



Industrie Service

Verification Report

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

Report No. 600500588

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Subject:		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:		01-01-2012 to 31-10-2012		
Published Monitoring Report (version/date)		Version 1 / 12-11-2012		
Final Monitoring Report (version/date)		Version 3 / 10-12-2012		
Summary: TÜV SÜD Industrie Service GmbH has performed the third periodic verification under JI Track 1 procedure for 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 for the year 2012 (01 January – 31 October). A pre-JI verification of the Project has been performed for the year 2007 which resulted in 6,005 t CO _{2e} as AAUs. 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.• that the monitoring plan complies with the applied methodology (described in PDD) and the monitoring has been carried out as exactly following the monitoring plan. The installed equipment essential for generating emission reductions runs 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 in Total for the third monitoring period under JI track 1 (01.01.2012 – 31.10.2012): 173,709 tCO_{2e}. (Baseline Emissions: 385,641 tCO_{2e}; Project Emissions: 211,932 tCO_{2e}).				



Compared to the ex-ante calculated value of 119,938 tCO_{2e}, reduced at 10 months, the emission reductions for 2012 (10 months) were 173,709 tCO_{2e}, which is 44.8% higher.

The reasons for the total increase in general are as follows:

- Optimal combustion process in the recovery boiler as well as efficient operation of the mill
- The lower coal calorific value and significantly lower thermal efficiency of the Power Plant compared to the previous year led to emission reductions increase.
- The calorific value of the BL (Black Liquor) for the year 2012 (2,601 kcal/kg) is much higher than that stated in the PDD (1.747 kcal/kg), causing an increase in CO₂ emission reductions. This is a result of the measures implemented in the Project. It has to be mentioned that this calorific value is calculated by an independent and accredited laboratory (IRL 12).

However, for the entire crediting period 01/01/2008-31/10/2012, the Project ERUs are 672,066 tCO_{2e} and, for the same period, 2008-2012, the ERUs as estimated in the registered PDD is 670,149 tCO_{2e}, which is 0.29% higher than estimated in the PDD.

The project is implemented in accordance with the project design in the PDD. No modifications were made to the project equipment. The stable mill operation observed in 2011 continued in 2012 as well, which contributes also to the increased number of ERUs.

Verification team:

- ATL Robert Mitterwallner
- Verifier Constantin Zaharia

Technical Reviewer:
Thomas Kleiser

CB Release
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	1	12-11-2012/IRL1
Final Monitoring Report	3	10-12-2012
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 has ordered independent third periodic verification services for the “Energy efficiency investment program at Svilocell Pulp Mill (Bulgaria)”, for the period 01/01/2012 to 31/10/2012, 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.de/KE/Wegweiser/Guide22.aspx?Ebene2_ID=2407&mode=5

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, 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"/>

The onsite visit has been performed on 14th – 15th November 2012 by Constantin Zaharia and a phone conference has been held on 15th November with the participation of Robert Mitterwallner and Svilocell JI management team.

Robert Mitterwallner is located at TUV 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.

Thomas Kleiser – Technical Reviewer.

2.3 Review of Documents

The Monitoring Report version 1 was submitted in November 2012 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

TÜV SÜD performed a physical site inspections and on-site interviews with PP and project stakeholders, on 14-15/11/2012 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 obtained 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. Dimitar Dimitrov – Energy Efficiency Manager
2. Mr. Plamen Petrov – Production Manager
3. Mrs. Diana Ganeva – Head of Energy Projects
4. Mr. Miroslav Marinov – Deputy head of Maintenance department
5. Ms. Stela Tabakova – Ecologist
6. Ms. Bilyana Borisova – Project Coordinator
7. Mr. Georgi Lichkov – Deputy head SRB

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 8),
2. Monitoring report for 2012 (01 January - 31October (IRL 1),
3. Steam consumption/production records (IRL 8),
4. Reports on produced pulp (IRL 8, 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 3 / 10-12-2012 for the year 2012 – period 01/01-31/10. The verification findings are presented below.

3.1 FARs from the Second periodic verification

No Forward Action Requests from the second periodic verification.

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.

Within the monitoring period of 2012, period 01/01 – 31/10, the mill has a stable operation with a production peak in April (10,705 t) followed by a constant decreasing of the production due to the lack of wood. All the energy efficiency measures are implemented – the last implemented one, SVP 04, was in March 2011.

Though implemented as in the registered PDD – as checked during the onsite visit – the energy efficiency measures resulted in a substantial increase in the ERUs for the year 2012 (period 01/01/2012 – 31/10/2012). The main reason for this increase is the increase of the calorific value of the BL: 2601 kcal/kg in 2012 and 1747 kcal/kg as estimated in the registered PDD. The calorific value is calculated by an accredited laboratory (IRL 12). However for the whole crediting period 2008-2012, the total amount of ERUs is less than estimated in the registered PDD and hence there is no impact on the additionality of the project.

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}	Black liquor flow rate
OCS_{BL}	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 (approx. 2.38 t BL/1 t pulp).
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 the values of the workbook. No discrepancies were identified. [5,484 (hours) x 33.6 (t BL/hour)] / 2.38 (t BL / t pulp) = 77421 t pulp (77,265 t reported in the workbook – IRL 9).
Cross-check	Random checks for different months 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	The workbook values have been randomly checked with the values entered into the logbooks and no inconsistencies found.
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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. Values are in line with the design and with the normal values recorded in the previous years.
Cross-check	The workbook values have been randomly checked with the values entered into the logbooks and no inconsistencies found.

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	The workbook values have been randomly checked with the values entered into the laboratory documents and no inconsistencies found.

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 and no deviations from the values entered in the workbook found.
Cross-check	The workbook values have been randomly checked with the values entered into the laboratory documents and no inconsistencies found.

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.
Cross-check	The workbook values have been randomly checked with the values entered into the laboratory documents and no inconsistencies found.

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.
Means of verification/Comments:	The functionality of the devices has been checked with the records from the control room.
Cross-check	The workbook values have been randomly checked with the values entered into the laboratory documents and no inconsistencies found.

Data / Parameter: OHV_{SD} PA_{VSD}	Operating hours of pumps Average Power absorbed by pumps
Data unit:	h kWh
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 has been checked with the records from the control room.
Cross-check	The power absorbed has been cross-checked with pulp production and no deviations found.

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 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: $T_{I_{HE}}$ $T_{O_{HE}}$	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	The workbook values have been randomly checked with the values entered into the logbooks and no inconsistencies found.

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 blocks 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 onsite 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 onsite 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:	t

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 has 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 onsite visit. The meter was functioning.
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 10 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 (Cogeneration Heat and Power) (IRL 10).

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 checked 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.

Compared to the total value stated in the PDD emission reductions are 44.8% higher.
The reasons for the total increase in general are as follows:

- Optimal combustion process in the recovery boiler as well as efficient operation of the mill
- The lower coal calorific value and significantly lower thermal efficiency of the Power Plant compared to the previous year led to emission reductions increase.
- The BL calorific value is much higher than that stated in the PDD (+44%), causing an increase in CO₂ emission reductions. The calorific value of the BL is yearly measured by an accredited laboratory of Sofia (IRL 12).

The Table below illustrates the yearly ERUs and the PDD ex-ante estimated values:

Year	Project ERUs (t CO _{2e})	PDD estimates (t CO _{2e})	BL calorific value (kcal/kg)		Power Plant Efficiency ¹ (%)	
			PDD	Project	PDD	Project
2008	115,121	143,608	1,747	2,562	55	39
2009	19,493	137,200		2,524		32
2010	168,305	135,136		2,806		38
2011	195,438	134,267		2,588		38
2012 (Jan-Oct)	173,709	119,938*		2,601		31
Total	672,066	682,143				

* reduced at 10 months.

As can be seen, for the entire crediting period 2008-2010, the Project ERUs are 672,066 tCO_{2e} and, for the same period 2008-2012 the ERUs as estimated in the registered PDD is 670,149 tCO_{2e}, which is only 0.29% higher than estimated in the PDD.

Hence, the additionality of the Project is not affected.

¹ Power Plant efficiency values are officially proved by a responsible of Svilosa A.D., the power plant company.

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.

CAR #1:

To correct inconsistencies and missing information, the following corrections are requested:

1. MR, page 1, Type of Verification, after Third Periodic Verification, the sentence "under JI Track 1" shall be added
2. MR, page 3, sentence "In August 2010...", shall be mentioned also that the PDD registered is Rev. 2, dated March 2006
3. MR, page 3, "Main factors influencing...", the bullet list shall be linked to the different measures or shall be listed separately
4. MR, page 4, after the "In 2011...first periodic verification", the sentence "under JI Track 1 (in conjunction with with a verification of year 2007 as Pre-JI Project", shall be added
5. Same sentence, the dates for the first on-site and for the second one are the same. Correction is requested. End of the paragraph, "ERUs generated [for this period] are 27% lower". The mention "for this period" shall be included
6. Next paragraph, "The total amount of verified emission reduction for 2012.." – but the year is 2011. Correction is requested. Also, at the end of this paragraph, a comparison with the estimated amount of ERUs from PDD shall be included.
7. Next paragraph, "All subprojects...were introduced into operation" ["as per PDD" - and the date when started operation] shall be included
8. MR, page 2, Chapter 2. In the bullet list, only the final MR shall be included. Same request for the next paragraph
9. In order to make Table 2, page 8 of the MR, more understandable, a short description of the measures SVP 01 to SVP 06 shall be included in the MR before this Table
10. MR, page 8, "- The BL calorific value...". The sentence shall be revised by including the values baseline/project
11. End of the same paragraph: "...which is relevant to 0.5%". 0.5% of what? The sentence must be revised.
12. MR, page 10, the title "Calculating the ..." shall start on new page.

Action by PP:

Monitoring report rev.2 dated December 5th, 2012 is corrected as per the comments in CAR No 1

Action by AIE

The new MR, rev. 2 (IRL 1) has been checked and it can be confirmed that:

1. The sentence "under JI Track 1" has been added on page 1
2. The mention "Rev. 2 dated March 2006" has been added on page 3



3. The bullet list on page 3 is linked to the separate measures
4. The sentence "under JI Track 1 (in conjunction with a verification of year 2007 as Pre-JI Project", has been added after "In 2011..."
5. The dates have been corrected and the mention "for this period" has been added at page 5
6. Correction (year 2011) and the comparison with the baseline is done at page 4
7. In the next paragraph the statement "as per PDD" has been added and the commissioning date included
8. In the bullet list, only the final MR is quoted (MR, chapter 2)
9. A short description of the measures has been added at page 8 of the MR, before Table 2
10. The BL calorific values baseline/project have been inserted at page 8
11. Correction of the sentence "...0.5% " has been done at the end of the paragraph of the page 8
12. The title "Calculating..." is correctly included in the page 11 of the MR.

These issues are closed.

CAR #2:

In the workbook, sheet "consolidata", the ERUs calculation is performed for the period 2007-2012, but the monitoring period is 01/01/2008-31/10/2012 (the values for 2007 are AAUs). Correction is requested.

Action by PP:

The sheet "consolidata" is corrected in the workbook rev.3. The period is changed to 2008 – 2012.

The workbook is attached.

Action by AIE

The clear distinction AAUs and ERUs is made in the sheet "Consolidata" as checked in the workbook rev. 3 dated 05/12/2012 (IRL 9).

This issue is closed.

CAR #3:

A brief description of the procedures P1 "Documents and records management", P3 "Training awareness and competence" and P11 "Internal audits management" is requested.

Action by PP:

P 1 DOCUMENTS AND RECORDS MANAGEMENT

The aim is to define procedures, responsibilities and authority for creating, approving, amending, seizure, archiving and destruction of documents and records of the organization necessary for the

effective functioning of the integrated management system for quality, environment, health and safety at work.

The procedure provides valid and current editions of documents and records of all the places where the activities are implemented.

P 3 TRAINING AWARENESS AND COMPETENCE

Determines the order, authority and responsibility for managing and ensuring the competence and training of staff to carry out activities related to the production of kraft pulp, environment and protect the health and safety at work.

P 11 INTERNAL AUDITS MANAGEMENT

Determines the order and responsibility for planning, conducting and documenting the results of internal audits of the integrated management quality system, environment and health and safety at work.

Action by AIE

The description provided is considered satisfactory by the TÜV SÜD assessment team.

This issue is closed.

CAR #4:

The baseline value for 2012 (131,932 t/CO₂e) is calculated for the whole year 2012. In order to compare the ERUs, it is requested to use the same amount of time baseline/project for the year 2012 (10 months).

Action by PP:

Calculations in the PDD are made on the basis of 8040 working hours for 1 year, which is relevant to 11 working months. Within the period May – October 2012, Svilocell has difficulties with wood supplies. This led to interruptions of production process and decreased production volumes. Meanwhile the days without production were used for maintenance activities. As a result in 2012 annual overhaul of the mill is not envisaged.

Taking into account the calculations it was ascertained that compared to the baseline calculations for 2012, emission reductions are 44.8% higher.

Action by AIE

As checked in the registered PDD, page 68, (IRL 1), the calculations are made based on 8040 hours (11 months).

The ERU's calculation is made on the same amount of operating hours 5,484 (baseline and monitoring period 3) see worksheet "EEM01", cells P14 and P51, and the same BL flow rate (33.6 t/h) – cells P12 and P49 (IRL 9), so a comparison based on operating months is not relevant.

This is also the reason for the impossibility to assess a specific emission factor ERU/t pulp and to compare the ERUs values project(s) – baseline.

In conclusion, the value used as baseline estimation (131,932 t/CO₂e) can be used for comparison for the monitoring period 3.

The value of 44.8% is also confirmed –based on a reduced baseline period for 2012 (119,938 t/CO₂e).

This issue is closed.

CL #1

Monitoring Report, Table 2, page 8:

- An explanation of the high values for the ERUs reported for the measures SVP 01 and SVP 02 is requested. The explanation shall consider also the smaller pulp production for 2012. The consideration of the 55,000 MW for SVP 01 and 47,000 MW energy savings as estimated in the registered PDD shall be made also.
- A new line consisting of PDD estimations for each measure (SVP 01 to SVP 06) shall be included at the bottom of the Table. The PDD estimates shall be considered for 10 months, the duration of this third monitoring period.
- The reason for implementing the measure SVP 04 only in March 2011 is requested.

Action by PP:

1. The main parameters that have a great impact on the energy savings and the increased amount of ERUs are as follows:

- BL flow rate
- BL calorific value
- BL concentration
- Power Plant (PP) efficiency

Only one of the above mentioned parameters, i.e. BL flow rate, is influenced by the Production volume. The rest of the parameters are not directly related to the pulp production volume.

For the parameters BL calorific value and PP efficiency a significant change compared to the values stated in the PDD is reported.

The increased calorific value of the BL is in direct relation by the current concentration and the proportion between the organic and mineral part. From the other side the content of the organic part is in direct relation of the wood species used in the pulp production as well as the regions the wood is supplied from. Taking into account that we are using mix of about 5 wood species, their proportion defines the different chemical content of the organic part. For calculation of the ERUs in 2012 was used a protocol for thick black liquor analysis issued by the accredited laboratory to the Pulp and Paper Institute. Compared to the initially stated BL calorific value in the PDD the measured one in 2012 is 44% higher.

Concerning the data presented by the Power Plant – for ERUs calculation was used data officially submitted by the Power Plant, which is an independent company. Compared to the previous year (2011) PP efficiency is decreased approximately with 7%, which leads to the significant increase in the ERUs.

The increase in SVP 01 is more visible due to the fact this measure is strongly depending on the above mentioned factors. The ERUs generated from SVP 02 are within the estimations.

2. New line is added to table 2 in the MR rev. 2 with the PDD estimations for each measure (SVP 01 to SVP 06) for a period of 10 months.

3. The reasons for the delayed implementation of SVP 04 is mainly due to the company hired for the installation activities of the turbine. Long time the company could not find the proper solution for the mistakes occurred. Only in the beginning of 2011 another company was hired to eliminate the technical problem

Action by AIE

1. The explanation provided is considered satisfactory by the verification team. See also the conclusion of the CAR # 4 above.

2. New line is added to table 2 in the MR rev. 2 (IRL 1) with the PDD estimations for each measure (SVP 01 to SVP 06) for a period of 10 months. As already explained in the conclusion of the CAR #1 above, baseline has been calculated for 8040 hours (11 months) hence the correction to 10 months is done by multiplication with 10/11.

3. The explanation is considered clear.

These issues are closed.

CL #2

The pulp production in the year 2011 was 103,277 t and the amount of ERUs was 195,438 t CO₂e.

The pulp production for the year 2012 (same period of ten months) was 77,265 t and the amount of ERUs was 173,709 t CO₂e.

This is obvious a high increase in ERUs related to the pulp production for the year 2012 compared to the year 2011.

An explanation of this inconsistency is requested.

A similar analyse ERUs / pulp production for each of the monitoring years (2008-2011) is also requested.

Action by PP:

Explanations given in CL No 1 refer to CL No 2 as well.

Below is presented a table concerning the pulp production for each year as well as the ERUs generated:

year	2008	2009	2010	2011
Pulp	72508,575	10706,712	104861,296	103277,319
ERUs	115121	19493	168305	195438

Action by AIE

As already explained in CAR #4, there is no possibility to create an emission factor based on production. The differences between BL calorific values and the efficiencies of the Power Plant in different years create the difference in the ERUs.

This issue is closed.

CL #3

1 MR, page 5, Graph 1. It shall be clarified if the highest value recorded in April 2012 (10,704.8 t pulp) is in line with the plant set-up as per approved PDD, or something changed in the plant/plants operation?

2. MR, page 6, Graph 2. The value for pulp production in 2010 (92,725 t) shall be explained (the yearly production was 104,861 t).

Action by PP:

1. No other additional measures were implemented in the mill for capacity increase or improvement of the operation, besides the described in the approved PDD. Each month 2 days are envisaged for planned maintenance of the mill and in April the maintenance was only one day, as a result of which the production in April is 10,704.8 t.

2. The graph compares the period January – October for the mentioned 3 years, i.e. 2010, 2011 and 2012. Due to that reason there is a difference in the annual pulp production for 2010 which is 104,861 t and the pulp production within the period January - October, i.e. 92,725 t.

Action by AIE

1. The explanation is acceptable. Moreover, the annual mill capacity is 120,000 t pulp, which divided by 11 (months – 8040 operating hours) give the value of 10,909 t pulp/month.

2. The explanation is clear.

These issues are closed

CL #4

MR, page 11, Table 5. An explanation regarding why the BL calorific value (1,747 kcal/kg) is not fixed and how this value has been calculated is requested.

Action by PP:

When calculating the baseline, calorific value of the BL at 60% DS (Dry Substance) was used. The calorific value is analyzed yearly by an accredited laboratory in Sofia and stated to be 1747 kcal/kg for the monitoring period.

Action by AIE

The value of 1747 kcal/kg has been assessed during the Determination of the Project.

This issue is closed.

5 VERIFICATION STATEMENT

TÜV SÜD Industrie Service GmbH has performed the 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;
- the monitoring plan in the PDD is as per the project specific methodology

Compared to the total value stated in the PDD emission reductions for this monitoring period (01/01/2012 – 31/10/2012) are 44.8% higher.

The reasons for the total increase in general are as follows:

- Optimal combustion process in the recovery boiler as well as efficient operation of the mill
- The lower coal calorific value and significantly lower thermal efficiency of the Power Plant compared to the previous year led to emission reductions increase.
- The BL calorific value for the year 2012 (2,601 kcal/kg) is much higher than that stated in the PDD (1.747 kcal/kg), causing an increase in CO₂ emission reductions.

However, for the entire crediting period 2008-2010, the Project ERUs are 672,066 tCO₂e and, for the same period, 2008-2012, the ERUs as estimated in the registered PDD is 670,149 tCO₂e, which is which is 0.29 higher than estimated in the PDD.



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Year	Generated carbon emissions according to Svilocell' Monitoring Report						
	SVP 01	SVP 02	SVP 03	SVP 04	SVP 05	SVP 06	Total
	t/CO ₂ e						
2012	103,995	28,254	331	20,395	819	19,954	173,709
PDD	35,656	30,532	1,015	31,862	2,120	18,753	119,938

Total for the JI verification period (01-01-2012 to 31-10-2012) in ERUs: 173,709 tCO₂e (Baseline Emissions: 385,641 tCO₂e; Project Emissions: 211,932 tCO₂e), which is 44.8% higher than PDD estimation (reduced at 10 months).

However, for the entire crediting period 01/01/2008-31/10/2012, the Project ERUs are 672,066 tCO₂e and, for the same period, 01/01/2008-31/10/2012, the ERUs as estimated in the registered PDD is 670,149 tCO₂e, which is only 0.29% higher than estimated in the PDD

Munich, 10-12-2012

Munich, 10-12-2012

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

Robert Mitterwallner
Assessment Team Leader



Annex 1

Verification Protocol

Verification Protocol

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1. Project Activity Implementation

1.1. Technology

PDD	Verified Situation	Conclusion
Location (s)		
Description / Address:	Svilocell is a wood processing Company whose main final product is sulphate bleached pulp. Purpose of the project is the implementation of a series of energy efficiency measures to reduce the Company's energy consumption and greenhouse gas (GHG) emissions. Svilocell Co., 5253 Svishtov, Bulgaria URL: www.svilosa.bg	<input checked="" type="checkbox"/>
GSP coordinates:	GPS coordinates: 43.639597° 25.307439°	<input checked="" type="checkbox"/>
Technical Equipment – Main Components		
Component 1: Description	<i>SVP-01 - Super concentrator for black liquor in Soda Recovery Boiler (SRB).</i> The super concentrator is vertical, lamella evaporating effect constructed by two sections. The black liquor is fed into the upper section of the evaporating effect, stream down the lamellas and heated by the steam fed in the inner side of the lamellas. As a result a part of the black liquor' water content is evaporated till achieving the necessary black liquor concentration. With the installation of new super concentrator the black liquor concentration from 60% is increased to 70%. The new-installed economizer improves Boiler efficiency by heating the feed water with the heat from flue gases. The economizer is constructed by one long section including elements with carbon steel tubes, sealed by carbon steel membrane. The flue gases flow is directed against feed water flow and the same is descending along the sealed	<input checked="" type="checkbox"/>

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PDD	Verified Situation	Conclusion
	pipes. The feed water supplied by feeding pump is led into the boiler throughout distributing header of new economizing module. The feed water enters by both of the distributing header inlets of economizer 1, runs upward in direction against the flue gases flow toward the collective header and then is fed to the distributing header of the existing economizer 2.	
Component 1: Technical Features	Super concentrator: Manufacturer/supplier: "ANDRITZ OY" Type: Vertical lamella evaporator two-sections Black liquor inlet concentration – 60% tds Black liquor outlet concentration – 70% tds Evaporated water capacity – 11,3t/h Commissioning date: December 01 st , 2007 Economizer: Manufacturer/Supplier: "ANDRITZ OY" Type: Vertical flow, constructed by tube membrane packs Commissioning date: December 01 st , 2007	<input checked="" type="checkbox"/>
Component 2: Description	<i>SVP-02 - Surface condensers in evaporating systems for black liquor</i> Surface condensers with indirect heat exchange produced by Andritz with a capacity 500 m ³ .	<input checked="" type="checkbox"/>
Component 2: Technical Features	Surface condensers The surface condenser condensates the secondary steam from 6 th body of the evaporated installation and heats water for technological process instead of the heat from steam condensation. Manufacturer/Supplier: "ANDRITZ OY" Type: Shell and pipe heat exchanger Commissioning date: December 01 st , 2007	<input checked="" type="checkbox"/>

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PDD	Verified Situation	Conclusion
Component 3: Description	<i>SVP-03 - Frequency Control Drives (VFD) on Electric Motors</i> Altivar 61 for asynchronous motors with capacity from 160 to 220 kW of Schneider Electric.	<input checked="" type="checkbox"/>
Component 3: Technical Features	<p>The VFD alternates the frequency and motor pressure. As a result the required torque of motor shaft is provided without pre-heating and an additional possibility for energy savings is realized.</p> <p>VFDs three-phase asynchronous electro-motors in a range from 0,75 to 800kW, variable resistive moment Altivar 61-ATV 61:</p> <ul style="list-style-type: none"> – three-phase 200/240V – 380/480 V – 500/690V; UL 1/IP20 in a range 0,75 to 800 kW; UL 12/IP54 from 0,75 to 800kW; – range of adjustment: 1:100 in a open feedback mode; – overloading: 110%...120% - 60s – Interface – Modbus and CANopen – inbuilt. Communication plate for industrial nets: Ethernet, FIPIO, Modus Plus, DeviceNet, Interbus-S, Unitelway and for building nets: LonWorks, BACnet, METASYS N2 and Apogee FLN. – Safety functions – "Power interruption" ATEX <p>Properties:</p> <ul style="list-style-type: none"> – Over torque to 220°C – Vector control of asynchronous motors flow with or without transmitter; – Automatic adjustment online (FVC); – Speed control and torque control; – Output frequency to 1000 Hz; – Simplified equipment with a lot of possibilities: functions, input/output, communication nets. 	<input checked="" type="checkbox"/>
Component 4: Description	<i>SVP-04 - Back pressure steam turbine to utilize steam generated by SRB and cogeneration of electricity</i>	<input checked="" type="checkbox"/>

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PDD	Verified Situation	Conclusion
	Back pressure steam turbine coupled with electricity generator with a capacity of approximately 6.2 MWel.	
Component 4: Technical Features	<p>The back pressure steam turbine /PR-8,8-4,1/ 1,1 /0,4/ with adjustable producing steam-extraction drives directly double-pole electro generator - 12MW and supply consumers with the generated steam. The electric power generated by compounded method will depend on the necessary heating load.</p> <p>A live steam is fed into the turbine from SRB by diversion from existing steam pipeline. In front of the turbine axis the live steam pipeline is divided into left and right branch and throughout two shut-off valves comes into the turbine protracted part. The turbine control (start-up, operation, shut-down) is performed by micro-processing electro-hydraulic system – automation control (EHSAC). The system consists by two operating parts: electronic control part (ECP) and hydro-mechanical performing part (HPP).</p> <p>Control, diagnostic and indication System "IT-14" controls turbine operating parts and each of the parameters.</p> <p>Manufacturer: „KTZ" Kaluga, Russia</p> <p>Type: PR-8,8-4,1/1,1/0,4</p> <p>The turbine is set with electro-generator type TPS-12-2EU3, 12 MW, manufactured by "LEZ"AD – Saint Petersburg. The generator is excited by brushless excited system, including digit system cabinet "KOSUR 240" to control the actuating process.</p> <p>Type: TPC-12-2EU3</p> <p>Commissioning date: February 14th, 2011. Start of operation, March 1st 2011</p>	<input checked="" type="checkbox"/>
Component 5: Description	<p>SVP-05 - Blow down heat recovery system for SRB</p> <p>Automatic system for monitoring the quantity of salts in the SRB boiler drum and to perform an automatic blow-down. A shell and pipe heat exchanger with a surface 2.9 m².</p>	<input checked="" type="checkbox"/>

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PDD	Verified Situation	Conclusion
Component 5: Technical Features	<p>The boiler water heat is recovered throughout heat-exchanger at draining the continuous blow-down of boiler drum. A part from de-mineralized water coming from CHP /TPP/ and entering the boiler de-aerator is heated.</p> <p>The heat-exchanger is tubular horizontal vessel with welding grids to the body. The body presents pipe with weld flat bottoms, weld outlet and inlet orifices, heat up and heating fluid, manometer, thermometer and safety valve.</p> <p>The heat consumed in blow-down process is directly read by the installed heat-meter.</p> <p>Manufacturer/Supplier: "Svilosa Service" EOOD</p> <p>Type: Shell and pipe heat-exchanger</p> <p>Commissioning date: January 15th, 2010</p>	<input checked="" type="checkbox"/>
Component 6: Description	SVP-06 - Shift from pulp blocks to pulp sheets line in the drying process	<input checked="" type="checkbox"/>
Component 6: Technical Features	<p>SVP-06 - Shift from pulp blocks to pulp sheets line in the drying process</p> <p>Line for dewatering, drying and packing of the pulp that consists of wet screen section, drying machine and cross section cutter.</p> <p>Stora Enso Skoghall Mill, Sweden – drying machine</p> <p>KMW – Valmet – wet screen section</p> <p>Ahlstrom – cross section cutter</p> <p>Capacity of the installation 275 tDS/day pulp.</p> <p>Wet end</p> <p>Wet end of the DM2 is made by Valmet-KMW 1986 installing a new open type of Headbox, new foil boxes and overhauled existing third press. The new airborne dryer, Flakt-dryer type FLC has been installed by Svenska Flaktfabriken also 1986.</p>	<input checked="" type="checkbox"/>

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PDD	Verified Situation	Conclusion
	<p>Flakt FLC - dryer Web width 4200 mm in the dryer section. Heat recovery 430 kW. Process water heating capacity is 45 t H₂O/h +10 °C > + 56°C. Length of the dryer is 31,8 m, width 9 m and height 5,8 m. 9 layers, 18 mid sections and 38 circulation fans located both side of the dryer. Flakt FLC airborne web dryer has a good drying economy. It is almost without leakage and operates at a high dew point. This result is low energy consumption.</p> <p>Cutter Layboy The Cutter Layboy is an original Ahlstrom Cutter layboy model 1964 and rebuild several times, latest 2004 for the Svilosa's purposes. The cutter layboy has a new Siemens frequency controlled electric drive. Machine speed is 20 – 100 m/min. Web width is 4200 mm.</p>	
Operation Status during verification		
Approvals / Licenses N/A	The plant has: <ul style="list-style-type: none"> - IPPC Permit - Complex permit KR-175H1-2007 ("Complex permit KR-175H1-2007.pdf") (IRL 13) - LoA, dated 01 November 2006 ("Letter of Approval.pdf") (IRL 13) - Operating Permit – "registration certificate.pdf" No. 113747, dated 28.03.2011 (IRL 13) (for turbine) 	<input checked="" type="checkbox"/>
Actual Operation Status N/A	Under construction <input type="checkbox"/> In operation <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

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PDD	Verified Situation	Conclusion
	Out of operation <input type="checkbox"/> Reason (when out of operation):	
Remarks to Special Operational Status During the Verification Period	No special events.	<input checked="" type="checkbox"/>

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1.2. Organization

PDD	Verified Situation	Conclusion
Project Participant (s)		
Entity / Responsible person:	1. Svilocell EAD, 5250 Svishtov, West Industrial Zone, Bulgaria 2. European Bank for Reconstruction and Development for the account of the Netherlands	<input checked="" type="checkbox"/>
Jl Project management:	<i>MWH S.p.A. Centro Direzionale Milano 2 Palazzo Canova 20090 Milano – Italy</i>	<input checked="" type="checkbox"/>

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1.3. Quality Management System

PDD	Verified Situation	Conclusion
Quality Management Manual:	<i>ISO 9001:2008, valid until November 2012 (IRL 14) ISO 14001 valid until August 2015 (IRL 14)</i>	<input checked="" type="checkbox"/>
Responsibilities:	<i>Mrs. Stela Tabakova – Quality Assurance Manager</i>	<input checked="" type="checkbox"/>
Qualification and Training:	<i>Regular, once/year and at the request</i>	<input checked="" type="checkbox"/>

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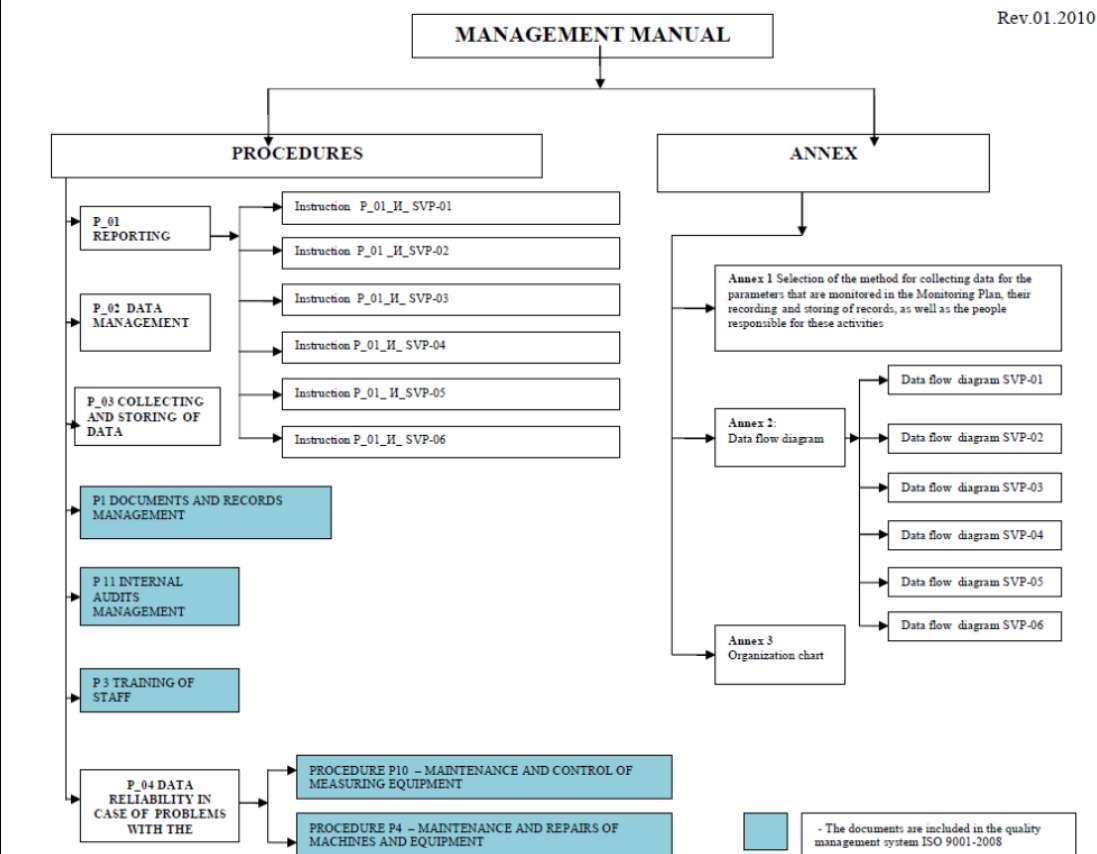
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Implementation of QM-system



Procedures are described in Table 1.3.1.below.

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1.3.1. Description of the QM procedures

PROCEDURES	INSTRUCTIONS	ATTACHMENTS
P_01 Reporting	P_01_I_SVP-01 "Reporting and data handling order for sub-project Replacement of cyclone evaporator with a new super concentrator for black liquor in Soda Recovery Boiler"	Twenty four hours report for recovery boiler process mode
		Monthly report SVP-01 "Replacement of cyclone evaporator with a new super concentrator for black liquor in SRB"
		Annual report of "Svilosa" AD
	P_01_I_SVP-02 "Reporting and data handling order for sub-project Replacement of barometric condensers with plate heat exchangers in evaporating system for black liquor"	Twenty four hours report for vacuum evaporation plant
		Monthly report SVP-02 "Replacement of barometric condensers with surface heat exchangers in evaporating system for black liquor"
	P_01_I_SVP-03 "Reporting and data handling order for sub-project Installation of Frequency Control Drives(VFD) on Electric Motors"	Monthly report SVP-03 "Installation of frequency control Drives(VFD) on electric motors"
		Annual report SVP-04 "Installation of frequency control drives (VFD) on electric motors"
	P_01_I_SVP-04 "Reporting and data handling order for sub-project Installation of a back pressure steam turbine to utilize steam generated by SRB and co-generation of electricity"	Twenty four hours report for electrical instruments
		Energy protocols
	P_01_I_SVP-05 "Reporting and data handling order for sub-project Blow down heat recovery system for SRB"	Twenty four hours report for recovery boiler process mode
		Monthly report SVP-05 "Installation of a blow down heat recovery system in the SRB"
	P_01_I_SVP-06 "Reporting and data	Process journal of the operators

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	handling order for sub-project Shift from pulp blocks to pulp sheets line in the drying process"	Monthly report SVP-06" Shift from block to sheet pulp in Pulp Drying"
P_02 Data Management	-	P10 Maintenance and control of measuring equipment
		P4 Maintenance and repair of machinery and equipment
P_03 Collecting and storing of data		
P_04 Data reliability in case of problems with the measuring instruments (rev. 4)	-	P10 Maintenance and control of measuring equipment
		P4 Maintenance and repair of machinery and equipment
P1 Documents and records management	<p>The aim is to define procedures, responsibilities and authority for creating, approving, amending, seizure, archiving and destruction of documents and records of the organization necessary for the effective functioning of the integrated management system for quality, environment, health and safety at work.</p> <p>The procedure provides valid and current editions of documents and records of all the places where the activities are implemented.</p>	
P3 Training, awareness and competence	<p>Determines the order, authority and responsibility for managing and ensuring the competence and training of staff to carry out activities related to the production of kraft pulp, environment and protect the health and safety at work.</p>	
P11 Internal audits management	<p>Determines the order and responsibility for planning, conducting and documenting the results of internal audits of the integrated management quality system, environment and health and safety at work</p>	

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1.4. Remaining FARs from Previous Verification report

Remaining Requests from Previous Verifications	Summary of project owner response	Audit team conclusion
No FARs from the second verification.		

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2. Data Management System

2.1. Description

Structure of raw data archiving				
Describe all the different data collection systems				
Type	Name	Responsible	Procedures	Comments
Daily logs	N/A	Responsible for the archiving of the monitoring data is the head of department.	ISO 9001:2008	The daily logs are filled on hourly basis. The data is entered by the operators.
Laboratory results	Daily logs	Analysis of the black liquor concentration on hourly basis.		The results of the analysis are entered into a daily log.
Sampling	Protocols for black liquor	The analysis is performed by accredited laboratory.		The analysis is performed once per year. The protocols are stored.
External data	Reports by the Power Plant	The Reports are stored by the person responsible for work-book filling and Project Manager.	Instruction P_01_U_SVP-01 Annex 1 of MMS	The reports are received monthly. The protocols are stored.
	Energy Protocols	The Protocols are stored by the Production Manager and Project Manager.	Instruction P_01_U_SVP-04 Annex 1 of MMS	The values are stored every hour and the reports are created every month. The data are entered automatically.
Further Remarks: The monitoring data are stored on the computers and on paper copies, i.e. daily logs, by the relevant head of department.				

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2.2. Raw Data Archiving and Protection measures

Name	Description of data archiving and protection measures	Risks and comments	Concl.
Form a (For SVP – 01, 02, 05, 06)	The operator in the Control room of SRB records every hour in a process journal the raw data for SVP 1, 2, 4 and 5. The on paper daily logs are stored at the head of the department.	The risk is for the operator to enter wrong data into the report, but every day the Head of the SRB department, before entering the data into the computer, is checking the accuracy of the information. Besides that, some information (flow, pressure, temperature) are also automatically recorded in the computer of the control room. The verification team randomly checked the information from the paper daily logs against the data from the control room computer and found no inconsistencies. (IRL 8)	<input checked="" type="checkbox"/>
Computer a (For SVP – 01, 02, 05, 06)	For SVP 1, 2, 4 and 5, the data is stored on the computer of the head of the SRB department. Each day the Head/Deputy Head enters the data from the process journal into an Excel workbook (file named SRK_XX-20XX). Head/Deputy Head of the department calculates the daily average values. At the end of each month the monthly values are calculated.	The breakdown of the computer. The data are available on paper.	<input checked="" type="checkbox"/>
Form b (For SVP – 3)	N/A	N/A	<input checked="" type="checkbox"/>
Computer b (For SVP – 3 and	For SVP 3 the data is automatically recorded on the memory of the devices and the computer of the Head of Fiber Department Line.	The breakdown of the computer. The data are available on the integrated memory of the meters.	<input checked="" type="checkbox"/>

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SVP – 06)	SVP 6 DDP (drying dewatering and packaging) dept. Each day the Head/Deputy Head enters the data from the process journal into an Excel workbook (file named SEBESTOJNOST OSO). The daily heat energy consumption and specific energy consumption are calculated. At the end of each month the monthly values are calculated.		
Form c (For SVP – 6)	The Operator in the control room of Sheet pulp Line 2 records daily in the process journal the indications of the heat energy meters in the Control rooms of DM1 and DM2 for the utilized heat energy quantity. The heat energy meters are installed on the walls in the control rooms.	The risk is for the operator to enter wrong data into the report, but every day the Head of the DDP department, before entering the data into the computer, is checking the accuracy of the information.	<input checked="" type="checkbox"/>
Computer c (For SVP – 6)	N/A	N/A	<input checked="" type="checkbox"/>
Form d	N/A	N/A	<input checked="" type="checkbox"/>
Computer d	The computer of the Production Manager for which is responsible himself	The breakdown of the computer. The data are available on the other listed computers	<input checked="" type="checkbox"/>
Form e	N/A	N/A	<input checked="" type="checkbox"/>
Computer e	The computer of the Project Manager for which is responsible himself	The breakdown of the computer. The data are available on the other listed computers	<input checked="" type="checkbox"/>
Form f	N/A	N/A	<input checked="" type="checkbox"/>
Computer f	The computer of the EBRD (European bank for Reconstruction and Development) representative for which is responsible himself	The breakdown of the computer. The data are available on the other listed computers	<input checked="" type="checkbox"/>
Invoice	N/A	N/A	<input checked="" type="checkbox"/>

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Form g	N/A	N/A	<input checked="" type="checkbox"/>
Further Remarks: <i>All raw data (daily logs) are stored by the head of departments on paper. The data is entered in electronic workbooks and monthly reports are issued. These reports are sent to different computers for storage. The risks of losing the archived data are moderate.</i>			

2.3. Data transfer

Description of data transfer from raw data archiving to calculation tool			
Name	Description and responsibilities	Risks and comments	Concl.
Form a	<i>All data for the projects SVP 1, 2, 4 and 5 are entered by hand in the daily logs of the SRB department by the operator. Then they are entered into an electronic workbook for each department.</i> <i>The Monitoring Report for each year is submitted to the Executive Director.</i> <i>The information in the electronic workbook is periodically archived on soft and paper copy.</i>	Incorrect reading or incorrect transfer into the computer a. This risk is reduced by further data collection and comparison with old data as well as by means of further calculations. The workbook could be filled only by the person responsible for workbook filling and in this regard no unintentional errors could occur.	<input checked="" type="checkbox"/>
Computer a	The raw data are collected in the Control Room and archived on the computer from this room. At the end of the month are defined the monthly values. The monthly reports are submitted to the person responsible for workbook filling who enters the values in the workbook for emission reductions calculation (to computers d, e and f).	The breakdown of the computer. The data are available on paper.	<input checked="" type="checkbox"/>
Form b	N/A	N/A	<input checked="" type="checkbox"/>
Computer b	The computer for SVP-06.	The breakdown of the computer. The data are available on the integrated	<input checked="" type="checkbox"/>

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		memory of the meters.	
Form c	The Operator in the control room of Sheet pulp Line 2 records daily in the process journal the indications of the heat energy meters in the Control rooms of DM1 and DM2 for the utilized heat energy quantity. The heat energy meters are installed on the walls in the control rooms. From the journal the data is entered into the computer of SVP – 06.	Incorrect reading or incorrect transfer into the computer b. This risk is reduced by further data collection and comparison with old data as well as by means of further calculations. The workbook could be filled only by the person responsible for workbook filling and in this regard no unintentional errors could occur.	<input checked="" type="checkbox"/>
Computer c	N/A	N/A	<input checked="" type="checkbox"/>
Form d	N/A	N/A	<input checked="" type="checkbox"/>
Computer d	The computer of the Production Manager for which is responsible himself	The breakdown of the computer. The data are available on the other listed computers	<input checked="" type="checkbox"/>
Form e			<input checked="" type="checkbox"/>
Computer e	The computer of the Project Manager for which is responsible himself	The breakdown of the computer. The data are available on the other listed computers	<input checked="" type="checkbox"/>
Form f	N/A	N/A	<input checked="" type="checkbox"/>
Computer f	The computer of the EBRD (European bank for Reconstruction and Development) representative for which is responsible himself	The breakdown of the computer. The data are available on the other listed computers	<input checked="" type="checkbox"/>
Invoice	N/A	N/A	<input checked="" type="checkbox"/>
Form g	N/A	N/A	<input checked="" type="checkbox"/>

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Further Remarks: The incorrect data reading/entered into the computers is reduced by further data collection and comparison with old data as well as further calculations. The computers from the Control Rooms used for data storage and computation have a password known by the responsible people in charge with these activities. The eventual faulty inserted or managed data can be checked throughout the other back-up systems (the other computers). The risks for material misstatement are reduced by these control measures and the remaining risk is low.

2.4. Data Processing

Description of data processing from transferred data to final results in the calculation tool			
Step	Description	Risks and comments	Concl.
Consistency	All abbreviations and units are in consistency with PDD and Methodology and are traceable.	No risks with respect to this issue	<input checked="" type="checkbox"/>
Calculation Tool description	<p>The calculation tool is clearly described. The revision number is indicated in the file name.</p> <p>All formulae, intermediate steps and constants are described transparently and all units are correctly indicated. They are in compliance with the methodology and the PDD.</p> <p>Most of the data are entered first in the Sheet for monthly data input. After that an average value is calculated via formulae. Then this value is digitally transferred to the sheet for the relevant sub-project.</p> <p>The calculation is performed in parallel by EBRD. Any discrepancy in the final results is immediately discussed between the two parties.</p>	<p>There is a small risk to make a mistake in the same way by so that it cannot be seen by all parties because of the wrong reading of the monthly data. The risk is automatically solved either by data interpretations or by future readings.</p> <p>The risk is to make some wrong calculations far from reality.</p>	<input checked="" type="checkbox"/>
Transformation from transferred data to useable data	Internal comparison and check of the data is performed at the end of each monitoring period, i.e. comparison of the data entered by the head of department and the ones in the workbook.	<p>No data can be missed. If data is missing, the registers are available and the data is collected again from these registers.</p> <p>Data are compared with previous data and any discrepancy can be either re-</p>	<input checked="" type="checkbox"/>

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		marked from data collection or from data computation	
Elimination of not plausible data	MMS Procedure 2 – Data Management Not plausible data are detected during the daily transcription, during the issuance of the monthly reports or during the annual calculation.	The risk of not plausible data is much reduced because the information is three times checked at the Plant and once by EBRD.	<input checked="" type="checkbox"/>
Transformation from useable data to input data for further calculation	On the basis of the data entered into the daily logs, the head/deputy head of departments calculate the average monthly values and enter them into a monthly report submitted to the person responsible for workbook filling for further calculation.	The risk is much reduced because the calculation is basic and many times checked.	<input checked="" type="checkbox"/>
Ex-ante data	The ex-ante values used in the workbook are: the Emission Factor for electricity and the Transmission and Distribution Losses. The EF for electricity has been determined using the simple adjusted OM by NEK, while the TDL have been assumed conservatively in 10%.	The information is publically available.	<input checked="" type="checkbox"/>
Default parameter	The default parameters used are Net Calorific Values and Emission Factors for Heavy fuel oil and Diesel. All these values have been taken from the "2006 IPCC Guidelines for National GHG inventories", Chapter 1 for NCVs and Chapter 2 for EFs.	The values used by default have been checked and found correct.	<input checked="" type="checkbox"/>
Formulae check	Yes.	They were checked at the time of PDD development and during the project Determination. There are no changes of these formulae in the mean time	<input checked="" type="checkbox"/>
Rounding functions	Rounding values are used as they were described in the initial PDD and further on accepted in the Determination report.	The rounding used in the initial PDD was accepted at that time.	<input checked="" type="checkbox"/>
Calculation tool changes and protection measures	The workbook could be filled only by the person responsible for workbook filling and in this regard no unauthorized changes could occur.	The electronic protection of data is further secured by storing and handling the same data by several parties in	<input checked="" type="checkbox"/>

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	No modifications have been applied to the tool.	parallel.	
Further Remarks: Faulty similar calculations by both parties may result from calculation or faulty monthly readings. Faulty monthly readings are automatically corrected either by data interpretation or by subsequent data readings.			

3. Monitoring Plan Implementation

3.1. List of Parameter to be monitored

3.1.1. List of Parameter to be monitored for SVP-01

ID-PDD	ID-Meth.	ID-Internal	Description	Conclusion
Instrumentation				
EQ _{BL}	-	11-FIC-418 11-FIC-408	BL flow rate	See 3.2.1. See 3.2.2.
OST _{SRB}	-	11-TIC-123	Outlet steam temperature from SRB	See 3.2.7.
OSP _{SRB}	-	11-PI-212	Outlet steam pressure from SRB	See 3.2.8.
OCS _{BL}	-	11-FIC-418	Outlet concentration of black liquor after super concentrator	See 3.2.1.
Sampling				
HV _{BL}	-	-	Net calorific value of black liquor	See 3.3.1
OC _{BL}	-	-	Outlet concentration of black liquor after cyclone concentrator	See 3.3.2
IC _{BL}	-	-	Inlet concentration of black liquor of super concentrator	See 3.3.3.
External Data				
EF _S	-	-	CO ₂ emission factor of coal for producing steam in the power plant	See 3.5.1.
HV _C	-	-	Net calorific value of the coal	See 3.5.6.

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ID-PDD	ID-Meth.	ID-Internal	Description	Conclusion
TE _{PP}	-	-	<i>Thermal efficiency of power plant</i>	See 3.5.7.
Others				
WH _{SRB}	-	-	<i>Annual working hours of SRB</i>	See 3.6.1.
SQ _{PP}	-	-	<i>Steam purchase from power plant – Energy protocol</i>	See 3.6.2.
OSE _{SRB}	-	-	<i>Outlet steam enthalpy from SRB</i>	See 3.6.3.
IWE _{SRB}	-	-	<i>Inlet water enthalpy into SRB</i>	See 3.6.4.

3.1.2. List of Parameter to be monitored for SVP-02

ID-PDD	ID-Meth.	ID-Internal	Description	Conclusion
Instrumentation				
N/A	-	11-TI-201	<i>Steam temperature</i>	See 3.2.13.
N/A	-	11-PI-B203	<i>Steam pressure</i>	See 3.2.12.
Sampling				
BLC _{AW}	-	-	<i>Black liquor concentration after washing</i>	See 3.3.4. See 3.3.5.
BLC _{AHE}	-	-	<i>Black liquor concentration after heat exchangers</i>	See 3.3.6.
Others				
N/A	-	-	<i>Steam enthalpy</i>	See 3.6.3.

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ID-PDD	ID-Meth.	ID-Internal	Description	Conclusion
WH _{SRB}	-	-	Annual working hours	See 3.6.6.
N/A	-	-	Condensate enthalpy	See 3.6.5.
N/A	-	-	Quantity of black liquor at 100% concentration	See 3.6.10

3.1.3. List of Parameter to be monitored for SVP-03

ID-PDD	ID-Meth.	ID-Internal	Description	Conclusion
Instrumentation				
OH _{VSD}	-	60.0460; 70.0480;	Operating hours of pumps	See 3.2.18
PA _{VSD}	-	70.0485; 08.0406	Average Power absorbed by pumps	See 3.2.18
External Data				
EF _E	-	-	CO2 emission factor of the grid	See 3.5.2.
Others				
N/A	-	-	Motor efficiency	See 3.6.9

3.1.4. List of Parameter to be monitored for SVP-04

ID-PDD	ID-Meth.	ID-Internal	Description	Conclusion
External Data				
EF _E	-	-	CO2 emission factor of the grid	See 3.5.2.

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ID-PDD	ID-Meth.	ID-Internal	Description	Conclusion
Others				
EQ _E	-	-	Electricity purchased from the grid	See 3.6.2.
EG _{ST}	-	-	Electricity generated from steam turbine	See 3.6.2.

3.1.5. List of Parameter to be monitored for SVP-05

ID-PDD	ID-Meth.	ID-Internal	Description	Conclusion
Instrumentation				
SP _{SRB}	-	11-FIC-401	Annual steam production from SRB	See 3.2.15
TI _{HE}	-	-	Temperature inlet heat exchangers	See 3.2.14.
TO _{HE}	-	-	Temperature outlet heat exchangers	See 3.2.14.
N/A	-	-	Heat recovery (Heat recovery is directly measured in MW/h; The average blow down rate and the utilized from it heat energy is not measured, because a new heat energy meter 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.)	See 3.2.14.
External Data				
EF _S	-	-	CO ₂ emission factor of coal for producing steam in the power plant	See 3.5.1.
HV _C	-	-	Net calorific value of the coal	See 3.5.6.
TE _{PP}	-	-	Thermal efficiency of power plant	See 3.5.7.

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ID-PDD	ID-Meth.	ID-Internal	Description	Conclusion
Others				
N/A	-	-	Annual working hours for SRB	See 3.6.1.

3.1.6. List of Parameter to be monitored for SVP-06

ID-PDD	ID-Meth.	ID-Internal	Description	Conclusion
External Data				
EF _S	-	-	CO ₂ emission factor of coal for producing steam in the power plant	See 3.5.1.
EF _E	-	-	CO ₂ emission factor of the grid	See 3.5.2.
EF _D	-	-	CO ₂ emission coefficient of Diesel	See 3.5.3.
HV _C	-	-	Net calorific value of the coal	See 3.5.6.
TE _{PP}	-	-	Thermal efficiency of power plant	See 3.5.7.
HV _D	-	-	Net calorific value of the diesel	See 3.5.8.
Others				
DC _{BL}	-	-	Specific diesel consumption in block line – Report for 2004	See 3.6.7.
SC _{BL}	-	-	Specific steam consumption in block line – Report for 2004	See 3.6.7.
EC _{BL}	-	-	Specific electricity consumption in block line – Report for 2004	See 3.6.7.
EC _{SL}	-	-	Specific electricity consumption in sheet line – Energy protocol	See 3.6.2.
SC _{SL}	-	-	Specific steam consumption in sheet line – Raw material balance	See 3.6.8.

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ID-PDD	ID-Meth.	ID-Internal	Description	Conclusion
				See 3.2.16
TP	-	-	<i>Pulp production – Raw material balance</i>	See 3.6.8. See 3.2.17.

3.2. Monitoring Instrumentation

3.2.1. Instrument i

PDD	Verified Situation	Conclusion
Instrumentation Information – Mass flow meter SVP 1		
ID-PDD:	EQ_{BL} , OCS_{BL}	<input checked="" type="checkbox"/>
ID-Internal:	11-FIC-418	<input checked="" type="checkbox"/>
Data to be Measured:	t/h, %	<input checked="" type="checkbox"/>
Data Logging:	PLC system	<input checked="" type="checkbox"/>
Archiving of Raw Data:	SRB Application Station online	<input checked="" type="checkbox"/>
Measurement Principle:	Mass flow, Concentration	<input checked="" type="checkbox"/>
Period of Operating Time:	11.11.2010 to present	<input checked="" type="checkbox"/>
Instrument Type:	Gama flow meter/for 10.2010-12.2010	<input checked="" type="checkbox"/>
Serial Number:	D1KA00136, D1KA00138	<input checked="" type="checkbox"/>
Manufacturer Model Nr.:	RCCS39/M08DSL	<input checked="" type="checkbox"/>
Specific Location:	On pipe for TBL from SRB	<input checked="" type="checkbox"/>
Measurement Range:	0-50	<input checked="" type="checkbox"/>
Measurement Unit:	t/h	<input checked="" type="checkbox"/>

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Calibration:	01.10.2010	<input checked="" type="checkbox"/>
Required Calibration Frequency:	3 years	<input checked="" type="checkbox"/>
Uncertainty Level:	±0.1 %	<input checked="" type="checkbox"/>
Monitoring & Calculation		
Reading Frequency:	Each hour	<input checked="" type="checkbox"/>
Recording Frequency:	Each hour	<input checked="" type="checkbox"/>
Trouble Shooting:	See procedure ISO9001, P-04	<input checked="" type="checkbox"/>

Inspection Results During Verification			
Operation of Instrumentation	Method of Verification	Verification Results	Conclusion
Measuring Principle:	In compliance with PDD	The requirements are fulfilled.	<input checked="" type="checkbox"/>
Installation: Manner of execution	Description	The meter is installed properly and is working normal	<input checked="" type="checkbox"/>
Functionality:	The meter is functioning	-	<input checked="" type="checkbox"/>
Quality assurance:	The meter was visually checked and photos taken. Print screens from control room computer.	The control room was inspected, data transfer and recording in logbooks and further on into the computer have been assessed. The data transfer and recording is working appropriately.	<input checked="" type="checkbox"/>
Maintenance:	-	-	<input checked="" type="checkbox"/>
Further Remarks: The manually recorded data for different days have been checked and compared with daily averages – see IRL 8, 11. No inconsistencies were found.			<input checked="" type="checkbox"/>

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3.2.2. Instrument ii

PDD	Verified Situation	Conclusion
Instrumentation Information – Areometer in Evaporation Plant (EP) 1 – SVP-01& SVP-02		
ID-PDD:	N/A	✓
ID-Internal:	N/A	✓
Data to be Measured:	Liquor concentration in EP 1 and super concentrator	✓
Data Logging:	Manual measurement at the site, temperature correction via tables, process records	✓
Archiving of Raw Data:	Process records (daily logs) that are archived for 6 years	✓
Measurement Principle:	Directly / in contact	✓
Period of Operating Time:	N/A	✓
Instrument Type:	Portable measuring instrument	✓
Serial Number:	N/A	✓
Manufacturer Model Nr.:	Chimteks OOD	✓
Specific Location:	Control room in EP1	✓
Measurement Range:	1,000-1,500	✓
Measurement Unit:	g/cm ³	✓
Calibration:	Internal company check <u>Note:</u> There is no legal requirement (IRL 6, "zapoved A-441_13.10.2011") for the calibration of thermometers or areometers. But the company performs a yearly check of these instruments using reference instruments (IRL 6)	✓
Required Calibration Frequency:	1 year	✓

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Uncertainty Level:	$\pm 1\%$	<input checked="" type="checkbox"/>
Monitoring & Calculation		
Reading Frequency:	1 h	<input checked="" type="checkbox"/>
Recording Frequency:	1 h	<input checked="" type="checkbox"/>
Trouble Shooting:	In case the areometer is broken it will be changed with new one	<input checked="" type="checkbox"/>

Inspection Results During Verification			
Operation of Instrumentation	Method of Verification	Verification Results	Conclusion
Measuring Principle:	-		<input checked="" type="checkbox"/>
Installation: Manner of execution	-		<input checked="" type="checkbox"/>
Functionality:	-		<input checked="" type="checkbox"/>
Quality assurance:	-		<input checked="" type="checkbox"/>
Maintenance:	-		<input checked="" type="checkbox"/>
Further Remarks: The procedure for concentration calculation has been checked (IRL 5 of the first periodic verification).			<input checked="" type="checkbox"/>

3.2.3. Instrument iii

PDD	Verified Situation	Conclusion
Instrumentation Information – Areometer in Evaporation Plant (EP) 2 – SVP-02		
ID-PDD:	N/A	<input checked="" type="checkbox"/>

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ID-Internal:	N/A	<input checked="" type="checkbox"/>
Data to be Measured:	<i>Liquor concentration in EP 2 and super concentrator</i>	<input checked="" type="checkbox"/>
Data Logging:	<i>Manual measurement at the site, temperature correction via tables, process records</i>	<input checked="" type="checkbox"/>
Archiving of Raw Data:	<i>Process records (daily logs) that are archived for 6 years</i>	<input checked="" type="checkbox"/>
Measurement Principle:	<i>Directly / in contact</i>	<input checked="" type="checkbox"/>
Period of Operating Time:	N/A	<input checked="" type="checkbox"/>
Instrument Type:	<i>Portable measuring instrument</i>	<input checked="" type="checkbox"/>
Serial Number:	N/A	<input checked="" type="checkbox"/>
Manufacturer Model Nr.:	<i>Chimteks OOD</i>	<input checked="" type="checkbox"/>
Specific Location:	<i>Control room in EP2</i>	<input checked="" type="checkbox"/>
Measurement Range:	<i>1,000-1,500</i>	<input checked="" type="checkbox"/>
Measurement Unit:	<i>g/cm³</i>	<input checked="" type="checkbox"/>
Calibration:	<i>Internal company check – see Note in 3.2.2</i>	<input checked="" type="checkbox"/>
Required Calibration Frequency:	<i>1 year</i>	<input checked="" type="checkbox"/>
Uncertainty Level:	<i>±1%</i>	<input checked="" type="checkbox"/>
Monitoring & Calculation		
Reading Frequency:	<i>1 h</i>	<input checked="" type="checkbox"/>
Recording Frequency:	<i>1 h</i>	<input checked="" type="checkbox"/>
Trouble Shooting:	<i>In case the areometer is broken it will be changed with new one</i>	<input checked="" type="checkbox"/>

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Operation of Instrumentation	Method of Verification	Verification Results	Conclusion
Measuring Principle:	-		<input checked="" type="checkbox"/>
Installation: Manner of execution	-		<input checked="" type="checkbox"/>
Functionality:	-		<input checked="" type="checkbox"/>
Quality assurance:	-		<input checked="" type="checkbox"/>
Maintenance:	-		<input checked="" type="checkbox"/>
Further Remarks: The procedure for concentration calculation has been checked.			<input checked="" type="checkbox"/>

3.2.4. Instrument iv

PDD	Verified Situation	Conclusion
Instrumentation Information – Thermometer in EP1 – SVP 01& SVP 02		
ID-PDD:	N/A	<input checked="" type="checkbox"/>
ID-Internal:	N/A	<input checked="" type="checkbox"/>
Data to be Measured:	<i>Temperature</i>	<input checked="" type="checkbox"/>
Data Logging:	<i>Manual measurement at the site, electronic workbook</i>	<input checked="" type="checkbox"/>
Archiving of Raw Data:	<i>No</i>	<input checked="" type="checkbox"/>
Measurement Principle:	<i>Directly / in contact</i>	<input checked="" type="checkbox"/>
Period of Operating Time:	<i>N/A</i>	<input checked="" type="checkbox"/>
Instrument Type:	<i>Portable measuring instrument</i>	<input checked="" type="checkbox"/>

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Serial Number:	N/A	<input checked="" type="checkbox"/>
Manufacturer Model Nr.:	ISOLAB	<input checked="" type="checkbox"/>
Specific Location:	Control room in EP1	<input checked="" type="checkbox"/>
Measurement Range:	-10÷+150	<input checked="" type="checkbox"/>
Measurement Unit:	°C	<input checked="" type="checkbox"/>
Calibration:	Internal company check – see Note in 3.2.2	<input checked="" type="checkbox"/>
Required Calibration Frequency:	1 year	<input checked="" type="checkbox"/>
Uncertainty Level:	±1%	<input checked="" type="checkbox"/>
Monitoring & Calculation		
Reading Frequency:	1 h	<input checked="" type="checkbox"/>
Recording Frequency:	1h	<input checked="" type="checkbox"/>
Trouble Shooting:	In case the thermometer is broken it will be changed with new one	<input checked="" type="checkbox"/>

Inspection Results During Verification			
Operation of Instrumentation	Method of Verification	Verification Results	Conclusion
Measuring Principle:	In compliance with PDD	-	<input checked="" type="checkbox"/>
Installation: Manner of execution	-	-	<input checked="" type="checkbox"/>
Functionality:	-	-	<input checked="" type="checkbox"/>
Quality assurance:	-	-	<input checked="" type="checkbox"/>
Maintenance:	-	-	<input checked="" type="checkbox"/>

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Further Remarks: N/A	<input checked="" type="checkbox"/>
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3.2.5. Instrument v

PDD	Verified Situation	Conclusion
Instrumentation Information – <i>Thermometer in EP2 – SVP 02</i>		
ID-PDD:	N/A	<input checked="" type="checkbox"/>
ID-Internal:	N/A	<input checked="" type="checkbox"/>
Data to be Measured:	<i>Temperature</i>	<input checked="" type="checkbox"/>
Data Logging:	<i>Manual measurement at the site, electronic workbook</i>	<input checked="" type="checkbox"/>
Archiving of Raw Data:	<i>No</i>	<input checked="" type="checkbox"/>
Measurement Principle:	<i>Directly / in contact</i>	<input checked="" type="checkbox"/>
Period of Operating Time:	N/A	<input checked="" type="checkbox"/>
Instrument Type:	<i>Portable measuring instrument</i>	<input checked="" type="checkbox"/>
Serial Number:	N/A	<input checked="" type="checkbox"/>
Manufacturer Model Nr.:	<i>ISOLAB</i>	<input checked="" type="checkbox"/>
Specific Location:	<i>Control room in EP2</i>	<input checked="" type="checkbox"/>
Measurement Range:	<i>-10÷+150</i>	<input checked="" type="checkbox"/>
Measurement Unit:	<i>°C</i>	<input checked="" type="checkbox"/>
Calibration:	<i>Internal company check – see Note in 3.2.2</i>	<input checked="" type="checkbox"/>
Required Calibration Frequency:	<i>1 year</i>	<input checked="" type="checkbox"/>
Uncertainty Level:	<i>±1%</i>	<input checked="" type="checkbox"/>

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Monitoring & Calculation		
Reading Frequency:	1 h	<input checked="" type="checkbox"/>
Recording Frequency:	1h	<input checked="" type="checkbox"/>
Trouble Shooting:	In case the thermometer is broken it will be changed with new one	<input checked="" type="checkbox"/>

Inspection Results During Verification			
Operation of Instrumentation	Method of Verification	Verification Results	Conclusion
Measuring Principle:	In compliance with PDD		<input checked="" type="checkbox"/>
Installation: Manner of execution	-		<input checked="" type="checkbox"/>
Functionality:	-		<input checked="" type="checkbox"/>
Quality assurance:	-		<input checked="" type="checkbox"/>
Maintenance:	-		<input checked="" type="checkbox"/>
Further Remarks: N/A			<input checked="" type="checkbox"/>

3.2.6. Instrument vi

PDD	Verified Situation	Conclusion
Instrumentation Information – <i>Outlet steam temperature from SRB</i>		
ID-PDD:	OST_{SRB}	<input checked="" type="checkbox"/>
ID-Internal:	11-TIC-123	<input checked="" type="checkbox"/>

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Data to be Measured:	°C	<input checked="" type="checkbox"/>
Data Logging:	PLC system	<input checked="" type="checkbox"/>
Archiving of Raw Data:	SRB Application Station online	<input checked="" type="checkbox"/>
Measurement Principle:	Thermo couple type K	<input checked="" type="checkbox"/>
Period of Operating Time:	11.2007- present	<input checked="" type="checkbox"/>
Instrument Type:	ROSEMOUNT	<input checked="" type="checkbox"/>
Serial Number:	2112786	<input checked="" type="checkbox"/>
Manufacturer Model Nr.:	ROSEMOUNT	<input checked="" type="checkbox"/>
Specific Location:	Pipe outlet from SRB	<input checked="" type="checkbox"/>
Measurement Range:	0-500	<input checked="" type="checkbox"/>
Measurement Unit:	°C	<input checked="" type="checkbox"/>
Calibration:	12.2007, 10.2008, 10.2009, 10.2010, 10.2011, 10.2012 (IRL 6)	<input checked="" type="checkbox"/>
Required Calibration Frequency:	1 year	<input checked="" type="checkbox"/>
Uncertainty Level:	±1 %	<input checked="" type="checkbox"/>
Monitoring & Calculation		
Reading Frequency:	Each second	<input checked="" type="checkbox"/>
Recording Frequency:	Each second	<input checked="" type="checkbox"/>
Trouble Shooting:	See procedure ISO9001, P-04	<input checked="" type="checkbox"/>

Inspection Results During Verification			
Operation of Instrumen- tation	Method of Verification	Verification Results	Conclusion

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Measuring Principle:	In compliance with PDD	The requirements are fulfilled.	<input checked="" type="checkbox"/>
Installation: Manner of execution	Description	The meter is installed properly and is working normal.	<input checked="" type="checkbox"/>
Functionality:	Description	The meter is functioning	<input checked="" type="checkbox"/>
Quality assurance:	Calibration	The meter was visually checked and photos taken.	<input checked="" type="checkbox"/>
Maintenance:	-	-	<input checked="" type="checkbox"/>
Further Remarks: The functionality of the device has been checked with the records from the control room. The procedure "P-04" (IRL 4) describes the way of data review and actions to be taken when data are found to be wrong.			<input checked="" type="checkbox"/>

3.2.7. Instrument vii

PDD	Verified Situation	Conclusion
Instrumentation Information – <i>Outlet steam pressure from SRB</i>		
ID-PDD:	OSP _{SRB}	<input checked="" type="checkbox"/>
ID-Internal:	11-PI-212	<input checked="" type="checkbox"/>
Data to be Measured:	Bar	<input checked="" type="checkbox"/>
Data Logging:	PLC system	<input checked="" type="checkbox"/>
Archiving of Raw Data:	SRB Application Station online	<input checked="" type="checkbox"/>
Measurement Principle:	Pressure	<input checked="" type="checkbox"/>
Period of Operating Time:	2008-2010 Somewhere about 10 years	<input checked="" type="checkbox"/>
Instrument Type:	cell membrane	<input checked="" type="checkbox"/>

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Serial Number:	-	<input checked="" type="checkbox"/>
Manufacturer Model Nr.:	ROSEMOUNT	<input checked="" type="checkbox"/>
Specific Location:	On pipe for TBL from SRB	<input checked="" type="checkbox"/>
Measurement Range:	0-60	<input checked="" type="checkbox"/>
Measurement Unit:	Bar	<input checked="" type="checkbox"/>
Calibration:	12.2007, 10.2008, 10.2009, 10.2010, 10.2011, 10.2012	<input checked="" type="checkbox"/>
Required Calibration Frequency:	1 year	<input checked="" type="checkbox"/>
Uncertainty Level:	±1 %	<input checked="" type="checkbox"/>
Monitoring & Calculation		
Reading Frequency:	Each second	<input checked="" type="checkbox"/>
Recording Frequency:	Each second	<input checked="" type="checkbox"/>
Trouble Shooting:	See procedure ISO9001, P-04	<input checked="" type="checkbox"/>

Inspection Results During Verification			
Operation of Instrumentation	Method of Verification	Verification Results	Conclusion
Measuring Principle:	In compliance with PDD	The requirements are fulfilled.	<input checked="" type="checkbox"/>
Installation: Manner of execution	Description	The meter is installed properly and is working normal.	<input checked="" type="checkbox"/>
Functionality:	The meter is functioning	-	<input checked="" type="checkbox"/>
Quality assurance:	Print screen from control room	The meter was visually checked and photos taken.	<input checked="" type="checkbox"/>

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	computer.		
Maintenance:	-	-	<input checked="" type="checkbox"/>
Further Remarks: The functionality of the device has been checked with the records from the control room. The procedure "P-04" (IRL 4) describes the way of data review and actions to be taken when data are found to be wrong.			<input checked="" type="checkbox"/>

3.2.8. Instrument viii

PDD	Verified Situation	Conclusion
Instrumentation Information – Heavy fuel oil flow meter		
ID-PDD:	FD_S , FD_{EM}	<input checked="" type="checkbox"/>
ID-Internal:	Heavy fuel oil	<input checked="" type="checkbox"/>
Data to be Measured:	l/min	<input checked="" type="checkbox"/>
Data Logging:	Calculation device	<input checked="" type="checkbox"/>
Archiving of Raw Data:	Journal	<input checked="" type="checkbox"/>
Measurement Principle:	Nutating disk meter	<input checked="" type="checkbox"/>
Period of Operating Time:	2008-present	<input checked="" type="checkbox"/>
Instrument Type:	Volumetric fuel	<input checked="" type="checkbox"/>
Serial Number:	33406	<input checked="" type="checkbox"/>
Manufacturer Model Nr.:	Badger Meter Europe, type RCDL M120	<input checked="" type="checkbox"/>
Specific Location:	On pipe for heavy fuel oil tank	<input checked="" type="checkbox"/>
Measurement Range:	10-454	<input checked="" type="checkbox"/>
Measurement Unit:	l/min	<input checked="" type="checkbox"/>
Calibration:	07.2007, 07.2009, 03.2011	<input checked="" type="checkbox"/>

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Required Calibration Frequency:	2 year	<input checked="" type="checkbox"/>
Uncertainty Level:	±0.5 %	<input checked="" type="checkbox"/>
Monitoring & Calculation		
Reading Frequency:	Each 8 hours	<input checked="" type="checkbox"/>
Recording Frequency:	Each 8 hours	<input checked="" type="checkbox"/>
Trouble Shooting:	See procedure ISO9001, P-04	<input checked="" type="checkbox"/>

Inspection Results During Verification			
Operation of Instrumentation	Method of Verification	Verification Results	Conclusion
Measuring Principle:	In compliance with PDD	The requirements are fulfilled.	<input checked="" type="checkbox"/>
Installation: Manner of execution	Description	The meter is installed properly.	<input checked="" type="checkbox"/>
Functionality:	Description	-	<input checked="" type="checkbox"/>
Quality assurance:	The meter is calibrated. (IRL 6 of the first periodic verification)	-	<input checked="" type="checkbox"/>
Maintenance:	-	-	<input checked="" type="checkbox"/>
Further Remarks: N/A			<input checked="" type="checkbox"/>

3.2.9. Instrument ix

PDD	Verified Situation	Conclusion
Instrumentation Information – Flow meter for weak black liquor in EP 2 (this instrument is used for measurement of the BL at the EP inlet that		

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<i>is required for calculation of BL quantity at 100% concentration)</i>		
ID-PDD:	N/A	<input checked="" type="checkbox"/>
ID-Internal:	11-FIC-202	<input checked="" type="checkbox"/>
Data to be Measured:	m ³ /h	<input checked="" type="checkbox"/>
Data Logging:	PLC system	<input checked="" type="checkbox"/>
Archiving of Raw Data:	SRB Application Station online	<input checked="" type="checkbox"/>
Measurement Principle:	Magneto inductive flow meter	<input checked="" type="checkbox"/>
Period of Operating Time:	12.2007 Somewhere about 10 years	<input checked="" type="checkbox"/>
Instrument Type:	Magneto inductive	<input checked="" type="checkbox"/>
Serial Number:	9698	<input checked="" type="checkbox"/>
Manufacturer Model Nr.:	PASCANI-NTR E-2696/1-82	<input checked="" type="checkbox"/>
Specific Location:	On pipe inlet evaporation plant 2	<input checked="" type="checkbox"/>
Measurement Range:	0-100	<input checked="" type="checkbox"/>
Measurement Unit:	m ³ /h	<input checked="" type="checkbox"/>
Calibration:	12.2007, 04.2009, 01.2011	<input checked="" type="checkbox"/>
Required Calibration Frequency:	3 years	<input checked="" type="checkbox"/>
Uncertainty Level:	±0.5 %	<input checked="" type="checkbox"/>
Monitoring & Calculation		
Reading Frequency:	Each second	<input checked="" type="checkbox"/>
Recording Frequency:	Each second	<input checked="" type="checkbox"/>
Trouble Shooting:	See procedure ISO9001, P-04	<input checked="" type="checkbox"/>

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Inspection Results During Verification			
Operation of Instrumentation	Method of Verification	Verification Results	Conclusion
Measuring Principle:	In compliance with PDD	The requirements are fulfilled.	☑
Installation: Manner of execution	Description	The meter is installed properly and is working normal	☑
Functionality:	The meter is functioning	-	☑
Quality assurance:	The meter was visually checked and photos taken. Print screens from control room computer.	The control room was inspected, data transfer and recording in log-books and further on into the computer have been assessed. The data transfer and recording is working appropriately.	☑
Maintenance:	In compliance with PDD	The requirements are fulfilled.	☑
Further Remarks: The functionality of the device has been checked with the records from the control room. The procedure "P-04" (IRL 4) describes the way of data review and actions to be taken when data are found to be wrong.			☑

3.2.10. Instrument x

PDD	Verified Situation	Conclusion
Instrumentation Information – <i>Flow meter for weak black liquor in EP 1 (this instrument is used for measurement of the BL at the EP inlet that is required for calculation of BL quantity at 100% concentration)</i>		
ID-PDD:	N/A	☑
ID-Internal:	10-FIC-102	☑
Data to be Measured:	m ³ /h	☑

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Data Logging:	<i>PLC system</i>		<input checked="" type="checkbox"/>
Archiving of Raw Data:	<i>Form name</i>		<input checked="" type="checkbox"/>
Measurement Principle:	<i>Magneto inductive flow meter</i>		<input checked="" type="checkbox"/>
Period of Operating Time:	<i>12.2007</i> <i>Somewhere about 10 years</i>		<input checked="" type="checkbox"/>
Instrument Type:	<i>Magneto inductive</i>		<input checked="" type="checkbox"/>
Serial Number:	<i>88TTF6244N011</i>		<input checked="" type="checkbox"/>
Manufacturer Model Nr.:	<i>Foxboro Magnetic Flowtube</i>		<input checked="" type="checkbox"/>
Specific Location:	<i>On pipe inlet evaporation plant 1</i>		<input checked="" type="checkbox"/>
Measurement Range:	<i>0-100</i>		<input checked="" type="checkbox"/>
Measurement Unit:	<i>m³/h</i>		<input checked="" type="checkbox"/>
Calibration:	<i>12.2007, 04.2009, 01.2011</i>		<input checked="" type="checkbox"/>
Required Calibration Frequency:	<i>3 years</i>		<input checked="" type="checkbox"/>
Uncertainty Level:	<i>±0.5 %</i>		<input checked="" type="checkbox"/>
Monitoring & Calculation			
Reading Frequency:	<i>Each second</i>		<input checked="" type="checkbox"/>
Recording Frequency:	<i>Each second</i>		<input checked="" type="checkbox"/>
Trouble Shooting:	<i>See procedure ISO9001, P-04</i>		<input checked="" type="checkbox"/>
Inspection Results During Verification			
Operation of Instrumen- tation	Method of Verification	Verification Results	Conclusion
Measuring Principle:	In compliance with PDD	The requirements are fulfilled.	<input checked="" type="checkbox"/>

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Installation: Manner of execution	Description	The meter is installed properly and is working normal	<input checked="" type="checkbox"/>
Functionality:	The meter is functioning	-	<input checked="" type="checkbox"/>
Quality assurance:	The meter was visually checked and photos taken. Print screens from control room computer.	The control room was inspected, data transfer and recording in log-books and further on into the computer have been assessed. The data transfer and recording is working appropriately.	<input checked="" type="checkbox"/>
Maintenance:	In compliance with PDD	The requirements are fulfilled.	<input checked="" type="checkbox"/>
Further Remarks: The functionality of the device has been checked with the records from the control room. The procedure "P-04" (IRL 4) describes the way of data review and actions to be taken when data are found to be wrong.			<input checked="" type="checkbox"/>

3.2.11. Instrument xi

PDD	Verified Situation	Conclusion
Instrumentation Information – <i>Pressure transmitter (Steam pressure for evaporation SVP 02)</i>		
ID-PDD:	N/A	<input checked="" type="checkbox"/>
ID-Internal:	11-PI-B203	<input checked="" type="checkbox"/>
Data to be Measured:	Bar	<input checked="" type="checkbox"/>
Data Logging:	PLC system	<input checked="" type="checkbox"/>
Archiving of Raw Data:	SRB Application Station online	<input checked="" type="checkbox"/>
Measurement Principle:	Pressure inductive	<input checked="" type="checkbox"/>
Period of Operating Time:	11.2007 - present	<input checked="" type="checkbox"/>
Instrument Type:	Sensor with membrane	<input checked="" type="checkbox"/>
Serial Number:	640726292	<input checked="" type="checkbox"/>

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Manufacturer Model Nr.:	<i>ABB / 2600T-262/264</i>	<input checked="" type="checkbox"/>
Specific Location:	<i>Steam header 4 bar</i>	<input checked="" type="checkbox"/>
Measurement Range:	<i>0-5</i>	<input checked="" type="checkbox"/>
Measurement Unit:	<i>Bar</i>	<input checked="" type="checkbox"/>
Calibration:	<i>12.2007, 10.2008, 10.2009, 10.2010, 10 2011, 10/2012</i>	<input checked="" type="checkbox"/>
Required Calibration Frequency:	<i>1 year</i>	<input checked="" type="checkbox"/>
Uncertainty Level:	<i>±1 %</i>	<input checked="" type="checkbox"/>
Monitoring & Calculation		
Reading Frequency:	<i>Each second</i>	<input checked="" type="checkbox"/>
Recording Frequency:	<i>Each second</i>	<input checked="" type="checkbox"/>
Trouble Shooting:	<i>See procedure ISO9001, P-04</i>	<input checked="" type="checkbox"/>

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Inspection Results During Verification			
Operation of Instrumentation	Method of Verification	Verification Results	Conclusion
Measuring Principle:	In compliance with PDD	The requirements are fulfilled.	<input checked="" type="checkbox"/>
Installation: Manner of execution	Description	The meter is installed properly and is working normal.	<input checked="" type="checkbox"/>
Functionality:	The meter is functioning	-	<input checked="" type="checkbox"/>
Quality assurance:	Print screen from control room computer.	The meter was visually checked and photos taken.	<input checked="" type="checkbox"/>
Maintenance:	-	-	<input checked="" type="checkbox"/>
Further Remarks: N/A			<input checked="" type="checkbox"/>

3.2.12. Instrument xii

PDD	Verified Situation	Conclusion
Instrumentation Information – <i>Temperature of 4 bar header</i> (Steam temperature for evaporation – SVP 02)		
ID-PDD:	N/A	<input checked="" type="checkbox"/>
ID-Internal:	11-TI-201	<input checked="" type="checkbox"/>
Data to be Measured:	°C	<input checked="" type="checkbox"/>
Data Logging:	PLC system	<input checked="" type="checkbox"/>
Archiving of Raw Data:	SRB Application Station online	<input checked="" type="checkbox"/>
Measurement Principle:	Resistant method	<input checked="" type="checkbox"/>

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Period of Operating Time:	2008-2010 <i>Somewhere about 10 years</i>	<input checked="" type="checkbox"/>
Instrument Type:	<i>Pt 100</i>	<input checked="" type="checkbox"/>
Serial Number:	<i>901599</i>	<input checked="" type="checkbox"/>
Manufacturer Model Nr.:	<i>Hartmann-Braun-mod TH02</i>	<input checked="" type="checkbox"/>
Specific Location:	<i>Steam header 4 bar of SRK</i>	<input checked="" type="checkbox"/>
Measurement Range:	<i>0-250</i>	<input checked="" type="checkbox"/>
Measurement Unit:	<i>°C</i>	<input checked="" type="checkbox"/>
Calibration:	<i>12.2007, 10.2008, 10.2009, 10.2010, 10.2011, 10.2012</i>	<input checked="" type="checkbox"/>
Required Calibration Frequency:	<i>1 year</i>	<input checked="" type="checkbox"/>
Uncertainty Level:	<i>±1 %</i>	<input checked="" type="checkbox"/>
Monitoring & Calculation		
Reading Frequency:	<i>Each second</i>	<input checked="" type="checkbox"/>
Recording Frequency:	<i>Each second</i>	<input checked="" type="checkbox"/>
Trouble Shooting:	<i>See procedure ISO9001, P-04</i>	<input checked="" type="checkbox"/>

Inspection Results During Verification			
Operation of Instrumentation	Method of Verification	Verification Results	Conclusion
Measuring Principle:	In compliance with PDD	The requirements are fulfilled.	<input checked="" type="checkbox"/>
Installation:	Description	The meter is installed properly and is working normal.	<input checked="" type="checkbox"/>

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Manner of execution			
Functionality:	Description	The meter is functioning	<input checked="" type="checkbox"/>
Quality assurance:	Calibration	The meter was visually checked and photos taken.	<input checked="" type="checkbox"/>
Maintenance:	-	-	<input checked="" type="checkbox"/>
Further Remarks: N/A			<input checked="" type="checkbox"/>

3.2.13. Instrument xiii

PDD	Verified Situation	Conclusion
Instrumentation Information – Electrical meter for commercial measurements (SVP 04)		
ID-PDD:		
ID-Internal:	<i>EMPS T412 RT32 L8/12</i>	
Data to be Measured:	<i>+A, -A, +Ri, +Rc, -Rc, kWh, kVArh</i>	
Data Logging:	<i>The data are being logged in 8 registers</i>	
Archiving of Raw Data:	<i>Up to 15 values remembered for each of the E registers</i>	
Measurement Principle:	<i>3 x (57,7 / 100 ÷ 230 / 400)V for EMPST</i>	
Period of Operating Time:	<i>Cyclic</i>	
Instrument Type:	<i>Electrical meter, 50 Hz ± 5%</i>	
Serial Number:	<i>8306502</i>	
Manufacturer Model Nr.:	<i>T412 RT32</i>	
Specific Location:	<i>Distribution substation 1, cabinet 36</i>	
Measurement Range:	<i>5/10 A</i>	
Measurement Unit:	<i>kWh</i>	

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Calibration:	2009	
Required Calibration Frequency:	4 years	
Uncertainty Level:	02S, 05S, 1-Bulgarian National Standards EN62053-21-2005	
Monitoring & Calculation		
Reading Frequency:	-	
Recording Frequency:	-	
Trouble Shooting:	Replacement of the electrical meter and recording the data of the old one and the new el.meter	

Inspection Results During Verification			
Operation of Instrumentation	Method of Verification	Verification Results	Conclusion
Measuring Principle:	In compliance with PDD	The requirements are fulfilled.	☑
Installation: Manner of execution	Description	The meter is installed properly and is working normal.	☑
Functionality:	Description	The meter is functioning	☑
Quality assurance:	Calibration	The meter was visually checked and photos taken.	☑
Maintenance:	-	-	☑
Further Remarks: N/A			☑

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3.2.14. Instrument xiv

PDD	Verified Situation	Conclusion
Instrumentation Information – Electrical meter – control (SVP 04)		
ID-PDD:		
ID-Internal:	<i>EMPS T412 RT32 L8/12</i>	
Data to be Measured:	<i>+A, -A, +Ri, +Rc, -Rc, kWh, kVarh</i>	
Data Logging:	<i>The data are being logged in 8 registers</i>	
Archiving of Raw Data:	<i>Up to 15 values remembered for each of the E registers</i>	
Measurement Principle:	<i>3 x (57,7 / 100 ÷ 230 / 400)V for EMPST</i>	
Period of Operating Time:	<i>Cyclic</i>	
Instrument Type:	<i>Electrical meter, 50 Hz ± 5%</i>	
Serial Number:	<i>8306145</i>	
Manufacturer Model Nr.:	<i>T412 RT32</i>	
Specific Location:	<i>Control room in SRB</i>	
Measurement Range:	<i>5/10 A</i>	
Measurement Unit:	<i>kWh</i>	
Calibration:	<i>2009</i>	
Required Calibration Frequency:	<i>4 years</i>	
Uncertainty Level:	<i>02S, 05S, 1-Bulgarian National Standards EN62053-21-2005</i>	
Monitoring & Calculation		
Reading Frequency:	<i>-</i>	

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Recording Frequency:	-	
Trouble Shooting:	<i>Replacement of the electrical meter and recording the data of the old one and the new el.meter</i>	

Inspection Results During Verification			
Operation of Instrumentation	Method of Verification	Verification Results	Conclusion
Measuring Principle:	In compliance with PDD	The requirements are fulfilled.	<input checked="" type="checkbox"/>
Installation: Manner of execution	Description	The meter is installed properly and is working normal.	<input checked="" type="checkbox"/>
Functionality:	Description	The meter is functioning	<input checked="" type="checkbox"/>
Quality assurance:	Calibration	The meter was visually checked and photos taken.	<input checked="" type="checkbox"/>
Maintenance:	-	-	<input checked="" type="checkbox"/>
Further Remarks: N/A			<input checked="" type="checkbox"/>

3.2.15. Instrument xv

PDD	Verified Situation	Conclusion
Instrumentation Information – <i>Heat recovery, temperatures at the inlet and outlet of heat exchanger (SVP 05)</i>		
ID-PDD:	TI _{HE} / TO _{HE} / N/A	<input checked="" type="checkbox"/>
ID-Internal:	N/A	<input checked="" type="checkbox"/>
Data to be Measured:	MW/h	<input checked="" type="checkbox"/>

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Data Logging:	<i>Calculation device</i>	<input checked="" type="checkbox"/>
Archiving of Raw Data:	<i>Journal</i>	<input checked="" type="checkbox"/>
Measurement Principle:	<i>Differential temperature</i>	<input checked="" type="checkbox"/>
Period of Operating Time:	<i>05.02.2010 - 31.12.2010 (replaced in November 2011 with a similar one with serial number 120265) Somewhere about 2 years</i>	<input checked="" type="checkbox"/>
Instrument Type:	<i>Heat meter system</i>	<input checked="" type="checkbox"/>
Serial Number:	<i>22145119</i>	<input checked="" type="checkbox"/>
Manufacturer Model Nr.:	<i>Zenner-Zahler multidata S1</i>	<input checked="" type="checkbox"/>
Specific Location:	<i>On pipe of the inlet and the outlet of the heat exchanger</i>	<input checked="" type="checkbox"/>
Measurement Range:	<i>0-12</i>	<input checked="" type="checkbox"/>
Measurement Unit:	<i>°C</i>	<input checked="" type="checkbox"/>
Calibration:	<i>-The instrument has been installed in February 2010 and, according to "zapoved A-441_13.10.2011" – IRL 6, the next calibration should have been performed in February 2012 (2 years), but in November 2011 has been replaced, see below.</i>	<input checked="" type="checkbox"/>
Required Calibration Frequency:	<i>2 years</i>	<input checked="" type="checkbox"/>
Uncertainty Level:	<i>±1 %</i>	<input checked="" type="checkbox"/>
Monitoring & Calculation		
Reading Frequency:	<i>Each 8 hours</i>	<input checked="" type="checkbox"/>
Recording Frequency:	<i>Each 8 hours</i>	<input checked="" type="checkbox"/>
Trouble Shooting:	<i>See procedure ISO9001, P-04</i>	<input checked="" type="checkbox"/>

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Inspection Results During Verification			
Operation of Instrumentation	Method of Verification	Verification Results	Conclusion
Measuring Principle:	In compliance with PDD	The requirements are fulfilled.	☑
Installation: Manner of execution	Description	The meter was installed properly and was working normal.	☑
Functionality:	Description	N/A, the meter has been replaced with 120265	☑
Quality assurance:	Calibration, print screens.	N/A	☑
Maintenance:	-	-	☑
Further Remarks: N/A			☑

3.2.16. Instrument xvi

PDD	Verified Situation	Conclusion
Instrumentation Information – <i>Heat recovery, temperatures at the inlet and outlet of heat exchanger (SVP 05)</i>		
ID-PDD:	TI _{HE} / TO _{HE} / N/A	☑
ID-Internal:	N/A	☑
Data to be Measured:	MW/h	☑
Data Logging:	Calculation device	☑
Archiving of Raw Data:	Journal	☑
Measurement Principle:	Differential temperature	☑

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Period of Operating Time:	<i>11.11.2011 – until the present moment</i>	<input checked="" type="checkbox"/>
Instrument Type:	<i>Heat meter system</i>	<input checked="" type="checkbox"/>
Serial Number:	<i>120265</i>	<input checked="" type="checkbox"/>
Manufacturer Model Nr.:	<i>Zenner-Zahler multidata S3</i>	<input checked="" type="checkbox"/>
Specific Location:	<i>On pipe of the inlet and the outlet of the heat exchanger</i>	<input checked="" type="checkbox"/>
Measurement Range:	<i>0-12</i>	<input checked="" type="checkbox"/>
Measurement Unit:	<i>°C</i>	<input checked="" type="checkbox"/>
Calibration:	<i>-Installed in November 2011: see "Protocol replacement of the heat energy meter (SVP 05)" and "Certificate Zenner – for the new heat energy meter (SVP 05)" – IRL 6. The next calibration scheduled for November 2013 (2 years).</i>	<input checked="" type="checkbox"/>
Required Calibration Frequency:	<i>2 years</i>	<input checked="" type="checkbox"/>
Uncertainty Level:	<i>±1 %</i>	<input checked="" type="checkbox"/>
Monitoring & Calculation		
Reading Frequency:	<i>Each 8 hours</i>	<input checked="" type="checkbox"/>
Recording Frequency:	<i>Each 8 hours</i>	<input checked="" type="checkbox"/>
Trouble Shooting:	<i>See procedure ISO9001, P-04</i>	<input checked="" type="checkbox"/>

Inspection Results During Verification			
Operation of Instrumentation	Method of Verification	Verification Results	Conclusion
Measuring Principle:	In compliance with PDD	The requirements are fulfilled.	<input checked="" type="checkbox"/>

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Installation: Manner of execution	Description	The meter is installed properly and is working normal.	<input checked="" type="checkbox"/>
Functionality:	Description	The meter is functioning	<input checked="" type="checkbox"/>
Quality assurance:	Calibration, print screens.	The meter was visually checked and photos taken.	<input checked="" type="checkbox"/>
Maintenance:	-	-	<input checked="" type="checkbox"/>
Further Remarks: N/A			<input checked="" type="checkbox"/>

3.2.17. Instrument xvii

PDD	Verified Situation	Conclusion
Instrumentation Information – <i>Steam production of SRB (SVP 05)</i>		
ID-PDD:	<i>SP_{SRB}</i>	<input checked="" type="checkbox"/>
ID-Internal:	<i>11-FIC-401</i>	<input checked="" type="checkbox"/>
Data to be Measured:	<i>t/h</i>	<input checked="" type="checkbox"/>
Data Logging:	<i>PLC system</i>	<input checked="" type="checkbox"/>
Archiving of Raw Data:	<i>SRB Application Station online</i>	<input checked="" type="checkbox"/>
Measurement Principle:	<i>orifice flow meter</i>	<input checked="" type="checkbox"/>
Period of Operating Time:	<i>12.2007-12.2010</i> <i>Somewhere about 10 years</i>	<input checked="" type="checkbox"/>
Instrument Type:	<i>Differential pressure</i>	<input checked="" type="checkbox"/>
Serial Number:	-	<input checked="" type="checkbox"/>
Manufacturer Model Nr.:	<i>ROSEMOUNT</i>	<input checked="" type="checkbox"/>

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Specific Location:	<i>On pipe for TBL from SRB</i>	<input checked="" type="checkbox"/>
Measurement Range:	<i>0-101</i>	<input checked="" type="checkbox"/>
Measurement Unit:	<i>t/h</i>	<input checked="" type="checkbox"/>
Calibration:	<i>12.2007, 10.2008, 10.2009, 10.2010, 10.2011, 10.2012</i>	<input checked="" type="checkbox"/>
Required Calibration Frequency:	<i>1 year</i>	<input checked="" type="checkbox"/>
Uncertainty Level:	<i>±1 %</i>	<input checked="" type="checkbox"/>
Monitoring & Calculation		
Reading Frequency:	<i>Each 8 hours</i>	<input checked="" type="checkbox"/>
Recording Frequency:	<i>Each 8 hours</i>	<input checked="" type="checkbox"/>
Trouble Shooting:	<i>See procedure ISO9001, P-04</i>	<input checked="" type="checkbox"/>

Inspection Results During Verification			
Operation of Instrumentation	Method of Verification	Verification Results	Conclusion
Measuring Principle:	In compliance with PDD	The requirements are fulfilled.	<input checked="" type="checkbox"/>
Installation: Manner of execution	Description	The meter is installed properly and is working normal.	<input checked="" type="checkbox"/>
Functionality:	Description	The meter is functioning	<input checked="" type="checkbox"/>
Quality assurance:	Calibration, print screens.	The meter was visually checked and photos taken.	<input checked="" type="checkbox"/>
Maintenance:	-	-	<input checked="" type="checkbox"/>
Further Remarks: N/A			<input checked="" type="checkbox"/>

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3.2.18. Instrument xviii

PDD	Verified Situation	Conclusion
Instrumentation Information – <i>Steam consumption in sheet line (this instrument is used for reporting of the total steam consumption and then is calculated the specific consumption, which is written in the Raw material balance)</i>		
ID-PDD:	<i>N/A</i>	<input checked="" type="checkbox"/>
ID-Internal:	<i>Calorimeter</i>	<input checked="" type="checkbox"/>
Data to be Measured:	<i>MW/h</i>	<input checked="" type="checkbox"/>
Data Logging:	<i>-</i>	<input checked="" type="checkbox"/>
Archiving of Raw Data:	<i>Local</i>	<input checked="" type="checkbox"/>
Measurement Principle:	<i>Resistant method</i>	<input checked="" type="checkbox"/>
Period of Operating Time:	<i>03.2007 – present</i>	<input checked="" type="checkbox"/>
Instrument Type:	<i>Calorimeter system</i>	<input checked="" type="checkbox"/>
Serial Number:	<i>A5000B0422E</i>	<input checked="" type="checkbox"/>
Manufacturer Model Nr.:	<i>Endress+Hauser, RMS-621-21aaa1211</i>	<input checked="" type="checkbox"/>
Specific Location:	<i>Control room DDP</i>	<input checked="" type="checkbox"/>
Measurement Range:	<i>0-19.5</i>	<input checked="" type="checkbox"/>
Measurement Unit:	<i>MW/h</i>	<input checked="" type="checkbox"/>
Calibration:	<i>12.2007, 10.2009, 06.2011</i>	<input checked="" type="checkbox"/>
Required Calibration Frequency:	<i>2 years</i>	<input checked="" type="checkbox"/>
Uncertainty Level:	<i>±1 %</i>	<input checked="" type="checkbox"/>
Monitoring & Calculation		

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Reading Frequency:	<i>Each 8 hours</i>	<input checked="" type="checkbox"/>
Recording Frequency:	<i>Each 8 hours</i>	<input checked="" type="checkbox"/>
Trouble Shooting:	<i>See procedure ISO9001, P-04</i>	<input checked="" type="checkbox"/>

Inspection Results During Verification			
Operation of Instrumentation	Method of Verification	Verification Results	Conclusion
Measuring Principle:	Resistant method		<input checked="" type="checkbox"/>
Installation: Manner of execution	Description	The meter is installed properly and is working normal.	<input checked="" type="checkbox"/>
Functionality:	Description	The meter is functioning	<input checked="" type="checkbox"/>
Quality assurance:	Calibration, print screens.	The meter was visually checked and photos taken.	<input checked="" type="checkbox"/>
Maintenance:	-	-	<input checked="" type="checkbox"/>
Further Remarks: N/A			<input checked="" type="checkbox"/>

3.2.19. Instrument xix

PDD	Verified Situation	Conclusion
Instrumentation Information – <i>Pulp production</i>		
ID-PDD:	<i>N/A</i>	<input checked="" type="checkbox"/>
ID-Internal:	<i>N/A</i>	<input checked="" type="checkbox"/>
Data to be Measured:	<i>kg</i>	<input checked="" type="checkbox"/>
Data Logging:	<i>Journal</i>	<input checked="" type="checkbox"/>

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Archiving of Raw Data:	<i>Local</i>	<input checked="" type="checkbox"/>
Measurement Principle:	<i>Strain gauge</i>	<input checked="" type="checkbox"/>
Period of Operating Time:	<i>03.2007 – 12.2010</i> <i>Somewhere about 10 years</i>	<input checked="" type="checkbox"/>
Instrument Type:	<i>Scale</i>	<input checked="" type="checkbox"/>
Serial Number:	<i>4280193-4YS</i>	<input checked="" type="checkbox"/>
Manufacturer Model Nr.:	<i>TOLEDO</i>	<input checked="" type="checkbox"/>
Specific Location:	<i>Machine room DDP</i>	<input checked="" type="checkbox"/>
Measurement Range:	<i>0-300</i>	<input checked="" type="checkbox"/>
Measurement Unit:	<i>kg</i>	<input checked="" type="checkbox"/>
Calibration:	<i>05.2007, 05.2008, 05.2009, 05.2010, 05.2011, 05.2012 (IRL 6)</i>	<input checked="" type="checkbox"/>
Required Calibration Frequency:	<i>1 year</i>	<input checked="" type="checkbox"/>
Uncertainty Level:	<i>±1 %</i>	<input checked="" type="checkbox"/>
Monitoring & Calculation		
Reading Frequency:	<i>Each 8 hours</i>	<input checked="" type="checkbox"/>
Recording Frequency:	<i>Each 8 hours</i>	<input checked="" type="checkbox"/>
Trouble Shooting:	<i>See procedure ISO9001, P-04</i>	<input checked="" type="checkbox"/>

Inspection Results During Verification			
Operation of Instrumentation	Method of Verification	Verification Results	Conclusion
Measuring Principle:	In compliance with PDD		<input checked="" type="checkbox"/>

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Installation: Manner of execution	Description	The meter is installed properly and is working normal.	<input checked="" type="checkbox"/>
Functionality:	Description	The meter is functioning	<input checked="" type="checkbox"/>
Quality assurance:	Calibration, print screens.	The meter was visually checked and photos taken.	<input checked="" type="checkbox"/>
Maintenance:	-	-	<input checked="" type="checkbox"/>
Further Remarks: N/A			<input checked="" type="checkbox"/>

3.2.20. Instrument xx

PDD	Verified Situation	Conclusion
Instrumentation Information – Variable Speed Drives		
ID-PDD:	OH_{VSD} , PA_{VSD}	<input checked="" type="checkbox"/>
ID-Internal:	60.0460; 70.0480; 70.0485; 08.0406	<input checked="" type="checkbox"/>
Data to be Measured:	Hours, Power consumed	<input checked="" type="checkbox"/>
Data Logging:	Process logs	<input checked="" type="checkbox"/>
Archiving of Raw Data:	The data are archived on the unit and monthly reports	<input checked="" type="checkbox"/>
Measurement Principle:	Electronic measurement of electrical units (electricity and voltage) and calculation via internal methods	<input checked="" type="checkbox"/>
Period of Operating Time:	04.2008	<input checked="" type="checkbox"/>
Instrument Type:	ATV61 HC22N4D – 3 Pcs, ATV61 HC16N4D – 1 Pc	<input checked="" type="checkbox"/>
Serial Number:	EL 0733054 361, EL 0733054 364, EL 0733054 362, EL 0733054 358	<input checked="" type="checkbox"/>
Manufacturer Model Nr.:	Schneider Toshiba Inverter Europe SAS	<input checked="" type="checkbox"/>
Specific Location:	Fibre line, Substations D and E	<input checked="" type="checkbox"/>

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Measurement Range:	0 – 65535	<input checked="" type="checkbox"/>
Measurement Unit:	Hours and MWh	<input checked="" type="checkbox"/>
Calibration:	N/A	<input checked="" type="checkbox"/>
Required Calibration Frequency:	N/A	<input checked="" type="checkbox"/>
Uncertainty Level:	N/A	<input checked="" type="checkbox"/>
Monitoring & Calculation		
Reading Frequency:	Online	<input checked="" type="checkbox"/>
Recording Frequency:	Online	<input checked="" type="checkbox"/>
Trouble Shooting:	See procedure ISO9001, P-04	<input checked="" type="checkbox"/>

Inspection Results During Verification			
Operation of Instrumentation	Method of Verification	Verification Results	Conclusion
Measuring Principle:	In compliance with PDD		<input checked="" type="checkbox"/>
Installation: Manner of execution	Description	The meter is installed properly and is working normal.	<input checked="" type="checkbox"/>
Functionality:	Description	The meter is functioning	<input checked="" type="checkbox"/>
Quality assurance:	Calibration, print screens.	The meter was visually checked and photos taken.	<input checked="" type="checkbox"/>
Maintenance:	-	-	<input checked="" type="checkbox"/>
Further Remarks: The way of recording of operating hours has been checked with the logbooks.			<input checked="" type="checkbox"/>

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3.3. Sampling Information

3.3.1. Sampling Point i

PDD	Verified Situation	Conclusion
Sampling Information – Net calorific value of black liquor		
ID-PDD:	HV_{BL}	✓
ID-Internal:	-	✓
Sample Taken From:	<i>The operator in the control room</i>	✓
Location of Sampling Point:	<i>After super concentrator</i>	✓
Monitoring & Calculation		
Sampling Principle:	<i>In compliance to operational instructions</i>	✓
Methodology of Sampling:	<i>In compliance</i>	✓
Frequency of Sampling:	<i>1 year</i>	✓
Training of Sampling Personnel:	<i>In compliance</i>	✓
Sample Analysed for / Data to be Measured:	<i>Net Calorific Value</i>	✓
Sample Analysed by:	<i>Pulp and Paper Institute</i>	✓
Certification of Analyser/ Laboratory:	<i>N/A</i>	✓
Analysis Principle:	<i>TAPPI – T650 TAPPI – T625 5.1.1</i>	✓
Methodology of Sample Analysis:	<i>In compliance</i>	✓
Measurement Unit:	<i>kJ/kg</i>	✓

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PDD	Verified Situation	Conclusion
Measurement Range:	N/A	<input checked="" type="checkbox"/>
Uncertainty Level:	N/A	<input checked="" type="checkbox"/>
Archiving of Raw Data:	<i>The protocol is being archived in compliance to the PDD</i>	<input checked="" type="checkbox"/>

Inspection Results During Verification			
Operation of Sampling	Method of Verification	Verification Results	Conclusion
Documentation	Analyse report performed by Pulp and Paper Institute (IRL 12)		<input checked="" type="checkbox"/>
Representativity	Analyse performed by an ac-credited laboratory		<input checked="" type="checkbox"/>
Reproducibility	-		<input checked="" type="checkbox"/>
Further Remarks: N/A			<input checked="" type="checkbox"/>

3.3.2. Sampling Point ii

PDD	Verified Situation	Conclusion
Sampling Information – <i>Inlet concentration of black liquor of super concentrator</i>		
ID-PDD:	N/A	<input checked="" type="checkbox"/>
ID-Internal:	<i>Sampling point at the tank for 60% BL</i>	<input checked="" type="checkbox"/>
Sample Taken From:	<i>The sample is taken by the operator in the Control room for EP</i>	<input checked="" type="checkbox"/>
Location of Sampling Point:	<i>60% tank for thick black liquor</i>	<input checked="" type="checkbox"/>

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PDD	Verified Situation	Conclusion
Monitoring & Calculation		
Sampling Principle:	<i>From sampling point with sampling container</i>	<input checked="" type="checkbox"/>
Methodology of Sampling:	<i>In compliance with the requirements</i>	<input checked="" type="checkbox"/>
Frequency of Sampling:	<i>1 h</i>	<input checked="" type="checkbox"/>
Training of Sampling Personnel:	<i>In compliance with operational instructions</i>	<input checked="" type="checkbox"/>
Sample Analysed for / Data to be Measured:	<i>Concentration of thick black liquor</i>	<input checked="" type="checkbox"/>
Sample Analysed by:	<i>Operator in the control room of EP</i>	<input checked="" type="checkbox"/>
Certification of Analyser/ Laboratory:	<i>Process record</i>	<input checked="" type="checkbox"/>
Analysis Principle:	<i>Directly reporting</i>	<input checked="" type="checkbox"/>
Methodology of Sample Analysis:	<i>In compliance to procedures</i>	<input checked="" type="checkbox"/>
Measurement Unit:	<i>g/cm³</i>	<input checked="" type="checkbox"/>
Measurement Range:	<i>N/A</i>	<input checked="" type="checkbox"/>
Uncertainty Level:	<i>N/A</i>	<input checked="" type="checkbox"/>
Archiving of Raw Data:	<i>Process records</i>	<input checked="" type="checkbox"/>

Inspection Results During Verification			
Operation of Sampling	Method of Verification	Verification Results	Conclusion
Documentation	The procedure for BL concentration measurement has been provided to the verification team (IRL 5 of the first periodic	-	<input checked="" type="checkbox"/>

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	verification).		
Representativity	-	-	☑
Reproducibility	-	-	☑
Further Remarks: N/A			☑

3.3.3. Sampling point iii

PDD	Verified Situation	Conclusion
Sampling Information – <i>Weak black liquor at the EP1 inlet</i>		
ID-PDD:	N/A	☑
ID-Internal:	<i>Sampling point at the inlet of EP1</i>	☑
Sample Taken From:	<i>The sample is taken by the operator in the Control room for EP</i>	☑
Location of Sampling Point:	<i>At the inlet of tanks for weak black liquor in EP1</i>	☑
Monitoring & Calculation		
Sampling Principle:	<i>From sampling point with sampling container</i>	☑
Methodology of Sampling:	<i>In compliance with the requirements</i>	☑
Frequency of Sampling:	<i>1 h</i>	☑
Training of Sampling Personnel:	<i>In compliance with operational instructions</i>	☑
Sample Analysed for / Data to be Measured:	<i>Weak black liquor concentration</i>	☑
Sample Analysed by:	<i>Operator in the control room of EP</i>	☑
Certification of Analyser/ Laboratory:	<i>Process record</i>	☑
Analysis Principle:	<i>Directly reporting</i>	☑

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PDD	Verified Situation	Conclusion
Methodology of Sample Analysis:	<i>In compliance to procedures</i>	<input checked="" type="checkbox"/>
Measurement Unit:	<i>g/cm³</i>	<input checked="" type="checkbox"/>
Measurement Range:	<i>N/A</i>	<input checked="" type="checkbox"/>
Uncertainty Level:	<i>N/A</i>	<input checked="" type="checkbox"/>
Archiving of Raw Data:	<i>Process records</i>	<input checked="" type="checkbox"/>

Inspection Results During Verification			
Operation of Sampling	Method of Verification	Verification Results	Conclusion
Documentation	The procedure for BL concentration measurement has been provided to the verification team (IRL 5 –of the first periodic verification).	-	<input checked="" type="checkbox"/>
Representativity	-	-	<input checked="" type="checkbox"/>
Reproducibility	-	-	<input checked="" type="checkbox"/>
Further Remarks: N/A			<input checked="" type="checkbox"/>

3.3.4. Sampling point iv

PDD	Verified Situation	Conclusion
Sampling Information – Weak black liquor at the EP2 inlet		
ID-PDD:	<i>BLC_{AW}</i>	<input checked="" type="checkbox"/>
ID-Internal:	<i>Sampling point at the inlet of EP2</i>	<input checked="" type="checkbox"/>

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PDD	Verified Situation	Conclusion
Sample Taken From:	<i>The sample is taken by the operator in the Control room for EP</i>	<input checked="" type="checkbox"/>
Location of Sampling Point:	<i>At the inlet of tanks for weak black liquor in EP2</i>	<input checked="" type="checkbox"/>
Monitoring & Calculation		
Sampling Principle:	<i>From sampling point with sampling container</i>	<input checked="" type="checkbox"/>
Methodology of Sampling:	<i>In compliance with the requirements</i>	<input checked="" type="checkbox"/>
Frequency of Sampling:	<i>1 h</i>	<input checked="" type="checkbox"/>
Training of Sampling Personnel:	<i>In compliance with operational instructions</i>	<input checked="" type="checkbox"/>
Sample Analysed for / Data to be Measured:	<i>Weak black liquor concentration</i>	<input checked="" type="checkbox"/>
Sample Analysed by:	<i>Operator in the control room of EP</i>	<input checked="" type="checkbox"/>
Certification of Analyser/ Laboratory:	<i>Process record</i>	<input checked="" type="checkbox"/>
Analysis Principle:	<i>Directly reporting</i>	<input checked="" type="checkbox"/>
Methodology of Sample Analysis:	<i>In compliance to procedures</i>	<input checked="" type="checkbox"/>
Measurement Unit:	<i>g/cm³</i>	<input checked="" type="checkbox"/>
Measurement Range:	<i>N/A</i>	<input checked="" type="checkbox"/>
Uncertainty Level:	<i>N/A</i>	<input checked="" type="checkbox"/>
Archiving of Raw Data:	<i>Process records</i>	<input checked="" type="checkbox"/>

Inspection Results During Verification			
Operation of Sampling	Method of Verification	Verification Results	Conclusion
Documentation	The procedure for BL concen-	-	<input checked="" type="checkbox"/>

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	tration measurement has been provided to the verification team (IRL 5 of the first periodic verification).		
Representativity	-	-	<input checked="" type="checkbox"/>
Reproducibility	-	-	<input checked="" type="checkbox"/>
Further Remarks: N/A			<input checked="" type="checkbox"/>

3.3.5. Sampling point v

PDD	Verified Situation	Conclusion
Sampling Information – Black liquor concentration after heat exchangers		
ID-PDD:	BLC_{AHE}	<input checked="" type="checkbox"/>
ID-Internal:	Sampling point at the tank for 60% BL	<input checked="" type="checkbox"/>
Sample Taken From:	The sample is taken by the operator in the Control room for EP	<input checked="" type="checkbox"/>
Location of Sampling Point:	60% tank for thick black liquor	<input checked="" type="checkbox"/>
Monitoring & Calculation		
Sampling Principle:	From sampling point with sampling container	<input checked="" type="checkbox"/>
Methodology of Sampling:	In compliance with the requirements	<input checked="" type="checkbox"/>
Frequency of Sampling:	1 h	<input checked="" type="checkbox"/>
Training of Sampling Personnel:	In compliance with operational instructions	<input checked="" type="checkbox"/>
Sample Analysed for / Data to be Measured:	Concentration of thick black liquor	<input checked="" type="checkbox"/>
Sample Analysed by:	Operator in the control room of EP	<input checked="" type="checkbox"/>

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PDD	Verified Situation	Conclusion
Certification of Analyser/ Laboratory:	<i>Process record</i>	☑
Analysis Principle:	<i>Directly reporting</i>	☑
Methodology of Sample Analysis:	<i>In compliance to procedures</i>	☑
Measurement Unit:	<i>g/cm³</i>	☑
Measurement Range:	<i>N/A</i>	☑
Uncertainty Level:	<i>N/A</i>	☑
Archiving of Raw Data:	<i>Process records</i>	☑

Inspection Results During Verification			
Operation of Sampling	Method of Verification	Verification Results	Conclusion
Documentation	The procedure for BL concentration measurement has been provided to the verification team (IRL 5 of the first periodic verification).	-	☑
Representativity	-	-	☑
Reproducibility	-	-	☑
Further Remarks: N/A			☑

3.4. Accounting information

PDD	Verified Situation	Conclusion
Accounting Information		

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ID-PDD:	N/A	<input checked="" type="checkbox"/>
ID-Internal:	N/A	<input checked="" type="checkbox"/>
Description of Accounted Component:	N/A	<input checked="" type="checkbox"/>
Accounting Unit:	N/A	<input checked="" type="checkbox"/>
Quality Assurance Measures / System:	N/A	<input checked="" type="checkbox"/>
Account Archived:	N/A	<input checked="" type="checkbox"/>
Account Credible / in Line with PDD:	N/A	<input checked="" type="checkbox"/>
Further Remarks: N/A		<input checked="" type="checkbox"/>

3.5. External Data

3.5.1. External Data i

PDD	Verified Situation	Conclusion
External Data		
ID-PDD:	EF_s	<input checked="" type="checkbox"/>
ID-Internal:	-	<input checked="" type="checkbox"/>
Description of Data / Data Refers to:	<i>CO₂ emission factor of coal for producing steam in the power plant</i>	<input checked="" type="checkbox"/>
Unit of Data (if appropriate):	<i>tCO₂/t coal</i>	<input checked="" type="checkbox"/>
Date of Data Income:	<i>16.01.2008; 08.01.2009 10.05.2010; 21.03.2011, 20.02.2012, 12.11.2012</i>	<input checked="" type="checkbox"/>
Source of Data:	<i>Data supplied by the Thermal Power Plant situated on site</i>	<input checked="" type="checkbox"/>
Reliability of Data Source:	<i>The analysis of the data is performed in accredited laboratory as per requirement of the Power Plant. The data is presented to Svilocell EAD as an annual report signed by the Executive Director of Power Plant.</i>	<input checked="" type="checkbox"/>

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Is the Data up-to-date?	<i>The data is up-to date. Each year an analysis is performed.</i>	<input checked="" type="checkbox"/>
Uncertainty Level:	<i>N/A</i>	<input checked="" type="checkbox"/>
Further Remarks: The documents have been provided and checked (IRL 10). The values from the reports are the same with the values used in calculations.		<input checked="" type="checkbox"/>

3.5.2. External Data ii

PDD	Verified Situation	Conclusion
External Data		
ID-PDD:	<i>EF_E</i>	<input checked="" type="checkbox"/>
ID-Internal:	<i>-</i>	<input checked="" type="checkbox"/>
Description of Data / Data Refers to:	<i>CO₂ emission factor of the grid</i>	<input checked="" type="checkbox"/>
Unit of Data (if appropriate):	<i>tCO₂/MWh</i>	<input checked="" type="checkbox"/>
Date of Data Income:	<i>May 2005</i>	<input checked="" type="checkbox"/>
Source of Data:	<i>National Electrical Company</i>	<input checked="" type="checkbox"/>
Reliability of Data Source:	<i>The document is prepared as Baseline Study for JI Project by the National Electric Company in Bulgaria (NEK). This is the most recent study in this field used for all JI projects in Bulgaria.</i>	<input checked="" type="checkbox"/>
Is the Data up-to-date?	<i>The study is prepared in 2005 but there is no recent study in this field, and the one mentioned is approved by MoEW in Bulgaria.</i>	<input checked="" type="checkbox"/>
Uncertainty Level:	<i>N/A</i>	<input checked="" type="checkbox"/>
Further Remarks: This study is Annex 4 to the registered PDD		<input checked="" type="checkbox"/>

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3.5.3. External Data iii

PDD	Verified Situation	Conclusion
External Data		
ID-PDD:	EF_D	<input checked="" type="checkbox"/>
ID-Internal:	-	<input checked="" type="checkbox"/>
Description of Data / Data Refers to:	<i>CO₂ emission coefficient of Diesel</i>	<input checked="" type="checkbox"/>
Unit of Data (if appropriate):	<i>tCO₂/ton fuel</i>	<input checked="" type="checkbox"/>
Date of Data Income:	<i>2006</i>	<input checked="" type="checkbox"/>
Source of Data:	<i>Revised 2006 IPCC default values</i>	<input checked="" type="checkbox"/>
Reliability of Data Source:	<i>All data is reliable and used for all JI projects</i>	<input checked="" type="checkbox"/>
Is the Data up-to-date?	<i>The data is the most recent one</i>	<input checked="" type="checkbox"/>
Uncertainty Level:	<i>N/A</i>	<input checked="" type="checkbox"/>
Further Remarks: N/A		<input checked="" type="checkbox"/>

3.5.4. External Data iv

PDD	Verified Situation	Conclusion
External Data		
ID-PDD:	EF_{HFO}	<input checked="" type="checkbox"/>
ID-Internal:	-	<input checked="" type="checkbox"/>
Description of Data / Data Refers to:	<i>CO₂ emission coefficient of Heavy Fuel Oil</i>	<input checked="" type="checkbox"/>
Unit of Data (if appropriate):	<i>tCO₂/ton fuel</i>	<input checked="" type="checkbox"/>

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Date of Data Income:	2006	<input checked="" type="checkbox"/>
Source of Data:	<i>Revised 2006 IPCC default values</i>	<input checked="" type="checkbox"/>
Reliability of Data Source:	<i>All data is reliable and used for all JI projects</i>	<input checked="" type="checkbox"/>
Is the Data up-to-date?	<i>The data is the most recent one</i>	<input checked="" type="checkbox"/>
Uncertainty Level:	N/A	<input checked="" type="checkbox"/>
Further Remarks: N/A		<input checked="" type="checkbox"/>

3.5.5. External Data v

PDD	Verified Situation	Conclusion
External Data		
ID-PDD:	HV_{HFO}	<input checked="" type="checkbox"/>
ID-Internal:	-	<input checked="" type="checkbox"/>
Description of Data / Data Refers to:	<i>Net calorific value of the Heavy Fuel Oil</i>	<input checked="" type="checkbox"/>
Unit of Data (if appropriate):	<i>MWh/ton fuel</i>	<input checked="" type="checkbox"/>
Date of Data Income:	2006	<input checked="" type="checkbox"/>
Source of Data:	<i>Revised 2006 IPCC default values</i>	<input checked="" type="checkbox"/>
Reliability of Data Source:	<i>All data is reliable and used for all JI projects</i>	<input checked="" type="checkbox"/>
Is the Data up-to-date?	<i>The data is the most recent one</i>	<input checked="" type="checkbox"/>
Uncertainty Level:	N/A	<input checked="" type="checkbox"/>
Further Remarks: N/A		

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3.5.6. External Data vi

PDD	Verified Situation	Conclusion
External Data		
ID-PDD:	HV_C	<input checked="" type="checkbox"/>
ID-Internal:	-	<input checked="" type="checkbox"/>
Description of Data / Data Refers to:	<i>Net calorific value of the coal</i>	<input checked="" type="checkbox"/>
Unit of Data (if appropriate):	<i>MWh/ton fuel</i>	<input checked="" type="checkbox"/>
Date of Data Income:	<i>16.01.2008; 08.01.2009; 10.05.2010; 21.03.2011, 20.02.2012, 12.11.2012</i>	<input checked="" type="checkbox"/>
Source of Data:	<i>Data supplied by the Thermal Power Plant situated on site</i>	<input checked="" type="checkbox"/>
Reliability of Data Source:	<i>The analysis of the data is performed in accredited laboratory as per requirement of the Power Plant. The data is presented to Svilocell EAD as an annual report signed by the Executive Director of Power Plant.</i>	<input checked="" type="checkbox"/>
Is the Data up-to-date?	<i>The data is up-to date. Each year an analysis is performed.</i>	<input checked="" type="checkbox"/>
Uncertainty Level:	<i>N/A</i>	<input checked="" type="checkbox"/>
Further Remarks: The reports have been received (IRL 10)		<input checked="" type="checkbox"/>

3.5.7. External Data vii

PDD	Verified Situation	Conclusion
External Data		
ID-PDD:	TE_{PP}	<input checked="" type="checkbox"/>
ID-Internal:	-	<input checked="" type="checkbox"/>
Description of Data / Data Refers to:	<i>Thermal efficiency of power plant</i>	<input checked="" type="checkbox"/>

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Unit of Data (if appropriate):	%	<input checked="" type="checkbox"/>
Date of Data Income:	16.01.2008; 08.01.2009; 10.05.2010; 21.03.2011, 20.02.2012, 12.11.2012	<input checked="" type="checkbox"/>
Source of Data:	Data supplied by the Thermal Power Plant situated on site	<input checked="" type="checkbox"/>
Reliability of Data Source:	The analysis of the data is performed in accredited laboratory as per requirement of the Power Plant. The data is presented to Svilocell EAD as an annual report signed by the Executive Director of Power Plant.	<input checked="" type="checkbox"/>
Is the Data up-to-date?	The data is up-to date. Each year an analysis is performed.	<input checked="" type="checkbox"/>
Uncertainty Level:	N/A	<input checked="" type="checkbox"/>
Further Remarks: The reports have been received (IRL 10)		<input checked="" type="checkbox"/>

3.5.8. External Data viii

PDD	Verified Situation	Conclusion
External Data		
ID-PDD:	Diesel heating value	<input checked="" type="checkbox"/>
ID-Internal:	-	<input checked="" type="checkbox"/>
Description of Data / Data Refers to:	Net calorific value of the diesel	<input checked="" type="checkbox"/>
Unit of Data (if appropriate):	MWh/ton fuel	<input checked="" type="checkbox"/>
Date of Data Income:	2006	<input checked="" type="checkbox"/>
Source of Data:	Revised 2006 IPCC default values	<input checked="" type="checkbox"/>
Reliability of Data Source:	All data is reliable and used for all JI projects	<input checked="" type="checkbox"/>
Is the Data up-to-date?	The data is the most recent one	<input checked="" type="checkbox"/>
Uncertainty Level:	N/A	<input checked="" type="checkbox"/>
Further Remarks: N/A		<input checked="" type="checkbox"/>

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3.6. Others

3.6.1. Annual working hours for SRB

PDD	Verified Situation	Conclusion
Others		
ID-PDD:	N/A	<input checked="" type="checkbox"/>
ID-Internal:	N/A	<input checked="" type="checkbox"/>
Description of Component:	<i>The component describes the annual working hours for SRB recorded in the daily logs</i>	<input checked="" type="checkbox"/>
Unit of Component (if appropriate):	<i>hours</i>	<input checked="" type="checkbox"/>
Date Component:	<i>The logs are filled in each day and then are being summarized on monthly and yearly basis</i>	<input checked="" type="checkbox"/>
Source of Component:	<i>Daily logs</i>	<input checked="" type="checkbox"/>
Reliability of Source:	N/A	<input checked="" type="checkbox"/>
Up-to-date?	<i>The document is up-to-date as it is filled in on daily basis</i>	<input checked="" type="checkbox"/>
Uncertainty Level:	N/A	<input checked="" type="checkbox"/>
Further Remarks: The verification team randomly checked the logbooks and no inconsistencies found.		<input checked="" type="checkbox"/>

3.6.2. Energy protocol

PDD	Verified Situation	Conclusion
Others		
ID-PDD:	N/A	<input checked="" type="checkbox"/>

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ID-Internal:	N/A	<input checked="" type="checkbox"/>
Description of Component:	<i>Protocol for distribution of electricity, heat energy and other fluids on Svilosa AD's area</i>	<input checked="" type="checkbox"/>
Unit of Component (if appropriate):	N/A	<input checked="" type="checkbox"/>
Date Component:	<i>Each month</i>	<input checked="" type="checkbox"/>
Source of Component:	<i>The protocol is prepared by all the companies on site</i>	<input checked="" type="checkbox"/>
Reliability of Source:	<i>The data is reliable</i>	<input checked="" type="checkbox"/>
Up-to-date?	<i>The data is submitted each month</i>	<input checked="" type="checkbox"/>
Uncertainty Level:	N/A	<input checked="" type="checkbox"/>
Further Remarks: N/A		<input checked="" type="checkbox"/>

3.6.3. Outlet steam enthalpy from SRB

PDD	Verified Situation	Conclusion
Others		
ID-PDD:	N/A	<input checked="" type="checkbox"/>
ID-Internal:	N/A	<input checked="" type="checkbox"/>
Description of Component:	<i>Table for thermo dynamical properties of water and steam</i>	<input checked="" type="checkbox"/>
Unit of Component (if appropriate):	N/A	<input checked="" type="checkbox"/>
Date Component:	<i>1975</i>	<input checked="" type="checkbox"/>
Source of Component:	<i>Electronic workbook and book by S.Rivkin and A.Aleksandrov, Russia</i>	<input checked="" type="checkbox"/>
Reliability of Source:	<i>The source is reliable enough and is used all over the world</i>	<input checked="" type="checkbox"/>
Up-to-date?	<i>It is up-to-date</i>	<input checked="" type="checkbox"/>

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Uncertainty Level:	N/A	<input checked="" type="checkbox"/>
Further Remarks: N/A		<input checked="" type="checkbox"/>

3.6.4. Inlet water enthalpy into SRB

PDD	Verified Situation	Conclusion
Others		
ID-PDD:	N/A	<input checked="" type="checkbox"/>
ID-Internal:	N/A	<input checked="" type="checkbox"/>
Description of Component:	Table for thermo dynamical properties of water and steam	<input checked="" type="checkbox"/>
Unit of Component (if appropriate):	N/A	<input checked="" type="checkbox"/>
Date Component:	1975	<input checked="" type="checkbox"/>
Source of Component:	Electronic workbook and book by S.Rivkin and A.Aleksandrov, Russia	<input checked="" type="checkbox"/>
Reliability of Source:	The source is reliable enough and is used all over the world	<input checked="" type="checkbox"/>
Up-to-date?	It is up-to-date	<input checked="" type="checkbox"/>
Uncertainty Level:	N/A	<input checked="" type="checkbox"/>
Further Remarks: N/A		<input checked="" type="checkbox"/>

3.6.5. Condensate enthalpy

PDD	Verified Situation	Conclusion
Others		
ID-PDD:	N/A	<input checked="" type="checkbox"/>
ID-Internal:	N/A	<input checked="" type="checkbox"/>

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Description of Component:	<i>Table for thermo dynamical properties of water and steam</i>	<input checked="" type="checkbox"/>
Unit of Component (if appropriate):	<i>N/A</i>	<input checked="" type="checkbox"/>
Date Component:	<i>1975</i>	<input checked="" type="checkbox"/>
Source of Component:	<i>Electronic workbook and book by S.Rivkin and A.Aleksandrov, Russia</i>	<input checked="" type="checkbox"/>
Reliability of Source:	<i>The source is reliable enough and is used all over the world</i>	<input checked="" type="checkbox"/>
Up-to-date?	<i>It is up-to-date</i>	<input checked="" type="checkbox"/>
Uncertainty Level:	<i>N/A</i>	<input checked="" type="checkbox"/>
Further Remarks: <i>N/A</i>		<input checked="" type="checkbox"/>

3.6.6. Annual working hours for Evaporation Plants

PDD	Verified Situation	Conclusion
Others		
ID-PDD:	<i>N/A</i>	<input checked="" type="checkbox"/>
ID-Internal:	<i>N/A</i>	<input checked="" type="checkbox"/>
Description of Component:	<i>The component describes the annual working hours for both evaporation plants recorded in the relevant daily logs</i>	<input checked="" type="checkbox"/>
Unit of Component (if appropriate):	<i>hours</i>	<input checked="" type="checkbox"/>
Date Component:	<i>The logs are filled in each day and then are being summarized on monthly and yearly basis</i>	<input checked="" type="checkbox"/>
Source of Component:	<i>Daily logs</i>	<input checked="" type="checkbox"/>
Reliability of Source:	<i>N/A</i>	<input checked="" type="checkbox"/>
Up-to-date?	<i>The document is up-to-date as it is filled in on daily basis</i>	<input checked="" type="checkbox"/>

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Uncertainty Level:	N/A	<input checked="" type="checkbox"/>
Further Remarks: The verification team randomly checked the logbooks and no inconsistencies found.		<input checked="" type="checkbox"/>

3.6.7. Report for 2004

PDD	Verified Situation	Conclusion
Others		
ID-PDD:	N/A	<input checked="" type="checkbox"/>
ID-Internal:	N/A	<input checked="" type="checkbox"/>
Description of Component:	<i>Annual statement for the production costs of block and sheet pulp up to December 2004</i>	<input checked="" type="checkbox"/>
Unit of Component (if appropriate):	N/A	<input checked="" type="checkbox"/>
Date Component:	<i>2004</i>	<input checked="" type="checkbox"/>
Source of Component:	<i>Accounting department</i>	<input checked="" type="checkbox"/>
Reliability of Source:	<i>The data is reliable</i>	<input checked="" type="checkbox"/>
Up-to-date?	N/A	<input checked="" type="checkbox"/>
Uncertainty Level:	N/A	<input checked="" type="checkbox"/>
Further Remarks: N/A		<input checked="" type="checkbox"/>

3.6.8. Raw material balance

PDD	Verified Situation	Conclusion
Others		
ID-PDD:	N/A	<input checked="" type="checkbox"/>

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ID-Internal:	N/A	<input checked="" type="checkbox"/>
Description of Component:	<i>Each month is made a balance of the raw materials and consumables that are used in DDP department</i>	<input checked="" type="checkbox"/>
Unit of Component (if appropriate):	N/A	<input checked="" type="checkbox"/>
Date Component:	<i>Each month</i>	<input checked="" type="checkbox"/>
Source of Component:	<i>The balance is prepared by head/deputy head of department</i>	<input checked="" type="checkbox"/>
Reliability of Source:	<i>The data is reliable</i>	<input checked="" type="checkbox"/>
Up-to-date?	<i>The data is up-to-date and is prepared on the basis of the daily logs</i>	<input checked="" type="checkbox"/>
Uncertainty Level:	N/A	<input checked="" type="checkbox"/>
Further Remarks: N/A		<input checked="" type="checkbox"/>

3.6.9. Motor efficiency

PDD	Verified Situation	Conclusion
Others		
ID-PDD:	N/A	<input checked="" type="checkbox"/>
ID-Internal:	N/A	<input checked="" type="checkbox"/>
Description of Component:	<i>Diagram that represent the typical relationship between the motor efficiency and power load.</i>	<input checked="" type="checkbox"/>
Unit of Component (if appropriate):	N/A	<input checked="" type="checkbox"/>
Date Component:	N/A	<input checked="" type="checkbox"/>
Source of Component:	<i>Diagram</i>	<input checked="" type="checkbox"/>
Reliability of Source:	N/A	<input checked="" type="checkbox"/>

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Up-to-date?	N/A	<input checked="" type="checkbox"/>
Uncertainty Level:	N/A	<input checked="" type="checkbox"/>
Further Remarks: N/A		<input checked="" type="checkbox"/>

3.6.10. Quantity of black liquor at 100% concentration

PDD	Verified Situation	Conclusion
Others		
ID-PDD:	N/A	<input checked="" type="checkbox"/>
ID-Internal:	N/A	<input checked="" type="checkbox"/>
Description of Component:	<i>On the basis of the data for flow (m³), density and DS content in the black liquor is calculated the black liquor quantity processed in the EP</i>	<input checked="" type="checkbox"/>
Unit of Component (if appropriate):	<i>t</i>	<input checked="" type="checkbox"/>
Date Component:	<i>Daily and in the end of the month is summarized in monthly report</i>	<input checked="" type="checkbox"/>
Source of Component:	<i>The balance is prepared by head/deputy head of department</i>	<input checked="" type="checkbox"/>
Reliability of Source:	<i>The data is reliable</i>	<input checked="" type="checkbox"/>
Up-to-date?	<i>The data is up-to-date</i>	<input checked="" type="checkbox"/>
Uncertainty Level:	N/A	<input checked="" type="checkbox"/>
Further Remarks: N/A		<input checked="" type="checkbox"/>

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4 Data Verification

4.1 Internal Review

Description and performance of internal review			
	Description	Comments	Concl.
Procedure	<i>A comparison of the data entered in the workbook, the monthly reports presented by the head/ deputy head of departments and the data filled in the daily logs. The data check is performed by the Quality Manager and the relevant head/deputy head of department.</i>	These ways of checking are assuring the correctness of data for the previous collections.	<input checked="" type="checkbox"/>
Documentation	<i>Protocol from internal review</i>	no	<input checked="" type="checkbox"/>
Responsibilities	<i>The Project Manager has made the final approval of the Monitoring Report</i>	no	<input checked="" type="checkbox"/>
Further Remarks: N/A			

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4.2 Usage of default values

Description and performance of internal review			
	Description	Comments and Results	Concl.
Procedure	The Svilocell Internal procedure P-04 (IRL 4) describes the way to handle the situations when faulty meter indications are encountered. In this case, default values are used based on a formula described in this procedure for different scenarios.	The default values are computed based on formulas accepted at the time of PDD development.	<input checked="" type="checkbox"/>
Documentation	The faulty operation of the meters is documented based on the Svilocell Internal procedure P-04 ver. 4 (IRL 4).	In these situations, the Procedure P_4 Repair and maintenance of the machinery and equipment of the QMS ISO 9001:2008 and Procedure P_10 Ensuring and control of the technical devices for observation and measurement of the IMS will be used.	<input checked="" type="checkbox"/>
Responsibilities	The Svilocell Management and its subordinate workshops heads are responsible to take actions when such faulty operations of the meters are encountered.	-	<input checked="" type="checkbox"/>
Further Remarks: The data replacement is documented and the final decision is the result of the Plant management meeting.			

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4.3 Reproducibility

Description and performance of the assessment			
	Description	Comments and Results	Concl.
Procedure	The calculations were checked by means of verifying the input data collection and transmission.	The values were found reproducible based on the raw data.	<input checked="" type="checkbox"/>
Further Remarks: As mentioned before, raw data collected are used in calculations and stored by different parties and therefore, the probability of occurrence of mistakes in these processes is highly reduced.			

4.4 Peculiarities

Description of Peculiarities and unexpected Daily Events during the verification period			
	Description	Comments and Results	Concl.
Performance	The plant was running in 2012 without important breakdowns – only 301 hours of downtime.	The plant run in 2012 near the maximum designed capacity only in April, after this month, due to lack of wood, the production decreased until the end of the monitoring period, October.	<input checked="" type="checkbox"/>
Documentation	<i>The production has been checked with the help of SAP and log-books.</i>	The excel calculation workbook is reflecting the plant operating condition, as checked with the documents (IRL 9)	<input checked="" type="checkbox"/>
Measures	N/A		<input checked="" type="checkbox"/>
Further Remarks: The usual performance of the facility is good. The incidents are documented in the daily reports and in the MR.			

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4.5 Reliability and Plausibility

Description of crosschecks and plausibility checks			
	Description	Comments and Results	Concl.
Performance	<p><u>Clarification Request No.1</u></p> <p>Monitoring Report, Table 2, page 8:</p> <ul style="list-style-type: none"> - An explanation of the high values for the ERUs reported for the measures SVP 01 and SVP 02 is requested. The explanation shall consider also the smaller pulp production for 2012. The consideration of the 55,000 MW for SVP 01 and 47,000 MW energy savings as estimated in the registered PDD shall be made also. - A new line consisting of PDD estimations for each measure (SVP 01 to SVP 06) shall be included at the bottom of the Table. The PDD estimates shall be considered for 10 months, the duration of this third monitoring period. - The reason for implementing the measure SVP 03 only in March 2011 is requested. <p><u>Clarification Request No.2</u></p> <p>The pulp production in the year 2011 was 103,277 t and the amount of ERUs was 195,438 t CO₂e.</p> <p>The pulp production for the year 2012 (same period of ten months) was 77,265 t and the amount of ERUs was 173,709 t CO₂e.</p> <p>This is obvious a high increase in ERUs related to the pulp production for the year 2012 compared to the year 2011.</p> <p>An explanation of this inconsistency is requested.</p> <p>A similar analyse ERUs / pulp production for each of the monitor-</p>	<p>The Procedure 3 "Data reliability in case of problems with the measuring instruments" is in place at the Plant. The JI procedures are integrated into the Quality System ISO 9001.</p>	<p>CAR 1</p> <p>CAR 2</p>

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	ing years (2008-2011) is also requested.		
Further Remarks: N/A			

4.6 Completeness and Correctness

Description of completeness and correctness			
	Description	Comments and Results	Concl.
Correctness	<p><i>All data provided is correct. The data is collected by the operators in the control room and then entered by the head of department in electronic workbook. After that they are submitted as monthly reports to the person responsible for workbook filling, however:</i></p> <p><u>Corrective Action Request No.1</u></p> <p>The following corrections are requested:</p> <ol style="list-style-type: none"> 1. MR, page 1, Type of Verification, after Third Periodic Verification, the sentence "under JI Track 1" shall be added 2. MR, page 3, sentence "In August 2010...", shall be mentioned also that the PDD registered is Rev. 2, dated March 2006 3. MR, page 3, "Main factors influencing...", the bullet list shall be linked to the different measures or shall be listed separately 4. MR, page 4, after the "In 2011...first periodic verification", the sentence "under JI Track 1 (in conjunction with with a verification of year 2007 as Pre-JI Project", shall be added 5. Same sentence, the dates for the first on-site and for the second one are the same. Correction is requested. End of the paragraph, "ERUs generated [for this period] are 27% 	<p>The information included in the workbook has been cross-checked with monthly logbooks (IRL 8)</p> <p>All data checked were found to be corrected collected, calculated and stored and further interpreted as for CO2 emission reduction purposes</p>	<p>CAR 1</p> <p>CL 3</p> <p>CL 4</p> <p>CAR 2</p> <p>CAR 3</p>

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	<p>lower". The mention "for this period" shall be included</p> <ol style="list-style-type: none"> 6. Next paragraph, "The total amount of verified emission reduction for 2012.." – but the year is 2011. Correction is requested. Also, at the end of this paragraph, a comparison with the estimated amount of ERUs from PDD shall be included 7. Next paragraph, "All subprojects...were introduced into operation" ["as per PDD" - and the date when started operation] shall be included 8. MR, page 2, Chapter 2. In the bullet list, only the final MR shall be included. Same request for the next paragraph 9. In order to make Table 2, page 8 of the MR, more understandable, a short description of the measures SVP 01 to SVP 06 shall be included in the MR before this Table 10. MR, page 8, "- The BL calorific value...". The sentence shall be revised by including the values baseline/project 11. End of the same paragraph: "...which is relevant to 0.5%". 0.5% of what? The sentence must be revised. 12. MR, page 10, the title "Calculating the ..." shall start on new page. <p><u>Clarification Request No.3</u></p> <ol style="list-style-type: none"> 1. MR, page 5, Graph 1. It shall be clarified if the highest value recorded in April 2012 (10,704.8 t pulp) is in line with the plant set-up as per approved PDD, or something changed in the plant/plants operation? 2. MR, page 6, Graph 2. The value for pulp production in 2010 (92,725 t) shall be explained (the yearly production was 104,861 t). 		
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	<p><u>Clarification Request No.4</u></p> <p>MR, page 11, Table 5. An explanation regarding why the BL calorific value (1,747 kcal/kg) is not fixed and how this value has been calculated is requested.</p> <p><u>Corrective Action Request No.2</u></p> <p>In the workbook, sheet "consolidata", the ERUs calculation is performed for the period 2007-2012, but the monitoring period is 2008-2012 (the values for 2007 are AAUs). Correction is requested.</p> <p><u>Corrective Action Request No.3</u></p> <p>A brief description of the procedures P1 "Documents and records management", P3 "Training awareness and competence" and P11 "Internal audits management" is requested.</p>		
Completeness	<i>All data provided is complete. They are presented in the electronic workbook.</i>	No.	<input checked="" type="checkbox"/>
Further Remarks: No further remarks.			

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5 Additional requirements

Description of additional requirements to be checked			
	Description	Comments and Results	Concl.
e.g. environmental issues	As checked on site, there is an Environmental Permit issued on 29.10.2007 (IRL 13)	The Environmental Permit has no validity period.	<input checked="" type="checkbox"/>
-	-	-	<input checked="" type="checkbox"/>
Further Remarks: -			

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6 Data Reporting

Description of the Monitoring Report		
	Comments and Results	Concl.
Compliance with UNFCCC regulations	All UNFCCC regulations are considered within this project The verification period is from 01.01.2012 – 31.10.2012	<input checked="" type="checkbox"/>
Completeness and Transparency	The data analysed were complete and transparently presented.	<input checked="" type="checkbox"/>
Correctness	All data checked were found to be correctly transferred and interpreted.	<input checked="" type="checkbox"/>
Further Remarks: N/A		

The emission reductions, for each subproject are presented below:

Year	Generated carbon emissions according to Svilocell' Monitoring Report							Emission Reductions according to the PDD
	SVP 01	SVP 02	SVP 03	SVP 04	SVP 05	SVP 06	Total	
	t/CO2e							t/CO2e
2012 (Jan – Oct)	103,995	28,254	331	20,395	819	19,954	173,709	131,932

Corrective Action Request No.4

The baseline value for 2012 (131,932 t/CO2e) is calculated for the whole year 2012. In order to compare the ERUs, it is requested to use the same amount of time baseline/project for the year 2012 (10 months).

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7 Compilation and Resolutions of CARs, CRs and FARs

Corrective Action Requests by audit team	Summary of project owner response	Audit team conclusion
<p><u>Corrective Action Request No.1</u></p> <p>The following corrections are requested:</p> <ol style="list-style-type: none"> MR, page 1, Type of Verification, after Third Periodic Verification, the sentence "under JI Track 1" shall be added MR, page 3, sentence "In August 2010...", shall be mentioned also that the PDD registered is Rev. 2, dated March 2006 MR, page 3, "Main factors influencing...", the bullet list shall be linked to the different measures or shall be listed separately MR, page 4, after the "In 2011...first periodic verification", the sentence "under JI Track 1 (in conjunction with a verification of year 2007 as Pre-JI Project", shall be added Same sentence, the dates for the first on-site and for the second one are the same. Correction is requested. End of the paragraph, "ERUs generated [for this period] are 27% lower". The mention "for this period" shall be included Next paragraph, "The total amount of verified emission reduction for 2012.." – 	<p>Monitoring report rev.2 dated December 5th, 2012 is corrected as per the comments in CAR No 1.</p>	<p>The new MR, rev. 2 (IRL 1) has been checked and it can be confirmed that:</p> <ol style="list-style-type: none"> The sentence "under JI Track 1" has been added on page 1 The mention "Rev. 2 dated March 2006" has been added on page 3 The bullet list on page 3 is linked to the separate measures The sentence "under JI Track 1 (in conjunction with a verification of year 2007 as Pre-JI Project", has been added after "In 2011..." The dates have been corrected and the mention "for this period" has been added at page 5 Correction (year 2011) and the comparison with the baseline is done at page 4 In the next paragraph the statement "as per PDD" has been added and the commissioning date included In the bullet list, only the final MR is quoted (MR, chapter 2) A short description of the measures has been added at page 8 of the MR, before Table 2

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<p>but the year is 2011. Correction is requested. Also, at the end of this paragraph, a comparison with the estimated amount of ERUs from PDD shall be included</p> <p>7. Next paragraph, "All subprojects...were introduced into operation" ["as per PDD" - and the date when started operation] shall be included</p> <p>8. MR, page 2, Chapter 2. In the bullet list, only the final MR shall be included. Same request for the next paragraph</p> <p>9. In order to make Table 2, page 8 of the MR, more understandable, a short description of the measures SVP 01 to SVP 06 shall be included in the MR before this Table</p> <p>10. MR, page 8, "- The BL calorific value...". The sentence shall be revised by including the values baseline/project</p> <p>11. End of the same paragraph: "...which is relevant to 0.5%". 0.5% of what? The sentence must be revised.</p> <p>12. MR, page 10, the title "Calculating the ..." shall start on new page.</p>		<p>10. The BL calorific values baseline/project have been inserted at page 8</p> <p>11. Correction of the sentence "...0.5% " has been done at the end of the paragraph of the page 8</p> <p>12. The title "Calculating..." is correctly included in the page 11 of the MR.</p> <p>These issues are closed.</p>
<p><u>Corrective Action Request No.2</u></p> <p>In the workbook, sheet "consolidata", the ERUs calculation is performed for the period 2007-2012, but the monitoring period is 2008-</p>	<p>The sheet "consolidata" is corrected in the workbook rev.3. The period is changed to 2008 – 2012.</p> <p>The workbook is attached.</p>	<p>The clear distinction AAUs and ERUs is made in the sheet "Consolidata" as checked in the workbook rev. 3 dated 05/12/2012 (IRL 9).</p>

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<p>2012 (the values for 2007 are AAUs). Correction is requested.</p>		<p>This issue is closed.</p>
<p><u>Corrective Action Request No.3</u></p> <p>A brief description of the procedures P1 "Documents and records management", P3 "Training awareness and competence" and P11 "Internal audits management" is requested.</p>	<p>A brief description of the procedures is presented below:</p> <p><u>P 1 DOCUMENTS AND RECORDS MANAGEMENT</u></p> <p>The aim is to define procedures, responsibilities and authority for creating, approving, amending, seizure, archiving and destruction of documents and records of the organization necessary for the effective functioning of the integrated management system for quality, environment, health and safety at work.</p> <p>The procedure provides valid and current editions of documents and records of all the places where the activities are implemented.</p> <p><u>P 3 TRAINING AWARENESS AND COMPETENCE</u></p> <p>Determines the order, authority and responsibility for managing and ensuring the competence and training of staff to carry out activities related to the production of kraft pulp, environment and protect the health and safety at work.</p> <p><u>P 11 INTERNAL AUDITS MANAGEMENT</u></p>	<p>The description provided is considered satisfactory by the TÜV SÜD assessment team.</p> <p>This issue is closed.</p>

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	Determines the order and responsibility for planning, conducting and documenting the results of internal audits of the integrated management quality system, environment and health and safety at work.	
<p><u>Corrective Action Request No.4</u></p> <p>The baseline value for 2012 (131,932 t/CO₂e) is calculated for the whole year 2012. In order to compare the ERUs, it is requested to use the same amount of time baseline/project for the year 2012 (10 months).</p>	<p>Calculations in the PDD are made on the basis of 8040 working hours for 1 year, which is relevant to 11 working months. Within the period May – October 2012, Svilocell has difficulties with wood supplies. This led to interruptions of production process and decreased production volumes. Meanwhile the days without production were used for maintenance activities. As a result in 2012 annual overhaul of the mill is not envisaged.</p> <p>Taking into account the calculations it was ascertained that compared to the baseline calculations for 2012, emission reductions are 44.8% higher.</p>	<p>As checked in the registered PDD, page 68, (IRL 1), the calculations are made based on 8040 hours (11 months).</p> <p><u>The ERU's calculation is made on the same amount of operating hours 5,484 (baseline and monitoring period 3) see worksheet "EEM01", cells P14 and P51, and the same BL flow rate (33.6 t/h) – cells P12 and P49 (IRL 9), so a comparison based on operating months is not relevant.</u></p> <p><u>This is also the reason for the impossibility to assess a specific emission factor ERU/t pulp and to compare the ERUs values project(s) – baseline.</u></p> <p>In conclusion, the value used as baseline estimation (131,932 t/CO₂e) can be used for comparison for the monitoring period 3.</p> <p>The value of 44.8% is also confirmed.</p> <p>This issue is closed.</p>

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Clarification Requests by audit team	Summary of project owner response	Audit team conclusion
<p><u>Clarification Request No.1</u></p> <p>Monitoring Report, Table 2, page 8:</p> <ul style="list-style-type: none"> - An explanation of the high values for the ERUs reported for the measures SVP 01 and SVP 02 is requested. The explanation shall consider also the smaller pulp production for 2012. The consideration of the 55,000 MW for SVP 01 and 47,000 MW energy savings as estimated in the registered PDD shall be made also. - A new line consisting of PDD estimations for each measure (SVP 01 to SVP 06) shall be included at the bottom of the Table. The PDD estimates shall be considered for 10 months, the duration of this third monitoring period. - The reason for implementing the measure SVP 04 only in March 2011 is requested. 	<p>1. The main parameters that have a great impact on the energy savings and the increased amount of ERUs are as follows:</p> <ul style="list-style-type: none"> - BL flow rate - BL calorific value - BL concentration - Power Plant (PP) efficiency <p>Only one of the above mentioned parameters, i.e. BL flow rate, is influenced by the Production volume. The rest of the parameters are not directly related to the pulp production volume.</p> <p>For the parameters BL calorific value and PP efficiency a significant change compared to the values stated in the PDD is reported.</p> <p>The increased calorific value of the BL is in direct relation by the current concentration and the proportion between the organic and mineral part. From the other side the content of the organic part is in direct relation of the wood species used in the pulp production as well as the regions the wood is supplied from. Taking into account that we are using mix of about 5 wood species, their proportion defines the different chemical content of the organic part. For calculation of the ERUs in 2012 was used a protocol for thick black liquor analysis issued by the accredited laboratory to the Pulp and Paper Institute. Compared to the initially stated BL calorific value in the PDD</p>	<p>1. The explanation provided is considered satisfactory by the verification team. See also the conclusion of the CAR # 4 above.</p> <p>2. New line is added to table 2 in the MR rev. 2 (IRL 1) with the PDD estimations for each measure (SVP 01 to SVP 06) for a period of 10 months. As already explained in the conclusion of the CAR #1 above, baseline has been calculated for 8040 hours (11 months) hence the correction to 10 months is done by multiplication with 10/11.</p> <p>3. The explanation is considered clear.</p> <p>These issues are closed.</p>

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	<p>the measured one in 2012 is 44% higher.</p> <p>Concerning the data presented by the Power Plant – for ERUs calculation was used data officially submitted by the Power Plant, which is an independent company. Compared to the previous year (2011) PP efficiency is decreased approximately with 7%, which leads to the significant increase in the ERUs.</p> <p>The increase in SVP 01 is more visible due to the fact this measure is strongly depending on the above mentioned factors. The ERUs generated from SVP 02 are within the estimations.</p> <p>2. New line is added to table 2 in the MR rev. 2 with the PDD estimations for each measure (SVP 01 to SVP 06) for a period of 10 months.</p> <p>3. The reasons for the delayed implementation of SVP 04 is mainly due to the company hired for the installation activities of the turbine. Long time the company could not find the proper solution for the mistakes occurred. Only in the beginning of 2011 another company was hired to eliminate the technical problem.</p>	
<p><u>Clarification Request No.2</u></p> <p>The pulp production in the year 2011 was 103,277 t and the amount of ERUs was 195,438 t CO₂e.</p> <p>The pulp production for the year 2012 (same period of ten months) was 77,265 t and the amount of ERUs was 173,709 t CO₂e.</p> <p>This is obvious a high increase in ERUs re-</p>	<p>Explanations given in CL No 1 refer to CL No 2 as well.</p> <p>Below is presented a table concerning the pulp production for each year as well as the ERUs generated:</p>	<p>As already explained in CAR #4, there is no possible to create an emission factor based on production. The differences between BL calorific values and the efficiencies of the Power Plant in different years create the difference in the ERUs.</p>

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lated to the pulp production for the year 2012 compared to the year 2011. An explanation of this inconsistency is requested. A similar analyse ERUs / pulp production for each of the monitoring years (2008-2011) is also requested.	<table><tr><td>year</td><td>2008</td><td>2009</td><td>2010</td><td>2011</td></tr><tr><td>Pulp</td><td>72508,575</td><td>10706,712</td><td>104861,296</td><td>103277,319</td></tr><tr><td>ERUs</td><td>115121</td><td>19493</td><td>168305</td><td>195438</td></tr></table>	year	2008	2009	2010	2011	Pulp	72508,575	10706,712	104861,296	103277,319	ERUs	115121	19493	168305	195438	This issue is closed.
year	2008	2009	2010	2011													
Pulp	72508,575	10706,712	104861,296	103277,319													
ERUs	115121	19493	168305	195438													
<p><u>Clarification Request No.3</u></p> <p>1 MR, page 5, Graph 1. It shall be clarified if the highest value recorded in April 2012 (10,704.8 t pulp) is in line with the plant set-up as per approved PDD, or something changed in the plant/plants operation?</p> <p>2. MR, page 6, Graph 2. The value for pulp production in 2010 (92,725 t) shall be explained (the yearly production was 104,861 t).</p>	<p>1. No other additional measures were implemented in the mill for capacity increase or improvement of the operation, besides the described in the approved PDD. Each month 2 days are envisaged for planned maintenance of the mill and in April the maintenance was only one day, as a result of which the production in April is 10,704.8 t.</p> <p>2. The graph compares the period January – October for the mentioned 3 years, i.e. 2010, 2011 and 2012. Due to that reason there is a difference in the annual pulp production for 2010 which is 104 861 t and the pulp production within the period January - October, i.e. 92 725 t.</p>	<p>1. The explanation is acceptable. Moreover, the annual mill capacity is 120,000 t pulp, which divided by 11 (months – 8040 operating hours) give the value of 10,909 t pulp/month.</p> <p>2. The explanation is clear.</p> <p>These issues are closed.</p>															
<p><u>Clarification Request No.4</u></p> <p>MR, page 11, Table 5. An explanation regarding why the BL calorific value (1,747 kcal/kg) is not fixed and how this value has been calculated is requested.</p>	<p>When calculating the baseline, calorific value of the BL at 60% DS was used. The calorific value was analyzed and stated to be 1747 kcal/kg.</p>	<p>The value of 1747 kcal/kg has been assessed during the Determination of the Project.</p> <p>This issue is closed.</p>															




Annex 2


Information Reference List

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Ref. No.	Author/Editor / Issuer	Title/Type of Document. Publication place
1	Svilocell Co. / MWH S.p.A. / TÜV SÜD	Monitoring Report, Project Design Documents, Previous Verification Reports <ul style="list-style-type: none"> - Monitoring Report rev.1, dated 12-11-2012 as GSP version - PDD registered http://ji.unfccc.int/JIITLProject/DB/6TAC33R0IOWO4RA3G0TAURAM11YKRZ/details - Determination Report No. 763718, rev. 01, issued by TÜV SÜD, dated 03.05.2006 - Monitoring Report Version 2, dated 05.12.2012
2	UNFCCC	References and requirements at UNFCCC <ul style="list-style-type: none"> - AM0018 "Baseline Methodology for Steam Optimization Systems" as applied to PDD - http://cdm.unfccc.int/methodologies/DB/36U8LSOVDRCZP0ZGIZHJWP8X11PULF - AM0024 "Baseline Methodology for GHGs reduction through waste heat recovery and utilization for power generation at cement plants - http://cdm.unfccc.int/methodologies/DB/DA1JDZNF65WCPZMC15J9O1KJ0SC9C - Guidelines for completing the monitoring report form, version 01 (Annex 34, EB54) http://cdm.unfccc.int/Reference/Guidclarif/iss/iss_guid06_v01.pdf - CDM Glossary version 05 (EB47) http://cdm.unfccc.int/Reference/glossary.html - CDM Validation and Verification Manual, version 01.2(EB55) http://cdm.unfccc.int/Reference/Manuals/index.html
3	N/A	Audit participants On-site and on-line interviews conducted on 14-15 November 2012 by TÜV SÜD Verification team: Mr Robert Mitterwallner GHG Auditor TÜV SÜD, Munich Mr Constantin Zaharia GHG Auditor TÜV SÜD, Romania Interviewed persons: Mr. Dimitar Dimitrov – Energy Efficiency Manager Mr. Plamen Petrov – Production Manager Mrs. Diana Ganeva – Head of Energy Projects Mr. Miroslav Marinov – Deputy head of Maintenance department Mr. Georgi Lichkov – Svilocell EAD Ms. Stela Tabakova – Ecologist Ms. Bilyana Borisova – Project Coordinator

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Ref. No.	Author/Editor / Issuer	Title/Type of Document. Publication place
4	Svilocell Co.	<u>Monitoring Structure, QA/QC</u> <ul style="list-style-type: none"> - JI Manual, Management Document of Pulp Production including the organizational structure, responsibilities, trouble shooting procedures, the list of monitoring equipment - Registered PDD dated March 2006 -
5	Svilocell Co.	<u>Various</u> <ul style="list-style-type: none"> - Data flow diagram - SVP-i - rev.2 en (updated flow diagrams for the Project components SVPi, with metering system included)
6	Svilocell Co.	<u>Calibration</u> <p>All previous calibration certificates are still valid for this period. See IRL for the second periodic, except:</p> <ul style="list-style-type: none"> - scale calibration certificate with the last calibration performed in May 2012 ("Scale calibration.pdf") - Mass flow meter for SVP 1 (11-FIC-418) (<i>SVP_01 Calibration protocol.pdf and SVP_01_calibration certificate Rotamass.pdf</i>) - <i>SVP_02 Calibration protocol.pdf – calibration of thermometers and areometers for SVP 02</i> <p>Internal calibration for thermometers and areometers:</p> <ul style="list-style-type: none"> - Protocol internal check 2011.pdf - Protocol internal check 2012.pdf - "zapoved A-441_13.10.2011": all instruments subject to state calibration as well as the required frequency of calibration . Official document issued by The State Agency for Metrological and Technical Surveillance (SAMTS) (http://www.damtn.government.bg) <p>According to the order the frequency of the flow meters calibration was changed. It is now 3 years.</p>

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Ref. No.	Author/Editor / Issuer	Title/Type of Document. Publication place
7	various	<u>External Calibration</u> - N/A
8	Svilocell Co.	<u>Data Measured and Recorded</u> Monthly logbooks : - SVP 01: June and Oct. (SRK_ 6-2012.xls and SVP01 SRK_ 10-2012.xls) - SVP 02: August (SRK_ 8-2012.xls) - SVP 04: May and "SVP_05 monthly_data_2012.xls" - SVP 05: September (SRK_ 9-2012.xls) and January-October (SVP_05_monthly_data_2012.xls) - SVP 06: July, October (SVP_06_July_2012 Drying_dewatering&packaging.xlsx), (SVP-06 Sebestoinost_OSO-10-2012.xls) - Energy protocol_042012.pdf - Energy protocol_052012.pdf -
9	Svilocell Co.	<u>Calculation Spreadsheet</u> - Svilocell workbook 2012, dated 02.11.2012 - Svilocell workbook 2012 rev.3.xlsx, date 05.12.2012
10	various	<u>Other External Data, Records</u> - Google Earth Map in which GPS Coordinates are indicated - "Power_Plant_Report_2012.pdf" - Efficiency of steam generation from Power Plant, Coal CO ₂ emission factor / MW ("Spravka_TEC_Jan_Oct_2012.pdf") - Print_screens_SVP_01_04_06.JPG, dated 15/11/12.
11	Svilocell Co.	<u>Cross check</u> Monthly logbooks for May, June, July, September and October and daily logbooks for 8 June and 14 October (SVP 1), 12

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Ref. No.	Author/Editor / Issuer	Title/Type of Document. Publication place
		<p>August (SVP 2), 10 May (SVP 4), 18 September (SVP 05) 1 July and 13 October (SVP 06) (SVP06_13102012_daily log.pdf). Folder daily "logs"</p> <p>Pulp production: "reports_SVP_06_2012", "0101-30092012_sheet pulp.xlsx", SVP-06 Sebestoinost_OSO-10-2012.xls and "Pulp production-accounting report.pdf"</p>
12		<p><u>Statistical Survey, Sampling</u></p> <ul style="list-style-type: none"> - Analyses performed by Pulp and Paper Institute for 2012: "Protokol 26.03.2012.PDF"
13	various	<p><u>Environment, Legislative Conformance</u></p> <ul style="list-style-type: none"> - IPPC Permit - Complex permit KR-175H1-2007 ("Complex permit KR-175H1-2007.pdf"), without validity period - LoA, dated 01 November 2006 Bulgaria ("Letter of Approval.pdf") - LoA, dated 17 October 2006 Netherlands ("Letter of Approval.pdf") - Operating Permit – "registration certificate.pdf" No. 113747, dated 28.03.2011
14	various	<p><u>QA/QC in general</u></p> <ul style="list-style-type: none"> - ISO9001:2008 issued by UKAS, of which the validity is stated until November 2012 - Certifikat_ISO14001_en.pdf