	<p>VERIFICATION REPORT</p>	
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VERIFICATION REPORT
SANTA ANA HYDROELECTRIC PLANT
 (UNFCCC REGISTRATION REF. No. 0275)

EMPRESA DE ACUEDUCTO Y ALCANTARILLADO DE BOGOTÁ - EAAB
 (COLOMBIA)


EDF TRADING LIMITED
 (UNITED KINGDOM OF GREAT BRITAIN)

MGM CARBON PORTFOLIO, S.A.R.L.
 (NORTHERN IRELAND)

VERIFICATION PERIOD:
 01/08/2009 – 31/07/2010

REPORT NO. CDMVER -043-02

DECEMBER, 2011

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Date of first issue:	06/04/2011	Project No.:	UNFCCC REGISTRATION REFERENCE No. 0275
Approved by:	Francy Ramirez ICONTEC Technical reviewer	Organizational unit:	Instituto Colombiano de Normas Técnicas y Certificación – ICONTEC Carrera 37 52-95 Bogotá - Colombia
Client:	Empresa de Acueducto y Alcantarillado de Bogotá (EAAB). Address: Av. Calle 24 No. 37 - 15 Bogotá – Colombia Phone: + 57-1 – 3447058	Client ref.:	043

Summary:

ICONTEC has performed the fifth periodic verification of the registered CDM project: SANTA ANA HYDROELECTRIC PLANT in Colombia (Registration Number: n°0275; Registration Date: 11th of May 2006) on the basis of UNFCCC criteria referred to Article 12 of the Kyoto Protocol and CDM modalities and procedures according to the Marrakech Agreement, the criteria of the CDM Executive Board and the Host country, as well as the operational and technical monitoring criteria specific to this type of project.


The project activity under this verification process is a small run-of-river type hydroelectric plant, introduced into the municipal potable water supply system of Bogotá – Colombia, located on the outskirts of the city. It was scheduled to begin operations in the second semester of 2005. In this framework, the management of Empresa de Acueducto y Alcantarillado de Bogotá (EAAB) in Colombia, is responsible for the preparation of the GHG emissions data and the reported GHG emissions reductions on the basis set out within the project Monitoring and Verification Plan indicated in the final PDD version 2.

The verification consisted of the following four phases: i) a desk review and investigation on secondary sources of information, ii) on-site assessment iii) the resolution of findings and iv) Issuance of the final verification report with the conclusion on the emission reduction achievements, as follows:

18/03/2011	The monitoring report was publicly available in the UNFCCC web page
30-31/03/2011	Desk review and investigation of secondary sources of information
07-08/04/2011	On-site visit and interview with stakeholders
14/07/2011	The owner of the project answers the findings and send the new version of the monitoring report
12/08/2011	ICONTEC sent findings with comments
11/10/2011	EAAB sent Monitoring report with changes
19/10/2011	Draft verification report was sent to the owner of the project
01/11/2011	The owner of the project sent comments at verification report and final version of MR.
02/11/2011	The verification report sent technical review
05/12/2011	ICONTEC sent final verification report for approval
07/12/2012	Final report was updated for the Project participants' comments
20/12/2011	Upload of the project documentation to the UNFCCC web page to request for Issuance

Documentation review, interview and on-site visit allowed ICONTEC to collect enough evidence to completely assess the verification criteria and determinate that the project is implemented as planned and as described in the validated and registered PDD Version 02, emission reductions were correctly calculated based on PDD, installed equipment essential for generating emissions reductions runs reliably, the monitoring system is in place and is calibrated appropriately. ICONTEC can confirm that the GHG emission reductions are calculated without material misstatements.

2010-04-23

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<i>Based on the information we have seen and evaluated we confirm the following statement:</i>				
<i>Reporting period: From 01/08/2009 to 31/07/2010</i>				
<i>Verified emission in the above reporting period: 13,582 tonnes CO₂ equivalents</i>				
<i>Report No:</i>	043-02	<i>Subject Group:</i>	<i>Verification</i>	<i>Indexing terms:</i>
<i>Report title:</i> SANTA ANA HYDROELECTRIC PLANT				<i>Climate Change; Kyoto Protocol; verification; Clean Development Mechanism</i>
<i>Work carried out by</i>	Eng. Erika Urrego Eng. Fernando Gómez			
<i>Work verified by</i>	<i>Technical review internal ICONTEC</i>		<input checked="" type="checkbox"/> <i>No distribution without permission from the Client or responsible organizational unit</i> <input type="checkbox"/> <i>Limited distribution</i> <input type="checkbox"/> <i>Unrestricted distribution</i>	
<i>Date of this revision</i>	19/12/2011			
<i>Rev. No.:</i>	02			
<i>Number of pages:</i>	43			

This report should not be read without reference to the annexed Verification Protocol.

Abbreviations

CAR	Corrective Action Request
CDM	Clean Development Mechanism
CERs	Certified emission reductions
CH ₄	Methane
CL	Clarification Request
CO ₂	Carbon Dioxide
CO ₂ eq	Carbon dioxide equivalent
DNA	Designated National Authority
DOE	Designated Operational Entity
DR	Document Review
ER	Emission Reductions
FAR	Forward Action Request
GHG	Greenhouse Gases
I	Interview
ICONTEC	Colombian Institute of Technical Standards and Certification (Instituto Colombiano de Normas Técnicas y Certificación)
IPCC	Intergovernmental Panel on Climate Change
MoV	Means of verification
MP	Monitoring Plan
MR	Monitoring Report
EAAB	Empresa de Acueducto y Alcantarillado de Bogotá (water and sewage company of Bogotá)
EMGESA	Empresa Generadora de Energía Eléctrica S.A. (Electricity Market Agent)
XM	“XM” (Experts Market) is a company of the ISA Group providing integral services. (www.xm.com.co).
QA/QC	Quality Assurance / Quality Control
UNFCCC	United Nations Framework Convention for Climate Change
CAR	Regional Autonomous Corporation for Cundinamarca (Corporación Autónoma Regional de Cundinamarca)
CAM	Multiservice American Company (Compañía Americana de Multiservicios), is a company that provides services to EMGESA for interrogation and recording commercial frontier power meters. Additionally CAM has accredited laboratory in Colombia for the revision of power meters.
CND	Center national of dispatch

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1. INTRODUCTION

Empresa de Acueducto y Alcantarillado de Bogotá (Water and Sewage Company of Bogotá) has commissioned ICONTEC to perform the fifth verification of its registered CDM project: Santa Ana Hydroelectric Plant (hereafter called "the project").

ICONTEC has reviewed the GHG data collected for the period from 01/08/2009 to 31/07/2010. This report contains the findings of the project as well as the verification and certification statements for the certified emission reductions.

The verification has been performed on the basis of UNFCCC criteria referred in Article 12 of the Kyoto Protocol and CDM modalities and procedures according to the Marrakech Agreement, the criteria of the CDM Executive Board and the Host country, as well as criteria given for consistent project operations, monitoring and reporting.

The project activity under verification process involves installing a turbine to take advantage of the difference in levels between the Wiesner plant and tank water storage Santa Ana, this project was given the name Santa Ana Hydroelectric Plant. According to the dimensions defined by the Agustín Codazzi Geographical Institute (IGAC), Wiesner plant is located exactly at 2,795 meters above sea level and the tank in Santa Ana to 2,679 meters above sea level. The height of the turbine shaft is at 2,674 meters above sea level therefore takes advantage height of 121 m between the Wiesner plant and the turbine.

It was designed for turbine water flow of 13,5 m³/s, has a installed capacity of 13,43 MW and uses a net head of 105,9 m, which could generate 90 GWh/year. However, the reduction in water demand of the city, the result of the implementation of different measures to increase efficiency in its use, as well as measures to ensure the required water supply for the city, reduced expectations generation of the plant and today is estimated at 30 GWh/year and 48 GWh /year. The electricity power generated is delivered to the national interconnected grid.

1.1 OBJECTIVE

According to CDM Modalities and Procedures (Decision 17/CP.7) the purpose of this verification process is the periodical independent review and ex-post determination of the monitored reductions which have occurred as a result of the registered CDM project activity during the verification period.

As a result of this process a written certification of the emission reduction achieved and verified will be prepared by the DOE for the specified time period.

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The objective of verification is to verify that the project is implemented as planned, to confirm that the monitoring system is in place and fully functional, and to assure that the project will generate verifiable emission reductions.

ICONTEC has carried out this verification according to the Validation and Verification Manual of UNFCCC, with a risk-based approach on the verification, focusing on the identification of significant risks and reliability of project monitoring and generation of CERs.

1.2 SCOPE

The scope of this verification included the following activities:

- *To determine whether the project has been implemented as planned.*
- *To determine whether the project documentation provided is in compliance with the requirements of the registered project design document, relevant provisions of decision 17/CP.7 and relevant decisions of the COP/MOP.*
- *To conduct on-site assessment, including a review of performance records, interviews with project participants and local stakeholders, measurements, compliance of established practices and testing of the accuracy of monitoring equipment.*
- *To identify whether actual monitoring systems and procedures are in compliance with the monitoring systems and procedures described in the monitoring plan.*
- *To review monitoring results and verify that the monitoring plan is in place and fully functional and their documentation is complete and transparent.*
- *To confirm that the project generates verifiable emission reductions.*
- *To verify whether reported GHG emission data is sufficiently supported by evidence, i.e. monitoring records.*
- *To recommend to the project participants the appropriate changes to the monitoring plan, if necessary.*
- *To determine the reductions in anthropogenic GHG emissions by sources that would not have occurred in absence of the CDM project activity, using calculation procedures according to the registered Project Design Document and the Monitoring Plan.*
- *To confirm that GHG emission reduction data are “free” of material misstatements.*
- *To identify and inform the project participants of any concerns related to the actual project activity and its operation compliance with the registered project design document. Project participants shall address the concerns and supply relevant additional information.*
- *To provide a verification report to the project participants, the parties involved and the Executive Board. The report shall be made publicly available.*

ICONTEC based on its ethics code and internal procedures for carrying out validation, verification and certification audits of CDM project activities (the internal procedures are based on the Validation and Verification Manual (VVM of EB of UNFCCC) focused on the identification of significant risks for CER generation, and verification of the mitigation.

Verification does not equate to providing consulting services for the project participants. However, stated requests for clarifications and/or corrective, forward actions may be provided as well as input for improvement of the project design.

1.3 DESCRIPTION OF THE PROJECT ACTIVITY

<i>Project Parties</i>	<i>: Empresa de Acueducto y Alcantarillado de Bogotá - EAAB (Colombia) EDF Trading Limited (United Kingdom) MGM Carbon Portfolio, S.a.r.l. (Northern Ireland)</i>
<i>Title of project activity</i>	<i>: Santa Ana Hydroelectric Plant</i>
<i>UNFCCC registration No</i>	<i>: 0275</i>
<i>Project Entity</i>	<i>: Santa Ana Hydroelectric Plant is part of Empresa Acueducto y Alcantarillado de Bogotá E.S.P. Official Contact: Dr. Humberto Triana Luna htriana@acueducto.com.co Address: Av. Calle 24 No. 37 - 15 Bogotá – Colombia phone: + 57-1-3447058 fax: + 57-1-3447000 Ext. 7058 option 1</i>
<i>Location of the project activity</i>	<i>: The Santa Ana Hydroelectric Plant is located in northern Bogotá city, Colombia, exactly at coordinates 110324.65 North and 105849.56 East.</i>
<i>Project's crediting period</i>	<i>: 10 years</i>
<i>Verification period</i>	<i>: 01/08/2009 to 31/07/2010</i>
<i>Project starting date:</i>	<i>: 01/08/2005</i>
<i>Santa Ana Hydroelectric Plant is a small run-of-river type hydroelectric plant, introduced into the municipal potable water supply system of Bogotá – Colombia, located on the</i>	

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outskirts of the city. The project began operations in the second semester of 2005.

Santa Ana Hydroelectric Plant project has installed at the base of the Usaquéñ Alternate tunnel a power house with hydroelectric power conversion equipment, that turbines the water passing from the Wiesner water treatment plant into the distribution / storage system of the city, producing clean electricity to be placed into the Colombian National Interconnected Grid, following local existing electricity market regulations and required environmental and operational permits. Its exact location corresponds to the coordinates 110324.65 North and 105849.56, at north of Bogotá.

A key objective of the project is to reduce Greenhouse Gas Emissions that would have otherwise been generated by the National Interconnected System of Colombia.

The power capacity is 13,43 MW and the energy generation of Santa Ana Hydroelectric Plant is transmitted to the national grid through a short 34.5 kV line connecting the power plant with the Usaquéñ Electrical Substation, owned by the local operator CODENSA. Just before this point, in the same location, there is a step down transformer 34.5/11.4 kV, owned by EAAB, where the power is adjusted to the voltage level required for connection to Usaquéñ Electrical Substation of CODENSA. Besides that, in Usaquéñ EAAB installations there are two meters (main one and back up one) used for EAAB to verify and validate measurements of Santa Ana Hydroelectric Plant input registered by the meters of commercial frontier in Usaquéñ Electrical Substation of CODENSA.

The GHG emission relevant to the project activity is CO₂ displaced for generate energy with water and not fossil fuels.

The project activity is based on the methodology AMS I.D. Version 7: Renewable electric power generation for a grid.

The impact in global warming generated in the crediting period of the Project is an emission reduction of 13,582 tonnes CO₂e.

2. METHODOLOGY

2.1 Introduction

The verification consists of the following four phases:

1. *Desk review and investigation on secondary sources of information.*
2. *On-site assessment.*
3. *Resolution of findings.*
4. *Issuance of the final verification report with the conclusion on the emission reduction achievements.*

As mentioned in clause 1.2 of this report, ICONTEC based on its ethics code and internal procedures, carries out validation, verification and certification audits of CDM project activities (which are based on the validation and verification manual) focused on the identification of significant risks for CER generation, and verification of the mitigation.

Findings established during the verification can be seen as:

- *A non-fulfillment of verification protocol criteria, or*
- *An identified risk to the fulfillment of the project objectives.*

The findings could take the form of a Corrective Action Request (CAR), Forward action Request (FAR) or a Clarification Request (CLA).

The verification protocol resulting from the verification of Santa Ana Hydroelectric Plant is enclosed in Annex A of this report.

2.2 Verification Team

The verification team consists of the personnel described in table 1:

Table 1. Verification team

Role/Qualification	Last Name	First Name	Country
Lead Auditor	Urrego Ortiz	Erika Lucia	Colombia
Technical expert	Gómez	Fernando	Colombia

The verification team is qualified in accordance with ICONTEC qualification scheme for CDM validation and verification. (See in the Annex B the CVs).

2.3 Desk Review and investigation of secondary sources of information

In order to carry out the desk review, the following documents were requested to the project participants:

- *Previous verification report CDMVER-021-01, version 01 September 2010. /1/*
- *Last version of PDD Version 02 and monitoring plan. /2/*
- *Monitoring report # 5 version 02, dated 28/02/2011/3/*
- *Monitoring report # 5 version 03, dated 05/09/2011 /4/*
- *File: CO2e Emissions Reduction Santa Ana Hydroelectric Plant (01-08-2009 to 31-07-2010). /5/*
- *Reports and records of daily, monthly and annual monitoring data on the items defined in the monitoring plan and the Monitoring Report for the crediting period under verification (1/08/2009 to 31/07/2010). /6/*

The entire documentation was reviewed and a verification audit plan was completely carried out during the verification activities.

During the desk review it was confirmed that the Monitoring Report fulfills with iss_form05_v01 Form Monitoring Report of UNFCCC.

The monitoring report version 02 of the fifth crediting period was made publicly available at UNFCCC web site on March 18, 2011.

2.4 On-Site Visit

Between 7 April 2011 and 8 April 2011, the project was visited at the following facilities:

Santa Ana Hydroelectric Plant (Calle 119 No. 0-10 Este, Bogotá)

Control Center (Av. Calle 22 No 80 A 81, Bogotá)

EAAB Headquarter Office (Av. Calle 24 No. 37 – 15, Bogotá)

Usaquén Electrical Substation of CODENSA (Calle 110 No. 9-80, Bogotá)

Usaquén Electrical Substation of EAAB (Calle 110 No. 9-80, Bogotá)

Interviews were conducted to Santa Ana Hydroelectric Plant directors and operative personnel, as well as to support personnel (see list below). Other project stakeholders were also interviewed.

During the on-site visit, the following people were interviewed:

Table 2. Interview list

Entity	Name	Position
EAAB	Gino Gonzalez	Planning and control division Chief

EAAB	Jose Javier Jiménez	Quality professional
EAAB	Jose Gilberto López	Quality specialized professional
EAAB	Martha Cruz	Specialized professional
EAAB	Ramiro Bayona Lopez	Specialized professional
EAAB	Alfonso Cubillos	Specialized professional
EAAB	Magda Castaño	Specialized professional
EAAB	Juan Carlos Sanchez	Specialized professional
EAAB	Diana Santana	Lawyer
CAM - Colombia	Javier Fandiño	Operative supervisor
CAM - Colombia	Mauricio Bermudez	Telemetry supervisor
CAM - Colombia	Juan Ponce de León	Operative supervisor
CAM - Colombia	Gerson Palencia	Operative supervisor
EAAB	Evangelista Cordoba	Operator plant
EAAB	Ricardo Gamboa	Operator plant

ICONTEC performed the verification by:

- interviews with relevant personnel of operation activities and stakeholders;
- reviewing project documentation;
- on-site inspections, including review of plant installations, performance records, and interviews with project participants;
- collecting measurements, observing established practices and verifying the accuracy and liability of monitoring equipment;
- cross-checking measurements of generated electricity, emission factor and reduction emissions;
- reviewing monitoring results and checking the correct application of monitoring methodologies, and quality control of the data collection and its report; and
- setting of the GHG emissions reductions.

The verification assessment included the following aspects:

- a) Implementation of the monitoring plan and follow up, including verification of:
- all data on project emissions reduction and follow up of indicators of sustainable development;
 - responsibilities and related authorities;
 - monitoring frequency;

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- *accuracy and liability of the equipment used for monitoring, control and calibration;*
- *consistency of results, their approval and revision;*
- *controls to prevent, detect, and correct any errors or omissions during the monitoring.*

b) Materiality of the project information, including assessment of the absence of:

- *inconsistencies in the use of formulae in spreadsheets and their connections;*
- *inappropriate use of the methodology approved;*
- *errors in data due to failures during the typing process;*
- *inappropriate use of data.*

c) Verification of consistency of data resulting from the project operation regarding the baseline.

d) Analysis of potential risks to the project.

e) Quality assurance and management system.

The verification process was carried out using the verification protocol included in Annex A. The use of this checklist ensures a complete verification process, and demonstrates how emission reductions have been verified and how the verification findings have been reached.

2.5 Resolution of Findings

Corrective and forward action and clarification requests raised by ICONTEC, presented to the project participants were resolved through communication and meetings between Santa Ana Hydroelectric Plant and ICONTEC. To guarantee the confidence and transparency of the verification process, the concerns raised and the response provided by the project participants are documented in more detail in the verification protocol. (See Annex A, Table A4 Findings).

For this verification period ICONTEC declared 6 CL and 1 FAR.

2.6 Internal Quality Control

This report includes that verification findings underwent a technical review before being submitted to the project participants.

The technical review and the quality control of the process was performed by an internal technical reviewer in accordance with ICONTEC internal procedures for carrying out validation, verification and certification audits of CDM project activities. The technical reviewers are qualified in accordance with ICONTEC qualification scheme for CDM validation and verification.

3 VERIFICATION FINDINGS

3.1 Remaining issues, CARs, FARs from previous Verification

There are not CAR's or FAR's from previous verification.

3.2 Project implementation

The status of implementation, progress and starting date of operation for each phase is shown on the next table:

Table 3: Status of implementation

Phase	Status of implementation	Progress	Starting date of operation	Comments
Operation hydroelectric plant	Completed	100%	Begin operations in the second semester of 2005.	
Delivery of energy to the grid	Completed	100%	August 1th, 2005	

There are not pending activities for implementation. The activity project is operating normally.

The starting date of the Crediting Period is the August 1th, 2005 (00:00:00, Colombian time, GMT -5). The project was registered May 11, 2006. This information can be verified at the following web page: <http://cdm.unfccc.int/Projects/DB/TUEV-SUED1140544492.1/view> .

The information (data and variables) provided in the monitoring report is not different from that stated in the registered PDD and has not caused an increased in the estimates of the emission reductions in the current monitoring period.

The project activity has not suffered any notification or request of approval of changes from

the one described in the registered CDM-PDD.

3.3 Completeness of the monitoring plan

According to the PDD, the CDM Project Activity was monitored following the methodology AMS I.D. version 7 Renewable electricity generation for a grid. According to the specification given in this methodology, the monitoring shall consist of metering the electricity generated by the renewable technology.

The monitoring plan is in accordance with the approved methodology applied by the proposed CDM project activity.

In the monitoring report, Section D.1 Data and parameters determined at registration and not monitored during the monitoring period, including default values and factors, the emission factor of the national interconnected grid of Colombia, is presented as 0.4392 kg CO₂e per KWh. ICONTEC verified that, in fact, this is the validated grid emission factor to be applied along the fixed crediting period of 10 years.

In the monitoring report, Section D.2 Data and parameters monitored, monitoring of the parameter net electricity supplied to the national grid is presented.

The verification of this parameter is provided as follows:

Table 3: Verification of the parameters

List of Parameters	Description	Means of verification
ID. 1: EG_n	Net electricity supplied to the grid by the project activity (MWh)	<p>Source of date and frequency:</p> <p>Records of commercial frontier meters, located in the Usaquén electrical substation, owned by CODENSA, the local distributor.</p> <p>ICONTEC verified that, according to the procedures established in the regulatory framework, the measurements of meters installed in the commercial frontier are reported to the CND and to the administrator of the commercial transactions in the national market (ASIC – Administrador del Sistema de Intercambios Comerciales), agency tied to the CND.</p> <p>The electricity generation is hourly measured and read remotely every 24 hours using tele-measurement</p>

		<p>technology to be sent to the National Dispatch Centre</p> <p>Used equipments:</p> <p>The meters used for recording and cross checking the net electricity delivered to the grid by Santa Ana power plant are related in the <i>Table 4 Equipment</i> ahead, where information about “Calibration records” and “Internal procedures” are also showed.</p> <p>Meters calibration is done through a framework contract for the provision of maintenance service between the companies Soluciones Automáticas and Acueducto de Bogotá, which started on December 2005 and ended on March 2011. The calibration frequency set by the company was every two years.</p> <p>Data cross checking:</p> <p>During the verification, the following data cross checking was carried out:</p> <p>Hourly record of the meter, file CR3F0801 CAM /7/, by comparing it with data from the JemStar meter, and confirming the generation with the XM (Neon) file /7/. After obtaining this information, it was confirmed that the official record of electric generation is always that of CODENSA.</p> <p>Acueducto2.xls Excel spreadsheet /7/ with macros developed by the company in order to record data from each meter, CODENSA and JemStar, and calculate the difference in the measurement to question the meters.</p> <p>Report of monthly liquidation in 2009 elaborated by EMGESA (the generating company that represents Santa Ana as agent in the wholesale market in Colombia) for EAAB and review of the generation calculations; the report is accepted and the monthly generation invoice is generated.</p> <p>The information is confirmed with the generation report of EMGESA from the Exel file EMGG_ reporte-SANTA ANA- Octubre-09.xls/7/</p> <p>Record of the meter in the file PrincipalReg080109.csv /7/; this file takes the data from the JemStar meter. This file shows the daily generation.</p> <p>With the files above mentioned, ICONTEC confirmed the data on electric generation reported for each month during the verification period.</p> <p>The information was also cross checked with XM, the official agency in charge of ASIC and CND, which is the</p>
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	<p>information basis to administer the transactions in the wholesale market in Colombia; and the amount of energy Santa Ana delivers to the national grid through the page http://sv04.xm.com.co/neonweb/SeleNeon.asp) was confirmed, which can be consulted only with the user password.</p> <p>Consistency with the QA/QC defined in the methodologies:</p> <p>All variables used by the owner project to calculate baseline emissions are directly measured or are publicly available official data.</p> <p>To ensure the quality of the data, the project owner cross check the added individual generation of each aero generator at 13.8 kV level with the energy measured in the commercial frontier, at 110 kV level, correcting the measurement by taking into account the transformer losses, estimated based on the technical specification of the transformer.</p> <p>Consistency between the QA/QC established by the project participants in the PDD:</p> <p>The control established for the meters by the project owner is supported by Resolution 025 of 1995 by CREG. This resolution specifies the technical characteristics of measurement, telecommunications and back-up equipment to meet installation, testing, certification, operation and maintenance procedures. During the visit and the interviews with the personnel responsible for data management, ICONTEC was able to confirm that the application of the requirements set by the project participant in the PDD is met.</p> <p>Verify application of default values: (If applicable)</p> <p><i>It is not applicable.</i></p> <p>Findings:</p> <p>During the verification of calibration certificates, two inconsistencies were declared see the CL # 5 and 6. Corrections were executed by the PP.</p> <p>Conclusions:</p> <p>During the verification, ICONTEC was able to prove that the parameter is properly applied according to the monitoring plan and the registered PDD, and that the information is consistent with the secondary information</p>
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		sources used to verify the information.
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Table 4: Equipment

Parameter	Equipment	Calibration records	Internal procedure
EG	Meter 30031	Calibration certificate # CAM-IMNC1003-000307 The calibration certificate was issued on 15/03/2010. The result is non-compliant, so its use was suspended.	Electric power meters of commercial frontier. Main meter. Biannual calibration is performed on site by an external laboratory. This meter not register official measurements and was not used during 01/07/2010 to 31/07/2010.
	Meter 30029	Calibration certificate # CAM-IM0807-003322. The calibration certificate was issued on 27/06/2008 valid by 2 years. The result is conforming. See CL 5.	Electric power meters of commercial frontier. Supporting meter. This meter registers official measurements used for ER calculations.
	Meter 14600821	Calibration certificate # CAM-IM0806-003273 was issued on 26/06/2008. Calibration certificate # CAM-IM1003-001400 was issued on 16/03/2010.	Direct measurement of EAAB. Main meter.
	Meter 14600822	Calibration certificate # CAM-IM0806-003274 was issued on 26/06/2008. Calibration certificate # CAM-IN1004-002887 was issued on 15/04/2010.	Direct measurement of EAAB. Supporting meter.

3.3.1 Baseline emission

ICONTEC went over the spreadsheet: *CO2e Emissions Reduction Santa Ana Hydroelectric Plant (1-08-2009 to 31-07-2010). xls /5/* and verified that the baseline emissions were correctly and accurately calculated by the PP, using the grid emission factor and the project generation, as related in the Section 3.3 of this report, with the following results:

YEAR	MONTH	ELECTRIC POWER (MW/h)	EMISSIONS REDUCED (Ton CO ₂ e)
2009	AUG	556	244
	SEP	0	0
	OCT	0	0
	NOV	3,654	1,605
	DEC	2,745	1,206
2010	JAN	2,835	1,245
	FEB	3,258	1,431
	MAR	3,075	1,351
	APR	2,361	1,037
	MAY	3,074	1,350
	JUN	4,681	2,056
	JUL	4,684	2,057
Total		30,924	13,582

In the attached spreadsheet is used point to separated thousands.

3.3.2 Project emissions

ICONTEC verified that accordance to the approved baseline methodology used in this CDM project activity, emissions by sources of GHG due to the project activity are considered to be zero.

3.3.3 Emission Reductions

Since Project emissions and leakage are zero, Emission reductions are equal to Baseline emissions, as verified in Section 3.3.1 previous.

3.4 Quality of Evidence to Determine Emission Reductions

ICONTEC reviewed the information that supports the determination or operation of all parameters, procedures and equipment used to monitor the emission reductions.

Among many others, the following information has been used by the audit team during the verification process:

- *On-site review and printouts of each piece of equipment.*
- *Internal procedures for calibration of equipments.*
- *Office workbooks.*
- *Instructions for data measurement and analysis, MA0407I02-01/7/, state the*

measurements and activities that must be carried out to verify the energy generation and calculate emission reductions.

- *Instructions for energy generation – Reconciliation of results MA0407104-01 state the criteria to be followed each time inconsistencies occur in the measurements issued by the marketer and the measurements published in the web page “expertos de mercado”- www.xm.com.co /7/*
- *CR3F0801 CAM file /7/*
- *XM (Neon) file /7/*
- *Acueducto2.xls /7/*
- *Reports on monthly liquidation of 2009 /7/*
- *Generation report of EMGESA. File: EMGG_ reporte-SANTA ANA-Octubre-09.xls /7/*
- *Record of the meter - File: PrincipalReg080109.csv /7/*

The audit team verified the consistency of data resulting from project operation related to the baseline and potential inconsistencies in the use of formulas on spreadsheets and their connections, according with V/V Manual (v 1.2) art.207.

A representative sample of the data was cross-checked and recalculated by ICONTEC in order to establish the accuracy and reliability of the data and calculation of the emission reductions.

ICONTEC verified that the file: CO2e Emissions Reductions Santa Ana Hydroelectric Plant (01-08-2009 to 31-07-2010).xls /7/, contains all information on the calculation of EG in compliance with the “AMS.I.D version7” and the monitoring plan registered in the PDD version 2.

3.5 Management System and Quality Assurance

The company is implementing the quality management system under the NTC-ISO 9001:2008.

The internal validation of data is done by monthly verification of the period; the cash register is elaborated and sent to the marketer in order to execute the payment. The communication channel is via e-mail to the generation owners.

Through the Management Agreements, the persons responsible for uploading the information are defined; the information is then validated by the directors of the Electromechanical Services and Network Matrix Aqueduct areas.

ICONTEC confirmed during verification, that the authority and responsibility established in the PDD are met.

4. PROJECT SCORECARD

The conclusions on this scorecard are based on the Monitoring report ver.3 dated on 05/09/2011:

Table 5. Project Scorecard

Risk Areas		Conclusions			Summary and findings and comments
		Baseline Emissions	Project Emissions	Emissions Reductions	
Completeness	Source coverage /	✓	✓	✓	All the relevant areas are covered by the monitoring plan and the boundaries of the project are defined correctly and transparently.
	Boundary definition				
Accuracy	Physical Measurement and analysis	✓	✓	✓	The technology is applied in an appropriate manner.
	Data calculation	✓	✓	✓	The emissions reductions are correctly calculated.
	Data Management & Reporting	✓	✓	✓	Data management and reporting were found to be satisfactory.
Consistency	Changes in the project	✓	✓	✓	Results are consistent with underlying raw data.

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5. VERIFICATION STATEMENT

Reporting period: From 01 August 2009 to 31 July 2010

Verified emissions in the above reporting period: Emission reductions: 13,582 tonnes CO₂ equivalents.

5.1 Introduction

Empresa de Acueducto y Alcantarillado de Bogotá (EAAB) has requested ICONTEC to examine the greenhouse gas (GHG) emission reductions reported by SANTA ANA HYDROELECTRIC PLANT PROJECT for the corresponding period, equating to 13,582 tonnes of CO₂ equivalent.

ICONTEC considers that the project's GHG emissions and resulting GHG emissions reductions reported in the Monitoring report version 03, dated September 5th/2011, were correctly reported.

5.2 Responsibilities of the owner of the Project SANTA ANA HYDROELECTRIC PLANT and ICONTEC.

Empresa de Acueducto y Alcantarillado de Bogotá (EAAB) is responsible for the preparation of the GHG emissions data and the reported GHG emissions reductions on the basis set out within the project's Monitoring and Verification Plan.

Empresa de Acueducto y Alcantarillado de Bogotá (EAAB) is responsible for developing and keeping records and reporting procedures in accordance with the Monitoring plan.

Following the agreed action plan, ICONTEC received the information and requested for additional commentaries where considered necessary, in order to establish and corroborate that the amount of GHG emission and the calculation of the GHG emission reductions, based on the Monitoring Report, are correctly reported for the reporting period.

5.3 Basis for GHG Verification Opinion

ICONTEC verification approach was based on the Kyoto Protocol requirements, Marrakech Agreement, as well as those defined by the CDM Executive Board.

It is ICONTEC's responsibility to make an independent GHG verification opinion on the GHG emissions from the project and approved baseline for the reporting period.

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ICONTEC conducted the verify the data with a risk-based approach, in order to identify the controls in place to mitigate and reduce potential impacts that may arise in the calculation of emission reductions

5.4 Opinion

ICONTEC is able to certify that the emission reduction from SANTA ANA HYDROELECTRIC PLANT during the period 01 August 2009 to 31 July 2010 equals to: 13,582 tonnes CO₂ equivalents.

Bogotá D.C., December, 2011



*Diego Caballero.
Director of conformity assessment
ICONTEC*

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6. REFERENCES

Documents provided by the project proponent that relate directly to the project:

- /1/ *Previous verification report CDMVER-021-01, version 01 September 2010. /1/*
- /2/ *Last version of PDD Version 02 and monitoring plan. /2/*
- /3/ *Monitoring report # 5 version 02, dated 28/02/2011*
- /4/ *Monitoring report # 5 version 03, dated 05/09/2011*
- /5/ *File:CO2e Emissions Reductions Santa Ana Hydroelectric Plant (01-08-2009 to 31-07-2010).xls*
- /6/ *Reports and records of daily, monthly and annual monitoring data on the items defined in the monitoring plan and the Monitoring Report for the crediting period under verification (1/08/2009 to 31/07/2010).*
- /7/ Quality Management documents:
Internal Procedures:
 - Instructions for data measurement and analysis, MA0407I02-01, state the measurements and activities that must be carried out to verify the energy generation and calculate emission reductions.
 - Instructions for energy generation – Reconciliation of results MA0407I04-01 state the criteria to be followed each time inconsistencies occur in the measurements issued by the marketer and the measurements published in the web page “expertos de mercado”- www.xm.com.co
 - CR3F0801 CAM file
 - XM (Neon) file
 - Acueducto2.xls
 - Reports on monthly liquidation of 2009
 - Generation report of EMGESA. File: EMGG_ reporte-SANTA ANA-October-09.xls
 - Record of the meter - File: PrincipalReg080109.csv

Background documents related to the design and/or methodologies employed in the design or other reference documents:

- /8/ Methodology AMS.I.D version7
- /9/ Validation and Verification Manual. CDM EB - UNFCCC.

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Annex A

Verification Protocol

TABLE A1 - INITIAL VERIFICATION CHECKLIST

Objective	Comments	Conclusion
A. Opening Session		
A.1. Introduction to audits	N.A	✓
A.2. Clarification of access to data archives, records, plans, drawings etc.		✓
A.3. Contractors for equipment and installation works		✓
A.4 Actual status of installation works; the project installation should be finished at time of initial verification in so far as the project should be ready to generate emission reductions afterwards.		✓
B. Open issues indicated in validation report.		
B.1. Missing steps to final approval	N.A	✓
C. Implementation of the project		
C.1. Physical components	N.A	✓
C.2. Project boundaries		✓
C.3. Monitoring and metering systems		✓
C.4. Data uncertainty		✓
C.5. Calibration and quality assurance		✓
C.6. Data acquisition and data processing systems		✓
C.7. Reporting procedures		✓
C.8. Documented instructions		✓
C.9. Qualification and training.		✓

Objective	Comments	Conclusion
C.10. Responsibilities		<input checked="" type="checkbox"/>

TABLE A2: DATA MANAGEMENT SYSTEM/CONTROLS

The project operator's data management system/controls are assessed to identify reporting risks and to assess the data management system's/control's ability to mitigate reporting risks. The GHG data management system/controls are assessed against the expectations detailed in the following table. A score is assigned as follows:

- Full - all best practice expectations are implemented.
- Partial - a proportion of the best practice expectations are implemented
- Limited - this should be given if little or none of the system components are in place.

Expectations for GHG data management system/controls	Score	Verifiers Comments (including Clarification and Corrective/forward Action Requests)
A.1 Defined organizational structure, responsibilities and competencies		
A.1. Position and roles <i>Position and role of each person in the GHG data management process is clearly defined and implemented, from raw data generation to submission of the final data. Accountability of senior management must also be demonstrated.</i>	Full	<i>The roles and positions are defined in the procedures and guidelines applied by the company.</i>
A.2. Responsibilities <i>Specific monitoring and reporting tasks and responsibilities are included in job descriptions or special instructions for employees.</i>	Full	<i>Responsibilities are identified by position.</i>
A.3. Competencies needed <i>Competencies needed for each aspect of the GHG determination process are analyzed. Personnel competencies are assessed and training program is implemented as required.</i>	Full	<i>There is an annual training program to maintain and improve staff skills. See FAR 1.</i>
B. Project Implementation in accordance with the registered project document		

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B.1 Requirement to be verified <i>All physical features of the proposed CDM project activity proposed in the registered PDD are in place and that the project participants has operated the proposed CDM project activity as per the registered PDD. If an on-site visit is not conducted, the DOE shall justify the rationale of the decision.</i> V/V Manual (v 1.2) art.195-197	Full	<i>The on-site visit was carried out from April 7 to 8 of 2011, it was verified that the activities proposed in the PDD have been developed.</i> <i>The project implementation description was made in section 3.2 of this report.</i>
C. Compliance of the monitoring plan with the monitoring methodology		
C.1 Reporting procedures <i>The DOE shall verify that the validated monitoring plan is in accordance with the approved methodology applied by the proposed CDM project activity.</i> V/V Manual (v 1.2) art.199-200	Full	<i>The monitoring plan is in accordance with the methodology approved AMS I.D. Version 7.</i>
C.2 Necessary Changes <i>(200) If the monitoring plan is not in accordance with the monitoring methodology, the DOE shall request a revision to the monitoring plan prior to concluding its verification and making its certification decision. The DOE may request for revision of the monitoring plan covering the monitoring period under verification, for approval by the CDM Executive Board.57</i> V/V Manual (v 1.2) art.201.	Full	<i>It was not necessary to do changes to the Monitoring Plan.</i>
D. Compliance of monitoring with the monitoring plan		
D.1 Monitoring plan <i>Monitoring of reductions in GHG emissions to result from the proposed CDM project activity is implemented in accordance with the monitoring plan contained in the registered PDD or the accepted revised monitoring plan.</i> V/V Manual (v 1.2) art.204	FULL	<i>The measurements and calculations were performed according to the PDD and the monitoring plan.</i> <i>Key variables and assumptions required in calculating emission reductions were considered.</i>
D.2 Parameters monitored <i>(204) All parameters stated in the monitoring plan have been including:</i> (i) Project emission parameters;	FULL	<i>The measurements and calculations were performed according to the PDD and the monitoring plan.</i>

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<p>(ii) Baseline emission parameters; (iii) Leakage parameters; (iv) Management and operational system: the responsibilities and authorities for monitoring and reporting are in accordance with the responsibilities and authorities stated in the monitoring plan. V/V Manual (v 1.2) art.205</p>		<p>According to AMS I.D. Version 7 the key parameters for the determination of GHG emissions are described in section 3.3 table 3 of verification report.</p>
<p>D.3 Accuracy of equipment</p> <p>The accuracy of equipment used for monitoring is in accordance with the relevant guidance provided by the CDM Executive Board and is controlled and calibrated in accordance with the monitoring plan;</p> <p>(i) Monitoring results are consistently recorded as per approved frequency; (ii) Quality assurance and quality control procedures have been applied in accordance with the monitoring plan. V/V Manual (v 1.2) art.205 (c)</p>	FULL	<p>The accuracy of equipments was confirmed by ICONTEC, through visit on site, calibration certificate of equipments and interviews with personal responsible.</p>
E. Assessment of data and calculation of greenhouse gas emission reductions		
<p>E.1 Calculation</p> <p>GHG emission reductions achieved by/resulting from the proposed CDM project activity shall be calculated applying the selected methodology. V/V Manual (v 1.2) art.207</p>	FULL	<p>All calculations made by the spreadsheet "CO2e Emissions Reductions Santa Ana Hydroelectric Plant (01-08-2009 to 31-07-2010).xls", were verified. A detailed revision of formulas and representative sample of individual data of the energy generation were checked during the verification.</p>
<p>E.2 Requirements</p> <p>a) A complete set of data for the specified monitoring period is available. V/V Manual (v 1.2) art.208.</p>	FULL	<p>The owner of the project included in the monitoring report all data resulting from monitoring the project variables during the period to be verified. All support documents were available during the on-site visit.</p>
<p>b) Information provided in the monitoring report has been cross-checked with other sources such as plant log books, inventories, purchase records, laboratory analysis V/V Manual (v 1.2) art.208.</p>	FULL	<p>Other sources were reviewed for cross-checking, the information was provided by the PP and found during the on-site visit. ICONTEC made a cross-check between the information indicated in the hourly record of the meter, file CR3F0801 CAM, by comparing it with data from the JemStar meter, and confirming the generation with the XM (Neon) file. After obtaining this information, is was confirmed that the official record of electric generation is</p>

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		<i>always that of CODENSA.</i>
<p>c) Calculations of baseline emissions, proposed CDM project activity emissions and leakage, as appropriate, have been carried out in accordance with the formulae and methods described in the monitoring plan and the applied methodology document V/V Manual (v 1.2) art.208.</p>	FULL	<p><i>There is not leakage associated with this Project, according with methodology AMS I.D. version 7.</i></p> <p><i>The calculations of baseline emissions are appropriate according with the methods and formulae.</i></p>
<p>e) Appropriate emission factors, IPCC default values and other reference values have been correctly applied, these are validated and periodically evaluated to ensure their ongoing appropriateness and accuracy, particularly following changes to circumstances, equipment etc. Validation and periodic evaluation of this are documented. V/V Manual (v 1.2) art.208.</p>	FULL	<p><i>The other default values used are correctly employed in the formulas.</i></p>
<p>d) Any assumptions used in emission calculations have been justified. V/V Manual (v 1.2) art.208.</p>	FULL	<p><i>Values for the calculations were not assumed, all data used are justified</i></p>
<p>E.3 Information/process flow</p> <p><i>An information/process flow diagram, describing the entire process from raw data to reported totals is developed.</i></p>	FULL	<p><i>Data management is done by the Electromechanical Services Direction Engineer.</i></p>
<p>E.4 Data transfer</p> <p><i>Where data is transferred between or within systems /spreadsheets, the method of transfer (automatic / manual) is highlighted - automatic links/updates are implemented where possible. All assumptions and the references to original data sources are documented.</i></p>	FULL	<p><i>During the site verification it can be conclude that the recording of information is done online and in real time through data base XM.</i></p> <p><i>The description of this process is clearly indicated in the instructions for data measurement and analysis, MA0407I02-01, that state the measurements and activities that must be carried out to verify the energy generation and calculate emission reductions.</i></p>
<p>E.5 Data trails</p>	FULL	<p><i>There is a procedure for documents control.</i></p>

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<p><i>Requirements for documented data trails are defined and implemented and all documentation is physically available.</i></p>		
<p>E.6 Internal verification</p> <p><i>Internal verifications include the GHG data management systems, to ensure consistent application of calculation methods.</i></p>	FULL	<p><i>Yes, the internal verification include the GHG data management systems, to ensure consistent application of calculation methods.</i></p>
<p>E.7 Internal validation</p> <p><i>Data reported from internal departments should be validated visibly (by signature or electronically) by an employee who is able to assess the accuracy and completeness of the data. Supporting information on the data limitations, problems should also be included in the data trail.</i></p>	FULL	<p><i>The internal verification is described in the instructions for energy generation – Reconciliation of results MA0407104-01, that state the criteria to be followed each time inconsistencies occur in the measurements issued by the marketer and the measurements published in the web page “expertos de mercado”- www.xm.com.co</i></p>
<p>E.8 Data protection measures</p> <p><i>Data protection measures for databases/spreadsheets should be in place (access restrictions and editor rights).</i></p>	FULL	<p><i>Back ups are done on a weekly basis, Fileserver, and are done by the information technology area of EAAB.</i></p>
<p>E.9 IT systems</p> <p><i>IT systems used for GHG monitoring and reporting should be tested and documented.</i></p>	FULL	<p><i>Yes, the automatic system to data acquisition is periodically tested.</i></p>
<p>F. Additional verification activities (as applicable)</p>		
<p>F.1 Request for validation</p> <p><i>If the project participants have deviated from the provisions of the registered monitoring plan, the DOE shall submit a request for deviation and provide complete, clear, and precise assessment and a description of the impact of the deviation on the emission reductions from the project activity.</i> <i>V/V Manual (v 1.2) art.211</i></p>		<p>N.A.</p>

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<p><i>A request for deviation is appropriate only if a change in the procedures for estimating or monitoring emissions was required due to a change in the conditions or circumstances of the proposed CDM project activity after it was registered as a proposed CDM project activity.</i> V/V Manual (v 1.2) art.21</p> <p><i>A request for deviation is not suitable if:</i></p> <p><i>(a) The monitoring plan is not in accordance with the monitoring methodology applied by the project activity; submission of a request for revision of the monitoring plan would be more appropriate;</i></p> <p><i>(b) The request would result in revisions to the approved methodology;</i></p> <p><i>(c) The request would result in a change in default parameter values other than those given in the approved methodology.</i> V/V Manual (v 1.2) art.213</p> <p><i>A request for deviation that is approved by the CDM Executive Board applies only to the monitoring period under verification. If the deviation from the provisions contained in the project documentation is to continue in future monitoring periods, the DOE shall submit a request for revision of the monitoring plan.</i> V/V Manual (v 1.2) art.214</p> <p><i>The verification report shall determine whether and how the monitoring report reflects the application of the approved guidance from the CDM Executive Board regarding the request for deviation.</i> V/V Manual (v 1.2) art.215</p>		
<p><i>If the monitoring plan is not in accordance with the monitoring methodology applied to the registered CDM project activity and/or does not reflect the actual</i></p>		N.A.

<p><i>monitoring activity based on the registered PDD, the DOE shall submit a request for revision of the monitoring plan.</i> <i>V/V Manual (v 1.2) art.216</i></p> <p><i>The DOE shall ensure that the level of accuracy and completeness in the monitoring and verification process will not be reduced as a result of the proposed revision. The DOE shall, using objective evidence, assess the accuracy and completeness of each proposed revision to the monitoring plan including the frequency of measurements, the quality of monitoring equipment (e.g. calibration requirements, and the quality assurance and quality control procedures).</i> <i>V/V Manual (v 1.2) art.217</i></p> <p><i>The verification report shall determine whether and how the monitoring report reflects the application by the project participants of the approved guidance from the CDM Executive Board regarding the request for revision of the monitoring plan.</i> <i>V/V Manual (v 1.2) art.218</i></p>		
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TABLE A3: DETAILED AUDIT TESTING OF RESIDUAL RISK AREAS AND RANDOM TESTING

Areas of residual risks	Additional verification testing performed	Conclusions and Areas Requiring Improvement (including <i>Forward Action Requests</i>)
There are not areas of residual risks for this project.		

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TABLE A4: FINDINGS

Draft report clarifications and corrective action requests by Verification team	Ref. to checklist question in Table A1 or A2.	Summary of project owner response	Verification Team conclusion
<p>CL 1 The MR doesn't indicate the starting date of operation of the project activity.</p>	<p>B.1. MONITORING REPORT FORM (CDM-MR) Version 01 - in effect as of: 28/09/2010</p>	<p>The Santa Ana Hydroelectric Plant began operations on June 10th, 2005 but its accreditation period started on August 1, 2005.</p> <p>See Monitoring Report Version 3, page 9.</p>	<p>Verification Team Response:</p> <p>12/08/2011 Clarification was handled properly</p> <p>Verification Team Conclusion:</p> <p>CLOSED</p>
<p>CL 2 The monitoring report does not describe emergency procedures for the monitoring system.</p>	<p>C. MONITORING REPORT FORM (CDM-MR) Version 01 - in effect as of: 28/09/2010</p>	<p>The energy generated and delivered to the grid by the Santa Ana Hydroelectric Plant is measured from the meter of commercial frontier in Usaqué electrical substation owned by CODENSA. That measurement is performed remotely (telemetry) following the guidelines of Resolution CREG 006/2003, as indicate the statement EMGESA 0004741 of 28/08/2006 (Annex 1) and CAM's procedure code TM-PR-08 (Annex 2).</p> <p>As part of the operation of telemetry, CAM has a group of readers who attend field when there are failures of the media that have the meters, which have a mass memory that stores generation information up to 60 days.</p>	<p>Verification Team Response:</p> <p>22/08/2011 Emergency procedures for the monitoring system are suitably described. Annex 1 and 2 were verified for ICONTEC. These documents are in Spanish for use of plant operators</p> <p>Verification Team Conclusion:</p> <p>CLOSED</p>

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		<p>In addition, the current resolutions are established mechanisms for review and modification of published data. This procedure, as indicated by XM, is verified by BDO Audit SA.</p> <p>Otherwise, the verification and validation of the daily measurement is made by EAAB through automatic and electronic interrogation of its own meters located in the Usaquén electrical substation owned by EAAB. This measurement serves as verification for a cross-check the measurement data reported by EMGESA. The procedures used by the EAAB for this check are properly documented in the Quality System, certified under ISO 9001:2008.</p> <p>See Monitoring Report Version 3, page 19</p>	
<p>CL 3 Difference between installed capacity and nominal capacity should be explained.</p>	<p>A.4 MONITORING REPORT. Pag 3</p>	<p>The nominal capacity 12 MW corresponds to the power transformer of Santa Ana Hydroelectric Plant. Equipment manufacturers usually have ratings with which it is covering the needs of users. Thus, a transformer 12 MW with a 12% overload permissible (which can be up to 30%) can meet the demand for installed capacity of the project, 13.43MW.</p> <p>See Monitoring Report Version 3, page 3.</p>	<p>Verification Team Response:</p> <p>12/08/2011: Explanation provided is satisfactory</p> <p>Verification Team Conclusion:</p> <p>CLOSED</p>

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<p>CL 4</p> <p>General objective of the contract signed between EAAB and the operator of the local grid, CODENSA should be mentioned. Same for the Contract No. 1-99-26300-894-2008, Contract No. 1-99-26300-812-2009, Contract No. 1-99-26300-671-2005. and Contract No. 1-99-26300-0530-2009.</p>	<p>A.4 MONITORING REPORT. Pag 3 and 4</p>	<p>Contract No. 9-99-25400-566-2004. Object: "Establish the scope of the commitments and responsibilities of the parties, in the connection of the Santa Ana Hydroelectric Plant to the CODENSA's local distribution system as well as set the parameters and terms and criteria to govern legal relations management and commercial skills of the contracting parties stages of testing commissioning and commercial operation of the pre-mentioned connection and define the commitments and responsibilities regarding the replacement maintenance and ownership of the assets of connecting parts".</p> <p>Contract No. 1-99-26300-894-2008. Objet: "Set the annual compensation that EAAB will pay to CODENSA for the management, operation and maintenance services (AOM) of connection assets owned of the latter and forming part of the electrical connection system of Santa Ana Hydroelectric Plant to CODENSA's SDL and set CODENSA's obligations in relation with AOM of these assets".</p> <p>Contract No. 1-99-26300- 812-2009. Objet: "Set the annual compensation that EAAB will pay to CODENSA for the management, operation and maintenance services (AOM) of connection assets owned of the latter and forming part of the electrical connection system of Santa Ana Hydroelectric Plant to CODENSA's SDL and set CODENSA's obligations in relation with AOM of these assets".</p> <p>See Monitoring Report Version 3, page 3.</p>	<p>Verification Team Response:</p> <p>12/08/2011: Clarification was handled properly</p> <p>Verification Team Conclusion:</p> <p>CLOSED</p>
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		<p>Contract 1-99-26300-671-2005. Object: "Sale for the unregulated market of all the energy generated by Santa Ana Hydroelectric Plant owned by EAAB".</p> <p>Contract 1-99-26300-530-2009. Object: "Acquisition by EMGESA of all the energy generated by Santa Ana Hydroelectric Plant owned by EAAB".</p> <p>See Monitoring Report Version 3, page 4.</p>	
<p>CL 5 Calibration of meter 30029 from July 1, 2010 (ending date of validity of calibration certificate, according quality politics of the company) up to July 31, 2010 (ending date of verification period) has not been supported.</p>	<p>A.4 MONITORING REPORT. Pag 3</p>	<p>The meter 30029 calibration meets all the requirements established in CREG Resolutions 070 of 1998 and 006 of 2003 and the Colombian Technical Standard NTC - ISO/IEC 17025.</p> <p>The meter 30029 has calibration certificate CAM-IM0807-003322, issued on 27/06/2008 and calibration certificate CAM-IM1103-011911, issued on 14/03/2011. There is a certification of conformity between these two certifications according to CAM's statement dated /28/04/2011 (Annex 3). The suspension of the meter 30029 calibration was because the meter 30031, revised on 15/03/2010, did not meet the tests of accuracy and there was no other meter with the same characteristics to back measurement generation while the meter 30029 was calibrated.</p> <p>Importantly, there is no guideline to determine the validity of calibration certificates, neither in regulation, nor technical standards or equipment specifications.</p> <p>See Monitoring Report Version 3, page 3.</p>	<p>Verification Team Response:</p> <p>12/08/2011: Justification given for calibration of meter 30029 from July 1, 2010 up to July 31, 2010 is deemed satisfactory.</p> <p>Verification Team Conclusion:</p> <p>CLOSED</p>

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<p>CL 6</p> <p>In the onsite visit the verification team was informed that measurements of the electric energy generated and delivered to the grid, were made through the meter serial 30029. Nevertheless the official registration of the commercial frontier in the ASIC is with the serial 30031. Clarification must be given.</p>	<p>Section A.4. MR, Pag 4.</p>	<p>For XM registration process is required to send calibration certificates of the main and support meters. But as a matter of registering and consultation procedure, XM only refers to the main meter, as indicate EMGESA trough an email of 26/05/2011 (Annex 4).</p> <p>See Monitoring Report Version 3, page 5.</p>	<p>Verification Team Response:</p> <p>12/08/2011: Clarification was handled properly.</p> <p>Verification Team Conclusion:</p> <p>CLOSED</p>
<p>FAR 1</p> <p>There is not training plan each aspect of the GHG determination process defined for personnel responsible for the project activity.</p> <p>GHG concerns are missing in the training plans</p>	<p>A.3. VERIFICATION PROTOCOL</p>	<p>The training plan is performed:</p> <p>Theme: "Climate Change and Clean Development Mechanism (CDM)".</p> <p>Objective: Present general concepts of climate change and Clean Development Mechanism (CDM), then take the CDM project Santa Ana Hydroelectric Plant.</p> <p>Attached programming format of the training (Annex 5) and supports of its implementation.</p>	<p>Verification Team Response:</p> <p>12/08/2011 ICONTEC verified the training plan and attendance list of participants.</p> <p>Verification Team Conclusion:</p> <p>CLOSED</p>

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FAR Previous period of verification:

FAR ID	Forward action request	Response by Project Participants	DOE's assessment of response by Project Participants	ICONTEC
	There are not FAR's pending of closing			<p>Verification Team Response:</p> <p>Verification Team Conclusion:</p>

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ANNEX B

TEAM AUDIT EXPERIENCE AND KNOWLEDGE

CDM Auditor

Zoo Erika Urrego

Zootechnician

UNIVERSIDAD AGRARIA DE COLOMBIA

Specialist on Environmental Management System

UNIVERSIDAD EXTERNADO DE COLOMBIA

Work Experience

2006 – Actual

ICONTEC

Environmental and Quality Lead Auditor. To prepare and perform the certification services assigned as per her Career Plan qualification, according to what is stated on the procedures. To provide guidance to the certification costumers about the technical aspects of the assigned services provision. To participate in changing or designing Certification services, by changing or creating the respective procedures.

2003 – 2006

ASOCIACION COLOMBIANA DE PORCICULTORES-FNP

To coordinate the activities to be performed by the Environmental Window Program in the various country areas. To allocate and execute resources engaged under the Cleaner Production agreements signed together with several environmental authorities.

To lead the CDM project, focused to reduce methane (CH₄) emissions issued by animal waste. To be aware of the Ecuadorian and Chilean methodologies already approved by the CDM's Executive Board for Hog Breeding Sector to elaborate a proposal for the hog breeding sector together with the Ministry of Environment, Housing and Territorial Development in order to join farms to CDM projects.

2001 – 2002

FICHTNER GmbH & Co. KG

To prepare, design and apply surveys focused to identify power consumption in the sector of slaughter, processed meat and food concentrate for animals.

1998 – 2001

Regional Environmental Authority (CAR Sumapaz)

To support the environmental management unities on technical concepts of processes, permissions, sanctions, control, monitoring and assessment in the proper and timely management of the Sumapaz area's natural resources.

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CDM Experience

2006

Consultancy:

- Presentation of proposals for developing CDM in the farming and animal husbandry industry.

2008

CDM Auditor:

- Validation of the La Calera Biodigesters Project
- Validation of the ECC methane capture and combustion from AWMS at dairy farms in Mexico – I
- Validation of the La vegona project
- Validation of Chamelecon project
- Validation of Macano hydroelectric project
- Verification of Doña Juana Landfill gas recovery
- Validation of the Montenegro Landfill gas recovery and flaring
- Validation of the Pírgua Landfill gas recovery and flaring

Sectoral Specialist

Eng. Fernando Gómez Gómez

Electrical Engineer. Universidad Nacional of Colombia (1967)

Master of Power Systems - Instituto Tecnológico de Monterrey (Mexico) (1970)

EAFIT Financial Specialist (Colombia) (1984)

ECONOMETRÍA S.S. - Technical Advisory

Technical Advisory to Unidad de Planeación Minero Energética to incorporate international electrical interconnections into the Colombian electrical planning carried by UPME, October 2002 - March 2003 (including use of SUPEROLADE, MPODE, NEPLAN and REAL models).

ECOENERGIA S.S. ESP - Founding Member and Manager

Management of private projects of generation, distribution and commercialization of power.

Unidad de Planeación Minero Energética - UPME-: Elaboration of Catalog of Generation Projects for National Energy Plan, October 1996 - October 1997.

AUDITORES ENERGÉTICOS - AENE LTDA

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Advisory to the company in the application of the new regulatory scheme of Colombian electrical sector to private and public entrepreneurial management through the following studies:

Development of competent rate models, October 1994 - March 1995

CORELCA: Determination of marginal costs and development of innovative rate structures for power generation companies and big industrial customers, October 1994 - March 1995.

CORELCA: Development and application of rate models to prepare proposal on power sale in the wholesale market, July 1995 - September 1995.

EMPRESA DE ENERGIA DE BOGOTÁ - EEB

Positions:

Chief of the Department of generation planning, interconnection and sub-transmission, 1978 - 1979.

Chief of Electric Planning Division, 1979 - 1986.

Assistant for Technical Sub-management, 1986 - 1987

Chief of Special Projects Division, 1987

Chief of expansion and Development Division, 1987 - 1994

Management Advisor, 1994

INTERCONEXIÓN ELÉCTRICA S.A - ISA

1976 - 1978

Engineer Specialist in electric planning Research and development of models for planning and operation of electric systems.

National Coordinator of Colombian electric system planning in the project " Study of Electric Power Sector (Estudio del Sector de Energía Eléctrica), ESEE" winner of the National Award of Engineering.

Experience in CDM activities:

2006 – 2010

Participation as an Energy expert in:

- Verification of three verification periods of Santa Ana Hydroelectric plant project
- Verification of two verification periods of Agua Fresca Multipurpose and Environmental Services Project

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- Verification of two verification of La Vuelta and la Herradura Hydroelectric Project
- Verification of one verification period of La Venta II project
- Verification of Rio Amazon Woods residues power plant
- Verification of Cristalino small hydroelectric power plant project
- Verification of Faxinal small hydro project in Faxinal dos Guedes
- Validation of El Bote small hydroelectric plant project
- Validation of Cueva Maria Hydroelectric Project
- Validation of Installation of a high-pressure/high-efficiency bagasse boiler to cogenerate heat and power
- Validation of La Calera Biodigesters Project