Validation Report

Foreign Economic Cooperation Centre
Environmental Protection, China

"HFC23 Decomposition Project at Zhonghao Chenguang Research Institute of Chemical Industry, Zigong, SiChuan Province, China"

Project No. JQA-CDM-L-P0042

6 March 2007

JAPAN QUALITY ASSURANCE ORGANIZATION

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Approved by:	Client: Foreign Economic Cooperation Centre Environmental Protection, China

Summary:

This is the validation report for the project activity " HFC23 Decomposition Project at Zhonghao Chenguang Research Institute of Chemical Industry, Zigong, SiChuan Province, China", proposed by Zhonghao Chenguang Research Institute of Chemical Industry (China) and Enel Trade S.p.A. (Italy).

This project activity aims at reducing GHGs emissions by installing the decomposition equipment treating HFC23 waste stream from the existing HCFC22 production facility of Zhonghao Chenguang Research Institute of Chemical Industry, Zigong, China. The HFC23 is currently entirely released to the atmosphere. The approved baseline and monitoring methodologies AM0001/Version 04 "Incineration of HFC23 waste streams" were 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 2,065,553 t-CO_2e/year.

JQA confirmed that the project activity meets all relevant criteria and determines the project activity to be valid as a CDM project activity.

Report No : JQA-CDM-L- P0042-VR	Report Title : Project for HFC23 Decomposition at Zhonghao Chenguang Research Institute of Chemical Industry, Zigong, SiChuan Province, China
Assessed by : Team Leader : Dr. Ikuo Tamori Member : Mr. Koji Sukigara	Verified by : Leader: Mr. Itaru Watanabe Mr. Shigenari Yamamoto Dr. Hiroshi Kuribayashi (External)

Abbreviations

AM	Approved Methodology
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CDM-EB	CDM Executive Board
CER	Certified Emission Reduction
CFC	Chlorofluorocarbon
CL	Clarification Request
CMP	Conference of the Parties serving as the Meeting of the Parties
COP/MOP	Conference of the Parties serving as the Meeting of the Parties
DNA	Designated National Authority
EIA	Environmental Impact Assessment
FECC	Foreign Economic Cooperation Centre of Environmental Protection, China
GHG	Greenhouse Gas
GWP	Global Warming Potential
HCFC	Hydrochlorofluorocarbon
HCl	Hydrochloric Acid
HF	Hydrofluoric Acid
HFC	Hydrofluorocarbon
IETA	International Emissions Trading Association
ISO	International Organization for Standardization
JQA	Japan Quality Assurance Organization
NDRC	National Development and Reform Committee
NG	Natural Gas
ODA	Official Development Assistance
ODS	Ozone Depleting Substance
OM	Operating Margin
PCF	Prototype Carbon Fund
PDD	Project Design Document
QA/QC	Quality Assurance and Quality Control
SD	Sustainable Development
SEPA	State Environmental Protection Administration
UNFCCC	United Nations Framework Convention on Climate Change

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1 INTRODUCTION

The Japan Quality Assurance Organization (hereinafter referred to as JQA) performed the validation on “Project for HFC23 Decomposition at Zhonghao Chenguang Research Institute of Chemical Industry, Zigong, SiChuan Province, China“ which the Foreign Economic Cooperation Centre of Environmental Protection, China is planning to develop in Zigong, 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 1.0, as of 26 April 2006) – PDD (Version 4.0, as of 26 October 2006)
- Chinese Environmental Laws and Regulations
- AM0001/Version 04 “Incineration of HFC23 waste streams”

b) Physical

The project boundary is delineated within the factory of Zhonghao Chenguang Research Institute of Chemical Industry, Zigong, SiChuan Province, China.

c) Organizational

There are two project participants as follows:
- Zhonghao Chenguang Research Institute of Chemical Industry (China)
- Enel Trade S.p.A. (Italy)

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 March 2007.

1.3 GHG Project Description

Project Participants	**:** Zhonghao Chenguang Research Institute of Chemical Industry, Zigong, SiChuan Province, China Enel Trade S.p.A., Italy
Non-Annex 1 Party	**:** People’s Republic of China (30 August 2002: Kyoto Protocol ratified)
Annex 1 Party	**:** Italy (31 May 2002: Kyoto Protocol ratified)
Project Site	**:** Zigong, SiChuan Province, China
Starting date of the project activity	**:** 1 March 2007
Expected operation lifetime of the project activity	**:** 21 years
Starting date of the first crediting period	**:** 1 March 2007
Length of the first crediting period	**:** 7 years (Renewable)

Technology **:** HFC Decomposition Process

The total estimate of anticipated reductions in tons of CO_2

: 2,065,553 t-CO_2e/year

HFC23 (CHF_3), which is controlled under the Kyoto Protocol, is a by-product of HCFC22 ($CHClF_2$) production at Zhonghao Chenguang Research Institute of Chemical Industry (hereinafter referred to as Chenguang). Since there is an extremely small amount of consumptions for HFC23 in China, all of the HFC23 produced in the country is released into the air. This project activity is designed to reduce GHG emissions by installing 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) will be decomposed almost completely and that approximately 2.1 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 total crediting period is estimated as 43 million t-CO_2e.

1.4 Validation Team

The validation team was arranged as follows based on the JQA CDM Quality Manual (Version 4, September 2004) :

Team Leader	Dr. Ikuo Tamori	JQA Certified CDM Lead Assessor
Member	Mr. Koji Sukigara	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. Koji Sukigara is an assessor of CDM and ISO 14001. Before entering this department he worked in the department of environmental measurements and analysis. He has plenty of experience in the validation of CDM and JI projects including HFC23 decomposition, utilization of landfill gas and biomass utilization.

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 including Chinese governmental officials and preparation of the report
3) Resolution of clarifications (CLs) and corrective action requests (CARs)

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

In the validation, Table 1 to Table 3 modified based on the Validation Protocol prepared by the IETA 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 : Mandatory Requirements for CDM Project Activities

Table 2 : Requirements Checklist

Table 3 : Resolution of Corrective Action Requests

Problems or findings identified in the process are indicated under the titles “CAR” (Corrective Action Request) and “CL” (Clarification) in the checklists (Table 1 to Table 3). 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. Criteria for judging problems as CAR or CL are as follows:

The criteria for CL and CAR are as follows:

<CAR (Corrective Action Request)>

a) Non-compliance with laws and regulations of the host country;
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;
b) Vague expressions

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

2.1 Schedule

The process was implemented as follows:

24 April 2006	: Agreement of the contract
28 April 2006	: Start of the Validation based on the PDD Version 1.0
29 April 2006 - 29 May 2006	: PDD Version 1.0 publicly available on the UNFCCC website
9 May 2006	: Submission of the Desk Review Report
17 - 22 May 2006	: Site-visit to Chenguang, China
31 May 2006	: Submission of the Site-visit Report
12 July 2006	: Second Site-visit to Chenguang, China
26 October 2006	: Receipt of the PDD Version 4.0
2 November 2006	: Preparation of the Draft Validation Report
9 November 2006	: Certification Committee of JQA

2.2 Desk Review of Documents

The Desk Review is conducted using by the Validation Checklist (Appendix A), which is prepared for this project activity as the JQA's version originated from the IETA/PCF Validation and Verification Manual.

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 05, 19 May 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 two Site-visits 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 HFC under the Kyoto Protocol and CFC under the Montreal Protocol

- Technologies related to the project activity in the host country
- Power grid operation and data availability
- Current status and future plan of the HCFC22 production
- Appropriateness of the project boundary including GHG emission sources

After the decomposition technology for HFC23 in the PDD was changed to the plasma process, the site-visit to a Japanese company decomposing waste CFCs in Yokohama City was conducted.

2.4 Resolution of Clarifications and Corrective Action Requests

The project participants are requested to respond how to resolve the CLs and CARs pointed out in the Desk Review Report and the Site-visit Report.
Though 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, and reports the result of judgment to the Senior Executive of JQA after having been reviewed by the management representative. Finally the Senior Executive decides the validity of the project as DOE.

3 VALIDATION FINDINGS

3.1 Participation Requirements

The project participants are Zhonghao Chenguang Research Institute of Chemical Industry, Zigong, Sichuan Province, China and Enel Trade S.p.A, Italy. The host party, China and Annex 1 Party, Italy meet the requirements to participate in the CDM.

The Chinese DNA has issued a Letter of Approval on 29 June 2006, authorizing the company as a project participant. DNA of Italy has approved the project, authorizing Enel Trade S.p.A. to voluntarily participate in the project on 19 May 2006.

3.2 Project Design

This project activity aims at reducing GHGs emissions by installing the decomposition equipment treating HFC23 generated in the HCFC22 plant, which is hitherto entirely released into the atmosphere.

The baseline is established to be zero destruction in the absent regulations on HFC23 emissions, according to the approved methodology AM0001/Version 04 “Incineration of HFC23 waste streams”. After the methodology was revised as AM0001/Version 04 on 19 May 2006, the PDD was modified based on the methodology. 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 participants, and all the significant emission sources relating to the project activity are included within the boundary. The first version of PDD designed the storage containers within the boundary, and after that the plan of the storage was withdrawn.

The technology for HFC23 decomposition designed in the first version of PDD was changed to the plasma process to be supplied by Chenguang in the revised PDD. Nowadays, the technology has been adapted to treating a wide range of halogenated organic wastes worldwide. In industrial application of the plasma technology a very high temperature more than 10,000°C is obtained in the reaction column, and in the combustion zone of the plasma arc furnace the temperature range of 1,200–1,500°C is maintained for decomposing HFC23. The rapid quenching of decomposed gas to approximately 40°C by direct spraying prevents the formation of any undesired organic molecules such as dioxins. The technology has been successfully tested at the pilot facility in Chenguang.

The relatively high rate of HCFC22 included in the emission gas of HFC23 by-product is to be decreased to a few percents before the implementation of the project activity.

The operational and management structure for implementing the project, especially QA/QC for the project is well documented on the management structure with a figure, qualification and training, quality assurance and inspection and data management, whereas the draft PDD described insufficiently only the management structure and emergency preparedness.

The successful implementation of QA/QC for the project will be supported by the ISO management systems which were confirmed to be established during the Site-visit.

3.3 Baseline

In this project, the approved baseline methodology AM0001/Version 04, “Incineration of HFC23 waste streams” is applied.

The object of the decomposition in the project activity is limited to HFC23 generated in Unit A of the Chenguang HCFC22 plant, whereas HFC23 generated in Unit B which started operation in 2004 has not been included in the project activity. It was confirmed that the factory has not the swing production. There are no regulations to HFC23 emission in China at present. Therefore, 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 two Site-visits, the total annual productions of the existing Unit A were confirmed to be 5,433 tons in 2002, 5,887 tons in 2003 and 2,657 tons in 2004 respectively, from checking daily data log sheets. In the project, the maximum quantity of HCFC22 produced from the existing production facility between 2000 and 2004 is set 5,887 tons per year for the production in 2003 during the last three years from 2002 to 2004. The reason of the rapid decrease of HCFC22 production in 2004 is due to lack of the raw material.
In the project design the value of w is set as 3 %, because the lowest of the three historical annual values of “w” in 2002 to 2004 exceeds 3 %. Uncertainty of w values is also examined through population standard deviation at the confidence level of 95%.

3.4 Additionality

(1) HCFC22, the main product in the Chenguang plant, 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 frozen below the consumption in 2015 since 1 January 2016, and finally, the amount of the consumption is converged to zero in 2040. At present there is no regulation to 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 CO2. 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 99.99%. The up-to-date technology using the plasma process which will be realized by the Chenguang Institute would not be developed in China without CDM project activities.

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

3.5 Monitoring Plan

In this project, the approved monitoring methodology AM0001/Version 04, “Incineration of HFC23 waste streams” is applied, and the applicability of the methodology to this project activity is appropriately discussed and justified.
The monitoring for the quantity of HFC23 fed to the decomposition facility from the HCFC22 production Unit A 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 quantity of HCFC22 production is measured by the mass flowmeters which have obtained an official certificate.
In the draft PDD the quantity of HFC23 stored in containers prior to the operation of the decomposition facility was to be monitored by the weight meter, and recorded with numbering. However, the plan of HFC23 storage prior to the operation was withdrawn in the revised PDD. Whereas the draft PDD listed the quantity of NG, Q_NG_y and its emission factor, E_NG_y as the monitoring items in the project activity, and consumption of steam, Q_Steam_y for the leakage monitoring, these items were withdrawn by the change of the decomposition technology to the plasma process. 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.

3.6 Calculation of GHG Emissions and Reductions Including Emission Factors

The project boundary is appropriately delineated on the basis of the methodologies, after a few items in Figure 6 of the PDD (Version1.0) were revised, associated with the changes of the technology and the HFC23 storage plan. The baseline emissions and project emissions are appropriately evaluated in along with the defined calculation procedures.
For estimating the emission reductions, historical HCFC22 production of 5,887 tons in 2003, the default value of the cut-off ratio of 3% and HFC23 not destroyed of 0.01% 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, and 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 is used for E_Power in the calculation. In this project the Operation Margin (OM) emission factor, 1.2526 tCO_2e/MWh is used for conservative purpose.

3.7 Environmental Impacts

Under the EIA Law of China the EIA statement was submitted to the local Environmental Protection Bureau for approval. Although it was confirmed at the Site-visit that the approval of the bureau was already issued on 31 January 2006, another statement of EIA for the project activity targeting the plasma technology was prepared and the approval has been issued on 16 October 2006 by the local bureau.
In assessing the noise the contribution of the combined noise owing to the use of twelve noise sources to the noise level at the boundary is evaluated, and the combined noise level is judged to be fully compliance with the threshold values defined by the law.

3.8 Comments by Local Stakeholders

3.8.1 Local Stakeholders Consultation by Project Participants

After an announcement of inviting stakeholders' comments was posted on 9 December 2005 on the bulletin board of the nearby villages committees to inform the public of the outlines of the project activity, and at the same time 50 copies of questionnaire were spread to stakeholders living nearby, these questionnaires were returned on 15 December 2005. The result of the questionnaire-based survey showed that the local stakeholders have sufficient support for the proposed CDM project at Chenguang, and these comments obtained are elaborately described including the impact of the project on the local environment in the PDD.

3.8.2 Interview with Government Officials

The Site-visit to Zigong City Office and interviews with key persons relating to the project activity including high ranked governmental officials were conducted on 19-20 May 2006.

(see the section 8 "LIST OF INTERVIEWED PERSONS")

Several key comments at Zigong City Office are as follows:

1) The method of EIA under the China's law is categorized into three levels in relation to the environmental impact. In the case of no pollutant emission, a registration table is submitted to the Environmental Protection Bureau. If a project has no significant impacts on environment, an EIA statement has to be submitted. In the case that some significant impacts would be caused by the project, an EIA report must be submitted. Whereas the project is classified into the second, Chenguang corresponded between the second and the third, taking into consideration the CDM project.
2) The local government gave their approval to the project on 31 January 2006 through deliberation by the assessment team consisting of experts, considering conformance with the emission standards of pollutants, emergency preparedness, etc.
3) According to the EIA law of China, inviting stakeholders' comments is not compulsory for this project. However, Chenguang conducted the questionnaire-based survey for the project voluntarily, because it is the CDM project. The local government regards the process and contents of inviting stakeholders' comments as no problem.

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 29 April 2006 to 29 May 2006 on the UNFCCC website.

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 Zigong City, China by conducting Desk Review of the PDD (Version 1.0) presented by Foreign Economic Cooperation Centre of Environmental Protection, 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 two Site-visits in Zigong, 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 explained 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 Unit A of HCFC22 production to the atmosphere as long as there is no regulation. The validation team confirmed during the Site-visit that the factory was operating HCFC22 production without the swing production. 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.

3. 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. During the process, the PDD was revised using the AM0001/Version 04 issued on 19 May 2006. The revised PDD (Version 4.0) prepared using the approved methodology is determined as appropriate.

4. In the CDM scheme advanced and environmentally sound technologies are usually transferred from Annex I parties to non-Annex I parties. In the CDM project the French incineration technology was planned to be transferred in Version 1.0 of the PDD, and the plan was changed to adopt the domestic plasma technology in the revised PDD. The plasma process for chemical waste destruction such as CFCs has been widely utilized in Annex I parties including Japan. Chenguang which is one of the project participants and operating the production of not only HCFC22, but also silicone and other organic chemicals since 1970s, has conducted chemical engineering works as a representative chemical enterprise in Sichuan Province. The EIA report targeting the plasma process has been prepared based on the data obtained by the trial test at the pilot plant in Chenguang and the local Environmental Protection Bureau has issued the approval for the revised plan on 16 October 2006. As described in the PDD Chenguang is recognized to have enough competence to develop and operate the plasma technology for decomposing HFC23.

5. A new HCFC22 production Unit B started in 2004 as the new facility with annual production capacity of 12,000 tons. However, the decomposition of HFC23

generated from Unit B is not included in the project according to AM0001 specifying the HFC23 waste streams from an existing HCFC22 production facility which is operating for at least three years between beginning of the year 2000 and the end of the year 2004.
In this case, there is some possibility that HFC23 from the new HCFC22 production might be brought into the pipeline to the HFC23 decomposition facility at the upstream of two flowmeters. However, in this project the amounts of HCFC22 production are measured by the mass flowmeter and obtained electronically. Furthermore, the amount of HFC23 from Unit A will be monitored by the additional flowmeter installed just after Unit A through a voluntary action of the company. The amounts of the HFC23 to be destructed in the project activity will be confirmed through checking the harmony of the values obtained by the additional flow meter located just after Unit A and the two flowmeters located near the HFC23 destruction facility. The amounts of HFC23 from Unit A measured by two flowmeters will be verified against the calculated "cut-off rate (w)", and finally the certified emission reductions will be calculated using the amounts of HCFC22 production and the upper limit of "w", 3%. The verification will be conducted, taking the situation into account.

6. The amounts of HCFC22 production from Unit A and the values of "w" in year 2002, 2003 and 2004 were verified during Site-visit. As the result, a transcription error of "w" values was found in the original PDD. However, we confirmed that all data from the daily data log sheets to calculate "w" values were correct. Therefore, the PDD was revised correctly.

7. Comments from local stakeholders were properly invited by the project participants through the questionnaire-based survey, while, according to the Environmental Impact Assessment Law of China, inviting stakeholders' comments is not compulsory for this project. 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 CDM website, 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 due to 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 2,065,553 t-CO_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 determines the project activity to be valid as a CDM project activity.

7 REFERENCES

Category 1 Documents:

1 PDD (Version 1.0, as of 26 April 2006) – PDD (Version 4.0, as of 26 October 2006)
2 Letter of Approval for the CDM project issued by the National Development and Reform Commission of the People's Republic of China (No. 035, 29 June 2006)
3 Written Approval of voluntary participation from the Italian Designated national Authority (19 May 2006)
4 Statement on the Modalities for Communicating with the Executive Board and the UNFCCC Secretariat issued by Zhonghao Chenguang Research Institute of Chemical Industry (1 November 2006) and Enel Trade S.p.A. (7 November 2006)

Category 2 Documents:

5 Introduction to CDM project of Zhong Hao Chenguang Research Institute of Chemical Industry (May 2006)
6 Environmental Impact Assessment Statement (4 January 2006)
7 Environmental Impact Assessment Statement (8 October 2006)
8 Notification of Zigong Environmental Protection Bureau (16 October 2006)
9 Material Balance Calculation of F22 Production (2002, 2003, 2004) (May 2006)
10 Calculation Method of w value
11 Calculation Result of w value
12 Verification Certificate of Platform Scale (2002, 2003, 2004)
13 Calibration Certificate of Mass Flow Meter (2003, 2004, 2005)
14 Notification of meeting to explain to local residents
15 Table of Attendance meeting to explain to local residents
16 Pollution Control Standard for Hazardous Waste Incineration (GB18484-2001)
17 Standard of Noise at the Boundary of Industrial Enterprises (GB12348-90)
18 Integrated Wastewater Discharge Standard (GB8978-1996)
19 PLASCON HAZARDOUS WASTE TREATMENT TECHNOLOGY, SRL PLASMA PTY. LTD.
20 The Summary of Calculation Results of Domestic Emission Factor of China Grid (16 October 2006)
21 Decomposition of Hazardous Waste by Reactive Thermal Plasma, Takayuki WATANABE, Journal of High Temperature Society, vol.28, No.3
22 Report of Technology and Economic Assessment Panel, UNEP (April 2002)
23 Description of an arc plasma decomposition instrument by a company in Japan

8 LIST OF INTERVIEWED PERSONS

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Annex A

CDM Validation Checklist

Foreign Economic Cooperation Centre
Environmental Protection, China

"HFC23 Decomposition Project
at Zhonghao Chenguang Research Institute of Chemical Industry,
Zigong, SiChuan Province, China"

Project No. JQA-CDM-L-P0042

Date: 6 March 2007

JAPAN QUALITY ASSURANCE ORGANIZATION

Table 1 Mandatory Requirements for Clean Development Mechanism (CDM) Project Activities

REQUIREMENT	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 (dated on 29 June 2006)**
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 Italy (dated on 19 May 2006)**
2. Emission reductions resulting from the project activity shall be certified by DOE on the basis of:	Kyoto Protocol Art.12.5		
2.1. Voluntary participation approved by each Party involved	(a)	OK	**Written Approval by China and Italy**
2.2. Real, measurable and give long-term benefits related to the mitigation of climate change	(b)	OK	Ditto
2.3. Reductions in emissions that are additional to any that would occur in absence of the project activity	(c)	OK	Ditto
3. CDM Modalities and Procedures(Decision 17/CP. 7)	Paragraph 37	OK	
3.1. Participation requirements	(a)	OK	
3.1.1. Participation in a CDM project activity is voluntary.	Paragraph 28	OK	**Written Approval by China and Italy**

REQUIREMENT	REFERENCE	CONCLUSION	Evidence
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 05 (19 May 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 G
3.4. Analysis of the environmental impacts of the project activity	37 (c)	OK	Table 2 F
3.5. Additionality	37 (d)	OK	Table 2 E
3.6. Use of the approved baseline and monitoring methodologies	37 (e)	OK	Table 2 B, D (AM0001/Version 04)
3.7. Provisions for monitoring, verification and reporting	37 (f)	OK	Table 2 D
3.8. Other requirements including relevant decisions by the COP/MOP an the executive board	37 (g)	OK	Table 2 A, C

REQUIREMENT	REFERENCE	CONCLUSION	Evidence
3.9. Parties, stakeholders and UNFCCC accredited NGOs shall have been invited to comment on the validation requirements for minimum 30 days, and the project design document and comments have been made publicly available.	40	OK	No comment was received.
4. PDD Format	CDM Guidelines (Version 05)		
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	
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 is not applicable to A/R CDM project activity.	PART I Paragraph 15	OK	Not A/R CDM
5. **Modalities of communication**	CDM Guideline (Version 05)		
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	Two statements of Chenguang and Enel issued on 1 Nov. and 7 Nov., respectively.

TABLE 2 REQUIREMENTS CHECKLIST

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?	B.4	DR SV	The project boundary is clearly defined in the PDD. It is to be confirmed through SV. *It was confirmed to be appropriate through SV.*	OK - 	 *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 ?	B.4 Annex4	DR SV	The project boundary includes all the components and facilities in the PDD. It is to be confirmed through SV. *It was confirmed to be appropriate through SV.*	OK - 	 *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.*					

MoV: DR=Desk Review, SV=Site-visit (including interviews)

CHECKLIST QUESTION	PDD Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
A.2.1. Does the project design engineering reflect current good practices?	A.4.3	DR	The by-product, CaF2 is described as to reuse at Chenguang. However, is the purity of the recovered CaF2 suitable for the raw material? *It is described that CaF2 including a small amount of CaCl2 is sold to a local cement plant as raw material after being dehydrated.*	CL	*OK*
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?	A.4.3	DR	It is discussed that the project uses state of the art technology, which is widely utilized in European countries. *After the Site-visit the project participants changed the French VICHEM destruction technology to the domestic Chenguang plasma decomposition technology. Some issues on the description of the plasma technology were pointed out. These issues are resolved by rewriting the descriptions. These are described that Chenguang has enough competence to develop the technology, and that the plasma technology has been successfully tested at the pilot facility in Chenguang.*	OK	*OK*

CHECKLIST QUESTION	PDD Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
A.2.3. Is the project technology likely to be substituted by other or more efficient technologies within the project period?	A.4.3	DR	It is described that the advanced technology for HFC23 destruction would not be substituted within the project period. *It is described that the plasma technology for HFC23 destruction would not be substituted within the project period.*	OK	*OK*
A.2.4. Does the project require extensive initial training and maintenance efforts in order to work as presumed during the project period?	A.4.3 D.4	DR	Initial training and maintenance efforts are discussed, with the use of the instruction provided by the technology supplier. *After changing the technology, the PDD is revised as follows: for the facility/ equipment developed by Chenguang itself, the technology department will provide staff training and instruction on installation, operation, maintenance and calibration.*	OK	*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?	A.4.4	DR SV	Such a project as HFC23 decomposition is confirmed to contribute the SD in China through the preceding SV. It is confirmed that there is no legislation against HFC23 at present in China.	OK	
A.3.2. Is the project in line with host-country specific CDM requirements?	A.2	DR	The project activity is in line with the "Measures for Operation and Management of Clean Development Mechanism Projects in China".	OK	
A.3.3. Is the project in line with sustainable development policies of the host country?	A.2	DR SV	The discussion on SD is described and it was confirmed by DNA interview through the preceding SV.	OK	
A.3.4. Will the project create other environmental or social benefits than GHG emission reductions?	A.2	DR	It is described.	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?	B.1	DR	AM0001/Version 03 is utilized. *The PDD is revised using AM0001/Version 04.*	OK	*OK*

CHECKLIST QUESTION	PDD Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
B.1.2. Is the methodology applicable to HFC23 waste 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?	B.1.1	DR SV	The productions of the HCFC22 plant, Unit A from 2002 to 2004 are described. It is to be confirmed whether the amounts of HCFC22 production are correct at SV. *It was confirmed that the amounts of monthly and daily HCFC22 production were correct at Unit A from 2002 to 2004.* The situation of unit B is also to be confirmed. *It was confirmed that the Unit B is located independent of the facility of Unit A.*	-	*OK* *OK*
B.1.3. Does no regulation require the destruction of the total amount of HFC23 waste in the Host country?	B.1.1	DR SV	There is no regulation against HFC23 waste at present in China. It was previously confirmed by relevant central governmental officials in December 2005.	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.*					

CHECKLIST QUESTION	PDD Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
B.2.1. Is the baseline methodology the one deemed most applicable for this project and is the appropriateness justified?	B.1.1	DR	AM0001 is only one specific methodology for this type of project activity. So it is the one deemed most applicable for the project.	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?	A.2 B.2	DR SV	It is not clear how the values of w shown are obtained in relation to the carbon and/or fluorine balance calculation. *It was confirmed through SV that the values of w calculations were obtained from mass balance, not carbon and/or fluorine balance.* The production of HCFC22 from unit A and three values of "w" are to be confirmed through SV. *The amounts of HCFC22 production from Unit A and the values of "w" in year 2002, 2003 and 2004 were verified during Site-visit.* *As the result, a transcription error of "w" values was found in the original PDD. However, we confirmed that all data from the daily data log sheets to calculate "w" values were correct.* *Therefore, the PDD was revised correctly.*	CL - -	 *OK* *OK*

CHECKLIST QUESTION	PDD Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
		SV	*As the other results of Site-visit it was found that the company started experimentally the HCFC22 production with 300t/y in early 1970s, that the monitoring method for HCFC22production has been changed to the mass flow meters since 2004, and that the composition rate of HCFC22 included in the emission gas of HFC23 by-product was relatively high. As to the last finding it was answered from the company that the high rate HCFC22 would be resolved by improving the facility until the start of the project activity. Other findings are built in the revised PDD.*	-	*OK*
B.2.3. Has the baseline been established on a project-specific basis?	B.2	DR	The project specific "w" and "r_y" are used.	OK	
B.2.4. Has the baseline been determined using conservative assumptions where possible?	B.2	DR SV	The lowest "w" is adopted. The values of" w" and estimation method are to be confirmed at SV. *The values of "w" are revised.*	-	*OK*

CHECKLIST QUESTION	PDD Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
B.2.5. Is the baseline determination compatible with the available data?	B.2	DR SV	The data of HCFC22 production from 2002 to 2004 at Unit A are introduced. Details are to be confirmed at SV. *The data of monthly and daily HCFC22 productions were confirmed to be correct at SV.*	-	*OK*
B.2.6. Does the selected baseline represent the most likely scenario among other possible and/or discussed scenarios?	B.2	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?	B.3	DR	It is demonstrated.	OK	
B.2.8. Have the major risks to the baseline been identified?	B.2	DR SV	Major risks to the baseline such as the amount of HCFC22 and "cut-off rate" are not discussed. It is to be confirmed at SV. *The monitoring method for vital indictors such as HFC23 and HCFC22 are properly described in the column in D.2.1 of the revised PDD*	CL -	*OK*
B.2.9. Are all literature and sources clearly referenced?	Annex3	DR	These are clearly referenced.	OK	
C. Duration of the Project/ Crediting Period *It is assessed whether the temporary boundaries of the project are clearly defined.*					
C.1.1. Are the project's starting date and operational lifetime clearly defined and reasonable?	C.1	DR	01/10/2006 and 21 years	OK	

CHECKLIST QUESTION	PDD Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
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)?	C.2 A.4.4.1 E.6	DR	7 years and o month is not correct. *The expression of the length is properly rewritten.* The annual estimation of emission reductions starts in 2007 in the tables of A.4.4.1 and E.6., while the chosen crediting period starts on 1 October 2006. *The starting date of the first crediting period is changed to 01/03/2007, and the figures in the tables of A.4.4.1 and E.6 are revised.*	CAR CAR	 *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?	D.1	DR	AM0001/Version 03 is utilized. The PDD is revised using AM0001/Version 04.	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?	D.2	DR	It is justified.	OK	
D.1.3. Is the discussion and selection of the monitoring methodology transparent?	D.2	DR	It is transparent.	OK	
D.2. Monitoring of Project Emissions *It is established whether the monitoring plan provides for reliable and complete project emission data over time.*					
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?	D.2.1	DR	The description of the comment for q_HFC23 “Measured by two flow meters in parallel” is not correct, *The description is revised as “in series”.* Are the units for Q_NGy and E_NGy approproate, while the unit, m3 is used in the methodology? *Both the monitoring items are deleted due to the change of the technology.*	CL	*OK* *OK*
D.2.2. Are the choices of project GHG indicators reasonable?	D.2.1.1	DR	All the indicators including TEMP are reasonably chosen. *TEMP is deleted due to the change of the technology.*	OK	*OK*
D.2.3. Will it be possible to monitor / measure the specified project GHG indicators?	D.2.1.1	DR	It will do.	OK	
D.2.4. Will the indicators give opportunity for real measurements of achieved emission reductions?	D.2.1.1	DR	They will do.	OK	

CHECKLIST QUESTION	PDD Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
D.2.5. Will the indicators enable comparison of project data and performance over time?	D.2.1.1	DR	Ditto	OK	
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?	D.2.3	DR	It does.	OK	
D.3.2. Have relevant indicators for GHG leakage been included?	D.2.3	DR	Relevant indicators have been included.	OK	
D.3.3. Does the monitoring plan provide for the collection and archiving of all relevant data necessary for determining leakage?	D.2.3	DR	The monitoring plan provides.	OK	
D.3.4. Will it be possible to monitor the specified GHG leakage indicators?	D.2.3	DR	It will be possible.	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?	D.2.1.3	DR	The comment for Q_HCFC22 is not appropriate, while the quantity is a vital indicator in this project. q_HFC23 is checked against this value using "cut-off rate". *The comments for Q_HCFC22 and q_HFC23 are properly revised.* The unit of "ry" is not correct. *The unit of "ry" is revised as "%".*	CL CL	 *OK* *OK*
D.4.2. Is the choice of baseline indicators, in particular for baseline emissions, reasonable?	D.2.1.3	DR	It is reasonable.	OK	
D.4.3. Will it be possible to monitor the specified baseline indicators?	D2.1.3	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?*	D.2	DR	Gaseous effluents and liquid effluents are properly measured.	OK	
D.5.2. Does the monitoring plan provide the collection and archiving of relevant data concerning environmental, social and economic impacts?	D.2	DR	Ditto	OK	

CHECKLIST QUESTION	PDD Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
D.5.3. Is the choice of indicators for sustainability development (social, environmental, economic) reasonable?	A.2	DR	Ditto	OK	
D.5.4. Will it be possible to monitor the specified sustainable development indicators?	A.2	DR	Ditto	OK	
D.5.5. Are the sustainable development indicators in line with stated national priorities in the Host Country?	A.2	DR SV	The SD policy was confirmed at the preceding SV.	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?	D.4	DR	The operational and management structure is described.	OK	
D.6.2. Is the authority and responsibility for registration, monitoring, measurement and reporting clearly described?	D.4	DR	Where is the monitroring team located in Fig.8? *The monitoring team is appropriately illustrated in Fig.8 of the revised PDD.*	CL	*OK*
D.6.3. Are procedures identified for training of monitoring personnel?	D.4	DR	Procedures are identified. The management system of ISO 9001 and 14001 has been established.	OK	
D.6.4. Are procedures identified for emergency preparedness for cases where emergencies can cause unintended emissions?	D.4	DR	Ditto	OK	
D.6.5. Are procedures identified for calibration of monitoring equipment?	D.2 D.3	DR	Ditto	OK	

CHECKLIST QUESTION	PDD Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
D.6.6. Are procedures identified for maintenance of monitoring equipment and installations?	D.2 D.4	DR	Ditto	OK	
D.6.7. Are procedures identified for monitoring, measurements and reporting?	D.4	DR	Ditto	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)	D.4	DR	Ditto	OK	
D.6.9. Are procedures identified for dealing with possible monitoring data adjustments and uncertainties?	D.4	DR	Procedures are not identified. *Quality assurance and inspection, and data management system are described in relation to the operational and management structure.*	CL	*OK*
D.6.10. Are procedures identified for review of reported results/data?	D.4	DR	Procedures are identified. The management system of ISO 9001 and 14001 has been established.	OK	
D.6.11. Are procedures identified for internal audits of GHG project compliance with operational requirements where applicable?	D.4	DR	Ditto.	OK	
D.6.12. Are procedures identified for project performance reviews before data is submitted for verification, internally or externally?	D.4	DR	Ditto	OK	
D.6.13. Are procedures identified for corrective actions in order to provide for more accurate future monitoring and reporting?	D.4	DR	Ditto	OK	

CHECKLIST QUESTION	PDD Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
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.*					
E.1.1. Are all aspects related to direct and indirect GHG emissions captured in the project design?	E.1	DR	It is not clearly described that "cut-off rate", w is also applied to HFC23 stored. *The plan of HFC23 storage is cancelled in the revised PDD.*	CL	*OK*
E.1.2. Are the GHG calculations documented in a complete and transparent manner?	E.1 E.4	DR	Ditto Ditto	CL	*OK*
E.1.3. Have conservative assumptions been used to calculate project GHG emissions?	E.1 E.4	DR	Ditto Ditto	CL	*OK*

CHECKLIST QUESTION	PDD Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
E.1.4. Are uncertainties in the GHG emissions estimates properly addressed in the documentation?	E.1 E.4	DR	Uncertainties in emission estimates are not quantified. *Uncertainties of w values and the amounts of HCFC22 production affecting the emission estimates are analysed.* After the Site-visit NDRC issued the emission factors for the CDM projects on 16 October. *The leakage consumed by the destruction facility is calculated using the emission factor.*	CL CL	 *OK* *OK*
E.1.5. Have all relevant greenhouse gases and source categories listed in Kyoto Protocol Annex A been evaluated?	E.1 E.2	DR	HCFC22 and N2O are also properly discussed as GHGs.	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?	E.2	DR	They are properly identified.	OK	

CHECKLIST QUESTION	PDD Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
E.2.2. Have these leakage effects been properly accounted for in calculations?	E.2 E.4	DR	The explanation for ETy is not appropriate. *ETy is properly explained as "the GHG emissions associated with transport of the by-products of sludge and HF solution, as well as the process inputs". And the GHG emissions due to transportation of these by-products and process inputs are appropriately estimated.*	CL	*OK*
E.2.3. Does the methodology for calculating leakage comply with existing good practice?	E.2	DR	It does.	OK	
E.2.4. Are the calculations documented in a complete and transparent manner?	E.2 E.4	DR SV	They are. E_Power,y is to be confirmed at SV. *After NDRC issued the emission factors of the China Power Grid on 16 October 2006,it is revised.*	OK - 	*OK*
E.2.5. Have conservative assumptions been used when calculating leakage?	E.2	DR	They have been used.	OK	
E.2.6. Are uncertainties in the leakage estimates properly addressed?	E.2	DR	Uncertainties are not discussed. *The GHG emissions of ETy are regarded as negligibly small after estimation, while Q_Power is measured by electricity meter and E_Power shown by China's DNA.*	CL	*OK*

CHECKLIST QUESTION	PDD Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
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?	E.4	DR	They have been chosen.	OK	
E.3.2. Are the baseline boundaries clearly defined and do they sufficiently cover sources and sinks for baseline emissions?	E.4	DR	They are defined.	OK	
E.3.3. Are the GHG calculations documented in a complete and transparent manner?	E.4	DR	They are documented.	OK	
E.3.4. Have conservative assumptions been used when calculating baseline emissions?	E.4	DR	They have been used.	OK	
E.3.5. Are uncertainties in the GHG emission estimates properly addressed in the documentation?	E.4	DR	Uncertainties are not discussed. *Uncertainties of values, the amounts of HCFC22 production and others affecting the GHG emission estimation are discussed.*	CL	*OK*
E.3.6. Have the project baseline(s) and the project emissions been determined using the same appropriate methodology and conservative assumptions?	E.4	DR	They have been determined.	OK	
E.4. Emission Reductions Validation of baseline GHG emissions will focus on methodology transparency and completeness in emission estimations.					

CHECKLIST QUESTION	PDD Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
E.4.1. Will the project result in fewer GHG emissions than the baseline scenario?	E.5	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.*					
F.1.1. Has an analysis of the environmental impacts of the project activity been sufficiently described?	F.1	DR SV	It has been sufficiently described. It is to be confirmed at SV. *After the Site-visit the project participants changed the French VICHEM technology to the domestic Chenguang technology. After that, the analysis of the environmental impacts of the project activity is extensively revised.*	OK -	*OK*
F.1.2. Are there any Host Party requirements for an Environmental Impact Assessment (EIA), and if yes, is an EIA approved?	F.1	DR SV	The permission issued by the local Environmental Protection Bureau is to be confirmed through SV. *The permission by the local EPB had been issued on 31 January. After changing the destruction technology to the plasma furnace the project activity has been approved based on the revised EIA Report approved on 16 October.*	-	*OK*

CHECKLIST QUESTION	PDD Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
F.1.3. Will the project create any adverse environmental effects?	F.1	SV	It is to be confirmed through SV. *It is described that the wastewater generated by the project is reused and recycled in the PDD.*	-	*OK*
F.1.4. Are transboundary environmental impacts considered in the analysis?	F.1	DR	They are considered.	OK	
F.1.5. Have identified environmental impacts been addressed in the project design?	F.1	SV	It is to be confirmed through SV. *They are addressed in the project design.*	-	*OK*
F.1.6. Does the project comply with environmental legislation in the host country?	F.1	SV	It is to be confirmed through SV. *It does.*	-	*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.*					
G.1.1. Have relevant stakeholders been consulted?	G.1	DR SV	It is not clear what kind of procedures for inviting stakeholders' comments is requested under the EIA Law. *The procedure is described in the PDD.* It is to be confirmed at SV. *It was confirmed to be appropriate at SV.*	CL -	*OK* *OK*

CHECKLIST QUESTION	PDD Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
G.1.2. Have appropriate media been used to invite comments by local stakeholders?	G.1	DR SV	An announcement in the bulletin board is utilized. It is to be confirmed at SV. *At SV it was confirmed that the local government regarded the way to invite the stakeholders' comments no problem.*	OK -	*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?	G.1	DR SV	It is not clear when the questionnaires were recovered. It is to be confirmed at SV. *The process for inviting stakeholders' comments is revised as follows: the announcement of inviting the comments was posted on 9 December, and Chenguang collected the questionnaires on 15 December 2005*.	CL -	*OK*
G.1.4. Is a summary of the stakeholder comments received provided?	G.2	DR SV	It is not clear what kind of comments were collected through the questionnaire-based survey. *The main contents of the comments invited are introduced in G.3 of the PDD.*	CL -	*OK*

CHECKLIST QUESTION	PDD Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
G.1.5. Has due account been taken of any stakeholder comments received?	G.3 F	DR SV	It is to be confirmed at SV that Chenguang will receive additional revenue on account of transfer of CERs to Annex 1 countries. *It was confirmed at SV that the project activity will contribute to the local economy.*	-	*OK*

Table 3 Resolution of Corrective Action Requests

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
CAR 1 7 years and o month is not correct.	C.1.2	*The expression of the length is properly rewritten.*	OK
CAR 2 The annual estimation of emission reductions starts in 2007 in the tables of A.4.4.1 and E.6., while the chosen crediting period starts on 1 October 2006.	C.1.2	*The starting date of the first crediting period is changed to 01/03/2007, and the figures in the tables of A.4.4.1 and E.6 are revised*	OK