

**OFFSET PROJECT PLAN:**

**AGGREGATION OF CARBON CREDITS FROM NO-TILL OR  
REDUCED TILL AGRICULTURAL PRACTICE (POOL 2)**

**BASELINE AG SERVICES INC.**

**November, 2008**

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## 1.0 INTRODUCTION

This project consists of the aggregation of carbon offsets generated from the direct and indirect reductions of greenhouse gas (GHG) emissions through implementing no-till and reduced till systems on agricultural lands in Alberta. The reduction in frequency and intensity of tillage under a reduced-till or no-till system results in reduced fossil fuel use by farm equipment, reduced fossil fuel use for the production of fertilizer and other amendments, and a decrease in the amount of soil carbon and nitrogen that is released to atmosphere. The project proponent is Baseline Ag Services Inc., a fully owned subsidiary of Blue Source Canada, operating with implementation partners of Agri-trend Aggregation Inc. (ATAI) and AgShare Agency Ltd.

This Offset Project Plan has been completed in accordance with the Alberta Offset Credit Project Guidance Document (AENV, 2007). The Project complies with the Quantification Protocol for Tillage System Management (AENV, 2008 version 1.3).

## 2.0 PROJECT AND PROPONENT IDENTIFICATION

The project proponent is Baseline Ag Services Inc.(Baseline). Baseline may be contacted at:

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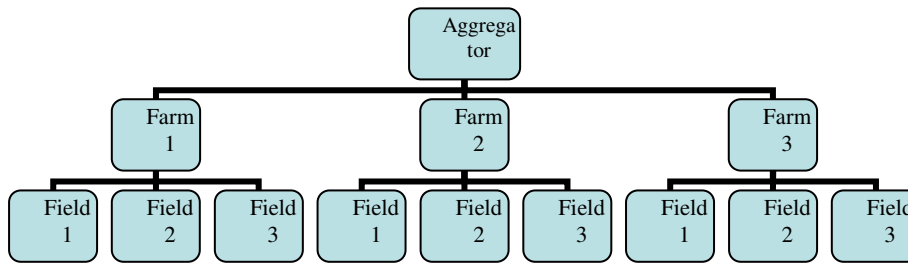
## 3.0 PROJECT DESCRIPTION

### 3.1 *Project Scope*

This project consists of the aggregation of carbon offsets generated from the direct and indirect reductions of greenhouse gas (GHG) emissions through implementing no-till and reduced till systems on agricultural lands in Alberta. The project aggregates carbon offsets generated by individual farm operators in order to provide larger quantities of carbon offsets for purchase by interested buyers. The carbon offsets are generated in accordance with the Quantification Protocol for Tillage System Management (AENV, 2008).

### 3.2 *Project Site Definition*

The aggregation project consists of pooling of the carbon offsets generated on individual fields within individual farm operations. As such, the geographical project site may vary from year to year, and will be composed of several different individual farm fields. The general structure of the aggregation project is presented in Figure 1 below. As part of the project implementation, a file will be developed for each farm operation (the Farm File) and for each individual field (the Field File) within the farm operation. The details of each farm operation and individual field involved in the project on an annual basis will be summarized and presented in the Annual Project Report.

**Figure 1: Aggregation Project Structure**

### 3.3 *Inventory of Sources and Sinks*

The applicability criteria, identification of sources and sinks, and quantification methodologies for each field within this project have been determined in accordance with the Quantification Protocol for Tillage System Management (AENV, 2008). As outlined in the protocol, each field within this project:

1. Must be producing annual crops on the applicable land as confirmed by an affirmation from the project developer and farm records;
2. Must operate on the applicable land in a no-till or reduced till system as defined within the protocol as confirmed by an affirmation from the project developer and farm records;
3. Must base the quantification of reductions achieved for each field on actual measurement and monitoring (except where indicated in the protocol) as indicated by the proper application of the protocol; and,
4. Must meet the requirements for offset eligibility as specified in the applicable regulation and guidance documents for the Alberta Offset System. Of particular note:
  - a. The project may generate emission reduction offsets for a period of 20 years as indicated by farm and offset system records. Additional credit duration periods require a reassessment of the baseline condition; and,
  - b. Ownership of the emission reduction offsets must be established as indicated by farm records.

This project meets the requirements outlined above, and the quantification methodology used has not deviated from the methodology outlined in the Quantification Protocol for Tillage System Management (AENV, 2008). Backup documentation indicating that the project meets the above requirements is contained in the Farm and Field Files.

## 4.0 IDENTIFICATION AND JUSTIFICATION OF BASELINE

The baseline condition for projects applying the Quantification Protocol for Tillage System Management (AENV, 2008) is considered as a performance based approach. The performance standard for no-till and reduced till farming has been set relative to a 1990 baseline and is subject to revision over time. The uptake of no-till and reduced till farming is considered within the coefficients implicit within the default methodology approach to assessing the relevant performance standard. The established baseline is considered static, where the coefficients remain constant, subject to periodic revision to reflect the evolving performance standard.

The Quantification Protocol for Tillage System Management (AENV, 2008) uses an adjusted baseline. The adjusted baseline accounts for carbon gains from current adoption levels of reduced-till and no-till practices within the given region, adjusted with farm census data from Statistics Canada. Therefore, project proponents do not have to prove a particular baseline at the project start date. The protocol applies regardless of the historical practices associated with either the land or the project proponent. As such, this report does not contain historical information but focuses on the current practices at each farm field included in the project, and identification of the appropriate emission factors based on the region that the field is located in, and the tillage practice used. The regions and definitions of no-till and reduced-till practices for the fields included in this project are outlined in the following table.

**Table 1: Definitions of tillage systems in the Parkland<sup>1</sup> and Dry Prairie protocol areas.**

Tillage System	Cropped Land Period <sup>2</sup>	Fallow Period <sup>3</sup>
No Till	Up to two passes with low-disturbance openers (up to 38%) <sup>4,5</sup> or one pass with a slightly higher disturbance opener (up to 46%) to apply seed, fertilizer or manure <sup>6</sup> , discretionary tillage of up to 10% <sup>5</sup> , no cultivation	No cultivations
Reduced Till	Soil disturbance to apply seed, fertilizer, or manure exceeds no till definition and/or one cultivation in fall or spring	One to two cultivations
Full Till	More than one cultivation between harvest and subsequent seeding if no fallow in that period, or, more than three cultivations between harvest to subsequent seeding if fallow	More than two cultivations

Notes:

- <sup>1</sup> The Peace River Lowland ecoregion is contained within the Parkland zone.
- <sup>2</sup> Cropped land period applies to the management cycle that terminates at harvest, (e.g. harvest to harvest is the cropped land period). This includes land preparation for seeding which may occur in the previous fall.
- <sup>3</sup> Fallow period extends from harvest for one full year to the next fall.  
Percentage values associated with openers are based on average opener width (below ground) divided by row or shank spacing of the implement.
- <sup>4</sup> Percentage values associated with openers are based on maximum opener width (e.g. 5 inch openers actually measure 5.5 inches) divided by the shank spacing of the implement.
- <sup>5</sup> Additional operations with harrows, packers, or similar non-soil disturbing implements are accepted. Where a second low soil disturbance operation is performed it is normally for injection of fertilizer or manure.
- <sup>6</sup> Discretionary tillage of up to 10% means that up to 10% of the surface area of a single agricultural field may be cultivated to address specific management issues. These areas are determined on an annual basis, meaning that specific areas may change from year to year.

The Quantification Protocol for Tillage System Management (AENV, 2008) provides a flexibility mechanism that allows for the use of site-specific Soil Organic Carbon (SOC) sequestration and N<sub>2</sub>O coefficients, provided that the coefficients are adjusted for baseline considerations. This aggregation project utilizes the generic coefficients presented in the Protocol and does not use site-specific emission factors; therefore justification of the

coefficients is not required. This Offset Project Plan may be revised if necessary to reflect the best available science, which may include the use of site-specific emission factors, in accordance with the Alberta Offset System Project Guidance Document (AENV 2007).

## 5.0 QUANTIFICATION OF EMISSION REDUCTIONS

### 5.1 Process Description

Quantification of the reductions, removals and reversals of relevant SS's for each of the greenhouse gases will be completed using the methodologies outlined in Section 2.5 of the Protocol, and the emission factors provided in Appendix A of the Protocol. These calculation methodologies serve to complete the following three equations for calculating the emission reductions from the comparison of the baseline and project conditions.

$$\text{Emission Reduction} = \text{Emissions}_{\text{Baseline}} - \text{Emissions}_{\text{Project}}$$

$$\text{Emissions}_{\text{Baseline}} = \text{Emissions}_{\text{Energy Use}} + \text{Emissions}_{\text{Carbon Sequestration}} * \text{Assurance Factor} + \text{Emissions}_{\text{Nitrogen}}$$

$$\text{Emissions}_{\text{Project}} = 0$$

Where:

$\text{Emissions}_{\text{Baseline}}$  = sum of the emissions under the baseline condition.

$\text{Emissions}_{\text{Energy Use}}$  = component of emissions under SS's B9 Pesticide Production, B3 Seed Distribution (On-Site), B7 Fertilizer and Lime Distribution (On-Site), B11 Pesticide Distribution (On-Site)

$\text{Emissions}_{\text{Carbon Sequestration}}$  = component of emissions under SS B13 Soil and Crop Dynamics

Assurance Factor = Factor to account for reversals due to tillage events.

$\text{Emissions}_{\text{Nitrogen}}$  = component of emissions under SS B13 Soil and Crop Dynamics

$\text{Emissions}_{\text{Project}}$  = sum of the emissions under the project condition.

The details of the parameters used in the equations are presented in the following table:

1.0 Project/ Baseline SS	2. Parameter / Variable	3. Unit	4. Measured / Estimated	5. Method	6. Frequency	7. Justify measurement or estimation and frequency
<b>Project SS's</b>						
P9 Pesticide Production	Captured in Baseline Adjusted Factors					
P3 Seed Distribution (On-Site)						
P7 Fertilizer and Lime Distribution (On-Site)						
P11 Pesticide Distribution (On-Site)						
P13 Soil and Crop Dynamics						
<b>Baseline SS's</b>						
B9 Pesticide Production	$Emissions_{Energy\ Use} = \sum Area_{Till\ Practice\ y} * EF_{Energy\ Use}$					
B3 Seed Distribution (On-Site)	Emission Reductions from Carbon Sequestration / Emissions <sub>Energy Use</sub>	kg CO <sub>2E</sub> / yr	N/A	N/A	N/A	Quantity being calculated.
B7 Fertilizer and Lime Distribution (On-Site)	Area of Field under Each Till Practice / Area <sub>Till Practice Y</sub>	ha	Measured		Continuous	
	Reduction Factor	kg CO <sub>2E</sub> /	Estimated	Default factor based	Annually	As per NCGAVS process.

1.0 Project/ Baseline SS	2. Parameter / Variable	3. Unit	4. Measured / Estimated	5. Method	6. Frequency	7. Justify measurement or estimation and frequency
B11 Pesticide Distribution (On-Site)	For Relevant Till Practice in Relevant Area and Geographic Zone / EF <sub>N2O Coefficient</sub>	ha / yr		on project farm location, as available at January 1 of the first year of the project. Transition zones should be characterized based on the dominant soil zone.		
B13 Soil and Crop Dynamics	$Emissions_{Carbon\ Sequestration} = \sum Area_{Till\ Practice\ y} * EF_{20\ yr\ Linear\ SOC\ Coefficient}$					
	Emission Reductions from Carbon Sequestration / Emissions <sub>Carbon Sequestration</sub>	kg CO <sub>2E</sub> / yr	N/A	N/A	N/A	Quantity being calculated.
	Area of Field under Each Till Practice / Area <sub>Till Practice Y</sub>	ha	Measured		Continuous	
	Sequestration Factor For Relevant Till Practice in Relevant Area and Geographic Zone / EF <sub>20 yr Linear SOC Coefficient</sub>	kg CO <sub>2E</sub> / ha / yr	Estimated	Default factor based on project farm location, as available at January 1 of the first year of the project. Transition zones should be characterized based on the dominant soil zone.	Annually	As per NCGAVS process.
	$Emissions_{Nitrogen} = \sum Area_{Till\ Practice\ y} * EF_{d\ N2O\ Coefficient}$					
Emission Reductions from Nitrogen Oxide Reduction / Emissions <sub>Nitrogen</sub>	kg CO <sub>2E</sub> / yr	N/A	N/A	N/A	Quantity being calculated.	

1.0 Project/ Baseline SS	2. Parameter / Variable	3. Unit	4. Measured / Estimated	5. Method	6. Frequency	7. Justify measurement or estimation and frequency
	Area of Field under Each Till Practice / Area <sub>Till</sub> Practice Y	ha	Measured		Continuous	
	Reduction Factor For Relevant Till Practice in Relevant Area and Geographic Zone / EF <sub>N2O</sub> Coefficient	kg CO <sub>2E</sub> / ha / yr	Estimated	Default factor based on project farm location, as available at January 1 of the first year of the project. Transition zones should be characterized based on the dominant soil zone.	Annually	As per NCGAVS process.

## 5.2 Data Sources

As the information in the previous section indicates, there are two main data sources required for the calculation methodology outlined in the Protocol – the area of the fields cultivated under each till practice, and the protocol area that the field is located in.

For the purposes of this project, the area of each field cultivated under each till practice is calculated in one of the following ways:

- Using GPS data;
- From legal survey information;
- Based on a review of aerial photographs;
- From land title information; or
- Based on the attestation of the farm operator.

If calculation methods other than those listed here are used, the methodology is noted and justification is provided in the individual field file.

The selection of the protocol area for each field is based on the map provided in the Alberta Environment publication *Additional Guidance for the Interpretation of the Quantification Protocol for Tillage System Management for Carbon Offsets in Alberta*, dated February 2008.

## 5.3 Project Quantification Methodology

Data collection and quantification of emission reductions will be carried out Baseline's implementation partners, ATAI and AgShare. The quantification, monitoring and quality assurance/quality control (QA/QC) methodology used by each implementation partner are presented in the following sections.

## 6.0 AGRITREND AGGREGATION INC.

### 6.1 Quantification Plan

The quantification plan used by ATAI involves their alliance with Agri-Trend Agrology Ltd., an Agri-Knowledge company that has been in operation since 1997. In general, data is collected by ATAI staff (referred to as Aggregators) during interviews with farm operators who wish to claim offset credits generated by either no-till or reduced-till practices. The collected data is then input into a database originally developed by Agri-Trend Agrology Ltd. to store a wide variety of farm, soil and crop information. The database has been modified to allow for the input of data specific to tillage management systems. Details of the data collection and storage methodology are provided in the following sections.

#### 6.1.1 Farm-Level Data Collection

To initiate the project at a particular farm, the ATAI Aggregator will conduct an initial onsite meeting with the farm operator. During this initial onsite meeting, the ATAI aggregator will:

1. Obtain the consent of the farm operator to quantify and claim the emissions reductions generated by no-till or reduced-till practices at the farm; and
2. Confirm that the farm operator has legal ownership of the offset credits generated and request documentation to confirm the farm operator's legal status as owner of the offsets.

A copy of the documentation will be retained in the Farm File. The documentation may be in the form of:

- a. Land title documents;
- b. Power of Attorney;
- c. Lease agreements indicating that the operator has ownership of offsets; or
- d. Other documentation of similar quality; and

### **6.1.2 Field-Level Data Collection**

For each Field in a farming operation cultivated using no-till or reduced-till practices in a given year, the ATAI Aggregator will collect the following information:

1. The legal land description of each Field to be included in the project;
2. The area of each Field to be included in the project. Documentation supporting the method of area calculation will be maintained in the Field file. The field area will be determined using one of the following methods:
  - a. Calculation using GPS data;
  - b. Calculation from a legal survey;
  - c. Calculation based on aerial photographs;
  - d. Determination based on land title information; or
  - e. Estimation based on the farm operator's knowledge and confirmed by a signed affirmation from the farm operator.
3. Determine the soil ecoregion that the field is located in, as outlined in the previous section; and
4. Confirm the tillage practices used to cultivate each field. The ATAI Aggregator will collect information from the farm operator regarding the crop, cultivation equipment and operating parameters for each field, and determine if the tillage system is considered no-till or reduced-till.

### **6.1.3 Data Management**

The information collected by the ATAI Aggregator will be inputted into the Agri-Trend database, an online database with an input screen specifically designed to record information relevant to tillage management systems.

Once the details of a farm operation have been added to the database, the system generates a unique identifier for each Field. Information is stored according to the name of the farm operation and the unique Field identifier. The unique identifier will be linked to the Farm identifier, and will be used to file all documentation associated with offset credits for that Field.

Documentation collected by the ATAI Aggregator will be maintained on file at ATAI's Red Deer office for a minimum of 7 years from the date of the Annual Reductions/Removals report in which the offsets are claimed.

### **6.1.4 Calculation of Emission Reductions**

The emission reductions generated on an annual basis under the project will be calculated using the methodology outlined in the Quantification Protocol for Tillage System Management

(AENV, 2008). The Agri-Trend database has been designed to calculate the emission reductions based on the area, ecoregion and tillage management system entered for each field. The appropriate values for the sequestration factor and assurance factor for each field are automatically selected based on the values provided in the Protocol. Database reports will provide the calculated emission reductions per farm operation, per field, and for the ATAI portion of the project.

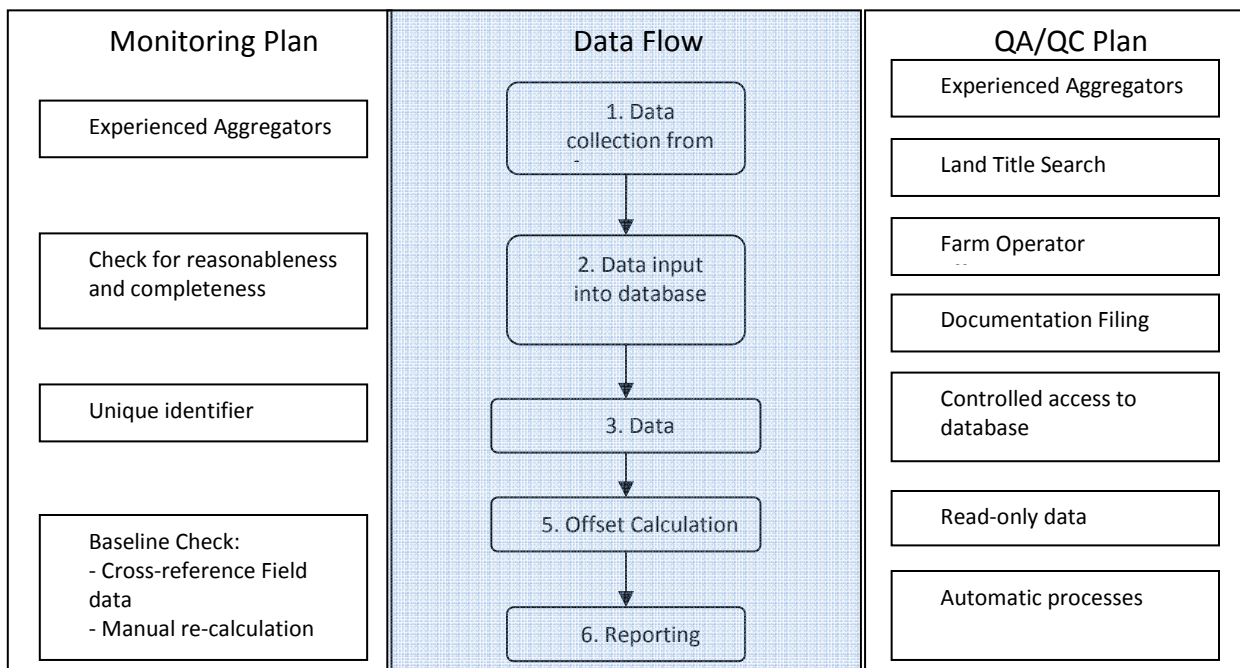
**6.2 Data Monitoring and QA/QC Plan**

The Data Monitoring and Quality Assurance/Quality Control Plan utilized by ATAI was developed to address the following potential sources of error in the quantification process:

- Inaccurate details from farm operators;
- Transcription error during data input into the database;
- Double-counting acres;
- Changes to data in the system after it has been entered; and
- Calculation error due to database programming.

The flow of data through the project, from collection to reporting, is presented in Figure 2.

**Figure 2 – ATAI Monitoring and QAQC Plan**



As outlined in Figure 2, six stages have been identified in the flow of data for this project. The components of the monitoring and QA/QC plan implemented at each stage are outlined in the sections below.

**6.2.1 Data Collection from Farm Operator**

The primary component of both the monitoring and QA/QC plan during collection of data from the Farm Operator is the experience of the ATAI Aggregators. The Aggregators are

Professional Agrologists or agricultural specialists with numerous years of experience in the agricultural sector. They are familiar with the geographical areas in which they are working and collecting data. During data collection, the Aggregators check the data provided by the Farm Operator for reasonableness based on their expertise and knowledge of the individual farm. The one-on-one interview with the Farm Operator also provides the Aggregators an opportunity to observe the farm's operating practices and ask questions if necessary.

For the purpose of this project, farmer attestation and farm records are supported by the records and practices of farm management systems. The farm management systems must manage uncertainty and risk to insure business success by forecasting crop returns and prices based on analysis and past planting practice, records and experience; planning and quantification of crop acreage based on crop forecast analysis; and crop input management to balance strong crop growth with minimization of over-usage and waste for economic and environmental reasons.

In addition, ATAI ensures that the data provided by the Farm Operator is accurate by requiring the Farm Operator to sign affirming that the data is correct to the best of his or her knowledge. The secondary component to the QA/QC of data from the Farm Operator is to confirm the claim of ownership through land title searches. The land title search was done through the Alberta Government's Spatial Information (SPIN) System website. For each Farm Operator, a 20% representative sample of the collected land titles was selected. These land titles were searched in the SPIN system to substantiate that the claim to ownership was legitimate. An overall materiality level of 5% was set for discrepancies between what was provided by the Farm Operator and search results.

### **6.2.2 Data Input into Database**

Data entry is performed by ATAI Aggregators using the notes they collected during interviews with the Farm Operator. The data entry stage allows a second opportunity for the Aggregators to check the reasonableness of the data, and to follow up with the Farm Operator to resolve any problems. The risk of transcription error at the data entry stage is mitigated by the use of trained personnel to enter the data. In addition, the database user interface has been designed to guide the user during data entry by providing dropdown lists, etc. as much as possible. The user entering data must also confirm that the backup documentation (contracts, proof of offset ownership, etc.) is in place.

During the data input stage, the database generates a unique identifier for each Field in the project. The unique identifier is used to link the electronic data with hard-copy documentation, and provides a method of monitoring the data to prevent double-counting of acres. For example, the database administrator can search the database for a legal land description and ensure that there is only one unique identifier associated with that location.

### **6.2.3 Data Maintenance**

Documentation collected by the ATAI Aggregator will be maintained on file at ATAI's Red Deer office for a minimum of 7 years from the date of the Annual Reductions/Removals report in which the offsets are claimed. Documentation is filed according to the individual Farm Operation and Field, using the unique Field identifier generated by the database system.

Maintenance of electronic data integrity is accomplished by controlling access to the database. The electronic data associated with a Farm or Field can be edited by the ATAI Aggregator, the Farm Operator, or a database administrator. Access to the data is controlled by a username and password.

#### **6.2.4 Offset Calculation**

Offset calculation is performed automatically by the ATAI database using the methodology outlined in the Quantification Protocol for Tillage System Management (AENV, 2008). The database has been designed to calculate the emission reductions based on the area, ecoregion and tillage management system entered for each field. The appropriate values for the sequestration factor and assurance factor for each field are automatically selected based on the values provided in the Protocol.

The plan for monitoring the accuracy of the offsets calculated by the database is to have a manual check performed by Baseline personnel. The manual check includes:

- Cross-referencing back-up documentation with the legal land description, area, crop and irrigation practice entered for each Field in the database;
- Contacting the ATAI Aggregator or Farm Operator, or referring to the backup documentation to resolve any discrepancies;
- Performing manual re-calculation of offsets for selected Fields to ensure that the database programming uses the correct methodology; and
- Identifying Fields that have been confirmed to be correct for inclusion in the Annual Reductions/Removals report using a checkbox built into the database.

The use of a manual check provides monitoring and quality control of the data at all stages of the project, and allows for feedback to improve the monitoring and QA/QC systems if necessary.

#### **6.2.5 Reporting**

The Annual Reductions/Removals report consists of a summary table generated using the ATAI database which lists the offsets claimed by Field. Only those Fields which have been confirmed during the Baseline manual check will be included in the summary table.

### **7.0 AGSHARE AGENCY LTD.**

#### **7.1 *Quantification Plan***

The quantification plan used by AgShare consists of collection of data during interviews with Farm Operators who wish to claim offset credits generated by either no-till or reduced-till practices. The collected data is then input into the AgShare Carbon Credit Application Form.

##### **7.1.1 Farm-Level Data Collection**

To initiate the project at a particular farm, AgShare personnel will conduct an initial onsite meeting with the farm operator. During this initial onsite meeting, the AgShare personnel will:

1. Obtain the consent of the farm operator to quantify and claim the emissions reductions generated by no-till or reduced-till practices at the farm; and

2. Confirm that the farm operator has legal ownership of the offset credits generated and request documentation to confirm the farm operator's legal status as owner of the offsets. A copy of the documentation will be retained in the Farm File. The documentation may be in the form of:
  - a. Land title documents;
  - b. Power of Attorney;
  - c. Lease agreements indicating that the operator has ownership of offsets; or
  - d. Other documentation of similar quality.

### **7.1.2 Field-Level Data Collection**

For each Field in a farming operation using no-till or reduced-till practices in a given year, AgShare personnel will collect the following information:

1. The legal land description of each Field to be included in the project;
2. The area of each Field to be included in the project. Documentation supporting the method of area calculation will be maintained in the Field file. The field area will be determined using one of the following methods:
  - a. Calculation using GPS data;
  - b. Calculation from a legal survey;
  - c. Calculation based on aerial photographs;
  - d. Determination based on land title information; or
  - e. Estimation based on the farm operator's knowledge and confirmed by a signed affirmation from the farm operator.
3. Determine the soil ecoregion that the field is located in, as outlined in the previous section; and
4. Confirm the tillage practices used to cultivate each field.

### **7.1.3 Data Management**

The information collected by AgShare on the Carbon Credit Application Form, and the associated documentation, will be provided to Baseline personnel. Baseline personnel will enter the data into the AENV calculator spreadsheet. One spreadsheet file will be maintained for each Farm.

Documentation collected will be maintained on file at Baseline's Calgary office for a minimum of 7 years from the date of the Annual Reductions/Removals report in which the offsets are claimed.

### **7.1.4 Calculation of Emission Reductions**

The emission reductions generated on an annual basis under the project will be calculated using the methodology outlined in the Quantification Protocol for Tillage System Management (AENV, 2008).

## ***7.2 Data Monitoring and QAQC Plan***

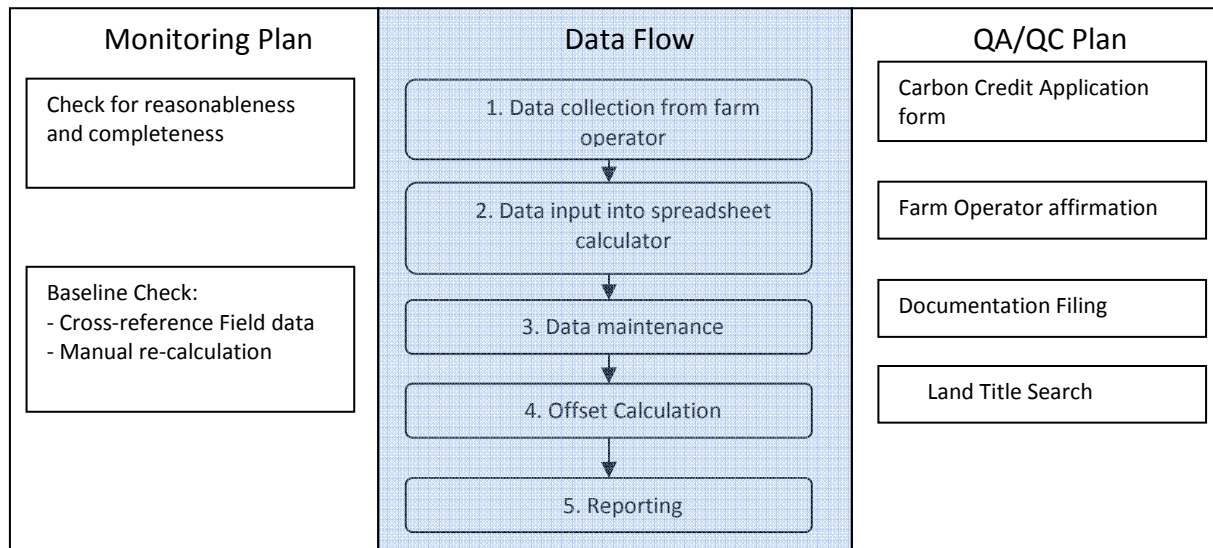
The Data Monitoring and Quality Assurance/Quality Control Plan utilized by AgShare was developed to address the following potential sources of error in the quantification process:

- Inaccurate details from farm operators;

- Transcription error during data input into calculators;
- Double-counting acres;
- Calculation error in the AENV calculator.

The flow of data through the project, from collection to reporting, is presented in Figure 3.

**Figure 3 – AgShare Monitoring and QA/QC Plan**



As outlined in Figure 3, five stages have been identified in the flow of data for this project. The components of the monitoring and QA/QC plan implemented at each stage are outlined in the sections below.

### 7.2.1 Data Collection from Farm Operator

The one-on-one interview with the Farm Operator provides the AgShare personnel an opportunity to observe the farm's operating practices and ask questions if necessary. A check for reasonableness and completeness of the data is conducted at this stage. Accurate data collection is facilitated by the use of the Carbon Credit Application form which ensures AgShare personnel are collecting the information and backup documentation required.

For the purpose of this project, farmer attestation and farm records are supported by the records and practices of farm management systems. The farm management systems must manage uncertainty and risk to insure business success by forecasting crop returns and prices based on analysis and past planting practice, records and experience; planning and quantification of crop acreage based on crop forecast analysis; and crop input management to balance strong crop growth with minimization of over-usage and waste for economic and environmental reasons.

In addition, ATAI ensures that the data provided by the Farm Operator is accurate by requiring the Farm Operator to sign affirming that the data is correct to the best of his or her knowledge. The secondary component to the QA/QC of data from the Farm Operator is to confirm the claim of ownership through land title searches. The land title search was done through the Alberta Government's Spatial Information (SPIN) System website. For each Farm Operator, a

representative sample of the collected land titles was selected. These land titles were searched in the SPIN system to substantiate that the claim to ownership was legitimate. An overall materiality level of 5% was set for discrepancies between what was provided by the Farm Operator and search results.

### **7.2.2 Data Input into Spreadsheet Calculator**

Data entry is performed by Baseline personnel using the AgShare Carbon Credit Application form and the associated backup documentation. The data entry stage allows an opportunity for Baseline personnel to check the reasonableness of the data and the completeness of the backup documentation, and to follow up with the Farm Operator to resolve any problems. The risk of transcription error at the data entry stage is mitigated by the use of experienced personnel to enter the data.

### **7.2.3 Data Maintenance**

Documentation collected by AgShare personnel will be maintained on file at Baseline's Calgary office for a minimum of 7 years from the date of the Annual Reductions/Removals report in which the offsets are claimed. Documentation is filed according to the individual Farm Operation and Field.

Maintenance of electronic data integrity is accomplished by controlling access to the spreadsheet calculators. One spreadsheet calculator will be maintained for each Farm operation, and only Baseline personnel will have access to the spreadsheet calculators.

### **7.2.4 Offset Calculation**

Offset calculation is performed automatically by the spreadsheet calculators using the methodology outlined in the Quantification Protocol for Tillage System Management (AENV, 2008). The appropriate values for the sequestration factor and assurance factor for each field will be selected by Baseline personnel based on the values provided in the Protocol.

The plan for monitoring the accuracy of the offsets calculated is to have a manual check performed by Baseline personnel. The manual check includes:

- Cross-referencing back-up documentation with the legal land description, area, crop and irrigation practice entered for each Field;
- Contacting the Farm Operator, or referring to the backup documentation to resolve any discrepancies;
- Performing manual re-calculation of offsets for selected Fields to ensure that the spreadsheet calculator is performing correctly; and
- Identifying Fields that have been confirmed to be correct for inclusion in the Annual Reductions/Removals report.

The use of a manual check provides monitoring and quality control of the data at all stages of the project, and allows for feedback to improve the monitoring and QA/QC systems if necessary.

### 7.2.5 Reporting

A summary table will be prepared for the Annual Reductions/Removals report listing the offsets claimed by Field. Only those Fields which have been confirmed during the Baseline manual check will be included in the summary table. The summary table will be prepared by Baseline personnel by compiling the calculated offsets from each Farm spreadsheet. QA/QC at this stage will consist of manual checking by Baseline personnel to ensure that the values in the summary table are consistent with the values in the spreadsheet calculators.

## 8.0 REPORTING OF EMISSION REDUCTIONS

Emission reductions achieved through this project will be claimed on an annual basis and quantified in accordance with the calculation methodology described in the Quantification Protocol for Tillage System Management (AENV, 2008). Emissions reductions will be verified by a third-party verifier according to the Offset Credit Verification Guidance Document (2007) provided by AENV.

## 9.0 PROJECT DEVELOPER SIGNATURE

The project developer has executed this project report as of the 1 day of November, 2008

**Baseline Ag Services Inc.**

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

Name: Dave LaBarre

Title: President, Baseline Ag Services