



Industrie Service

Verification Report

**Pre-JI Verification and
First, Second and Third Periodic Verification**

**of the JI track 1 project
Energy efficiency investment program
at Svilocell Pulp Mill (Bulgaria)**

Report No. 600500586

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TÜV SÜD Industrie Service GmbH
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Subject:		Initial, Pre-JI, First, Second and Third Periodic Verification		
Executing Operational Unit:				
TÜV SÜD Industrie Service GmbH, Carbon Management Service Westendstrasse 199 - 80686 Munich, Germany				
Project Participant:				
Svilocell Co. 5253 Svishtov, Bulgaria (AIE contractor) European Bank for Reconstruction and Development, 17 Moskovska Street, 1000 Sofia, Bulgaria				
Registration number / Project Title		BG1000177 / Energy efficiency investment program at Svilocell Pulp Mill (Bulgaria); Technical Areas: 4.3 and 3.1		
Monitoring period:		01-01-2007 to 31-12-2010		
Published Monitoring Report (version/date)		Version 01 / 22-05-2011		
Final Monitoring Report (version/date)		Version 04 / 21-09-2011		
Summary: TÜV SÜD Industrie Service GmbH has performed the initial and first periodic verification for 2007 - 2010 of the JI Track 1 project: "Energy efficiency investment program at Svilocell Pulp Mill (Bulgaria) that is registered by the JISC (see link: http://ji.unfccc.int/JI/TLProject/DB/6TAC33R0IOWO4RA3G0TAURAM11YKRZ/details). The management of Svilocell Co. is responsible for the preparation of the GHG emissions data and the reported GHG emission reductions. A document review, followed by a site visit was conducted to verify the information submitted by the project participant regarding the present verification period. Based on the assessment carried out, the verifier confirms: <ul style="list-style-type: none">• that the project has been implemented and operated in accordance with the description given in the registered PDD (03-2006).• that the project is completely implemented as described in the PDD with attachment.• that the monitoring plan complies with the applied methodology (described in PDD with attachment) and the monitoring has been carried out as exactly following the monitoring plan. Installed equipments essential for generating emission reductions run reliably and the meters are calibrated appropriately. The verifier can confirm that the GHG emission reductions are calculated without material misstatements. Our opinion refers to the project's GHG emissions and resulting GHG emission reductions reported, both determined due to the valid and project's baseline, its monitoring plan and its associated documents. Based on the information we have seen and evaluated we confirm that the implementation of the project resulted for Pre-JI verification in 2007 for 6,004 t CO₂e (down-rounded) as AAUs, subject to the final decision of the DFP of Bulgaria. The AAUs during 2007 are due to the measure SVP 06 (switch from block to sheet in pulp production) only. This explains the low amount. And as ERUs for the following years: <ul style="list-style-type: none">• 115,120.89 t CO₂e in 2008• 19,492.74 t CO₂e in 2009• 168,304.72 t CO₂e in 2010				



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Total for the JI verification period (2008 – 2010): 302,918 CO₂e (down-rounded).

In general, the ex-ante estimated yearly ERUs are strongly depending on the interaction of each single project. The figures for 2008 and 2009 are lower than the ex-ante estimated figures in the PDD and for 2010 the verified ERUs are 25% higher than predicted. The explanation for these differences are:

- In 2008 the new equipment was installed and commissioned. Furthermore the tuning of the process was carried out to reach the optimal working conditions. All these operations did not allow working at the ideal conditions all along the year.
- In 2009 the mill was in operation only 2 months due to the world economic crisis.
- In 2010 the achieved ERUs are the result of the stable operational mode of the equipment and of the optimal parameters of the processes. The most significant increase is due to SVP-01 and mainly to the BL calorific value. In 2010 the BL calorific value is much higher than that stated in the PDD (+55%), causing an increase in CO₂ emission reductions.

Verification team:

- ATL Robert Mitterwallner
- Verifier Constantin Zaharia

Technical Reviewer:

Thomas Kleiser



Abbreviations

AAU	Assigned Amount Unit
ACM	Approved Consolidated Methodology
AIE	Accredited Independent Entity (also verifier)
BL	Black Liquor
CAR	Corrective Action Request
DDP	Drying Dewatering Plant
DFP	Designated Focal Point
DVM	Determination and Verification Manual, Annex 4 of JISC 19 report
ER	Emissions reduction
ERU	Emission Reduction Unit
FAR	Forward Action Request
FVD	Frequency Control Drives
GHG	Greenhouse Gas
IETA	International Emission Trading Association
JI	Joint Implementation
KP	Kyoto Protocol
MP	Monitoring Plan
MR	Monitoring Report
PDD	Project Design Document
PP	Project Participant
PVC	Periodical Verification Checklist
SD	Sustainable Development
SRB	Soda Recovery Boiler
TÜV SÜD	TÜV SÜD Industrie Service GmbH, Carbon Management Service
UNFCCC	UN Framework Convention on Climate Change
VER	Verified Emission Reductions
VP	Verification Protocol

Main Documents (referred to in this report)

Methodology (name / version)	Project specific	
Registered PDD:	PDD (03-2006) /IRL1 /10-08-2010 (registration date)	
	Version	Date
Published Monitoring Report	01	22-05-2011/IRL1
Final Monitoring Report	04	21-09-2011/IRL1
Project documentation link:	http://ji.unfccc.int/JIITLProject/DB/6TAC33R0IOWO4RA3G0TAURAM11YKRZ/details	

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Annex 1: Verification Protocol

Annex 2: Information Reference List

1. INTRODUCTION

1.1 Objective

Svilocell Co, Bulgaria ordered independent initial and first periodic verification services for the Energy efficiency investment program at Svilocell Pulp Mill (Bulgaria) by TÜV SÜD.

The objective of the verification work is to check the compliance of the project with the requirements of paragraph 62 of the CDM Modalities and Procedures. According to this assessment TÜV SÜD shall:

- ensure that the project activity has been implemented and operated as per the PDD Version 03-2006, and that all physical features (technology, project equipment, monitoring and metering equipment) of the project are in place,
- ensure that the published MR and other supporting documents provided are complete and verifiable and in accordance with applicable JI requirements,
- ensure that actual monitoring systems and procedures comply with the monitoring systems and procedures described in the monitoring plan and the project specific methodology,
- evaluate the data recorded and stored as per Monitoring Plan described in PDD.
- The official link to the published documents is:

http://www.netinform.net/KE/Wegweiser/Guide2.aspx?ID=5341&Ebene2_ID=1644&Ebene1_ID=26

The verified emission reduction figures are lower than the ex-ante estimated figures in the PDD that is due to a lower production than expected. However, this fact does not affect the verification of the project.

1.2 Scope

The verification scope is defined as an independent and objective review and ex-post determination of the monitored reductions in GHG emissions by the Accredited Independent Entity. The verification is based on the submitted monitoring report, the determined project design documents including its monitoring plan, the applied monitoring methodology, relevant decisions, clarifications and guidance from the CMP and the JISC and any other information and references relevant to the project activity's resulting emission reductions. These documents are reviewed against the requirements of the Kyoto Protocol, the CDM Modalities and Procedures and related rules and guidance.

TÜV SÜD has, based on the requirements in the DVM applied a risk based approach. The principles of accuracy and completeness, relevance, reliability and credibility were combined with a conservative approach to establish a traceable and transparent verification opinion.

The verification considers both quantitative and qualitative information on emission reductions.

The verification is not meant to provide any consultancy towards the client. However, stated requests for clarifications, corrective and/or forward actions may provide input for improvement of the monitoring activities.

1.3 GHG Project Description

Project activity:	"Energy efficiency investment program at Svilocell Pulp Mill (Bulgaria)"
UNFCCC registration number:	BG1000177
Project Participants:	Svilocell Co., 5253 Svishtov, Bulgaria; European Bank for Reconstruction and Development
Location of the project:	GPS coordinates 43.639597°, 25.307439°.

Purpose of the project is the implementation of a series of energy efficiency measures to reduce Company's energy consumptions. The measures and the energy savings are:

- SVP-01: Replacement of cyclone evaporator with a new super concentrator for Soda Recovery Boiler (SRB) - this measure will result in energy savings of up to 55,000 MWh per year;
- SVP-02: Replacement of a barometric condensers with plate heat exchangers in evaporating systems for black liquor and installation of new filters - this measure will result in energy savings of up to 47,000 MWh per year;
- SVP-03: Installation of frequency control drives on electric motors - this measure will result in energy savings of up to 1,300 MWh per year;
- SVP-04: Installation of a back pressure steam turbine - this measure will result in energy savings of up to 40,000 MWh per year;
- SVP-05: Installation of a blow down heat recovery system - this measure will result in energy savings of up to 4,000 MWh per year;
- SVP-06: Shift of production from pulp blocks to pulp sheets - this measure will result in energy savings up to 46,000 MWh per year.

2 METHODOLOGY

2.1 Verification Process

The verification process is based on the approach depicted in the DVM (Annex 4, JISC 19).

Standard auditing techniques have been adopted. The verification team performs first a desk review, followed by an on-site visit which results in a protocol including all the findings. The next step is to close out the findings through direct communication with the PPs and finally prepare the verification report. This verification report and other supporting documents then undergo an internal quality control by the CB "climate and energy" before submission to the host country DFP.

2.2 Verification Team

The appointment of the team takes into account the coverage of the technical areas, sectoral scopes and relevant host country experience for verifying the ER achieved by the project activity in the relevant monitoring period for this verification.

The verification team was consisting of the following members:

Name	Qualification	Coverage of technical scope 4	Coverage of technical area 4.3	Coverage of technical scope 3	Coverage of technical area 3.1	Host country experience
Robert Mitterwallner	ATL	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Constantin Zaharia	VER					<input checked="" type="checkbox"/>

Robert Mitterwallner is located at TÜV SÜD Industrie Service in Munich since 1990 and has a background as auditor for environmental management systems, as expert in environmental permit procedures for industrial plants and as expert for environmental impact studies assessment. He has received training in the JI determination/verification and CDM validation/verification process and applied successfully as GHG Determiner, GHG Validator, GHG Verifier as well as Assessment Team Leader and Technical Reviewer for climate change projects, among others, in the scope energy industries. Moreover, he has been appointed as Auditor for Renewable Energy Certification.

Constantin Zaharia is environmental engineer and is working as GHG Verifier in the supra regional unit of the scope management for industrial gases in the Carbon Management Service Department of TÜD SÜD Industry Service GmbH, Germany. He has several years of experience in JI/CDM projects.

2.3 Review of Documents

The Monitoring Report version 01 was submitted in Mai 2011 by the PP which was made publicly available on the netinform website before the verification activities started. The published MR was assessed based on all the relevant documents as listed earlier. The aim of the assessment in the desk review was to verify the completeness of the data and the information presented in the MR. The compliance check of the MR with respect to the monitoring plan depicted in the PDD with attachment and the project specific methodology was carried out. Particular attention to the frequency of measurements, the quality of the metering equipment including calibration requirements, and the quality assurance and quality control procedures was paid. The evaluation of data management and the quality assurance and quality control system in the context of their influence on the generation and reporting of emission reductions was also carried out. A complete list of all documents reviewed is available in Annex 2 of this report.

2.4 On-site Assessment and follow-up Interviews

Due to the high extent of information needed for verification (the verification consisted of four years, 2007 to 2010) TÜV SÜD performed 2 physical site inspections and on-site interviews with PP and project stakeholders, from 07-06-2011 to 08-06-2011 and one month later from 07-08-2011 to 07-08-2011, to:

- confirm the implementation and operation of the project,
- review the data flow for generating, aggregating and reporting the monitoring parameters,
- confirm the correct implementation of procedures for operations and data collection,
- cross-check the information provided in the MR documentation with other sources (raw data),
- check the monitoring equipment against the requirements of the PDD and the project specific methodology, including calibrations, maintenance, etc.,
- review the calculations and assumptions used to obtain the GHG data and ER,
- Identify if the quality control and quality assurance procedures are in place to prevent or correct errors or omissions in the reported parameters.

The following persons were interviewed during this verification activity:

1. Mr. Friso De Jong – Associate Carbon Transaction Manager (EBRD)
2. Mr. Michele Mancini – Energy & Infrastructure Project Engineer South Europe (MWH SpA Italy)
3. Mr. Victor Zarev – Executive Director of Svilocell
4. Mr. Dimitar Dimitrov – Energy Efficiency Manager
5. Mr. Plamen Petrov – Production Manager
6. Mrs. Diana Ganeva – Head of Energy Projects
7. Mr. Mihail Drumev – Head of Recovery boiler
8. Mr. Yordan Ivanov – Head of DDP department
9. Mr. Yordan Ganev – Head of Fibre line
10. Mr. Miroslav Marinov – Deputy head of Maintenance department
11. Mr. Stanislav Todorov – Head of Causticizing and Lime regeneration department
12. Ms. Stela Tabakova – Ecologist
13. Ms. Bilyana Borisova – Project Coordinator
14. Ms. Desislava Hristova – Technical assistant

2.5 Quality of Evidence to Determine Emission Reductions

Among many others the following relevant and reliable evidences have been used by the audit team during the verification process:

1. Operational reports of the Plant (IRL 5),
2. Monitoring report for 2007 – 2010 (IRL 1),
3. Steam consumption/production records (IRL 5),
4. Reports on produced pulp (IRL 11).

Sufficient evidence covering the full verification period in the required frequency is available to validate the figures stated in the final MR. The source of the evidences will be discussed in chapter 3 of this report. Specific cross-checks have been done in cases that further sources were available. All figures in the monitoring report were cross-checked by the audit team against the

raw data. The data collection system meets the requirements of the monitoring plan as per the project specific methodology.

2.6 Resolution of Clarification and Corrective and Forward Action Requests

The objective of this phase of the verification process was to resolve any outstanding issues which needed to be clarified for TÜV SÜD's positive conclusion on the GHG emission reduction calculation. The findings raised as Forward Action Requests (FARs) (if any) indicated in previous reports (determination/verification) were clarified during communications between the PP and TÜV SÜD.

To guarantee the transparency of the verification process, the concerns raised, based on the desk review and subsequent on-site audit assessment and follow up interviews, together with the responses given are documented in Annex 1 (verification protocol).

A Corrective Action Request is raised where TÜV SÜD identifies:

- non-conformities in monitoring and/or reporting with the monitoring plan and/or methodology;
- that the evidence provided is not sufficient to prove conformity;
- mistakes in assumptions, data or calculations that impair the ER;
- FARs stated during determination that are not solved until the on-site visit.

A Clarification Request is raised where TÜV SÜD does not have enough information or the information is not clear in order to confirm a statement or data.

A Forward Action Request is raised where TÜV SÜD identifies that monitoring and/or reporting required special attention or adjustments for the next verification period.

Information or clarifications provided as response to a CAR, CL or FAR could also lead to a new CAR.

2.7 Internal Quality Control

As an ultimate step of verification the final documentation including the verification report and the protocol have to undergo an internal quality control by the Certification Body (CB) "climate and energy", i.e. each report has to be finally approved either by the Head of the CB or the Deputy. In case one of these two persons is part of the assessment team the approval can only be given by the other one. If the documents have been satisfactorily approved, the Request for Issuance is submitted to the host country DFP along with the relevant documents.

3 VERIFICATION RESULTS

In the following sections the results of the verification are stated. The verification results relate to the project performance as documented and described in the final Monitoring Report Version 04 / 21-09-2011 for the years 2007 (AAUs) and 2008 – 2010 (ERUs). The verification findings are presented below.

3.1 FARs from Determination

No FARs from the determination.

3.2 Project Implementation in accordance with the PDD with attachment

The project is fully implemented according to the description presented in the PDD. The verifier confirms, through the visual inspection (IRL 3) that all physical features of the proposed JI project activity including data collecting systems and storage have been implemented in accordance with the PDD. The project activity is completely operational and the same has been confirmed on-site. No data and/or variables presented in the MR differ significantly from the stated in the PDD, which would cause an increment of the ER in this period or in future periods in relation to the estimates in the PDD.

In general, the ex-ante estimated yearly ERUs are strongly depending on the interaction of each single project. The figures for 2008 and 2009 are lower than the ex-ante estimated figures in the PDD and for 2010 the verified ERUs are 25% higher than predicted. The explanation for these differences is:

- In 2008 the new equipment was installed and commissioned. Furthermore the tuning of the process was carried out to reach the optimal working conditions. All these operations did not allow working at the ideal conditions all along the year.
- In 2009 the mill was in operation only 2 months due to the world economic crisis.
- In 2010 the achieved ERUs are the result of the stable operational mode of the equipment and of the optimal parameters of the processes. The most significant increase is due to SVP-01 and mainly to the BL calorific value. In 2010 the BL calorific value is much higher than that stated in the PDD (+55%), causing an increase in CO₂ emission reductions.
- In 2007, only SVP 06 measure (pulp switch from blocks to sheets) has been implemented and this justifies the low amount of AAUs.

3.3 Compliance of the Monitoring with the Monitoring Plan

The monitoring has been carried out in accordance with the monitoring plan contained in the PDD. All parameters were monitored and determined as per the Monitoring Plan.

The verification of the parameters required by the monitoring plan is provided as follows:

Data / Parameter: EQ_{BL} OCS_{BL}	Black liquor flow rate Outlet concentration of black liquor after super concentrator
Data unit:	t/h %
Description:	Total annual black liquor flow rate at the SRB (Soda Recovery Boiler) and Outlet concentration of black liquor after super concentrator.
Source of data used:	Monitoring is based on meter readings. There is an integrated flow meter with concentration measurement (Gama flow meter) installed on pipe for TBL from SRB, see Annex 1 table 3.2.1. The meter is fully functional and properly calibrated.
Means of verification/Comments:	The amount of black liquor was verified by comparing it with pulp production. The values are plausible.
Cross-check	The amount of black liquor was crosschecked by comparing the manual records with data from PLC system (printouts from control room computer).

Data / Parameter: WH_{SRB}	Annual working hours of SRB
Data unit:	h
Description:	The operating hours for SRB.
Source of data used:	Manual logbooks.
Means of verification/Comments:	The logbooks for different periods have been checked and compared with black liquor flow rate.
Cross-check	Random checks for each year of the monitoring period for logbooks and print screens from control rooms computers (IRL 8)

Data / Parameter: OST_{SRB}	Outlet steam temperature from SRB
Data unit:	°C
Description:	ROSEMOUNT, thermo couple type K, with PLC system. The temperature is measured every second and recorded in the computer from the control room.
Source of data used:	The readings (hourly average) are entered into the logbook.
Means of verification/Comments:	The logbooks for different periods have been checked and compared with the information stored in the computer from the control room
Cross-check	N/A

Data / Parameter: OSP_{SRB}	Outlet steam pressure from SRB
Data unit:	Bar
Description:	Cell membrane instrument located on pipe for TBL from SRB.
Source of data used:	PLC system, see Annex 1 table 3.2.8. The meter is fully functional and properly calibrated.
Means of verification/Comments:	Visual check, data from control room computer. The values have been compared with BL flow and temperature.
Cross-check	N/A
Data / Parameter: IC_{BL}	BL concentration inlet to the super concentrator.
Data unit:	%
Description:	From samples taken by the operator. Gravimetric density measuring device.
Source of data used:	Operator logbooks.
Means of verification/Comments:	The records from logbooks have been randomly checked. The procedure for BL concentration measurement has been provided to the verification team (IRL 5).
Cross-check	N/A

Data / Parameter: OC_{BL}	BL concentration outlet to the super concentrator.
Data unit:	%
Description:	From samples taken by the operator. Gravimetric density measuring device.
Source of data used:	Operator logbooks.
Means of verification/Comments:	The records from logbooks have been randomly checked. The procedure for BL concentration measurement has been provided to the verification team (IRL 5).
Cross-check	N/A

Data / Parameter: BLC_{AW}	Black liquor concentration after washing.
Data unit:	%
Description:	From samples at the inlet of tanks for weak black liquor in EP2, taken by the operator. Gravimetric density measuring device (areometer). The aerometer is yearly calibrated according to the internal procedure of the plant.
Source of data used:	Operator logbooks.
Means of verification/Comments:	The records from logbooks have been randomly checked. The procedure for BL concentration measurement has been provided to the verification team (IRL 5).
Cross-check	N/A



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Data/Parameter: BLC_{AHE}	Black liquor concentration after heat exchangers
Data unit:	%
Description:	From samples at the tank for 60% BL, taken by the operator. Gravimetric density measuring device (areometer).
Source of data used:	The records from logbooks have been randomly checked. The procedure for BL concentration measurement has been provided to the verification team (IRL 5).
Means of verification/Comments:	The functionality of the devices have been checked with the records from the control room.
Cross-check	N/A

Data / Parameter: OHV_{SD} PA_{VSD}	Operating hours of pumps Average Power absorbed by pumps
Data unit:	h kW
Description:	Electronic measurement of electrical units (electricity and voltage) and calculation via internal methods (Schneider Toshiba Inverter Europe SAS).
Source of data used:	Records from Control Room computer
Means of verification/Comments:	The functionality of the devices have been checked with the records from the control room.
Cross-check	The power absorbed has been cross-checked with pulp production.

Data / Parameter: SP_{SRB}	Annual steam production from SRB
Data unit:	t/h
Description:	Differential pressure (ROSEMOUNT), located on pipe for TBL from SRB
Source of data used:	Records from Control Room computer
Means of verification/Comments:	The functionality of the device has been checked with the records from the control room. The readings/recordings are performed every 8 hours.
Cross-check	The steam production has been cross-checked with the BL flow rate.

Data / Parameter: AR_{BD}	Average blow-down rate
Data unit:	%
Description:	The average blow down rate and the utilized from it heat energy is not measured, because a new heat energy meter (see below) is installed that measures directly the heat energy. This is more accurate and reliable method due to which in the monitoring report and in the workbook the data for the blow down rate is not filled in. This rate could be calculated theoretically; if necessary.)
Source of data used:	N/A
Means of verification/Comments:	N/A
Cross-check	N/A

Data / Parameter: TI_{HE} TO_{HE}	Temperature inlet heat exchangers Temperature outlet heat exchangers
Data unit:	°C
Description:	Heat meter differential temperature (Zenner-Zahle), located at the inlet and the outlet of the heat exchanger.
Source of data used:	Records from Control Room computer
Means of verification/Comments:	The functionality of the device has been checked with the records from the control room. The readings/recordings are performed every 8 hours.
Cross-check	N/A

Data / Parameter: DC_{BL}	Specific diesel consumption in block line
Data unit:	t/t pulp
Description:	The diesel fuel is not used anymore in the block line. Last time has been used in 2004, when the baseline was established. The specific consumption for the baseline is fixed at 0.04 t/t pulp.
Source of data used:	Annual statement for the production costs of block and sheet pulp up to December 2004.
Means of verification/Comments:	The value has been checked during the Determination of the Project.
Cross-check	N/A

Data / Parameter: SC_{SL}	Specific steam consumption in sheet line
Data unit:	MWh/t pulp
Description:	It is calculated based on steam consumption and pulp production.
Source of data used:	See below
Means of verification/Comments:	See below
Cross-check	See below

Data / Parameter: -	Steam consumption in sheet line
Data unit:	MWh
Description:	Calorimeter based on resistance method (Table 3.2.16, Annex 1)
Source of data used:	The meter is located in the control Room of DDP. Readings/recordings every 8 hours.
Means of verification/Comments:	The functionality has been visually checked during the on site visit.
Cross-check	The amount of steam consumption has been cross-checked – for plausibility – with the pulp production and the result was satisfactory..

Data / Parameter: EC_{SL}	Specific electricity consumption in sheet line
Data unit:	MWh/t pulp
Description:	It is calculated based on electricity consumption and pulp production.
Source of data used:	See below
Means of verification/Comments:	See below
Cross-check	See below

Data / Parameter: -	Electricity consumption in sheet line
Data unit:	MWh
Description:	The amount of electricity used in sheet line is composed of three readings: meter ТП 302-1, meter ТП 302-2 and meter ТП 403.
Source of data used:	The meters are located in Sheet Line Plant. Readings/recordings every 8 hours. The results are included in the monthly protocol for energy/heat and fluids (See Table 3.6.2 of Annex 1).
Means of verification/Comments:	The functionality of the meters has been visually checked during the on site visit.
Cross-check	The amount of electricity consumption has been cross-checked – for plausibility – with the pulp production and the result was satisfactory..

Data / Parameter: FD_S FD_{EM}	Fuel demand for start-up operations Fuel demand for emergency cases
Data unit:	l/min
Description:	Nutating disk meter used for heavy fuel oil, located on pipe for heavy fuel oil tank.
Source of data used:	Manual logbooks.
Means of verification/Comments:	The functionality of the meters have been checked with the records from the control room. The readings/recordings are performed every 8 hours.
Cross-check	Invoices for heavy fuel bought.

Data / Parameter: - TP	Pulp production
Data unit:	t
Description:	Scale (Toledo company is the manufacturer). Strain gauge principle.
Source of data used:	The meter is located in Sheet Line Plant. Readings/recordings every 8 hours. (See Table 3.2.17 of Annex 1).
Means of verification/Comments:	The functionality of the meter has been visually checked during the on site visit.
Cross-check	Invoices for pulp production.

All other parameters used in ERU calculations (such as Specific CO₂ Emissions for coal, Emission factors for Diesel/heavy fuel oil, Power Plant Efficiency, Electricity Transmission Losses) are from IPCC Guidelines, or from official documents (See IRL 11 for Power Plant efficiency data) and do not require monitoring.

The verification team cross-checked the external parameters used in calculation with the help of IPCC 2006 Guidelines for National Greenhouse Gas Inventories, Chapter 2 and Chapter 1 respectively, the latest version of the study prepared by NEK on May 5th, 2005 (Annex 4 of registered PDD) and invoices issued by CHP (IRL 11).

3.4 Assessment of Data and Calculation of Greenhouse Gas Emission Reductions

All data has been available and all the parameters have been monitored in accordance with the registered monitoring plan. The reported data has been cross check against other sources when available as explained above in chapter 3.3. The verifier confirms that the methods and formulae used to obtain the baseline, project and leakage emissions are appropriate. The same have been done in accordance with the methods and formulae described in the monitoring plan and project specific methodology. The verifier confirms that all the emission factors and default values (ex-ante values from PDD with attachment) have been correctly justified.

4 SUMMARY OF FINDINGS

The verifier can confirm that the published MR and related documents are complete and verifiable in accordance with the JI requirements. The entire findings rose by the verification team, the responses by the PPs and the conclusion from the team are presented in Annex 1.

During the first on-site audit, in the time between the first and the second on-site audit and at the second on-site audit (see chapter 2.4), a lot of issues have been closed together with the PP. These issues are therefore not indicated in the protocol. All together 1 Clarification Request and 1 Corrective Action Request were issued.

CR # 1: A clarification request related to the calibration of the meter 11-FIC-408 – out to date according to the documents received. As response the PP provided the calibration certificate. The issue is considered solved for the audit team.

Action by PP: calibration evidence has been submitted

Action by AIE: the calibration evidence has been checked.

CAR #1: In the document “Svilocell workbook 2007-2010_rev.3.xlsx”, for enthalpy it is mentioned “measured”, but this parameter is calculated. The same is valid for water enthalpy and condensate enthalpy. The PP provided the revision of calculation files, “Svilocell workbook 2007-2010_rev.4.xlsx”, dated 05.08.2011 with the correction. This issue is considered closed.

Action by PP: the workbook has been revised accordingly

Action by AIE: the revised workbook has been checked

FINDINGS AS A RESULT OF CB REVIEW

In total, 10 CARs and one CR have been raised during the internal verification performed by the certification Body of TÜV SÜD. The most relevant of them are presented below. The complete list is included in the protocol.

CAR #3: An analyze, for each year, regarding differences between estimated values in PDD and real values obtained has to be performed and included in the MR. The PP performed the requested analyze and included it in the revised MR ver. 04. This issue is considered closed.

Action by PP: the MR has been revised accordingly



Industrie Service

Action by AIE: the revised MR has been checked

CAR #9: The thermal efficiency of the CHP was in 2007 51.47% and, starting with 2008, decreased to 39 (31, 37) %. An explanation is requested. The PP answered that: „The data for the thermal efficiency of the Power Plant, coal emission factor and coal calorific value are submitted to Svilocell as an official document by the Power Plant (CHP), signed by the Executive Director. This is an external company and Svilocell could not comment or discuss in any way the submitted data”. This issue is considered closed.

Action by PP: official documents issued by CHP submitted

Action by AIE: There is no other possibility to cross-check the values provided by the CHP.

5 VERIFICATION STATEMENT

TÜV SÜD Industrie Service GmbH has performed the Pre-JI, first, second and third periodic verification of the JI track 1 project: "Energy efficiency investment program at Svilocell Pulp Mill (Bulgaria)". The verification is based on the currently valid documentation of the UN Framework Convention on Climate Change (UNFCCC).

The management of Svilocell.co is responsible for the preparation of the GHG emissions data and the reported GHG emission reductions on the basis set out within the project's Monitoring Plan indicated in the PDD from 2006 and the project specific methodology. The verifier can confirm that:

- the development and maintenance of records and reporting procedures are in accordance with the monitoring plan;
- the project is operated as planned and described in the determined PDD with attachment;
- the installed equipment being essential for generating emission reduction runs reliably and is calibrated appropriately;
- the monitoring system is in place and generates GHG emission reductions data;
- the GHG emission reductions are calculated without material misstatements;
- the monitoring plan in Monitoring Report is as per the PDD with attachment;
- the monitoring plan in the PDD with attachment is as per the project specific methodology.

In general, the ex-ante estimated yearly ERUs are strongly depending on the interaction of each single project. The figures for 2008 and 2009 are lower than the ex-ante estimated figures in the PDD and for 2010 the verified ERUs are 25% higher than predicted. The explanation for these differences is:

- In 2008 the new equipment was installed and commissioned. Furthermore the tuning of the process was carried out to reach the optimal working conditions. All these operations did not allow working at the ideal conditions all along the year.
- In 2009 the mill was in operation only 2 months due to the world economic crisis.
- In 2010 the achieved ERUs are the result of the stable operational mode of the equipment and of the optimal parameters of the processes. The most significant increase is due to SVP-01 and mainly to the BL calorific value. In 2010 the BL calorific value is much higher than that stated in the PDD (+55%), causing an increase in CO₂ emission reductions.
- In 2007, only SVP 06 measure (pulp switch from blocks to sheets) has been implemented and this justifies the low amount of AAUs.



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Reporting period	From 01-01-2007 to 31-12-2010			
	2007 AAUs	2008 ERUs	2009 ERUs	2010 ERUs
Baseline emissions	38,382.01	344,401.35	70,453.76	393,544.18
Project emissions	32,377.20	229,280.45	50,961.02	225,239.46
Leakage emission:	0	0	0	0
Emission reductions:	6,004.81	115,120.89	19,492.74	168,304.72

Total for the JI verification period (01-01-2008 to 31-12-2008, 01-01-2009 to 31-12-2009 and 01-01-2010 to 31-12-2010) in ERUs: 302,918 CO₂e (down-rounded)

Munich, 30-09-2011

A handwritten signature in blue ink, reading 'Thomas Kleiser'.

Certification Body "climate and energy"
TÜV SÜD Industrie Service GmbH
Thomas Kleiser

Munich, 30-09-2011

A handwritten signature in blue ink, reading 'Robert Mitterwallner'.

Assessment Team Leader
Robert Mitterwallner