

# Policies and Guidelines of the Storage Performance Council (SPC)

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**OFFICIAL VERSION 4.9**

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## 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
4.1	26 May 2015	Revised Active/Inactive Results wording (Sections 9.4 and 9.5) Creation of Off-Site License (Section 5.5.4) Clarification of “Accepted”, Active and Inactive (Sections 9.4 and 9.5) Clarification of status with unpaid Audit invoices (Section 9.4.2)
4.2	26 May 2016	SPC address change Remove audit from Administrator duties (6.4) Define new audit process and role of a Certified auditor (new Clause 9) Clarify Administrator role within the CRC and CRC procedures
4.3	September 28 2016	Formalize process for changes to this document (Section 5.6) Clarify Auditor responsibilities after certification (Section 9.2.6.1)
4.4	1 January 2017	Overhaul of licensing model (Sections 3.3.2 and 5.5) Clarify process for invited guests Clarify process for membership class changes
4.5	27 January 2017	Align antitrust requirements with Bylaws version 2.1
4.6	24 May 2017	Clarify technical subcommittee participation requirements
4.7	18 July 2017	Define Emeritus membership class and align with Bylaws v2.2



<b>Revision</b>	<b>Date</b>	<b>Description of Change</b>
4.8	15 November 2017	Rename Administrator to Executive Director Pro-rate any dues increase related to a change in membership class Creation of SPC Web Editor
4.9	6 January 2018	Benchmark extensions defined

**INTENDED AUDIENCE**

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## **SECTION 1      SPC MISSION**

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

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## **SECTION 2 GOALS AND OBJECTIVES**

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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.

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## SECTION 3 MEMBERSHIP

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### 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 amount of dues determined by the Steering Committee 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.

If a member changes their class of membership (see *Bylaws*, 3.05), any additional dues paid at the time that the change in membership was approved shall be similarly

pro-rated.

**Table 3-2 Pro-Rated Dues Schedule**

<b>Date Approved</b>	<b>Membership Dues Discount</b>
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 5.5.3. Each class of members shall have access to released SPC Toolkits as follows:

- (a) Full Member:** One Unlimited License for each Benchmark Family shall be included at no additional cost beyond annual membership dues.
- (b) Associate Member:** One Unlimited License for a designated Benchmark Family, selected by the member, shall be included at no additional cost beyond annual membership dues. One Limited License for each remaining Benchmark Family shall be included at no additional cost beyond annual membership dues.

(c) **Academic Member:** SPC Toolkits are not included as a “no cost” component of Academic Membership.

(d) **Member Emeritus:** Upon request, one Limited License for each Benchmark Family shall be granted at no cost. The license is valid to the end of the calendar year. Renewals are by request only.

3.3.3 Members may purchase additional licenses for any Benchmark Family. Pricing for the acquisition of additional licenses shall be assessed annually, and shall be set by the Steering Committee.

### 3.4 ANTITRUST REQUIREMENTS FOR MEMBERS

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

3.4.1.2 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 3.12 (a) (6) of the *SPC Bylaws*, the procedure set forth below shall be followed:

1. Only a Board Vote (see 4.3.2) can initiate the expulsion process. A Board Vote can initiate the expulsion process, but only a Membership Vote (see 4.3.4 and *SPC Bylaws, Article V*) can expel a member.
2. Once the board votes to initiate the expulsion procedure, the Steering Committee will be asked to study the issue and make a recommendation at the next board meeting. The affected member shall be given an opportunity to be heard before the Steering Committee, either orally or in writing. The affected member may also send a letter or presentation to the entire membership via the Executive Director.
3. Before the next board meeting, the Executive Director will provide to all members, fifteen- (15) days prior notice of the proposed expulsion and the reasons for the proposed expulsion. Notice shall be given by any method reasonably calculated to provide actual notice. Any notice given by mail shall be sent by first-class or registered mail to each member's last address as shown on the SPC's records.
4. At the next board meeting after the expulsion process was initiated and which allows the required time for members to be notified, the Steering Committee will present its recommendation and the board shall discuss whether or not the members should be expelled, or sanctioned in some other way. The affected member shall be given the opportunity to be heard, either orally or in writing. A board vote shall then be taken on whether to present the question of expulsion to the full membership.
5. If the board votes to present the question of expulsion to the full membership, 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.

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## **SECTION 4      VOTING RULES**

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### **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 three types of binding votes:

- Standard Votes,
- Simple Majority Votes and
- Membership Votes.

#### **4.3.2    STANDARD VOTE**

Standard 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 Standard Votes for which at least two-thirds of the ballots cast are in the affirmative shall be deemed to have passed. While abstentions are to be recorded, they shall not be counted in determining whether or not a vote has passed.

Unless otherwise defined, all votes within the SPC shall be Standard Votes, as its requirement for a super majority assures a high level of consensus.

#### **4.3.3 SIMPLE MAJORITY VOTE**

Simple Majority Votes are intended for cases where a lower passage threshold is in the best interests of the Council (e.g., determining whether or not a member's actions, submissions and publications are compliant with the appropriate policies and procedures of the SPC). They shall be conducted via a roll call. All Simple Majority Vote 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.

#### **4.3.4 MEMBERSHIP VOTE**

Membership Votes are those votes that are presented to the entire membership of the SPC and conducted by the Executive Director. The process for a Membership Vote is defined in the *SPC Bylaws, Article V*.



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## **SECTION 5     SPC ORGANIZATION**

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### **5.1   STEERING COMMITTEE**

#### **5.1.1   COMPOSITION**

As defined by Article 6.01 of the *SPC Bylaws*, the Steering Committee consists of five (5) Primary Representatives from the membership of the SPC and the Executive Director. The Executive Director serves as a non-voting member of the Steering Committee.

#### **5.1.2   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 Steering Committee. The Chairman of the Steering Committee is the legal representative of the SPC.

#### **5.1.3   VOTING RULES**

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

#### **5.1.4   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*.

#### **5.1.5   DUTIES OF THE STEERING COMMITTEE**

##### **5.1.5.1   Direction**

The Steering Committee sets the direction and work for the SPC and insures that administrative and support requirements are satisfied. The Steering Committee will set implementation plans for achieving that direction. Tracking SPC activities against implementation plans will be an ongoing responsibility of the Steering Committee. An annual direction statement and implementation plan will be developed by the Steering Committee for the upcoming year and is to be reviewed by the membership at the first general meeting of that year.

##### **5.1.5.2   Subcommittees**

The Steering Committee will recommend the creation of subcommittees and workgroups, as needed, along with their task assignments. Members for the subcommittees must be approved by a Board vote. All subcommittees shall elect a chairman from within their membership, excluding Associate Members. In order to focus subcommittee activity, the Steering Committee may require task definition from the subcommittee chairman within thirty (30) days of the initiation of a subcommittee. Each subcommittee will present a brief report at each general meeting and a formal written subcommittee report may be requested by the Steering

Committee on an annual basis at the final general membership meeting each year by notifying the chairman of the subcommittee at least sixty (60) days before the meeting.

#### 5.1.5.3 Records

Steering Committee duties include responsibility for assuring the minutes of all general membership meetings are published, and that accurate financial and membership records are maintained.

#### 5.1.5.4 Banking

The Steering Committee is responsible for establishing banking agreements and practices for the financial management of the SPC.

#### 5.1.5.5 Dues

The Steering Committee shall set the dues level for each class of membership annually.

#### 5.1.5.6 Executive Director

The Steering Committee defines goals and objectives for the Executive Director. It also negotiates the Executive Director's annual contract with the SPC.

#### 5.1.5.7 Auditors

The Steering Committee shall oversee SPC Auditors and the SPC Audit Process (see SECTION 10).

### **5.1.6 MEETINGS OF THE STEERING COMMITTEE**

#### 5.1.6.1 Call of Meetings

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

#### 5.1.6.2 Place of Meetings

Meetings of the Steering Committee shall be held at such place as the Steering Committee shall designate.

#### 5.1.6.3 Notice of Meetings

Meetings shall be held on seven (7) days notice by first class mail, postage prepaid, or on forty-eight (48) hours notice delivered personally or by telephone or telegraph. 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.

#### 5.1.6.4 Quorum

Three or more voting members of the Steering Committee constitute a quorum of the Steering Committee for the transaction of business.

#### 5.1.6.5 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 standard vote is the act of the Steering Committee.

#### 5.1.6.6 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. Members of the Board may participate in a meeting through use of conference telephone or similar communications equipment, so long as all members participating in such meeting can hear one another.

#### 5.1.6.7 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 Directors who were not present at the time of the adjournment prior to the meeting's being reconvened.

### 5.1.7 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 general meeting of the SPC will have a session devoted to discussing Steering Committee status and issues.
- (d) Proposals to be presented by the Steering Committee to the Board are distributed to all Primary Representatives one week prior to the general meeting whenever possible. These items are decisions and/or actions that require board approval in order to be effective.
- (e) 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. Use of FAX or mail should be sufficient to allow input to be received by any or all members of the Steering Committee.

- (f) The above formalization is not intended to limit the Steering Committee. Some issues will require resolution within the week between an announced agenda and the next Steering Committee meeting. These items will be documented after decisions are reached, since time would not allow as the more formal process described. The intent is to keep these actions to a minimum, but the Steering Committee must have flexibility to react when needed.

## **5.2 STANDING SUBCOMMITTEES**

### **5.2.1 MEMBERSHIP ON STANDING SUBCOMMITTEES**

Membership on the Steering Committee and all standing subcommittees consists of Primary Representatives from the membership of the SPC who are formally nominated and elected in a secret ballot of the Board in the first general meeting in a given calendar year. In addition, the Executive Director is a non-voting member of all standing subcommittees.

### **5.2.2 VOTING FOR MEMBERSHIP ON STANDING SUBCOMMITTEES**

Election to the Steering Committee and all standing subcommittees are determined by a closed ballot, subject to the following provisos:

- a) The nominee(s) receiving the most votes is (are) chosen;
- b) Candidate(s) receiving a majority of the votes cast are immediately elected.
- c) In no case shall a candidate for membership be elected with less than a majority of the votes cast. In the event that a run-off is necessary, the candidate with the fewest votes will be eliminated and the vote will be repeated.

### **5.2.3 MEMBERSHIP BASED ON MEMBER COMPANY AFFILIATION**

Membership on the Steering Committee and all standing subcommittees is based on the election of particular individuals affiliated with member companies. If an individual's affiliation with a member company terminates, the individual's position on the committee becomes vacant. The resulting vacancy is filled through a new election.

A member company can only have one representative on any particular standing subcommittee.

## **5.3 TECHNICAL SUBCOMMITTEES**

### **5.3.1 TECHNICAL SUBCOMMITTEE TYPES**

#### **5.3.1.1 Benchmark Development Subcommittees**

A development subcommittee is the working forum within the SPC for development of a benchmark standard. A development subcommittee is initiated by a Steering

Committee recommendation and confirmed by a vote of the Board. Throughout the benchmark development and approval process, the subcommittee owns the standard and drives it to completion. The number of active development subcommittees is determined at general meetings based on need. Once the Council has approved a benchmark specification, the development subcommittee will be automatically dissolved.

#### 5.3.1.2 Benchmark Maintenance Subcommittees

A maintenance subcommittee is the working forum within the SPC for developing and recommending changes to an approved SPC benchmark standard. At the next general meeting after an SPC benchmark specification has been approved, the SPC will establish a maintenance subcommittee (minimum of five members) for the approved specification.

If a test sponsor has a suggested change to the wording of a specification that would help clarify the specification in the next revision and is not a compliance issue (see 11.4), the maintenance subcommittee should handle this suggestion.

If the test sponsor wants to determine whether a certain implementation is compliant with the current specification, the Compliance Review Committee (CRC) should handle this request (see 5.4). The CRC will make a ruling on the compliance issue, but at its discretion, it could either draft new specification wording for the Council's approval or direct the maintenance subcommittee to draft new specification wording.

The maintenance subcommittee may make recommendations to the Council to change the benchmark specification. Maintenance subcommittee recommendations may include changes in wording of the specifications(s) for clarity, interpretations, closing a "loophole" or actual change in intent.

The maintenance subcommittee will have the final responsibility for creating a new version of a specification to be submitted to the Council for approval. The maintenance subcommittee may also document any implementations of the benchmark they consider valid. This documentation will be attached to the specification.

#### 5.3.2 MEMBERSHIP

Membership on a technical subcommittee is voluntary, but must be affirmed by a Board Vote. Subcommittee membership requires a commitment by the member company to provide a working representative throughout the life of the committee. Unlike the Steering Committee and other standing committees (see 5.2.1), members of a technical subcommittee do not need to be the Primary Representative of an SPC member company. The Primary Representative may designate one or more employees of their company to serve on a technical subcommittee. Each SPC member company is entitled to one vote on each technical subcommittee for which it is an approved member. In addition, the Executive Director is a non-voting member of all technical subcommittees.

All work done by subcommittee members within the subcommittee's scope is done

on behalf of the SPC.

### **5.3.3 TECHNICAL SUBCOMMITTEE CHAIRPERSON**

The Chairperson of each technical subcommittee is the focal point for the activities of the subcommittee. The Chairperson is selected by vote at a Council meeting from the members of the subcommittee. Responsibilities of the Chairperson include:

- scheduling and agenda preparation for subcommittee meetings and teleconferences,
- chairing subcommittee meetings and teleconferences,
- organization and supervision of task assignments for subcommittee members,
- maintenance of the draft specification,
- maintenance of an issues and comments list,
- supervision of any subcommittee consultants and
- presentation of a subcommittee report at each general meeting.

The Chairperson will work with the Executive Director to ensure that the above responsibilities are successfully met. In some cases, the Chairperson will delegate some of those responsibilities to the Executive Director or other specific individuals, such as a subcommittee member or consultant.

### **5.3.4 MEETINGS**

Technical subcommittee meetings occur in conjunction with general meetings, or by conference call or in face-to-face meetings between general meetings.

### **5.3.5 VOTING RULES**

Technical Subcommittees shall use the voting rules defined in SECTION 4.

### **5.3.6 SUSPENSION OF VOTING RIGHTS**

A subcommittee member who misses two or more consecutive subcommittee meetings (excluding conference calls) loses the right to vote on subcommittee matters. The member's voting rights are automatically reinstated upon adjournment of the next subcommittee meeting the member attends.

## **5.4 COMPLIANCE REVIEW COMMITTEE**

### **5.4.1 CRC CHARTER**

The Compliance Review Committee (CRC) is a standing subcommittee formed to hear arguments on both sides of interpretation/compliance issues and make recommendations to the Board.

The CRC is responsible for providing analysis, definition and recommended

resolution to requests for specification interpretations and compliance questions to currently approved standards.

#### **5.4.2 CRC OPERATING PROCEDURES**

The CRC operating procedures are:

- (a) Meetings shall be held on as-needed basis.
- (b) Membership is of a fixed size of five members, elected by closed ballot at the first General meeting of each calendar year. The Executive Director serves as a non-voting member of the CRC.
- (c) Membership is based upon individuals, but no more than one member of the CRC shall be affiliated with a given SPC member.
- (d) A member of the CRC can belong to any other standing subcommittee, including the Steering Committee.
- (e) Quorum for the CRC is 3 members.
- (f) The CRC is expected to provide to the Council a summary of any issues brought to the CRC, as well as recommendation(s) for resolution and the rationale for the recommendations.
- (g) A member of CRC can vote on any recommendation issued by the CRC, even if their company is involved in the issue/request.

#### **5.4.3 COMPLIANCE ISSUE SUBMISSION**

Requests for CRC review shall be submitted to the Executive Director.

If the request does not involve a question of compliance of one or more specific disclosure reports, it will be distributed to CRC members, and forwarded to the maintenance subcommittee for the appropriate benchmark. All further work on this item then becomes the responsibility of the maintenance subcommittee.

If the request comes from a Test Sponsor or Auditor who wants to determine whether a certain implementation is compliant with the current specification, the Executive Director will forward the request to the CRC, and it will be handed by the CRC Review Process. At the submitter's request, the Executive Director will withhold the identity affected Test Sponsor from the CRC.

If the request involves a question of compliance of one or more specific Full Disclosure Reports (FDRs), it is known as a "challenge", and it must:

- be submitted by a member company;
- be submitted in writing to both the Executive Director and the Test Sponsor involved;
- identify the FDR(s) that appear to violate the Benchmark specification they were filed against, and those FDR(s) must still be subject to challenge (see 11.4);

- describe the compliance issue that the submitter has with the named FDR(s), including references one or more specific clauses in the appropriate specification that appear to be violated by the named FDR(s).

The Executive Director will:

- confirm that the challenge is well-formed (A poorly formed challenge will be returned to the submitter for clarification, and no further action will be taken on it);
- log the challenge submission;
- confirm with the Test Sponsor that they have received the challenge;
- inform the CRC chair (NB: the CRC will not immediately schedule the issue for CRC review).

#### **5.4.4 INITIAL RESPONSE PHASE**

Logging of challenge begins the initial response phase. The Test Sponsor whose benchmark result(s) are in question has seven days to respond in writing to the Executive Director.

If the member submitting the challenge and the test sponsor agree that more than seven days are needed to discuss the issue, the Executive Director will be notified of the time necessary, will extend the seven-day period appropriately, and notify the CRC chair.

If the issue(s) raised in the challenge are resolved during the initial seven days and any extensions, the member who submitted the challenge notifies the Executive Director, and the issue is considered closed. If the Test Sponsor in question and member submitting the challenge agree, the request and the associated response will be placed into the minutes of the CRC for general information.

If the Test Sponsor's response to the challenge does not, to the satisfaction of the member submitting it, resolve the issue(s) identified in the challenge, the challenge will enter the CRC Review Process. If the Test Sponsor does not respond to the challenge within the seven-day period and any extensions granted by the Executive Director, the challenge will enter the CRC Review Process.

#### **5.4.5 CRC REVIEW PROCESS**

##### **5.4.5.1 Initial Acceptance**

The initial request for review (and the response to it, in the case of a challenge) will be forwarded to the CRC by the Executive Director to begin the CRC Review Process. Upon request, the request (and response documents, if appropriate) will be distributed to members of the SPC through the Executive Director.

At its next conference call/meeting, and no later than 10 days after the request is forwarded to the CRC, the CRC will review the request for merit and conduct a Simple Majority Vote on accepting or rejecting the request. Any request that receives



a majority vote by the CRC is accepted. Any request that does not receive a majority vote by the CRC is rejected, and no further CRC action is taken.

#### 5.4.5.2 Review and Discussion

Once a request for review is accepted, a conference call/meeting time will be scheduled for discussion of the issue(s) raised by the request. At this discussion, the submitter (and the Test Sponsor whose compliance has been questioned, in the case of a challenge) will be requested to present their arguments. During this meeting, the CRC members may request additional information from either the submitter, or the Test sponsor, or both. The CRC may schedule additional meetings for discussion of the issue(s) raised by the request, as necessary. If either the submitter or the Test Sponsor are to be present at subsequent meetings concerning a challenge, then both will be given the opportunity to attend.

The CRC meeting to discuss a challenge may occur after a designated review period has expired, provided any named FDR(s) were still subject to challenge at the time the request was submitted.

If the submitter fails to attend the scheduled CRC conference call/meeting, the request for review will be closed, and no further CRC action will be taken.

If the request has not been through the Initial Response Phase, or the Test Sponsor fails to attend, the CRC will develop the recommendation resolution based on the presentation by the submitter only.

In the case of a challenge, the CRC discussion must focus on the particular specification clauses named in the initial submission and any additional clauses necessary to clarify terms or definitions used in the named clause.

#### 5.4.5.3 Compliance Recommendations

Once the CRC has completed the requested review, The CRC recommendation for resolution shall be determined by two Simple Majority Votes. The first vote will determine whether or not the named FDR (in the case of a challenge) or proposed implementation (in the case of a review) violated the relevant benchmark specification.

If a challenged FDR is found to be in violation of the specification, a second vote determines whether the violation constitutes "non-compliance" or an "insignificant deviation".

Non-compliance is defined as a significant violation that results in a price or performance metrics difference greater than 2%.

A result may also be found non-compliant if any of the following conditions are found to be applicable:

- a. When there are multiple violations in which the aggregate price or performance metrics difference are greater than 2%.
- b. There is an excessive number of insignificant deviations, even though the

aggregate price or performance metrics difference are NOT greater than 2%.

- c. The same violations have been voted several times before for the same test sponsor as "insignificant deviations."
- d. There is a major requirement of the benchmark not accomplished or significantly flawed such that it is unreasonable to consider this a fully compliant result.

The CRC shall make its recommendation on compliance objections filed against results as expeditiously as possible. The Board must be able to vote on the CRC recommendation no later than the second general meeting after the issue(s) was submitted. If the CRC is unable to agree on a recommendation by that time, the challenge is dismissed.

**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.

- 5.4.5.4 If a non-compliance recommendation does not result from the CRC review, the SPC will be informed of the CRC findings during the next general meeting. Any member feeling a non-compliance issue should be raised at the general meeting can make such a motion.
- 5.4.5.5 If the CRC does vote to recommend non-compliance, the Board will vote on the CRC recommendation, in accordance with 11.4.3.

#### **5.4.6 CRC OPTION FOR QUICK CORRECTION**

- 5.4.6.1 The intent of this clause is to prevent harm to the integrity and acceptance of SPC results which would be avoided should the CRC encourage prompt corrective action on the part of a Test Sponsor. Whenever the CRC recommends that a Test Sponsor's result is non-compliant, it has the option of stipulating a deadline for the Test Sponsor to correct the problem. The CRC selects the deadline that is reasonably attainable based on the information it has heard and its own assessment, but as early as possible in order to protect the integrity of SPC results.
- 5.4.6.2 Should the Test Sponsor not meet the deadline, the CRC will forward their recommendation of non-compliance to the Board.
- 5.4.6.3 If a response is received in a timely manner, the CRC shall take a Simple Majority Vote to determine whether the response satisfies the compliance issue or whether the result remains non-compliant. The result of that vote shall be reported to the Board at their next meeting.

## **5.5 SPC TOOLKITS**

### **5.5.1 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.

### **5.5.2 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) **Subcommittee Membership:** Technical subcommittee members may be granted limited access to pre-release toolkits associated with that subcommittee's work. Licenses granted on the basis of technical subcommittee participation 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 10) may be granted a Limited License for the Benchmark Families for which they are certified, or are seeking certification.

### **5.5.3 TOOLKIT LICENSES**

#### **5.5.3.1 Benchmark Families**

SPC Benchmarks are grouped into two Benchmark Families:

- OLTP Benchmark Family
- Sequential Family

Each SPC Benchmark belongs to exactly one Benchmark Family. Table 5-1 summarizes the composition of each Benchmark Family.

**Table 5-1 Benchmark Family Membership**

Benchmark	Benchmark Family Member?	
	OLTP Family	Sequential Family
SPC-1, SPC-1/E	<b>Yes</b>	No
SPC-1C, SPC-1C/E	<b>Yes</b>	No
SPC-2, SPC-2/E	No	<b>Yes</b>
SPC-2C, SPC-2C/E	No	<b>Yes</b>

### 5.5.3.2 License Types

SPC Toolkits require current licenses. Toolkit licenses are granted for a Benchmark Family (see 5.5.3.1), 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 5.5.3.3, and
- b) Unlimited Licenses, defined in 5.5.3.4.

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.

### 5.5.3.3 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 5.5.3.5), 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 Steering Committee.

### 5.5.3.4 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 5.5.3.5), 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 Steering Committee.

#### 5.5.3.5 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.

### 5.5.4 OFF-SITE LICENSE

5.5.4.1 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.

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

5.5.4.3 Pricing for Off-Site licenses shall be set by the Executive Director.

5.5.4.4 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.

- 5.5.4.5 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.

## **5.6 MODIFICATIONS TO THE SPC POLICIES**

- 5.6.1 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, Standing Committee or Technical Subcommittee).
- 5.6.2 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.
- 5.6.3 The Executive Director will forward the proposed change to the Steering Committee. The Steering committee will review the proposed change, and develop a recommendation for the Board on the adoption of the proposed change.
- 5.6.4 Once the Steering Committee has developed its recommendation, it will add a Board Vote on the proposal to the agenda of the next meeting of the Board.
- 5.6.5 No less than seven (7) days prior to the Board Vote, the Executive Director will inform the Primary Representatives of all Full and Associate members of the intended vote, and will provide them with:
- The name of the member or committee that submitted the proposed change;
  - The precise changes being proposed, relative to the then-current Policies;
  - A summary of the context and likely impact of the proposed change;
  - The effective date of the proposed change, if approved;
  - The Steering Committee’s recommendation for or against the adoption of the proposed change.
- 5.6.6 If the Board Vote on the proposed change passes, the Executive Director will post an updated version of the Policies, including the approved change to the SPC website by the later of the effective date of the change or seven (7) days after the vote approving the change.

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## **SECTION 6     SPC EXECUTIVE DIRECTOR**

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### **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, to ensure the SPC is successful. The Executive Director fills the role of Administrator as specified in the SPC bylaws. The Executive Director is selected by the Board and is a *de facto* member of the SPC, but the Executive Director may not participate in SPC votes. The Executive Director is solely responsible for the activities set forth in this section and is given reasonable freedom by the Steering Committee to execute these activities in a timely and efficient manner:

### **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 general meetings, board meetings, steering committee meetings;
- mail ballots;
- teleconference preparation, logistics, and 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;
- starting general membership meetings;
- collecting membership dues and their deposit in a corporate account; paying external organizations and receiving payment from external organizations.

### **6.3    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 and accounting functions.

All outside entities that provide contracted services shall comply with the SPC Antitrust Compliance Policy. Any commitments beyond \$1,000 will be approved by the Steering Committee but managed by the Executive Director.

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.

#### **6.4 TECHNICAL SUPPORT**

The Executive Director provides technical support to the SPC including consulting on the development and maintenance of new benchmarks.

#### **6.5 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.

#### **6.6 ELECTION**

The Executive Director is elected by the Board, and serves for a term of one year.

#### **6.7 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.



## **6.8 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.

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## **SECTION 7      SPC Web Site Editor**

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### **7.1    GENERAL RESPONSIBILITIES**

The SPC Web Site Editor is generally responsible for the content of the public portion of the SPC Web Site. They approve and edit all content, with the exception of the results tables. The Editor, jointly with the SPC Administrator, is responsible for publishing all content to the web site as well.

### **7.2    APPOINTMENT AND TERM**

The SPC editor is a volunteer position, appointed by the SPC Board at the January meeting. The term is for 1 year. There is no limit to the number of terms an editor may serve. If the SPC Editor Position becomes vacant the SPC Steering Committee shall appoint a new editor to serve until the next January face-to-face meeting.

To be eligible to serve as the SPC Editor a candidate must be either an employee of a full or associate member company, or a member emeritus.

### **7.3    EDITING**

The SPC Editor must approve all content on the web site. News blurbs must be approved by the editor prior to their appearance on the SPC web site. The SPC Editor will edit any submitted news blurbs for clarity, length, and relevance. In the event that a submitted blurb is not relevant to the mission of the SPC the SPC Editor may choose not to publish the material at all.

### **7.4    PHOTOS**

A portion of the SPC's public home page is devoted to photos that are deemed both good looking and appropriate to the web site. The editor will create and maintain a set of design guidelines for photo submissions. These guidelines will serve to ensure the high quality of the SPC's public web site. In general, photos used on the SPC's public web site:

- Must be either actual photos, or photo-like computer renderings;
- Must be vendor neutral. Vendor logos may appear in the photos, but only as they would actually occur on the vendor's hardware offerings; May be submitted by any Full Member or Associate Member. Lacking qualified submissions, the editor may use stock photos.

The editor will work with the member to ensure the photos comply with the design guidelines.

The editor and the Steering Committee will jointly draft and maintain a policy for how the photos are chosen for display. This policy may give priorities to different classes of members, and may include charges for displaying vendor photos. The policy will also cover whether and under what circumstances the photos may contain

links, and where those links may go.

## **7.5 OVERSIGHT**

The editor is responsible to the SPC Board. Any member who disagrees with editorial decisions of the editor may bring their issues before the Board in the form of a motion to publish, retract, or edit a blurb or a photo. If the Board passes the motion, the wishes of the Board will supersede the editor's decision.

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## **SECTION 8 MEETINGS**

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### **8.1 FREQUENCY OF MEETINGS**

Meetings of the Board of Directors ("general meetings") shall be scheduled six months in advance by a Simple Majority Vote. In general, the Council will attempt to meet on a bi-monthly schedule with six (6) meetings each year.

### **8.2 ATTIRE**

Attire at all SPC meetings is informal.

### **8.3 LOCATION**

The location of SPC meetings will be determined based on the availability of members to serve as meeting location hosts.

### **8.4 MEETING COSTS**

Travel, lodging, and all other costs associated with attendance at SPC meetings are the responsibility of each member.

### **8.5 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.

### **8.6 INVITED GUESTS**

Full Members may nominate guests, including Associate or Academic Members, to participate in either SPC Board meetings or in Technical Subcommittee meetings, subject to Steering Committee approval. A nomination of a guest shall:

- a) Be submitted, in writing, to the Executive Director by the Primary Representative of a Full Member, at least fourteen(14) days prior to the meeting that the guest is intending to attend;
- b) Identify the guest(s) who wish to attend an SPC meeting, the meetings that the guest(s) would attend, and whether the guest will attend in-person.
- c) Provide a summary of why the guest's participation in the selected meeting(s) would be beneficial to the Council.

If the Steering Committee fails to take action on the nomination within seven (7) days of its submission, the nomination will be accepted, and the Executive Director will invite the guest.

If a guest is invited, the requesting Member is expected to have a representative at

the meeting(s) that their guest attends. That representative must be physically present, if the guest is to attend in-person.

Except under exceptional circumstances, the Steering Committee will not approve nominations for a non-member to attend as a guest more frequently than twice per calendar year.

Non-member guests are expected to respect the privacy of SPC meetings and of any data disclosed at such meetings. Non-member guests may be required to sign a non-disclosure agreement confirming that SPC confidential information will not be shared outside of the SPC.

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## **SECTION 9      BENCHMARK STANDARDS**

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### **9.1 BENCHMARK METRICS**

This section is intentionally blank.

### **9.2 BENCHMARK DEVELOPMENT CYCLE**

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

#### **Step 1:      Proposal Submission**

Member companies will submit a proposal for a new benchmark specification to the Steering Committee for consideration. The Steering Committee will review the contents, applicability and potential of the proposal and present a recommendation back to the Council at a general meeting, identifying advantages/disadvantages and a proposed course of action.

If the Steering Committee recommends acceptance of the proposal and creation of a new workgroup or subcommittee, the Board shall vote to confirm the recommendation.

If the Steering Committee does not recommend acceptance of a proposal, the proposal's sponsor(s) may submit the proposal directly to the Board for further consideration. In such a case, the sponsor will forward the proposal to the Executive Director for inclusion as an agenda item at the next General meeting. The Board shall vote on accepting the proposal for further work.

#### **Step 2:      Creation of a Workgroup**

In cases where a proposal has merit but requires additional refinement, the Board may vote to create and empower the technical workgroup for a limited duration. The workgroup will be responsible to further develop the proposal and create a draft benchmark specification.

At an agreed upon date, the workgroup will present a draft specification to the Council. The Council will review the draft specification for a specified period of time. At the end of that review, the Board will vote on acceptance of the draft specification. Passage of the vote will dissolve the workgroup and create a technical subcommittee to develop a formal benchmark specification. If the vote fails, the workgroup shall be dissolved with no further development of the proposal.

If, at the above agreed upon date, the workgroup has not completed the draft specification, a request to extend the duration of the workgroup shall be put to a vote of the Board. Passage of the vote shall extend the duration of the workgroup until a new agreed upon date. If the vote fails, the workgroup shall be dissolved.

### **Step 3: Creation of a Technical Subcommittee**

A technical subcommittee is created and empowered by a vote of the Board. The new technical subcommittee is responsible for development of a formal benchmark specification. To speed-up the benchmark development cycle, the subcommittee is authorized to brief non-members on the benchmark in order to obtain timely feedback.

### **Step 4: Status and Direction**

At each general meeting the subcommittee or workgroup will provide a status update on its work, including any substantial changes to the working draft of the specification. During the general meeting, the Council may provide direction and feedback to the subcommittee or workgroup to further their work.

### **Step 5: Authorizing public release of Draft Specification**

If it deems it advisable, the Board may, during a general meeting, vote to authorize the release of 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 approval 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 13.2).

**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 fair use policies. (To summarize the intent and purpose of the SPC's fair use policies, only results published in accordance with an official SPC benchmark specification are considered SPC results and can be publicized as such.

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 6: Accepting a Proposed Specification for Review**

When the subcommittee feels that the proposed specification is of sufficient quality to be considered for formal review and approval, it will submit the proposed specification to a General meeting for approval to advance into formal review. A vote of the Board is required to move a proposed specification into formal review.

### **Step 7: 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 and forwarded to the subcommittee for resolution. The subcommittee shall vote on a resolution to each submitted comment and proposal, but need not adopt any given comment or proposal.

### **Step 8: Accepting a Proposed Specification for Formal Approval**

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 at a general meeting. A Board vote is required to advance the completed draft to formal approval.

### **Step 9: Proposed Specification Approval**

Upon passage of the Board vote, a proposed specification is offered to the whole of the Council for approval. The proposed specification will become an SPC benchmark standard upon passage of a Membership Vote.

### **Step 10: Creation of a Maintenance Subcommittee**

Once a SPC benchmark standard has been approved, the benchmark development subcommittee is automatically dissolved. At the next general meeting after a SPC benchmark specification has been approved by Membership Vote, the Board will establish a maintenance subcommittee, as defined in 5.3.1.2.

## **9.3 BENCHMARK EXTENSIONS**

### **9.3.1 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 can be developed as stand-alone documents, or as formal amendments to the specification wording of an underlying benchmark standard. This clause defines the process for the development of stand-alone benchmark extensions. Embedded extensions (e.g., the SPC-1 Energy Extension) are covered in XREF, which defines the process for specification development.

### **9.3.2 EXTENSION TYPES**

There are a number of 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.

### **9.3.3 EXTENSION DEVELOPMENT PROCESS**

- 9.3.3.1 Any member may propose an extension, by forwarding a proposal to the chair of the appropriate maintenance committee.
- 9.3.3.2 The proposal must be fully formed, including detailed test procedures, metrics, and disclosure requirements, but need not be written in formal language.
- 9.3.3.3 At its next conference call/meeting, the maintenance subcommittee will review the proposed extension, amending and revising the proposal, as needed. Once the subcommittee has completed its review, it will conduct a Simple Majority Vote on accepting or rejecting the amended proposal. Any request that receives a majority vote by the subcommittee is accepted. Any request that does not receive a majority vote by the subcommittee is rejected, and no further subcommittee action is taken.
- 9.3.3.4 Accepted proposals will be forwarded to an identified editor, who will develop the standalone document that formally defines the extension, and serves as an addendum to the underlying benchmark specification. The maintenance subcommittee will review the resulting wording, amending and revising it, as required.
- 9.3.3.5 The formal language to implement a benchmark extension is subject to three levels of approval:
- a) The maintenance subcommittee shall 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 proposed benchmark extension is rejected, and no further subcommittee 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.
- c) Once proposed wording has been approved by the maintenance subcommittee and the auditors certified for the underlying benchmark, the proposed extension shall be added to the agenda of the next General Council meeting, where a Simple Majority Vote shall be held. Only editorial amendments to the proposed wording shall be entertained at that time. If the wording as approved by the subcommittee, and with any editorial changes from the Board, receives a majority vote in favor of acceptance, the wording is adopted as a provisional extension.

If the wording does not receive a majority vote in favor of acceptance, the Board shall entertain a motion to return the proposed wording to the maintenance subcommittee for further work. If the Board Vote on that motion fails, the proposed benchmark extension is rejected, and no further action is taken.

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

#### **9.3.4 EXTENSION LIFECYCLE**

9.3.4.1 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 9.3.4.5).

9.3.4.2 The maintenance subcommittee shall review the provisional extension twelve (12) months after its approval by the Board. If no results have been published with the provisional extension, then the extension shall be withdrawn.

9.3.4.3 If published results have included the provisional extension in the first twelve months after its approval, the subcommittee may vote to move the proposed extension to an accepted status.

- 9.3.4.4 If a benchmark extension remains provisional eighteen (18) months after its approval by the Board, the maintenance subcommittee shall vote to move the proposed extension to an accepted status. If that vote fails, the extension shall be withdrawn.
- 9.3.4.5 The maintenance subcommittee may may vote to recommend the withdrawl of a benchmark extension, whether provisional or accepted, provided at least twelve (12) months have elapsed since the extension's approval by the Board. The subcommittee may set an effective date for the withdrawl of a benchmark extension. If no effective date is set, the extension is withdrawn immediately. Any withdrawl recommendation which is approved by the subcommittee shall require ratification by the Board in order to become effective
- 9.3.4.6 No result which includes a withdrawn benchmark extension may be published after that extension's withdrawal date.
- 9.3.4.7 Once approved, a benchmark extension shall remain valid until it is withdrawn, or a major revision of the underlying benchmark is published (see 11.10). A major revision of a specification may include benchmark extensions, but they shall be subject to the same approval process as the underlying specification.
- 9.3.4.8 Revisions to a benchmark extension shall be managed under the existing procedures of the maintenance subcommittee, but 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.

### **9.3.5 EXTENSIONS AND PERMITTED USE**

- 9.3.5.1 Benchmark results may include one or more benchmark extensions, whether provisional or accepted.
- 9.3.5.2 All benchmark results that include one or more benchmark extensions are subject to the permitted use rules defined in 13.2.
- 9.3.5.3 A result that includes a provisional bechmark 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.
- 9.3.5.4 The maintenance subcommittee 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.

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## **SECTION 10     Auditors and Auditing**

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### **10.1 AUDITOR POOL**

10.1.1 The purpose of an SPC Auditor is to certify that SPC Measurements are compliant with the relevant benchmark specification.

10.1.2 The Steering Committee 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.

### **10.2 AUDITOR CERTIFICATION**

#### **10.2.1 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.

#### **10.2.2 STAGE I – APPLICATION**

10.2.2.1 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).

10.2.2.2 The Steering Committee 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.

10.2.2.3 If the Steering Committee 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 Steering Committee.

### **10.2.3 STAGE II – EXAM AND INTERVIEW**

- 10.2.3.1 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 Steering Committee. The Steering Committee may vote to waive the exam based on its review of a candidate’s qualifications.
- 10.2.3.2 Technical subcommittees are responsible 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.
- 10.2.3.3 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 Steering Committee’s approval of the candidate.
- 10.2.3.4 The Steering Committee interviews any candidate who has passed the exam and votes on whether to accept the candidate as an apprentice Auditor. The Steering Committee may vote to waive the interview based on its review of a candidate’s qualifications.

### **10.2.4 STAGE III – APPRENTICESHIP**

- 10.2.4.1 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.
- 10.2.4.2 The Steering Committee 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.
- 10.2.4.3 The Steering Committee may vote to waive the apprenticeship requirement based on its review of a candidate’s qualifications and experience.

## **10.2.5 STAGE IV – CERTIFICATION**

10.2.5.1 Candidates who have been endorsed by a certified Auditor or whose internship has been waived may be asked to meet with the Steering Committee 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.

10.2.5.2 Following the certification interview, if any, the Steering Committee will vote on 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).

10.2.5.3 The Steering Committee may constrain the certification, provided it defines the additional work required of the candidate to remove those constraints.

10.2.5.4 The Steering Committee shall notify the candidate of its 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.

10.2.5.5 If the Steering Committee fails to certify a candidate, the candidate must wait a minimum of two weeks, and may then ask the Steering Committee for reconsideration. If the Steering Committee votes to reconsider the candidate's certification, the reconsidering process must include a certification interview.

## **10.2.6 STAGE V – MAINTAINING CERTIFICATION**

10.2.6.1 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.

10.2.6.2 An Auditor's certification may be revoked by a vote of the Steering Committee.

10.2.6.3 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.

10.2.6.4 Certified Auditors may relinquish their certification by informing the Steering Committee of their decision in writing.

10.2.6.5 The Steering Committee may require that certified Auditors physically attend a minimum number of general meetings to maintain their certification. In case of such requirement the Steering Committee will negotiate with the certified Auditors to establish a reasonable compensation for their attendance.

## **10.3 SPC AUDIT PROCESS**

### **10.3.1 OVERVIEW**

10.3.1.1 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.

10.3.1.2 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.

### **10.3.2 AUDITOR SELECTION AND PAYMENT**

- 10.3.2.1 The test Sponsor selects an Auditor from the list of certified Auditors maintained by the Executive Director.
- 10.3.2.2 The test Sponsor contracts directly with their selected certified Auditor to obtain audit and FDR production services.
- 10.3.2.3 The service fees charged by the Auditor and related payment terms are determined by negotiation between the Test Sponsor and the Auditor.
- 10.3.2.4 The Test Sponsor pays the fees for audit and FDR production services directly to the Auditor based on the negotiated terms.
- 10.3.2.5 An Auditor may refuse to provide services to a Test Sponsor that has failed to make timely payments for services previously rendered.
- 10.3.2.6 An Auditor may request that the Steering Committee vote on the 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.

### **10.3.3 AUDIT PROCESS**

- 10.3.3.1 The audit process for the specific benchmark is documented in that Benchmark's specification.
- 10.3.3.2 The Auditor may, at his or her discretion, adjust or alter the documented audit process to meet the specific needs of an audit.
- 10.3.3.3 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.
- 10.3.3.4 The Auditor may choose to examine, verify and test any information disclosed by the Test Sponsor.



10.3.3.5 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).

#### **10.3.4 AUDITOR'S DECISION AND APPEAL**

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

10.3.4.2 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.

10.3.4.3 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.

10.3.4.4 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.

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

#### **10.3.5 CONFIDENTIALITY OF INFORMATION**

10.3.5.1 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.

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

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## SECTION 11 RESULTS SUBMISSION AND PUBLICATION

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### 11.1 MANDATORY AUDITS

- 11.1.1 An SPC Measurement must be successfully audited before a Test Sponsor can submit it to the Executive Director for publication as an SPC Result.
- 11.1.2 SPC Auditors provide audit services for members who wish to audit SPC Measurements.
- 11.1.3 Auditors must be certified by the Steering Committee to audit SPC Measurements for compliance with an SPC Benchmark specification. (see SECTION 10).
- 11.1.4 Test Sponsors may choose amongst any of the Auditors certified for the applicable specification for assistance in auditing their SPC Measurement.

### 11.2 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 11.7); 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.

### **11.3 PEER REVIEW PROCESS.**

#### **11.3.1 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.

#### **11.3.2 PUBLIC REVIEW**

At the start of the public 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 Public Review, the result is eligible to transition from “Submitted for Review” to “Accepted” status at the end of that SPC Public Review period (see 11.5).

### **11.4 CHALLENGING A RESULT**

#### **11.4.1 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 Compliance Review Committee (CRC) (see 5.4).

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 Compliance Review Committee (CRC) 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 CRC does not accept it (see 5.4.5), the challenge is as if it never occurred.

If the CRC receives a request to review a specific issue of a Full Disclosure Report and finds the challenge to be substantive, it will add it to its work list. The result remains in "Submitted for Review" status until the CRC has reviewed the result and the Board has made a decision on the recommendation submitted by the CRC.

#### 11.4.2 STATUS OF CHALLENGED RESULTS

If one or more challenges to a new SPC Result are submitted to and accepted by the CRC, 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 Public Review cannot transition to “Accepted” status while the accepted challenges are under review even if the designated SPC Public Review period has concluded.

In the event a Test Sponsor submits documentation to the CRC in response to a challenge accepted by the CRC, 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.

#### 11.4.3 RESULTS OF A VOTE ON CRC RECOMMENDATIONS

Non-compliance recommendations from the CRC are to be passed by a Simple Majority Vote of the Board.

The Board should vote on CRC recommendations 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 Public Review will immediately transition to “Accepted” status if its designated SPC Public Review period concluded during the review of the accepted challenges.
- (b) If the designated SPC Public Review period has not concluded, the result will remain in SPC Public Review. That review period will not be extended as a result of the challenges and will conclude as originally scheduled.

If the Board approves a CRC recommendation stating that a result is 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.

#### 11.5 ACTIVE, ACCEPTED SPC RESULTS

11.5.1 A new SPC Result is an Active result at the start of the Peer Review.

- 11.5.2 At the conclusion of Peer Review, a new SPC Result’s peer review 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
- 11.5.3 A new SPC Result that has transitioned to “Accepted” status remains an Active result.
- 11.5.4 The initial Active status is for a period of two (2) years. Beyond that period, Test Sponsors must make an annual request for a one-year extension of an SPC Result’s Active status.
- 11.5.5 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.
- 11.5.6 There is no limit to the number of 1-year extensions that may be requested for a currently Active SPC Result, and extensions shall not be unreasonably withheld.
- 11.5.7 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.
- 11.5.8 An SPC Result’s “Accepted” status is retained after a transition to Inactive status.
- 11.5.9 "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.

## 11.6 INACTIVE SPC RESULTS

- 11.6.1 Inactive SPC Results have been designated as such by their Test Sponsor for any number of reasons such as no longer available for sale and/or no longer fully supported, superseded by a newer version/model, etc. But, Inactive results may continue to provide meaningful context and information to potential consumer of SPC data.
- 11.6.2 Inactive SPC Results retain their audit identifier, and are separated from Active SPC Results on the SPC web site.
- 11.6.3 Inactive SPC Results are not subject to challenge.

11.6.4 Inactive SPC Results may be used in public relations. They must conform to all Permitted Use requirements (see 13.2). 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.

## 11.7 WITHDRAWING A RESULT

Once it has begun Peer Review (see 11.3), an SPC Result can be withdrawn by the Test Sponsor or by a vote of the Board.

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

Withdrawn results will fall into three (3) 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 SPC 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 Council after SPC Council ruled result was non-compliant with technical specifications of benchmark."

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.

## 11.8 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 Public Review.
  - ii. Vendor Y may, at their option and within the SPC Public 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 Public 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 forward to the CRC any 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 CRC policies for challenges.

## 11.9 AVAILABILITY OF FULL DISCLOSURE REPORTS

### 11.9.1 TIMELY ANNOUNCEMENT OF SPC RESULTS

To alert SPC members of the start of the SPC Public 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.

### **11.9.2 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.

### **11.9.3 NON-DELIVERY OF FULL DISCLOSURE REPORTS**

(a) If a company publicly discloses a SPC result without meeting the submission requirements listed in 11.1, the following actions will ensue:

- The Executive Director will send the company a letter regarding their violation of SPC policy.
- At the next general meeting, the Board will vote 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 Steering Committee is authorized to meet with the company to discuss the matter, and if appropriate, issue a press release.

### **11.9.4 COPYRIGHT OF FULL DISCLOSURE REPORTS**

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

### **11.9.5 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.

## **11.10 REVISIONS TO AN APPROVED SPC SPECIFICATION**

### **11.10.1 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.

### **11.10.2 REVISION SCOPE**

Each SPC specification 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 11.10.3);
- Minor Change (see 11.10.4);
- Major Change (see 11.10.5).

### **11.10.3 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)
- CRC interpretations
- Variants

Third tier changes are approved in a General meeting and 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), unless the Council decides to use another identifier.

Third-tier changes do not impact comparability.

### **11.10.4 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 are approved in a General meeting 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), unless the Council decides to use another identifier.

### **11.10.5 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 receive two votes of approval. The first is a vote, during a general meeting, to send the major version change to a Membership Vote. The second vote is the Membership Vote to approve the new revision.

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), unless the Council decides to use another identifier.

### **11.10.6 SPECIFICATION REVISIONS AND SPC RESULTS**

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

11.10.6.2 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 11.10.7).

**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.

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

11.10.6.4 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.

#### **11.10.7 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.

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## **SECTION 12 PUBLIC RELATIONS**

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### **12.1 CONFIDENTIALITY RULE**

- 12.1.1 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.
- 12.1.2 An SPC document may be authorized for public release based on a Board vote.
- 12.1.3 Primary Representatives are responsible for assuring proper compliance with the SPC's confidentiality requirement when documents are distributed within their member company.
- 12.1.4 With the exceptions noted in 12.1.5, 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 SC.
- 12.1.5 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 will pass on the request and make a recommendation to the Steering Committee. The Steering Committee will review the matter and vote on any release of SPC confidential information.
  - c) Section 8.2 Step 3 allows a technical subcommittee to brief non-members on 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.
- 12.1.6 The Council reserves the right to take appropriate action when breaches of confidentiality occur.

### **12.2 SPC SPOKESPERSON**

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

### **12.3 SPC PRESS RELEASES**

The Board will vote to approve any SPC press release.

### **12.4 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.

### **12.5 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. At the end of the two-week period, if there are no objections filed, the Executive Director will implement the changes. If there are objections still unresolved, they will be discussed at the next General meeting.

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## **SECTION 13 USE OF SPC RESULTS AND SPECIFICATIONS**

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### **13.1 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.

### **13.2 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 (those who run and publish SPC benchmarks, whether they be SPC members or not), 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.

### 13.2.1 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.

### 13.2.2 “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.

### **13.2.3 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.

### **13.3 PERMITTED USE OF SPC SPECIFICATIONS**

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

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## **SECTION 14 REVIEW AND RESPONSE TO POLICY VIOLATIONS**

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### **14.1 OVERVIEW**

If the Board votes that a violation of SPC policies has occurred, it may take appropriate response measures, as detailed in this policy. In its deliberations, the Board 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.

### **14.2 REVIEW PHASE**

#### **14.2.1 INITIAL ASSESSMENT**

Before being discussed at a general meeting, the alleged policy violation must be submitted to the Steering Committee via the Executive Director. The Steering Committee will investigate the issue and make a recommendation to the Council only if it believes a minor or major violation has occurred (non-violations and insignificant violations will not be brought forward by the Steering Committee, although any member may introduce such a motion).

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

If the SC determines that Council action is warranted, the Executive Director will give the company accused of the violation at least seven days notice by fax or mail that the Council will discuss the matter. The Executive Director will also mail or fax any documents that pertain to the alleged violation. Once notified, it is the responsibility of the company to be in attendance at the next general meeting of the Council. The Council will discuss, and the Board will rule on, the alleged violation whether the company is in attendance or not.

#### **14.2.2 COUNCIL REVIEW**

During the review phase at a general meeting, the Council will assess the specific violation(s) in question. The Board will vote to determine if a violation has occurred.

If a violation has occurred, the Board must next vote on 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.

The Council will not consider past violations in making the determination of the severity of the violation. However, it will consider the following criteria in its deliberations:

**(a)** If the violation pertains to publicity or to public information, the Board 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?

## **14.3 RESPONSE PHASE**

### **14.3.1 OVERVIEW**

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

These response measures outlined in 14.3.2 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.

### **14.3.2 RESPONSES TO VIOLATIONS**

If the Board determines that a violation has occurred, it may take any or all of the response measures outlined under each response level:

#### **1. Level one response (insignificant violation)**

The Council, via the Executive Director, will notify the Primary Representative of the company in question that it has committed an insignificant violation. No further

Steering Committee or Council 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) Instruct the Executive Director to 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)**

- a) Instruct the Executive Director to 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 the Council with an official report of those actions at the next general meeting.
- 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) Instruct the Executive Director to issue a press release outlining the nature of the policy violation.
- e) Vote to initiate expulsion proceedings as outlined in 3.5.