

JOHN HART GENERATING STATION REPLACEMENT PROJECT

Schedule 9

Quality Management

SCHEDULE 9

QUALITY MANAGEMENT

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Appendix 9A – Quality Manual

Appendix 9B – Design Quality Management Plan

Appendix 9C – Supply Quality Management Plan

Appendix 9D – Construction Quality Management Plan

Appendix 9E – Services Quality Management Plan

Appendix 9F – Environmental Quality Management Plan

SCHEDULE 9

QUALITY MANAGEMENT

1. QUALITY MANAGEMENT SYSTEM

1.1 Quality Management System

Project Co shall develop and implement a Quality Management System in accordance with the requirements of this Schedule. Project Co acknowledges and agrees that Project Co is solely responsible for the quality of the Project Work and that a comprehensive Quality Management System is critical for the proper and timely completion of the Project Work.

1.2 Project Co Responsibilities

Project Co is responsible for all quality activities required to manage its own processes as well as those of its Project Contractors and Sub-Contractors throughout the Term. Project Co shall throughout the Term ensure that all aspects of the Project are subject to the Quality Management System, and shall comply with, and cause each of its Project Contractors and Sub-Contractors and the employees of each of them to comply with, the requirements of the Quality Management System.

1.3 Quality Management System Requirements

The Quality Management System shall, at a minimum, include the Quality Documentation described in Section 5 [*Quality Documentation*] of this Schedule and shall comply with:

- (a) the requirements and principles of the ISO 9001 Standard and any other applicable standards specified in this Schedule;
- (b) Good Utility Practice; and
- (c) all other requirements set out in this Schedule and this Agreement.

1.4 Certification

1.4.1 Not Used

1.4.2 Quality Management System Certification

- (a) Within 365 days after the Effective Date, Project Co shall obtain certification of the Quality Management System from an accredited ISO 9001 Standard certification agency, acceptable to BC Hydro acting reasonably.
- (i) Within 6 months after the Effective Date, Project Co shall submit to BC Hydro's Representative, pursuant to the Review Procedure, details of the accredited ISO 9001 Standard certification agency that Project Co proposes to use for certification of the Quality Management System.

- (ii) Project Co shall submit to BC Hydro, for information only, confirmation from the accredited ISO 9001 Standard certification agency that the Quality Management System is compliant with all applicable requirements of the ISO 9001:2008 Standard.
- (iii) Project Co shall maintain the ISO 9001 Standard certification of the Quality Management System throughout the Term.
- (b) The scope of certification for the Quality Management System shall be clearly defined and shall include Design, Supply, Construction, Services, and Handback.
- (c) The Quality Management System may be integrated with Project Co's environmental management system and occupational health and safety management system to optimize performance of business processes and realize cost benefits.

1.4.3 Specific Requirements

- (a) Each of the Major Equipment Suppliers and the Sub-Contractor responsible for the manufacture of the Unit Transformers shall be ISO 9001 certified, or shall have an equivalent third party certification, acceptable to BC Hydro pursuant to the Review Procedure.
- (b) Project Co shall update its Quality Management System and all Quality Documentation as required to ensure that the Quality Management System and all Quality Documentation is, and at all times remains, in full compliance with the ISO 9001 Standard and the requirements of this Schedule. Notwithstanding the preceding sentence, Project Co shall only be obligated to continue updating the Design Quality Management Plan, Supply Quality Management Plan and the Construction Quality Management Plan after the Total Completion Date, to the extent that the applicable Project Work requires performance of design or construction activities.

1.5 Documentation Deliverables

1.5.1 Submittal Summary

Project Co shall prepare and submit all documents and deliverables as and when required pursuant to this Schedule 9 [Quality Management], including the following:

Deliverable Name	Due Date	Section Reference	Review, Consent or Information
Quality Manual	Submitted within 90 days after the Effective Date	Appendix 9A	Consent Procedure
Design Quality Management Plan	Submitted within 90 days after the Effective Date	Appendix 9B	Consent Procedure

Deliverable Name	Due Date	Section Reference	Review, Consent or Information
Supply Quality Management Plan	Submitted within 90 days after the Effective Date	Appendix 9C	Consent Procedure
Supply Inspection and Test Plans (ITPs)	Submitted at least 30 days prior to the start of the applicable Supply work	Appendix 9C	Review Procedure
Construction Quality Management Plan	Submitted within 90 days after the Effective Date	Appendix 9D	Consent Procedure
Construction Inspection and Test Plans	Submitted at least 30 days prior to the start of the applicable Construction activities	Appendix 9D	Review Procedure
Services Quality Management Plan	Submitted at least 180 days prior to the Service Commencement Date	Appendix 9E	Consent Procedure
Environmental Quality Management Plan	Submitted within 90 days after the Effective Date	Appendix 9F	Consent Procedure
Other Quality Management Plans	Submitted within 90 days after the Effective Date	1.5.2	Consent Procedure
Quality Audit Plans	Submitted within 90 days after the Effective Date	4.1.1	Review Procedure
Quality Audit Plans Updates	Submitted at twelve month intervals after submission of the initial Quality Audit Plans	4.1.1	Review Procedure
Corrective Action Plan	Submitted within 20 Business Days of the events referred to in Section 4.3.2(d) or (e)	4.3.2	Review Procedure
Quality Management System reports (Prior to the Total Completion Date)	Submitted on or before the 15th day of the following month	5.9	Informational Submittal
Quality Management System reports (After the Total Completion Date)	Submitted annually, together with the Annual Asset Management Report	5.9	Informational Submittal
Interim Quality Management System reports	Up to weekly as required	5.9(d)	Informational Submittal

1.5.2 Quality Manual and Quality Management Plans

Within 90 days after the Effective Date, Project Co shall submit a Quality Manual, prepared in accordance with Appendix 9A [*Quality Manual*] of this Schedule, to BC Hydro's Representative in accordance with the Consent Procedure.

Within 90 days after the Effective Date, Project Co shall submit Quality Management Plans, prepared in accordance with Appendix 9B [*Design Quality Management Plan*], 9C [*Supply Quality Management Plan*], 9D [*Construction Quality Management Plan*], 9E [*Services Quality Management Plan*] and 9F [*Environmental Quality Management Plan*] of this Schedule, to BC Hydro's Representative in accordance with the Consent Procedure.

Project Co shall also prepare and submit a Quality Management Plan for any Person contracting with Project Co for the purposes of undertaking any material and substantial aspect of the Project Work, including any Project Contractor or any Material Contract Party (but excluding legal and financial advisors and lenders). Such Quality Management Plans shall be prepared and submitted to BC Hydro's Representative in accordance with the Consent Procedure within 90 days after the Effective Date, and shall address the quality management of the activities covered by that party's contract with Project Co, such Project Contractor or such Sub-Contractor (as the case may be).

All Quality Management Plans shall meet the requirements of the Quality Manual.

Each Project Contractor and Material Contract Party shall have a quality representative who shall provide reports directly to the Quality Director.

1.6 Timing of Implementation

1.6.1 Performance Measures

Project Co shall fully implement the Quality Manual and all Quality Management Plans, except the Service Quality Management Plan, within 150 days after the Effective Date. Project Co shall fully implement the Services Quality Management Plan at least 90 days prior to the Target Service Commencement Date.

1.6.2 Specific Requirements

Not Used.

1.7 Compliance with Quality Management System

Project Co shall ensure that any person who performs any portion of the Project Work shall comply with the Quality Management System, the Quality Manual and all relevant Quality Management Plans, as they relate to that portion of the Project Work.

1.8 Continuous Improvement in Quality Management System

- (a) Project Co shall implement a program and shall have mechanisms in place, such as management reviews and Quality Audit programs, to allow all identified opportunities for improvement to be recorded, tracked and implemented or closed out. Management reviews for continuous improvement shall be conducted at a minimum of yearly intervals.
- (b) The program shall be used to continually improve the effectiveness and efficiency of the Quality Management System. Improvements to the Quality Management System shall be documented and updates shall be submitted as required by Section 5.5 [*Project Co Obligation to Update*] of this Schedule.

2. QUALITY PERSONNEL

2.1 General

- (a) At all times when Project Co is performing Construction activities on Site, Project Co shall have at least one qualified person on Site having the authority to immediately stop any work or activity which is not being performed or carried out in accordance with the Project Agreement, the Final Designs and the Quality Documentation applicable thereto, or any work or activity which is being performed or carried out without an accepted Final Design and applicable Quality Documentation.

2.2 Quality Director

2.2.1 Appointment and General Responsibilities

- (a) At all times prior to the Total Completion Date, Project Co shall employ a Quality Director who shall, irrespective of such person's other responsibilities, have defined authority for ensuring the establishment and maintenance of the Quality Management System and auditing and reporting on the performance of the Quality Management System. Prior to the Total Completion Date the Quality Director shall be a full time role, with no other responsibilities. After the Total Completion Date, the Quality Director may undertake more than one Key Individual position if and to the extent only that such multiple responsibilities do not compromise the ability of such person to effectively carry out the responsibilities of each Key Individual position so undertaken.
- (b) The Quality Director shall report directly to the top level executives of Project Co. The Quality Director shall not directly report to managers responsible for the Design or Construction of the Project Work.
- (c) Prior to the Total Completion Date, the Quality Director shall:
 - (i) be a certified QMS Lead Auditor, or shall have:

- (A) experience in a similar quality management representative role for a similar project; and
 - (B) successfully completed an ISO 9001 Lead Auditor course; and
- (ii) be either:
 - (A) a Professional Engineer with a minimum of ten (10) years of relevant experience, or
 - (B) an individual with a minimum of twenty (20) years of relevant experience.
- (d) After the Total Completion Date, the Quality Director shall either have the qualifications specified in Section 2.2.1(c) [Appointment and General Responsibilities] of this Schedule or shall have direct and timely access to individuals having the qualifications specified in Section 2.2.1(c) [Appointment and General Responsibilities] of this Schedule.
- (e) The Quality Director shall be a Key Individual subject to the requirements of Section 2.3 [*Key Individuals*] of Schedule 3 [*Roles and Representatives*].

2.2.2 Specific Responsibilities

Without limiting the generality of the foregoing, the job specification and responsibilities of the Quality Director shall include the following:

- (a) developing, implementing and maintaining, and ensuring the effective operation of, the Quality Management System;
- (b) initiating management reviews, not less frequently than annually, and taking other actions necessary to ensure the effective operation and continuous improvement of the Quality Management System;
- (c) preparing Quality Audit Plans and scheduling and coordinating Internal Quality Audits and External Quality Audits of key processes with Project Co's personnel and with the Project Contractors and Sub-Contractors (including the Designer);
- (d) ensuring that all Quality Audits required under Section 4.2 [*Project Co's Quality Audits*] of this Schedule and under the Quality Documentation are conducted, and reporting the findings of such audits to BC Hydro's Representative;
- (e) having the authority to immediately stop any work or activity which is not being performed or carried out in accordance with the Project Agreement, the Final Designs and the Quality Documentation applicable thereto, or any work or activity which is being performed or carried out without an accepted Final Design and applicable Quality Documentation;

- (f) liaising with BC Hydro's Representative and acting as the primary representative for Project Co on all matters relating to quality management;
- (g) coordinating all matters and issues relating to the certification of the Quality Management System;
- (h) preparing and submitting to BC Hydro's Representative monthly Quality Management System reports;
- (i) ensuring that relevant quality records are completed as required and retained in accordance with the Quality Management System and the Records Management Protocol;
- (j) developing and implementing a program for Corrective Action and Preventive Action for Nonconformities;
- (k) Not Used;
- (l) perform, or delegate the role of Quality Manager for Construction activities after the Total Completion Date; and
- (m) carrying out any other matters which, in accordance with this Agreement, are the responsibility of the Quality Director.

2.3 Quality Manager

2.3.1 General Responsibilities

- (a) From the date specified in Section 2.3(a) [*Key Individuals*] of Schedule 3 [*Roles and Representatives*] to the Total Completion Date, Project Co shall employ a Quality Manager who shall, irrespective of such person's other responsibilities, have the responsibilities described in Section 2.3.2 [*Specific Responsibilities*] of this Schedule. Prior to the Total Completion Date the Quality Manager shall be a full time role, with no other responsibilities. After the Total Completion Date, the Quality Manager may undertake more than one Key Individual position if and to the extent only that such multiple responsibilities do not compromise the ability of such person to effectively carry out the responsibilities of each Key Individual position so undertaken.
- (b) The Quality Manager shall:
 - (i) be a Key Individual, subject to the requirements of Section 2.3 [*Key Individuals*] of Schedule 3 [*Roles and Representatives*];
 - (ii) provide reports directly or indirectly to the Quality Director; and

- (iii) not directly report to managers responsible for the Design or Construction of the Project Work.
- (c) Prior to the Total Completion Date, the Quality Manager shall have experience in a similar role on a similar successful project and successful completion of an ISO 9001 Internal Auditor course.
- (d) After the Total Completion Date, the Quality Manager shall either have the qualifications specified in Section 2.3.1(c) [*General Responsibilities*] of this Schedule or shall have direct and timely access to individuals having the qualifications specified in Section 2.3.1(c) of this Schedule.

2.3.2 Specific Responsibilities

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

- (a) developing, implementing and maintaining, and ensuring the effective operation of, the Quality Management Plans in the context of the Quality Management System;
- (b) have the authority to immediately stop any work or activity which is not being performed or carried out in accordance with the Project Agreement, the Final Designs and the Quality Documentation applicable thereto, or any work or activity which is being performed or carried out without an accepted Final Design and applicable Quality Documentation; and
- (c) manage, and if appropriate delegate, quality assurance and quality control activities as part of the Quality Management Plans for Project Work.

3. INSPECTION AND TESTING

3.1 Inspection and Testing Requirements

Where Project Co is required by this Agreement, any of the Project Requirements, the Design and Certification Procedure or any Quality Documentation to carry out any inspection, calibration, sample, test or trial, such inspection, calibration, sample, test or trial shall be carried out in accordance with the provisions of this Section 3 [*Inspection and Testing*] and the provisions of the relevant Quality Documentation.

Any reference to inspections, calibrations, samples, tests or trials by Project Co shall include inspections, calibrations, samples, tests and trials performed by any third party or independent certified laboratory or agency engaged by Project Co.

Project Co shall monitor the performance of the Project Work, including the inspections, calibrations, samples, tests, trials and all other actions required by the Quality Documentation that are performed by

Project Contractors, Sub-Contractors, agents or independent test facilities and laboratories, to ensure compliance with the requirements of this Agreement.

Project Co shall engage an independent testing laboratory to undertake all aspects of testing on samples of concrete, concrete materials and flowable mortar.

3.2 Accreditation Standards

- (a) All on and off Site inspections, calibrations, samples, tests and trials shall be carried out by agencies, personnel and laboratories that are duly accredited for the carrying out of such inspections, calibrations, samples, tests and trials.
- (b) Laboratory accreditation shall be in accordance with ISO/IEC 17025, as amended, updated or replaced from time to time, provided that, for specific activities BC Hydro's Representative may require other industry-recognized accreditation in lieu of ISO/IEC 17025, including:
 - (i) concrete, concrete materials and flowable mortar (including activities of sampling, making, storing and transport of test pieces, taking concrete cores and carrying out concrete strength, slump, air content and density tests): CSA A283, "Qualification Code for Concrete Testing Laboratories", to the appropriate category for the tests being done and a minimum of Category II in accordance with Clause 5.3 in CSA A283 and using testing procedures in accordance with the latest edition of CSA A23.1 and A23.2;
 - (ii) structural steel and welding: CSA W178.1, "Certification of Welding Inspection Organizations", to the level appropriate for the inspection being carried out;
 - (iii) Not Used;
 - (iv) protective coatings: "National Association of Corrosion Engineers", as appropriate to the work being carried out; and
 - (v) any other laboratory accreditations specifically identified in this Agreement.
- (c) Project Co may request the approval of BC Hydro's Representative to use other industry-recognized laboratory accreditations subject to the Consent Procedure, which approval shall not be unreasonably withheld or delayed if such other accreditation is applicable to the Project Work for which it is proposed and meets the intent of ISO/IEC 17025.

3.3 Notice of Inspection and Testing

Notice of all inspections, calibrations, samples, tests or trials for which there is an associated BC Hydro witness in the relevant Inspection and Test Plan and any changes to those inspections, calibrations, samples, tests or trials, shall be given to BC Hydro's Representative:

- (a) at least 2 Business Days prior to the start of the inspection, calibration, sample, test or trial for Project Work done in British Columbia,
- (b) at least 14 days prior to the start of the inspection, calibration, sample, test or trial for Project Work done in the rest of North America, and
- (c) at least 30 days prior to the start of the inspection, calibration, sample, test or trial for Project Work done outside of North America.

All access and facilities necessary for the personnel appointed by BC Hydro's Representative to witness the performance of inspections, calibrations, samples, tests and trials on the Plant shall be provided by Project Co as part of the Project Work.

3.4 Remedial Work

Project Co shall be responsible for any remedial work, including reperformance of applicable inspections, calibrations, samples, tests or trials, required as a result of any failure to pass any inspection, calibration, sample, test or trial required in accordance with this Agreement, any of the Project Requirements, the Design and Certification Procedure or any Quality Documentation or as a result of any laboratory not being duly accredited as required by Section 3.2 [*Accreditation Standards*] of this Schedule.

Test pieces which represent rejected material shall be retained and preserved by Project Co, when requested by BC Hydro's Representative, for a period of time to be mutually agreed upon between BC Hydro's representative and Project Co.

3.5 Test Records and Reports

All inspections, calibrations, samples, tests and trials shall be documented and such documentation shall be considered a Quality Record.

Unless otherwise agreed by BC Hydro in writing, all inspection, calibration, sample, test and trial records and reports, and additional relevant documentation, shall be available to BC Hydro upon request and shall be retained in accordance with the Records Management Protocol and the requirements of Schedule 20 [*Records and Reports*].

Without limiting the documentation requirements of this Agreement, the applicable standards and the Quality Documentation, all inspection, calibration, sample, test and trial records shall include the following:

- (a) traceability to the item tested;
- (b) traceability of the test equipment used;
- (c) specific identification of the relevant work and components if unrelated work is included in the inspection, calibration, sample, test or trial documentation;
- (d) actual results of the applicable inspection, calibration, sample, test or trial;

- (e) remarks regarding conformance with this Agreement;
- (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 and contact details of the person (e.g., QA Manager, engineer of record) who verified and approved the measurements; and
- (i) contact information of the Project Contractor or Sub-Contractor responsible for the applicable inspection, calibration, sample, test or trial, to be included on the applicable inspection, calibration, sample, test or trial report / letterhead.

4. QUALITY AUDITS AND MONITORING

4.1 Quality Audit Plans

4.1.1 Performance Measures

Not later than 90 days after the Effective Date, Project Co shall submit the Quality Audit Plans to BC Hydro's Representative in accordance with the Review Procedure. Project Co shall submit updated Quality Audit Plans to BC Hydro's Representative, in accordance with the Review Procedure, at 12 month intervals thereafter.

Project Co shall provide the following advance notice to BC Hydro's Representative prior to the start of any Quality Audit, or any change to the planned date for a Quality Audit:

- (a) at least 2 Business Days for Quality Audits performed in British Columbia;
- (b) at least 14 days for Quality Audits performed in the rest of North America; and
- (c) at least 30 days for Quality Audits performed outside of North America.

The notice shall describe the scope and objectives of the applicable Quality Audit.

4.1.2 Specific Requirements

Quality Audit Plans shall detail the Internal Quality Audits and the External Quality Audits that shall be conducted by Project Co on its own processes and those of its Project Contractors and Sub-Contractors, and the planned dates of such Quality Audits.

4.2 Project Co's Quality Audits

4.2.1 General

Project Co shall conduct Internal Quality Audits and External Quality Audits of its own processes and those of its Project Contractors and Sub-Contractors in accordance with the requirements of this

Schedule, the Quality Documentation and the Quality Audit Plans referred to therein. Project Co's quality auditing process shall identify Nonconformities, necessary Corrective Actions and Preventive Actions and facilitate continuous improvement.

4.2.2 Performance Measures

Within 14 days after completion of any Quality Audit, Project Co shall document, or cause to be documented, the results of such Quality Audit in an audit report and make such report available to BC Hydro's Representative upon request.

4.2.3 Specific Requirements

- (a) The Quality Director shall schedule Internal Quality Audits and External Quality Audits to ensure that all key processes are reviewed regularly (at least annually).
- (b) Where necessary, follow-up Quality Audits shall be scheduled to ensure that identified Corrective Actions and Preventive Actions are carried out in a timely fashion.
- (c) Internal Quality Audits and External Quality Audits shall be scheduled taking into account the status and importance of the processes being audited as well as the results of previous Quality Audits.
- (d) Internal Quality Audits and External Quality Audits shall be scheduled taking into account the duration of the work to ensure that each Sub-Contractor is subject to at least one Quality Audit.

4.3 BC Hydro's Quality Audits

4.3.1 General

BC Hydro's Representative may, pursuant to the submission of the Quality Documentation in accordance with this Schedule, review the Quality Documentation 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.

Project Co shall provide and shall ensure its Project Contractors and Sub-Contractors provide BC Hydro's auditors with all documentation, records, access, facilities and assistance for the safety and convenience of BC Hydro's Representative.

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

4.3.2 Types of Quality Audits

The following three types of Quality Audits may be conducted by, or on behalf of, BC Hydro in its discretion:

- (a) Factory Evaluation Audits – Scheduled or unscheduled factory audits conducted on a random basis or on specific areas of interest throughout the Term. The objective of these factory evaluation audits is to evaluate the performance of the Supply activities by the applicable Project Co Persons, including their experience, capacity, quality systems and performance on similar works;
- (b) Surveillance Quality Audits – Scheduled or unscheduled field audits (including Site and any location where activities comprising the Project Work occur) conducted on a random basis or on specific areas of interest throughout the Term. The objective of these surveillance audits is to evaluate the performance of the Construction activities by the applicable Project Co Persons, including workmanship, performance measures, general quality of materials and environmental issues; and
- (c) Quality Management System Audits – Scheduled audits conducted at specific times to assess the performance of and compliance with the Quality Management System. The audits shall generally follow the guidelines for quality management systems auditing defined by ISO 19011, with any changes as agreed by BC Hydro and Project Co. At the audit closing meeting with Project Co, BC Hydro's lead auditor shall discuss the observations and inform Project Co of any observed Nonconformities and audit recommendations.

Within 20 Business Days after:

- (d) the closing meeting referred to in Section 4.3.2(c) [Types of Quality Audits] of this Schedule; or
- (e) receipt of notice of any observed Nonconformities or audit recommendations in the case of a Quality Audit referred to in Section 4.3.2(a) or 4.3.2(b) [Types of Quality Audits] of this Schedule.

Project Co shall prepare a Corrective Action Plan and submit it to BC Hydro's Representative pursuant to the Review Procedure.

BC Hydro reserves the right to conduct follow up reviews on reasonable, but not less than one Business Day's, notice to Project Co, to determine if Project Co's Corrective Action Plan has been implemented and completed.

Additional information relating to BC Hydro's Quality Audits with respect to particular Quality Management Plans is identified in the Appendices to this Schedule.

4.4 BC Hydro Monitoring

In addition to carrying out any scheduled and unscheduled Quality Audits of the Quality Management System (including compliance with all Quality Documentation) as provided in Section 4.3 [BC Hydro's Quality Audits] of this Schedule, BC Hydro's Representative may, at its discretion, monitor and verify the operation of the Quality Management System by, inter alia, carrying out spot checks and making

independent inspections and tests of the Site or any Plant, equipment, material, tools, supplies or other items provided in connection with those, including any areas of the Site or Plant or material which fails any test or is suspected by BC Hydro's Representative of not complying with the requirements of this Agreement.

4.5 Deficient Quality Audits

If either:

- (a) BC Hydro's Representative reasonably believes that Project Co is failing to conduct Quality Audits of its Quality Management System as required by this Agreement in any material respect or if such Quality Audits are not conducted in accordance with the ISO 9001 Standard by personnel competent to conduct such Quality Audits; or
- (b) any auditing, monitoring or spot checks of the Quality Management Systems reveal material deficiencies in the Quality Management System or the implementation thereof,

BC Hydro's Representative may carry out increased levels of Quality Audits (whether in number, duration or detail) of all or any aspect of the Quality Management System until such time as BC Hydro's Representative is reasonably satisfied that none of the circumstances described in this Section continue to exist.

4.6 Costs of Audits

If BC Hydro's Representative carries out any audit pursuant to Section 4.3 [*BC Hydro's Quality Audits*], Section 4.4 [*BC Hydro Monitoring*] or Section 4.5 [*Deficient Quality Audits*] of this Schedule, and the results of such audit shows any material Nonconformity in respect of the Project Work, then without limiting any other rights and remedies of BC Hydro, Project Co shall compensate BC Hydro for all costs incurred in carrying out such audit (including the relevant administrative expenses of BC Hydro, including an appropriate sum in respect of general staff costs and overheads). Otherwise, Project Co shall not be required to compensate BC Hydro for other audits carried out by BC Hydro's Representative pursuant to Section 4.3 [*BC Hydro's Quality Audits*], Section 4.4 [*BC Hydro Monitoring*] or Section 4.5 [*Deficient Quality Audits*] of this Schedule.

4.7 Third Party Audits

Third party Quality Audits shall be conducted as required under the ISO 9001 Standard on the Quality Management System by an accredited certification agency acceptable to BC Hydro and Project Co, each acting reasonably, and these audit reports shall be a Quality Record and shall be made available to BC Hydro's Representative upon request. Project Co shall provide prompt written notice to BC Hydro when a third party Quality Audit report is received by Project Co.

5. QUALITY DOCUMENTATION

5.1 Principles

The minimum requirements and principles which apply to the Quality Documentation are set out in Appendices 9A to 9F, inclusive to this Schedule. The Quality Management System shall also comply with the requirements and principles of the ISO 9001 Standard, this Schedule, and the principles of the ISO 9004 Standard, including:

- (a) customer focus;
- (b) leadership;
- (c) involvement of people;
- (d) process approach;
- (e) system approach to management;
- (f) continual improvement;
- (g) factual approach to decision making; and
- (h) mutually beneficial Sub-Contractor relationships.

5.2 ISO Reference Documents

Without limiting the requirement of the Quality Management System to comply with the ISO 9001 Standard, the Quality Management System shall also incorporate the requirements of the following:

- (a) ISO 9004 Standard;
- (b) ISO 9000 Standard;
- (c) ISO 19011 Standard; and
- (d) ISO 10005 Standard.

5.3 Quality Documentation Requirements

The minimum documentation requirements for the Quality Management System are:

- (a) the Quality Manual as required pursuant to Section 1.5.2 [*Quality Manual and Quality Management Plans*] of this Schedule;
- (b) Quality Management Plans for all aspects of the Project Work as required pursuant to Section 1.5.2 [*Quality Manual and Quality Management Plans*] of this Schedule;

- (c) that the following are included in each Quality Management Plan:
 - (i) quality system procedures and process flow charts documenting who does the work, what they do, and what evidence shall be generated that they have done the work correctly on quality related activities;
 - (ii) the Quality Audit Plans required pursuant to Section 4.1 [*Quality Audit Plans*] of this Schedule; and
- (d) the Quality Records required pursuant to Section 5.8 [*Quality Records*] of this Schedule.

5.4 Submission of Quality Documentation

- (a) Project Co shall prepare and submit all required Quality Documentation to BC Hydro's Representative in accordance with the Consent Procedure or the Review Procedure, as the case may be in accordance with Section 1.5 [*Documentation Deliverables*] of this Schedule.
- (b) If any Quality Documentation relies on or incorporates any quality manual, plan, procedure or like document then such quality manual, plan, procedure or other document or the relevant parts thereof shall (unless BC Hydro's Representative otherwise agrees) be submitted to BC Hydro's Representative at the time that the relevant Quality Documentation or part thereof or change, addition or revision to the Quality Documentation is submitted in accordance with the Consent Procedure or the Review Procedure, as the case may be, and the contents of such quality manual, plan, procedure or other document shall be taken into account in the consideration of the relevant Quality Documentation or part thereof or change, addition or revision to the Quality Documentation in accordance with the Consent Procedure or the Review Procedure, as the case may be. BC Hydro's Representative may require the amendment of any such quality manual, plan, procedure or other document to the extent necessary to enable the relevant Quality Documentation to satisfy the requirements of this Schedule.

5.5 Project Co Obligation to Update

Project Co shall be responsible for proactively updating its Quality Management System and all Quality Documentation from time to time, in accordance with the procedures set forth in this Agreement, to ensure that the Quality Management System and all Quality Documentation are, and at all times remain, in full compliance with the ISO 9001 Standard and the requirements of this Agreement.

5.6 Changes to Quality Documentation

- (a) Prior to implementation of any update to the Quality Management System or any Quality Documentation, Project Co shall submit the proposed amendments to BC Hydro's Representative in accordance with the Review Procedure.

- (b) Without limiting the generality of Section 5.6(a) [Changes to Quality Documentation] of this Schedule, Project Co shall from time to time submit to BC Hydro's Representative in accordance with the Review Procedure any modifications to any of the Quality Documentation required for such Quality Documentation to continue to reflect and comply with the requirements set out in this Schedule.
- (c) If Project Co does not propose any modifications required pursuant to Section 5.6(b) of this Schedule, then BC Hydro may propose such modifications and such modifications shall be dealt with in accordance with the Review Procedure as though they had been proposed by Project Co and shall not therefore be treated as a Change. Any dispute between the parties in respect of any such modifications shall be resolved in accordance with the Dispute Resolution Procedure.

5.7 Amendment of Quality Documentation

If there is no unresolved objection by BC Hydro's Representative under the Consent Procedure or the Review Procedure, as the case may be, to a part of the Quality Documentation pursuant to Section 5.4 [Submission of Quality Documentation] of this Schedule or to a modification, addition or revision proposed pursuant to Section 5.6 [Changes to Quality Documentation] of this Schedule, then the Quality Documentation shall be amended to incorporate such part, modification, addition or revision.

5.8 Quality Records

- (a) Project Co shall establish and maintain complete and accurate quality management records (the "**Quality Records**"). Project Co shall ensure that a complete set of Quality Records are maintained in accordance with the Records Management Protocol and the requirements of Schedule 20 [Records and Reports].
- (b) The Quality Records shall provide objective evidence of conformance with all requirements of this Agreement, compliance with the ISO 9001 Standard and the effective operation of the Quality Management System.
- (c) Each Quality Record shall be traceable to the actual components of the Project Work to which it applies.

5.9 Quality Management System Reports

- (a) For each month of the Term, Project Co shall prepare and submit to BC Hydro's Representative by the day specified in Table 1.5.1 of this Schedule, a comprehensive Quality Management System report for information only.
- (b) Each Quality Management System report shall 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.

- (c) The Quality Management System reports shall, as a minimum, include the following information separately identified for the Quality Manual and for each Quality Management Plan:
- (i) a Nonconformity Report log summarizing the Nonconformity Tracking System, highlighting any Nonconformities that have exceeded the required opening date, and planned rectification or closing dates, and providing the following: “open date”, “rectification date”, “closed date”, “status” (open, rectification, closed), “correction” (repair, rework, reject) and “description” which describes the Nonconformity Report, and how it was closed;
 - (ii) Not Used.
 - (iii) Corrective Action and Preventive Action logs providing details of the Corrective Actions and Preventive Actions performed to date and their close-out status;
 - (iv) a summary of any inspection, calibration, sample, test or trial activities conducted, including identification and review status of all related inspection and testing plans;
 - (v) for Project Work prior to the Total Completion Date:
 - (A) a summary of monitoring of independent test and inspection facilities;
 - (B) a summary of Inspection and Test Plans for inspections, calibrations, samples, tests or trials scheduled for the upcoming month, including identification of locations, equipment to be inspected, calibrated, sampled, tested or trialed, internal and external inspection and testing agencies and QC personnel; and
 - (C) any completed Inspection and Test Plans, shipping releases, and certifications;
 - (vi) Internal Quality Audits and External Quality Audits including any third party Quality Audits performed;
 - (vii) a four month look-ahead schedule for planned future Quality Audits;
 - (viii) any continual improvement initiatives taken;
 - (ix) any other information required to be included in the Quality Management System reports pursuant to any of the Appendices to this Schedule or the terms of the relevant Quality Management Plan; and
 - (x) any changes made to the Quality Management System or the Quality Documentation in compliance with the provisions of this Agreement.

- (d) BC Hydro may require interim Quality Management System reports containing information in the monthly Quality Management System reports, to address specific areas of concern, for information only, including:
 - (i) Interim reports covering the Nonconformity Tracking System which may be increased to a weekly frequency; and
 - (ii) Interim reports covering inspection, calibration, sample, test or trial activities which may be increased to a weekly frequency, if repeated or critical Nonconformities, or deficient audits have occurred.

5.10 Additional Information

Notwithstanding any other provision of this Schedule, Project Co shall provide BC Hydro's Representative with such information as BC Hydro's Representative may request from time to time to demonstrate compliance with this Schedule.

6. NONCONFORMITIES

6.1 Nonconformity Reporting Process

6.1.1 Performance Measures

- (a) Upon discovery of a Nonconformity, Project Co shall enter a Nonconformity Report into the Nonconformity Tracking System within two Business Days of the discovery.
- (b) Project Co shall finalize a Proposed Plan within the time identified in the applicable Nonconformity Report included in the Nonconformity Tracking System.
- (c) Project Co shall verify implementation of the Final Plan within the time identified in the applicable Nonconformity Report included in the Nonconformity Tracking System.
- (d) Project Co shall reasonably identify and report all Nonconformities.
- (e) Project Co shall implement effective corrective and preventive actions as identified in Quality Management Plans to prevent recurrences of Nonconformities.

6.1.2 Specific Requirements

The Nonconformity reporting (NCR) process, from initial creation through to closeout, is as follows:

- (a) Upon discovery of a Nonconformity, Project Co shall enter a Nonconformity Report into the Nonconformity Tracking System (including at least the information required in Section 6.4(a), (b) and (c)) [*Nonconformity Records*] of this Schedule, within two Business Days of the discovery. All Non-Performance Events shall be identified in the Nonconformity Tracking System.

- (b) If at any time BC Hydro becomes aware of a Nonconformity, BC Hydro's Representative may issue a Nonconformity Report, without prejudice to any other right or remedy available to BC Hydro.
- (c) The Quality Director shall be responsible for:
 - (i) ensuring that the Nonconformity Report is assigned a reference number with the status 'open' within 2 Business Days of it being entered into the Nonconformity Tracking System, including the 'open date', the time for finalizing the Proposed Plan and completing the Final Plan;
 - (ii) developing or obtaining a proposed plan for correction and corrective action (if any action is required) including the timing and scope of the correction and corrective action (the "**Proposed Plan**").
 - (iii) reviewing any plans or processes that relate to the Nonconformity (including if applicable the Quality Management Plan) and, if the Quality Director identifies any amendments or changes that need to be made to such plans, entering a Nonconformity Report (or comparable corrective or preventive action report) with respect to such in accordance with Section 6.1.2(a) [Specific Requirements] of this Schedule;
 - (iv) finalizing the Proposed Plan, including if applicable obtaining the consent of individuals responsible for certifying completion of the relevant Project Work (including the engineer of record and Environmental Director), and including the timing and scope of the correction and corrective action (the "**Final Plan**"), at which point the Nonconformity Report shall be assigned the status 'rectification', and the 'rectification date' recorded;
 - (v) documenting and verifying the implementation of the Final Plan and final rectification of the Nonconformity, including if applicable the consent of the individuals responsible for certifying completion of the relevant Project Work;
 - (vi) assigning the Nonconformity Report with the status 'closed' and recording the 'closed date'.
- (d) If BC Hydro issues the Nonconformity Report under Section 6.1.2(b) [Specific Requirements] of this Schedule, and acting reasonably, considers that Project Co ought to have identified and reported the occurrence of the Nonconformity before BC Hydro did so:
 - (i) the Final Plan may be subject to the Review Procedure;
 - (ii) BC Hydro may assign an NPE point in respect of the Nonconformity, and;

- (iii) BC Hydro shall have the right to mandate a maximum time period for developing the Final Plan in Section 6.1.2(c)(i) of this Schedule, and/or a maximum time period for correction and corrective action in respect of the Nonconformity in Section 6.1.2(c)(ii) and (iv) of this Schedule.
- (e) Any Final Plan, or portion thereof, that requires changes to any document that would otherwise be the subject to the Review Procedure or the Consent Procedure (or other review procedures) shall remain subject to all such procedures. In addition, BC Hydro may in its discretion require any Final Plan to be subject to the Review Procedure;
- (f) Notwithstanding anything else to the contrary, Project Co shall not be entitled to proceed with any portion of the Project Work until a Nonconformity Report that is related to or forms part of such portion of the Project Work is assigned the status 'closed' in accordance with Section 6.1.2(c)(vi) of this Schedule, unless the individuals responsible for certifying completion of all related Project Work including relevant engineers of record permit such in writing.
- (g) A representative of the Service Provider must receive a copy of the Final Plan prior to or on the rectification date.

Nonconformities related to Design and Construction shall be rectified prior to the Total Completion Date. Nonconformities related to Services shall be rectified prior to the End of Term.

6.2 Nonconformity Report Tracking System

Within 90 days after the Effective Date, Project Co shall fully implement, and shall maintain throughout the Term, a Nonconformity Tracking System to monitor the status of all Nonconformity Reports initiated by BC Hydro and Project Co. The Nonconformity Tracking System shall be fully operational and shall:

- (a) comprise a single repository containing both Project Co 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 remote access by computer to the current Nonconformity Report status, dates, data and supporting material to both Project Co and BC Hydro;
- (d) include links to corrective and preventive actions related to the Nonconformity Reports;
- (e) Not Used.
- (f) have the ability to identify Nonconformities that have an associated Environmental Incident Report (as identified in Schedule 8 [*Environmental Obligations*]), and have a communication interface with the Environmental Incident Reporting system;

- (g) produce summary reports for delivery to BC Hydro's Representative of Nonconformity Reports, NPE Points and Default Points accrued within each performance threshold category in any given month, and the total NPE Points and Default Points accrued across all performance threshold categories in any given month; and
- (h) produce ad hoc summary reports as required for delivery to BC Hydro's Representative to discuss any Design, Supply, Construction or Services issues.

6.3 Unremedied Nonconformity

BC Hydro's Representative may issue further Nonconformity Reports if a Nonconformity identified in a Nonconformity Report continues unremedied, and may assign Default Points in respect of such unremedied Nonconformity pursuant to Section 12.4 [*Assignment of Default Points*] of Schedule 13 [*Performance and Payment Mechanisms*].

6.4 Nonconformity Records

In addition to the maintenance of the Nonconformity Tracking System under Section 6.2 [*Nonconformity Report Tracking System*] of this Schedule, Project Co shall maintain records of:

- (a) each Nonconformity (shall be traceable to actual parts, components, locations, drawings and data sheets as appropriate);
- (b) the reference numbers of all Nonconformity Reports;
- (c) a description of all Nonconformity Reports;
- (d) the proposed actions by Project Co to rectify each Nonconformity;
- (e) the date and time at which Nonconformities were identified or discovered;
- (f) the date and time at which Nonconformities were entered into the Nonconformity Tracking System ('opened date');
- (g) the due date for finalizing the Proposed Plan ('rectification date') and the due date for rectifying the Nonconformity ('closed date');
- (h) the date and time at which Nonconformity correction plans were finalized by Project Co ('rectification date'); and
- (i) the date and time at which a Nonconformity specified in a Nonconformity Report was rectified ('closed date').

APPENDIX 9A
QUALITY MANUAL

1.0 QUALITY MANUAL

- 1.1 Project Co shall prepare and submit a comprehensive Quality Manual, that describes the Quality Management System for all aspects of the Project Work including the Design, Supply, Construction and the Services phases of the Project, to BC Hydro in accordance with the Consent Procedure within 90 days after the Effective Date. The Quality Manual shall establish the Quality Policy and Quality Objectives for all aspects of the Project Work and, in accordance with the requirements of the ISO 9001 Standard, shall describe the processes that shall be established, implemented, controlled, and continually improved to achieve the established Quality Objectives.
- 1.2 The Quality Objectives shall be measurable, consistent with the Quality Policy and linked to meeting the needs and performance expectations of BC Hydro in respect of the Project. The Quality Management System described in the Quality Manual shall include all the activities required to achieve these Quality Objectives, including project controls such as scope, cost, schedule and general document control management activities. All of these activities shall be subject to Internal Quality Audits and External Quality Audits.
- 1.3 The Quality Manual shall describe the nature of Project Co's organization involved in performing the Project Work and how key management activities (such as project controls; Design; Supply; Construction; Services; environment; safety) shall interface with each other. The Quality Manual shall also provide the organization chart, authority and responsibilities of all key personnel.
- 1.4 The Quality Manual shall show how the various levels of Quality Management System documentation are linked together.
- 1.5 The Quality Manual shall clearly define the reporting function and authority of Project Co's Quality Director who shall liaise with BC Hydro's Representative and act as the single point representative of Project Co for all matters relating to quality management.
- 1.6 The Quality Manual (and updates to the manual in accordance with Section 5.6 [*Changes to Quality Documentation*] of this Schedule) shall be reviewed and approved by the Quality Director and Project Co's Representative prior to submittal to BC Hydro.

APPENDIX 9B

DESIGN QUALITY MANAGEMENT PLAN

1.0 DESIGN QUALITY MANAGEMENT PLAN

- 1.1 Project Co shall prepare and submit a comprehensive Design Quality Management Plan, that describes how Project Co intends to manage the design processes for the Project in accordance with the ISO 9001 Standard, the Quality Management System requirements stated in the Quality Manual and the provisions of this Agreement, to BC Hydro in accordance with the Consent Procedure within 90 days after the Effective Date.
- 1.2 In addition to any other requirements of this Agreement, the Design Quality Management Plan shall include:
- (a) an organizational chart identifying key design management personnel (including the Quality Manager) and the linkage with the Quality Director for Project Co'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) a description of the organizational interfaces between the above personnel and all other engineering groups including supply, construction, services and environmental disciplines;
 - (d) identification of the Designer, all Design Team members and all related Project Contractors and Sub-Contractors; and
 - (e) evidence of compliance with the APEGBC Quality Management guidelines.
- 1.3 The Design Quality Management Plan shall, 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 project stages (Design, Construction, Services);
 - (e) resident engineering services (support of supply, construction, commissioning and Services technical issues);
 - (f) review of detail design (eg. fabricator/contractor supplied shop drawings, data sheets, test procedures, test reports);

- (g) Design Sub-Contractor quality assessment and procurement;
- (h) External Quality Audits of Project Contractors and Sub-Contractor(s) engaged in Design activities;
- (i) Internal Quality Audits;
- (j) Corrective Actions, Preventive Actions and opportunities for improvement;
- (k) document management; and
- (l) control of Quality Records.

These procedures and flow charts shall document who does the work, what they do, and what evidence is generated that they have done the work correctly.

- 1.4 The Design Quality Management Plan (and updates to the plan in accordance with Section 5.6 [*Changes to Quality Documentation*] of this Schedule) shall be reviewed and approved by the Quality Manager prior to submittal to BC Hydro.

APPENDIX 9C

SUPPLY QUALITY MANAGEMENT PLAN

1.0 SUPPLY QUALITY MANAGEMENT PLAN

- 1.1 Project Co shall prepare and submit a comprehensive Supply Quality Management Plan, that describes how Project Co intends to manage the processes in connection with the Supply activities in accordance with the ISO 9001 Standard, the Quality Management System requirements stated in the Quality Manual and the provisions of this Agreement, to BC Hydro in accordance with the Consent Procedure within 90 days after the Effective Date.
- 1.2 In addition to any other requirements of this Agreement, the Supply Quality Management Plan shall include:
- (a) an organizational chart identifying key supply quality management personnel (including the Quality Manager) and the linkage with the Quality Director for Project Co'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) a description of the organizational interfaces between the above personnel and the design and other disciplines;
 - (d) identification of all Project Contractors and Sub-Contractors engaged in Supply activities; and
 - (e) identification of laboratories, inspection agencies and inspectors used by Project Co in connection with Supply activities, including evidence of their accreditations and contact information.
- 1.3 The Supply Quality Management Plan shall, 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 Project Contractors and Sub-Contractors engaged in Supply activities;
 - (d) purchasing process, information and verification;
 - (e) preservation of product (packaging, handling, shipping and storage);
 - (f) External Quality Audits of Project Contractors and Sub-Contractors engaged in Supply

activities;

- (g) Internal Quality Audits;
- (h) control of nonconforming product;
- (i) Corrective Actions, Preventive Actions and opportunities for improvement;
- (j) document management; and
- (k) control of Quality Records.

These procedures and flow charts shall document who does the work, what they do, and what evidence is generated that they have done the work correctly.

These procedures and flow charts shall address differences in geographic locations of supplied processes and products, and differences in quality management systems of suppliers. Project Co shall clearly define the type and extent of controls for outsourced or sub-contracted processes and products in regions outside of North America and Europe, particularly if the outsourced or sub-contracted processes and products are supplied by non-ISO 9001 certified Project Contractors or Sub-Contractors.

1.4 The Supply Quality Management Plan shall also include or reference an Inspection and Test Plan detailing all Project inspection, calibration, sample, test and trial activities for work performed by Project Co and that of its Project Contractors and Sub-Contractors. The Inspection and Test Plan shall be submitted to BC Hydro in accordance with the Review Procedure. Inspection and Test Plans are not required for equipment and products which are mass-produced, are available from normal inventory from a manufacturer, or for which type tests or other standard manufacturer's tests and certifications acceptable to the Designer are obtained and verified by Project Co. The Inspection and Test Plan shall be submitted at least 30 days prior to the start of the applicable Supply work and shall include, at a minimum:

- (a) description of the inspection, calibration, sampling, testing, trial and monitoring activity;
- (b) reference to specific locations, components, Project Contractors and Sub-Contractors 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;
- (g) personnel responsible for inspection, calibration, sampling, testing, trial and monitoring

activities; and

- (h) BC Hydro Witness (including identification of Project Co and BC Hydro attendance). BC Hydro may add BC Hydro Witness Points during review of the Inspection and Test Plans.

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 Project Agreement, shall be retained by Project Co in accordance with the Records Management Protocol and the requirements of Schedule 20 *[Records and Reports]*.

1.5 At a minimum, the following BC Hydro Witness Points shall be included in the applicable Inspection and Test Plans:

- (a) Final Turbine Model Tests;
- (b) hydraulic model physical test;
- (c) homology testing on the prototype runner;
- (d) shop assembly test of the distributors;
- (e) generator transformer pre-tank and core testing; and
- (f) generator high voltage testing.

1.6 The Supply Quality Management Plan (and updates to the plan in accordance with Section 5.6 *[Changes to Quality Documentation]* of this Schedule) shall be reviewed and approved by the Quality Manager prior to submittal to BC Hydro.

2.0 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 Supply. The objective of these surveillance audits is to monitor Project Co's activities involving its work practices, workmanship and general quality of materials.

2.2 BC Hydro's Representative may, during the performance by BC Hydro of Surveillance Quality Audits, record any observations and inform Project Co of any deficiencies that require further evaluation and resolution. Failure to resolve deficiencies to the reasonable satisfaction of BC Hydro's Representative may be considered a Nonconformity.

APPENDIX 9D

CONSTRUCTION QUALITY MANAGEMENT PLAN

1.0 CONSTRUCTION QUALITY MANAGEMENT PLAN

- 1.1 Project Co shall prepare and submit a comprehensive Construction Quality Management Plan, that describes how Project Co intends to manage the processes in connection with the Construction activities in accordance with the ISO 9001 Standard, the Quality Management System requirements stated in the Quality Manual and the provisions of this Agreement, to BC Hydro in accordance with the Consent Procedure within 90 days after the Effective Date.
- 1.2 In addition to any other requirements of this Agreement, the Construction Quality Management Plan shall include:
- (a) an organizational chart identifying key Construction quality management personnel (including the Quality Manager and a quality control manager) and the linkage with the Quality Director for Project Co'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) a description of the organizational interfaces between the above personnel and the design and other disciplines;
 - (d) identification of all Project Contractors and Sub-Contractors engaged in Construction activities; and
 - (e) identification of all laboratories, inspection agencies and inspectors used by Project Co in connection with the Construction activities, including evidence of their accreditations and contact information.
- 1.3 The Construction Quality Management Plan shall, at a minimum, include or reference detailed quality system procedures and process flow charts for the following processes:
- (a) construction safety audits;
 - (b) traffic management audits;
 - (c) inspection, calibration, sampling, testing, trials and monitoring;
 - (d) materials identification and traceability;
 - (e) Project Contractors' and Sub-Contractors' quality assessment and procurement;
 - (f) External Quality Audits of Project Contractors and Sub-Contractors engaged in

- Construction activities;
- (g) Internal Quality Audits;
- (h) control of nonconforming product;
- (i) Corrective Actions, Preventive Actions and opportunities for improvement;
- (j) document management; and
- (k) control of Quality Records.

These procedures and flow charts shall document who does the work, what they do, and what evidence is generated that they have done the work correctly.

1.4 The Construction Quality Management Plan shall also include or reference an Inspection and Test Plan detailing all Project Site inspection and test activities for work performed by Project Co and that of its Project Contractors and Sub-Contractors. The Inspection and Test Plan shall be submitted to BC Hydro in accordance with the Review Procedure. The Inspection and Test Plan shall be completed at least 30 days prior to the start of the applicable Construction activities and include, at a minimum:

- (a) description of the inspection, calibration, sampling, testing, trial and monitoring activity;
- (b) reference to specific locations, components, Project Contractors and Sub-Contractors 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;
- (g) personnel responsible for inspection, calibration, sampling, testing, trial and monitoring activities; and
- (h) BC Hydro Witness Points (including identification of Project Co and BC Hydro attendance) BC Hydro may add BC Hydro Witness Points during review of the Inspection and Test Plans.

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 Project Agreement, shall be retained by Project Co in accordance with the Records Management Protocol and

the requirements of Schedule 20 *[Records and Reports]*.

- 1.5 At a minimum, the following BC Hydro Witness Points shall be included in the applicable Inspection and Test Plans:
- (a) Power Tunnel acceptance testing;
 - (b) pressure testing of each spiral case;
 - (c) Penstock and steel liner in situ pressure tests (if any); and
 - (d) all testing of the flow split around First Island required pursuant to Section 3.4-3.5D and 3.4-3.5E *[Flow Split around First Island]* of Schedule 6 *[Design and Construction Specifications]*
- 1.6 The Construction Quality Management Plan (and updates to the plan in accordance with Section 5.6 *[Changes to Quality Documentation]* of this Schedule) shall be reviewed and approved by the Quality Manager prior to submittal to BC Hydro.

2.0 CONSTRUCTION QUALITY AUDITS

- 2.1 Surveillance Quality Audits may be conducted by BC Hydro on a random basis or on specific areas of interest during Construction. The objective of these surveillance audits is to monitor Project Co's activities involving its work practices, workmanship and general quality of materials.
- 2.2 BC Hydro's Representative may, during the performance by BC Hydro of Surveillance Quality Audits, record any observations and inform Project Co of any deficiencies that require further evaluation and resolution. Failure to resolve deficiencies to the reasonable satisfaction of BC Hydro's Representative may be considered a Nonconformity.

APPENDIX 9E

SERVICES QUALITY MANAGEMENT PLAN

1.0 SERVICES QUALITY MANAGEMENT PLAN

- 1.1 Project Co shall prepare and submit a comprehensive Services Quality Management Plan, that describes how Project Co intends to monitor and measure the Services activities in connection with the Project in accordance with the ISO 9001 Standard, the Quality Management System requirements stated in the Quality Manual and the provisions of this Agreement, to BC Hydro in accordance with the Consent Procedure at least 180 days prior to the Target Service Commencement Date. The Services Quality Management Plan shall be aligned with all relevant Performance Measures and define Project Co's approach to achieving compliance with the requirements of this Agreement relating to the Services activities.
- 1.2 In addition to any other requirements of this Agreement, the Services Quality Management Plan shall contain:
- (a) an organizational chart identifying key Services personnel (including the Quality Manager) and the relationship with the Quality Director for Project Co's Quality Management System as documented in the Quality Manual;
 - (b) a description of the responsibilities, qualifications, and authority of the above personnel; and
 - (c) a description of the organizational interfaces between the Services and other disciplines such as design, construction, supply, safety and environmental management.
- 1.3 Project Co shall develop documented quality system procedures and process flow charts to ensure that all performance specifications and requirements in this Agreement in respect of Services are met or exceeded. These procedures and flow charts shall document who does the work, what they do, and what evidence is generated that they have done the work correctly.
- 1.4 Not Used.
- 1.5 The Services Quality Management Plan shall be reviewed by Project Co at a minimum on a yearly basis.

2.0 SERVICES AUDITS

- 2.1 Surveillance Quality Audits may be conducted by BC Hydro on a random basis or on specific areas of interest during Services. The objective of these surveillance audits is to monitor Project Co's activities involving its work practices, workmanship and general quality of materials.
- 2.2 BC Hydro's Representative may, during the performance by BC Hydro of Surveillance Quality Audits, inform Project Co of any deficiencies that require further evaluation and resolution. Failure

to resolve deficiencies to the reasonable satisfaction of BC Hydro's Representative may be considered a Nonconformity.

APPENDIX 9F

ENVIRONMENTAL QUALITY MANAGEMENT PLAN

1.0 ENVIRONMENTAL QUALITY MANAGEMENT PLAN

- 1.1 Project Co shall prepare and submit a comprehensive Environmental Quality Management Plan, that describes how Project Co intends to monitor performance of Project Co's Environmental Obligations in connection with the Project in accordance the Quality Management System requirements stated in the Quality Manual and the provisions of this Agreement, to BC Hydro in accordance with the Consent Procedure within 90 days after the Effective Date. The Environmental Quality Management Plan shall be aligned with all relevant Performance Measures and define Project Co's approach to achieving compliance with the requirements of this Agreement relating to Project Co's Environmental Obligations, including the Environmental Management Plan.
- 1.2 In addition to any other requirements of this Agreement, the Environmental Quality Management Plan shall contain:
- (a) an organizational chart identifying key environmental management personnel and the relationship with the Quality Director 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 environmental management and other disciplines such as design, construction, and services;
 - (d) a description of how environmental Nonconformities will be addressed using the Nonconformity Tracking System, and the interfaces between the Nonconformity Tracking System and the Environmental Incident Reporting system.
- 1.3 Project Co shall develop documented quality system procedures and process flow charts to ensure that all performance specifications and requirements in this Agreement in respect of Project Co's Environmental Obligations are met or exceeded. The Environmental Quality Management Plan shall, at a minimum, include or reference detailed quality system procedures and process flow charts for the following processes:
- (a) obtaining and maintaining Permits;
 - (b) environmental monitoring and reporting;
 - (c) environmental incident reporting and tracking;
 - (d) External Quality Audits of Project Contractors and Sub-Contractors;
 - (e) Internal Quality Audits;

- (f) control of nonconforming products and services;
- (g) Corrective Actions, Preventive Actions and opportunities for improvement;
- (h) document management; and
- (i) control of Quality Records.

These procedures and flow charts shall document who does the work, what they do, and what evidence is generated that they have done the work correctly.

1.4 Not Used.

1.5 The Environmental Quality Management Plan shall be reviewed by Project Co at a minimum on a yearly basis.

1.6 The Environmental Quality Management Plan (and updates to the plan in accordance with Section 5.6 [*Changes to Quality Documentation*] of this Schedule) shall be reviewed and approved by the Environmental Director prior to submittal to BC Hydro.

2.0 ENVIRONMENTAL AUDITS

2.1 Surveillance Quality Audits may be conducted by BC Hydro on a random basis or on specific areas of interest during the Work. The objective of these surveillance audits is to monitor Project Co's activities involving its environmental management practices.

2.2 BC Hydro's Representative may, during the performance by BC Hydro of Surveillance Quality Audits, inform Project Co of any deficiencies that require further evaluation and resolution. Failure to resolve deficiencies to the reasonable satisfaction of BC Hydro's Representative may be considered a Nonconformity