

SUPPLY AND INSTALLATION OF TURBINES AND GENERATORS CONTRACT

SCHEDULE 8

QUALITY MANAGEMENT

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SUPPLY AND INSTALLATION OF TURBINES AND GENERATORS

SCHEDULE 8

QUALITY MANAGEMENT

1 INTERPRETATION

1.1 Definitions

In this Schedule 8 [Quality Management], in addition to the definitions set out in Schedule 1 [Definitions and Interpretation]:

“**Audit**” has the meaning set out in ISO 9000;

“**Corrective Action**” has the meaning set out in ISO 9000;

“**Design Quality Management Plan**” has the meaning set out in Appendix 8-1 [Design Quality Management Plan];

“**External Quality Audit**” has the meaning set out in Section 6.1 of this Schedule 8 [Quality Management];

“**Final Quality Report**” has the meaning set out in Section 7.3 of this Schedule 8 [Quality Management];

“**Hold Point**” means a point in the performance of a component or element of the Work past which the Contractor will not proceed without the prior written approval of Hydro’s Representative;

“**Inspection**” has the meaning set out in ISO 9000;

“**Inspection and Test Plans**” has the meaning as set out in Appendix 8-2 [Supply Quality Management Plan] and Appendix 8-3 [Installation Quality Management Plan] as the context requires;

“**Installation Quality Management Plan**” has the meaning set out in Appendix 8-3 [Installation Quality Management Plan];

“**Internal Quality Audit**” has the meaning set out in Section 6.1 of this Schedule 8 [Quality Management];

“**ISO 9001**” means the most current standard, developed and published by the International Organization for Standardization;

“**Nonconformity**” means an element of the Work that for any reason does not conform to the requirements of the Contract Documents;

“**Nonconformity Report**” has the meaning set out in Section 8.1(a)(ii) of this Schedule 8 [Quality Management];

“**Nonconformity Tracking System**” has the meaning set out in Section 8.2 of this Schedule 8 [Quality Management];

“**Preventive Action**” has the meaning set out in ISO 9000;

“**Quality**” has the meaning set out in ISO 9000;

“**Quality Documentation Submittals**” has the meaning set out in Section 3.1 of this Schedule 8 [Quality Management];

“**Quality Management**” has the meaning set out in ISO 9000;

“**Quality Management Plans**” means the Design Quality Management Plan, the Supply Quality Management Plan and the Installation Quality Management Plan;

“**Quality Management System**” or “**QMS**” has the meaning set out in ISO 9000;

“**Quality Manager**” has the meaning set out in Section 4.1 of this Schedule 8 [Quality Management];

“**Quality Manual**” has the meaning set out in Section 3.2 of this Schedule 8 [Quality Management];

“**Quality Objectives**” has the meaning set out in ISO 9000;

“**Quality Policy**” has the meaning set out in ISO 9000;

“**Quality Progress Report**” has the meaning set out in Section 4.2(h) of this Schedule 8 [Quality Management];

“**Quality Record**” has the meaning set out in Section 7.1 of this Schedule 8 [Quality Management];

“**Quality System**” has the meaning set out in ISO 9000;

“**Record**” has the meaning set out in ISO 9000;

“**Supply Quality Management Plan**” has the meaning set out in Appendix 8-2 [Supply Quality Management Plan]; and

“**Witness Point**” means a point in the performance of a component or element of the Work, as defined in the Contract Documents, for which BC Hydro is entitled to review the Work performed before the Contractor proceeds with related Work.

2 QUALITY MANAGEMENT SYSTEM

2.1 Quality Management System

The Contractor will develop and implement a Quality Management System in accordance with the requirements of this Schedule 8 [Quality Management] and terms of this Contract. The Contractor is solely responsible for the Quality of the Work and the Contractor acknowledges that a comprehensive Quality Management System is critical for the proper and timely completion of the Work.

2.2 Contractor Responsibilities

The Contractor is responsible for all Quality activities required to manage the performance of the Work including its own processes as well as those of all Subcontractors, and will require that all workers, including Subcontractors’ workers comply with the requirements of the Contractor’s Quality Management System.

2.3 Quality Management System Requirements

The Contractor’s Quality Management System will comply with:

- (a) the requirements and principles of the ISO 9001 Standard;

- (b) Good Industry Practice; and
- (c) all other requirements set out in this Schedule 8 [Quality Management] and the other terms and conditions of this Contract.

3 QUALITY DOCUMENTATION SUBMITTALS

3.1 Submittals

Without limitation to the requirements of ISO 9001, the Contractor will prepare and submit all documents and deliverables required to be submitted to BC Hydro pursuant to the Contract Documents (collectively, the “**Quality Documentation Submittals**”) in accordance with the requirements of this Schedule 8 [Quality Management], and, except as expressly stated in the Contract Documents to be submitted for Consent the Quality Documentation Submittals will be subject to Review. The Quality Documentation Submittals will include the following:

Deliverable Name	Due Date	Section Reference	Review, Consent or For Information Only
Quality Manual	Within 30 days after the Effective Date	3.2	Review
Design Quality Management Plan	Within 30 days after the Effective Date	Appendix 8-1	Consent
Supply Quality Management Plan	Within 60 days after the Effective Date	Appendix 8-2	Consent
Installation Quality Management Plan	Within 60 days after the Effective Date	Appendix 8-3	Consent
Inspection and Test Plans	30 days prior the start of inspection and testing	Appendix 8-2 Appendix 8-3	Consent
Quality Progress Reports	On or before the 15th day of the following month	7.2	For Information Only
Final Quality Report	Within 30 days after Substantial Completion of the Work	7.3	Review

3.2 Quality Manual and Quality Management Plans

The Contractor will prepare and submit for Review within 30 days after the Effective Date a Quality manual (the “**Quality Manual**”) that describes the Quality Management System for all aspects of the Work. The Quality Manual will describe and establish the Quality Policy and Quality Objectives for all aspects of the Work and, in accordance with the requirements of the ISO 9001 Standard, will describe the processes that will be established, implemented, controlled, and continually improved to achieve the established Quality Policy and Quality Objectives.

The Contractor will prepare and submit for Consent Quality Management Plans in accordance with Appendix 8-1 [Design Quality Management Plan], Appendix 8-2 [Supply Quality Management Plan] and Appendix 8-3 [Installation Quality Management Plan] of this Schedule 8 [Quality Management].

3.3 Continuous Improvement in Quality Management System

The Contractor will implement a program and will have mechanisms in place, such as management reviews and Quality Audit programs, that will record, track, implement or close out all identified opportunities for improvement. The Contractor will conduct reviews of the continuous improvement program no less than annually.

The continuous improvement program will be applied to continually improve the effectiveness and efficiency of the Quality Management System. Improvements to the Quality Management System will be documented and updates will be submitted to BC Hydro so that BC Hydro at all times has the Contractor's current Quality Management System.

3.4 BC Hydro's Right to Audit QMS

BC Hydro may at any time and from time to time audit any element of the Contractor's Quality Management System. The Contractor will submit to BC Hydro any Quality Management procedures or Quality Management documentation in respect of the Work as may be requested by BC Hydro.

4 QUALITY MANAGER

4.1 Qualifications, Appointment and General Responsibilities

At all times during the performance of the Work the Contractor will employ a person as Quality manager (the "**Quality Manager**") with the qualifications as set out below who will, irrespective of such person's other responsibilities, have defined authority for ensuring the establishment, implementation and maintenance of the Quality Management System in the performance of the Work and auditing and reporting on the performance of the Quality Management System during the performance of the Work. The Quality Manager will be a full time role, with no other responsibilities. The Quality Manager will:

- (a) report to or have delegation from the Contractor's Representative for Quality matters with respect to the Work independently from persons responsible for the performance of the Work;
- (b) be either:
 - (i) a certified QMS Lead Auditor, or
 - (ii) have experience in a similar quality management representative role for a similar project; and successfully completed an ISO 9001 Lead Auditor course; and
- (c) be either:
 - (i) a Professional Engineer with a minimum of ten (10) years of relevant experience, or
 - (ii) an individual with a minimum of twenty (20) years of relevant experience.

4.2 Specific Responsibilities

Without limiting the generality of the foregoing, the job specification and responsibilities of the Quality Manager will include the following:

- (a) develop, implement and maintain, and ensure the effective operation of the Quality Management System;
- (b) initiate management reviews, not less frequently than annually, and take other actions necessary to ensure the effective operation and continuous improvement of the Quality Management System;
- (c) develop, implement and maintain, and ensure the effective operation of, the Quality Management Plans in the context of the Quality Management System;
- (d) manage, and if appropriate delegate, Quality assurance and Quality control activities as part of the Quality Management Plans for the Work;

- (e) lead a Quality team that is independent from the Contractor's team that is responsible for the execution and performance of the Work;
- (f) prepare Quality Audit plans and schedule and coordinate Internal Quality Audits and External Quality Audits of key processes with the Contractor's workers and with the Subcontractors' workers (including as applicable the designers);
- (g) as may be delegated from the Contractor's Representative liaise with Hydro's Representative with respect to Quality matters;
- (h) prepare monthly reports concerning progress on Quality matters ("**Quality Progress Reports**") for submission to BC Hydro;
- (i) ensure that relevant Quality Records are completed as required and retained in accordance with the Quality Management System; and
- (j) develop and implement a program for Corrective Action and Preventive Action.

5 INSPECTION AND TESTING

5.1 Inspection and Testing Requirements

If in accordance with the provisions of the Contract Documents the Contractor is required to carry out any inspection or testing, the Contractor will perform, or cause the performance, of such inspection and testing in accordance with the provisions of Section 5 of this Schedule 8 [Quality Management] except if and to the extent such provision of the Contract Documents expressly directs or permits otherwise.

Any reference to inspection and testing by the Contractor will include inspection and testing performed by any third party or independent certified laboratory or agency engaged by the Contractor.

The Contractor will monitor the performance of the Work, including the inspection and testing, and all other actions required by the Quality Documentation Submittals that are performed by workers, Subcontractors, agents or independent test facilities and laboratories, to ensure compliance with the requirements of this Contract.

5.2 Accreditation Standards

All testing and inspection of the Work performed by or on behalf of the Contractor will be performed by personnel or entities that meet the following standards:

- (a) all on and off site inspection and testing will be carried out by agencies, personnel and laboratories that are duly accredited in accordance with Good Industry Practice for the carrying out of inspection and testing of work similar in nature, scale and scope to the Work being tested or inspected;
- (b) structural steel and welding will meet or comply with CSA W178.1, "Certification of Welding Inspection Organizations";
- (c) protective coatings will meet the standards of the "National Association of Corrosion Engineers", as appropriate to the Work being carried out; and
- (d) any other laboratory accreditations specifically identified in this Contract.

5.3 Notice of Inspection and Testing

The Contractor will give written notice to Hydro's Representative of all inspection and testing for which there is an associated BC Hydro Witness Point or Hold Point specified in the Contract Documents or in the relevant Inspection and Test Plan and any changes to an Inspection and Test Plan at least five days prior to the start of the inspection and testing for the relevant Work. All access and facilities necessary for Hydro's Representative to witness the performance of inspection and testing will be provided by the Contractor as part of the Work.

5.4 Test Records and Reports

All inspection and testing will be documented and each such document will be a Quality Record.

Unless otherwise agreed by BC Hydro in writing, all Quality Records will be available to BC Hydro upon request and will be retained in accordance with the requirements of Schedule 15 [Records].

Without limiting the requirements of the Contract Documents, the applicable standards and the Quality Documentation Submittals, all inspection and testing records will include:

- (a) the item tested;
- (b) test equipment used;
- (c) actual results of the applicable inspection and testing;
- (d) remarks regarding conformance with this Contract;
- (e) photographs of the Work;
- (f) calibration certificates and records for testing equipment used;
- (g) name and position of the person who actually performed the measurements;
- (h) name, position and signature of the person (e.g., Quality Manager, engineer of record) who verified and approved the measurements; and
- (i) contact information of the entity (Contractor or Subcontractor) responsible for the applicable inspection and testing.

6 QUALITY AUDITS

6.1 Contractor's Quality Audits

The Contractor will conduct Audits of Quality ("**Internal Quality Audits**") and retain third parties to conduct Audits of Quality ("**External Quality Audits**") of the Contractor's and Subcontractors' Work in accordance with the requirements of this Schedule 8 [Quality Management], the Quality Management Plans and ISO 9001 to ensure that the Quality Management Systems and Quality Management Plans are effective, fully implemented and functioning in accordance with the Contract. The Contractor's Quality Audit process will identify non-compliances with the requirements of the Contract Documents, necessary Corrective Actions and Preventive Actions and facilitate continuous improvement.

The Contractor will document, or cause to be documented, the results of such Quality Audit in an audit report and make such report available to Hydro's Representative upon request.

The Quality Manager will schedule Internal Quality Audits and External Quality Audits to ensure that all key processes are reviewed regularly (at least annually).

Where necessary, follow-up Quality Audits will be scheduled to ensure that identified Corrective Actions and Preventive Actions are carried out by the Contractor in a timely fashion.

6.2 BC Hydro's Quality Audits

Hydro's Representative may, pursuant to the submission of the Quality Documentation Submittals in accordance with this Schedule 8 [Quality Management], review the Quality Documentation Submittals to identify the critical activities and processes identified in the Quality Manual and Quality Management Plans on which BC Hydro's auditing efforts and resources should be directed.

The Contractor will provide and will ensure its workers and Subcontractors provide Hydro's Representative with all documentation, records, access, facilities and assistance for the safety and convenience of Hydro's Representative.

Hydro's Representative may employ independent auditors, and inspection and testing agencies. These agents will be afforded the same facilitation provided to Hydro's Representative.

7 QUALITY DOCUMENTATION

7.1 Quality Records

The Contractor will establish and maintain a complete and accurate set of all Quality management records (each a "**Quality Record**"). The Contractor will ensure that a complete set of Quality Records is maintained in accordance with the requirements of Schedule 15 [Records].

The Quality Records will provide objective evidence of conformance with all requirements of the Contract Documents in the performance of the Work, compliance with the ISO 9001 Standard and the effective operation of the Quality Management System.

Each Quality Record will be traceable to the actual components of the Work to which it applies.

7.2 Quality Progress Reports

For each month of the Project, the Contractor will prepare and submit to Hydro's Representative on or before the 15th day of the following month, a comprehensive Quality Progress Report.

Each Quality Progress Report will address all Quality management activities under each of the Quality Management Plans for the applicable reporting period and any outstanding Quality issues from prior reporting periods.

The Quality Progress Reports will, as a minimum, include the following information separately identified for the Quality Manual and for each Quality Management Plan:

- (a) a Nonconformity Report log summarizing the Nonconformity Tracking System, highlighting each Nonconformity's status and progress of disposition;
- (b) Corrective Action and Preventive Action logs providing details of the Corrective Actions and Preventive Actions performed to date and their close-out status;
- (c) a summary of any inspection and testing activities conducted, including identification and review status of all related inspection and testing plans;

- (d) Internal Quality Audits and External Quality Audits including any third party Quality Audits performed;
- (e) any continual improvement initiatives taken; and
- (f) any changes made to the Quality Management System or the Quality Management Plans in compliance with the provisions of this Contract.

7.3 Final Quality Report

The Contractor will, not later than 30 days after Substantial Completion of Work, submit for Review a Final Quality Report (each, a “**Final Quality Report**”) to provide objective evidence that the Quality of the Work satisfies the requirements of this Contract. The Final Quality Report will be a compilation of all the Quality Documentation Submittals produced during and in connection with the performance of the Work.

8 NONCONFORMITIES

8.1 Nonconformity Reporting Process

The Contractor will manage Nonconformities as follows:

- (a) upon discovery of a Nonconformity, the Contractor will:
 - (i) within one Business Day notify BC Hydro in writing of such Nonconformity; and
 - (ii) within two Business Days enter a report of such Nonconformity into the Nonconformity Tracking System along with a proposed time frame in which to remedy and correct the Nonconformity (a “**Nonconformity Report**”);
- (b) the Contractor will finalize a proposed remedial plan to remedy and correct the Nonconformity within the time identified in the applicable Nonconformity Report and included in the Nonconformity Tracking System;
- (c) the Contractor will verify implementation of the proposed remedial plan within the time identified in the applicable Nonconformity Report and included in the Nonconformity Tracking System;
- (d) the Contractor will use reasonable efforts to identify and record all Nonconformities;
- (e) the Contractor will implement effective Corrective Actions and Preventive Actions as identified in Quality Management Plans to prevent recurrences of Nonconformities; and
- (f) if at any time Hydro’s Representative becomes aware of a Nonconformity or risk of Nonconformity, Hydro’s Representative may issue a written report describing the Nonconformity, without prejudice to any other right or remedy available to BC Hydro (although except as may be expressly stated otherwise in the Contract Documents, nothing in this Schedule 8 [Quality Management] will impose any obligation on BC Hydro to inspect the Work to identify Nonconformities, and any inspection of the Work by BC Hydro will be for the sole and exclusive benefit of BC Hydro).

8.2 Nonconformity Report Tracking System

The Contractor will establish and maintain a tracking system (the “**Nonconformity Tracking System**”) to monitor the status of all Nonconformity Reports initiated by BC Hydro and the Contractor. The Nonconformity Tracking System will:

- (a) comprise a single repository containing the Contractor and BC Hydro initiated Nonconformity Reports;
- (b) have the ability to attach supporting material such as photos and documents to a Nonconformity Report;
- (c) provide the Contractor and BC Hydro remote access by computer to the current Nonconformity Report status, dates, data and supporting material;
- (d) be traceable to actual parts, components, locations, drawings and data sheets as appropriate; and
- (e) have the date and time at which Nonconformities were identified or discovered, rectified and closed.

SUPPLY AND INSTALLATION OF TURBINES AND GENERATORS CONTRACT

APPENDIX 8-1

DESIGN QUALITY MANAGEMENT PLAN

1 DESIGN QUALITY MANAGEMENT PLAN

- 1.1 With respect to any design of the Work for which, pursuant to the Contract Documents, the Contractor is responsible, the Contractor will prepare a Quality management plan (the “**Design Quality Management Plan**”), that describes how the Contractor intends to manage and provide evidence of the design processes for such design in accordance with the ISO 9001 Standard, the Quality Management System requirements stated in the Quality Manual and the provisions of this Contract, to BC Hydro. The Contractor will submit the Design Quality Management Plan for Consent within 30 days after the Effective Date.
- 1.2 In addition to any other requirements of the Contract Documents, the Design Quality Management Plan will include:
- (a) an organizational chart identifying key design management personnel (including the Quality Manager) and the linkage with the Contractor’s overall Quality Management System as documented in the Quality Manual;
 - (b) a description of the responsibilities, qualifications, and authority of the above personnel;
 - (c) identification of the lead persons responsible for the design;
 - (d) a communication strategy relating to Quality between all members of the Contractor’s design team and BC Hydro including monthly meetings to discuss the Quality Progress Report concerning design for such month; and
 - (e) design review activities at various phases as specified in Appendix 6-1 [General Specifications (SPGS)].
- 1.3 The Design Quality Management Plan will, at a minimum, include or reference detailed Quality System procedures and process flow charts for the following processes:
- (a) design input and output review;
 - (b) design verification to ensure that design input requirements have been met;
 - (c) design validation to ensure that the final product is capable of meeting its intended use;
 - (d) design changes at all Work stages;
 - (e) External Quality Audits of Subcontractor(s) engaged in Design activities;
 - (f) Internal Quality Audits;
 - (g) Corrective Actions, Preventive Actions and opportunities for improvement;
 - (h) document management; and
 - (i) control of design documents and Quality Records.

- 1.4 The Design Quality Management Plan (and updates to the plan) will be reviewed and approved by the Quality Manager prior to submittal to BC Hydro.

SUPPLY AND INSTALLATION OF TURBINES AND GENERATORS CONTRACT

APPENDIX 8-2

SUPPLY QUALITY MANAGEMENT PLAN

1 SUPPLY QUALITY MANAGEMENT PLAN

- 1.1 The Contractor will prepare and submit a Supply and Delivery Work Quality management plan (the “**Supply Quality Management Plan**”), that describes how the Contractor intends to manage and provide objective evidence of the processes in connection with the Supply and Delivery Work activities in accordance with the ISO 9001 Standard, the Quality Management System requirements stated in the Quality Manual and the provisions of this Contract, to BC Hydro for Consent within 60 days after the Effective Date.
- 1.2 In addition to any other requirements of this Contract, the Supply Quality Management Plan will include:
- (a) an organizational chart identifying key Supply and Delivery Work quality management personnel (including the Quality Manager) and the linkage with the overall Quality Management System as documented in the Quality Manual;
 - (b) a description of the responsibilities, qualifications, and authority of the above personnel;
 - (c) a description of the organizational interfaces between the above personnel and the design and other disciplines;
 - (d) identification of all Contractors and Subcontractors engaged in Supply and Delivery Work activities;
 - (e) identification of all laboratories, inspection agencies and inspectors used by the Contractor in connection with the Supply and Delivery Work activities, including evidence of their accreditations and contact information; and
 - (f) a communications strategy relating to Quality between the Contractor, Subcontractors and BC Hydro including Manufacturing kickoff meetings and monthly meetings to discuss the Quality Progress Report concerning Supply and Delivery Work for such month.
- 1.3 The Supply Quality Management Plan will, at a minimum, include or reference detailed Quality System procedures and process flow charts for the following processes:
- (a) inspection, calibration, sampling, testing, trials and monitoring;
 - (b) materials identification and traceability;
 - (c) quality assessment of Subcontractors engaged in Supply and Delivery Work activities;
 - (d) purchasing process, information and verification;
 - (e) preservation of product (packaging, handling, shipping and storage);
 - (f) External Quality Audits of Subcontractors;
 - (g) Internal Quality Audits;

- (h) control of nonconforming products;
 - (i) Corrective Actions, Preventive Actions and opportunities for improvement;
 - (j) document management; and
 - (k) control of documents and Quality Records.
- 1.4 The Supply Quality Management Plan will also include or reference any Inspection and Test Plans detailing all inspection and test activities for the Work performed by the Contractor and Subcontractors. BC Hydro may identify Witness Points or Hold Points for any steps and BC Hydro may, in its discretion decide, or establish inspection based on criticality and Quality risks associated with the Supply and Delivery Work. A Hold Point cannot be waived unless BC Hydro has specifically waived a Hold Point in writing.
- 1.5 The Contractor will submit the inspection and test plans (the “**Inspection and Test Plans**”) for Consent. The Inspection and Test Plans will be submitted at least 30 days prior to the start of the applicable Supply and Delivery Work activities and include, at a minimum:
- (a) description of the inspection, calibration, sampling, testing, trial and monitoring activity;
 - (b) reference to specific locations, components and Subcontractors as appropriate;
 - (c) frequency of inspection, calibration, sampling, testing, trials and monitoring;
 - (d) reference to standards, codes, specifications, and acceptance criteria;
 - (e) procedures, forms and checklists required;
 - (f) reports and other Quality Records produced from inspection, calibration, sampling, testing and trials; and
 - (g) personnel responsible for inspection, calibration, sampling, testing, trial and monitoring activities.
- Complete Inspection and Test Plan records, and a certification that those records verify and confirm that the Work covered by the records has been completed in accordance with the requirements of the Contract Documents, will be retained by the Contractor in accordance with the requirements of Schedule 15 [Records].
- 1.6 The Supply Quality Management Plan will include procedures for Work for which the performance cannot be verified by subsequent monitoring or measurement.
- 1.7 The Supply Quality Management Plan (and updates to the plan) will be reviewed and approved by the Quality Manager prior to submittal to BC Hydro.

2 SUPPLY QUALITY AUDITS

- 2.1 Surveillance Quality Audits may be conducted by BC Hydro on a random basis or on specific areas of interest during the Supply and Delivery Work. The objective of surveillance Quality Audits will be to monitor the Contractor’s activities involving its work practices, workmanship and general quality of materials.
- 2.2 Hydro’s Representative may, during the performance by BC Hydro of a surveillance Quality Audit, record any observations and inform the Contractor of any deficiencies that require further evaluation and resolution.

SUPPLY AND INSTALLATION OF TURBINES AND GENERATORS CONTRACT

APPENDIX 8-3

INSTALLATION QUALITY MANAGEMENT PLAN

1 INSTALLATION QUALITY MANAGEMENT PLAN

- 1.1 The Contractor will prepare and submit an Installation Work Quality management plan (the "**Installation Quality Management Plan**"), that describes how the Contractor intends to manage and provide objective evidence of the processes in connection with the Installation Work activities in accordance with the ISO 9001 Standard, the Quality Management System requirements stated in the Quality Manual and the provisions of this Contract, to BC Hydro for Consent within 60 days after the Effective Date.
- 1.2 In addition to any other requirements of this Contract, the Installation Quality Management Plan will include:
- (a) an organizational chart identifying key Installation Work quality management personnel (including the Quality Manager) and the linkage with the overall Quality Management System as documented in the Quality Manual;
 - (b) a description of the responsibilities, qualifications, and authority of the above personnel;
 - (c) a description of the organizational interfaces between the above personnel and the design and other disciplines;
 - (d) identification of all Contractors and Subcontractors engaged in Installation Work activities;
 - (e) identification of all laboratories, inspection agencies and inspectors used by the Contractor in connection with the Installation Work activities, including evidence of their accreditations and contact information; and
 - (f) a communications strategy relating to Quality between the Contractor, Subcontractors and BC Hydro including Site kickoff meetings and monthly meetings to discuss the Quality Progress Report concerning Installation Work for such month.
- 1.3 The Installation Quality Management Plan will, at a minimum, include or reference detailed Quality System procedures and process flow charts for the following processes:
- (a) inspection, calibration, sampling, testing, trials and monitoring;
 - (b) materials identification and traceability;
 - (c) quality assessment of Subcontractors engaged in Installation Work activities;
 - (d) preservation of product (unloading, handling and storage);
 - (e) External Quality Audits of Subcontractors;
 - (f) Internal Quality Audits;
 - (g) control of nonconforming products;
 - (h) Corrective Actions, Preventive Actions and opportunities for improvement;

- (i) document management; and
- (j) control of documents and Quality Records.

1.4 The Installation Quality Management Plan will also include or reference any Inspection and Test Plans detailing all inspection and test activities for the Work performed by the Contractor and Subcontractors. BC Hydro may identify Witness Points or Hold Points for any steps and BC Hydro may, in its discretion decide, or establish inspection based on criticality and Quality risks associated with the Installation Work. A Hold Point cannot be waived unless BC Hydro has specifically waived a Hold Point in writing.

1.5 The Contractor will submit the inspection and test plans (the “**Inspection and Test Plans**”) for Consent. The Inspection and Test Plans will be submitted at least 30 days prior to the start of the applicable Installation Work activities and include, at a minimum:

- (a) description of the inspection, calibration, sampling, testing, trial and monitoring activity;
- (b) reference to specific systems, components and Subcontractors as appropriate;
- (c) frequency of inspection, calibration, sampling, testing, trials and monitoring;
- (d) reference to standards, codes, specifications, and acceptance criteria;
- (e) procedures, forms and checklists required;
- (f) reports and other Quality Records produced from inspection, calibration, sampling, testing and trials; and
- (g) personnel responsible for inspection, calibration, sampling, testing, trial and monitoring activities.

Complete Inspection and Test Plan records, and a certification that those records verify and confirm that the Work covered by the records has been completed in accordance with the requirements of the Contract Documents, will be retained by the Contractor in accordance with the requirements of Schedule 15 [Records].

1.6 The Installation Quality Management Plan will include procedures for Work for which the performance cannot be verified by subsequent monitoring or measurement.

1.7 The Installation Quality Management Plan (and updates to the plan) will be reviewed and approved by the Quality Manager prior to submittal to BC Hydro.

2 INSTALLATION QUALITY AUDITS

2.1 Surveillance Quality Audits may be conducted by BC Hydro on a random basis or on specific areas of interest during the Installation Work. The objective of surveillance Quality Audits will be to monitor the Contractor’s activities involving its work practices, workmanship and general quality of materials.

2.2 Hydro’s Representative may, during the performance by BC Hydro of a surveillance Quality Audit, record any observations and inform the Contractor of any deficiencies that require further evaluation and resolution.