



## Validation opinion for post registration changes

Title of project activity:		
Siam Quality Starch Wastewater Treatment and Energy Generation Project in Chaiyaphum, Thailand		
CDM reference number:	DNV project No.:	
1993	PRJC-465699-2013-CCS-MYS	
Date:	Validation of the changes were conducted:	
07/10/2014	<input type="checkbox"/> Prior to the commencement of a verification of the project activity <input checked="" type="checkbox"/> When performing a verification of the project activity	
Work carried out by (name & signature):	Work verified by (name & signature):	Approved by (name & signature):
Simon Wong Yon-Sing <i>Simon Wong</i>	Andrea Leiroz <i>Andrea Leiroz</i>	Michael Lehmann <i>Michael Lehmann</i>

## Overview of post registration changes

Type of post registration change		Are the changes of a type specified in Appendix 1 of the CDM Project Standard? Note: In case of "No", prior approval by the EB is required
A: Temporary deviations from the registered monitoring plan and/or monitoring methodology (refer to section A)		<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> No post registration change of this type
Applicable period for proposed deviations (inclusive):	From DD/MM/YYYY start date of the earliest included deviation to DD/MM/YYYY end date of the latest included deviation)	
B: Corrections (refer to section B)		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> No post registration change of this type
C: Changes to the start date of the crediting period (refer to section C) <i>Prior approval by the CDM EB is not required in case of (a) bringing forward the start date up to one year earlier or (b) postponing the start date by up to one year (by up to two years for project activities in LDCs).</i>		<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> No post registration change of this type
Proposed start date of the crediting period:	DD/MM/YYYY (changed from DD/MM/YYYY)	
D: Permanent changes from the registered monitoring plan or applied methodology (refer to section D)		<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> No post registration

	change of this type
E a): Changes to the project design of a registered project activity (refer to section E)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> No post registration change of this type
E b): Changes to the programme design of a registered PoA (refer to section E)	Note: All changes to the programme design of a registered PoA require prior approval by the EB. <input checked="" type="checkbox"/> No post registration change of this type
F. Changes specific to afforestation or reforestation project activities (refer to section F)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> No post registration change of this type

## A. Temporary deviations from the registered monitoring plan and/or monitoring methodology

*Not applicable*

## B. Corrections

### B.1 Description of corrections

According to the registered PDD, the project activity envisages the capture of methane during the treatment of wastewater released from the starch processing facility and utilising the biogas captured to generate heat. The registered PDD states that the baseline burners have capacities of 5 234 kW (2 units) and 3 300 kW (2 units). The actual baseline capacities were 5 280 kW (2 units) and 3 663 kW (2 units).

In addition, the PDD mentions in the project scenario the total boilers capacity to be 17.068 MW. This was derived from 3 300 kW (2 units) and 5 234 kW (2 units). The actual installed capacities are 3 663 kW (2 units) and 5 280 kW (2 units) which yields a total of 17.886 MW. This has been corrected in the revised PDD.

The corrections made to the PDD are as follows:

- The baseline scenario capacities are revised from 5 234 kW (2 units) and 3 300 kW (2 units) to 5 280 kW (2 units) and 3 663 kW (2 units).
- The project scenario capacities are revised from 3 300 kW (2 units) for factory 1 and 5 234 kW (2 units) to 3 663 kW (2 units) and 5 280 kW (2 units).
- The parameter  $Q_{ele\_cons,y} / Q_{ele\_cons,y}$  has been revised to  $Q_{ele\_cons,y} / Q_{fuel\_cons,y}$

## B.2 Assessment of corrections

For the 5 280 kW burners, the invoice (submitted to the validating DOE) from the supplier states a nominal capacity of 5 234kW whilst the name plate shows 5 280 kW. Thus for consistency purposes, the capacities have been revised according to the name plate instead of the nominal capacity.

For the 3 663 kW burners, as described in the original burner specification, the original burner type is RMS11 ZMD. It can be seen that the rating capacity varies with the heavy fuel oil flow rate. The burners available on site were fitted with 300 kg/hr spray nozzles giving them a corresponding capacity of 3 300 kW in Weishaupt's specification. This 3 300 kW figure being the limiting figure, was considered by SQS to be the capacity and thus was used in the registered PDD instead of the actual thermal oil heater/boiler capacity of 3 663 kW.

The boiler was never a part of the investment analysis, as this was an already-installed equipment. On the other hand, hypothetically for the burners, increase in installed capacities also means increase in expenditure side i.e. higher investment cost.

In practice, there is no change in expenditure. As stated in the validation report, the investment cost provided in the PDD was based on actual purchase receipts, and hence the investment analysis is unaffected by the correction of the project scenario capacities.

The change in  $Q_{ele\_cons,y} / Q_{ele\_cons,y}$  to  $Q_{ele\_cons,y} / Q_{fuel\_cons,y}$  is limited to providing clarity that the parameter monitors both electricity consumption and fuel oil consumed.

## C. Changes to the start date of the crediting period

*Not applicable*

## D. Permanent changes from the registered monitoring plan or applied methodology

*Not applicable*

## E. Changes to the project or programme design of a registered project activity or PoA

Discrepancies between the PDD and the actual number of ponds were found. In the original PDD, it was misunderstood that the entire series of open lagoons were to be used after project implementation.

In the project scenario, a new open anaerobic lagoon was built as part of the project activity, and this lagoon receives the effluent from the treated wastewater in the Covered In-Ground Anaerobic Reactor (CIGAR) system. The effluent from the new anaerobic lagoon will be routed to the existing open lagoons, bypassing only the first two baseline open anaerobic lagoons. The revised PDD version 1.4 dated 7 October 2014, contains scenarios of before and after project implementation.

In addition, the above described correction of the project scenario capacities is discussed here as well.

### E.1 Assessment of the impact of the changes to the project design (*applicable to project activities only*)

*In the case of a project*

☐ The applicability and application of the applied methodology under which the project activity has been registered

*activity, do the changes adversely impact any of the following?*

- ☐ The additionality of the project activity
- ☐ The scale of the project activity
- ☒ None of the above

***Assessment of impacts of the changes on the applicability and application of the applied methodology under which the project activity has been registered***

Neither the new post treatment lagoon nor the the correction of the project scenario capacities affect the applicability and application of AM0013 verison 4.

***Assessment of impacts of the changes on the additionality of the project activity***

The new post treatment lagoon does not affect the additionality of the project activity as the lagoon treats effluent from the digester and has no methane recovery system.

There was no change in expenditure. As stated in the validation report, the investment cost provided in the PDD was based on actual purchase receipts, and hence the investment analysis is unaffected by the correction of the project scenario capacities.

***Assessment of impacts of the changes on the scale of the project activity***

Neither the new post treatment lagoon nor the the correction of the project scenario capacities affect the scale of the project activity.

**E.2 Assessment of the change to a PoA (applicable to PoAs only)**

*Not applicable*

**Validation opinion**

DNV's evaluation of the activity for the project revealed the inconsistency in the description of the project design in the registered PDD. Considering the assessment presented above, DNV was able to confirm that the revision of burner/boiler capacities and the additional anaerobic lagoon would not impact the additionality of project activity adversely and would not change the scale of CDM project activity. DNV therefore concludes and notifies that the changes do not raise any concern with respect to aspects outlined in Appendix 1 of the Project Standard Version 7.