

# Oklahoma Carbon Program

## 2011 Verification Report North Canadian River Watershed Carbon Pilot Program

**Prepared for**

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## 1. Summary

In 2011, the Carbon Pilot Program in the N. Canadian River Watershed sequestered 3,193 metric tons of carbon dioxide equivalent (CO<sub>2</sub>e) with conservation practices (no-till, conversion to grasslands, riparian buffers) on agricultural lands. The sequestration was confirmed by field verification of 100 percent of the fields totaling 9,900 acres. Of those acres, 2,278 were ineligible. The remaining 7,622 acres were certified by the Conservation Commission by a desk audit of producer information and field verification documents. Western Farmers Electric Cooperative (WFEC) is paying \$3.50 per metric ton of CO<sub>2</sub>. This totals a payment to producers of \$11,175.50 for year three of the program.

## 2. Introduction

This report is provided to WFEC as a deliverable of the Oklahoma Carbon Pilot Program (Pilot Program) verification process. This report covers the verification of carbon sequestration by agricultural best management practices (no-till, conversion to grasslands, and exclusion of riparian buffers) in place during 2011. The Pilot Program location is in the North Canadian River Watershed as defined by the North Canadian River Watershed 319 Project by the Oklahoma Conservation Commission to be between the Canton Dam and Lake Overholser partially within Blaine, Canadian, and Dewey counties in Oklahoma. The Conservation Commission conducted verification from October 2011 to January 2012 in accordance with the Oklahoma Verification Standard 2010.1.

**The Oklahoma Conservation Commission (OCC)** conserves, protects and restores Oklahoma's natural resources, working in collaboration with conservation districts and other partners, on behalf of the citizens of Oklahoma. The Oklahoma Conservation Commission and conservation districts accomplish conservation of renewable natural resources through soil and water conservation, landuse planning, small watershed upstream flood control, abandoned mine land reclamation, water quality monitoring, environmental education and wetlands conservation.

**The Oklahoma Carbon Program** provides verification, certification, and registration of Oklahoma carbon offsets from agriculture, forestry, and downhole injection of carbon dioxide. The program offers oversight of carbon trading in the state by educating and connecting Oklahomans interested in carbon offsets with screened aggregators and trained verifiers of carbon offsets. Practices that sequester CO<sub>2</sub> also protect water quality. The Oklahoma Carbon Program is housed in the Water Quality Division of the OCC.

### Definitions

**Conservation Tillage:** The practice of *continuously* reducing or eliminating soil tillage from a crop management system while retaining and managing the crop residue on the soil surface.

**Cropland Conversion to Grassland:** Occurs when marginal croplands, that are not consistently producing an optimal harvest due to soil quality or type, climate, or other reasons, are converted to grassland.

**Riparian Area Exclusion:** Occurs when a fence is erected between a field in agriculture production and a stream or lake for the purposes of creating a vegetated buffer between the field and water.

The Pilot Program contracts were aggregated by the Oklahoma Carbon Initiative for Western Farmers Electric Cooperative. Local conservation districts assisted producers with applications. Sarah Love Pope, Director of the Carbon Initiative, was responsible for contracts and payments. The contracts were verified by the Oklahoma Conservation Commission, with the Director of the Oklahoma Carbon Program, responsible for assuring field verification, conducting document review (desk audit), and report preparation. Contact the Commission with questions pertaining to verification or this report at 405-522-4739 or [stacy.hansen@conservation.ok.gov](mailto:stacy.hansen@conservation.ok.gov).

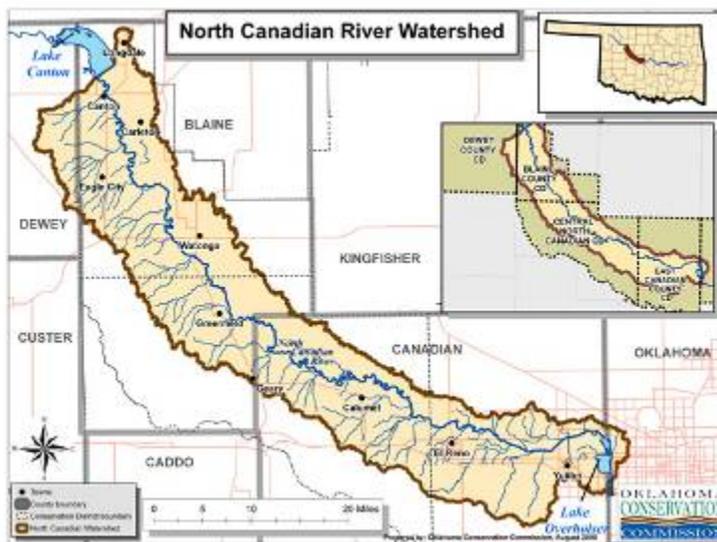
### 3. Objectives

The purpose of this verification was, through review of field assessments and documents, to establish that the Pilot Program contracts meet requirements of the Pilot Program criteria and the reported observations are accurate, complete, consistent, transparent, and free of material error or omission.

### 4. Verification Scope

Specific scope metrics for the verification are outlined below:

**Geographic Boundary** North Canadian River Watershed between Canton Dam and Lake Overholser partially within the boundaries of Blaine, Canadian, and Dewey counties. See map below.



**Greenhouse Gases Verified:** Emissions reductions (expressed in units of Carbon Dioxide equivalents, CO<sub>2</sub>-e) resulting from agricultural best management practices that are not business as usual: no-till, cropland conversion to grassland, and riparian exclusion.

**Reporting Period:** January 1, 2011 through December 31, 2011

**Data Sources:** Visual assessments; maps; emissions reduction calculations

**Principle:** GHG are stored when agricultural production occurs in a manner that minimizes or eliminates soil disturbance by livestock or farm equipment while optimizing plant growth, coverage, and health.

**Requirements:** In order to be Oklahoma Certified, verified offsets must meet criteria of the Oklahoma Verification Standard 2010.1. Oklahoma Certified offsets will be published to the Oklahoma Carbon Offset Registry.

## 5. Standards Used to Verify Emissions Reduction

The standard of verification used to conduct this verification was Oklahoma Verification Standard 2010.1.

## 6. Verification Methodology

Verifiers followed the Oklahoma Carbon Program Verification Standard 2010.1 to assess no-till, grassland, and riparian exclusion. Verification included review of documents, interviews and meetings with land managers as necessary and **visual on-site assessment** of parameters in **Table 1**.

**Table 1. Parameters Assessed During Field Verification**

	No-Till	Grassland	Riparian Exclusion
<b>Field</b>	Confirm field legal location	Confirm field legal location	Confirm field legal location
	Review maps or photos	Review maps or photos	Review maps or photos
	# Acres in field	Seeding date	Miles of fence installed
	# Irrigated acres	Acres planted to grass	Acres excluded
	Previous crop type	Predominant perennial plant species	Exclusion date
	Evidence of full width tillage	% Cover perennial plant species	No evidence of recent livestock traffic
	Crop residue or stubble burned	% Cover annuals, weeds or brushy plant species	Vegetation density and type
	Crop residue or stubble removed	% Soil surface exposed	Longevity of exclusion
	Growing crop grazed out	% Acres with residue removed	
	Field fallowed > than one year	Amount of standing biomass	
<b>Photos</b>	Digital	Digital	Digital
	Two minimum per field	Two minimum per field	Two minimum per field
	Panoramic up or down rows	Panoramic	Panoramic
	Close up 45 degrees showing vegetation type and residue	Close up 45 degrees showing vegetation type	Close up 45 degrees showing vegetation type
	Soil disturbance or questionable area	Soil disturbance or questionable area	Soil disturbance or questionable area
<b>Documents</b>	Aerial maps	Aerial maps	Aerial maps
	319 Project agreement	319 Project agreement	319 Project agreement

## 7. Overview of the Verification Process

To review Pilot Program's offset fields under carbon contract, the following verification process was used to gain an understanding of each participant's carbon sequestering activities:

- Select Verification Team
- Develop verification and assessment plan
- Contact land manager
- Conduct site visits to 100% of fields
- Take photos of each field
- Submit data (field forms and photos) for internal review
- Review and evaluate data for period under review
- Follow up with field verifier or producer for corrective action or supplemental data as needed
- Prepare final report with calculations

### Verification Team

The Conservation Commission's verification team consisted of the following individuals who were selected based on their verification training, experience with agriculture, and local knowledge of agriculture in the area.

- Lead Verifier: Monty Ramming, OCC
- Verifier Apprentices: Blaine CCD, Central North Canadian River Conservation District
- Technical Expert: Monty Ramming, OCC
- Internal Reviewer: Stacy Hansen, OCC

### Land Manager Contact

Each land manager applicant was contacted to schedule a site visit and given the option to accompany the Verification Team during verification.

### Development of the Verification Plan

The team developed a verification plan to make efficient use of travel time and minimize fuel emissions when visiting locations. Data was gathered in accordance with Oklahoma Carbon Program field verification forms.

### Site Assessment

The Verification Team conducted site visits between October 2011 and December 2011 on 100% of fields with active 319 Project Agreement and active Carbon Pilot Program Carbon Contract.

### Internal Review

All field data sheets and photographs were submitted to the Internal Reviewer for review and use in the final report.

### Carbon Sequestration Data and Calculation Assessment

This assessment used information and insights gained during the previous steps to evaluate the collected data and determine carbon dioxide reduction quantities.

### **Corrective Actions and Supplemental Information**

The Lead Verifier requested supplemental information from producers through interviews, but did not request corrective actions. The Internal Reviewer contacted the aggregator for clarification and corrective action regarding one field in one contract where acres were traded and new acres added.

### **Verification Reporting**

Verification reporting, represented by this report, documents the verification process and identifies its findings and results. Verification reporting consists of this annual report for WFEC and publishing results on the Oklahoma Carbon Offset Registry.

## **8. Site Conformance with Verification Criteria**

### **Site Overview**

The Pilot Program is located in the North Canadian River Watershed between Canton Dam and Lake Overholser in Blaine, Canadian, and Dewey counties in west central Oklahoma. This area was chosen because a watershed implementation project had just been launched in the area due to the strong local leadership and initiative of local conservation districts interested in addressing nonpoint source pollution affecting the river. This stretch of river has repeatedly failed to meet water quality standards for turbidity and *Escherichia coli* and *Enterococcus* (forms of fecal bacteria). The goal of the three year water quality project is to install best management practices (BMPs) to reduce bacteria, nutrients, and sediment entering area streams and the river.

### **Data Collection Monitoring Processes**

The Lead Verifier spoke by phone with the Internal Reviewer in January 2012, after the site visits were conducted and field data and photodocumentation were received, to confirm the following about the verification process:

- The data collection process
- Transmission of photos and documents
- Internal documents and protocols were followed

## **9. Verification Findings Summary**

Twenty-two producers participated in the Pilot Program. A total of 9,900 acres were verified. Of the total, 2,278 acres, or 24%, were not in compliance and were not certified for credit. A compliance summary and reasons for noncompliance are summarized in **Tables 2 and 3**. A total of 7,622 acres were certified by the Conservation Commission. The verification process focused on verifying that performance standards were being met at each field location participating in the Pilot Program. This was necessary because the quantification methodology that was used to calculate the emissions reductions is based on visual assessment of farm practices. To complete the verification process, the Verification Team made contact with land managers and arranged follow-up visits as necessary.

**Table 2. Explanation of Field Findings**

Practice Type	Total Acres	Verified (%)	In Compliance (acres)	Out of Compliance (acres)	Out of Compliance (%)
All Practices	9,900	100	7,622	2,278	24
No-till	9,670	100	7,201	2,278	26
Grassland	297	100	297	0	0
Riparian	124	100	124	0	0

**Table 3. Explanation of Acres and Contracts Not in Compliance**

Contract #	# Acres	Reason	Action
WF04	153	No-Till: Tilled. 2011	Acres ineligible
WF15	125	No-Till: Worked to smooth after pipeline work disturbed land 2011	Acres ineligible
WF14	846	No-Till: Quit no-till 2011	Acres ineligible
WF12	95	No-Till: Tilled by gopher machine (70) and for unknown reason (25) 2011	Acres ineligible
WF11	150	No-Till: Contract void due to death 2009	Acres ineligible
WF10	76	No-Till: Fallow >1 year awaiting pipeline work 2011	Acres ineligible
WF28	354	No-Till: No follow through on contract	Acres ineligible
WF19	108	No-Till: Quit no-till 2010	Acres ineligible
WF25	40	No-Till: Acres worked to repair pipeline crew disturbance 2009	Acres ineligible
WF05	3	No-Till: Oil and gas related construction 2010	Acres ineligible
WF07	155	No-Till: Field worked due to rain ruts 2010	Acres ineligible
WF07	73	No-Till: Field worked to repair pipeline crew disturbance 2010	Acres ineligible
WF09	100	No-Till: Field worked to repair pipeline crew disturbance 2010	Acres ineligible
<b>Ineligible</b>	<b>2,278</b>		

\* The carbon contract stipulates that, for no-till, enrolled “acres shall be in continuous conservation tillage,” therefore, soil disturbance also makes the field ineligible for subsequent years.

**Lessons Learned**

We saw a 1,512 acre decline in no-till acres from 2010 to 2011 and a 2,112 acre decline since year one. This reflects two things: Many producers signed up for the water quality project in 2007 or 2008, which means their 3-year agreement to continue no-till ended in 2011, and they decided not to continue the practice. While disappointing, this is not unusual. It is known in the industry as the “3-year hump” when many producers give up on no-till and return to conventional tillage. This project demonstrates the importance of offering a financial incentive for more than three years and for providing technical and educational resources for producers who are

willing to convert to no-till. It also shows that producers will not continue to adhere to a carbon contract for \$1.40 per acre if they do not otherwise plan to continue no-till. **Table 4** shows the downward trend in no-till acres and sequestered CO<sub>2</sub>e over the first three years of the project.

**Table 4. Summary of Acres Over Three Years**

Year	No-Till (Certified Acres)	Grassland (Certified Acres)	Riparian (Certified Acres)	Metric Tons CO <sub>2</sub> e
2009	9313	297	0	3698
2010	8713	297	124	3629
2011	7201	297	124	3193

## 10. Verification Conclusions and Recommendations

This assessment utilized Oklahoma Verification Standard 2010.1 to assess performance standards and annual stored metric tons of carbon dioxide by participating agriculture producers in the North Canadian River Watershed Carbon Pilot Program area.

### Calculations

2011	No-Till	Grassland	Riparian	
Acres Certified	7622	297	124	
Sequestration Rate (Metric Tons CO <sub>2</sub> /Ac/Yr)	0.4	0.4	0.2	
<b>Total Metric Tons CO<sub>2</sub>/Yr</b>	<b>3,049</b>	<b>119</b>	<b>25</b>	<b>3,193</b>

### Verification Statement and GHG assertion

This statement confirms that the Oklahoma Conservation Commission evaluated the GHG assertion by the Oklahoma Association of Conservation Districts covering the period from 1/2011 to 12/2011 according to the protocols outlined by the Oklahoma Conservation Commission. Based on the assessments performed, the Conservation Commission concludes that the Project GHG emissions reductions, due to the offsetting by agricultural management practices for the period of January 1, 2011 through December 31, 2011, can be considered to a reasonable level of assurance:

- Consistent with the Program Methodology
- Without material discrepancy, and
- The carbon dioxide sequestered equals 3,193 metric tons

The GHG assertion provided by the Oklahoma Association of Conservation Districts has resulted in the removal of:

**Vintage:** 2011

**Beginning:** 1/2011

**End:** 12/2011

**Metric Tons CO<sub>2</sub>e:** 3,193

**Water Quality Project Final Report Summary: Years 2007-2010**

Seventy-three landowners installed BMPs through the water quality project. As of December 2010, a total of \$961,075 was spent on BMP implementation, of which landowners provided \$98,365 and the remainder was a combination of federal and state funding....This represents nearly 13% of the project area participating in implementation of BMPs. Best management practices installed were:

- A total of 17,976 acres were enrolled in no-till through this project.
- A total of 394 acres of riparian area were protected by offering exclusion incentive payments to landowners, and 45,780 linear feet (8.6 miles) of fencing were installed for riparian area protection.
- A total of 920 acres of cropland was planted to grass to create healthy pastures, which will reduce the amounts of nutrient and sediment that enter the river due to runoff.
- A total of 7,842 linear feet of cross-fencing was installed to allow rotational grazing. Rotating cattle to different pastures reduces patches of bare soil associated with extended periods of loafing in certain locations.
- Five wells were drilled to supply alternative water for livestock excluded from streams. A total of five solar pumps and five watering tanks were installed under this project.
- A total of five rural waste systems were installed under this project.
- Five rural waste (septic) systems were offered to residents in the watershed who may not have septic tanks or whose tanks were in bad repair, in order to decrease the amount of residential sewer pollution entering the river and tributaries.

Additional EPA funding in this project area is allowing continued BMP implementation from January 2011 through December 2012. Practices offered through this extension project will be the same as in the original North Canadian River project. The goal is to implement BMPs in more of the targeted "hotspot" areas of the watershed. This next phase of the project is expected to be even more successful due to visible improvements in the watershed and testimony from producers who have participated in the previous project. It takes time in a watershed to build landowners' trust and acceptance of best management practices, especially for practices which are relatively new to the area such as no-till conversion and riparian fencing.

Although it was not anticipated that water quality would improve measurably in the North Canadian River during the three-year project period, it is anticipated that it will not decline and that improvements may be observed two years from now, when the autosampler water quality data is analyzed. The OCC will include a detailed water quality analysis with calculated load reductions in the Final Report [to EPA] at the end of the FY 2010 §319(h) North Canadian River project (December 2012).

The success of this project is currently measured in terms of expected load reductions based on the amount of BMP implementation that was completed. Water samples are being collected by automated water samplers at three locations on the North Canadian River in the project area. At the end of the next phase of the Project, scheduled to be completed in December 2012, water quality data from the automated samplers will be analyzed to determine load reductions resulting from the project.

Based on calculations using the STEP-L model to estimate load reductions from BMPs installed just in 2009 and 2010, nitrogen loading was reduced by 111,863 pounds per year, phosphorus loading was reduced by 16,904 pounds per year, and sediment loading was reduced by 5,956 tons per year. As BMPs mature, it is expected that even greater load reductions will result. (North Canadian River Implementation Project Phase I Final Report. February 2011. Oklahoma Conservation Commission.)