



Stantec

**Offset Project Verification Report
AltaGas Processing Partnership
Turin Acid Gas Injection Project**

Prepared for:

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For Submission to:

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Stantec Project No. 115302124

March 14, 2012

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1.0 Statement of Verification

Stantec Consulting Ltd (Stantec) was contracted by Capital Power Energy Marketing L.P. (Capital Power) to conduct an independent third-party verification of the greenhouse gas (GHG) assertion provided in the AltaGas Processing Partnership (AltaGas) Turin Acid Gas Injection Project Report (Project Report) dated March 1, 2012 and Notice of Creation (NOC), dated February 28, 2012. The Project, the Project Report, Project Plan and NOC were completed on behalf of AltaGas by Blue Source Canada ULC (Blue Source).

1.1 INTENDED USER

This verification report has been prepared for Alberta Environment and Water (AEW) for the express purpose of facilitating the creation of Emission Reduction Credits (ERCs) under the *Climate Change and Emissions Management Act* and the *Specified Gas Emitters Regulation (SGER)*.

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 AEW.

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

1.3 PROJECT DETAILS

1.3.1 Location

The AltaGas Turin Acid Gas Injection Project is located near Turin, Alberta. The GHG project boundary encompasses the geographical site of the Turin Sour Gas Processing Plant, the collection wells at Enchant and Retlaw and equipment for the acid gas disposal process.

1.3.2 Description

In 2004, construction of an acid gas injection system was completed at the Turin facility instead of installation of a Claus process unit (typical acid gas treatment process), which would have resulted in the direct emission of GHGs from stationary combustion to oxidize hydrogen sulphide in the acid gas to sulphur dioxide (SO₂) in the incineration process.

The project began November 30, 2004 and results in a reduction of direct, specified GHG emissions at the acid gas injection facility through the geological sequestration of CO₂ contained in the acid gas stream and by the reduction of fossil fuel used to treat sulphur emissions. The

acid gas, containing primarily CO₂ and H₂S, is compressed and transported approximately 1.5 kilometers from the Taylor Gas facility via underground pipeline into the Taylor Gas Acid Injection well 00/03-25-012-19W4/0.

The credit start date for this project is January 1, 2005. The project proponent intends to claim ERCs for a period of 8 years, ending on November 30, 2012.

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

1.3.3 Emission Reduction Credit Period

Emission reductions have been calculated and verified for the period of January 1, 2011 to December 31, 2011.

1.4 GHG ASSERTION

The fundamental assertion in the NOC dated February 28, 2012 is that the project generated 62,701 tonnes of carbon dioxide equivalent (t CO₂e) of ERCs during the period of January 1, 2011 to December 31, 2011. ERCs created by the project have been broken out by vintage year in Table 1 below.

Table 1 GHG Assertion

Vintage Year	CO ₂ (t CO ₂ e)	CH ₄ (t CO ₂ e)	N ₂ O (t CO ₂ e)	Total (t CO ₂ e)
2011	59,303	3,065	333	62,701

1.5 CRITERIA

Stantec has conducted sufficient and appropriate procedures to evaluate whether the GHG assertion, Project Plan and Project Report satisfy the requirements of:

- *Climate Change and Emissions Management Act, S.A. 2003, c. C-16.7;*
- SGER;
- *Technical Guidance for Offset Project Developers (January 2011, V2.0); 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), ISO 14065 - Greenhouse Gases: Requirements for greenhouse gas validation and verification bodies or use in accreditation or other forms of recognition (ISO 14065) and the verification guidance contained within the *Technical Guidance for Offset Project Developers*(January 2011, V2.0).

1.7 UNRESOLVED DISCREPANCIES

AEW has set its materiality threshold to 5% of the total reported GHG emission reductions or removals asserted. Qualitative discrepancies were at the discretion of the lead verifier. Several discrepancies were identified by Stantec and were resolved during the course of the verification.

1.8 OPINION

Based on the procedures described in this report, nothing has come to our attention that causes us to believe that the AltaGas Turin Acid Gas Injection Project Report (dated March 1, 2012) and AltaGas's ERC Assertion, that **62,701 t CO₂e** of ERCs were produced between January 1, 2011 and December 31, 2011 for the AltaGas Turin Acid Gas Injection Project, are not presented fairly and are not in accordance with the relevant criteria as supplied in section 0 above.

1.9 CLOSURE

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

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.

STANTEC CONSULTING LTD



Karen Thompson
Lead Verifier

March 16, 2012
Issued in Calgary, Alberta

Stantec

OFFSET PROJECT VERIFICATION REPORT – TURIN ACID GAS INJECTION

January 1, 2011 – December 31, 2011

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March 16, 2012

Issued in Calgary, Alberta

2.0 Verification Report

Information in support of the verification statement provided as Section 1 of this document is detailed in the following sections. 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 AltaGas GHG assertion included in the offset Project Report, dated March 1, 2012. The Project Plan, Report and calculators used for the Project were completed on behalf of AltaGas (project proponent) by Blue Source. AltaGas was responsible for data collection, calculation methodology review and approval of the Project Plan and Report. Contact information for the project proponent is provided on the title page of this report.

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

Table 1 Verification Team

Name	Role	Responsibilities
Karen Thompson	Lead verifier	Lead and delegate verification duties. Review verification deliverables and assist with financial project inquiries.
Vicki Corning	Peer Review	Independent review of verification procedures and deliverables for consistency with Stantec templates, adherence to ISO 14064-3, AEW compliance and technical soundness. Signing Authority on verification documents including the Verification Plan and Verification Report.
Lauren Jones	Senior Review	Review verification deliverables for adherence to ISO 14064-3 and regulatory compliance as well as technical soundness. Lauren also attended the site visit
Jackie Mercer	Verifier	Assist with verification activities including desktop review, and verification report.
Sana Talebi	Verifier	Assist with verification activities including desktop review, site visit and verification report.
Cathy Crawford	Verifier	Assist with verification activities including AltaGas office visit to review ownership documentation.

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 AEW. In addition, the verification team reviewed the supporting documentation and records for each of the reductions quantified and the production metrics, including calibration records, process flow diagrams, employee training records, production reporting, natural gas consumption, standard operating procedures, the Project Report, and the Project Plan. The operational procedures and quality management procedures applied to the data streams were also reviewed.

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, forwarded to Blue Source. This provided Blue Source with the opportunity to provide any additional or clarifying information to address any outstanding discrepancies prior to finalizing the verification report.

Table 2 provides a summary of the verification activities and the timing of these activities over the course of the verification.

Table 2 Verification Activities and Schedule

Activity	Date
1. Kick-off call with Blue Source / AltaGas	January 15, 2012
2. Stantec received documentation from Blue Source / AltaGas	January 16, 2012
3. Stantec completed initial desktop review	January 20, 2012
4. Stantec delivered Verification Plan to Blue Source / AltaGas	January 23, 2012
5. Site visit conducted	January 30, 2012
6. Office Visit conducted	February 09, 2012
7. Stantec to complete detailed data review	February 17, 2012
8. Stantec to issue draft Verification Report	February 28, 2012
9. Conference call to discuss draft Verification Report	February 29, 2012
10. Finalize Verification Report, SOQ, SOV, COI form	February 29, 2012
11. Revised Verification Report, SOQ, SOV, COI form (C3 edits)	March 16, 2012

2.2.1 Site Visit

A site visit was conducted as part of the verification process in accordance with the requirements of AEW. A list of required information was made available to Blue Source and AltaGas prior to the site visit as part of the verification plan (Appendix C). The verification plan

was supplied in order to ensure that the appropriate data and personnel were available to help complete the task efficiently and with least possible inconvenience to Blue Source (and AltaGas)

The site visit was conducted by Verifier, Sana Talebi and Senior Reviewer, Lauren Jones on January 30, 2012 at the Turin Sour Gas Processing Plant located near Turin, Alberta. Employees who were interviewed included:

- Logan Dunning –Commercial Manager (AltaGas);
- Nicole Finnamore – Operations Engineer (AltaGas);
- Helen La – Carbon Services Project Analyst (Blue Source);
- Derek Jensen – Operations Manager (AltaGas); and,
- Nataliya Mazurok – Operations Accountant (AltaGas).

In addition to the site visit, Cathy Crawford (Verifier, Stantec) completed an office visit on February 9, 2012 to review Turin ownership documentation. During the office visit, Shaheen Amirali, Corporate Council, AltaGas, was available for questions, as was Helen La (Blue Source).

The verification plan included but was not limited to a review of electronic recordings of fuel volumes, evidence of acid gas injected and flared, meter calibration records, and records of shut-downs, start-ups and process adjustments. During the site visit, interviews with staff members were conducted to assess procedures for various aspects of project operation. This included a review of the data management system, record keeping, training and QA/QC procedures for consistency with the Project Plan and to better understand the scope of the project. A summary of the sampling plan and results is provided in Table 3.

Table 3 Verification Sampling Plan Procedures and Results

Parameter	Procedure	Result
Boundaries, Methodology and Emission Factors	Discussed the project boundaries with Blue Source and AltaGas. Reviewed the calculation methodology and the emission factors. Reviewed the Project Plan, Project Report, and Notice of Creation.	Stantec reviewed calculation methodologies used by Blue Source to calculate emission reductions resulting from the injection of acid gas and did not note any inconsistencies between the methodology supplied in the protocol. The project plan aligned with the boundaries identified in the project guidance protocol.

Parameter	Procedure	Result
Project Eligibility	Reviewed the Project Report, Project Plan, signed attestations, calculation methodologies, project boundaries and emission factors.	<p>Nothing comes to our attention that causes us to believe the project does not meet project offset eligibility requirements:</p> <ul style="list-style-type: none"> • Emission reductions and removals generated after January 01, 2002. • Emission reductions and removals generated, in Alberta within the credit duration period. • Emission reductions and removals real, demonstrable and quantifiable. • Establishment of ownership of emission reductions and removals. • Emission reductions and removals not required by law. • Emission reductions and removals counted once, only. • Emission reductions and removals verified by a qualified third party.
Negligible Emissions	Reviewed the Project Plan and quantification methodologies	<p>The project emissions sources required by the quantification protocol were included with the exception of those noted below. The following emission sources have been excluded from quantification as per the Project Plan (where rationale for exclusion is provided):</p> <p>Emissions from Liquid Redox Process (SSR B5a). Emissions from this source have been excluded from quantification as a Multi-Stage Claus Unit has been used as the sulphur recovery unit for the purposes of calculating the baseline condition.</p> <p>Emissions from fuel gas consumed by the Multi-Stage Claus Unit (SSR B5b) have been excluded. This is conservative. Emissions from tail gas have been quantified under emissions from Incineration (SSR B6).</p> <p>Emissions from Injection Unit Operation (SSR P9) have also been excluded from quantification. This has been identified as acceptable as emissions from the electric compressor have already been quantified under acid gas dehydration and compression.</p> <p>Emissions from Recycled Gas (SSR P10) have been excluded from quantification since the producing wells and the injection wells have been confirmed to be distinct entities. Recycling of acid does not occur at this facility.</p>

Parameter	Procedure	Result
Total Emissions Reduction Credits (ERCs)	Reviewed data for baseline, project and net emissions reductions	Sources, various units and emission factors reviewed were deemed appropriate for the project and consistent with the Protocol. Emissions resulting from compressor equipment were included under the project condition, emissions from acid gas dehydration and compression. This is consistent with the AEW memorandum, supplied December 20, 2011, stating the <i>“projects resulting in an increased use of grid electricity from the baseline period must quantify project period emissions using the grid intensity factor of 0.88 tonnes CO₂e per MWh published by Environment Canada in its National Inventory Report 1990-2008. This factor must be used if an offset project must be used if an offset project results in an increased in on-site grid electricity use.”</i>
Quality Assurance /Quality Control	Reviewed AltaGas and Blue Source’s quality assurance and quality control practices	No issues were noted during the course of the verification. The site team was able to review the QA/QC procedures used by AltaGas and Blue Source. Nothing material was discovered to indicate that inputs into the calculators are not transparent and consistent.
General Procedures	Reviewed management of GHG information system and records retention control	Record keeping procedures in the Project Plan include maintaining written logs of operations and maintenance of project system. This includes notation of shut-downs, start-ups and process adjustments. Project Records (both hard copy and electronic) are retained by AltaGas indefinitely. Electronic records are accessible both on site and at head office in Calgary.

3.0 Closure

Stantec has undertaken all assignments in its role as an environmental engineering consulting firm using professional effort consistent with the *Technical Guidance for Offset Project Developers (Jan., 2011 V2.0)* and *The SGER Quantification Protocol for Acid Gas Injection (May, 2008 V1)*. Stantec has assessed the GHG assertion for AltaGas's GHG Reduction Project Report using adequately 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. Per our Project Agreement with Capital Power Energy Marketing L.P Stantec's liability is limited to the amount of Stantec's fees for undertaking this verification. Stantec disclaims liability for use by any other party and for any other purpose.

This report, entitled, " Offset Project Verification Report AltaGas Processing Partnership - Turin Acid Gas Injection Project" for ERC's created for January 1, 2011 to December 31, 2011 was produced by:

STANTEC CONSULTING LTD

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Appendix A
Statement of Qualification

Statement of Compliance with the SGER

Vicki Corning is a professional engineer registered by the Association of Professional Engineers, Geologists and Geophysicists of New Brunswick. Vicki Corning will be the signing authority for the report and thus satisfy 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.

TEAM QUALIFICATION AND EXPERIENCE

Karen Thompson, EPt – Lead Verifier/Project Manager

Ms. Thompson is an energy management and GHG emissions consultant with a background in utility industry. She has completed the CSA Greenhouse Gas Verification ISO 14064 course, and has knowledge of assurance methodologies and ISO 14064 principles. Karen has assisted with the verification of carbon offset credits created under the Alberta Offset System, providing assurance to Alberta Environment regarding the stated carbon offset data. Her emissions quantification experience includes collection and calculations for Canadian Association of Petroleum Producers (CAPP) Stewardship, National Pollutant Registry Inventory (NPRI), Section 71 and fugitive emissions management planning and reporting. Karen acted as a verifier for the verification of the AltaGas Turin Acid Gas Injection Offset Project for offset credits generated between January 1st, 2009 and December 31st, 2009.

Lauren L. Jones B.Sc., M.B.T., EP(GHG) – Senior Review

Ms. Jones is Stantec's Climate Services Regional Discipline Leader for Canada West and is a career GHG specialist, with over a decade of senior consulting experience. Ms. Jones is an expert to the ISO technical working groups for GHG Standards, including ISO14064 Part 3 and ISO14065, having negotiated internationally on behalf of both Canada and Australia. She is a member of the Environmental Careers Organization of Canada committee for the certification of GHG professionals. She was the first woman in Canada to attain the professional designation of Environmental Professional (GHG) and has the full suite of specialties within that designation, namely: team leader, quantification expert and audit expert. Lauren is the lead trainer and primary author of the CSA ISO14064-3 training course. Over her career, Lauren has conducted hundreds of validations, verifications and GHG advisory engagements for clients in most industry sectors. Her oil and gas clients include: Shell, PennWest, and TAQA North Ltd among others.

Vicki Corning, P.Eng. – Peer Reviewer

Ms. Corning has a degree in chemical engineering and has since gained technical and management expertise in many environmental services including: regulatory activities (environmental impact assessments, responses to technical review committees, environmental protection plans, environmental monitoring plans, Alberta Greenhouse Gas Baseline and Compliance Application Verifications, Alberta NO_x and SO₂ Credit Application Verifications); source emissions testing; ambient air quality monitoring; emissions inventories; pollutant dispersion modelling (AERMOD, ISC); ambient sound quality assessments; noise attenuation modelling; landfill gas testing and utilization; and National Pollutant Reporting Inventory preparation. Ms. Corning has experience in public and stakeholder relations, having participated in several open houses as an air and sound quality specialist on projects undergoing environmental assessment. Ms. Corning has worked with clients in a variety of different industries in Canada and the US including: gas processing plants, oil refineries, pipeline operations, electrical generating stations (coal, gas, co-generation), manufacturing plants construction projects, and pulp mills.

Jackie Mercer, MSc.Eng, EPt(GHG) – Verifier

Ms. Mercer is Stantec's Senior Specialist, Climate and GHG with over 10 years of experience in monitoring, reporting and verification of GHG emissions and air pollutants. With a background in Mechanical Engineering (both a Bachelor and Master degree from the University of New Brunswick), Jackie was a lead negotiator for Canada at the UN Climate Change Conferences in Cancun and Durban, responsible for negotiating issues relating to estimation, reporting, verification and accounting. Jackie's current work at Stantec focuses on applying her climate change knowledge and expertise to the development of an emerging GHG service line for the British Columbia region. This work includes the participation in the verification of GHG inventories, developing GHG baselines for facilities, validating and verifying carbon credits and methodologies and providing due diligence. Jackie has completed the CSA GHG Verification ISO 14064 course, has knowledge of assurance methodologies and ISO 14064 principles and contributed to the development of the Standard Council of Canada's accreditation program for GHG Verification Bodies, as well as ECO Canada's GHG professional certification.

Sana Talebi B.Sc.Eng., E.I.T - Verifier

Mr. Talebi, is a member of the Atmospheric Environments Team in Stantec's Ottawa office. He is an engineer-in-training in environmental engineering with specialized focus on climate change and air quality assessments. He has project managed, and reported in areas of Greenhouse Gas Verifications, Certificate of Approvals (Air and Noise) Applications, Odour Assessments, and National Pollutant Release Inventory (NPRI) reporting. Mr. Talebi also has experience in potable water assessments, water audits, wastewater sewer sampling and groundwater monitoring. He has worked on environmental projects for a wide range of sectors including manufacturing, aviation, health care, power generation, forest products, transportation, and government (municipal, provincial, and federal).

Cathy Crawford, P.Eng - Verifier

As an Energy Management Consultant with Stantec, Cathy has provided expertise and assistance regarding emissions estimates/calculations for air quality assessments and regulatory reporting. She has been involved with; GHG verifications, National Pollutant Registry Inventory (NPRI) reporting, Canadian Association of Petroleum Producers (CAPP) reporting, Directive D39 reporting of the annual Dehydrator Benzene Inventory List and a number of Fugitive Emissions Management Plan (FEMP) surveys and reports. Cathy has completed the CSA training on ISO 14064-3 GHG verifications and has participated in and/or led numerous project and facility verifications in Alberta.

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Appendix B
Conflict of Interest Checklist

Conflict of Interest Checklist

Question	Yes	No
<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"> • Owning shares of the Project Developer; • Having a close business relationship with the Project Developer; • Contingent fees relating to the results of the engagement; • Potential employment with the Project Developer; or • Undue concern about the possibility of losing the verification or other fees from the Project Developer. 	<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"> • Provided greenhouse gas consultation services to the project; • Provided validation for the project • 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. • A member of the verification team was previously employed with the company 	<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"> • Dealing in, or being a promoter of, greenhouse gas credits on behalf of a project developer; or • Acting as an advocate on behalf of the project developer in litigation or in resolving disputes with third parties. 	<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"> • 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 • The verification team or a person of influence on the verification team has accepted significant gifts or hospitality from the project developer. 	<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"> • The threat of being replaced as a third party verifier due to a disagreement with the application of an greenhouse gas quantification protocol; • Fees from the project developer represent a large percentage of the overall revenues of the verifying organization. • The application of pressure to inappropriately reduce the extent of work performed in order to reduce or limit fees; or • Threats of litigation from the project developer. 	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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Appendix C

Verification Plan



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January 23, 2011
File: 115302124

Renée Levesque,
Environmental Portfolio Specialist,
Commodity Portfolio Management
Capital Power Corporation
8th floor, 505 2 Street SW
Calgary, Alberta
T2P 1N8

Dear Ms. Levesque,

Reference: VERIFICATION PLAN FOR THE ALTAGAS PROCESSING PARTNERSHIP ACID GAS INJECTION CARBON OFFSET PROJECT

Stantec Consulting Ltd. (Stantec) has completed an initial desktop review of the information provided with respect to the AltaGas Processing Partnership Turin Acid Gas Injection Project (the project) for emissions reductions under Alberta Environment and Water's (AEW) *Specified Gas Emitters Regulation* (SGER).

Capital Power Corporation (CPC) retained Stantec to verify the offset credits generated between January 1st, 2011 and December 31st, 2011 at the Turin Acid Gas Injection (AGI) facility.

AltaGas Processing Partnership (AltaGas) purchased the Turin Sour Gas Processing Plant from Taylor Gas Processing Partnership Ltd (Taylor Gas) on January 1, 2011. At the facility AltaGas compresses acid gas and transmits the compressed gas 1.5 kilometres (km) through pipeline to an acid gas injection well.

GHG offsets generated through the project are attributed to geological sequestration of carbon dioxide (CO₂) and avoidance of fossil fuel combustion in equipment used to process sulphur emissions. Quantification of the project and the development of the Offset Project Plan and Report were completed on behalf of AltaGas by Blue Source Canada ULC (Blue Source).

This Verification Plan provides an outline of the terms of the engagement and the proposed verification procedures for the Project.

VERIFICATION OBJECTIVE

The purpose of the Verification Plan is to identify key assertions, data sources, methods, and procedures pertinent to AEW'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 AltaGas Offset Project GHG information and assertions.

LEVEL OF ASSURANCE

The verification has been planned and conducted in order to express a **limited level of assurance** opinion as required by AEW's Offset Credit Verification Guidance Document for Emission Reduction Credits.

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

VERIFICATION CRITERIA

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

- *Climate Change and Emissions Management Act, S.A. 2003, c. C-16.7;*
- *SGER;*
- *The Quantification Protocol for Acid Gas Injection (May, 2008 V1); and*
- *The Technical Guidance for Offset Project Developers (January 2011, V2.0)*

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*

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 **low** based on our preliminary evaluation of available information. The rationale for this assessment is described below:

Inherent risk is the risk of error due to the complexity of the project or the lack of capacity by staff at the facility. We regard this risk as **low** due to:

- There is an protocol established by AEW for the quantification of offsets generated from acid gas injection projects, and this has been applied to the project (low risk);
- The Turin Sour Gas Processing Plants operation process is similar to other sour gas plants in Alberta (low risk);
- Data collection procedures for quantification include both manual and automated processes (medium risk);
- The quantification of offset credits is completed using the Blue Source offset quantification tool, this tool has been used for multiple vintage years (low risk);
- Adequate staff capacity is expected to be available during the site visit, including representatives from the AltaGas Calgary office and Blue Source, to answer questions and explain processes at the Turin Sour Gas Processing Plant (low risk).

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 used for emission reduction quantification consists of manually recorded data, metered data capture, circular charts to record gas flow and manual entry of monthly total averaged into the Blue Source offset quantification tool (medium risk);

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January 23, 2011
Renée Levesque
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Reference: VERIFICATION PLAN FOR THE AltaGas ACID GAS INJECTION CARBON OFFSET PROJECT

- Blue Source completes an internal senior review in order to check both calculations and reports for transcription errors and omissions, correctly functioning links and formulas as part of their QA/QC (low risk)

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 accreditations. 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.
- Level of assurance.** The limited level of assurance applied in this verification (as required by AENV legislation/guidance) inherently allows for a higher detection risk

SCOPE OF THE VERIFICATION

ASSERTION

The fundamental assertion to be verified is the quantification of 68,580 tonnes of carbon dioxide equivalents (t CO₂e) for the period of January 1, 2011 to December 31, 2011, resulting from the acid gas injection to the acid gas injection formation called the Mannville Y Pool (well 03-25-012-19W4).

Specific verification procedures are based on the assessment of the above assertion, as well as the assessment of any missing data or information, or unclear or questionable methods used in establishing the assertion.

SCHEDULE

The tentative schedule for the verification of the AltaGas acid gas injection offset project is provided in Table 1.

Table 1 Verification Schedule

Activity Related to Verification	Responsibility	Date
Stantec received documentation from Blue Source and AltaGas	Blue Source	January 16, 2012
Stantec completed initial desktop review	Stantec	January 20, 2012
Stantec to deliver verification plan to Blue Source, AltaGas and CPC	Stantec	January 23, 2012
Site visit	Stantec/AltaGas/Blue Source	January 30, 2012
Stantec to complete detailed data review	Stantec	February 13, 2012
Complete draft verification report	Stantec	February 17, 2012
Conference call to discuss draft verification report	Stantec/AltaGas/Blue Source/CPC	February 21, 2012
Finalize verification report, SOQ, SOV, COI form	Stantec	February 24, 2012
Courier signed verification reports to Client	Stantec	February 25, 2012

Stantec personnel will work closely with Blue Source representatives to meet the internal deadlines identified for the project.

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

The sampling plan guides and facilitates the review of sufficient and appropriate evidence is collected and reviewed, in support of the principles and quantification methodology that formed the emission reduction assertion calculated by Blue Source. The sampling plan is established in consideration of verifying sufficient and appropriate evidence to disclose 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:

- Confirmation of ownership for offsets generated in 2011;
- Confirmation of monthly acid gas flared and acid gas injected volumes supplied in S30 reports;
- Confirmation of monthly volumes of fuel gas to acid gas flared (monthly production accounting data);
- Confirm the source of acid gas composition data (i.e. % CO₂, % H₂S, %CH₄ and % other)
- Assessment of data accuracy and completeness (review of the AltaGas data management system reports, and operator log books;
- Review and compare the calculation methodologies from the Protocol to those used in the calculation tool;
- Re-performance of selected calculations from the calculation tool; and
- Review of management practices (assessments and controls).

Any errors, omissions or misrepresentations discovered, may result in the expansion of this sample size, therefore, data for all periods in 2011 should be available on-site during the site visit. Expansion of the sampling plan would constitute a scope change and Stantec will immediately notify Blue Source of the additional effort required.

SITE VISIT

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

Stantec verifiers will require a tour of the project site and a detailed explanation of all equipment and processes. Further they will require access to specific data samples and documents to address questions identified during the desktop review. Lauren Jones (Peer Review) and Sana Talebi (Verifier) will be conducting the field verification portion, scheduled for January 30, 2012.

INFORMATION REQUEST

In preparation for the site visit, Stantec requests that Blue Source collate the following pieces of information for our verification team to review:

- Notice of Creation of Emission Reduction Credits for 2011;
- Confirmation of ownership of carbon offset credits (corroborating evidence);
- Transfer of ownership documentation Taylor Gas Processing Partnership to AltaGas Processing Partnership effective January 1, 2011;
- Copies of ERCB license(s);

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

- Evidence supporting the distance between the metering and point of injection of acid gas;
- Calibration records for 2011;
- Evidence of electronic fuel metering and data logging for fuel extraction and processing;
- Evidence of electronic fuel metering and data logging for supplementary fuel for flaring;
- Evidence of electronic fuel metering and data logging for acid gas injected;
- Evidence of electronic fuel metering and data logging for recording acid gas flared;
- Evidence of recording of composition of acid gas stream (CO₂ and CH₄ mole % from the acid gas injection meter);
- Commingling of gas streams – confirm details on how the data can be disaggregated to trace the emissions to original facilities and identify quality assurance and control measures in place on this process;
- Evidence of measurement points or meters and meter types;
- Frequencies and procedures for measurement, data logging and quality control of all input data;
- Details on data storage procedures (electronic, hard copy or both);
- Operation and maintenance plans;
- Records of shutdowns, start-ups and process adjustments; and
- Records (or written procedures) of on-site retention of copies of logs/logged data to provide evidence that data is maintained for a minimum of 7 years.

Any information which can be emailed or faxed prior to the site visit would greatly expedite the process.

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

Respectfully,

STANTEC CONSULTING LTD.



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Consultant Energy Management
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karen.thompson@stantec.com

Appendix D
Notice of Creation

GREENHOUSE GAS ASSERTION OF EMISSION REDUCTION CREDITS

Project Developer: AltaGas Processing Partnership
c/o AltaGas Ltd. (a duly authorized agent of AltaGas Processing Partnership)
1700, 355 4th Avenue SW,
Calgary AB, T2P 0J1

Company Contact: Logan Dunning
Commercial Manager
Telephone: (403) 691-7010
Fax: (403) 508-7250
Email: logan.dunning@altagas.ca

Project Document:

Project Plan Title: Offset Project Plan: AltaGas Turin Acid Gas Injection Project
Project Plan Date: March 1, 2012
Project Report Title: Offset Project Report: AltaGas Turin Acid Gas Injection Project
Project Report Date: March 1, 2012
Quantification Protocol Title: Alberta Offset System *Quantification Protocol for Acid Gas Injection*, version 1.0

Project:

Project Name: **AltaGas Turin Acid Gas Injection Project**

Project Description: AltaGas Processing Partnership (AltaGas) operates an acid gas injection project at the Turin Sour Gas Processing Plant. At the facility, AltaGas 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, AltaGas 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 AltaGas 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 H₂S 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 project is located at the AltaGas Processing Partnership Turin Sour Gas Processing Plant located near Turin, Alberta.

Emission Reduction Credits:

ERC Creation Period: January 01, 2011 to December 31, 2011

Vintage Year: **2011** Quantity: **62,701**

I am a duly authorized corporate officer of the project developer 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: 28/02/2012

Name: Jeremy Baines

Title: Divisional VP Field Gathering and Processing