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Respected Chair CDM Executive Board,

**RE: Request for Review of the request for issuance for the CDM project activity “Thermal Efficiency Improvement Initiatives in Coal Fired Boiler System” (Ref. no. 0266).**

SGS has been informed that the request for issuance for the CDM project activity “Thermal Efficiency Improvement Initiatives in Coal Fired Boiler System” (Ref. no. 0266) for the first monitoring period from 01/04/2001 up to 31/03/2006 is under consideration for review because three requests for review have been received from members of the Board.

The requests for review are based on the issues outlined below. SGS would like to provide an initial response to the issues raised by the requests for review:

**Request for Review 1 - 3, Issue 1:**

The verification report mentions that quantity of feed water used for emission reduction calculation was measured using flow meter. It is unclear how this matches with the emission reduction spreadsheet, which has used a factor of 1.03, estimated from blow down test, for calculating the feed water quantity;

**SGS' Response:**

The project activity under consideration is currently claiming the retroactive CER for the monitoring period 01/04/2001 up to 31/03/2006, this monitoring period is prior to the project registration date with UNFCCC i.e. 14/04/2006 (<http://cdm.unfccc.int/Projects/DB/SGS-UKL1139821468.24/view>). During the monitoring period under consideration, the quantity of feed water used for emission reduction calculation is determined from the steam generation data considering a maximum (standard) blow down of 3%. Therefore the emission reduction spreadsheet uses a factor of 1.03 for determination of feed water consumption from the steam generation data. This procedure is found in accordance with the discussion made in the validation report – (replies to NIR-4: Energy Output Data/Paragraph-(b)' of the “Annex-6: Findings. Pls. refer <http://cdm.unfccc.int/Projects/DB/SGS-UKL1139821468.24/view> for project docs during validation). As per this finding,

*“The total feed water enthalpy calculations are based on the feed water load (which is based on the assumption of 3% blow down to be on a conservative basis), feed water temperature and feed water enthalpy. Please note that the maximum blow down for the Boiler System is 3%. Therefore for all calculations the Blow down has been assumed to be 3% in order to be conservative. This assumption would be applicable for both the baseline scenario and project scenario because the source and quality of feed water will not alter for both the scenarios”.*

Since there is no change in the source and quality of feed water during the verification period under consideration, same has been verified with the feed water quality test reports from time to time (refer Annex 1 to this response) therefore the feed water consumption data is determined based on the maximum (standard) blow down of 3%.

Furthermore the standard blow down of 3% has been periodically cross-checked by conducting 'Blow Down Test' every month with steam generation data and the corresponding feed water consumption data. The feed water consumption data for the period of 'Blow Down Test' is measured with the help of a Water Flow Meter installed at the feed water line. The Water Flow Meter is calibrated during installation and at regular intervals as specified by the supplier to ensure accuracy of the 'Blow Down Test'. The test certificate (refer Annex 2 to this response) for water flow meter and the blow down test reports (refer Annex 3 to this response) have been checked and those substantiates that the actual blow down is less than the standard blow down of 3%. Therefore consideration of a standard blow down of 3% ensures a conservative computation of emission reductions resulting from the project activity over the verification period under consideration.

DOE wishes to clarify further that the feed water load is being directly monitored on a daily basis through the Water Flow Meter installed at the feed water line from 01/04/2006 onwards which is inline with registered PDD. This direct measurement procedure and on site instrumentation are physically verified during the verification site visit on 17/01/2008 (please refer the photograph below). Therefore DOE wish to confirm that the feed water consumption is being directly monitored with water flow meter as verified and those data will be made available during subsequent monitoring periods.

Monitoring equipments	Specification	Location
Water Flow Meter	Make: Rockwin Serial No. : 22569 Quantity: 01 Flow range: 13.5-135 m <sup>3</sup> /h	Feed Water Line



**Request for Review 1 - 3, Issue 2:**

The PDD has mentioned that the steam demand of the process in the crediting period would remain same. However, the quantity of steam increased considerably from 42,287 tons in base year 2000-01 to 74,392 tons in 2005-06. The DOE is requested to clarify this increase and assess whether this all most double level would have impacted the earlier determination of the additionality of the project.

**SGS' Response:**

The steam demand in the process at Jaya Shree Textiles remained more or less same (the maximum variation is even less than 10%) till March 2004. However during the year 2004-2005, the project proponent commissioned a Wool Combing Section and no further expansion during post registration phase has

happened. This wool combing section has a steam requirement in the Scour and Dryer system (refer Annex 4 to this response) that varies between 0 - 4.6 tph depending on its availability. This explains the rise in steam demand in the process of Jaya Shree Textiles from around 4.8 tph (or 42287 tpa) in the base year of 2000-2001 to around 8.5 tph (or 74392 tpa) in 2005-2006. However this is an intermittent process which is not required to be operated continuously. At times when this process is not operational, the steam requirement at Jaya Shree Textiles will be comparable as that of the baseline level.

It may be noted further that the project activity was conceptualized to take care off the fluctuations in steam demand in the process of Jaya Shree Textiles. The 'bed modulation system' and the 'automatic furnace draft control system', as undertaken in the project activity, would entail the boiler to run alternately with one of the two beds of the boiler under circumstance when there is lower steam demand in the process. This will reduce the coal consumption and the corresponding technical losses. In absence of the project activity, the project proponent would have been required to run both the beds irrespective of the steam requirement in the process thereby leading to a higher coal consumption and hence a higher technical losses.

A further analysis on the Plant Load factor (PLF) based on Steam load and corresponding Boiler Efficiency for the current monitoring period was carried out as below -

Table 01:

<b>2000 – 2001 (Base Year)</b>				
<b>Months</b>	<b>Operational Days</b>	<b>Steam Load (tons)</b>	<b>PLF (%)</b>	<b>Boiler Efficiency (%)</b>
April 2000	30	3353.7315	38.82	57.43
May 2000	31	3508.0005	39.29	57.05
June 2000	30	3673.8607	42.52	53.96
July 2000	31	3515.1786	39.37	52.43
August 2000	31	3729.1047	41.77	54.83
September 2000	30	3398.6498	39.34	49.47
October 2000	31	3498.6163	39.19	56.22
November 2000	30	3392.2364	39.26	50.49
December 2000	31	3590.5824	40.22	50.37
January 2001	31	3651.4832	40.90	50.97
February 2001	28	3547.2306	43.99	57.05
March 2001	31	3429.1888	38.41	56.84
<b>2000 – 2001 Average</b>			40.26	53.93
<b>2001 – 2002</b>				
<b>Months</b>	<b>Operational Days</b>	<b>Steam Load (tons)</b>	<b>PLF (%)</b>	<b>Boiler Efficiency (%)</b>
April 2001	30	3314.283	38.36	63.80
May 2001	31	3299.440	36.96	62.26
June 2001	30	3175.233	36.75	62.39
July 2001	31	3267.094	36.59	61.45
August 2001	31	3259.193	36.51	64.61
September 2001	30	3003.017	34.76	60.63
October 2001	31	3284.651	36.79	67.56
November 2001	30	3708.065	42.92	73.83
December 2001	31	4251.840	47.62	71.93
January 2002	31	4490.640	50.30	70.06

February 2002	28	4215.270	52.27	71.95
March 2002	31	4649.122	52.07	72.97
<b>2001 – 2002 Average</b>			<b>41.82</b>	<b>66.95</b>
<b>2002 – 2003</b>				
<b>Months</b>	<b>Operational Days</b>	<b>Steam Load (tons)</b>	<b>PLF (%)</b>	<b>Boiler Efficiency (%)</b>
April 2002	30	4436.670	51.35	64.41
May 2002	31	4268.118	47.81	71.61
June 2002	30	3725.325	43.12	72.55
July 2002	31	3433.325	38.46	66.89
August 2002	31	2983.500	33.42	71.73
September 2002	30	3290.220	38.08	75.78
October 2002	31	3967.590	44.44	75.53
November 2002	30	3449.909	39.93	72.31
December 2002	31	3893.900	43.61	74.16
January 2003	31	4064.200	45.52	73.50
February 2003	28	3196.900	39.64	75.41
March 2003	31	3599.856	40.32	74.93
<b>2002 – 2003 Average</b>			<b>42.14</b>	<b>72.40</b>
<b>2003 – 2004</b>				
<b>Months</b>	<b>Operational Days</b>	<b>Steam Load (tons)</b>	<b>PLF (%)</b>	<b>Boiler Efficiency (%)</b>
April 2003	30	4064.200	47.04	73.25
May 2003	31	3196.900	35.81	75.41
June 2003	30	3588.857	41.54	74.71
July 2003	31	4064.200	45.52	73.25
August 2003	31	3196.900	35.81	75.28
September 2003	30	3599.856	41.67	74.93
October 2003	31	4064.200	45.52	73.50
November 2003	30	3196.900	37.00	75.14
December 2003	31	3599.856	40.32	75.07
January 2004	31	4327.094	48.47	68.08
February 2004	29	4702.649	56.31	68.09
March 2004	31	4877.193	54.63	67.96
<b>2003 – 2004 Average</b>			<b>44.14</b>	<b>72.89</b>
<b>2004 – 2005</b>				
<b>Months</b>	<b>Operational Days</b>	<b>Steam Load (tons)</b>	<b>PLF (%)</b>	<b>Boiler Efficiency (%)</b>
April 2004	30	4818.655	55.77	68.17
May 2004	31	4656.279	52.15	68.20
June 2004	30	4756.361	55.05	68.17
July 2004	31	4518.411	50.61	67.65

August 2004	31	4476.201	50.14	66.39
September 2004	30	4725.401	54.69	68.05
October 2004	31	4469.770	50.06	66.99
November 2004	30	4635.393	53.65	67.89
December 2004	31	4624.122	51.79	67.75
January 2005	31	4854.839	54.38	67.13
February 2005	28	4570.353	56.68	69.45
March 2004	31	5896.166	66.04	67.91
<b>2004 – 2005 Average</b>			<b>54.25</b>	<b>67.81</b>
<b>2005 – 2006</b>				
<b>Months</b>	<b>Operational Days</b>	<b>Steam Load (tons)</b>	<b>PLF (%)</b>	<b>Boiler Efficiency (%)</b>
April 2005	30	6525.557	75.53	68.17
May 2005	31	6109.764	68.43	68.08
June 2005	30	6139.810	71.06	67.93
July 2005	31	6235.966	69.85	68.05
August 2005	31	6623.227	74.18	67.95
September 2005	30	5997.597	69.42	68.14
October 2005	31	6547.671	73.34	68.16
November 2005	30	6002.241	69.47	68.01
December 2005	31	6368.087	71.33	67.97
January 2006	31	6972.025	78.09	67.78
February 2005	28	6062.600	75.18	69.23
March 2006	31	4808.187	53.86	68.10
<b>2005 – 2006 Average</b>			<b>70.81</b>	<b>68.13</b>

Table 02:

<b>Year</b>	<b>Average Boiler Efficiency</b>	<b>Remarks</b>
April 2000 – March 2001	53.93	Boiler efficiency in the base year
April 2001 – March 2002	66.95	Improvement in boiler efficiency due to installation of 'bed modulation system' and installation of 'automatic furnace draft control system'
April 2002 – March 2003	72.40	
April 2003 – March 2004	72.89	
April 2004 – March 2005	67.81	Reduction in boiler efficiency due to the increase in steam demand due to Wool Combing Section.
April 2005 – March 2006	68.13	

From the above mentioned data analysis, it is apparent that the boiler efficiency does not depend much on the PLF, therefore increased steam requirement and consecutive change in boiler efficiency does not impacted due to the PLF. Hence this was concluded that the increase in boiler efficiency was solely due to the modifications as undertaken in the project activity. With an increase in steam demand, a corresponding reduction in boiler efficiency has been observed, this is because both the boiler beds are required to run to meet the increased steam demand which leads to a reduction in boiler efficiency. From January 2004 onwards upto March 2006 a contrast scenario between PLF (increasing trend) and boiler efficiency



(decreasing trend) has been identified and the PLF has been increased from the baseline years. Therefore on the ground of conservativeness emission reductions for the current monitoring period has been claimed only for period April 2001 to December 2003 where PLF of the facility matches that of the baseline years and a revised Monitoring Report was submitted by the project proponent (refer Annex 05 to this response).

Earlier Emission Reductions value	Revised Emission Reductions
20297 tCO <sub>2</sub>	10717 tCO <sub>2</sub>

The revised emission reduction with the exclusions (refer Annex 06 to this response) has been checked and found satisfactory.

Furthermore all the operational risks involved with the project activity (as elaborated in the Registered PDD) like

- possibilities of damage of boiler and boiler-lining due to erratic variations in the pressure and temperature of the furnace section,
- possibilities of clinker formation leading to frequent shut-downs of the boilers and
- risks involved with improper synchronization of ID fan draft with furnace air requirement for single bed operation

are still applicable as the project proponent is still required to run the boiler at a lower capacity with all these energy efficiency measures in place. Moreover all these energy efficiency measures are devised in-house by the project proponent. These measures are the first of its kind and have been recognized by the Bureau of Energy Efficiency, Govt. of India by providing Jaya Shree Textiles the first prize in the National Energy Conservation Award (NECA) 2002-2003. As there is no precedence, the project activity has always been exposed to the technological risks (as mentioned above) related to the operation of the boiler under different steam requirement with these energy efficiency measures in place.

Therefore the increase in steam requirement would not adversely affect the additionality of the project activity.

We apologize if the verification report has been unclear and hope that this letter addresses the concerns of the members of the Board.

Ajoy Gupta (+ 91 99038 03700) will be the contact person for the review process and is available to address questions from the Board during the consideration of the review in case the Executive Board wishes.

Yours sincerely,

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**Encl:**

Annex 1: Feed Water Quality Test Reports

Annex 2: Calibration certificate of feed water flow meter

Annex 3: Blow Down Test Reports

Annex 4: Scour Installation Requirement\_M/s. Andar Holding Limited

Annex 5: Monitoring Report, version 03

Annex 6: JST Boiler Efficiency - Daily Reports & ER Computation, V02