



**Offset Project Verification Report  
Taylor Gas Processing Ltd Partnership  
Acid Gas Injection Project**

**Prepared for:**

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**For Submission to:**

Alberta Environment  
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Stantec Project Number: 110218323

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## **1.0 Statement of Verification**

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Stantec Consulting Ltd. (Stantec) was contracted by CP Energy Marketing LP (Capital Power) to conduct an independent third-party verification of the Taylor Gas Processing Ltd. Operating Partnership (Taylor Gas) greenhouse gas (GHG) assertion provided in the Offset Project Report (project report), dated February 24, 2011.

### **1.1 INTENDED USER**

This verification has been prepared for Alberta Environment (AENV) for the express purpose of facilitating the creation of Emissions Reduction Credits (ERCs) under the *Climate Change and Emissions Management Act* and the *Specified Gas Emitters Regulation (SGER)*. Stantec disclaims liability for use by any other party and for any other purpose.

### **1.2 VERIFICATION OBJECTIVE**

The objective of the verification is to identify key assertions, data sources, methods and procedures pertinent to the project report, and to assess conformity with the *Climate Change Emissions Management Act*, the *SGER* and the relevant guidance issued by AENV.

The verification process assesses whether the assertion of reported GHG reductions is materially correct and a fair representation, in accordance with AENV approved Quantification Protocol for Protocol for *Acid Gas Injection, Version 1.0, May 2008* and the *SGER*.

### **1.3 PROJECT DETAILS**

#### **1.3.1 Location**

The Taylor Gas Acid Gas Injection Project (the project) is located near Turin, Alberta. The GHG project boundary encompasses geographical site of the sour gas plant and the equipment for the acid gas disposal process.

#### **1.3.2 Description**

The project results in a reduction of direct, specified GHG emissions at the acid gas injection facility through the geological sequestration of CO<sub>2</sub> contained in the acid gas stream and by the reduction of fossil fuel used to treat sulphur emissions. The acid gas, containing primarily CO<sub>2</sub> and H<sub>2</sub>S, is compressed and transported approximately 1.5 kilometers from the Taylor Gas facility via underground pipeline into the Taylor Gas Acid Gas Injection well 00/03-25-012-19W4/0.

This project uses the Acid Gas Protocol and is eligible to become a recognized GHG offset project under the Specified Gas Emitters Regulation. Stantec verified the reported GHG

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emission offsets to be sold for credits for 2009 and is currently verifying the reported 2010 offsets.

These emission reductions are accomplished in compliance with Section 7(1) of the *SGER*, and are therefore eligible to become recognized offsets.

**1.3.3 Key dates**

The project started in 2004 and has an expected project lifetime of 8 years. The crediting period, which is the subject of this verification, is January 1, 2010 to December 31, 2010.

**1.4 GHG ASSERTION**

The fundamental assertion in the project report is that the project generated 71,674 tCO<sub>2</sub>e in ERCs during January 1, 2010 to December 31, 2010.

**1.5 CRITERIA**

The purpose of the verification was to assess whether the GHG Assertion, the project plan and the offset project report satisfy the standards and guidelines as prescribed in the following documents:

- *Technical Guidance for Offset Project Developers (January 2011, V.2.0);*
- *Climate Change and Emissions Management Act, S.A. 2003, c. C-16.7;*
- *The SGER;*
- *Offset Credit Verification Guidance Document (Sept. 2007, V.1); and,*
- *The SGER Quantification Protocol for Quantification Protocol for Acid Gas Injection, (May 2008, V 1.0).*

**1.6 VERIFICATION STANDARDS**

The verification was conducted in accordance with *ISO 14064 Part 3 – Greenhouse Gases: Specification with Guidance for the Validation and Verification of Greenhouse Gas Assertions (ISO 14064-3)* and the AENV verification guidance contained within the *Technical Guidance for Offset Project Developers* and the *Offset Credit Verification Guidance Document*.

**1.7 UNRESOLVED DISCREPANCIES**

The AENV has set its materiality threshold to 5% of the total reported GHG emission reductions or removals asserted. Qualitative discrepancies are at the discretion of the lead verifier.

Several discrepancies were identified by Stantec during the course of the verification. These were resolved in the course of the verification process.

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**1.8 CONCLUSION**

Based on the analysis described in this report, nothing has come to our attention that causes us to believe that the Taylor Gas Acid Gas Injection Project Report (dated February 2011) and Taylor Gas's ERC Assertion, of 71,674 tCO<sub>2</sub>e in ERCs during January 1, 2010 to December 31, 2010 for the Taylor Gas Acid Gas Injection Project, is not presented fairly and in accordance with the relevant criteria.

The findings presented herein were used to make a "limited level" of assurance and should not be considered at the higher level of "reasonable" assurance as defined by AENV Guidance Documents.

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## 2.0 Verification Report

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This verification report provides information in support of the verification statement provided in Section 1 of this document. It is intended to be read in conjunction with the verification statement and is not a 'stand alone' report.

### 2.1 ROLES AND RESPONSIBILITIES

Stantec was contracted by Capital Power to verify the Taylor Gas GHG assertion. AltaGas Ltd. (AltaGas) is the owner and administrator acting on behalf of Taylor Gas. Taylor Gas is the project proponent, Blue Source is responsible for the quantification of the GHG assertion and Capital Power is the intended buyer of the ERCs. Contact information is provided on the title page of this report.

The Stantec verification team is listed in Table 1 below with the roles and responsibilities. Appendix A contains the Statement of Qualifications for the team.

**Table 1  
Verification Team**

<b>Name</b>	<b>Role</b>	<b>Responsibilities</b>
Michael Murphy, PhD, P.Eng.	Senior Review	Review verification deliverables for adherence to ISO 14064-3 and regulatory compliance as well as technical soundness
Joe Harriman, PhD, P.Chem.	Peer Review	Review verification deliverables for consistency with Stantec templates, adherence to ISO 14064-3, AENV compliance and technical soundness
Shan Pletcher P.Eng., MBA, MEng.	Lead Verifier	Lead and delegate verification duties. Signing Authority on verification documents
Wally Qiu, B.Sc., P.Chem.	Verifier	Assist with the data review activities and the site visit

### 2.2 VERIFICATION APPROACH AND PROCEDURES

The Stantec verification team reviewed, recalculated, and re-aggregated data where deemed necessary, and reviewed the calculation methodologies for consistency with the requirements of AENV. In addition, the verification team reviewed the supporting documentation and records for each of the reductions quantified and the production metrics, including production records, invoices from suppliers, facility metering data, calibration records, certifications, the project report, and the project plan. The operational procedures and quality management procedures applied to the data streams were also reviewed.

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For each key parameter, the specific verification procedures followed and the subsequent results are summarized in Table 3 (overleaf).

Upon completion of the tasks described above, Stantec summarized the initial findings and completed an internal peer review and quality management assessment of our work in this verification report and forwarded it to Capital Power, Blue Source and AltaGas. This provided Blue Source and AltaGas with the opportunity to present any additional or clarifying information to address any outstanding discrepancies prior to the finalization of this verification report.

In Table 2, the verification activities and the timing of these activities over the course of the verification are presented.

**Table 2  
Verification Activities and Schedule**

<b>Verification Activity</b>	<b>Responsible Party</b>	<b>Initial Date Scheduled</b>	<b>Date Actual</b>
1. Kick-off Call with Client	Stantec/Client	Nov. 2, 2010	Nov. 9, 2010
2. Receive Client Documentation	Client	Nov. 12, 2010 and Jan. 28, 2011	Dec. 1, 2010 and Feb. 8-14, 2011
3. Initial Desktop Review	Stantec	Nov. 12, 2010	Dec. 2-6, 2010
4. Internal Desktop Assessment Review	Stantec	Nov. 22 - 26, 2010 and Jan. 31 – Feb. 4, 2011	Dec. 7, 2010 and Feb. 16 -19, 2011
5. Provide Verification Plan to Client (including additional data requests)	Stantec	Nov. 19, 2010	Dec. 7, 2010 Jan. 31, 2011
6. Site Visit	Stantec/Client	Nov. 24, 2010	Dec. 8, 2010
7. Internal Site Visit Follow-up	Stantec	Nov. 24, 2010	Dec. 22, 2011
8. Draft Verification Report	Stantec	Feb.14, 2011	Feb. 23, 2011
9. Address Follow-up Items	Stantec/Client	Feb. 18, 2011	Feb. 23-24, 2011
10. Finalize Verification Report, SOQ, SOV, COI form	Stantec	Feb. 24, 2011	Feb. 25, 2011
11. Close out Meeting – Conference Call	Stantec/Client	Feb. 25, 2011	Feb. 28, 2011

**2.2.1 Site Visit**

A site visit was conducted as part of the verification process in accordance with the requirements of AENV. A list of required information was made available to the facility prior to

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the site visit. This was done to ensure that the appropriate data and personnel were available to help complete the task efficiently and with least possible inconvenience to the facility.

The site visit was conducted by Lead Verifier, Shan Pletcher and Verifier, Wally Qiu on December 8, 2011 at the Taylor Gas sour gas processing facility near Turin, Alberta. The following employees or consultants were interviewed included:

- Derek Jensen, Operations Manager, Taylor Gas Processing LP;
- Jon Remmer, P.Eng., Commercial Engineer, AltaGas Ltd.;
- Nicole Howson, Operations Engineer, AltaGas Ltd.; and
- Kendra Sakaguchi, B.Eng., Project Analyst, Blue Source Canada.

The Sampling Plan included in the Verification Plan (Appendix C) includes a review of Taylor Gas records and comparisons of site data to spreadsheets provided by Blue Source for the verification program. Interviews with several staff members were conducted to assess procedures for various aspects of project operations, data management, data storage and transfer. Activities associated with operations, record keeping, meter data management and emissions sources were reviewed to confirm consistency with the Offset Project Plans, and to better understand the scope of the acid gas injection projects for the 2010 calendar year. The site boundaries were also evaluated by the verifiers to confirm that there have been no physical changes from the baseline period that would affect the boundary for the project plan. The verifiers confirmed the emission reductions included in the report and looked for additional sources that were not included in the project plan.

**Table 3  
Verification Procedures and Results**

<b>Parameter</b>	<b>Procedure</b>	<b>Result</b>
Boundaries, Methodology and Emission Factors	Discussed the facility boundaries. Reviewed the calculation methodology and the emission factors versus the baseline period and the original application. Reviewed the project plan and project report	The defined facility boundary and emission factors are consistent with the defined boundary and baseline.  The project plan and project report align with the boundaries identified in the project quantification and guidance protocols with the exception of parameter variables density of CO <sub>2</sub> and density of CH <sub>4</sub> .



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Parameter	Procedure	Result
Project Eligibility	Reviewed the project plan and project report	<p>Nothing has come to our attention that causes us to believe that this project does not meet project offset eligibility requirements:</p> <ul style="list-style-type: none"> <li>• Emission reductions and removals generated after January 01, 2002.</li> <li>• Emission reductions and removals generated, in Alberta within the credit duration period.</li> <li>• Emission reductions and removals real, demonstrable and quantifiable.</li> <li>• Establishment of ownership of emission reductions and removals.</li> <li>• Emission reductions and removals not required by law.</li> <li>• Emission reductions and removals counted once, only.</li> <li>• Emission reductions and removals verified by a qualified third party.</li> </ul>
Negligible emissions	No project emissions sources were deemed negligible	Negligible emissions were not identified in the Offset Project Plan. No negligible emissions were brought to our attention during the site visit.
Total emissions reduction credits	Data for emissions and reductions were reviewed	All sources, various units and emission factors/credit coefficients appear to be reasonable for the project.
Quality Assurance /Quality Control	Reviewed quality assurance and quality control practices	<p>QA/QC procedures have been identified within the offset project plan.</p> <ul style="list-style-type: none"> <li>• The Taylor Gas data management system consists of manual and metered data capture and reporting with the use of circular charts to record data, and manual entry of monthly total or average values into a Quantification Calculator developed by Blue Source. Meters are maintained and calibrated every 6 months with an accuracy rating of +/- 0.25%.</li> <li>• Manual checking of the offset calculation tool is conducted by Blue Source and includes reconciliation of values in the calculator with hard copy records or electronic data; comparison with other time periods (historical trending); and a recalculation of selected values to ensure that the quantification calculator remains accurate.</li> </ul>

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<b>Parameter</b>	<b>Procedure</b>	<b>Result</b>
General Procedures	Reviewed management of GHG information system and records retention control	Acid gas concentrations were continuously monitored and averaged by a gas chromatograph. The mole fractions of H <sub>2</sub> S and CO <sub>2</sub> were averaged on a monthly basis while the mole fraction of CH <sub>4</sub> was averaged daily and tabulated in an excel file to determine the monthly average CH <sub>4</sub> molar concentration. These values were entered into the quantification calculator. The acid gas injected into the reservoir was measured by inline flow meters while the other parameters are metered continuously via chart recorders. The charts are inventoried by a Taylor Gas administrator, sent to a 3 <sup>rd</sup> party for digitizing. The Gas Volume Statements are entered into the Production Accounting System (ProMet) and are used for S-30 Reports as well as the calculator. Electronic data from ProMet can be downloaded as needed in excel format. Hard copy and electronic data used in the quantification of offsets is stored for a minimum of 7 years.

### **3.0 Closure**

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Stantec has undertaken all assignments in its role as an environmental consulting firm using professional effort consistent with the Technical Guidance for Offset Project Developers (January 2011, Ver. 2.0) and the Offset Credit Verification Guidance Document (Alberta Environment, September 2007). Stantec has assessed the GHG assertion for the Taylor Gas Processing Acid Gas Injection Project using reasonably ascertainable information, as defined by ISO 14064-3, obtained from a review of operational and regulatory records and available literature and documents.

The assessment represents the conditions in the subject area at the time of the assessment. Stantec did not conduct direct GHG emissions monitoring or other environmental sampling and analysis in conjunction with this verification.

Because of the inherent limitations in any internal control structure it is possible that fraud, error, or non-compliance with other laws and regulations may occur and not be detected. Further, the verification was not designed to detect all weaknesses or errors in internal controls as the verification has not been performed continuously throughout the period and the procedures performed on the relevant internal controls were on a test basis. Any projection of the evaluation of control procedures to future periods is subject to the risk that the procedures may become inadequate because of changes in conditions, or that the degree of compliance with them may deteriorate.

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This report, entitled, "Offset Project Verification Report, Taylor Gas Processing Acid Gas Injection Project, January 1, 2010 to December 31, 2010" was produced by:

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This report has undergone a thorough senior review and was peer reviewed by and approved for transmittal to client:

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## **Statement of Qualifications**

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### **A.1 STATEMENT OF COMPLIANCE WITH THE SGER**

Shan Pletcher is a professional engineer registered by the Association of Professional Engineers, Geologists and Geophysicists of Alberta. Shan Pletcher was the signing authority for the report thus satisfying section 18(a)(ii)(A) of the SGER. With respect to the technical knowledge required under 18(b)(i-iii), each member of the team has the required technical knowledge of GHG emission quantification methodologies and all have experience in completing third party GHG verifications, please refer to the team cameos below for details.

### **A.2 TEAM QUALIFICATION AND EXPERIENCE**

#### **Michael Murphy, PhD, P.Eng. – Senior Review**

Dr. Mike Murphy, P.Eng., is a Senior Principal of Stantec working in the Atmospheric Environment Group. Dr. Murphy holds a PhD in Chemical Engineering, specializing in energy analyses, fluid modeling and boiling heat transfer. With more than 23 years of experience in Canada, USA and international, he has conducted air quality and engineering studies on emissions inventories of air pollutants (including acid gases) and greenhouse gases, source emissions testing, dispersion modeling, ambient air quality, noise, odour, climate analysis, flow profiling, indoor air quality, and environmental assessments. Dr. Murphy has worked on the largest natural gas and liquids treatment plant in the world in the State of Qatar, in the Middle East. He has conducted air quality studies for the shipping industry in Atlantic Canada (Saint John Port Authority), N.B. Power, Irving Oil Limited, and in British Columbia (Vancouver Port Authority). Dr. Murphy has managed several large projects on the management of greenhouse gas emissions in the hydroelectric power generation sector, including the development of a full carbon model of the proposed facilities.

#### **Joe Harriman, PhD, PChem. - Peer Reviewer**

Dr. Harriman is the Team Leader of Stantec's Atmospheric Environment team based in Saint John, NB. He is responsible for managing air quality, acoustics and climate components environmental baseline assessments, environmental assessments and environmental planning and permitting. In addition, Dr. Harriman is a Project Manager with substantial experience and background knowledge in the energy sector with respect to air quality and GHG emissions. Dr. Harriman had the primary responsibility for Jacques Whitford Stantec's suite of Carbon and Air Pollutant emission calculation and tracking Toolkits. He has been the project manager and technical lead on the development of numerous greenhouse gas (GHG) emission inventories for industrial, corporate, municipal and government clients.

## **Stantec**

### **OFFSET PROJECT VERIFICATION REPORT TAYLOR GAS PROCESSING ACID GAS INJECTION PROJECT JANUARY 1, 2010 – DECEMBER 31, 2010**

Dr. Harriman has been the technical lead in more than 50 GHG projects within the past 12 months. Dr. Harriman, on behalf of Stantec, is an instructor for the CSA to deliver the ISO 14064 GHG series of courses including Inventories (ISO 14064-1), Projects (ISO 14064-2) and Validations/Verifications (14064-3). Dr. Harriman is a registered Professional Chemist in the Province of Alberta and has the responsibility at Stantec for ensuring the quality of the verification and acting as peer reviewer in accordance with ISO14065. This designation is reserved for select individuals with the appropriate experience in GHG inventories and projects.

Dr. Harriman is currently the Regional Discipline Leader for Climate Services at Stantec in Canada East (Ontario to Atlantic regions). He has substantial knowledge in developing technologies for renewable energy production and has been involved in considerable green energy assessments including wind, solar and tidal projects. In addition, Dr. Harriman has a strong background and relationship various utilities in the energy generation sector. As such, Dr. Harriman has been involved with various aspects of generation policy and regulation for Stantec clients.

#### **Shan Pletcher P.Eng., MBA, MEng. - Lead Verifier**

Ms. Pletcher is an experienced project manager and GHG engineer with Stantec and has a business background in Natural Resources and Energy. She has been specializing in GHG services for several years and has worked on an array of diverse projects during her 15 year career as an engineer and project manager and in the oil and gas, mining, and pipeline sectors. Her GHG work has included GHG inventory development, protocol reviews, verification audits, and various aspects of project and protocol development. She has performed lead verification duties for facilities reporting under the Specified Gas Emitters Regulation in Alberta, including pulp mills, power generation stations, a petrochemicals plant, a coal mine and biomass and acid gas injection and low/no-till aggregation projects. Currently, Shan is in the application process for GHG Professional Certification through ECO Canada and CECAB.

#### **Wally Qiu, B.Sc., P.Chem. - Verifier**

Mr. Qiu is an Air Quality Specialist with Stantec Edmonton, Wally Qiu has provided expertise and assistance regarding emissions estimates/calculations for air quality assessments and regulatory reporting. His emissions quantification experience includes calculations and reporting for the National Pollutant Release Inventory (NPRI), Canadian Association of Petroleum Producers (CAPP) Stewardship, and various air dispersion modelling assessments. Wally has been involved with air quality assessments in various sectors, including oil & gas, chemical/polymers, power generation, agriculture/fertilizer, pulp and paper, and manufacturing. He has completed the Canadian Standards Association (CSA) Greenhouse Gas (GHG) Verification ISO 14064-3 course, and has knowledge of assurance methodologies and ISO 14064 principles. Wally has verification experience in various sectors, including pulp and paper, upstream gas, and power generation.

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February 25, 2011



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**Conflict of Interest Checklist**

Question	Yes	No	Specifics
<p>1. Can the verifying organization or the verification team members directly benefit from a financial interest in the Project Developer or the Project Developer's Project?</p> <p>For example:</p> <ul style="list-style-type: none"> <li>• Owning shares of the Project Developer;</li> <li>• Having a close business relationship with the Project Developer;</li> <li>• Contingent fees relating to the results of the engagement;</li> <li>• Potential employment with the Project Developer; or</li> <li>• Undue concern about the possibility of losing the verification or other fees from the Project Developer.</li> </ul>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
<p>2. Can the verifying organization or verification team members be in a position of assessing their own work?</p> <p>For example:</p> <ul style="list-style-type: none"> <li>• Provided greenhouse gas consultation services to the project;</li> <li>• Provided validation for the project</li> <li>• If providing non-greenhouse gas work for the company, consideration needs to be given as to how potential and perceived conflict of interests can be managed.</li> <li>• A member of the verification team was previously employed with the company</li> </ul>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
<p>3. Does the verifying organization or a member of the verification team, or a person in the chain of command for the verification, promote or be perceived to promote, a project developer's position or opinion to the point that objectivity may, or may be perceived to be, compromised?</p> <p>For example:</p> <ul style="list-style-type: none"> <li>• Dealing in, or being a promoter of, greenhouse gas credits on behalf of a project developer; or</li> <li>• Acting as an advocate on behalf of the project developer in litigation or in resolving disputes with third parties.</li> </ul>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
<p>4. Is one or more of the verification team too sympathetic to the project developer's interests by virtue of a close relationship with a project developer, its directors, officer or employees?</p> <p>For example:</p> <ul style="list-style-type: none"> <li>• A person on the verification team has a close personal relationship with a person who is in a senior greenhouse gas compilation role at the project developer; or</li> <li>• The verification team or a person of influence on the verification team has accepted significant gifts or hospitality from the project developer.</li> </ul>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
<p>5. Is a member of the verification team or a person in the chain of command is deterred from acting objectively and exercising professional skepticism by threats, actual or perceived, from the directors, officers or employees of the Project Developer.</p> <p>For example:</p> <ul style="list-style-type: none"> <li>• The threat of being replaced as a third party verifier due to a disagreement with the application of an greenhouse gas quantification protocol;</li> <li>• Fees from the project developer represent a large percentage of the overall revenues of the verifying organization.</li> <li>• The application of pressure to inappropriately reduce the extent of work performed in order to reduce or limit fees; or</li> <li>• Threats of litigation from the project developer.</li> </ul>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	



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February 25, 2011



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**APPENDIX A**  
**STATEMENT OF QUALIFICATION**

## **Statement of Qualifications**

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### **A.1 STATEMENT OF COMPLIANCE WITH THE SGER**

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## **Stantec**

### **OFFSET PROJECT VERIFICATION REPORT TAYLOR GAS PROCESSING ACID GAS INJECTION PROJECT JANUARY 1, 2010 – DECEMBER 31, 2010**

Dr. Harriman has been the technical lead in more than 50 GHG projects within the past 12 months. Dr. Harriman, on behalf of Stantec, is an instructor for the CSA to deliver the ISO 14064 GHG series of courses including Inventories (ISO 14064-1), Projects (ISO 14064-2) and Validations/Verifications (14064-3). Dr. Harriman is a registered Professional Chemist in the Province of Alberta and has the responsibility at Stantec for ensuring the quality of the verification and acting as peer reviewer in accordance with ISO14065. This designation is reserved for select individuals with the appropriate experience in GHG inventories and projects.

Dr. Harriman is currently the Regional Discipline Leader for Climate Services at Stantec in Canada East (Ontario to Atlantic regions). He has substantial knowledge in developing technologies for renewable energy production and has been involved in considerable green energy assessments including wind, solar and tidal projects. In addition, Dr. Harriman has a strong background and relationship various utilities in the energy generation sector. As such, Dr. Harriman has been involved with various aspects of generation policy and regulation for Stantec clients.

#### **Shan Pletcher P.Eng., MBA, MEng. - Lead Verifier**

Ms. Pletcher is an experienced project manager and GHG engineer with Stantec and has a business background in Natural Resources and Energy. She has been specializing in GHG services for several years and has worked on an array of diverse projects during her 15 year career as an engineer and project manager and in the oil and gas, mining, and pipeline sectors. Her GHG work has included GHG inventory development, protocol reviews, verification audits, and various aspects of project and protocol development. She has performed lead verification duties for facilities reporting under the Specified Gas Emitters Regulation in Alberta, including pulp mills, power generation stations, a petrochemicals plant, a coal mine and biomass and acid gas injection and low/no-till aggregation projects. Currently, Shan is in the application process for GHG Professional Certification through ECO Canada and CECAB.

#### **Wally Qiu, B.Sc., P.Chem. - Verifier**

Mr. Qiu is an Air Quality Specialist with Stantec Edmonton, Wally Qiu has provided expertise and assistance regarding emissions estimates/calculations for air quality assessments and regulatory reporting. His emissions quantification experience includes calculations and reporting for the National Pollutant Release Inventory (NPRI), Canadian Association of Petroleum Producers (CAPP) Stewardship, and various air dispersion modelling assessments. Wally has been involved with air quality assessments in various sectors, including oil & gas, chemical/polymers, power generation, agriculture/fertilizer, pulp and paper, and manufacturing. He has completed the Canadian Standards Association (CSA) Greenhouse Gas (GHG) Verification ISO 14064-3 course, and has knowledge of assurance methodologies and ISO 14064 principles. Wally has verification experience in various sectors, including pulp and paper, upstream gas, and power generation.

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**FFSET PROJECT VERIFICATION REPORT  
TAYLOR GAS PROCESSING ACID GAS INJECTION PROJECT  
JANUARY 1, 2010 – DECEMBER 31, 2010**

**STANTEC CONSULTING LTD.**

February 25, 2011



Shan Pletcher, P.Eng, MBA

Lead Verifier

Phone: (780) 917-7237

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[Shan.Pletcher@stantec.com](mailto:Shan.Pletcher@stantec.com)

**APPENDIX B**  
**CONFLICT OF INTEREST CHECKLIST**

**OFFSET PROJECT VERIFICATION REPORT  
TAYLOR GAS PROCESSING ACID GAS INJECTION PROJECT  
JANUARY 1, 2010 – DECEMBER 31, 2010**

**Conflict of Interest Checklist**

Question	Yes	No	Specifics
<p>1. Can the verifying organization or the verification team members directly benefit from a financial interest in the Project Developer or the Project Developer's Project?</p> <p>For example:</p> <ul style="list-style-type: none"> <li>Owning shares of the Project Developer;</li> <li>Having a close business relationship with the Project Developer;</li> <li>Contingent fees relating to the results of the engagement;</li> <li>Potential employment with the Project Developer; or</li> <li>Undue concern about the possibility of losing the verification or other fees from the Project Developer.</li> </ul>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
<p>2. Can the verifying organization or verification team members be in a position of assessing their own work?</p> <p>For example:</p> <ul style="list-style-type: none"> <li>Provided greenhouse gas consultation services to the project;</li> <li>Provided validation for the project</li> <li>If providing non-greenhouse gas work for the company, consideration needs to be given as to how potential and perceived conflict of interests can be managed.</li> <li>A member of the verification team was previously employed with the company</li> </ul>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
<p>3. Does the verifying organization or a member of the verification team, or a person in the chain of command for the verification, promote or be perceived to promote, a project developer's position or opinion to the point that objectivity may, or may be perceived to be, compromised?</p> <p>For example:</p> <ul style="list-style-type: none"> <li>Dealing in, or being a promoter of, greenhouse gas credits on behalf of a project developer; or</li> <li>Acting as an advocate on behalf of the project developer in litigation or in resolving disputes with third parties.</li> </ul>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
<p>4. Is one or more of the verification team too sympathetic to the project developer's interests by virtue of a close relationship with a project developer, its directors, officer or employees?</p> <p>For example:</p> <ul style="list-style-type: none"> <li>A person on the verification team has a close personal relationship with a person who is in a senior greenhouse gas compilation role at the project developer; or</li> <li>The verification team or a person of influence on the verification team has accepted significant gifts or hospitality from the project developer.</li> </ul>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
<p>5. Is a member of the verification team or a person in the chain of command is deterred from acting objectively and exercising professional skepticism by threats, actual or perceived, from the directors, officers or employees of the Project Developer.</p> <p>For example:</p> <ul style="list-style-type: none"> <li>The threat of being replaced as a third party verifier due to a disagreement with the application of an greenhouse gas quantification protocol;</li> <li>Fees from the project developer represent a large percentage of the overall revenues of the verifying organization.</li> <li>The application of pressure to inappropriately reduce the extent of work performed in order to reduce or limit fees; or</li> <li>Threats of litigation from the project developer.</li> </ul>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

**Stantec**

**OFFSET PROJECT VERIFICATION REPORT  
TAYLOR GAS PROCESSING ACID GAS INJECTION PROJECT  
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**STANTEC CONSULTING LTD**

February 25, 2011



Shan Pletcher, P.Eng, MBA

Lead Verifier

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[Shan.Pletcher@stantec.com](mailto:Shan.Pletcher@stantec.com)



# **APPENDIX C VERIFICATION PLAN**



Stantec Consulting Ltd.  
10160 - 112 Street  
Edmonton AB T5K 2L6  
Tel: (780) 917-7000

**Stantec**

December 7, 2010  
File: 110218309

**VIA EMAIL – rlevesque@capitalpower.com**

CP Energy Marketing LP  
8th floor, 505 2 Street SW  
Calgary, Alberta  
T2P 1N8

Dear: Ms. Levesque

**Reference: VERIFICATION PLAN FOR THE TAYLOR GAS ACID GAS INJECTION CARBON OFFSET PROJECT**

Stantec Consulting Ltd. (Stantec) has completed the initial desktop review of the information provided by CP Energy Marketing LP (Capital Power) for the Taylor Gas Acid Gas Injection (AGI) facility. The project is under the Specified Gas Emitters Regulation Offset Credit Project Guidance Document and Quantification Protocol for Acid Gas Injection.

In this Verification Plan, the technical terms of the engagement and the potential verification procedures for the Taylor AGI facility are presented for your consideration.

## **1 VERIFICATION OBJECTIVES**

The purpose of the Verification Plan is to identify key assertions, data sources, methods, and procedures pertinent to AENV's Quantification Protocol for Acid Gas Injection (Version 1, May 2008). The objective of the Verification Plan is to facilitate the assessment of the completeness, conservativeness, consistency, accuracy, and transparency of the Taylor Gas Offset Project information and to assess whether the GHG assertion in the Notice of Creation is presented fairly and is substantiated by sufficient and appropriate evidence.

### **1.1 LEVEL OF ASSURANCE**

The verification has been planned and will be conducted to express a limited level of assurance opinion as required by Alberta Environment Offset Credit Verification Guidance Document for Emission Reduction Credits.

### **1.2 VERIFICATION CRITERIA**

The verification will be performed in accordance with the requirements and criteria prescribed in the following documents:

- *Climate Change Emissions Management Act, S.A. 2003, c. C-16.7;*
- *Specified Gas Emitters Regulation (SGER);*
- Alberta Environment: Offset Quantification Protocol for Acid Gas Injection (May 2008, V1); and
- Alberta Environment. Offset Credit Project Guidance Document (February 2008, V1.2).

**Reference: VERIFICATION PLAN FOR THE TAYLOR GAS ACID GAS INJECTION CARBON OFFSET PROJECT**

### **1.3 VERIFICATION STANDARDS**

The verification will be performed in accordance with:

- ISO 14064 Part 3 – Greenhouse Gases: Specification with guidance for the validation and verification of greenhouse gas assertions; and
- Offset Credit Verification Guidance Document (Sep., 2007 V1).

## **2 RISK ASSESSMENT**

Overall risk assessment is a procedure conducted by the Stantec verification team that is based on an assessment of inherent risk, control risk, and detection risk. The overall risk has been assessed as medium. The rationale for this assessment is as follows:

Inherent Risk: is the risk of error due to the complexity of the facility or the lack of capacity by staff at the facility. We regard this risk as **medium** due to the fact that:

- The use of an Alberta Environment Quantification Protocol;
- The Turin sour gas plant operation process is similar to other sour gas plants in Alberta;
- Data collection is both manual and automated;
- Acid gas injection can be considered a moderately complex process.

Control risk: is the risk that the proponent's control system will not detect and rectify a discrepancy. We regard this risk as **medium** due to:

- Data control consists of manually recorded data, metered data capture, circular charts to record gas flow, and manual entry of monthly total or averages into the GHG calculator;
- Quantification of the natural gas volume used is determined manually and measured using orifice meters. The GHG quantification calculation utilizes manually entered monthly totals and averages;
- QA/QC procedures consist of metering maintenance and calibration, manual reconciliation of data entered into the GHG quantification calculator, with the GHG calculations done and reviewed by a third-party consultant.

Detection risk is the risk that Stantec will not identify a material discrepancy. We regard this risk as **low** due to:

- **Our quality management procedures.** We are committed to providing exceptional service to our clients in accordance with our ISO9001 accreditation. We believe that quality is a basic principle and that quality management is an integral part of all our work. We take systematic approach to quality management to ensure compliance with requirements and to achieve continual improvement. The cornerstone of our quality management system is an entrenched process of Senior Review which ensures all our deliverables have been vetted by the most senior and expert people in our firm.



**Reference: VERIFICATION PLAN FOR THE TAYLOR GAS ACID GAS INJECTION CARBON OFFSET PROJECT****3.3 SITE VISIT**

A site visit to the Taylor Gas facility is proposed for December 8, 2010 as part of the verification process. A detailed list of documentation to be provided by Taylor Gas to Stantec prior to the site visit to ensure the appropriate data and personnel are available when the verification team arrives on site. It is anticipated that the questions and information requests included in this list can be answered and/or provided during the site visit.

**3.4 SAMPLING PLAN**

The sampling plan guides and ensures that sufficient and appropriate evidence, in support of the principles and quantification methodology that formed the emission reduction assertion made by Taylor Gas on behalf of CPC. It also ensures that sufficient and appropriate evidence has been collected and reviewed to disclose any material discrepancies that contribute to the GHG assertion, if such exist. The following is a summary of the verification procedures that inform the sampling plan:

- Confirm monthly acid gas flared and acid gas injected volumes in S30 reports;
- Confirm monthly volumes of fuel gas to acid gas flared (monthly production accounting data);
- Confirm the source of acid gas composition data (ie. % CO<sub>2</sub>, % H<sub>2</sub>S, % CH<sub>4</sub>, and % Other);
- Confirm that the GHG calculator is appropriately and correctly calculating GHG emissions/reductions;
- Confirm the GHG calculator emissions factors and heating values are appropriate and correct;
- Confirm that the appropriate baseline and project cases were used (including boundaries, sources, sinks and reservoirs); and
- Confirm that the fuel extraction emissions (i.e., sour gas processing) are identical for both the baseline and project cases.

Following our desktop review of preliminary data, a site visit to inspect data located at the Taylor Gas Sour Gas Plant and AGI facility will be performed. The site visit will be conducted to review on-site raw data, aid in the assessment of the appropriateness of selected boundaries, consistency with baseline period, appropriateness of methodologies, and to observe the system controls in place at the facility for data management.

Stantec verifiers will select and justify the samples reviewed, based upon the sampling plan, on site once the data is available. They will require a detailed explanation of all equipment and processes. Shan Pletcher (Lead Verifier) and Wally Qiu (Verifier) will be conducting the field verification portion, scheduled for December 8, 2010.

**3.5 INFORMATION REQUEST**

In preparation for the site visit, please collate the following pieces of information for our verification team to review:

1. Stantec wants to see:
  - Notice of Creation of Emissions Reduction Credits for 2010;
  - Ownership contract(s);
  - ERCB D51 Approval;

**Reference: VERIFICATION PLAN FOR THE TAYLOR GAS ACID GAS INJECTION CARBON OFFSET PROJECT**

- Alberta EUB Approvals #9959 and #10630;
  - Alberta Environment Approval 9911-01-04; and
  - Calibration records for 2010 (compare with Table 5.2, Offset Project Plan, was pp. 20).
2. Stantec will confirm the distance between metering equipment and point of injection.
  3. Stantec requests details regarding commingling of gas streams from Retlaw facility. Confirm that data can be disaggregated to trace emissions back to original emitting facilities (i.e. incoming flow metered?)
  4. Stantec requests evidence of independent 3rd party manual checking of data for 2010 including:
    - Procedure for independent manual checking of data;
    - Changes/mistakes/errors found and addressed
    - How results of review are stored
  5. Field team to review procedures for all measurements including:
    - Measurements points
    - Frequency and procedure for measurements
    - Review how data is collected
    - Review how data is processed
    - Review how data is stored (electronically, hard copy, or both)
  6. Please confirm electronic recording of:
    - Volume of fuels for fuel extraction & processing;
    - Volume of supplementary fuel for flaring;
    - Volume of acid gas injected;
    - Volume of acid gas flared; and
    - Composition of acid gas stream (weekly samples).
  7. Please confirm meter readings and data logging procedures.
  8. Observe monthly back-up hard copies logged data.
  9. Observe records on site. Request to see:
    - O&M Plan
    - Records of shutdowns, start-ups and process adjustments
  10. Observe records (or written procedures) on site of retention of copies of logs and logged data.

December 7, 2010

Ms. Levesque

Page 6 of 6

**Reference: VERIFICATION PLAN FOR THE TAYLOR GAS ACID GAS INJECTION CARBON OFFSET PROJECT**

At the conclusion of the site visit, Stantec will provide a list of the any outstanding items, and make arrangements to have these provided immediately after the site visit

Should you have any questions or require additional information, please do not hesitate to contact the undersigned at any time.

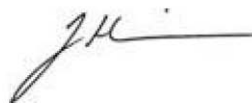
Sincerely,

**STANTEC CONSULTING LTD.**

**STANTEC CONSULTING LTD.**



Shan Pletcher, P. Eng, MBA  
Lead Verifier  
Tel: (780) 917-7323  
Fax: (403) 917-7049



Joe Harriman, Ph.D., P.Chem.  
Team Leader, Atmospheric  
Environment  
Ph: (506) 642-9476  
Fx: (506) 634-8104

cc. Jon Remmer

**APPENDIX D**  
**NOTICE OF CREATION**



## NOTICE OF CREATION OF EMISSION REDUCTION CREDITS

### *Proponent:*

Taylor Gas Processing Ltd Partnership  
c/o AltaGas Ltd.  
1700, 355 4th Avenue SW  
Calgary, Alberta  
T2P 0J1  
Phone: (403) 691-7545  
Fax: (403) 691-7134

Company Contact: Jon Remmer, Operations Engineer  
Telephone: (403) 269-5678  
Fax: (403) 691-7000  
Email: jon.remmer@altagas.com

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### *Project Document:*

Project Document Title: Offset Project Plan: Taylor Turin Acid Gas Injection Project  
– Final  
Project Document Date: February 2011  
Annual Reports: Offset Project Report: Taylor Turin Acid Gas Injection  
Project – Final  
Project Document Date: February 2011

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### *Project:*

Project Name: Taylor Turin Acid Gas Injection Offset Project

Project Description: Taylor Gas Processing Ltd operates an acid gas injection (AGI) project at the Turin Sour Gas Processing Plant. At the facility, Taylor compresses the acid gas and then transmits the compressed gas 1.5 km through pipeline to the injection well. Flaring of acid gas is conducted on an emergency basis only, using an open flare system.

Before the implementation of the acid gas injection system, Taylor was mandated to implement a sulphur control system at its Turin facility due to de-grandfathering (termination of regulated pre-

existing sulphur emissions levels) at the Turin sour gas processing facility. As a result of this de-grandfathering, Alberta Environment imposed a requirement on Taylor equivalent to reduce sulphur emissions by seventy percent of the amount approved under the previous permit. This revision to the operating permit did not address the carbon dioxide emissions from the facility. A three bed (three stage) Claus process unit was the preferred sulphur treatment option to implement at the facility to convert gaseous H<sub>2</sub>S to elemental sulphur.

The acid gas waste stream at the Turin sour gas processing plant that was previously to be processed through a Claus process unit, resulting in the direct and indirect emissions of greenhouse gases, is being diverted to an injection facility where it is being geologically sequestered in an existing and well characterized reservoir.

**Project Location:** The formation being injected into is called the Mannville Y Pool. The AGI system is located at injection well 00/03-25-012-19W4/0 near Turin, Alberta. The Taylor Turin Acid Gas Injection Project (the Project) is located at the Taylor Gas Processing Limited Partnership Turin Sour Gas Processing Plant located near Turin, Alberta.


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***Emission Reduction Credits:***

ERC Creation Period: January 01, 2010 to December 31, 2010  
Emission Type: tonnes of CO<sub>2</sub>e  
Quantity: 71,674

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I am a duly authorized corporate officer of the Proponent mentioned above and have personally examined and am familiar with the information submitted in this Assertion Statement, the accompanying Project Document on which it is based. Based upon reasonable investigation, including my inquiry of those individuals responsible for obtaining the information, I hereby warrant that the submitted information is true, accurate and complete to the best of my knowledge and belief, and that all matters affecting the validity of the emission reduction claim or the protocol upon which it is based have been fully disclosed. I understand that any false statement made in the submitted information may result in de-registration of credits and may be punishable as a criminal offence in accordance with provincial or federal statutes.

Signature:   
 Date: Feb 22/11  
 Name: Jeremy Baines  
 Title: Divisional VP  
Vice President Gathering & Processing