Validation Report

Changshu Haike Chemical Co. Ltd., China

"Changshu Haike HFC23 Decomposition Project"

Project No. JQA-CDM-L-P0057

03 December 2007

JAPAN QUALITY ASSURANCE ORGANIZATION

Date of issue: 03 December 2007	Project No.: JQA-CDM-L-P0057
Approved by: 	Client: Changshu Haike Chemical Co. Ltd., China

Summary:

This is the validation report for the project activity "Changshu Haike HFC23 Decomposition Project", proposed by Changshu Haike Chemical Co. Ltd. (China) and EDF TRADING Limited (United Kingdom).

This project activity aims at reducing GHGs emissions by installing the decomposition equipment treating HFC23 waste stream from the existing HCFC22 production facility of Changshu Haike Chemical Co. Ltd., China. The HFC23 is currently entirely released to the atmosphere. The approved baseline and monitoring methodology AM0001/Version 05.1"Incineration of HFC23 waste streams" was applied.

Japan Quality Assurance Organization (JQA) as a DOE conducted the validation on the basis of UNFCCC, Kyoto Protocol and relevant decisions of COP/MOP and CDM-EB.

Through the implementation of the project activity, it is expected that the average amount of emission reductions to be achieved by this project activity is 3,473,385 tCO_2e/year.

JQA confirmed that the project activity meets all relevant criteria. Through the Certification Committee deliberation, JQA determined the project activity valid as a CDM project activity.

Report No : JQA-CDM-L-P0057-VR (Version 03)	Report Title : Changshu Haike HFC23 Decomposition Project	
Assessed by : Team Leader : Dr. Ikuo Tamori Member : Mr. Toshimizu Okada		Verified by : Leader: Mr. Shigenari Yamamoto Dr. Hiroshi Kuribayashi (External)

Abbreviations

AM	Approved Methodology
CAR	Corrective Action Request
CaF2	Calcium Fluoride
CDM	Clean Development Mechanism
CDM-EB	CDM Executive Board
CER	Certified Emission Reduction
CFC	Chlorofluorocarbon
CL	Clarification Request
CM	Combined Margin
CMP	Conference of the Parties serving as the Meeting of the Parties
CO2	Carbon Dioxide
COP/MOP	Conference of the Parties serving as the Meeting of the Parties
DNA	Designated National Authority
DRC	Development and Reform Committee
EIA	Environmental Impact Assessment
EPB	Environmental Protection Bureau
GHG	Greenhouse Gas
GWP	Global Warming Potential
HCFC	Hydrochlorofluorocarbon
HCl	Hydrochloric Acid
HF	Hydrofluoric Acid
HFC	Hydrofluorocarbon
ISO	International Organization for Standardization
JQA	Japan Quality Assurance Organization
NGO	Non-governmental Organization
NDRC	National Development and Reform Committee
ODA	Official Development Assistance
ODS	Ozone Depleting Substance
PDD	Project Design Document
QA/QC	Quality Assurance and Quality Control
SD	Sustainable Development
SEPA	State Environmental Protection Administration
UK	United Kingdom
UNFCCC	United Nations Framework Convention on Climate Change

Table of Contents

1 INTRODUCTION

The Japan Quality Assurance Organization (hereinafter referred to as JQA) performed the validation on “Changshu Haike HFC23 Decomposition Project“ which Changshu Haike Chemical Co. Ltd. is planning to develop in Changshu, China. This report summarizes the findings obtained during the validation process and validation opinion.

1.1 Objective

The objective of the validation is to review whether the project activity is in conformance with the requirements defined by the UNFCCC, the Kyoto Protocol, CDM Modalities and Procedures and related decisions by COP/MOP and CDM-EB. The most important thing to be confirmed is to achieve GHGs emissions reductions against the baseline in along with the Chinese sustainable development policy.

1.2 Scope

The scope of this validation process is set as follows:

a) Documentary
- UNFCCC
- Kyoto Protocol
- Relevant decisions of COP/MOP and CDM-EB
- PDD (Version 2, as of 10 January 2007) – PDD (Version 6, as of 03 December 2007)
- Chinese Environmental Laws and Regulations
- AM0001/Version 05.1“Incineration of HFC23 waste streams”

b) Physical

The project boundary is delineated within the factory of Changshu Haike Chemical Co. Ltd., Changshu, Jiangsu Province, China.

c) Organizational

There are two project participants as follows:
- Changshu Haike Chemical Co. Ltd. (China)
- EDF TRADING Limited (United Kingdom)

d) Temporal

The expected operational lifetime and the first crediting period of the project activity are set at 21 years and 7 years, respectively. The project activity starts on 1 May 2008.

1.3 GHG Project Description

Project Participants : Changshu Haike Chemical Co. Ltd., Jiangsu Province, China
EDF TRADING Limited, United Kingdom
Non-Annex 1 Party : People’s Republic of China (30 August 2002: Kyoto Protocol ratified)
Annex 1 Party : United Kingdom (31 May 2002: Kyoto Protocol ratified)
Project Site : Changshu, Jiangsu Province, China
Starting date of the project activity : 1 May 2008
Expected operation lifetime of the project activity : 21 years
Starting date of the first crediting period : 1 May 2008
Length of the first crediting period : 7 years (Renewable)
Technology : HFC23 Decomposition Process
The total estimate of anticipated reductions in tons of CO_2

: 3,473,385 tCO_2e/year

HFC23 (CHF_3), which is controlled under the Kyoto Protocol, is a by-product of HCFC22 ($CHClF_2$) production at Changshu Haike Chemical Co. Ltd. (hereinafter referred to as Changshu Haike). There is an extremely small amount of consumptions for HFC23 in China, and almost all of the HFC23 produced in the country is released into the air. This project activity is designed to reduce GHG emissions by installing a new HFC decomposition facility in the factory.

Through the implementation of the project activity, it is expected that HFC23, a GHG controlled under the Kyoto Protocol (GWP: 11,700 for the first commitment period) will be decomposed almost completely and that approximately 3.5 million tons of GHG in CO_2 equivalent will be reduced each year.

The first crediting period of the project activity is set 7 years and the aggregate reduction of emissions during the first crediting period is estimated as 24 million tCO_2e.

1.4 Validation Team

The validation team was arranged as follows based on the JQA CDM Quality Manual (Version 5, 6 December 2006) :

Team Leader	Dr. Ikuo Tamori	JQA Certified CDM Lead Assessor
Member	Mr.Toshimizu Okada	JQA Certified CDM Assessor

They are qualified as the assessors for the sector of the project (11).

The role and responsibility of the team leader is mainly to prepare the validation plan including the Desk Review, the Site-visit and related documentation and manage the validation activities of the team. And the leader is responsible for stating the validation opinion in the validation report.

The role and responsibility of the member is to implement the Desk Review and Site-visit including the investigation of background information and interviews with the project participants and related stakeholders, and also to indicate potential CARs and/or CLs through the validation activities.

Dr. Ikuo Tamori is a chemical engineer and qualified as a lead assessor of CDM. Before entering this department he worked as an assessor for environmental management systems (ISO 14001) and later joined the department of environmental measurements and analysis. Since he was engaged in the validation of the HFC23 decomposition project in Korea, which started as the first CDM project based on AM0001, he participated in numerous assessments of CDM and JI projects.

Mr. Toshimizu Okada is an assessor of CDM and ISO 14001. He has Master of Forest Resources. He has several experiences of CDM project validation and JI project determination including HFC23 decomposition, small-scale renewable energy, energy-efficiency improvement and biomass utilization. He acquired the expertise of the HFC23 decomposition project through validation of the similar two CDM projects.

2 VALIDATION PROCESS

The validation process of JQA consists of the following three phases:

1) Desk Review of the PDD and preparation of the report
2) Background Investigations including the Site-visit and interviews with stakeholders
3) Preparation of the Validation Report through resolution of clarifications (CLs) and corrective action requests (CARs)

The PDD is made directly publicly available on the UNFCCC and JQA websites. If JQA receives any public comments, every comment is informed to the project participants and the CDM secretariat for uploading it on the websites.

In the validation, Table 1 and Table 2 of Annex A based on the "Guideline for completing the CDM PDD" prepared by JQA are utilized as a tool of the validation. The protocol serves the following purposes:

- It organizes, details and clarifies the requirements a CDM project is expected to meet; and
- It ensures a transparent validation process by inducing the validator to document how a particular requirement has been validated and which conclusions have been reached;

Table 1 : Comprehensive Checklist for CDM Project Activities
Table 2 : Requirements Checklist and Resolution of Corrective Action Requests/Clarification Requests

Problems or findings identified in the process are indicated under the titles "CAR" (Corrective Action Request) and/or "CL" (Clarification Request) in the checklists (Table 1 and Table 2).
CAR requires the project participants to take some corrective action or others without fail, while CL indicates that it is desirable that the project participants take some corrective action or others though not mandatory. The validation process does not provide the project participants with any consulting service, but if they take justifiable and appropriate corrective action for CAR and CL items included in this report, such action will clearly contribute to substantial improvement of PDD.
The criteria for CL and CAR are as follows:

<CAR (Corrective Action Request)>

a) Non-compliance with laws and regulations of the host country, or
b) Non-conformance with requirements defined by the UNFCCC, COP/MOP, Kyoto Protocol, Decision 3/CMP.1, CDM-EB, or
c) Items, which would affect CER calculation significantly.

<CL (Clarification Request)>

a) Insufficient description from the view of accuracy, reliability, completeness and /or consistency, or
b) Vague expressions

Finally, all the CARs and CLs are resolved through the project participant's correspondences to those requests. Such correspondences are commented in italics in Table 2.

2.1 Schedule

The process was implemented as follows:

18 December 2006 : Agreement of the contract
12 January 2007 : Start of the Validation based on the PDD Version 1.0
25 January 2006 - 23 February 2007:
PDD Version 2 publicly available on the UNFCCC and JQA websites
27 February 2007 : Submission of the Desk Review Report
7 - 9 March 2007 : Site-visit to Changshu, China
16 March 2007 : Submission of the Site-visit Report
17 April 2007 : Receipt of the PDD Version 4
09 August 2007 : Preparation of the Validation Report
16 August 2007 : Certification Committee of JQA
17 August 2007 Receipt of the PDD Version 5
21 August 2007 Revision of the Validation Report (Version 02)
03 December 2007 Revision of the Validation Report (Version 03) based on the PDD Version 6

2.2 Desk Review of Documents

The Desk Review is conducted using by the CDM Validation Checklist (Annex A), which is prepared for this project activity as the JQA's version.
The main purposes of the Desk Review are as follows:

- Confirm the completeness of the PDD in accordance with the “Guidelines for Completing the PDD (CDM-PDD), Version 06.2, 19 December 2006”
- Review the PDD in order to judge the conformity of the project activity against the requirements
- Collect information regarding the project activity from an independent source for verification, if necessary
- Identify the issues at the Site-visit

And also, it focuses on:

- Completeness and comprehensibility of the document in accordance with the introductory guidance given in the “CDM Guidelines”
- Justification and appropriateness of the baseline and monitoring methodologies for the proposed project
- Transparency and conservativeness of the assumptions for the baseline
- Technological, political, socio-demographic and environmental and legal aspects and trends relevant to the proposed project
- Additionality of the proposed project
- Appropriateness of the calculation of GHG emission reductions
- Responsibility and authority for monitoring, measurement and recording activities in the monitoring plan including quality control and quality assurance

2.3 Background Investigations

The background investigations include the Site-visit to the project site and the interviews mainly with the key persons in the host country including local project participants and governmental officials.
On this process, the followings are investigated:

- SD policy in the host country including Environmental Impact Assessment
- CDM approval and authorization procedures by DNA

- Current regulations and future policies on the environment including regulations on HFC23 under the Kyoto Protocol and CFC under the Montreal Protocol
- Technologies related to the project activity in the host country
- Current status and future plan of the HCFC22 production
- Appropriateness of the project boundary including GHG emission sources
- Monitoring plan and monitoring structure
- EIA and local stakeholders consultation

2.4 Resolution of Clarifications and Corrective Action Requests

The project participants are requested to resolve the CLs and CARs pointed out in the Desk Review Report and the Site-visit Report.
Through resolving the CLs and CARs, the project participants revise the PDD and submit it to JQA.

2.5 Internal Quality Control

The manager of Global Environmental Assessment Division organizes the validation team after considering the expertise of the project, the assessor qualification suitable for the technical and regional aspects of the project, and the knowledge of environmental laws and regulations in the host country. Through the validation process, the validation team establishes the draft Validation Report including draft conclusion. The team leader of the validation team submits the documents including the outline of the validation result and the conclusion of the team to the Certification Committee of JQA, as a function to ensure that the validation is appropriately carried out. The Certification Committee, upon receipt of the draft Validation Report from the team, deliberates appropriateness of the validation and its procedures. After the Management Representative confirms the results of the deliberation, the Chair of the Certification Committee reports the results to the Senior Executive. Finally the Senior Executive decides the validity of the project as DOE.

3 VALIDATION FINDINGS

3.1 Participation Requirements

The project participants are Changshu Haike Chemical Co. Ltd., Jiangsu Province, China and EDF TRADING Limited, UK. The host Party, China, and Annex I Party, UK meet the requirements to participate in the CDM.

The Chinese DNA has issued a Letter of Approval on 13 July 2007, authorizing the company as a project participant. DNA of UK has approved the project, authorizing EDF TRADING Limited to voluntarily participate in the project on 16 August 2007.

3.2 Project Design

This project activity aims at reducing GHGs emissions by installing the decomposition equipment treating HFC23 generated in the HCFC22 production facility with the only one production line, which has been hitherto entirely released into the atmosphere. This is the only one existing HCFC22 production facility starting its operation in May 2000. The capacity in HCFC22 production of the factory is permitted to 20 k-tons in1996, and 35 k-tons in 2006 at the same unit. The former approval was issued on 17 May 1996 by Changshu Economy Committee, Changshu Planning Commission. The approval in 2006 was issued by Jiangsu Province Foreign Trade and Economic Cooperation Bureau. The increase of the production has been performed through the increase of the amount of catalyst packed in the reaction column.

HCFC22, one of the GHGs, is controlled under the Montreal Protocol, and allowed to produce until 2040 in China.

In this project Archema (Changshu) Fluorochemical Co. Ltd. which is not a PP is to play an important role through supplying HFC23 from the HCFC22 production facility. The validation team confirmed that the Articles of Changshu Haike Chemical Co. Ltd. describe the business scope in Article 8 to decompose HFC23 by-product from HCFC22 produced by Archema (Changshu) Fluorochemical Co. Ltd.

The baseline is established to be zero destruction in the absent regulations on HFC23 emissions, according to the approved methodology AM0001/Version 05.1 “Incineration of HFC23 waste streams”. The additional emission reduction is clearly acknowledged for the project activity, because the release of HFC23 to the atmosphere would continue in the absence of the project activity.

The project boundary is clearly defined as the facility to decompose HFC23. The facility is to be operated under the management of the project participant, and all the significant emission sources relating to the project activity are included within the boundary.

The technology for HFC23 decomposition is designed to adopt a thermal decomposition technology supplied from a French company. The technology is an advanced system for destroying gas emission, liquid and solid waste, and has been successfully applied in European countries. Such key factors affecting the high performance of the decomposition facility as 1200°C within the furnace and a 2-second residence time are clearly described. The rapid quenching of decomposed gas to approximately 45°C by direct spraying prevents the formation of any undesired organic molecules such as dioxin.

The monitoring and management structure for implementing the environmental management of the project is well documented using a figure, which will be supported by the ISO management system already established in Archema (Changshu) Fluorochemical Co. Ltd.

3.3 Baseline

The approved baseline methodology AM0001/Version 05.1 “Incineration of HFC23 waste streams” is applied to the project.
After through the Site-visit it was confirmed that the factory has never been used for the CFCs swing production, the fact was added in the revised PDD. It was added in line with the applicability condition that the existing HCFC22 production facility has also been in operation from 2005 until now and will continue operation for the whole project period. There are no regulations against HFC23 emission in China at present. Therefore, the applicability of the baseline methodology to the project activity is clearly justified.
The baseline scenario that HFC23, a by-product of HCFC22 production is directly released to the atmosphere with the lowest financial and technical barriers under no regulations in China is confirmed to be the most likely and plausible.
Through the Site-visit, the total annual productions of the existing HCFC22 facility were confirmed to be 7,937.7 tons in 2002, 13,179.3 tons in 2003 and 18,106.5 tons in 2004 respectively, from checking the monthly and daily data sheets, including the inventory of HCFC22 and the amounts filled in the disposables and Iso-containers. All the amounts HCFC22 were produced from the only one existing production line. The consistency of the daily data with the monthly data were checked on the sample base by the DOE.
In the project, the maximum quantity of HCFC22 produced from the existing production facility between 2000 and 2004 is set 18,106.5 tons per year for the production in 2004 during the three years from 2002 to 2004.
In the project design the value of “w” is set as 1.64 %, while the actual performance for the waste generation ratio is 1.87% in 2002, 1.64% in 2003 and 1.84% in 2004. For calculating “w” the first option of the AM0001 methodology, “Direct measurement of HFC23” is adopted, because the tail gas from the HCFC22 production facility has been measured by a vortex flow meter in the facility. The DOE checked the amounts of HFC23 by-product through the monthly and daily data sheets obtained by the vortex flow meter. The consistency of the daily data with the monthly data were checked on the sample base by the DOE. The amount of HFC23 by-product is obtained by multiplying the flow rate of the tail gas and the purity of HFC23. The weekly and monthly data of HFC23 purity was checked from the laboratory analysis data by gas chromatograph.

The revised PDD added the description of the measurement procedures, calculations and assumptions used to determine “w”.
Uncertainty of “w” values is examined through discussing the accuracy of the vortex flow meter and the gas chromatography for analyzing the tail gas, and the improvement of the tail gas sampling procedure in the revised PDD.

3.4 Additionality

(1) HCFC22, the main product in the Changshu Haike facility, is a typical ozone depleting substance (ODS). China ratified the Montreal Protocol on 27 February 1992, under which China is classified into Article 5, i.e., a developing country, and the consumption of HCFC22 (Annex C, Group I) is to be frozen below the consumption in 2015 after 1 January 2016, and finally, the amount of the consumption is converged to zero in 2040. At present there is no regulation against HCFC22 in China.
(2) At present, there is neither regulation nor obligation in China to reduce emission of HFC23.
As the result all the amount of HFC23 is released into atmosphere in the factory.

(3) HFC23 is a typical GHG, and has the big global warming potential (GWP) of 11, 700 times compared to CO_2. HFC23 is added to one of the targeted GHGs to control under the Kyoto Protocol.
(4) Installation of the HFC23 decomposition facility requires significant investment, and is very difficult without additional economic benefits like CDM projects.
(5) The HFC23 decomposition technology has been developed at the developed countries such as France and Japan. The decomposition efficiency is more than 99.999%. The up-to-date technology would not be transferred in China without CDM project activities.

For these reasons mentioned above, the project activity is recognized not the baseline, but results in additional environmental reductions.

3.5 Monitoring Plan

The approved monitoring methodology AM0001/Version 05.1 “Incineration of HFC23 waste streams” is applied to the project, and the applicability of the methodology is appropriately discussed and justified.
The monitoring for the quantity of HFC23 fed to the decomposition facility from the HCFC22 production facility and the quantity of HCFC22 production is crucial to the total emission reduction generated from the project activity. The quantity of HFC23 is measured by two flowmeters in series directly and continuously, and calibration will be done every six months by an officially accredited entity. The zero check on the flowmeters will be conducted every week. The purity of HFC23 supplied to the decomposition process is analyzed by gas chromatography. The verification will be conducted externally pursuant to “Verification Regulation of Gas Chromatograph (JJG700-1999)”. The quantity of HCFC22 production is measured by the weight meters. It was added in the revised PDD that all the weighing equipment concerned will be calibrated according to the Chinese national regulation and standards.
The vital factor, r_y for the baseline monitoring is listed in the monitoring plan.
HFC23_sold is also listed for the baseline monitoring, although HFC23 has not been sold by the company so far.
“q_HFC23y”, quantity of HFC23 generated in each HCFC-22 production line in the methodology, is not listed in B.7.1., because the followings are not applicable; (a) not all HFC-23 is destroyed, (b) several production lines operate, (c) part of the HFC-23 is sold.

The ID number for each monitoring parameter is added in B.7.1 of the PDD, in accordance with the methodology.

3.6 Calculation of GHG Emissions and Reductions Including Emission Factors

The baseline emissions and project emissions are appropriately evaluated in along with the defined calculation procedures.
For estimating the emission reductions, the historical HCFC22 production of 18,106.5 tons in 2004, the cut-off ratio of 1.64% in 2003 and HFC23 not destroyed of 0.001% are applied. The emission reductions are to be verified, based on the ex-post measurements of HFC23 generated from the HCFC22 production and HCFC22 itself. There is no problem with the estimation of GHG emission reductions of the project activity.

In the estimation of GHG emissions by sources other GHGs such as N_2O and HCFC22 are appropriately discussed in the PDD. The quantity of N_2O generated through thermal decomposition is estimated to be negligible. A small amount of sludge, CaF_2, generated after the decomposition process is evaluated as leakage due to transportation, and calculated as negligible in the revised PDD. It is judged that there will be no leakage associated with HCFC22 production outside the project boundary, as described in the PDD.
The emission factor for electricity issued by the National Development and Reform Commission of China (NDRC) on 16 October 2006 was used for E_Power in the calculation. In the revised PDD the revised emission factors issued on 09 August 2007 is used for the leakage estimation. In this project the Combined Margin (CM) emission factor, 9.0465×10^{-4} tCO_2e/kWh is used according to ACM0002.

3.7 Environmental Impacts

Under the EIA Law of China the proposed project shall go through an EIA and the project entity was requested to submit an EIA report to the local Environmental Protection Bureau for approval. It was confirmed at the Site-visit that the approval of Changshu EPB was already issued on 12 September 2006, and after that the approval of Jiangsu Province EPB was also issued on 13 November 2006.
The revised PDD describes the summary of the EIA report regarding gaseous emissions and liquid effluents, and noise, including COD.
The EIA describes the increase of noise due to air blower and others and the noise reduction measures to be installed. The revised PDD adds the description “The efficiency of these noise reduction measures will be inspected and approved by local authority before project start-up”.

3.8 Comments by Local Stakeholders

3.8.1 Local Stakeholders Consultation by Project Participants

Under the EIA Law of China all the construction projects which have the potential to generate adverse environmental impacts to or affect the public environmental benefits, should consult stakeholders with the EIA report draft. Regarding the public participation SEPA issued a new order on 18 March 2006. Under the order a two-stage public participation process was conducted: the first stage was commenced at the beginning of EIA activity on 28 April 2006, and the second one was after completing the EIA report draft on 22 June 2006. The periods when the questionnaires were distributed and collected at the two stages were added. The process included consultation meeting and the questionnaire-based survey.

The process of inviting public comments and the contents of comments received are described in detail including the period consulted in the revised PDD.

3.8.2 Interview with Government Officials

The Site-visit to Changshu City Office and interviews with key persons including high ranked governmental officials were conducted on 8 - 9 March 2007.
(see the section 8 “LIST OF INTERVIEWED PERSONS”)
Several key comments at Changshu City Office are as follows:

1) According to the official of Changshu DRC, the CDM project is in accordance with the Chinese policy on Sustainable Development, taking into account 65% of revenues from the transfer of CERs generated by the HFC23 Decomposition CDM project.

2) According to the official of Changshu EPB, there are no regulation against HCFC22 under Montreal Protocol and HFC23 under Kyoto Protocol in China at the moment because of the developing country. HCFC22 will be completely banned in 2040 under Montreal Protocol, and controlled against constructing new plants after 2016.
3) All the construction projects are controlled under the Environmental Impacts Assessment Law of China. This project was requested to conduct the EIA and prepare the EIA Report. The EIA Report was prepared by the Chinese Research Academy of Environmental Sciences accredited as Class A (No. 1001).
4) Changshu Environmental Protection Bureau deliberated the EIA Report and approved the application on 12 September 2006 with the conditions such as the strict emission limit of dioxin in the flue gas, taking the emission standard into account.
5) State Environmental Protection Administration (SEPA) issued "Interim Method for Public Participation in Environmental Impact Assessment" on 18 March 2006. This project had to invite the stakeholders' comments based on the interim method. Changshu EPB acknowledged the public participation conducted in this project is in line with the interim method.

4 GLOBAL STAKEHOLDER PROCESS

1. **Description of how and when the PDD was made publicly available:**
   The comments by Parties, stakeholders and NGOs were invited from 25 January 2007 to 23 February 2007 on the UNFCCC and JQA websites.

2. **Description of how comments were received and made publicly available:**
   There was no comment received.

3. **Explanation of how due account has been taken of comments received:**
   Not applicable

4. **Compilation of all comments received:**
   Not applicable

5 VALIDATION OPINION

1. JQA performed the validation of the HFC23 Decomposition Project in Changshu City, China by conducting Desk Review of the PDD (Version 2) presented by Changshu Haike Chemical Co. Ltd., China, in view of the UNFCCC, the Kyoto Protocol, Decision 3/CMP.1, relevant decisions of COP/MOP and the CDM-EB and Chinese environmental regulations and laws and also by making follow-up interviews including investigation of the Site-visit at Changshu, China. Visits to DNA at National Development and Reform Committee (NDRC) and State Environmental Protection Administration (SEPA) in December 2005 are taken into account in the background investigation for the validation.

The results of reviews and follow-up interviews were described in the Desk Review Report and Site-visit Report making use of the CDM Validation Checklist. Where the validation team had identified issues which needed clarification or presented a risk to the fulfillment of the project activity, CARs or CLs were issued in the checklist according to the requirements, and the reasons for them were provided in the column

"Comments."

2. According to the approved baseline methodology AM0001, the baseline scenario is established as continuing the release of HFC23 generated at the HCFC22 production facility to the atmosphere as long as there is no regulation. The validation team confirmed during the Site-visit that the factory had been operating HCFC22 production without the swing production. It was also confirmed by the data file that the HCFC22 production had been continued until the moment at the Site-visit. The validation team got convinced that the facility would continue operation until the start of the project activity, meeting the second applicability condition in the methodology.

3. In the factory the amounts of HCFC22 production and HFC23 by-product have been daily recorded and summarized as data on the monthly basis, and these data including the values of "w" were checked at the Site-visit. The validation team confirmed HCFC22 production from 2002 to 2004 through rechecking balance data including the inventory of HCC22 and the amounts filled in the disposables and Iso-containers.

4. Regarding the emission factors of the national grids, NDRC issued the revised factors on 09 August 2007. The revision is reflected in the PDD Version 06.

5. Issues pointed out in the Desk Review Report and the Site-visit Report as CARs and CLs have been resolved through the responses by the project participants. These resolutions are explained in italics in the checklist. The final results of the validation process clearly indicate that GHGs will be substantially reduced through the implementation of the project activity. HFC23 had been released to the air in the past, but the project activity will enable its abatement utilizing the CDM scheme. "Additionality" of the project activity is clearly assessed. The revised PDD (Version6) prepared using the approved methodology is determined as appropriate.

6. Regarding the application of EIA Law to the project the PDD describes "the proposed project shall go through an EIA and the project entity shall submit an EIA Report to local EPB for approval". Through the interview with the official at Changshu EPB, it was found that they consider the EIA law applicable to the project activity under "Environmental Protection Law of Solid Waste Pollution"(1st April 2005).

7. Comments from local stakeholders were properly invited by the project participants through the questionnaire-based survey. Most of their comments were supportive to the project activity. Through the interview with the local governmental official it was confirmed that they think the concept and rule in the CDM scheme is in accordance with the requirement in the law, and they regard the process of the questionnaire-based survey in the project no problem.
In the validation process public comments were invited on the UNFCCC and JQA websites, and any comment was not sent to JQA by the end of the period.

6 CONCLUSION

1. As the results the validation team confirmed that the project activity meets all relevant UNFCCC and Host Party criteria. It is stated in the PDD that the proposed CDM project aims to contribute to the sustainable development in China for several

reasons, and this was confirmed through interviews with key persons of the local government.
The total estimate of GHGs emission reduction by the project activity will amount to 3,473,385 tCO_2e/year. The fixed value will be determined by the ex-post assessment using the monitoring plan defined in the PDD and by checking the quantities of the HCFC22 production and HFC23 decomposition using the cut-off rate (w).

2. Through the Certification Committee deliberation, JQA determined the project activity valid as a CDM project activity.

7 REFERENCES

Category 1 Documents:

1. PDDs (Version 2 – Version 6)
2. Letter of Approval for Chagshu Haike HFC-23 Decomposition Project As a CDM Project by the National Development and Reform Commission of the People's Republic of China (No. 442, 13 July 2007)
3. Letter of Approval issued by UK DNA (EDF/51/2007, 16 August 2007)
4. Statement on Modalities for Communicating with the CDM Executive Board and the UNFCCC Secretariat (20th June 2007)
5. Measures for Operation and Management of Clean Development Mechanism Projects in China (12 October 2005)
6. China's Regional Grid Baseline Emission Factors 2007 (09 Aug 2007)

Category 2 Documents:

1. Environment Impact Assessment Report (September, 2006)
2. Approval of EIA/Jiangsu Province Economic Protection Bureau (12 September 2006)
3. Letter for EIA/Suzhou Economic Protection Bureau (16 October 2006)
4. Letter for EIA/Changshu Economic Protection Bureau (13 November 2006)
5. Approval for JV of Changshu Haike Chemicals Co. Ltd. /Changshu Foreign Trade and Economic Cooperation Bureau (COFCOM), Changshu Economic Trade Committee (7 August 2006)
6. Business License to Changshu Haike Chemical Co. Ltd./Suzhou Changshu Administration for Industry and Commerce (14 February, 2007)
7. Approval for 20KT Fluor products (1st phase)/COFCOM, Changhsu Economy Committee, Changshu Planning Commission (17 May 1996)
8. Approval (2nd phase)/Ministry of Foreign Trade and Economic Cooperation, PRC
9. Approval for 35KT HCFC22 (3rd phase)/Jiangsu Foreing Trade and Economic Cooperation Bureau, Permit for Foreign and Taiwan, Hong Kong, Macao Invested Enterprise (25 May 2006)
10. Notification for Haike HFC23 Decomposition CDM project/Changshu DRC (16 November 2006)
11. Management System Certificate for ISO 9001:2000 (Certificate No. 0689-2003-AQ-RGC-RvA)/(8 October 2006)
12. Management System Certificate for ISO 14001:2004 (Certificate No. 2244-2005-AE-RGC-RvA)/(8 October 2006)
13. Extensive Information for Changshu Haike HFC23 Decomposition CDM Project consultation to Local Resident, Corporations, Authorities
14. Consultation and Debate Meeting for Changshu Haike HFC23 Decomposition Project (23/June/2006)
15. Meeting record of Consultation Meeting for Changshu Haike HFC23 Decomposition Project (23/June/2006)
16. Questionnaires to Stakeholders
17. Introduction of Wastewater Treatment Center, Changshu Hi-tech Fluorine Chemical Industry Park
18. Regulations (ODS) in China, October 1999/National Environmental Protection Bureau
19. Welcome to Changshu (March 7th 2007)/Arkema Changshu
20. F23 & F22 output (2002 - 2006)

21. Report of Environment & Energy Data for HFC23 (2004 - 2006)
22. F23 reporting procedure (Rev:02, 5 March 2007)
23 Monthly data of F23 content analysis from Lab in 2002-2004
24. Verification Certificate, 8th/Nov/2006 (Vortex Flowmeter for monitoring HFC23)/The Center Metrology Station of Yangzi Petrochemical Co., Ltd.
25. Vortex Flow Measuring System (Version:4…20mA/HART) Operating Manual/ Endress + Hauser
26. Laboratory Work Instruction, Determination of R23 from D610 reflux and degas (Rev: 03, 1 September 2006)
27. Verification/Calibration of Measuring Equipment (Rev:02, 30 August 2006)
28. Verification/Calibration of Laboratory Equipment (Rev:02, 1 August 2006)
29. Certificates for weight meters (HCFC22)/Changshu Institute of Measurement and Test, and Instru Equipment Life Sheets (October 2003 – September 2006)
30. Environmental Protection Law of Solid Waste Pollution (1 April 2005)

8 LIST OF INTERVIEWED PERSONS

1 Dr. Fucai Wang, General Manager, Changshu Haike Chemical Co., Ld.
2 Mr. Patrick Roucoux, General Manager, Arkema (Changshu) Fluorochemical Co., Ltd.
3 Mr. Bernd Kloepzig, Technical General Manager, Arkema (Changshu) Fluorochemical Co., Ltd.
4 Mr. Guilhem Pouillevet, Project Engineer, Arkema (Changshu) Fluorochemical Co., Ltd.
5 Ms. Celine Zeng, Manager, Fluor Production Dept. Arkema (Changshu) Fluorochemical Co., Ltd.
6 Mr. Shi Renjie, Peter, Manager, HSE-Q Dept., Arkema (Changshu) Investment Co., Ltd. Changshu Branch
7 Mr. WANG Jialiang, HSE Supervisor, Arkema (Changshu) Investment Co., Ltd. Changshu Branch
8 Mr. Tao Jianxia, Lab Supervisor, Arkema (Changshu) Fluorochemical Co., Ltd.
9 Mr. Gao Fei, Shift Supervisor, Arkema (Changshu) Fluorochemical Co., Ltd.
10 Mr. Wang Xiangdong, Chief, General Planning Division, Changshu Environmental Protection Bureau
11 Mr. Jiang Wei, Deputy Director, Changshu Environmental Protection Bureau
12 Mr. Chen Lixin, Vice Director, Administration Committee of Changshu Hi-tech Fluorine Chemical Industry Park
13 Mr. Fan Guohua, Chief, External Affairs Dept. Administration Committee, Changshu Hi-tech Fluorine Chemical Industry Park
14 Mr. Yan Yuefeng, Vice Director, Changshu Development and Reform Committee
15 Mr.Yin Wei, Chief, Industry and Hi-tech Department of Changshu Development and Reform Committee

Annex A

CDM Validation Checklist

Changshu Haike Chemical Co. Ltd.

"Changshu Haike HFC23 Decomposition Project"

Project No. JQA-CDM-L-P0057

Date: 03 December 2007

JAPAN QUALITY ASSURANCE ORGANIZATION

Table 1 Comprehensive Checklist for CDM Project Activities

Requirements	Reference	Conclusion	Evidence
1. The purpose of the CDM	Kyoto Protocol Article 12.2		
1.1. The project activity shall assist the host country in achieving sustainable development		OK	Written Approval by the DNA of China was issued on 13 July 2007.
1.2. The project activity shall assist the host country in contributing to the ultimate objective of the Convention.		OK	Ditto
1.3. The project activity shall assist Parties included in Annex I in achieving compliance with part of their emission reduction commitment under Art. 3.		OK	Written Approval by the DNA of United Kingdom was issued on 16 August 2007.
2. Emission reductions resulting from the project activity shall be certified by DOE on the basis of:	Kyoto Protocol Article12.5		
2.1. Voluntary participation approved by each Party involved	(a)	OK OK	Written Approval by the DNA of China was issued on 13 July 2007. Written Approval by the DNA of United Kingdom was issued on 16 August 2007.
2.2. Real, measurable and long-term benefits related to the mitigation of climate change	(b)	OK	Section B, E
2.3. Reductions in emissions that are additional to any that would occur in absence of the project activity	(c)	OK	Section B, E
3. CDM Modalities and Procedures (Decision 17/CP. 7)	Paragraph 37		
3.1. Participation requirements	(a)		

3.1.1. Participation in a CDM project activity is voluntary.	Paragraph 28	OK	Refer to 2.1.
3.2. The authorization of a private and/or public entity, to participate in a CDM project activity referred to in paragraph 33 of the modalities and procedures, is provided in writing by the DNA of the Party pursuant to the laws of which the private and/or public entity is constituted as a legal entity. The authorization: ➢ May be included in the written approval referred to in paragraph 1.1 above ➢ Can pertain to a specific project activity or be of general character.	CDM Guideline Version 06 (28 July 2006)	OK	Ditto
3.2.1. Parties participated in the CDM shall designate a national authority for the CDM.	Paragraph 29	OK	http://cdm.unfccc.int/DNA
3.2.2. A host country may participate in a CDM project activity if it is a Party to the Kyoto Protocol.	Paragraph 30	OK	http://unfccc.int/resource/kpstats.pdf
3.3. Comments by local stakeholders	37 (b)	OK	Table 2 Section G
3.4. Analysis of the environmental impacts of the project activity	37 (c)	OK	Table 2 Section F
3.5. Additionality	37 (d)	OK	Table 2 Section B and E
3.6. Use of the approved baseline and monitoring methodologies	37 (e)	OK	Table 2 Section B and D (AM0001/Version 05.1)
3.7. Provisions for monitoring, verification and reporting	37 (f)	OK	Table 2 Section D
3.8. Other requirements including relevant decisions by the COP/MOP an the executive board	37 (g)	OK	Decisions of the CDM EB, including CDM Guideline

3.9. Parties, stakeholders and UNFCCC accredited NGOs shall have been invited to comment on the validation requirements for 30 days, and the project design document and comments have been made publicly available.	40 (c)	OK	No comment was received. Start date: 25/Jan/2007 Close date: 23/Feb/2007
4. PDD Format	CDM Guidelines (Version 06)		
4.1. If project participants wish to submit a project activity for validation and registration, they shall submit a fully completed CDM-PDD.	PART I Paragraph 3	OK	CDM Form (CDM-PDD, version 03) and CDM Guideline
4.2. The CDM-PDD shall be completed and submitted in English language to the Executive Board.	PART I Paragraph 12	OK	
4.3. The CDM-PDD template shall not be altered, that is, shall be completed using the same font without modifying its format, font, headings or logo.	PART I Paragraph 13	OK	
4.4. Tables and their columns shall not be modified or deleted. Rows may be added, as needed.	PART I Paragraph 14	OK	
4.5. The CDM-PDD shall include in A.1 the version number and the date of the document.	PART I Paragraph 15	OK	
4.6. If section of the PDD is not applicable, it shall be explicitly stated that section is left blank on purpose.	PART I Paragraph 16	OK	
4.7. The CDM-PDD is not applicable to A/R CDM project activity.	PART I Paragraph 17	OK	No A/R CDM
5. **Modalities of communication**	CDM Guideline (Version 06)		

5.1 The modalities of communication between project participants and the Executive Board are indicated at the time of registration by submitting a statement signed by all project participants.		OK	The Statement on Modalities for communication dated on 20th June 2007 was received.

TABLE 2 REQUIREMENTS CHECKLIST AND RESOULTION OF CORRECTIVE ACTION REQUESTS/CLARIFICATION REQUESTS

CHECKLIST QUESTION	PDD Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
A. General Description of Project Activity *The project design is assessed.*					
A.1. Project Boundaries *The project Boundary encompass all GHGs under the control of the project participants that are significant and reasonable attributable to the CDM project activity.*					
A.1.1. Is the project boundary clearly defined?		DR	The project boundary is clearly defined.	OK	
A.1.2. Does the boundary include any components and facilities under the control of project participants, which are significant and attributable to the CDM project activity ?		DR	The boundary includes all the components and facilities.	OK	
A.2. Technology to be employed *Validation of project technology focuses on the project engineering, choice of technology and competence/ maintenance needs. The validator should ensure that environmentally safe and sound technology and know-how is used.*					
A.2.1. Does the project design engineering reflect current good practices?		DR	The advanced technology of a French company will be transferred.	OK	

CHECKLIST QUESTION	PDD Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
A.2.2. Does the project use state of the art technology or would the technology result in a significantly better performance than any commonly used technologies in the host country?		DR	It is not clear how the decomposition technology and equipment of VICHEM may be different from those used at UK and France. (PDD/Page 9) *The description of the technology and equipment of VICHEM was revised as to be very similar, compared to those used in UK and France.*	~~CL1~~	***OK***
A.2.3 Is the project technology likely to be substituted by other or more efficient technologies within the project period?		DR	The technology employed by the project will not be substituted within the project period.	OK	
A.2.4. Does the project require extensive initial training and maintenance efforts in order to work as presumed during the project period?		DR	It is described how the project personnel will be trained for the operation of the incineration facility, and maintenance/calibration of the equipment with the assistance of the supplier.	OK	
A.3. Contribution to Sustainable Development *The project's contribution to sustainable development is assessed.*					

CHECKLIST QUESTION	PDD Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
A.3.1 Is the project in line with relevant legislation and plans in the host country?		DR SV	It is not described whether there is any regulation against HCFC22 in China. *It was added in the PDD that production of HCFC22 is allowed until 2040 in China, under the Montreal Protocol.* It is to be confirmed at the Site-visit. *Through the Site-visit, it was confirmed that HCFC22 is to be controlled for constructing new plants after 2016.*	~~CL2~~ - 	 ***OK*** ***OK***
A.3.2. Is the project in line with host-country specific CDM requirements?		SV	It is to be confirmed at the Site-visit whether the project activity is in line with the "Measures for Operation and Management of Clean Development Mechanism Projects in China" *It was confirmed at the Site-visit that Changshu Development and Reform Committee had issued the notification admitting the CDM project on 16 November 2006.*	-	 ***OK***
A.3.3.Is the project in line with sustainable development policies of the host country?		DR	It was previously confirmed by interview with DNA officials.	OK	

CHECKLIST QUESTION	PDD Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
A.3.4. Will the project create other environmental or social benefits than GHG emission reductions?		DR	It is described that the project can attract foreign investment and advanced technology, and provide more employment opportunities.	OK	
B. Project Baseline *The validation of the project baseline establishes whether the selected baseline methodology is appropriate and whether the selected baseline represents a likely baseline scenario.*					
B.1. Baseline Methodology *It is assessed whether the project applies an appropriate baseline methodology.*					
B.1.1. Is the baseline methodology previously approved by the CDM Methodology Panel?		DR	AM0001/Version 05.1 is applied.	OK	

CHECKLIST QUESTION	PDD Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
B.1.2. B.1.2. Is the methodology applicable to HFC23 waste s stream from an exiting HCFC22 production facility and the HCFC22 production facility operation at three years between beginning of the year 2000 and the end of the year 2004?		SV	*It was confiremed that the existing HCFC22 production facility has the only one production line.* *The increase of the capacity in HCFC22 production of the factory has been permitted to 20 k-tons in1996, and 35 k-tons 2006 at the same unit. The first approval was confirmed to be issued on 17 May 1996 by Changshu Economy Committee, Changhsu Planning Commission. The approval in 2006 was issued by Jiangsu Province Foreign Trade and Economic Cooperation Bureau.* *The increase of the production has been performed through the increase of the amount of catalyst packed in the reaction column.*	- -	***OK*** ***OK***

CHECKLIST QUESTION	PDD Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
		DR SV	The HCFC22 facility started its operation in May 2000. It has an operating history of at least three years between 2000 and 2004, and has been also in operation from 2005. However, the HCFC22 production facility needs to be in operation from 2005 until the start of the project activity, due to the applicability condition.	~~CL3~~	
			It was added in B.2. of the PDD that the existing HCFC22 production facility will continue operation for the whole project period.		***OK***
			The historical operations of the facility are to be confirmed at the Site-visit.	-	
			HCFC22 productions during the three years from 2002 to 2004 and until the Site-visit in March 2007 were confirmed through surveying the historical monthly and/or daily data of the factory.		***OK***

CHECKLIST QUESTION	PDD Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
			Information on swing production at the HCFC22 facility is not provided in the PDD. *"The facility is dedicated for HCFC22 production, and has never been used for CFCs swing production" was added. The fact was also confirmed through the Site-visit.*	~~CL4~~	***OK***
B.1.3. Does no regulation require the destruction of the total amount of HFC23 waste in the Host country?		DR SV	It is described that there is no regulation restricting HFC23 emissions at this moment and in the near future. It is to be confirmed at the Site-visit. *At the Site-visit, the official of Changshu Environmental Protection Bureau told that there is no regulation against HFC23 at the moment in China under the Kyoto Protocol.*	-	***OK***
B.2. Baseline Determination *The choice of baseline will be validated with focus on whether the baseline is a likely scenario, whether the project itself is not a likely baseline scenario, and whether the baseline is complete and transparent.*					
B.2.1. Is the baseline methodology the one deemed most applicable for this project and is the appropriateness justified?		DR	AM0001 is the only one methodology specific to this type of project activity. So, it is the one deemed most applicable.	OK	

CHECKLIST QUESTION	PDD Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
B.2.2. Is the application of the methodology and the discussion and determination of the chosen baseline transparent?		DR	The methodology is appropriately applied. The situation of HCFC22 production including swing production is not clearly described. *Ibid B.1.2.*	OK ~~CL5~~	 ***OK***
B.2.3. Has the baseline been established on a project-specific basis?		DR	The project specific "w" and "r_y" are used.	OK	
B.2.4. Has the baseline been determined using conservative assumptions where possible?		DR SV	The productions of HCFC22 and values of "w" are to be confirmed at the Site-visit. *The monthly and/or daily data for HCFC22 and "w" were investigated through the Site-visit. HCFC22 productions from 2002 to 2004 were confirmed through rechecking balance data including the inventory of HCFC22 and the amounts filled in the disposables and Iso-containers.*	-	 ***OK***

CHECKLIST QUESTION	PDD Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
B.2.5. Is the baseline determination compatible with the available data?		DR SV	The total annual productions from 2002 to 2004 are given, respectively. The maximum production level at the plant is set as the production in 2004. Details are to be confirmed at the Site-visit. *Ibid B.2.4.*	- - 	 ***OK***
B.2.6. Does the selected baseline represent the most likely scenario among other possible and/or discussed scenarios?		DR	It is the most plausible one.	OK	
B.2.7. Is it demonstrated/justified that the project activity itself is not a likely baseline scenario?		DR	It is demonstrated.	OK	

CHECKLIST QUESTION	PDD Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
B.2.8. Have the major risks to the baseline been identified?		DR SV	The major risks to the baseline are not evaluated in relation to the uncertainties. *The method was identified as direct measurement in the PDD. The major risks of the method were evaluated in B.6.1.* The uncertainty of the value "w" is not quantified and conservative emission rate estimates is not made, whereas AM0001 describes "Uncertainty in emission rate estimates shall be quantified and conservative emission rate estimates shall be used when calculating expected emission reductions". *The uncertainty of "w" was discussed quantitatively and the emission reductions were conservatively estimated.*	~~CL6~~ ~~CAR1~~	***OK*** ***OK***

CHECKLIST QUESTION	PDD Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
			The measurement procedures, calculations and assumptions used to determine "w" should be documented transparently in the PDD, whereas It has been just added in the revised methodology. *The description of the procedures as well as* calculations and assumptions used, *was added in the PDD, in accordance with the methodology.*	~~CL7~~	***OK***
B.2.9. Are all literature and sources clearly referenced?		DR SV	Daily data log sheets for HCFC22 production, the values of "w" and others are to be confirmed at the Site-visit. *All electronically recorded data for HCFC22 production from 2002-2004 was archived and the monthly and daily records were checked through the Site-visit.*	-	***OK***
C. Duration of the Project/ Crediting Period *It is assessed whether the temporary boundaries of the project are clearly defined.*					

CHECKLIST QUESTION	PDD Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
C.1.1. Are the project's starting date and operational lifetime clearly defined and reasonable?		DR	01/01/2008 and 21 years *The date was revised to 01/05/2008.*	OK	 ***OK***
C.1.2. Is the assumed crediting time clearly defined and reasonable (renewable crediting period of max. two x 7 years or fixed crediting period of max. 10 years)?		DR	The renewable crediting period is chosen and the first crediting period is set as 7 years. *The starting date of the first crediting period was revised to 01/05/2008.*	OK	 ***OK***
D. Monitoring Plan *The monitoring plan review aims to establish whether all relevant project aspects deemed necessary to monitor and report reliable emission reductions are properly addressed ((Blue text contains requirements to be assessed for optional review of monitoring methodology prior to submission and approval by CDM EB).*					
D.1. Monitoring Methodology *It is assessed whether the project applies an appropriate baseline methodology.*					
D.1.1. Is the monitoring methodology previously approved by the CDM Methodology Panel?		DR	AM0001/Version 05.1 is applied.	OK	

CHECKLIST QUESTION	PDD Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
D.1.2. Is the monitoring methodology applicable for this project and is the appropriateness justified?		DR SV	The HCFC22 production facility needs to be in operation from 2005 until the start of the project activity, according to the AM0001/Version05.1. *It was confirmed at the Site-visit that the facility has been in operation from 2005. The validation team got convinced through the Site-visit that the facility would continue operation until the start of the project activity.*	~~CL8~~	***OK***
D.1.3. Is the discussion and selection of the monitoring methodology transparent?		DR SV	Explanation of P_HFC23 is not clear. It is to be confirmed at the Site-visit. *Explanation of P_HFC23 was revised in the PDD. The use of historical value for the purity of HFC23 was clearly described.*	~~CL9~~	***OK***
D.2. Monitoring of Project Emissions *It is established whether the monitoring plan provides for reliable and complete project emission data over time.*					

CHECKLIST QUESTION	PDD Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
D.2.1. Does the monitoring plan provide for the collection and archiving of all relevant data necessary for estimation or measuring the greenhouse gas emissions within the project boundary during the crediting period?		DR	It is not clear what is the relevant standard for two flow meters and what is the officially accredited entity for calibration. *The Chinese official standard JJG198-94 was shown in the PDD. The description of the calibration by an external accredited entity (e.g. The Center Metrology Station of Yangzi Pertrochemical Co. Ltd.) was also added.*	~~**CL10**~~	***OK***
D.2.2. Are the choices of project GHG indicators reasonable?		DR	The project indicators are reasonably chosen.	OK	
D.2.3. Will it be possible to monitor / measure the specified project GHG indicators?		DR	It will be possible.	OK	
D.2.4. Will the indicators give opportunity for real measurements of achieved emission reductions?		DR	The indicators including the quantity of HFC23 in gaseous effluent will be measured.	OK	
D.2.5. Will the indicators enable comparison of project data and performance over time?		DR	It will be possible to compare the project data with the indicators.	OK	

CHECKLIST QUESTION	PDD Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
D.3. Monitoring of Leakage *It is assessed whether the monitoring plan provides for reliable and complete leakage data over time.*					
D.3.1. Does the monitoring plan provide for the collection and archiving of all relevant data necessary for determining leakage?		DR	The estimate of transporting HF solution is different between B.6.3. and Annex 3. *The value in Annex 3 was corrected.*	~~CL11~~	***OK***
D.3.2. Have relevant indicators for GHG leakage been included?		DR	Electricity and steam consumption by the destruction process is included. The leakage effect associated with HCFC22 is also discussed.	OK OK	
D.3.3. Will it be possible to monitor the specified GHG leakage indicators?		DR	It will be possible to monitor them.	OK	
D.4. Monitoring of Baseline Emissions *It is established whether the monitoring plan provides for reliable and complete project emission data over time.*					

CHECKLIST QUESTION	PDD Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
D.4.1. Does the monitoring plan provide for the collection and archiving of all relevant data necessary for determining baseline emissions during the crediting period?		DR SV	q_HFC23y, P_HFC23y, Q_HCFC22y and ry are provided in the monitoring plan. Through SV, it was pointed out that weight meters for the amounts of HCFC22 should be described to have periodic calibration procedures. *"All weighing concerned equipment will be calibrated according to Chinese national regulation and standards." was added in B.7.1.*	OK ~~CL12~~	***OK***
D.4.2. Is the choice of baseline indicators, in particular for baseline emissions, reasonable?		DR	It is reasonable.	OK	
D.4.3. Will it be possible to monitor the specified baseline indicators?		DR	It will be possible.	OK	
D.5. Monitoring of Sustainable Development Indicators/ Environmental Impacts *It is checked that choices of indicators are reasonable and complete to monitor sustainable performance over time.*					
D.5.1. Are indicators required to monitor sustainable performance?		DR		OK	

CHECKLIST QUESTION	PDD Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
D.5.2. Does the monitoring plan provide the collection and archiving of relevant data concerning environmental, social and economic impacts?		DR		OK	
D.5.3. Is the choice of indicators for sustainability development (social, environmental, economic) reasonable?		DR		OK	
D.5.4. Will it be possible to monitor the specified sustainable development indicators?		DR		OK	
D.5.5. Are the sustainable development indicators in line with stated national priorities in the Host Country?		DR		OK	
D.6. Project Management Planning *It is checked that project implementation is properly prepared for and that critical arrangements are addressed.*					
D.6.1. Is the authority and responsibility of project management clearly described?		DR	A special environmental management department, HSEQ Dept. will be responsible for the operational and management.	OK	
D.6.2. Is the authority and responsibility for registration, monitoring, measurement and reporting clearly described?		DR	The authority and responsibility for the monitoring structure is provided, including ISO9001 and ISO14001 Management Systems.	OK	
D.6.3. Are procedures identified for training of monitoring personnel?		DR	The procedures are identified.	OK	
D.6.4. Are procedures identified for emergency preparedness for cases where emergencies can cause unintended emissions?		DR	Emergency preparedness and response procedure is described.	OK	

CHECKLIST QUESTION	PDD Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
D.6.5. Are procedures identified for calibration of monitoring equipment?		DR	Refer to D.2.1. *Ditto*	~~CL10~~	***OK***
D.6.6. Are procedures identified for maintenance of monitoring equipment and installations?		DR	The procedures are identified.	OK	
D.6.7. Are procedures identified for monitoring, measurements and reporting?		DR	Procedures are identified.	OK	
D.6.8. Are procedures identified for day-to-day records handling (including what records to keep, storage area of records and how to process performance documentation)		DR	The procedures are to be confirmed at the Site-visit.	OK	
D.6.9. Are procedures identified for dealing with possible monitoring data adjustments and uncertainties?		DR	The technology supplier will also provide specialized training for and instruction on installation, operation, maintenance and calibration of all the new equipment.	OK	
D.6.10. Are procedures identified for review of reported results/data?		DR	Procedures are identified.	OK	
D.6.11. Are procedures identified for internal audits of GHG project compliance with operational requirements where applicable?		DR	Procedures are identified.	OK	
D.6.12. Are procedures identified for project performance reviews before data is submitted for verification, internally or externally?		DR	Procedures are identified.	OK	

CHECKLIST QUESTION	PDD Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
D.6.13. Are procedures identified for corrective actions in order to provide for more accurate future monitoring and reporting?		DR	Procedures are identified.	OK	
E. Calculation of GHG Emissions by Source *It is assessed whether all material GHG emission sources are addressed and how sensitivities and data uncertainties have been addressed to arrive at conservative estimates of projected emission reductions.*					
E.1. Predicted Project GHG Emissions *The validation of predicted project GHG emissions focuses on transparency and completeness of calculations.*					

CHECKLIST QUESTION	PDD Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
E.1.1. Are all aspects related to direct and indirect GHG emissions captured in the project design?		DR SV	Information on the quantity of HCFC22 in the tail gas is not sufficient. It is to be confirmed at the Site-visit. *It was added that a few percent of HCFC22 is included in the tail gas.* EF and its value should not be compiled in the section B.6.2., according to the Guideline (CDM-PDD). *The EF was deleted.*	~~CL13~~ - ~~CL14~~	 ***OK*** ***OK***
E.1.2. Are the GHG calculations documented in a complete and transparent manner?		DR SV	Ditto *Ditto*	~~CL14~~	 ***OK***
E.1.3. Have conservative assumptions been used to calculate project GHG emissions?		DR		OK	
E.1.4. Are uncertainties in the GHG emissions estimates properly addressed in the documentation?		DR		OK	

CHECKLIST QUESTION	PDD Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
E.1.5. Have all relevant greenhouse gases and source categories listed in Kyoto Protocol Annex A been evaluated?		DR	N_2O is also discussed.	OK	
E.2. Leakage *Leakage is defifined as the net change of GHGs which occurs outside the project boundary, and which is measurable and attributable to the CDM project activity.*					
E.2.1. Are potential leakage effects beyond the chosen project boundaries properly identified?		DR	Will any sludge, such as CaF_2 and/or $CaCl_2$, not be generated in treating liquid effluent at the WTC of FCIP? *It was added that 2.445 tons of pure CaF_2 is generated in the WTC of FCIP.* *The leakage due to transportation was evaluated as negligible.*	~~CL15~~	***OK***

CHECKLIST QUESTION	PDD Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
E.2.2. Have these leakage effects been properly accounted for in calculations?		DR SV	NDRC issued the emission factors for the CDM projects on 16 October 2006. However, these factors were revised on 15 December 2006. Factors used in the PDD are not based on the new version. *The emission factors were revised as the updated data issued on 09 August 2007.* Parameters for E_Steam_y are to be confirmed at the Site-visit. *The CO_2 emission factor for E_Steam y was divided into calorific value of coal and the emission factor for hard coal. The data sources were provided for both parameters. The emission factor was revised to more conservative one than before.*	~~**CAR2**~~ - -	 ***OK*** ***OK***
E.2.3. Does the methodology for calculating leakage comply with existing good practice?		DR		OK	
E.2.4. Are the calculations documented in a complete and transparent manner?		DR		OK	
E.2.5. Have conservative assumptions been used when calculating leakage?		DR		OK	

CHECKLIST QUESTION	PDD Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
E.2.6. Are uncertainties in the leakage estimates properly addressed?		DR		OK	
E.3. Baseline Emissions *The validation of predicted baseline GHG emissions focuses on transparency and completeness of calculations.*					
E.3.1. Have the most relevant and likely operational characteristics and baseline indicators been chosen as reference for baseline emissions?		DR SV	Baseline indicators including, HCFC22 production and "w" values are to be confirmed at the Site-visit. *Refer to B.2.4*	-	 ***OK***
E.3.2. Are the baseline boundaries clearly defined and do they sufficiently cover sources and sinks for baseline emissions?		DR	The baseline boundary is clearly defined.	OK	
E.3.3. Are the GHG calculations documented in a complete and transparent manner?		DR SV	*Refer to B.2.8.* GHG calculations are to be confirmed at the Site-visit. *It was confirmed through the Site-visit that GHG calculations are correct.*	-	 ***OK***
E.3.4. Have conservative assumptions been used when calculating baseline emissions?		DR SV	Ditto *Ditto*	-	 ***OK***

CHECKLIST QUESTION	PDD Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
E.3.5. Are uncertainties in the GHG emission estimates properly addressed in the documentation?		DR	Uncertainties are not sufficiently addressed. *The uncertainties were discussed, taking into account the accuracy of vortex flow meter and gas chromatograph.*	~~CL12~~	***OK***
E.3.6. Have the project baseline(s) and the project emissions been determined using the same appropriate methodology and conservative assumptions?		DR	There have been appropriately determined.	OK	
E.4. Emission Reductions Validation of baseline GHG emissions will focus on methodology transparency and completeness in emission estimations.					
E.4.1. Will the project result in fewer GHG emissions than the baseline scenario?		DR		OK	
F. Environmental Impacts *Documentation on the analysis of the environmental impacts will be assessed, and if deemed significant, an EIA should be provided to the validator.*					

CHECKLIST QUESTION	PDD Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
F.1.1. Has an analysis of the environmental impacts of the project activity been sufficiently described?		DR	Environmental impacts are discussed and estimated, comparing with relevant standards. There is no description on COD in wastewater discharge. *Information on COD and its impact was added.*	OK ~~CL17~~	***OK***
F.1.2. Are there any Host Party requirements for an Environmental Impact Assessment (EIA), and if yes, is an EIA approved?		DR SV	It is to be confirmed through checking the permission issued by the Environmental Protection Bureau at the Site-visit. *Jiangsu Province Environmental Protection Bureau deliberated the EIA Report and approved the application on 13 November 2006 with the conditions such as the strict emission limit of dioxin in the flue gas, taking the emission standard into account.*	-	***OK***
F.1.3. Will the project create any adverse environmental effects?		DR	Gaseous and liquid effluents, and metals are to be monitored.	OK	
F.1.4. Are transboundary environmental impacts considered in the analysis?		DR		OK	

CHECKLIST QUESTION	PDD Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
F.1.5. Have identified environmental impacts been addressed in the project design?		DR	*The EIA describes the increase of noise due to air blower and others and the noise reduction measures to be installed. The revised PDD adds the description "The efficiency of these noise reduction measures will be inspected and approved by local authority before project start-up".*	OK -	***OK***
F.1.6. Does the project comply with environmental legislation in the host country?		DR SV	It is confirmed at the Site-visit. *Changshu Environmental Protection Bureau approved the project, admitting it complies with environmental legislation in China.*	-	*OK*
G. Stakeholder Comments *The validator should ensure that a stakeholder comments have been invited and that due account has been taken of any comments received.*					

CHECKLIST QUESTION	PDD Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
G.1.1. Have relevant stakeholders been consulted?		DR SV	It is not clear when the questionnaires were distributed and collected. They are to be confirmed through the Site-visit. *Information on the stakeholders consultation was confirmed at the Site-visit.* *The periods when the questionnaires were distributed and collected at the two stages were added.*	~~CL18~~ - 	***OK***
G.1.2. Have appropriate media been used to invite comments by local stakeholders?		DR SV		OK	
G.1.3. If a stakeholder consultation process is required by regulations/laws in the host country, has the stakeholder consultation process been carried out in accordance with such regulations/laws?		DR SV	It is to be confirmed at Site-visit. *It was confirmed at the Site-visit that the public participation was in line with the interim method, through the interview with officials of Changshu EPB.*	- 	***OK***
G.1.4. Is a summary of the stakeholder comments received provided?		DR SV		OK	

CHECKLIST QUESTION	PDD Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
G.1.5. Has due account been taken of any stakeholder comments received?		DR SV	How did the project participants responded to negative comments, if any?	~~CL19~~	
			The additional description of the responses was added in E.2.		***OK***
			The last sentence of E.3. should be reviewed in the final version of the PDD.	~~CL20~~	
			The description was deleted in the revised PDD.		***OK***
			It is to be confirmed at Site-visit.	-	
			Refer to G.1.3.		***OK***

Annex B

Certificate

Dr. Ikuo TAMORI

Grade:	Lead Assessor
Assessor No.:	CDM - LA001
Assigned Date:	2003.08.11

This is to certify that Dr. Ikuo TAMORI is assigned as CDM Lead Assessor by the Japan Quality Assurance Organization.

Date: February 26. 2007

Japan Quality Assurance Organization

M. Ueda

President Matahiro UEDA

Grant of sectoral scope to CDM/JI assessor

Assessor Name: Dr. Ikuo TAMORI

Grade: Lead Assessor

Assessor No.: CDM-LA001 / JI-LA001

Sectoral Scope	Granted date
1. Energy industries (renewable - / non-renewable sources)	1 Jun. 2003
2. Energy distribution	1 Jun. 2003
3. Energy demand	1 Jun. 2003
4. Manufacturing industries	1 Jun. 2003
5. Chemical industry	1 Jun. 2003
6. Construction	-
7. Transport	1 Jun. 2003
8. Mining/Mineral production	1 Jun. 2003
9. Metal production	1 Jun. 2003
10. Fugitive emissions from fuels (solid, oil and gas)	1 Jun 2003
11. Fugitive emissions from production and consumption of halocarbons and sulphur hexafluoride	1 Jun. 2003
12. Solvents use	1 Jun. 2003
13. Waste handling and disposal	1 Jun. 2003
14. Afforestation and reforestation/Land use, land-use change and forestry	-
15. Agriculture	-

This is to certify that Dr. Ikuo TAMORI is granted by the Japan Quality Assurance Organization.

Date: 18/APR/2007

Director of the Global Environment Department
Japan Quality Assurance Organization

Masaki MAEGAITO

Certificate

Mr. Toshimizu OKADA

Grade:	Assessor
Assessor No.:	CDM - AS004
Assigned Date:	2003.10.01

This is to certify that **Mr. Toshimizu OKADA** is assigned as CDM Assessor by the Japan Quality Assurance Organization.

Date: February 26, 2007

Japan Quality Assurance Organization

M. Ueda

President Matahiro UEDA

Grant of sectoral scope to CDM/JI assessor

Assessor Name: Mr. Toshimizu OKADA

Grade: Assessor

Assessor No.: CDM-AS004 / JI-AS004

Sectoral Scope	Granted date
1. Energy industries (renewable - / non-renewable sources)	1 Nov. 2006
2. Energy distribution	-
3. Energy demand	-
4. Manufacturing industries	-
5. Chemical industry	-
6. Construction	-
7. Transport	-
8. Mining/Mineral production	-
9. Metal production	-
10. Fugitive emissions from fuels (solid, oil and gas)	-
11. Fugitive emissions from production and consumption of halocarbons and sulphur hexafluoride	1 Nov. 2006
12. Solvents use	-
13. Waste handling and disposal	25 Sep 2003
14. Afforestation and reforestation/Land use, land-use change and forestry	27 Jul. 2004
15. Agriculture	27 Jul. 2004

This is to certify that Mr. Toshimizu OKADA is granted by the Japan Quality Assurance Organization.

Date: 18/APR/2007

Director of the Global Environment Department
Japan Quality Assurance Organization

Masaki MAEGAITO