



Voluntary Carbon Standard 2007.1

Validation Report

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TÜV NORD CERT GmbH	2009-11-19
Report Title:	Approved by:
Chemical Recovery project at Satia Industries Ltd. (SIL), formerly known as Satia Paper Mills Limited village Rupana, Punjab.	Rainer Winter
Client:	Project Title:
Satia Industries Limited.	Chemical Recovery project at Satia Industries Ltd. (SIL), formerly known as Satia Paper Mills Limited village Rupana, Punjab.

Summary:

M/s Satia Industries Limited. has commissioned the TÜV NORD JI/CDM Certification Program to validate (along with 1st verification) the project: “Chemical Recovery project at Satia Industries Ltd. (SIL), formerly known as Satia Paper Mills Limited village Rupana, Punjab”, with regard to the relevant requirements of the VCS Guidelines/ VCSA Rules for project activities, as well as criteria for consistent project operations, monitoring and reporting.

The purpose of this project activity is to recover Soda and utilize the same in the industry and compensate the soda purchase from the open market in the baseline. This project activity also resulted in recycling of white liquor used in the paper industry.

- AMS III.M /Version 02: “Reduction in Consumption of Electricity by Recovering Soda from Paper Manufacturing Process.”
- There are no restrictions or uncertainties faced related to the validation of the project.
- A risk-based approach has been followed to perform this validation. In the course of the validation, eight (08) Corrective Action Requests (CARs) and two (02) Clarification Requests (CLs) were raised and successfully closed. One forward action request (FAR) has also been raised for checking the electricity meter and consumption of the same during the next verifications.
- The calculation of the emission reductions is carried out in a transparent and conservative manner. The project will achieve the 219020 tCO₂ till end of 1st ten years (renewable) crediting period i.e. 21902 tCO₂e per year.

Work carried out by:

Mr. Pankaj Patel
Mr. Archak Pattanaik
Mr. Pankaj Mohan
Mr. Prakash Kumar Mishra
Ms. Arshi Vimal

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1 Introduction

1.1 Objective

The purpose of this validation (along with 1st verification) is to have an independent third party assessment of the project design, in particular, the project's baseline, the additionality, the monitoring plan (MP) and the project's compliance with

- The requirements of VCS 2007.1 program guidelines;
- Requirements of the CDM Approved methodology which is adopted by VCSA;
- To assess the project's compliance with other relevant rules, including the project country (India) legislation; and
- Other relevant rules, of VCS sustainability criteria are validated in order to confirm that the project design as documented is sound and reasonable and meet the stated requirements and identified criteria. Validation is seen as necessary to provide assurance to stakeholders on the quality of the project and its intended generation of Verified emission reductions (VERs/VCUs¹) without any double counting.

1.2 Scope and Criteria

The validation scope is given as an independent and objective review of the project design, the project's baseline study and monitoring plan (based on AMS III.M /Version 02: (“Reduction in Consumption of Electricity by Recovering Soda from Paper Manufacturing Process.”) which are included in the VCS-PD and other relevant supporting documents.

The items covered in the validation are described below:

- VCS 2007.1 and Project Country Criteria
 - To meet the requirements of VCS 2007.1 guidelines requirements, in particular,
 - Project country requirements / criteria
- VCS Project Description
 - Project design

¹ As per VCS, Verified Emission Reductions (VERs) are considered to be VCUs only after successful registration in an approved VCU Registry

- Project boundaries and Predicted VCS project GHG emissions
- Project Baseline
 - Baseline methodology
 - Baseline GHG emissions
- Monitoring Plan
 - Monitoring methodology
 - Indicators/data to be monitored and reported
 - Responsibilities
- Project Additionality
- Background investigation and follow up interviews
- Draft validation reporting with CARs, CLs & FARs, if any
- Final validation reporting.

The information included in the PD and the supporting documents were reviewed against the requirements and criteria mentioned above. The TÜV NORD CERT GmbH JI/CDM CP has employed a risk-based approach in the validation, focusing on the identification of significant risks for project implementation and the generation of VERs. The validation is based on the information made available to TÜV NORD JI/CDM CP and on the contract conditions.

The validation is not meant to provide any consulting to the project participant. However, stated requests for clarifications and/or corrective actions may provide input for improvement of the project design.

1.3 VCS project Description

Baseline Emissions:

During the Chemical Recovery project at Satia Industries Ltd. (SIL) The NEWNE grid emission factor (CEA Database) has been taken into consideration for the baseline emissions as the NEWNE grid is the supplier of electricity for the caustic soda manufacturers.

In the absence of the project activity, the electricity consumed for recovering the caustic soda would have been otherwise consumed by soda manufacturer from the fossil fuel based power plants connected to the northern

regional grid, which is the part of NEWNE grid and will be resulting in GHG emissions.

Chemical Recovery Project Description:

SIL is one of the leading integrated paper manufacturing unit in Punjab with daily production of 130 Tons per day (TPD) of paper. SIL, being an environmentally concerned organization has always been on the look out for protecting the environment from degradation. Thus the proponent commissioned a chemical recovery plant in SIL's plant premises at Muktsar, Punjab with the ultimate objective to reduce the GHG emissions in the atmosphere.

The purpose of the project activity is to recover the caustic soda from waste black liquor generated at the pulping stage of the paper manufacturing process. Since the electricity consumption for the process of recovery of 1 tonne of soda is much lesser than that consumed in the production of fresh stock of soda.

The project would help curb the GHG emissions into the atmosphere. The electricity consumed in the project activity is generated from in house rice husk based biomass power plant installed in the premises. This biomass power plant does not come under the project although the only electricity which is being used to recover caustic soda is used from this rice husk based in house power plant of the same PP. This was checked during the site visit by the validation team and found to be satisfactory.

1.4 Level of assurance

The validation report is based on VCS PD^{/PD1//PD2/}, supporting documents made available to the validation team and information collected through performing interviews and during the on-site assessment. The validation opinion is assured provided the credibility of all above.

2 Methodology

2.1 Review of Document

The draft PD^{/PD1/} submitted by the M/s Satia Industries Limited, in 21 July 2009 and supporting background documents related to the project design and baseline were reviewed on 21/07/2009. Furthermore, the validation team

used additional documentation by third parties like project country legislation, technical reports referring to the project design or to the basic conditions and technical data.

The documents that were considered during the validation process are given in annex 2 of this report. They are listed as follows:

- Documents provided by the project proponent (Table 5-1)
- Background investigation and assessment documents (Table 5-2)
- Websites used (Table 5-3).

2.2 Follow-up Interviews

On 26, 27, 28th July 2009, the TÜV NORD JI/CDM CP performed validation visit with the project proponent at Satia Industries Ltd. (SIL), formerly known as Satia Paper Mills Limited village Rupana, Punjab.

During this visit, as well as earlier and after, interviews with the project proponent, the consultant, project stakeholders and with local authorities were carried out to confirm selected information and to resolve issues identified in the document review.

The key interviewees are mentioned in Table 5-4.

2.3 Resolution of any material discrepancy

A few discrepancies were found during the course of validation and the validation report containing a set of CARs and CLs were submitted to the project proponent. The project design document was revised addressing the CARs and CLs issued by TÜV NORD JI/CDM CP.

3 Validation Findings

The findings of validation are summarised in table 3-1:

Table 3-1: Summary of CAR, FAR and CL issued

Validation topic (Cp VCS Validation Report Template)	No. of CAR	No. of FAR	No. of CL
D- Project Design	02	–	02
B- Baseline and additionality	03	–	–
M- Monitoring plan	02	01	–
C- Calculation of GHG emissions	01	–	–
E- Environmental Impact	–	–	–
L- Local Stakeholder Comments	–	–	–
SUM	08	01	02

For an in depth analysis/evaluation of all CARs and CLs can be referred to the below sections from 3.1 to 3.6.

3.1 Project Design

The conclusions are as follows:

- The technology used: This project category comprises of technology/measures for recovering caustic soda from waste black liquor generated in paper manufacturing. Production of caustic soda in traditional soda manufacturing processes requires more energy in comparison to recovery of equivalent amount of caustic soda.
- Project duration: 25 years (= operational life time)
- Crediting time :10 years
- Project start date :02/03/2006

Project boundary:

Project boundary includes the Chemical recovery plant as a whole which includes waste liquor processing, caustic soda procurement site and rice husk based electricity generation power plant from where the electricity is being used for soda

recovery. The same has been delineated in the Project design which was cross checked during the site visit and subsequent interviews.

- Ownership
 - Proof of title: The proof of title is considered by following evidence: Evidence of proof of title /ownership (Cp section 8.1 of the VCS-PD template) for actual project^{/PT/} owner “Chemical Recovery project at Satia Industries Ltd. (SIL), formerly known as Satia Paper Mills Limited village Rupana, Punjab.”
 - Host Country Approval Letter.
- The project is not participated and intends to participate in another emission trading program. Hence no double counting applies for this project.
- This project is not rejected under other GHG programme.
- The project is eligible under the VCS 2007.1 standard.

Nevertheless following CAR D1, D2 and CL D1, D2 are raised.

	CAR D1			
Classification	☒ CAR	☐ FAR	☐ CL	☐ None
Findings	In the section 1.4 of the VCS PD, the production is mentioned in the range of 130-150 tons per day, Please justify with evidences. Section 1.6 mentions start date of crediting period as 28th March 2006 but the document provided says 2nd March 2006. This is not in line with VCS guidelines. Please Justify. In section 1.7 of PD please provide justification for kWh/ton with the documentary evidences for the same. In the section 1.8 of the VCS PD, the unit of electricity consumption is not in standard format (MWh), which may need a revision in unit used.			

	CAR D1
Corrective Action # 1	The evidence for plant capacity has been provided to the DOE. The date provided in the document 2nd March 2006 is the actual commissioning date of the plant. However the crediting period starts from 28th March 2006 which is in lines with the earliest Project Crediting Period Start Date under the VCS 2007.1 for non-AFOLU projects. The revised undertaking mentioning the correct VCS crediting start date (28th March 2006) is submitted to DOE. The supporting of the kWh/ton valued mentioned in section 1.7 is the sector report of chemical industry link to which is provided as footnote 1 in VCS PD. The same is submitted to DOE. The unit of electricity consumption in section 1.8 is taken to be kWh which is the standard unit which has been consistently used in the entire PD.
DOE Assessment # 1	The document ^{/TS/} which clearly specify the plant capacity i. e. the soda recovery per day has been submitted by the PP dated 14th April 2006 to the validation team. The same was checked and found to be satisfactory. Hence accepted by the validation team. The undertaking for the crediting period start date submitted by the PP has been checked by the Validation team and found to be appropriate. The complete PD is checked by the DOE and found that the necessary corrections has been done and kWh which is the standard unit, has been consistently used through out the PD.

	CAR D1
Conclusion	☐ To be checked during the first periodic verification ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Appropriate was action not taken ☒ The project complies with the requirements

	CAR D2
Classification	☒ CAR ☐ FAR ☐ CL ☐ None
Findings	In the section 1.9 of the VCS PD, expected level of activity by the project is not appropriately described. It should clearly explained the total amount of soda recovered and hence the net GHG emission reductions.
Corrective Action # 1	The required data i.e. expected level of soda recovered and the net GHG emissions reduction has been mentioned in the section 1.9 of the revised PD as required.
DOE Assessment # 1	Expected level of activity by the project is appropriately described in the section 1.9 of the VCS PD ^{/PD2/} . Total amount of soda recovered and hence the net amount of GHGs emission reductions has also been clearly described ^{/PD2, xls2/} . The same has been checked and found to be satisfactory by the validation team.
Conclusion	☐ To be checked during the first periodic verification ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Appropriate was action not taken ☐ The project complies with the requirements

	CL D1
Classification	☐ CAR ☐ FAR ☒ CL ☐ None
Findings	In the section 2.2 of the VCS PD, in the first justification of methodological applicability condition, Clarification is required for type of waste liquor, design specification of caustic soda recovery.
Corrective Action # 1	The details of design specification and type of waste liquor have been included in the justification provided for the applicability condition.
DOE Assessment # 1	The necessary changes have been done to make the first justification of methodological applicability condition clear.
Conclusion	☐ To be checked during the first periodic verification ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Appropriate was action not taken ☒ The project complies with the requirements

	CL D2
Classification	☐ CAR ☐ FAR ☒ CL ☐ None
Findings	In the section 2.3 of the VCS PD, it has been mentioned that there is no sources sink and reservoirs for the project. But at the end of the same section CO2 has been mentioned as main source. Please clarify the same. Also this section is lacking in clarity on energy consumption.
Corrective Action # 1	It has been clearly delineated that the project activity has no sink or reservoirs associated with it and the reasons clearly explained. However the main source of CO2 being mentioned subsequently is from the energy consumption supplied by the carbon intensive grid in the Baseline scenario and not the project scenario.

	CL D2
DOE Assessment # 1	The section 2.3 of VCS PD \PD2\ was checked and found that the justification provided for the baseline as per AMS III M has been incorporated in the revised PD\PD4\ and this is found to be satisfactory. Hence accepted by validation team and CL is closed.
Conclusion	☐ To be checked during the first periodic verification ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Appropriate was action not taken ☐ The project complies with the requirements

3.2 Baseline

The conclusions are as follows:

- The applied baseline methodology is AMS III.M., Version02 “Reduction in Consumption of Electricity by Recovering Soda from Paper Manufacturing Process.”
- The methodology AMS III.M version 02 is correctly applied. The justifications on applicability conditions presented in the section 2.2 of VCS-PD are appropriate. Although a CAR/^{CARB1} had been raised on the applicability condition and successfully closed.
- There is no deviation or adjustments of applicable methodology.
- The project activity involves the recovery of caustic soda from waste black liquor generated in paper manufacturing unit. Production of caustic soda in traditional soda manufacturing processes requires more energy in comparison to recovery of equivalent amount of caustic soda hence the reduction of the additional GHGs from the environment.
- The project correctly applies the approved CDM small-scale methodology AMS-III.M, version 02 for Reduction in Consumption of Electricity by Recovering Soda from Paper Manufacturing Process. The project is within the eligibility requirements of the baseline methodology since the estimated emission reductions from the project activity is

219020 tCO₂ till end of 1st ten years (renewable) crediting period i.e. 21902 tCO₂e per year which is less than the stipulated 60 ktCO₂e/yr limit of the methodology (para 2). The baseline for the project activity is selected as per para 7 of AMS III M/Version 02 which is, “in the absence of project activity caustic soda would be purchased from in country facilities or imported from a producing facility located in a Non Annex 1 country”.

Baseline determination for chemical recovery system (in accordance with AMS.III.M.):

Recovery of caustic soda from waste black liquor generated in paper manufacturing consumes less energy in comparison to traditional soda manufacturing. Moreover, the project activity is not mandated by any law, and it has been confirmed that the soda recovery system was in compliance with the existing environmental regulations prior to implementation of the activity. SIL also regularly submit the waste air/water pollution control statements to state pollution control board. Thus, in the baseline scenario, the meeting of the chemical requirements would have been done from the purchase of the same from the market.

The emission reductions are calculated in accordance with para 14 of AMS III.M. Version 02.

Altogether the project activity reduces emissions of 2, 09,630 tCO₂e over the ten year fixed crediting period.

Nevertheless, CAR B1 was raised and successfully closed.

	CAR B1			
Classification	☒ CAR	☐ FAR	☐ CL	☐ None
Findings	In the section 2.4 of VCS PD the baseline determination justification is not clarifying the discussions on barriers and prevailing practice for plausible baseline scenario.			

	CAR B1
Corrective Action # 1	The justification provided in section 2.4 of the VCS PD for baseline determination pertains to the technical and investment barriers clearly stated in Section 2.5, these are also mentioned in section 2.4 of the revised PD. Also it is in line with the common practice analysis where it is established that the common practice is not caustic soda recovery but procurement of caustic from local suppliers using high energy intensive soda manufacturing processes.
DOE Assessment # 1	The justification provided and the revised PD is clarifying the determination of baseline scenario clearly. This has been checked and found to be inline with the methodological requirements, hence DOE accepted the same and CARB1 was closed.
Conclusion	☐ To be checked during the first periodic verification ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Appropriate was action not taken ☒ The project complies with the requirements

Demonstration and Assessment of additionality:

The additionality was demonstrated in PD acc. to § 2.5, Test 1 (the Project Test) of the VCS 2007.1 specification^{/VCS/}.

Under step 1 of the project test it has been assured that the project proponent does not undertake to meet any national or local regulatory requirements.

Under step 2 (implementation barrier), technical barrier and investment barrier has been chosen to argue additionality. As far as technical barrier is concerned this CRP severely affected by the silica content of the raw material used and needs regular maintenance. The same has been checked by the literature on the internet <http://www.siloxo.com/WheatStraw.htm>. This was also cross checked from the literature provided during the site visit. This was also verified from the log book data of outages (Breakdown report).

Investment barrier has been justified by comparing the market cost for soda purchasing with Chemical recovery plant (CRP). This was found that market cost is cheaper than CRP. This was checked from the spreadsheet of levelized cost. The parameters used for analysis like Electricity cost, FO cost, Lime cost, administrative expenses including salaries, Maintenance cost etc were checked from the electricity bills, FO purchase bills, Lime purchase bills, Monthly salary slips, Operation and Maintenance contract^{/ADD/}. Also the loans of the PP were rejected by the Bank. The documents were obtained and checked by the validation team. These were found to be appropriate.

DOE has done thorough check of technical barrier and investment barrier during the site visit and also checked relevant links provided by the project participant. The information's authenticity was also checked by DOE by telephonically interviewing the bank personnel on loan rejection letters and concluded that the provided arguments are appropriate and acceptable.

Step 3, common practice analysis has been found to be in line with chapter 7 of guidance on GHG protocol for project accounting. The demonstration of common practice has been found to be acceptable. It can be assured that the project is not a common practice in Punjab.

The individual arguments presented in the PD (section 2.5) to justify the additionality were summarised in table 3-2. This table also includes the assessment of the validation team.

Table 3-2: Additionality assessment

Step # / Barrier	Demonstration	Assessment
(1)Regulatory surplus	Project is not implemented to meet any applicable local and national regulatory requirements.	☐ Argument not justified ☐ Argument not convincing ☐ Argument justified but not a decisive barrier ☒ Argument justified / significant barrier
(2)Implementation barriers Technical Barrier	High content of silica in raw material and thus in black liquor, results in frequent scaling of evaporator, and boiler. It also leads to higher moisture content in sludge generating in causticizing plant which can create sludge handling problems due to its bulky volume. High content of chloride in raw material and thus in black liquor results in scaling problems in evaporator and boiler. It causes problems in smelt flow in recovery boiler and poor causticizing in causticizing plant. Black liquor of agro based pulp mill is highly viscous in nature which causes poor fluidity at high	☐ Argument not justified ☐ Argument not convincing ☒ Argument justified but not a decisive barrier ☒ Argument justified/ significant barrier

Step # / Barrier	Demonstration	Assessment
	concentrations. Due to this, high concentration from evaporator can not be achieved; high concentration of black liquor causes frequent choking of flow pipes. This was checked from UNEP report as well. So enables to alleviate technical viability of the project.	
Investment Barrier	The validation team can assure that the project faces investment barrier as well. This was checked from the first loan application dated 6th November 2003 and subsequent rejection by the Punjab National Bank (PNB is one of the national banks of India) as per the letter dated 4th February 2004. Again the second loan application after the carbon revenue consideration dated 13th February 2004 and subsequent rejection by PNB as per the letter dated 16th February 2004. But the project was commissioned on 2nd March 2006 which is after the applications for loan. Hence the barrier was found acceptable by the validation team.	☐ Argument not justified ☐ Argument not convincing ☐ Argument justified but not a decisive barrier ☒ Argument justified/ significant barrier
(3) Common Practice	This type of project w-o carbon revenues is not a common practice in the paper industry in India. This project faces significant technical barrier as described under step (2) in PD.	☐ Argument not justified ☐ Argument not convincing ☐ Argument justified but not a decisive

Step # / Barrier	Demonstration	Assessment
	In accordance with the guidance in the GHG Protocol for Project Accounting, Chap 7 the project is not a common practice due to low market share (w-o carbon revenue) in the sector and in the region as well.	barrier ☒ Argument justified/significant barrier
Assessment of the validation team		☒ Project is additional ☐ Project is not additional

The project complies with the requirements of technical barrier followed by investment barrier under step (2) of test 1 of VCS 2007.1 specifications. Project also follows investment comparison analysis of the EB 41 Annex 45 Para 15 appropriately. Hence the project meets the additionality requirements as per the applied methodology (AMS III.M ver 02) and applicable VCS requirements as well.

However above CARs were raised and successfully closed.

	CAR B2			
Classification	☒ CAR	☐ FAR	☐ CL	☐ None
Findings	In the section 2.5 of VCS PD, a consolidated CAR on additionality is raised. 1. In the beginning of section 2.5 the below quoted statement has been mentioned. “In the absence of the project activity the electricity would have been generated in the fossil fuel based NEWNE grid”. Please justify the statement. 2. Please provide the “Tool VCS 2007 guidelines” as mentioned in the PD for additionality demonstration. 3. Kindly justify the VCS standard version, as PD mentions VCS 2007. 4. Please provide the DoE with the reports on waste, air/water pollution			

	CAR B2
	control submitted to the Pollution control Board. 5. “Shift to waste paper for compliance of standards for BOD, COD, AOX. (as per steering committee decision, paper mill with pulping capacity upto 50 TPD may install lignin recovery plants (LRP) by December 31, 2006 and chemical recovery plants (CRPs) by March 31, 2007”. Above quoted statement clearly says that CRP needs to be installed by 31st March 2007. As this has been made mandatory by the law. Please Justify how this is additional. Also provide the steering committee decision copy. 6. The Technical barriers mentioned are not clear and please provide the documentary evidences and provide clarity on the foot notes mentioned in the PD. The footnotes are not opening. Please provide the hard copies for the same. 7. Common practice is also not clear in the PD. The table 9 mentioned on page 15 of PD is not clear on the scale of paper industry. It mentions TPA for large and medium industries and TPD for small scale. Please provide the documentary evidence for the same.
Corrective Action # 1	The given statement has been revised to “In the absence of the project activity caustic soda would have been procured from local suppliers using conventional energy intensive manufacturing process for the production of soda thus the electricity consumption would have been higher from the fossil fuel based NEWNE grid. Also the project activity is using the electricity produced from project proponent’s own biomass based power project. Thus the emissions of GHG from baseline scenario would be totally reduced with project activity.” which is a more appropriate representation of the baseline scenario. The tool used to demonstrate additionality in section 2.5 is the Voluntary Carbon Standard 2007.1

	CAR B2
	guidelines containing - Specification for the project-level quantification, monitoring and reporting as well as validation and verification of greenhouse gas emission reductions or removals. The VCS Standard version is 2007.1 and the necessary changes have been made in the PD wherever applicable. The tests conducted by State Pollution Control Board and reports issued by SPCB on waste, air/water pollution control are provided to DOE for validation. It has been clearly mentioned in the CPCB and MoEF action plan named as “Corporate Responsibility for Environmental Protection” that it is required to recover chemicals by installation of chemical recovery plant or utilization of black liquor with no discharge from pulp mill. Also it has been provided that paper mills with pulping capacity upto 50TPD may install lignin recovery plants in order to utilize the black liquor and prevent it from discharging into the environment. Also while the last date of installation of an LRP was December 31st 2006, SIL had voluntarily decided to go for a chemical recovery plant during their board meeting in September 2003 and purchase orders placed by November 2003. Thus SIL’s initiative to recover caustic soda from waste liquor was a voluntary initiative to save energy and is not mandated by any enforced law, statute or other regulatory framework in India. Thus it is clear from the above discussion that it was not Chemical Recovery Plant that was made mandatory for pulp & paper industry but processing of the black liquor and prevention of its open discharge that was prohibitively mandated by the CREP guidelines. And thus use of alternative technologies like Lignin Recovery was permissible in place of Chemical Recovery Plant. The CREP guideline has

	CAR B2
	been provided to DOE. The Purchase orders and Board meeting's minutes are also attached with the response for validation. The technical barriers mentioned essentially emphasises on the problems of settling, scaling etc. due to high silica content and other chemicals (like chlorine etc) in the black liquor produced due to the nature of agro based raw material used as is mentioned in the UNEP working group case study on cleaner production in the Pulp and Paper industries and the CPCB report on Indian paper industry. The links provided have been checked. However the soft copies of the same reports are being submitted to the DOE. The classification basis of the industry is as provided by the CPCB report on Indian pulp & paper industry. The functional link for the same has been provided as footnote 10 along with the soft copy of document.
DOE Assessment # 1	If the caustic soda would have been procured from local suppliers it would have consumed additional energy in the formation of caustic soda, in compare to the recovery of the chemical from waste black liquor. So that additional amount of energy would be taken from the fossil fuel based NEWNE grid. Project proponent has submitted the test reports, conducted by SPCB to DOE and they are found to be appropriate. Soft copies submitted are appropriate to justify the statement provided in the corrective action. CPCB report is checked by the DOE and found to be appropriate. All the additional documents submitted were checked and found to be satisfactory.
Conclusion	☐ To be checked during the first periodic verification ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly

	CAR B2
	☐ Appropriate was action not taken ☒ The project complies with the requirements

	CAR B3
Classification	☒ CAR ☐ FAR ☐ CL ☐ None
Findings	A consolidated CAR is raised for Investment barrier. 1. Access to finance barrier is deemed to exist only if the project has been denied financial assistance because it was not financially attractive or the technology is risky etc. In this case, financial assistance has been refused due to the losses incurred by the company and heavy debt burden. Even any other project also would have met with the same fate. Therefore, access to finance is not an acceptable barrier. 2. Assumption of loan for part financing the project cost contradicts the statement vide p.14 of VCS PD, “...the proposal was denied on account of the earlier high debt, previous credit defaults and unpromising financial returns from the project”. Please submit the loan sanction letter. 3. The LUC given in the ‘Sensitivity analysis’ worksheet for variation by 5% and 10% does not seem to be correct. They require to be corrected as per Annex 45 of EB 41. 4. In the worksheets, financial years should be used, not 1,2,3. 5. Total depreciation provided seems to exceed the cost of the equipment. This may be checked and necessary corrections be made. 6. Discounting the cost right from the first year does not appear to be in conformity with accepted financial

	CAR B3
	management principles. 7. The project being caustic recovery system, it appears to be entitled to 100% depreciation in the first year itself. The tax shield enjoyed because of the depreciation should be accounted for in computing the LUC.
Corrective Action # 1	1. The financial assistance sought for the project was rejected by the bank primarily on the basis of low return from project and uncertainty of carbon funding for the project, this is clearly mentioned in the subsequent loan rejection letter given by the Bank after Satia Industries tried for reappraisal of loan which is submitted to the DOE. Thus amongst the other reasons the central reason behind loan rejection was completely project specific and not generic for any other project. 2. The assumption of loan for part financing of the project was based on the initial financial assessment of the project done during the conceptualization stage of the project before the board resolution was passed to go ahead with the project. It was only later when the loan was applied for was the loan rejected. However the financial analysis and its assumptions used to compare between the alternative in which the project participant could have invested are based as per the initial assessment done during the conceptualisation of the project activity. The project report has been submitted to DOE. 3. The Sensitivity analysis worksheet has been modified taking into account the variation of power cost, lime cost, fuel cost and production capacity which has more than 20% contribution on the final cost of soda production being compared. This is also in accordance to Annex 45 EB 41 guidance on sensitivity analysis. The sensitivity for 5% change in values have been removed according to the guidance in the worksheet version 2. 4. Financial years have been used instead of 1,2,3 in the worksheet version 2 as required by the DOE.

	CAR B3
	5. The depreciation calculation has been revised and the total depreciation is now equal to the total cost of equipment. 6. The discounting for the first year has been removed in accordance with the accepted financial management principles. 7. The tax shield due to 100% depreciation for chemical recovery unit has been taken into account in the Levelised unit cost analysis, worksheet Version 2.
DOE Assessment # 1	1. Loan application had been rejected by the Punjab National Bank (PNB)^{/LOAN/} on the basis of low return of the project. Validation team has cross checked the loan documents; application as well as rejection letter from the bank^{/LOAN/}. 2. The Validation team has assessed loan application letter^{/LOAN/} based on the report submitted by the PP to financial institution^{/LOAN/} as well as other sources^{/LOAN/} along with board resolution^{/LOAN/} and loan rejection letters^{/LOAN/}. It was found that the loan was first rejected by the financial institution i.e. Punjab National Bank^{/LOAN/}. Hence the project is 100 % equity based after the 2 years period from the last loan application and subsequent rejection. However, the values used to demonstrate financial additionality of the project corresponds to the report available at the time of investment decision as evident by board resolution date 4th September 2003 and report date i.e. and thus is acceptable. 3. Sensitivity analysis has been revised as per EB 35 annex 34 and EB 41 annex 45. The same has been checked and CAR was successfully closed. 4. The term financial year is used instead 1, 2, 3 in the PD and the same was checked by the validation

	CAR B3
	team. Car was successfully closed. 5. The depreciation calculation has been revised in the VCS PD and found satisfactory. 6. Discounting the cost for the first year is now accordance with the accepted financial management principles and found to be accepted by the validation team. 7.
Conclusion	☐ To be checked during the first periodic verification ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Appropriate was action not taken ☒ The project complies with the requirements

3.3 Monitoring Plan

The conclusions are as follows:

- The project applies the monitoring methodology AMS III.M version 02 which is an approved CDM methodology.
- The AMS III.M is correctly applied. The justifications on applicability conditions presented in the section 3.1 of VCS-PD is found appropriate.
- The baseline and project emission parameters that are monitored are indicated in Section 3.2 of the PD. Validation Team has validated that the list of parameters and confirms that these are in line with the requirements of AMS III.M except few. However, PD requires correction in quantity of soda recovered and justification for Description of measurement to closure of CAR M1.

Annual Electricity consumed to recover soda mentions value applied as 800kWh per ton of soda recovered. This is in line with the parameter. The cost of electricity was calculated on the basis of the electricity bill of the industry. This cost of electricity is calculated based on the kWh consumed and the total cost of the electricity. Hence this was accepted by Validator. Also

the meters used to monitor total electricity consumption was also checked during the site visit. The meters installed are having serial numbers 05859743 ,1K040562, 05859750. A Far M3 has also been raised to check the same during verification.

■

Nevertheless following CARM1 and CAR M2 are raised and closed successfully during the validation.

	CAR M1			
Classification	☒ CAR	☐ FAR	☐ CL	☐ None
Findings	In section 3.3 first parameter “quantity of soda recovered” the value is mentioned as 11550/As per actuals. Please mention if this value is per month as mentioned in data unit as this is not matching with per month calculation. Also provide the justification for Description of measurement. This mentions data type as measured but, monitoring frequency mentions the tonnes of soda recovered is calculated and recorded in log books in 8 hours shift basis and 24 hours basis. QA/QC procedure for this parameter mentions annual calibration of equipment and the observed values are reported in log books on a daily basis. Why this is contradictory with previous section of same parameter.			
Corrective Action # 1	The value mentioned for quantity of soda recovered has been corrected in the revised PD. The frequency of measurement for the parameter is as mentioned in the revised VCS PD and is 24 hours with 3 shifts of 8 hours. The consolidated value is then reported in daily reports which are then send for review as is mentioned in QA/QC procedure.			
DOE Assessment # 1	The DOE has checked that the necessary corrections has been done in the section 3.3			

	CAR M1
Conclusion	☐ To be checked during the first periodic verification ☐ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Appropriate was action not taken ☐ The project complies with the requirements

	CAR M2
Classification	☒ CAR ☐ FAR ☐ CL ☐ None
Findings	A consolidated CAR has been raised for other parameters mentioned in section 3.3. Parameter “Annual Electricity consumed to recover soda mentions value applied as 800kWh per ton of soda recovered. This is not in line with the parameter. Please correct. The parameter Annual Electricity consumed in producing 1 tonne of soda by the soda manufacturers no value is mentioned in value applied for the purpose of electricity calculation.
Corrective Action # 1	The Annual electricity consumed value has been changed in the Revised PD version 2. The required value for annual electricity consumed in producing 1 tonne of soda by the manufacturers has been included in the revised PD version.
DOE Assessment # 1	It has been checked by the DOE that the necessary corrections has been done.
Conclusion	☐ To be checked during the first periodic verification ☐ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Appropriate was action not taken ☐ The project complies with the requirements

	M3
Classification	☐ CAR ☒ FAR ☐ CL ☐ None
Findings	A FAR has been raised to get the things checked how the electricity used in the project activity will be checked.
Corrective Action # 1	The PP replied that the meters are installed at site to check the electricity consumption.
DOE Assessment # 1	The electricity consumption will be checked during the verification.
Conclusion	☒ To be checked during the first periodic verification ☐ Appropriate action was taken ☐ Project documentation was corrected correspondingly ☐ Appropriate was action not taken ☐ The project complies with the requirements

3.4 Calculation of GHG Emissions

The conclusions are as follows:

- As per the final PD^{/PD2/} the project is expected to reduce emissions of 2,09,630 tCO₂e over a 10 year crediting period.
- The source, sink and reservoir for the project activity are appropriately mentioned (Cp section 2.3 of VCS-PD)
- In the section 4.1 of the VCS PD Explanation of methodological choice is not mentioned and Grid emission factor needs to be corrected, so PD requires minor corrections to close the CAR C1.
- The formulae and factors used in the calculations of emission reductions are in accordance to the approved baseline methodology AMS III.M, version 02. All aspects related to the direct and indirect GHG emissions relevant to the project activity have been addressed and only the exact calculation process in the paper unit for Baseline emission needs to be mentioned.
- No leakage is involved in the project activity.
- Few uncertainties which were found are summarised as follows.

	CAR C1			
Classification	☒ CAR	☐ FAR	☐ CL	☐ None

	CAR C1
Findings	- A consolidated CAR is raised for Calculation of GHG emission reduction. - Section 4.1 says “Explanation of methodological choice” but PD does not mention this. Please correct the same. - Grid emission factor needs to be corrected by taking generation weighted average of simple operating margin over three years as prescribed by Tool to calculate the emission factor for an electricity system. - The emission factor mentioned in page 26 and 27 is not matching. - Please mention the exact calculation process in the paper unit for Baseline emission.
Corrective Action # 1	- The explanation of methodological choice has been included in the revised PD version 2.0 - CEA Version 4.0 CO2 baseline database has been used for calculating the Emission factor for grid. The generation weighted average Simple Operating Margin has been used to calculate the emission factor of the grid in the revised VCS PD version 2. - Emission Factor mentioned in both page 26 and 27 are identical, the value being 0.80317 KgCO2/ kWh
DOE Assessment # 1	The DOE has checked that the necessary corrective actions have been taken. Hence CAR C1 was closed.

	CAR C1
Conclusion	☐ To be checked during the first periodic verification ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Appropriate was action not taken ☐ The project complies with the requirements

- Environmental Impact**

Social and environmental impacts of the project have been sufficiently addressed. No adverse environmental impacts compared to baseline situations as well as trans-boundary impacts have been envisaged from this project activity. Compliance of environmental monitoring as per ISO 14064-2: 5.2.k has been checked and found satisfactory. As per the national law no requirement of carrying out EIA is prescribed for such kind of project.

3.5 Comments by stakeholders

Stakeholders have been directly asked to comment on the project through an open meeting among local stakeholders, project proponent; local authorities during 06/10/2003^{/LSHC/}.

A summary of the comments received and a note (through meeting and feed back questionnaire) on how due account was taken of the concerns raised in the above public consultation are included in PD. All comments are positive in nature. No adverse comments were received and this is addressed in the PD.

4 Validation conclusion

M/s Satia Industries Limited has commissioned the TÜV NORD JI/CDM Certification Program to validate (along with 1st verification) the project: “Chemical Recovery project at Satia Industries Ltd. (SIL), formerly known as Satia Paper Mills Limited village Rupana, Punjab.”, with regard to the relevant requirements of the VCS Guidelines/ VCSA Rules for project activities, as well as criteria for consistent project operations, monitoring and reporting.

- The purpose of this project activity is the purpose of the project activity is to recover the caustic soda from waste liquor generated at the pulping stage of the paper manufacturing process.
- AMS III.M/Version 09: "Reduction in Consumption of Electricity by Recovering Soda from Paper Manufacturing Process" an approved methodology for small scale industries of UNFCCC CDM program is applied.
- There are no restrictions or uncertainties faced related to the validation of the project.
- A risk-based approach has been followed to perform this validation. In the course of the validation, seven (08) Corrective Action Requests (CARs) and Two (02) Clarification Request (CLs) were raised and successfully closed. One forward action request (FAR) has also been raised for checking the electricity meter and consumption of the same during the next verifications.
- .

Baroda, 2009-11-19

Essen, 2009-11-19



Pankaj Patel
TÜV NORD JI/CDM
Certification Program



Rainer Winter
TÜV NORD JI/CDM
Certification Program

Annexure 1: Abbreviations

CL	Corrective Action / Clarification Action Request
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CO₂	Carbon dioxide
CO₂e	Carbon dioxide equivalent
CP	Certification Program
GHG	Greenhouse gas(es)
IRR	Internal Rate of Return
ISO	International Standards Organization
JMR	Joint Monitoring Report
kW	Kilowatt
kWh	Kilowatt hour
LOAN	Loan application/Loan rejection
MP	Monitoring Plan
MSEDCL	Maharashtra State Electricity Distribution Company Limited
MW	Mega Watt
PD	Project Document
PPA	Power Purchase Agreement
QC/QA	Quality control/Quality assurance
SEB	State Electricity Board
UNFCCC	United Nations Framework Convention on Climate Change
VCS	Voluntary Carbon Standard
VCSA	VCS Association
VER	Voluntary Emission Reductions
VCU	Voluntary Carbon Units
VVM	Validation Verification Manual
WTG	Wind Turbine Generator

Annexure 2: References

Documents provided by the project proponent for validation:

Table 5-1: Documents provided by the project proponent:

Reference	Document
/ADD/	• Proof for the insurance related investment. dated 29th April 2006. • Proof for operation and maintenance cost ^{/O&M/} • Punjab State Electricity Board Annual Report 2005- 2006 • Electricity bills of PSEB • Lime cost in Rs. • FO Cost in Rs. • Monthly Salary Slips • Director’s report from the local manufacturers of soda for three years; 2004-2005-2006. • Proof of applied for CDM • Proof of developing the project specific applied methodology i. e. AMS III.M. • Loan restructuring letter issued by Industrial Development Bank of India (IDBBI). • Loan application letters to the Punjab National Bank (PNB) dated 06-11-2006, 04-02-2007 • Loan rejection letters of Punjab National Bank (PNB) dated Loan restructuring letter dated 13-02-2007, 16-02-2007.
/CAL/	Calibration records for the key instruments and measuring devices: • Calibration certificate of Flow meter 1 sr.no. 88137219000 associated with CRP dated 25/09/2006, 25/09/2007, 24-09-2008 • Calibration certificate of Flow meter 2 sr. no. 88025D20000 associated with CRP dated 25-09-2006, 23-09-2007, 24-09-2008 • Calibration certificate of Energy meter_1 Sr.No. 05859743 associated

Reference	Document
	with CRP dated 05-03-2006, 05-03-2007, 04-03-2008, 02-03-2009 • Calibration certificate of Energy meter_2 Sr.No. 1K040562 associated with CRP dated 06-03-2006, 05-03-2007, 04-03-2008, 02-03-2009 • Calibration certificate of Energy meter_3 Sr.No. 05859750 associated with CRP dated 06-03-2006, 05-03-2007, 04-03-2008,02-03-2009 • Weighbridge Calibration certificates dated 21-06-2005,21-07-2006,20-07-2007, 21-07-2008.
/CC/	Commissioning certificate of the VCS Project. Dated 2 nd March 2006.
/CON/	The signed contract between TUV NORD and SIL for carrying out Validation and verification of voluntary emission reduction dated 02-June-2009.
/DR/	Directors Report for 4 consecutive years from March 2005, March 2006, March 2007, March 2008.
/EA/	ENMAS ANDRITZ- technology provider
/FO Log/	Logbook of furnace oil from 2006 to 2008.
/INS/	Insurance policies 29 April 2006.
/INV/	Sample invoice copies to cross check the Soda recovered.
/LOAN/	Loan Application and rejection letters dated 06-11-2006, 04-02-2007, 13-02-2007, 16-02-2007.
/LOG/	Log books for the verification period 28 March 2006 – 31 Oct. 2008.
/LSC/	Invitation for local stakeholder meetings dated 6 October 2003.
/MR1/	Monitoring Report “Chemical Recovery project at Satia Industries Limited (SIL), Punjab, India. for the period 2006 March 28 to 2008 Oct 31, version1 dt.12.05.2009
/NOC/	No objection certificate dated 30 March 2009.
/OM/	O and M agreement and O and M Cost
/PD1/	Project Description for project: “Chemical Recovery project at Satia Industries Limited (SIL), Punjab, India. Version 1 dated 2009-07-21.
/PD2/	Project Description for project: “Chemical Recovery project at Satia Industries Limited (SIL), Punjab, India. Version 2 dated 2009-08-26.

VCS 2007.1 Validation Report of the GHG emission reduction project entitled “*Chemical Recovery project at Satia Industries Ltd. (SIL) formerly known as Satia Paper Mills Limited village Rupana, Punjab.*”

Reference	Document
/PD3/	Project Description for project: “Chemical Recovery project at Satia Industries Limited (SIL), Punjab, India. Version 2 dated 2009-11-11.
/PO/	Purchase order of all the equipments (Plant). 29 November 2004.
/POI/	Proof of Insurance dated 29 th April 2006
/PoT/	Proof of Title of the stakeholders: dated 21 April 2009.
/TS/	Technical Specifications dated April 14 th 2006
/UND/	Undertaking that the project has not created another form of environmental credit dated 21 April 2009.
/XLS1/	Excel – Calculation sheets provided by the project participant version 1 dated 2009-07-21.
/XLS2/	Excel – Calculation sheets provided by the project participant version 2 dated 2009-08-26.
/XLS3/	Excel – Calculation sheets provided by the project participant version 3 dated 2009-11-11.

Table 5-2: Background investigation and assessment documents:

/AMS III. M/	CDM methodology “AMS III. M, Reduction in Consumption of Electricity by Recovering Soda from Paper Manufacturing Process” Ver 02.
/CPM/	TÜV NORD JI / CDM CP Manual (incl. CP procedures and forms)
/EFT/	Tool to calculate emission factor for an electricity system.
/GHG-P/	GHG Protocol for project accounting Chap 7.
/IPCC 2006/	IPCC 2006 database
/ISO/	ISO 14064-2; ISO 14064-3, ISO 14065
/VCS/	Voluntary Carbon Standard 2007.1; Program Guidelines; VCSA Rules ;and VCS Guidance Document

/VVM/	CDM Validation and Verification Manual
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Table 5.3: Websites used

Reference	Link	Organisation
/unfccc/	http://cdm.unfccc.int	UNFCCC
/vcs/	http://www.v-c-s.org/	VCS
/moef/	http://envfor.nic.in/	Ministry of Environment & Forests, Government of India
/cea/	www.cea.nic.in	Central Electricity Authority, Ministry of Power, Government of India

Table 5-4: List of interviewed persons

Reference	Mol1		Name	Organisation / Function
/IM01/	V	☒ Mr. ☐ Ms.	R. K. Bhandari	Director, Satia Paper Mills Ltd.
/IM01/	V	☒ Mr. ☐ Ms.	Jagannath Tiwari	Sr. Manager(CRP), Satia Paper Mills Ltd.
/IM01/	V	☒ Mr. ☐ Ms.	Ajay Jindal	Dy. Manager, Satia Paper Mills Ltd.
/IM02/	V	☒ Mr. ☐ Ms.	Naveen Pawar	Consultant
/IM02/	V	☒ Mr. ☐ Ms.	Kushal Sinha	Consultant
/IM03/	V	☒ Mr. ☐ Ms.	Akhilesh Prasad	Stakeholder
/IM03/	V	☒ Mr. ☐ Ms.	Naresh Prasad	Stakeholder
/IM03/	V	☒ Mr. ☐ Ms.	N. C. Subudhi Ray	Stakeholder

1) Means of Interview: (Telephone, E-Mail, Visit)