity, the Auditor should decide in favor of a conservative, rather than liberal, interpretation of the benchmark requirement.

9.3.4.3 The Auditor may waive a benchmark requirement in cases where sufficient proof is obtained that this requirement meets all of the following criteria:

- It has no effect, whatsoever, on the reported metrics.
- It does not affect compliance with any other requirement.
- Its compliance would represent a significant financial or operational burden on the part of the Test Sponsor.

As a specific example, suppose that the script that must run following initialization contains a fatal path error. In such a case, the Auditor may allow the Test Sponsor to correct the path error and resubmit the script without reinitializing the system, provided that in the Auditor's judgement this procedure meets the three criteria as just stated. Any such waiver must be highlighted in the Audit Report and the FDR must include a description of the waived requirement, along with the proof provided that all reported metrics would have otherwise been the same and that there is no effect on compliance with other requirements. The FDR must also include an explanation of the nature of the burden that was relieved by the waiver.

9.3.4.4 The Test Sponsor can request from the Auditor that selected decisions be documented in writing, including a detailed description of the issue and the process used to make the decision.

9.3.4.5 If a Test Sponsor disagrees with an Auditor's decision, the Test Sponsor has the option of submitting the documented decision to the Executive Director for appeal.

9.3.5 CONFIDENTIALITY OF INFORMATION

9.3.5.1 It is recommended that Test Sponsors and their chosen Auditor enter into a confidentiality agreement to protect all information disclosed to the Auditor during the course of an audit. Such an agreement should take into consideration the need for the

Auditor to communicate confidential information to other Auditors when required to perform the auditing function.

9.3.5.2 When an FDR is sent to the SPC for Peer Review, all information contained in the FDR becomes public knowledge.

SECTION 10 RESULTS SUBMISSION AND PUBLICATION

10.1 MANDATORY AUDITS

- 10.1.1 An SPC Measurement must be successfully audited before a Test Sponsor can submit it to the Executive Director for publication as an SPC Result.
- 10.1.2 SPC Auditors provide audit services for members who wish to audit SPC Measurements.
- 10.1.3 Auditors must be certified by the Steering Committee to audit SPC Measurements for compliance with an SPC Benchmark specification (see SECTION 9).
- 10.1.4 Test Sponsors may choose amongst any of the Auditors certified for the applicable specification for assistance in auditing their SPC Measurement.

10.2 MEASUREMENT SUBMISSION

A Test Sponsor may submit a successfully audited SPC Measurement to the Executive Director for publication as an SPC Result. The precise contents of a measurement submission are defined in each benchmark specification, however all submissions shall include:

- A cover letter or email explicitly stating:
 - If the submission is a new SPC measurement or pricing revisions to an existing SPC Result;
 - Full contact information for the Test Sponsor.
- A software copy of the required Full Disclosure Report (FDR)
- An Audit Report stating the SPC measurement has successfully completed the required SPC Audit.
- A release, if not previously submitted, allowing public disclosure of the SPC Result and corresponding FDR.
- If the submission is incomplete, the Executive Director will not accept the submitted Measurement.

After the above submission requirements have been satisfied, the submission:

- becomes a new SPC Result;
- is given the status of “Submitted for Review”;
- is "registered" with the SPC, and remains registered until the result is withdrawn (see 10.7);
- must complete Peer Review to determine its compliance with SPC

specifications. This occurs whether or not the result is withdrawn immediately thereafter.

Rationale: This requirement is intended to prevent test sponsors from submitting invalid SPC results and then immediately withdrawing them, thereby preventing the normal SPC review process.

10.3 PEER REVIEW PROCESS.

10.3.1 OVERVIEW

All new SPC Results must pass through the SPC Peer Review process. The SPC Peer Review has an initial duration of 60 calendar days, with day one being the SPC Result submission date, which is established by the Executive Director and recorded with the result.

10.3.2 RESULT REVIEW

At the start of the peer review:

- The new SPC Result will be posted to the SPC website as “Submitted for Review”.
- An announcement of the submission/posting will be sent to the SPC membership.
- The Full Disclosure Report is a public document available to all SPC members, as well as the general public, and may be referenced publicly in accordance with the SPC “Permitted Use” requirements (Section 11.2).

If there is no challenge to a new SPC Result during its SPC Peer Review, the result is eligible to transition from “Submitted for Review” to “Accepted” status at the end of that SPC Peer Review period (see 10.5).

10.4 CHALLENGING A RESULT

10.4.1 CHALLENGE SUBMISSION

A new SPC Result may be challenged during the SPC Peer Review period based on non-compliance with the appropriate SPC specification. Challenges are submitted to the Executive Director.

SPC members with access to a Full Disclosure report for a new result may, at their option and within the specified review period, submit to the Executive Director specific challenges related to compliance with specific clauses of the appropriate SPC specification.

If a challenge is filed within a designated review period but the Executive Director does not accept it, the challenge is as if it never occurred. If the member submitting the challenge disagrees with disposition, they may appeal it to the Steering Committee.

If the Executive Director receives a request to review a specific issue of a Full Disclosure Report and finds the challenge to be substantive, the result remains in "Submitted for Review" status until it has been reviewed and a decision of its compliance with the Benchmark specification has been made.

10.4.2 STATUS OF CHALLENGED RESULTS

If one or more challenges to a new SPC Result are submitted to and accepted by the Executive Director, the result remains in the designated review state the result was in when the challenge was submitted until all the challenges are resolved.

A result that has been challenged during its SPC Peer Review cannot transition to "Accepted" status while the accepted challenges are under review even if the designated SPC Peer Review period has concluded.

In the event a Test Sponsor submits documentation to the Executive Director in response to an accepted challenge, that documentation is subject to the SPC Peer Review process. Specifically, the submitted documentation is subject to challenge as if it were a new SPC Result.

If a new SPC Result remains in "Submitted for Review" status at the end of its 60-day SPC Peer Review period because of accepted challenges still under review, any new challenges submitted after that 60-day period must pertain to the challenges currently under review. New issues may not be submitted after the 60-day review period has concluded even if the new SPC Result is still in "Submitted for Review" status.

10.4.3 EFFECT OF COMPLIANCE RECOMMENDATIONS

Non-compliance determinations are made by the Executive Director, and should be arrived at as soon as possible.

Rationale: It is the intent of this section that a Test Sponsor's results receive expeditious attention, and that there be a limited time during which results remain in 'Submitted for Review' status.

If the review of all accepted challenges to a new SPC Result determines the result is compliant, the following will occur based upon the review state of the result:

- (a) A result in SPC Peer Review will immediately transition to "Accepted" status if its designated SPC Peer Review period concluded during the review of the accepted challenges.
- (b) If the designated SPC Peer Review period has not concluded, the result will remain in SPC Peer Review. That review period will not be extended as a result of the challenges and will conclude as originally scheduled.

If a result is found to be non-compliant with the standard, the Executive Director shall immediately remove that result from the official SPC results list. The Test Sponsor may not use this result in any of its marketing, sales, or press materials.

10.5 ACTIVE, ACCEPTED SPC RESULTS

- 10.5.1 A new SPC Result is an Active result at the start of the Peer Review.
- 10.5.2 At the conclusion of Peer Review, a new SPC Result's status changes from "Submitted for Review" to "Accepted" if:
- The new result has not been challenged, or
 - The new result has been challenged, but the challenge was not upheld
- 10.5.3 A new SPC Result that has transitioned to "Accepted" status remains an Active result.
- 10.5.4 The initial Active status is for a period of two (2) years. Beyond that period, the member company that served as the Test Sponsor for the Result must make an annual request for a one-year extension of an SPC Result's Active status.
- 10.5.5 That one-year extension request is granted if the Priced Storage Configuration is still fully supported and available for sale with current pricing as submitted by the Test Sponsor.
- 10.5.6 There is no limit to the number of 1-year extensions that may be requested by a member company in good standing for a currently Active SPC Result, and extensions shall not be unreasonably withheld.
- 10.5.7 An SPC Result whose Active status is not renewed at the end of its current Active period (i.e., either its initial two year active period or or the current one year extension) becomes an Inactive SPC Result, and its status changes from Active to Inactive.
- 10.5.8 The Active status of an SPC Result submitted by a company that is no longer an SPC Member cannot be renewed at the end of its current Active period, unless the Test Sponsor renews their SPC membership.
- 10.5.9 An SPC Result's "Accepted" status is retained after a transition to Inactive status.
- 10.5.10 "Accepted" status cannot be revoked or abrogated by later Council decisions or rulings, except when fraud or serious violations of the benchmark specification are involved.

Exception: Even after an SPC Result has passed into "Accepted" status, it can be challenged on the basis of non-compliance with the pricing and availability sections of the benchmark specifications.

Rationale: This clause recognizes the pragmatic principle that SPC Results have a limited competitive lifespan and market relevancy, and that the SPC should spend its limited resources reviewing current results.

10.6 INACTIVE SPC RESULTS

- 10.6.1 Inactive SPC Results have been designated as such by their Test Sponsor or the SPC for any number of reasons (e.g., no longer available for sale, no longer fully supported, superseded by a newer version/model). At the same time, Inactive results may continue to provide meaningful context and information to potential consumer of SPC data.
- 10.6.2 Inactive SPC Results retain their audit identifier, and are separated from Active SPC Results on the SPC web site.
- 10.6.3 Inactive SPC Results are not subject to challenge.
- 10.6.4 Inactive SPC Results may be used in public relations. They must conform to all Permitted Use requirements (see 12.2). In addition, they are subject to the following additional constraints:
- Inactive SPC Results may appear in publicly available material prepared by members other than their Test Sponsor **after** receiving approval from the Steering Committee;
 - All references to Inactive SPC Results must include the text “Inactive as of <date>”, where <date> is replaced with the date that the SPC Result transitioned from a status of Active to a status of Inactive.

10.7 WITHDRAWING A RESULT

Once it has begun Peer Review (see 10.3), an SPC Result can be withdrawn by the Test Sponsor, or by the Executive Director.

Test Sponsors may withdraw a previously submitted result by notifying the Executive Director in writing.

Withdrawn results will fall into three (4) categories:

- **Category #1:** Withdrawn by the Test Sponsor without prejudice. This means a Test Sponsor voluntary withdraws an SPC Result that has had no compliance challenge brought and upheld against it. If a withdrawn result falls into category #1, a footnote on the SPC Results list will note: "Withdrawn without prejudice."
- **Category #2:** Withdrawn by the Test Sponsor during the review period after being challenged as non-compliant. If a withdrawn result falls into category #2, a footnote on the SPC Results list will note: "Withdrawn by test sponsor after compliance to technical specifications of the benchmark was challenged. This does not imply any admission of error by the test sponsor or judgment by the SPC Council."
- **Category #3:** Withdrawn by the Council after a result was found to be non-compliant. If a withdrawn result falls into category #3, a footnote on the SPC Results list will note: "Withdrawn by the SPC after being ruled non-compliant with technical specifications of benchmark."

- **Category #4:** Withdrawn by the Steering Committee for non-payment (see 9.3.2.6). If a withdrawn result falls into category #4, a footnote on the SPC Results list will note: "Withdrawn by the SPC for non-payment."

All withdrawn results will be retained on the SPC Results list (on a separate page) for 120 days. After that period, the withdrawn result will be dropped from all SPC press releases, results lists, or other documentation. SPC members may publicize these results as being withdrawn in accordance with normal rules covering Accepted Use of SPC results, for a period of 120 days from date of withdrawal.

A withdrawn result is considered to no longer represent a currently valid SPC result after the 120-day period, and may no longer be publicized.

To resubmit a withdrawn result, a new Full Disclosure Report is required.

10.8 RESULTS SUBMITTED ON ANOTHER VENDOR'S PRODUCT.

When a Test Sponsor wishes to submit an SPC measurement using a different company's product as the Tested Storage Product, the following policy is invoked:

- a. If Test Sponsor X wishes to submit an SPC measurement using Vendor Y's product as the Tested Storage Product, and if Test Sponsor X has Vendor Y's permission, Test Sponsor X can do so according to the standard policies outlined in this document.
- b. If Test Sponsor X does not have Vendor Y's permission, the submission and corresponding new result is subject to the standard policies outlined in this document as well as the following:
 - i. Vendor Y will be notified at the same time as the SPC membership when the result begins the SPC Peer Review.
 - ii. Vendor Y may, at their option and within the SPC Peer Review period, submit to the Executive Director, specific challenges related to compliance with specific clauses of the appropriate SPC specification.
 - iii. In addition, during the SPC Peer Review period, Vendor Y may challenge the result as not being produced with a good faith effort to achieve an optimal result, which would be considered an SPC Policies violation.

Note: The definition of "optimal" goes beyond meeting the letter of the benchmark specifications. An optimal result must document a diligent, careful effort to maximize the performance and/or price/performance.
 - iv. The Executive Director will immediately address challenges submitted by Vendor Y.
 - v. If the result is challenged (either as non-optimal or on compliance issues), the challenge shall be handled by the standard policies for challenges.

10.9 AVAILABILITY OF FULL DISCLOSURE REPORTS

10.9.1 TIMELY ANNOUNCEMENT OF SPC RESULTS

To alert SPC members of the start of the SPC Peer Review period for a new SPC Result, a summary alert email message will be sent to the SPC membership by the Executive Director prior to the result being released into the public arena (e.g., by newswire, hard copy distribution of press release, or press conference).

This summary alert will contain a summary of the new result, including the Primary Metrics and Reported Data specified by the appropriate SPC specification. In addition, the summary alert will contain the public access location of the new result's Full Disclosure Report on the SPC website.

10.9.2 CHANGE IN RESULTS STATUS ALERT

The Executive Director will send a summary alert email message to the SPC when there is a change to an existing SPC Result. Changes include, but are not limited to:

- Withdrawing a result;
- Repricing a result;
- Changing the availability date for a result;
- Making any other significant change to the result or Full Disclosure Report.

The change of status alert, particularly in regards to pricing changes, will clearly summarize what has changed and the extent of the change. Test Sponsors are encouraged, but not required, to provide any rationale or further explanation for the change.

If the change materially affects the details provided in the previously submitted FDR, the Test Sponsor is required to also submit a revised electronic copy of the executive summary and FDR to the Executive Director prior to the revised result being released into the public arena.

10.9.3 NON-DELIVERY OF FULL DISCLOSURE REPORTS

(a) If a company publicly discloses a SPC result without meeting the submission requirements listed in 10.1, the following actions will ensue:

- The Executive Director will send the company a letter regarding their violation of SPC policy.
- The Executive Director will decide whether or not to cite the company as having violated SPC policy.

(b) If non-delivery of a Full Disclosure Report should occur again within six-months of the date of the initial violation, the Executive Director is authorized to meet with the company to discuss the matter, and if appropriate, issue a press release.

10.9.4 COPYRIGHT OF FULL DISCLOSURE REPORTS

The SPC encourages member companies to allow SPC and other recipients to make copies of copyrighted full disclosure documents.

10.9.5 STANDARD DISCLOSURE REPORT SUMMARY

All Full Disclosure Reports and SPC documentation must use the same Executive Summary format as stipulated by the Council. (The Executive Director can provide the current accepted summary format upon request.)

The Executive Summary must include in the "notes" section any information about minor violations with a reference to the full disclosure report.

10.10 REVISIONS TO AN APPROVED SPC SPECIFICATION

10.10.1 GENERAL GUIDELINES

This policy describes the impact of specification revisions on SPC results. Different versions of a SPC specification are considered comparable unless the Council stipulates the contrary. If the Council stipulates that a new version of a given specification is not comparable to an older version, the Council will also define any restrictions for publicly comparing older version results with the new version.

The first version of a specification is Version 1.0.

Changes to a SPC specification are to be distributed to all members, auditors, and benchmark subscribers. The Maintenance subcommittee will produce an Official Change List.

10.10.2 REVISION SCOPE AND REFERENCES

Each SPC document is identified by a three-part revision identifier (e.g., 1.0.0). Similarly, the SPC has defined three different revision types:

- Third Tier Change (see 10.10.3);
- Minor Change (see 10.10.4);
- Major Change (see 10.10.5).

When a reference to an SPC document does not include all three parts of the revision identifier, it is assumed to apply to the most recent document revision that would match the provided portion of the revision identifier. For example, if a document ("spec") had versions 1.2.1, 1.2.2, 1.3.0 and 2.0:

- a reference to *spec* (without a revision) would map to version 2.0
- a reference to *spec version 1* would map to version 1.3.0,
- a reference to *spec version 1.2* would map to version 1.2.2.

10.10.3 THIRD TIER CHANGES

Third-tier revisions are those changes that clarify some confusing or ambiguous area of the specification, but do not change the workload or specification's intent or meaning. A third-tier change might include the following:

- Insignificant editorial changes (i.e., changes don't change the meaning of the specification)
- Compliance interpretations
- Variants

Third tier changes go into effect immediately.

Whenever a third-tier change is approved, the third part of the revision identifier of the affected specification is incremented. (e.g., Version 1.0.0 becomes Version 1.0.1).

Third-tier changes do not impact comparability.

10.10.4 MINOR CHANGE.

Minor changes are minor changes to workload and/or the intent and meaning of the specification. A change is defined as "minor" or "major" depending on whether the results are comparable with the older version of the specification. A minor version change is comparable with the older version. A major version change is not comparable. A minor change and version level might include the following:

1. Corrections of clear mistakes in the specification that have an impact on how test sponsors implement the benchmark
2. Additional requirements

Minor revision changes will be announced to the membership when the updated specification is available, and go into effect 60 days after the change is approved.

Whenever a minor change is approved, the second part of the revision identifier of the affected specification is incremented (e.g., Version 1.0.0 becomes Version 1.1.0).

10.10.5 MAJOR CHANGE

A major change is a change to the workload or intent of the specification that is significant enough to make results from this new version incomparable with results from the older version.

A major version change must be approved by a Membership Vote.

Whenever a major change is approved, the first part of the revision identifier of the affected specification is incremented (e.g., Version 1.0.0 becomes Version 2.0.0).

10.10.6 SPECIFICATION REVISIONS AND SPC RESULTS

- 10.10.6.1 The official SPC results list will show, for each result listed, columns indicating the specification version(s) with which it is compliant.

- 10.10.6.2 After a new version of a SPC specification becomes effective, a test sponsor who already has results for a prior version of the specification, whether those results are in the "Submitted For Review" or "Approved" status, has the following options:
- Submit an entirely new Full Disclosure Report, without necessarily having to rerun the test, and assert that it is in full compliance with the new version. Normal review procedures apply. All aspects of the newly –submitted SPC Result and Full Disclosure Report are subject to review.
 - Comply with whatever method the Council has defined for upgrading an SPC Result from the old version to the new version.
 - Do nothing. The results remain on the SPC's results list until removed as obsolete (see 10.10.7).

Note: The intent of this clause is to encourage test sponsors to perform a positive action, if they wish to claim compliance with a new specification version. Previously submitted results do not automatically achieve recognition under the new version.

10.10.6.3 Test sponsors may continue to refer to SPC Results that are compliant with previous versions of a specification, but the version must be indicated.

10.10.6.4 New results, when submitted, must be compliant with either or both of:

- the version of the specification in effect at the date of submittal;
- a new version of the specification, in those cases when it was already officially approved to take effect at a future date.

The Test Sponsor must state in the Full Disclosure Report the version or versions of the specification their tests comply with. Usual review procedures then apply.

Note: It may not be possible to comply with both the current and new versions. A test sponsor might want to run tests with the current version right up until the time the new version is effective, in order to be able to compare results with previous tests.

10.10.7 RESULT OBSELESCENCE

The date when one benchmark version is superseded by a newer version, or when a benchmark is declared to be obsolete, is called the obsolescence date. SPC results against obsolete benchmarks or benchmark revisions will be removed automatically from the "SPC Summary of Results" list six months after the obsolescence date of the appropriate benchmark or revision.

SECTION 11 PUBLIC RELATIONS

11.1 CONFIDENTIALITY RULE

- 11.1.1 All SPC documents are confidential and to be marked, "For SPC and Member Internal Use Only" except for those specifically intended to have public and unimpeded distribution.
- 11.1.2 The Executive Director may authorize an SPC document for public release.
- 11.1.3 Primary Representatives are responsible for assuring proper compliance with the SPC's confidentiality requirement when documents are distributed within their member company.
- 11.1.4 With the exceptions noted in 11.1.5, member companies are encouraged to share all Council discussions, rulings, documentation with individuals or divisions within their own company, but should refrain from releasing any of the above to organizations outside the SPC without approval from the Executive Director.
- 11.1.5 Exceptions to confidentiality rules:
- a) Rulings or interpretations of SPC specifications shall be disseminated to all affected parties, including members, users, and auditors. However, these interpretations shall not be released to the press without prior approval.
 - b) If an SPC member wants to distribute confidential SPC information (written or verbal) to non-members, that member should consult with the Executive Director, who may allow release of SPC confidential information.
 - c) Section 8.2 Step 3 allows information to be shared with non-members during the development of a benchmark specification.
 - d) Section 8.2 Step 5 allows public discussion and dissemination of results from the execution of a SPC draft benchmark specification. The results may be used in discussions with customers, to publish technical articles, or presented to industry conferences. Companies are strictly prohibited from publicizing the results for marketing and/or competitive purposes.
- 11.1.6 The Executive Director and the Steering Committee reserve the right to take appropriate action when breaches of confidentiality occur.

11.2 SPC SPOKESPERSON

- 11.2.1 The Executive Director is the official spokesperson for the SPC.
- 11.2.2 SPC members may speak to the press or public at large on behalf of the SPC with the approval of the Executive Director.

11.3 SPC PRESS RELEASES

The Executive Director will vote to approve any SPC press release.

11.4 MEMBER PRESS RELEASES

SPC members are encouraged to publicize their involvement in the SPC, including the publishing of SPC benchmark results. However, all members should follow the guidelines for publishing SPC information. These guidelines include:

- (a) All references to SPC benchmark names should be accompanied by the SPC trademark.
- (b) No SPC member shall publish results that imply or suggest that they are official SPC results, when they are not. Estimated or extrapolated results that claim or imply to be official results are not allowed by SPC policy.

11.5 SPC WEB SITE

The design and layout of the SPC web site is under the control of the Executive Director. The Executive Director will maintain the design and layout of the SPC web site in a manner consistent with the overall mission of the SPC and SPC policies. The Executive Director will post any major design and layout changes for general membership review for a two-week period before implementing these changes. Objections to the new design and layout changes should be filed with the Executive Director.

SECTION 12 USE OF SPC RESULTS AND SPECIFICATIONS

12.1 SPC COPYRIGHT NOTICE

All parties are granted permission to copy and distribute to any party, without fee, all or part of SPC results and specifications provided that:

- (1) copying and distribution is done for the primary purpose of disseminating SPC material;
- (2) the SPC copyright notice, the title of the publication, and its date appear, and notice is given that copying is by permission of the Storage Performance Council.

Parties wishing to copy and distribute SPC materials other than for the purpose outlined above (including incorporating SPC material in a non-SPC document, specification or report), must secure the SPC's written permission.

12.2 PERMITTED USE OF SPC RESULTS

The SPC actively encourages Test Sponsors to widely distribute their SPC benchmark results in publicity. This is, after all, the benefit and purpose of producing SPC benchmark results. The SPC also actively encourages the publication of SPC results by the press, market researchers, financial analysts, and non-profit organizations.

All SPC members, as well as any SPC Test Sponsors (regardless of membership status), are required to follow both the general and specific guidelines detailed in these policies.

To ensure that users and readers of SPC results are given a fair and complete representation of SPC data, the SPC requests that all non-members, including the press, market researchers, financial analysts and non-profit organizations also follow these guidelines when publishing or re-publishing SPC results. The Executive Director will actively encourage them to follow the Permitted Use policies, and where appropriate, to issue retractions or corrections. The SPC may also initiate various PR activities to correct distortions of SPC results created by non-members.

It should be noted that, in regards to any published SPC information, whether by members or non-members, the SPC will continue to defend and protect all of its copyright and trademark rights.

This section states how SPC results may be fairly used in publicity. It is intended that the SPC label be applied to only official SPC Results that are used in a fair manner. The value of the SPC brand, its benchmarks, and the collection of SPC Results is directly dependent on this. Furthermore, SPC members are required to carefully avoid disseminating information that is not based upon official SPC Results, but which could be reasonably implied or inferred to represent SPC metrics, benchmarks, or standards.

Publicity includes: press releases, advertisements, commercials, and any and all marketing materials, literature, and collateral that are obtainable without a nondisclosure statement. Publicity includes spoken as well as written communication; e.g., a spokesperson speaking in an open forum such as a press conference is bound by

the policy.

When SPC results are used in publicity, the use is expected to adhere to basic standards of fidelity, candor, and due diligence, the qualities that together add up to, and define, Permitted Use of SPC Results:

Fidelity: Adherence to facts; accuracy

Candor: Above-boardness; needful completeness

Due Diligence: Care for integrity of SPC results

Because the SPC Trademark protects SPC results, this policy applies to all parties who use SPC results, including but not limited to members of the SPC. The intent is simple: if you want to use the SPC name, you are requested to follow this policy. Otherwise, do not mention or imply the SPC.

Violations will be dealt with in a manner appropriate to the pattern, seriousness, and impact of the violations, by vote of the SPC.

12.2.1 APPLICABILITY

“Permitted Use” is required for any public reference to a SPC Result. This applies to any public reference that makes explicit SPC references, as well as to that which makes implicit references, insofar as a reasonably aware reader would connect it to the SPC.

All public references to an SPC Result shall include the date on which the references are prepared. Further, a public reference to an SPC Result is required to include one of the following:

- A complete URL (hyperlink) to the SPC Result’s entry on the appropriate “Results” page of the SPC website.
- The set of SPC Reported Data defined in the appropriate SPC specification clause that states public use requirements.

12.2.2 “PERMITTED USE” OF SPC RESULTS

It is “Permitted Use” to:

- a. Use SPC Results, as long as the following conditions are met:
 - i. The appropriate Executive Summary URL or SPC Reported Data, as described above, is included for each referenced SPC Result.
 - ii. A Full Disclosure Report for each referenced SPC Result has been submitted to the SPC
 - iii. Each referenced SPC Result includes a “current as of” date. If applicable, a single date may be specified for a complete set of referenced SPC Results.
 - iv. Appropriate attribution is given to the SPC Trademark.
- b. Freely compare and contrast sets of SPC primary metrics, from whatever set of Test Sponsors.

- c. Mathematically derive and publish numerical characterizations of SPC results, provided:
 - i. The derived value is based solely on numerical quantities published in the appropriate Full Disclosure Report.
 - ii. The formula used to derive the value is provided as a part of the public reference.
 - iii. The name associated with the derived value is unambiguously distinct from the name of any SPC Reported Data.
 - iv. The public reference makes it clear that the derived value is a Test Sponsor/member company definition, not an SPC definition.

12.2.3 INVALID USE OF SPC RESULTS

It is not “Permitted Use” for publicity to:

- a. Use estimated results that refer to the SPC or SPC workloads, or to compare them to SPC Results.
- b. Use results, metrics, or terminology that are not based upon SPC Results, but which could be reasonably inferred to refer to the SPC or SPC workloads, or to be comparable to SPC Results.
- c. Reference SPC Results without specifying that these results are current as of a certain date. If applicable, a single date can be displayed for an entire range of results.
- d. Reference SPC Results, from whatever source, unless the appropriate Full Disclosure Report is on file with the SPC.
- e. Use SPC Results without an attribution to the SPC Trademark.
- f. Compare one SPC Result’s total price to the partial price of another SPC Result, or to compare partial price to partial price. SPC Results can not be generated with less than the entirety of the configured system.
- g. Display SPC Results with non-SPC results in a manner that may cause the reader to believe that non-SPC results are in fact SPC Results.
- h. Show a benchmark result derived from SPC specifications in a manner that may cause the reader to believe that the non-SPC result is the equivalent or near equivalent of an SPC Result.
- i. State or imply that another Test Sponsor's SPC Results are considered invalid or in any way suspect by the SPC, unless the SPC has publicly stated this to be the case. All SPC internal review proceedings are confidential, and attempts to disclose these review proceedings or their results without SPC authorization are not permitted.
- j. Compare the pricing of SPC Results when the currencies used in the results are not alike (e.g. dollars vs. pounds, or pounds vs. francs).

- k. Compare pricing of SPC Results when the comparison is based on a direct conversion of different currencies (e.g., converting dollars into pounds based on a simple dollars-to-pounds conversion rate published in a newspaper).
- l. Refer to a withdrawn SPC Result without specifically stating that the result is withdrawn and no longer represents an active SPC result.
- m. Display the SPC Primary Metrics of an SPC Result without naming (displaying) the Tested Storage Product associated with the SPC Result.
Note: This provision must be adhered to except where the law prohibits naming a competitor's product.
- n. Compare results from different major versions of SPC benchmark specifications.
- o. Distribute, re-publish, or to make special purchases to distribute or re-publish documents, from whatever source, which are in violation of the SPC's Permitted Use policies.

12.3 PERMITTED USE OF SPC SPECIFICATIONS

SPC benchmark specifications or parts of SPC specifications may not be used to develop non-SPC benchmarks.

SECTION 13 REVIEW AND RESPONSE TO POLICY VIOLATIONS

13.1 OVERVIEW

If a violation of SPC policies occurs, the Executive Director may take appropriate response measures, as detailed in this policy. The Executive Director will seek a fair, appropriate, and reasonable response according to the seriousness of the violation. There are two phases of this policy: 1) review and 2) response.

13.2 REVIEW PHASE

13.2.1 INITIAL ASSESSMENT

An alleged policy violation must be submitted to the Executive Director. The Executive Director will investigate the issue and make determine if a minor or major violation has occurred (non-violations and insignificant violations will not be pursued further).

Note: This section recognizes the limited resources the Council can spend investigating, discussing, and enforcing its policies but does not, in any way, sanction or approve violations, no matter however insignificant.

13.2.2 FORMAL REVIEW

If further review is warranted, the Executive Director will schedule a review, and give the company accused of the violation at least seven days' notice by email or mail. The Executive Director will also email any documents that pertain to the alleged violation. It is the responsibility of the company to attend that review. The Executive Director, and such members as he may select to provide technical input, will review and rule on the alleged violation at that time, whether the company is in attendance or not.

If a violation has occurred, the Executive Director will also determine its severity. The SPC categorizes violations as one of the following:

(1) Insignificant violations

Violation(s) with a non-existent or negligible impact on the credibility of the SPC, its trademarks, or on the competitive environment.

(2) Minor violations

Violation(s) with a small but non-trivial impact on the credibility of the SPC, its trademarks, or on the competitive environment.

(3) Major violations

Violation(s) with significant impact on the credibility of the SPC, its trademarks, or on the competitive environment.

Past violations will not consider in making the determination of the severity of the

violation. However, the following criteria will be considered:

- (a) If the violation pertains to publicity or to public information, the Executive Director will determine the extent of publicity. Who was affected or who knew of the violation: one person, a small group, one trade magazine, several trade magazines, a national newspaper or business magazine, or national network television?
- (b) If the violation pertains to publicity or to public information, how prominent or significant was the violation in the context of the event or publication?
- (c) If the violation pertains to SPC data, policies, or results, was the violation a significant departure from the facts or SPC policies?

13.3 RESPONSE PHASE

13.3.1 OVERVIEW

In formulating a response to a Policy violation, the Executive Director may take into account the history of violations or recent pattern of violations, excluding insignificant violations. The Executive Director may also consider what corrective or remedial actions the company accused of a violation has taken.

These response measures outlined in 13.3.2 are intended to specify how, under most circumstances, the Council will respond to policy violations. However, the Council retains the right to take other response measures if, under extra-ordinary circumstances, it deems it necessary and appropriate. These measures will be consistent with the general principles of fairness, reasonableness, and appropriateness established in this policy. Also, the Council may take no response measure to a policy violation, if it deems that course of action to meet these same principles.

13.3.2 RESPONSES TO VIOLATIONS

If the Executive Director determines that a violation has occurred, any or all of the response measures outlined under each response level may be taken:

1. Level one response (insignificant violation)

The Executive Director will notify the Primary Representative of the company in question that it has committed an insignificant violation. No further action will be taken. It is the responsibility of the Primary Representative from the company that committed the violation to take further action if he/she deems it necessary.

2. Level two response (minor violation)

- a) Record in the minutes of the meeting that the company committed a minor violation. In most such cases, it is assumed that the company has already taken corrective or remedial action, or that further instruction to the company in question is unnecessary.
- b) The Executive Director will send the company a letter outlining the nature of

the violation, and, if appropriate, asking for appropriate remedial or corrective action.

3. Level three response (major violations)

The Executive Director may:

- a) Send the company a letter outlining the nature of the violation.
- b) Ask the company's Primary Representative to take corrective or remedial action and provide an official report of those actions.
- c) Assess the company an amount commensurate and reasonable with the seriousness of the violation. The first assessment will be in the range of \$100-1,000. Any subsequent assessment will be in the range of \$100-10,000.

This assessment must be paid within 90 days of notification to the company or the company loses its voting privileges in all subcommittees and SPC proceedings (except mail ballot approval of benchmarks). Upon payment of the assessment, all privileges will be restored.

- d) Issue a press release outlining the nature of the policy violation.
- e) Initiate expulsion proceedings as outlined in 3.5.