Verification Report for Emission Reductions Relating to J. B. Hunt Trucking Intermodal Project Including Emission Breakdown by State

Reporting Period: January 1, 2010 – July, 31 2010

Prepared for:
Blue Source, LLC

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1.0 Introduction

Ruby Canyon Engineering (RCE) was contracted by Blue Source, LLC (Blue Source) to perform the verification of the third Reporting Period of the J.B. Hunt Trucking Intermodal emission reduction ("Project") listed with the Canadian Standards Association (CSA).

1.1 Responsible Parties

Blue Source, LLC	J.B. Hunt Transport, Inc.
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1.2 Project Background

Blue Source is an active supplier of emission reduction credits sourced from geologic sequestration, conservation, transportation, and avoidance projects and entities. J.B. Hunt Transport Services, Inc. (J.B. Hunt) is one of the largest truck-load transportation and logistics companies in North America.

In 1989, J.B. Hunt formed a partnership with the former Santa Fe Railroad (now Burlington Northern Santa Fe). Over the next decade new intermodal concepts were developed and tested. In 2000, the J.B. Intermodal (JBI) business segment was formed within J.B. Hunt and over 300 million USD of capital was invested in containers, chassis, tractors and software to support the new JBI.

The goal of intermodal ground transport is to optimize the best of both truck and rail modes. Freight is loaded in containers and picked up at a shipper's location by a JBI tractor or third party dray company for transport to the rail yard. The containers are transferred from highway vehicles to rail cars for what is typically the longest leg of the route. At the destination rail yard, JBI containers are then transferred from the rail car and delivered by JBI or dray carriers to the final destination. This method of transporting freight via intermodal reduces fuel consumption and greenhouse gas emissions. Transporting freight via trains is over three times more efficient than trucks on a ton-mile basis. Thus, using trains to transport freight has the potential to provide significant greenhouse gas emissions reductions.

Estimates of baseline emissions, actual project emissions, and emission reductions were verified in accordance with the ISO 14064-3 guidelines to a Reasonable Level of Assurance defined at 95%. This verification is based on data obtained from J.B Hunt, Blue Source and protocol entitled *Blue Source's Project Description Report – GHG Reduction Protocol for J. B. Hunt's Intermodal Transport Project* that was developed for this project. It covers the emission reductions generated for the reporting period of January 1, 2010 – July 31, 2010. The protocol was based on established emission estimation techniques, conservative estimates, accurate/reliable data sources, emissions factors, and documented methodologies. Verification findings indicate all significant emission sources that materially affect the emission reductions are included within the scope of the project. Emission factors and methodology used to calculate actual emissions are consistent by source type (truck or rail). The sources of data are documented and records are maintained by J.B. Hunt.

Emission reduction estimates were determined annually over the reporting period. Baseline emissions are the actual carbon dioxide equivalents (CO_2e) emissions that would have been released to the atmosphere in the absence of the investment that JBI made in their intermodal program. This verification report documents that CO_2e emission credits totaling 1,102,372 tonnes were created for the reporting period of January 1, 2010 – July 31, 2010.

2.0 Verification Plan

RCE created a project specific verification plan that included risk assessment and a desktop sample plan. RCE did not perform a site-visit for this reporting period since RCE completed a detailed facility visit during the previous reporting period. RCE created the verification plan based on the following criteria:

Table 1 – Verification Assumptions

REPORTING PERIODS	o January 1, 2010 – July 31, 2010
PROTOCOLS AND STANDARDS	o CSA GHG CleanProjects™ Registry: Blue Source's Greenhouse Gas Emission Reduction Protocol for JB Hunt's Intermodal Transport Project, December 2008 o ANSI ISO 14064-2 "Greenhouse gases – Part 2: Specification with guidance at the project level for quantification, monitoring and reporting of greenhouse gas emission reductions or removal enhancements" o ANSI ISO 14064-3 "Greenhouse gases – Part 3: Specification with guidance for the validation and verification of greenhouse gas assertions"
LEVEL OF ASSURANCE & MATERIALITY	o Reasonable Level of Assurance (95%) o Materiality (5%)

Prior to starting the verification, RCE developed a desktop verification plan that was followed throughout the verification. The verification plan consisted of the following activities:

- Completion of RCE's internal COI form to identify any potential conflict of interest with the Project or Project developer.
  - The COI was identified to be Low.
- A teleconference verification kick-off meeting was held with Mahesh Gundappa on September 22, 2010. During the kick-off meeting RCE reviewed the verification objectives and process, the verification schedule, and requested the verification background documents.
- RCE sent additional data requests on October 25, 2010 and held a conference call with Blue Source and J.B. Hunt to discuss the required documents.
- RCE performed a strategic review and risk assessment of the received data and support documents in order to understand the scope and areas of potential risk in the GHG emissions reductions.
- A risk-based desktop sampling plan was developed based upon the strategic review and risk assessment. The verification plan and desktop sampling plan were used throughout the verification and were revised as needed based upon additional risk assessments.
- A risk-based desk-top review of the submitted verification documents was performed. The desk top review included an assessment of the GHG calculation methods and inputs, source data completeness, GHG management and monitoring systems, and record retention practices.
- A senior review of the verification sampling, report and opinion was conducted.
- A final verification report, verification opinion and listing of findings were developed.

2.1 Objectives

The goal of the validation and verification activities was to ensure the Project was eligible under the Canadian Standards Association (CSA) GHG CleanProjects™ Registry guidelines, the GHG assertion made by Blue Source was materially correct, and the calculation methods and data gathering and monitoring systems used were compliant with GHG standards and CSA guidelines. Furthermore, the validation and verification activities ensure the data provided to RCE is well documented and free of any material errors.

2.2 Eligibility Criteria

To be eligible under the CSA GHG CleanProjects™ Registry guidelines a project must follow the GHG emission reduction reporting methods in ISO 14064-2, which specifies principles and requirements, and provides guidance at the project level for quantifying and reporting GHG emission reductions or removal enhancements.

2.3 Scope

The scope of the verification activities includes the following:

- Establish the eligibility of the Project under the CSA's GHG CleanProjects™ Registry
- Verify the existence and ongoing operation and maintenance of the Project
- Verify the source of the raw data
- Ensure the completeness and accuracy of the GHG reduction calculations.
- Verify the monitoring, metering, and recordkeeping procedures conducted by the Project operator meet the level of assurance defined for the Project

2.4 Materiality

RCE determined the GHG assertion was materially accurate up to the 5% materiality threshold by verifying the following information:

- Number of loads dispatched by J. B. Hunt
- Documented miles driven by each truck
- Estimated miles traveled for each train load
- Fuel economies of both the trucks and trains
- Mileage variance factors
- BTU/ton-mile variance factors for each railroad

3.0 Assessment of GHG Data and Information

The following sections define the scope to which the GHG verification activities were limited to.

3.1 Project boundary

The project boundary includes all truck loads dispatched by J.B. Hunt for their JBT and JBI fleets (including the independent contractors and outsourced drays), and the rail intermodal loads contracted through J.B. Hunt, but dispatched through third-party railroad companies.

3.1.1 Baseline scenario

In the absence of the Project Activities, 86.5%[1] of the loads of freight would have been transported by over-the-road JBT trucks rather than by railroads. This is the baseline scenario.

([1]Intermodal shipping: FTR says intermodal making its presence felt, Logistics Management, May 26, 2010)

3.1.2 Technologies and processes

A fuel-based methodology is used to calculate all CO_2e emissions. Thus, the largest data requirements are truck loads (empty, loaded, and deadhead), miles traveled, and fuel economy (which is then converted to fuel consumption). J.B. Hunt engineers provided spreadsheets containing the annual dispatch, empty, and deadhead truck loads and miles, load weights, truck fleet fuel economies, and rail miles.

The Project utilizes software systems PC-Miler and Rand McNally to calculate baseline truck, rail, and JBI dray mileage.

PC-Miler is accepted industry wide and complies with U.S. DoD and GSA distances for approved freight rating and billing. Given this certification, RCE has a high level of assurance of the accuracy and use of the software.

J.B. Hunt has integrated Rand McNally mileage into their data management system and can run jobs that calculate mileage and routes for any given ramp pair. The product is used industry wide and also provides a high level of assurance in the accuracy of the mileage provided.

The baseline miles are calculated using PC Miler by entering the starting and ending ramp pairs to calculate the route and total number of miles.

3.1.3 GHG sources, sinks and/or reservoirs

The GHG emissions sources applicable to the Project include mobile source combustion of diesel fuel.

3.1.4 Types of greenhouse gases

The GHG mobile source emissions applicable to this Project include CO_2, CH_4, and N_2O.

3.1.5 Start Date & Current Report Period

- The Project Start Date of the 10 year Crediting Period was October 1, 2006.
- This report documents verification activities for January 1, 2010 – July 31, 2010.

3.2 Sampling Plan

The majority of the GHG assertion (~80%) was from the intermodal loads carried by the Burlington Northern & Santa Fe (BNSF) railroad. Actual track miles and more recent BNSF fuel economies were available for BNSF. In addition, actual track miles and railroad-specific fuel economies were available for the Norfolk Southern (NS) railroad, which represented approximately 18% of the GHG assertion.

RCE's risk-based desktop sample plan was based on the following:

- Review of the GHG report and assertion
- Review of GHG information systems and data
- Verify trucking dispatch, data management, and maintenance operations have not changed since the previous verification
- Completeness of supporting documentation
- Calculation methodologies were correctly applied
- Calculations and results were materially correct
- Verify all the necessary monitoring and metering were in place
- Verify customer ramp pair miles to paid bill of ladings and invoices

3.3 Assessment Against Verification Criteria

3.3.1 Eligibility

The CSA's GHG CleanProjects™ Registry guidelines indicate a project must follow the GHG emission reduction reporting methods in ISO 14064-2. RCE has determined the project has met these requirements.

3.4 Assessment of GHG Information and Information System Controls

3.4.1 Dispatched Loads

Dispatched loads are entered from J.B. Hunt's headquarters and entered into the truck's on-board computer. The load is tracked and the data is transferred to J.B. Hunt's mainframe computer database. Output files are queried for daily reports. J.B. Hunt uses error checking software to match each load order with actual truck data.

3.4.2 Miles Traveled

Data for the trucks were collected by the J.B. Hunt on-board truck computers and communicated via a satellite tracking system to an in-house database system (IBM mainframe). J.B. Hunt checks the truck's odometer readings with the dispatched miles to record any variances.

Actual rail miles were determined from data obtained from BNSF and NS railroads for various ramp pairs used for transporting JB Hunt intermodal loads. For the remaining ramp pairs J.B. Hunt used software PC Railer to estimate the rail miles. Using these approaches approximately 99 percent of the total track miles traveled were determined. These actual rail miles were compared to PC Miler miles in the JBI reporting system and indicated the actual track miles were about 10 percent greater than PC Miler miles. To account for this difference, the JBI reported miles were increased by about 10 percent.

3.4.3 Fuel Economies

Fuel economies for each truck were determined using data from the fuel billing system. The driver must enter the truck identification number, and odometer reading before receiving fuel from the fueling station. In order to avoid small errors introduced when days of fuel consumption from a single fill up span between two consecutive months, J.B. Hunt used quarterly (3 month) fuel economies in the GHG assertion, thereby reducing the uncertainty of the fuel economies. Fuel economies are recorded each time a driver fills up a truck with diesel. The fueling system has safeguards that monitor the time between fuel-ups, mileage, and the truck's identification number to prevent partial fuel-ups that will affect the MPG tracking. If the truck does not meet all of the criteria, the fuel-up will not be authorized without further investigation from J.B. Hunt.

3.4.4 Variance Factors

Trucks - Actual truck miles driven by both the JBI and JBT fleets are greater than the standard PC Miler miles used by the dispatched load orders. In order to reflect actual miles driven, the PC Miler miles are multiplied by two factors. The first, a *loaded mile adjustment factor*, combines the loaded truck, empty truck, and deadhead miles and compares them to the PC Miler miles. The second factor applied to the Rand McNally miles is called the *variance factor*. This represents the additional miles driven by the truck drivers that are not required for shipment of the dispatched loads. The causes of additional miles include road construction detours and food stops.

Trains - Information regarding the energy intensities (Btu/revenue-ton-miles) of the railroads was obtained from the American Railroad Association and the two largest carriers for J.B. Hunt, BNSF and NS railroad for the most recent years available. In addition, a 2001 BNSF study showed the energy

intensities of their intermodal locomotives are 21 percent less efficient than their overall fleet average (600 intermodal gross ton-miles/gallon of diesel vs. 762 average gross ton-miles/gallon of diesel). The reasons for the difference are the use of double-stacked containers as well as larger locomotive engines for intermodal transport, which require travel at higher than average speeds (70mph vs. 45mph). In addition to a 21 percent variance factor, an additional 1 percent variance factor is applied to account for rail yard emissions for loading and unloading containers (using overhead cranes and Hostler trucks).

4.0 Evaluation of the GHG Assertion

4.1 Emission Reductions

Blue Source provided sufficient evidence and good documentation of their emission estimates, data collection procedures, and monitoring and quality control procedures. The verification process focused on the documented variance factors and data management systems J.B. Hunt used to quantify the emission reductions. **Table 2** outlines the total quantity of CO_2e of baseline emissions, project emissions, and emission reductions from the Project for the reporting period January 1, 2010 to July 31, 2010. **Table 3** summarizes the total emission reductions by state.

Table 2: GHG Emission Reductions

	CO_2e (tonnes)
Baseline Emissions	2,041,282
Project Emissions	927,831
Leakage Emissions	11,079
Total Emission Reductions	1,102,372

Table 3: GHG Emission Reductions by State – CO_2e (tonnes)

State	CO_2e	State	CO_2e	State	CO_2e	State	CO_2e
AL	9,361	IA	39,389	NV	31,516	SD	9,821
AZ	108,213	KS	9,824	NH	(222)	TN	43,581
AR	40,334	KY	7,938	NJ	406	TX	77,957
CA	71,877	LA	5,446	NM	97,909	UT	46,868
CO	41,529	ME	(224)	NY	3,222	VT	21
CT	1,321	MD	4,111	NC	4,047	VA	18,053
DE	(232)	MA	(625)	ND	11,515	WA	10,288
DC	0	MI	(2,511)	OH	38,721	WV	3,320
FL	4,676	MN	7,902	OK	72,569	WI	3,136
GA	(7,262)	MS	6,036	OR	13,713	WY	44,289
ID	15,923	MO	38,764	PA	31,125		
IL	22,195	MT	33,965	RI	85		
IN	13,353	NE	66,939	SC	2,191		

4.2 Finding Overview

In the previous verification, Blue Source presented a project plan that aggregated all of the activities in the U.S., however the 2010 GHG assertion separates the emission reductions into individual states. RCE considered this change to be a small deviation to the existing GHG project plan. As a result, RCE

required Blue Source provide justification and documentation for the changes. RCE determined the new project plan included all of the current GHG operational and control procedures implemented and the changes related to post-processing of the data. RCE discovered two material findings during the validation of the Project, the first regarding baseline uncertainty and the other regarding project emissions.

The initial GHG assertion calculated the breakdown of emission reductions by state based on the ramp-to-ramp miles traveled by JBI loads in each state. RCE identified states with abnormally high emission reductions since the train routes do not exactly match up with the most plausible interstate truck routes under the baseline. Blue Source corrected this issue by using different approaches for each baseline and project emissions source. The baseline truck emissions breakdown was based on road miles in each state using the most practical route between origin and destination cities, while the breakdown of baseline intermodal emissions and project emissions was based on the ramp-to-ramp miles.

The second finding focused on the project plan's assumption for calculating project emissions where the JBI dray mileage was evenly distributed across all states that a particular beginning and destination ramp pair crossed. Blue Source amended the assertion to separate project dray emissions from intermodal emissions and to calculate dray emissions based on actual miles between customer locations and rail ramps.

The changes in the approach only affect the breakdown of emission reductions among the States but did not change the calculated total emission reductions across all states. Due to disproportionately more drayage in certain states, this last change in the GHG assertion caused a small increase in emissions for certain states. These leakage emissions were calculated as a negative emission reduction and deducted from the baseline emissions (see Table 2). The leakage emissions (shown in Table 3 as states with no emission reductions) were deducted from all the other states on a pro-rata basis in the final GHG assertion.

5.0 Verification Opinion

RCE conducted a risk-based analysis of the J. B. Hunt Trucking Intermodal Emission Reduction Project ("Project") GHG assertion where RCE performed a strategic review of the Project data and evidence. Based upon the processes and procedures and the evidence collected, RCE concludes with a reasonable level of assurance that the Project emission reductions during the reporting period January 1, 2010 through July 31, 2010 can be considered:

- In conformance with CSA GHG CleanProjects™ Registry: Blue Source's Greenhouse Gas Emission Reduction Protocol for JB Hunt's Intermodal Transport Project, December 2008
- without material discrepancy, and
- verified to the reasonable level of assurance of 95 percent.

Table 4 Emission Reductions Verified for January 1, 2010 through July 31, 2010

Emissions Verified	CO_2e (tonnes)
Emission Reductions	1,102,372

Table 5: Verified GHG Emission Reductions by State

State	CO_2e (tonnes)
Alabama	9,268
Arizona	107,136
Arkansas	39,933
California	71,162
Colorado	41,116
Connecticut	1,308
Delaware	-
Washington DC	0
Florida	4,629
Georgia	-
Idaho	15,764
Illinois	21,974
Indiana	13,220
Iowa	38,997
Kansas	9,726
Kentucky	7,859
Louisiana	5,391
Maine	-
Maryland	4,070
Massachusetts	-
Michigan	-
Minnesota	7,824
Mississippi	5,976
Missouri	38,379
Montana	33,627
Nebraska	66,273
Nevada	31,202
New Hampshire	-
New Jersey	402
New Mexico	96,935
New York	3,190
North Carolina	4,007
North Dakota	11,401
Ohio	38,336
Oklahoma	71,847
Oregon	13,576
Pennsylvania	30,815
Rhode Island	84
South Carolina	2,169
South Dakota	9,723
Tennessee	43,147
Texas	77,181
Utah	46,401
Vermont	24
Virginia	17,874
Washington	10,186
West Virginia	3,287
Wisconsin	3,105
Wyoming	43,848
Total	**1,102,372**

Lead Verifier – Greg Palmer	Senior Review – Sally Phipps