

## Technical Review Session for the Draft Alberta Quantification Protocol for Methane Capture from the Anaerobic Treatment of Industrial Wastewater

October 15, 2008

### Attendees:

Name	Organization
Jamie Callendar	Blue Source
Mike Richtig	Cargill
Dale Paton	Cargill Meat Solutions
Earl Jenson	Alberta Research Council
Jody Barclay	Natural Resources Canada (NRCAN)
Seth Huseby	ConAgra Foods
Paul Halberstadt	ConAgra Foods
Daryl Balderson	Amberg Corp.
Amanda Stuparyk	Climate Change Central

### Invitees:

Name	Organization
Matthew Machielse	Alberta Energy
James Jones*	Alberta Agriculture and Food
Ronan Moen	Tyson Foods
Allan Meyer	ConAgra Foods
Dr. Mohamed Gamal El-Din	University of Alberta
Dr. Zaher Hashisho	University of Alberta
Jean-Claude Frigon	National Research Council of Canada
John Limb	MapleLeaf Potatoes
David Huck	Simplot
Anne Tenier	MapleLeaf Foods

\*Provided comments via telephone

### Meeting Minutes:

- 1. Introductions:** Jamie Callendar, Blue Source
- 2. Why we are here, Alberta Policy Context :** Amanda Stuparyk, Climate Change Central
  - Alberta Regulatory Framework
  - Offsets – Market in AB
  - Projects start after Jan 1, 2002
  - Real (one of 21 main IPCC recognized GHGs), demonstrable, quantifiable
  - Not regulated by law
  - Clearly defined ownership (verifier will seek clear ownership)
  - Generated in Alberta - **investment** / project **undertaken** in Alberta
  - Not double counted (only serialize on one system)
  - Verified by 3<sup>rd</sup> party (chartered account/certified engineer)
  - Ex Poste Verification

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- The Protocols are based on the ISO 14064 Part 2 Standard
3. **Principles to Guide Protocol Decisions/Development** - Climate Change Central
- A. Environmental Integrity
  - B. Usability/Practicability
  - C. Adapting Precedents
  - D. Life Cycle
4. **Introduction to Protocol-** Jamie Callendar
- Overview of the Protocol Structure
  - Generate offsets through (1) the capture and destruction of biogas containing methane, that would have been emitted from wastewater treatment facilities where the baseline practice was the anaerobic treatment of wastewater and venting of produced methane to the atmosphere and (2) the displacement of fossil fuels with renewable energy output from biogas (thermal energy, electricity or upgraded pipeline quality biogas)
  - Alberta Protocol Format; ISO 14064-2 Approach;
  - review of protocol scope (no comments received)
  - Applicability criteria
  - Flexibility mechanisms
  - Lifecycle figures (no comments received)
  - Project Scenario (no comments received)
  - Baseline Scenario,
  - Selection of Relevant SSRs (no comments received)
  - Quantification Approaches in Table 2.4

5. **Review of Protocol:** Jamie Callendar

**Main Comments/Discussion Points from Review of Protocol:**

**Scope:**

Jody: Did you contact Environment Canada for review? Alain David or Alissa Broadway

Jamie: No we didn't contact them mainly because we had found a number of technical experts within NRCAN.

**Flexibility Mechanism:**

Amanda:

- Regarding flexibility mechanism 2 – what is the justification for the requirement for “2 years worth of data and what is meant by the term “significant modification”?

Jamie:

- The choice for 2 years worth of data was intended to represent consistent operations (minimize fluctuations in wastewater flows and COD loadings). The term significant modification refers to the enhancement of biogas generation, such as through the addition of a heat source to optimize the

temperature at which the anaerobic digestion process occurs. This type of modification would not allow for the use of this flexibility mechanism since the baseline scenario would have a lower biogas output per unit of COD than the “enhanced” project case.

### **Baseline Scenario- Flare Destruction Efficiency:**

Earl:

- The default assumption of a 95% flare efficiency is quite high – Open flares often operate at a 70-80% range.

Paul:

- Open flares are not 95%, at a good level they are about 80%, they do not operate at a level above 90%. This would be overly conservative and restricting for the project proponent.

Darryl

- Alan Chambers of Alberta Research Council just released preliminary reports about sour gas flare efficiencies and found that they are about in the 90-95% range.

Mike

- My firm has been some research into manufacturer’s specifications and finding a mid 90% efficiency is common– but it is important to know what type of flare is being utilized.

Jamie

- Sour gas flares may be somewhat higher in efficiency since the industry is more scrutinized in terms of SO<sub>2</sub> emissions compared to a wastewater treatment or food processing facility.

Jamie

- We will flag this issue to do some follow-up.
- There are a couple ways we could approach this: we could potentially use a project specific approach where the project proponent would have to show records of flare operation (flare top temperature, combustion efficiency etc.) but this could get fairly involved (e.g. the CDM approach is 15 pages long).
- If the assumption that most wastewater treatment operators would not have this information then we could stick with the use a conservative default value of 95%.
- We will review the wording to be inclusive of site specific data such as combustion efficiency tests if available to supplant the 95% value.
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### **Quantification Approaches in Table 2.4**

Earl

- Is the B<sub>0</sub> value of 0.21 used in place of the actual 0.25 value (IPCC) to account for COD decomposition which did not occur anaerobically?

Jamie

- We followed the CDM approach, which uses 0.21 for conservativeness to account for the uncertainty of the value

Paul

- If we have site specific plant data, such as the BOD: COD ratio – could we use our project data?

Jamie

- That is ‘primarily true’ that site specific data can replace the default values in the protocol, such that a third party verifier would assess whether the values used meet the minimum standards specified by the protocol in Tables 2.4 or 2.5. –
- However in order to values for the methane production per unit of organic matter from your facility you must prove you haven’t enhanced the biogas production (ie by adding heat) as specified in the Protocol Applicability section.
- We’ll review the protocol wording to make it inclusive of the use a site specific BOD: COD ratio for the particular wastewater stream in place of the IPCC default.

Paul

- 0.55-0.65 is a more reasonable BOD:COD ratio for the type of wastewater generated at food processing plants
- We have a lot of monitoring equipment and would/could use this data so we are glad to see the use of site specific data allowed.
- I agree with the conserivitiveness but if people have more site specific data they should be able to use their data to create more accurate information

Paul

- Can site-specific Higher Heating Values be used?

Jamie

- Yes they can, the protocol used default values from Environment Canada

### **Next Steps**

-Submit all written comments to Blue Source by October 24<sup>th</sup>.

- Blue Source will solicit written comments from invitees who couldn’t attend today
- Meeting minutes and summary of issues and resolutions will be sent to the group in late October
- Stakeholder review session to be in December
- Final protocol approval spring next year hopefully

Meeting Adjourned.

### **Comments Received the Week Following the Technical Review Session on Oct 15, 2008.**

James Jones of Alberta Agriculture and Food was unable to participate in the October 15<sup>th</sup> Technical Review so he reviewed the protocol independently and provided the following comments to Jamie Callendar over the phone on October 21, 2008.

James J.- On page 7 the definition of anaerobic digestion references fixed film digesters, which are not commonly used in Alberta.

Jamie- we will remove that reference.

James J.- Dry fermentation biogas projects will likely be developed in Canada in the future and it would be nice to include them in an Alberta Offset protocol. There are a few lab/pilot projects at the Alberta Research Council and in Saskatchewan.

Jamie- The existing AB Biogas protocol is likely suitable for these projects since it is fairly broad in scope for biogas usage and production, as compared to this protocol that is focused on wastewater treatment in the food processing sector.

James J.- Under P14 Land Application, there are some facilities in Europe where the digestate is being dried and then sent to cement plants and combusted in kilns, which eliminates any pathogen concerns. Alberta Agriculture is also conducting a major study of the compositions of the different feedstocks for bio-digestion.

James J.- Linkage with the biogas protocol would be a good idea since many biogas projects will mix manure, meat processing wastes and bio-solids to produce biogas.

James J.- There are many municipal sludge lagoons in Alberta and it would be ideal if this protocol included them.

James J.- Under P20 Biogas Processing for Pipeline, we commissioned a study in Alberta to examine the feasibility of this and it would be a good reference for you.

-No further written comments were received.