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EXECUTIVE COMMITTEE OF
THE MULTILATERAL FUND FOR THE
IMPLEMENTATION OF THE MONTREAL PROTOCOL
Thirty-ninth Meeting
Montreal, 2-4 April 2003

PROJECT PROPOSAL: CHINA

This document consists of the comments and recommendation of the Fund Secretariat on the following project proposal:

Other

- Tobacco sector plan: 2003 annual work programme — UNIDO

Process Agent

- Sector plan for phase out of ODS in chemical process agent applications and carbon tetrachloride production in China: 2003 annual programme — World Bank

Production

- CFC production sector: 2003 annual programme — World Bank

TOBACCO SECTOR PLAN: 2003 ANNUAL WORK PROGRAMME

PROJECT DESCRIPTION

2002 implementation report and 2003 workplan under the tobacco sector plan for CFC-11 phase out in China (second instalment)

Background

1. At its 32nd Meeting, an agreement between the Government of China and the Executive Committee for the implementation of the tobacco sector plan for CFC-11 phase out in China (Sector Plan) was approved, and US $2 million was allocated to UNIDO for the implementation of the 2001 work programme. UNIDO was also requested to report to a future meeting of the Executive Committee on the use of funding allocated to support costs, which would be revisited in two years (Decision 32/69).

2. At its 36th Meeting, the Executive Committee approved US $2 million for UNIDO as the second instalment for the implementation of the tobacco sector plan for CFC-11 phase out in China and requested UNIDO to report on the use of funding allocated to support costs, together with the work programme for the year 2003 (Decision 36/46).

3. The Government of China has submitted for consideration by the Executive Committee at its 39th Meeting, a progress report on the implementation of the 2002 work programme together with a request in the amount of US $2 million for the implementation of the annual work programme for the year 2003.

Progress report on the implementation of the 2002 work programme

4. At the beginning of 2002, the CFC-11 consumption quota was determined for each enterprise, in accordance with the total 2002 consumption quota for the tobacco sector and the actual production of the enterprise. As of the end of December 2002, in accordance with the monthly statistics of CFC-11 consumption reported by the enterprises, the total consumption of CFC-11 was 796 tonnes, 84 tonnes below the CFC-11 consumption level established by the Sector Plan.

5. Eligible tobacco expansion companies were invited to phase out their 2002 CFC-11 quota through a public bidding system. The bidding took place in March 2002; fifteen companies which intended to dismantle their CFC-11 equipment in 2002 submitted their bids (UNIDO was fully informed of the bidding process and has revised all associated documents).

6. In March 2002, the State Tobacco Monopoly Administration (STMA) and the State Environmental Protection Administration (SEPA) reviewed the bids and selected the following ten companies for dismantling their CFC-11 expansion equipment (contracts were signed with these enterprises in May 2002):

Sector Plan No.	Company name	Equipment		CFC-11 consumption (tonnes)
		Expansion units	Date installed	
7	Kaifeng Cigarette Factory	1	Aug 1992	5.3
21	Wuhan Tobacco Group Co., Ltd.	1	Apr 1992	0.3
25	Guangshui Cigarette Factory	1	Jun 1992	6.8
27	Xiangfan Cigarette Factory	1	Mar 1992	0.2
32	Bangpu Cigarette Factory	1	Dec 1992	0.4
35	Longyan Cigarette Factory	2	Sep 1992, Apr 1995	66.8
37	Zhangjiakou Cigarette Factory	1	Jun 1991	12.5
38	Huaiyin Cigarette Factory	1	Dec 1990	3.3
39	Xuzhou Cigarette Factory	1	Jan 1991	12.9
52	Hangzhou Cigarette Factory	1	Aug 1990	11.4
Total		11		119.9

7. Technical assistance was provided to enterprises to enhance the technical management of their existing CFC-11 expansion; as a result, an additional reduction in the consumption of CFC-11 of 84 tonnes was achieved.

8. Therefore, implementation of the 2002 work programme resulted in the phase out of 200 tonnes of CFC-11.

9. The following technical assistance activities were undertaken in 2002:

(a) Continuation of the study for the establishment of a trade management mechanism (this activity commenced in 2001). Once the study is completed, STMA will issue a ban on import and/or export of tobacco expanded with CFC-11 and/or cigarettes that use CFC-based expanded tobacco;

(b) Study for the optimisation of transportation of expanded tobacco by rail and highways, with the participation of experts and technicians from tobacco expansion enterprises. Based on data gathered, changes to packaging procedures and transportation were proposed;

(c) Survey of 58 enterprises involved in the CFC-11 tobacco expansion process to analyse the advantages and disadvantages of different approaches and to propose the most cost-effective approach for expansion of tobacco;

(d) Technical assistance to address issues related to higher consumption of CFC-11 compared to standard levels in the following seven enterprises: Shijiazhuang, Fuyang, Lanzhou, Zhumadian, Zhangjiakou, Zhanjiang, and Sanxia. Based on the work conducted by the experts and the experience gained in 2001, the expanded tobacco output per unit of CFC-11 used was increased in these enterprises.

Subsequently, modifications were introduced to the "Manual of CFC-11 tobacco expansion equipment" that was prepared in 2001 and will be distributed among tobacco companies.

10. In addition, the process of the CFC-based equipment that was dismantled in 2002 was properly notarised and recorded (videotapes and photographs were taken). For each piece of equipment dismantled, representatives from the Special Working Group for Tobacco Sector Plan, the Foreign Economy Co-operation Office of SEPA, provincial offices of the STMA, local Environmental Protection Bureau and the local Notary Office were onsite for supervision. In many occasions, UNIDO experts also attended.

Report on the use of funding allocated to support costs

11. Pursuant to Decision 32/69 which, *inter alia*, requested UNIDO to report to a future meeting on the use of funding allocated to support costs, which would be revisited in two years, UNIDO submitted a report on the use of the support costs of the tobacco sector plan for CFC-11 phase out in China for the consideration by the Executive Committee at its 39th Meeting. This report is attached to this document.

Annual work programme for 2003

12. The main activities to be implemented in the 2003 work programme are:

(a) Issuing new CFC-11 quotas by the Government of China for a total consumption of 700 tonnes of CFC in 2003 (enterprises must comply with the established consumption quota or they would be penalised with a reduced quota in 2004). The remaining 31 qualified enterprises will be invited to submit their quotas through a public bidding mechanism. Bids will be opened in April 2003;

(b) Study on technical specifications and quality control of expanded tobacco produced using non CFC-11 alternative technologies. Currently, several enterprises have installed tobacco expansion equipment using CO_2 and/or hot water pneumatic drying; however, there are not technical standards in place for the production of expanded tobacco through these alternatives. Therefore, the study proposes to establish a set of technical specifications for the expanded tobacco that will facilitate the conversion of the remaining enterprises that are still using CFC-11;

(c) Evaluation of the high-temperature pneumatic-drying expansion technology for tobacco expansion to ascertain its feasibility and cost-effectiveness as the replacement technology for the CFC-based tobacco expansion;

(d) Evaluation of the newly installed CO_2 tobacco expansion unit in Xuzhou, with a production capacity of 1,140 kg/hr;

(e) Information, dissemination, awareness and training programmes, including training courses for SEPA and STMA personnel on project management and

implementation; hands-on training on the use of the high-temperature pneumatic drying expansion technology; meetings with representatives from cigarette factories on licensing and adjustment of CFC-11 consumption quota; courses on dismantle of CFC equipment for enterprises that won the 2003 bidding process).

13. The activities to be implemented in 2003 and the proposed results are shown in the following table:

CFC-11 Phase out Target			
Consumption at the beginning of 2003 (ODP tonnes)	Phase out target in 2003 (ODP tonnes)	Consumption at the end of 2003 (ODP tonnes)	Results
796	180	616	180 tonnes of CFC-11 phased out
Policy enforcement			
Policy measures		Results	
CFC-11 quota licensing for 2003		Issuance and enforcement of quotas (December 2003)	
Activities at company level			
Activity	Results		
Closure of CFC-11 expansion equipment (53 lines)	1. Bidding process to select lines to be closed down completed. 2. Contracts signed (May 2003). 3. Dismantling of production lines accomplished. 4. Reports on dismantling process and project completion submitted.		
Technical assistance activities			
Activity	Results		
Information, awareness and training	Training and campaign materials by December 2003.		
Study on technical specification of expanded tobacco produced by non CFC-11 technologies	Submission of a study by December 2003.		
Evaluation of high-temperature pneumatic-drying expansion technology	Submission of an evaluation report by December 2003.		
Feasibility of supplying expanded tobacco from the newest CO_2 expansion centre	Submission of a study by December 2003.		

SECRETARIAT'S COMMENTS AND RECOMMENDATION

COMMENTS

14. The Secretariat reviewed the progress report on the implementation of the 2002 work programme submitted by UNIDO, against the agreement between the Government of China and the Executive Committee and on the phase out strategy for the tobacco sector. The Secretariat noted that through the activities implemented in 2002, CFC-11 consumption for tobacco expansion decreased by 200 ODP tonnes, 84 ODP tonnes more than the amount agreed.

15. The Secretariat also noted the implementation of technical assistance activities carried out in 2002, in particular, assistance provided to enterprises to enhance the existing CFC-11 expansion operations which contributed towards the additional reduction of 84 tonnes in the consumption of CFC-11.

16. For the 2003 work programme, the Secretariat noted that the CFC-11 phase out target of 180 ODP tonnes is in accordance with the agreement.

17. The Secretariat sought a clarification regarding the production quota and the closure date of seven enterprises established after July 1995 and, therefore, ineligible for funding from the Multilateral Fund. UNIDO reported that the Government of China has committed to dismantling all CFC-11 equipment from non-eligible enterprises at the same time of commissioning of new non-CFC expansion systems; also consumption quotas have been issued for these enterprises. It is to be noted that the total CFC-11 consumption in the Sector Plan includes the consumption of all enterprises.

RECOMMENDATION

18. The Executive Committee may wish to consider approving the 2003 work programme of the Tobacco Sector Plan for CFC-11 Phase out in China and allocate US $2 million for its implementation, and US $150,000 as agency support costs calculated on the basis of the new administrative regime adopted by the Executive Committee at its 38th Meeting (Decision 38/68).

Annex: Report on the use of funding allocated to support costs as submitted by UNIDO

1. According to the Decision 32/69 (UNEP/Ozl. Pro/ExCom/32/44) UNIDO is requested to "report to a future meeting of the Executive Committee on the use of funding allocated to support costs, which will be revisited in two years".

2. For the implementation of the above project 9% of the total amount approved were allocated as Agency Support Costs following the Annual Programme Payment schedule agreed in Annex XIII (UNEP/Ozl. Pro/ExCom/32/44): From 2001 to 2003 US$ 2.0 million per year, 2004 US$ 1.8 million, 2005 US$ 1.7 million and 2006 US$ 1.5 million.

3. UNIDO's Financial Service has reviewed the support costs related to the implementation of the project.

4. The attached table shows the actual support costs for the 2001 and 2002. The support costs are used for five main items: i) Direct costs for coordination; ii) Direct costs of implementing staff; iii) Purchase and Contracts Support; iv) Central support services and v) Field costs.

THE ESTIMATED USE OF FUNDING ALLOCATED TO SUPPORT COSTS (MPCPR00165)

	2001	2002	Total
1 **Direct costs of the coordinating unit, including:**	**2,000**	**2,000**	**4,000**
Management	1,500	1,500	
Programme Assistant	500	500	
2 **Direct cost of Implementing Staff, of which in UNIDO Montreal Protocol Branch**	**39,853**	**39,853**	**79,706**
Programme Manager			
a. Reviewing TOR, list of enterprises etc.	9,000	9,000	
b. Traveling for project monitoring and arranging awareness workshops	25,573	25,573	
c. In-house evaluation and administrative tasks	3,780	3,780	
Secretary	1,500	1,500	
3 **Purchase and Contract**	**7,300**	**7,300**	**14,600**
Contract Officer	6,300	6,300	
Secretary	1,000	1,000	
4 **Allocation of central support services**	**12,700**	**12,700**	**25,400**
Personnel Services	2,700	2,700	
Financial Services	9,000	9,000	
General Services, including communication costs	1,000	1,000	
5 **Allocation of field costs**	**120,000**	**120,000**	**240,000**
SEPA	60,000	60,000	
UNIDO Field consultant	60,000	60,000	
TOTAL	**181,853**	**181,853**	**363,706**

SECTOR PLAN FOR PHASE-OUT OF ODS IN CHEMICAL PROCESS AGENT APPLICATIONS AND CARBON TETRACHLORIDE PRODUCTION IN CHINA: 2003 ANNUAL PROGRAMME

PROJECT DESCRIPTION

Background

19. At its 38th Meeting in November 2002, the Executive Committee approved the Agreement with the People's Republic of China to phase out the production and consumption of CTC, and the consumption of CFC-113 (phase I) at a funding level of US $65 million. Implementation of this Agreement by China will enable it to comply with the Montreal Protocol phase-out schedule for CTC production and consumption. Table 2 of the Agreement sums up the phase-out and disbursement schedule and is reproduced as follows:

Allowable CTC Production and Consumption under this Agreement (ODP tonnes)

		Baseline[1/]	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
1.	Max allowable sum of production and imports of CTC	86,280	64,152	64,152	61,514	54,857	38,686	32,044	26,457	23,583	17,592	11,990
2.	CTC feedstock	N/A	55,319	45,400	45,333	39,306	28,446	21,276	15,129	11,662	5,042	-
3.	Max Allowable CTC consumption for other PA applications [2/]	N/A	N/A	7,389	7,832	8,302	8,800	9,328	9,888	10,481	11,110	11,997
4.	Max allowable CTC consumption in the PA applications in Appendix 1	3,825	4,347	5,049	5,049	5,049	493	493	493	493	493	220
5.	Other non identified uses	N/A	N/A	6,314	3,300	2,200	947	947	947	947	947	-
6.	Max allowable CFC-113 consumption in the PA sector	17.2	17.2	17.2	17.2	14	14	10.8	8.4	0	0	0
7.	**MULTILATERAL FUND SUPPORT (in US$ thousands)**											**Total $**
8.	MLF Funding			2,000	20,000[3/]	16,000[3/]	2,000[3/]	16,000[3/]	5,000[3/]	3,000[3/]	1,000[3/]	65,000
9.	Agency support costs			150	1,500	1,200	150	1,200	375	225	75	4,875

[1/] Baseline includes average CTC consumption over 1998-2000.
[2/] Applications in Appendix IV.
[3/] Subject to consideration of the disbursement schedule at the 39th Meeting of the Executive Committee.

Submission of the World Bank

20. The proposed 2003 annual programme (attached) covers both the consumption and production phase-out of CTC in the year of plan although the production sector plan is scheduled for submission to the Executive Committee by the end of the year after the completion of the technical audit of the CTC production sector in China. The submission covers targets to be

achieved, and programme activities to be implemented at Government and enterprises levels as well as the technical assistance envisioned.

21. The annual programme sets 3 targets in accordance with the Agreement: maximum CTC production and imports at 61,514 ODP tonnes (row 1 in Table 2); maximum CTC consumption in the process agent sector (5 controlled applications as per the Agreement) at 5,049 ODP tonnes (row 4 in Table 2); and maximum CFC-113 consumption in the process agent sector at 17.2 ODP tonnes (row 6 in Table 2). Implementation of the 2003 annual programme, will therefore phase out 2,638 ODP tonnes from the CTC production, however no phase-out of CTC consumption in the process agent sector.

22. Activities to be implemented at the Government level include establishing a CTC production and consumption quota system no later than 30 June 2003 and starting quota allocation to producers and consumers; issuing a circular banning new CTC production lines or expanding existing ones and controlling involuntary production of CTC as a bi-product; and setting up a reporting and verification mechanism to monitor the implementation of the quota system.

23. Activities at the enterprises level will include: the issuance of CTC production and consumption quotas to enterprises to ensure the allowable production and consumption targets not being exceeded. For enterprises producing chlorinated rubber (CR) and chlorinated parafines (CP), contracts will be offered either for closures or conversions. For enterprises producing chlorosulphonated polyofin (CSM), Ketotifen and Fluoropolymer resins (PTTE), preparations will be initiated in 2003 for phasing out by substitute technologies or emission controls.

24. Under the technical assistance programme of the year, the annual plan anticipates to extend the management information system to cover CTC production and consumption; explore substitute technologies for CTC under various applications; and train people of different professions, including auditors to manage the phase-out programme of CTC production and consumption.

25. The submission has two annexes: Annex I is a list of CTC producers, and Annex II contains information about the CTC (process agent) users which includes breakdown by application of CTC and CFC-113 consumption between 1997-99, number of enterprises, list of eligible enterprises and CTC consumption per enterprise between 1997-99.

26. The World Bank requests US $20 million for the implementation of the 2003 annual work programme and US $1.5 million as agency support cost.

SECRETARIAT'S COMMENTS AND RECOMMENDATION

COMMENTS

27. The Secretariat communicated its comments on the World Bank submission and received clarifications from the Bank on its comments. The comments hereunder reflect the response of the World Bank.

28. As stated in paragraph 3 above, the annual programme only sets three targets in the year 2003. However, the Agreement also sets "maximum allowable CTC consumption for other process agent applications" (7,832 ODP tonnes), and consumption ceilings for CTC feedstock (45,333 ODP tonnes), and other non-identified uses (3,300 ODP tonnes). These are included in rows 3, 2 and 5 in Table 2 of the Agreement.

29. The World Bank argued that the Agreement reflected what could be monitored and that it was impossible at this stage to monitor and verify the consumption for "other applications" in row 3 and "other non identified uses" in row 5. The Bank also stated that row 1 in Table 2 sets the overall supply limit for CTC, suggesting that it should provide adequate control for CTC consumption in China.

30. The Secretariat views that these 3 rows in the Agreement are consumption ceilings that China should not exceed and therefore would represent part of the commitments that China has entered into by concluding the Agreement with the Executive Committee. Despite the importance of the overall supply limit provided in row 1, the consumption in rows 3 and 5 should not be allowed to fluctuate freely within the established limit, since the Agreement places a 6% annual growth cap on row 3 in other PA applications, and calls for a significant reduction in 2003 in row 5 (3,014 ODP tonnes) in other unidentified uses.

Inadequate information on the 2003 programme of activities

31. The 2003 annual programme does not contain adequate details on the activities to be implemented during the year. First, the preparation of the CTC production sector plan will be completed towards the end of the year after the completion of the CTC production technical audit. Secondly, substitute technologies for some of the PA application are still under consideration by the Government of China. However, it is important to provide in future annual programmes a detailed credible plan of action to be implemented in the year of plan, which should:

(a) establish clearly the individual actions to be carried out during the year and indicate the actual use to which the requested funding will be put;

(b) provide a high level of confidence that the actions will enable the required targets to be met;

(c) enable the consumption targets, the progress with nominated activities, and the expenditure of funds thereon to be monitored/verified, as appropriate.

Indicators for monitoring and verification

32. By any measure, the sector plan is a difficult programme to implement and monitor, first it encompasses both CTC consumption and production, second the phase-out of CTC consumption would involve a series of technical options, some of which are challenging for monitoring, such as emission abatement. The World Bank commits as part of its responsibility as the implementing agency in Appendix I of the Agreement to "ensuring that disbursement made to China are based on the use of indicators".

33. The submission does not provide a discussion of the programme monitoring which should include the indicators the Bank intends to use to monitor and verify both CTC production and consumption phase-out. These indicators comprise an essential part of the annual programme, which provide a transparent and credible measurement of the success of the sector plan, and therefore the continued funding of the plan year after year.

34. Regarding the detailed programme of activities for 2003 and the performance indicators, the World Bank informed that they were working with the Government of China on such elements and expected to produce a sector plan in July of this year.

Distribution of the annual funding tranches

35. Decision 38/60 which approved the China Agreement requested the Executive Committee to consider at the 39th Meeting the distribution of the annual funding tranches for the project. In line with the Decision, the Executive Committee may wish to take into account that the total funding that China will receive during 2003 to 2005 will represent 62 per cent of the total funding approved in principle for the Agreement. However, China is expected to phase out 85 per cent of CTC production and consumption by January 2005 in order to achieve compliance.

RECOMMENDATIONS

36. The Secretariat recommends that the Executive Committee may wish to consider:

(a) Approve the 2003 annual programme for CTC production and consumption at the requested funding level of US $20 million and US $1.5 million as the support cost for the World Bank.

(b) Request the Secretariat and the World Bank, together with the Government of China to propose to the 40th Meeting of the Executive Committee a system of monitoring the implementation of the Agreement.

(c) Request the World Bank to provide in its future annual work programmes sufficient information about planned targets and activities to:

(i) establish clearly the individual actions to be carried out during the year and indicate the actual use to which the requested funding will be put;

(ii) provide a high level of confidence that the actions will enable the required targets to be met; and

(iii) enable the consumption targets, the progress with nominated activities, and the expenditure of funds thereon to be monitored/verified, as appropriate.

CFC PRODUCTION SECTOR: 2003 ANNUAL PROGRAMME

PROJECT DESCRIPTION

37. According to the arrangement under the Agreement for the China CFC production sector plan, the World Bank submitted the 2003 annual programme for the CFC production sector phase-out in China to the 38th Meeting in November 2002 and the Executive Committee decided "to approve the 2003 work programme of the China CFC production closure programme and withhold the requested funding until the World Bank had submitted to the 39th Meeting a satisfactory verification report on the implementation of the 2002 annual programme" (Decision 38/44).

38. As requested, the World Bank is submitting to the 39th Meeting the verification report on the implementation of the 2002 China CFC production phase-out programme (attached without the data part), which contains the verification of 7 plants which were producing under the quota system in the 2002 annual programme (identified by the SRIC audit report numbers as A8, A10, A13, A14, B8, B12, and B14).

39. The report includes 4 parts. Part 1 is a summary of the major findings on such parameters like the total production, overall consumption of feedstock, and overall assessment on the achievement of the target of the 2002 annual plan. Part 2 is a description on a plant-by-plant basis of the verification process and the discussion of the findings. It starts with an assessment of the follow-up that had been implemented by the plant on the suggested improvements proposed by the last audit, continues with comments on the quality of record-keeping, and discusses in detail the methodology and the records used to verify CFC production and the consumption of feedstock. Part 2 concludes with identification of the issues, and the conclusions.

40. Part 3 presents the findings in the format approved by the Executive Committee and covers data on production capacity, product mix, production quota and actual CFC production, feedstock consumption ratio and actual consumption, and days of operation. Finally Part 4 includes a financial audit of the plants as an effort to confirm the results from the physical audit of the plant.

41. The overall assessment of the verification is that China complied with the annual target set in the Agreement for the year 2002, with the total actual production of 32,898.5 ODP tonnes almost equal to that set in the agreement at 32,900 ODP tonnes. With the verification report, the World Bank requests the release of US $13 million for the 2003 programme and the associated support cost of US$ 975,000, at 7.5 percent of the funding level of the 2003 annual programme.

42. In response to the request of the Executive Committee "to provide information on the financial oversight exercised over the technical assistance programme, especially the frequency of the financial reporting and institution carrying the audit", the World Bank provided the following information:

World Bank supervision

- All technical assistance (TA) activities proposed in an annual programme would be initiated during the year. Additional proposals can be included if China decides so.

- All technical assistance proposals require approval of terms of reference by the Bank.

- Progress reports are received by the Bank on a quarterly basis.

- The World Bank's procurement and financial specialists review transactions at least once a year. This is done on a representative basis, but when the number of transactions is small, the review includes all the contracts. The procurement specialist examines the process of consultants' appointments and the financial specialist focuses on the consistency of expenditure statements.

National audits

43. China National Audit Office (CNAC) is designated by the Government of China and the World Bank as the national institution to carry out audits, including the TA component, and implements the audit once a year in the first half of the year. An audit report from CNAC is submitted to the World Bank no later than June 30.

SECRETARIAT'S COMMENTS AND RECOMMENDATIONS

COMMENTS

Overall assessment of the 2002 verification in light of the guidelines for verification of ODS production phase-out

44. The verification of the implementation of the 2002 work programme has adhered to the same guidelines and methodology used in the 2001 verification exercise, and provided a full discussion of the issues identified during previous verification and a year-to-year follow-up on those issues to ensure improvement. The results of the evaluation are presented in accordance with the approved formats, and are supported by adequate documentation which enables tracking and validating the CFC production, and the consumption of the feedstock.

Issues related to compliance with production quotas

45. In its comments on the verification report of the 2001 CFC production, the Secretariat echoed the concern of the verification team about the narrow margin between the reported production of some producers and their allocated quota. The same concern was reported by the team for the 2002 verification, in spite of the fact that SEPA had instituted a system of on-site inspection by peer producers in the remaining plants. For example, Jiangsu Changsu 3F Refrigerant Co. Ltd. reported production of 3034.74 MT of CFC-12 against a quota of 3,035 MT. However the company had a in-process stock of about 60 MT of CFC-12 and could not present

to the verification team the starting and ending levels for these storages since the claimed 2002 production was within 0.26 MT of their quota. The verification team requested that the company must keep process receiver and process storage level reading for beginning and ending of each production year and have these data certified as real. The team also recommended to cease production a few tonnes short of the official quota to remove suspicion from the reported data.

46. The Secretariat, in accordance with the information it furnished to the Executive Committee at its 36th Meeting, has not included the data part of the verification report submitted to the 39th Meeting. The data could, however, be made available to any member of the Committee upon request.

RECOMMENDATIONS

47. The Secretariat recommends that the Executive Committee release to the World Bank US $13 million for the implementation of the 2003 work programme of the China CFC production phase-out programme, as well as US$ 975,000 as support cost for the World Bank.

Sector Plan for Phaseout of ODS in Phase One of Chemical Process Agent Applications and Carbon Tetrachloride Production in China

2003 ANNUAL PROGRAM

March 7, 2003

Data Sheet

Country	China
Year of plan	2003
# of years completed	0
# of years remaining under the plan	7
Target ODS consumption of the preceding year	0
Target ODS consumption of the year of plan	0
Target ODS Production of the year of plan	2,638 ODP Tons CTC
Level of funding requested	$20 million

National Implementing operating agency	State Environment Protection Administration
International implementing agency	The World Bank

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2003 ANNUAL PROGRAM FOR SECTOR PLAN FOR PHASEOUT OF ODS IN CHEMICAL PROCESS AGENT APPLICATIONS AND CARBON TETRACHLORIDE PRODUCTION IN CHINA

Introduction

1. At its 38th meeting, the ExCom approved funding of $65 million for the first phase of China's Process Agents sector and CTC production sector plans. US$2 million was provided at approval, and an amount of US$20 million has been allocated for 2003; this is expected to be reviewed and approved at the first meeting of the ExCom in March 2003.

2. This first Annual Program covers activities in both sectors in 2003, applying the funding received in both 2002 and 2003. The CTC Production Sector Plan is proposed to be submitted to the last ExCom meeting of 2003. Phaseout activities will start immediately after provision of funding following approval of the Annual Program.

Annual Phaseout Targets and Funding Level

3. ***Phaseout obligations.*** The agreed phaseout targets and corresponding funding for this phase of the PA and CTC Production sectors is as follows:

Table 1: Allowable CTC Production, ODS Consumption in P.A. and Agreed funding

	ODP Tons			US$ million
Year	Maximum allowable sum of production and imports of CTC	Maximum allowable CTC consumption in PA Sector (25 applications)	Maximum allowable CFC-113 consumption in the PA Sector (25 applications)	Agreed funding
Baseline/1	86,280	3,825	17.2	
2002	64,152	5,049	17.2	2
2003	61,514	5,049	17.2	20
2004	54,857	5,049	14	16
2005	38,686	493	14	2
2006	32,044	493	10.8	16
2007	26,457	493	8.4	5
2008	23,583	493	0	3
2009	17,592	493	0	1
2010	11,990	220	0	
			Total :	65

/1: For consumption, average of 1998-2000; for CTC Production, 2000 data)

4. Accordingly, the targets for the 2003 Annual Program are as follows:

   a) Total CTC production and imports will not exceed 61,514 ODP Tons (55,921.8 MT)

   b) Total CTC consumption in the PA sector (25 applications) will not exceed 5,049 ODP Tons (4,590 MT); and

c) Total CFC-113 consumption in the PA sector (25 applications) will not exceed 17.2 ODP Tons (21.5 MT).

Activities to be covered in the 2003 annual program

5. The implementation modalities for Annual Programs are contained in the Sector Plan document. The Process Agents Sector Plan has already been finalized, and the CTC Production Sector Plan will be prepared in 2003. However, the required activities for meeting the 2003 targets for CTC production are included in this Annual Program. This Program will support the following activities, which are further described in the sections that follow:

(a) Establishment of CTC production quota systems;
(b) Issue of CTC production quotas;
(c) Establishment of consumption quota system for the PA Sector;
(d) Issue of CTC and CFC-113 consumption quotas to PA (25 applications) enterprises;
(e) Initial steps for introducing substitute technologies for manufacture of CR and CP-70, and
(f) Technical assistance activities.

Programmed Activities During the Year

6. ***Policy actions.*** The following policy measures will be initiated by the Government. These actions are necessary to implement of the annual program and for the success of the sector plan.

(a) Quota system for CTC production: A system to limit production of CTC will be established immediately (not later than June 30,2003) ahead of preparation of the CTC Production Sector Plan. Annual reporting will be required from the producers. A draft regulation establishing this quota system will be prepared and reviewed with the World Bank and will be promulgated as soon as possible. Following promulgation, production quotas will be issued to CTC producers to ensure that total production in 2003 does not exceed the allowed maximum. As imports of CTC have already been banned from April 1, 2000, there will be no imports of CTC.
(b) A circular banning establishment of new CTC production lines and expansion of existing CTC production lines will be issued and declared effective not later than June 30, 2003. This circular will also impose controls on any involuntary production of CTC produced as a by-product in other processes.
(c) Quota system for ODS consumption in PA: For enterprises using ODS in 1999, consumption quotas will be assigned based on those consumption levels. A draft regulation establishing this quota system will be prepared and reviewed with the World Bank and will be promulgated as soon as possible (not later than June 30, 2003). Following promulgation, consumption quotas will be issued to the enterprise to limit consumption of CTC/CFC-113 as applicable, to ensure that total consumption in 2003 does not exceed the allowed maximum.
(d) Annual reporting and verification: Annual verification of production and consumption has to be conducted. The quota regulation will therefore include a requirement for regular reporting for verification. The enterprises will be required to report the status of implementation of contracted phaseout quarterly. Monitoring and supervision of

implementation of the annual program activities will be taken up by SEPA and the World Bank.

7. ***Enterprise-level activities.*** There will be four types of activities at the enterprise level: production quotas for CTC producers, and emissions control, conversions, and closures for PA enterprises. All these activities will be based on assignment of quotas.

1. *Production Quotas for CTC producers:* Quotas will be assigned to all producers to ensure that the maximum allowable production limit of 61,514 ODP Tons in 2003 is not exceeded.
2. *Consumption quotas for PA enterprises:* Quotas will be assigned to each of the participating PA enterprises to ensure that the maximum allowable consumption limits of 5,049 ODP Tons of CTC and 17.2 ODP Tons of CFC-113 in 2003 are not exceeded. Enterprises without production in 1999 will be allocated zero quotas.
3. *Phaseout Contracts (CR and CP-70):*
   (a) *Closure:* For enterprises targeted for closure in 2003, contracts will be signed as soon as possible. All the closing production facilities will also be dismantled within the year where applicable. Enterprises who had no production in 1999 (and have 'zero' quota) will all be closed in the year. Some other enterprises may also be closed in the year.
   (b) *Conversion:* Other producers who wish to receive MLF funding for conversion will sign conversion contracts during 2003.
   (c) All remaining enterprises will be required to opt for either closure or conversion in 2004.
4. *Preparation for other options (CSM, Ketotifen and PTFE):* Preparation of activities for substitute technologies and emission control in CSM, Ketotifen and PTFE will be initiated in the year.

8. ***Technical assistance (TA) activities***. TA activities are essential to the success of the phaseout objective. All terms of references and detailed work programs will have to be agreed with the World Bank before implementation. All activities are expected to be completed within two years. 2003 TA activities will include:

a) *Extension of the Management Information System (MIS) to include ODS Phaseout in PA and CTC Production.* The MIS is an important tool in the management and supervision of all phaseout activities. It is used to monitor ODS phaseout and closure activities. It is also the basic instrument to generate progress reports on the implementation of the ODS phaseout required for SEPA management, the ExCom, and the World Bank. This system will be extended to cover the first phase of the PA sector and CTC Sector Plans.

b) *Investigation of substitute technologies.* Substitute technologies have only recently started emerging globally. Due to lack of widespread experience with these technologies, especially in developing country circumstances, it is necessary to investigate and evaluate such substitute technologies, including processes, main equipment, technical transfer and production costs, etc. Following investigations and field surveys, China will choose the most optimal, cost-effective and mature

substitute technologies to meet domestic demands for PA-related products. The 2003 Annual program will provide important support for investigating and developing substitute technologies for CP-70 and CR and PTFE in China. In addition, feasibility studies will also be undertaken on emission control of CSM and Ketotifen.

c) *Investigation of Conversion of CTC to other (non-ODS) Products:* it is necessary to investigate and evaluate technologies to convert CTC to other (non-ODS) substances, including processes, main equipment, technical transfer and production costs, etc. Following investigations and field surveys, after this TA is completed, China expects to propagate the most optimal, cost-effective and mature technologies to willing CTC producers.

d) *Training of personnel involved in implementation of phaseout activities.* To implement the phaseout plan effectively, it is necessary to provide training to: (i) CTC producers; (ii) ODS consumers in the PA Sector; and (iii) auditors. Training is needed to prepare enterprises to bid in the following years, to train government officials to properly supervise ODS PA consumption, and to refine operating procedures of the sector phaseout approach. This type of training will need to be repeated every year in the first few years of implementation.

e) *Other activities.* Other TA activities that are identified in the course of the year will be taken up as necessary.

9. The above targets, policy initiatives, enterprise-level and technical assistance activities are summarized in Tables 2 - 4 below.

Table 2: Targets under 2003 Annual Program

(Lines refer to Decision 38/60, Annex XIII, Table 2 of UNEP/OzL.Pro/ExCom/38/70))

Target I	**Maximum Allowable sum of production and Imports of CTC (line 1)**						
Indicators	Sub-sector	**2002** (Preceding Year)	**2003** (year of Program)	**Reduction**	**Funding** $ million	**Key actions required**	**Key dates**
		(ODP Tons)					
Supply of CTC	Import	0	0			None; imports banned on April 1, 2000	N/A
	Production	64,152	61,514	2,638	t.b.d.	1. Issue of CTC production quotas.	1. By June 30, 2003
	Total - Line 1	64,152	61,514	2,638	t.b.d.		
Target II	**Maximum Allowable CTC Consumption in the PA Sector (line 4)**						
Indicators		**2002** (Preceding Year)	**2003** (year of Program)	**Reduction**	**Funding** $ million		
		(ODP Tons)					

Consump-tion of CTC	Various enterprises	5,049	5,049	0	t.b.d.	1..Issue of CTC consumption quotas.	1. By June 30, 2003
	Total - Line 4	5,049	5,049	0	t.b.d.		
Target III	**Maximum Allowable CFC-113 Consumption in the PA Sector (line 6)**						
Indicators		**2002** (Preceding Year)	**2003** (year of Program)	**Reduction** (ODP Tons)	**Funding** $ million		
Consumption of CFC-113	PTFE Production	17.2	17.2	0	t.b.d.	1. Issue of CFC-113 consumption quotas.	1. By June 30, 2003
	Total - Line 6	17.2	17.2	0	t.b.d.		

Table 3: Government Action

Policy/Activity Planned			
Initiatives	Funding Requested	Actions Required	Key Dates
1. Policies to control CTC Production	N/A	1. Issue Regulation on Ban on new Production lines or expansion of existing lines for CTC production and control of involuntary production. 2. Establish CTC production quota system and issue Quotas. 3. Issue Production quotas	1. June 2003 2. July 2003 3. July 2003
2. Policies to control CTC and CFC-113 consumption		1. Establishment of CTC consumption quotas for PA consumers 2. Establishment of CFC-113 consumption quotas for PA consumers 3. Issue consumption quotas for PA consumers.	1. June 2003 2. June 2003 3. July 2003

Table 4: Technical assistance activities

Proposed Activity	Target group	Funding (US$ Million)	Actions Required	Key Dates
1. Extension of MIS to this sector	Government and domestic implementing agency	0.02	1. TOR to be agreed with the Bank 2. Selection of contractors 3. Contract signing with contractor 4. Set up MIS in PMO	1. Start preparatory work at the end of 2002 2. May 2003 3. June 2003 4. Operational by December 2003
2. Investigation of substitute technologies	Enterprises and research institutes	0.09	1. TOR to be agreed with the Bank 2. Selection of contractor 3. Contract signing 4. Basic information gathering in China 5. Investigation abroad 6. Seminar to discuss strategy 7. Final report	1. May 2003 2. July 2003 3. August 2003 4. August– Nov. 2003 5. Dec.2003-April 2004 6. May – July 2004 7. No later than end of 2004

3. Investigation into conversion of CTC production into non-ODS production	Government and research institutes	0.09	1. TOR to be agreed with the Bank 2. Selection of contractor 3. Contract signing 4. Basic information gathering in China 5. Investigation abroad 6. Seminar to discuss strategy 7. final report	1. May 2003 2. July 2003 3. August 2003 4. August– Nov. 2003 5. Dec.2003-April 2004 6. May – July 2004 7. No later than end of 2004
4. Training of personnel involved in implementation of phaseout activities.	Government enforcement agencies	0.10	1. TOR to be agreed with World Bank 2. Training on supervision of ODS PA production, bidding system, management of ODS consumption quota, annual reporting and verification system	1. May 2003 2. Start no later than mid-2003. Schedule to be detailed in TOR
5. Other TA		0.10		
TOTAL for phaseout activities		**0.40**		

Annex I: List of CTC producers at present

(not yet verified by audit)

CTC Producers

1. Zhejiang Quhua Fluro Chemicals Co. Ltd.
2. Jiangsu Meilan Fluro Chemicals Co. Ltd.
3. Changshou Chemical Industry Factory
4. Chongqing Tianyuan Chemical Industry Plant
5. Sichuan Honghe Fine Chemical Industry Co. Ltd
6. Sichuang, Luzhou Xinfu Chemical Industry Co. Ltd.
7. Sichuan Luzhou Chemicals Factory
8. Shanghai Chlorine-Alkali Chemical Industry Co. Ltd.

Distillation plants

9. Chongqing Tiansheng Chemical Industry Co. Ltd
10. Zhejiang Quzhou Jiuzhou Chemical industry Co. Ltd

Annex II: Information on PA enterprises

A. ODS Consumption in approved Process Agent Applications, 1997-1999

ODS used	Application No.	Product	Annual consumption of ODS, t/a		
			1997	1998	1999
CTC	C3	CR	1,290	1,154	1,142
	C7	CSM	710	720	827
	C12	CP-70	900	819	1,007
	C17	Ketotifen	8.64	11.75	10.35
CFC-113	C9	PTFE	5.62	5.85	21.52
Total ODS tons			2,915	2,713	3,008
Total ODP tons			3,204	2,980	3,302

B. Enterprises using ODS for Process Agent Applications

Application Number (from X/14)	C3	C7	C9	C12	C17	Totals
Name of Application	CR	CSM	PTFE	CP-70	Ketotifen	
Name of ODS Used	CTC	CTC	CFC-113	CTC	CTC	
Total Number of Production Lines (Number of enterprises in brackets)	7(7)	3(3)	6(6)	12(10)	1(1)	29(27)
With production in 1999, and eligible	7(7)	1(1)	5(5)	9(7)	1(1)	23(21)
No production in 1999, but eligible	-	2(2)	-	2(2)	-	4(4)
With production, but not eligible	-	-	1(1)	1(1)	-	2(2)

C. Eligible enterprises

Enterprise name	Product
Shanghai Chlor-Alkali Chem. Co Ltd	CR
Haotian Chem Co Ltd.	CR
Wuxi Chem Group Co Ltd	CR
Zhejiang Xin-an Chem. Group Co Ltd	CR, CP-70
Jiangyin Fasten Co Ltd	CR, CP-70
He-nan Puyang oilfield CR Factory	CR
Shangyu Qimin Chemical Co., Ltd	CR
Huanghua City Jinghua Chem. Co., Ltd.	CP-70
Shenyang Chem. Co Ltd.	CP-70
Longchang Shouchang Chem Co Ltd	CP-70
Longchang Shenghua Chem Factory	CP-70
Chongqing Tianyuan Chemical General Factory	CP-70
Longyou Lude Pesticide Chem Co Ltd	CP-70
Dalian city Jiangxi Chem Ind Head Co.	CP-70

Harbin Yibin Chem Ind. Co Ltd	CP-70
Shanxi Fenyang Catalyst Factory	CP-70
Jilin Chem. Ind. Co Ltd	CSM
Hongjiang Chemical Company	CSM
Jiaohe Organic Chemical Factory	CSM
Shanghai 3F New Materials Share Co Ltd	PTFE
Chenguang Chem Research Institute	PTFE
Jinan 3F Chemical Co Ltd	PTFE
Jiangsu Meilan Chemical Co Ltd	PTFE
Fuxin Fluor-chemical Co Ltd	PTFE
Zhejiang Huahai Pharm Group Co Ltd	Ketotifen

D. Consumption of CTC and CFC 113

CR producers (CTC)	1997	1998	1999
	ODS consumption (T/A)		
Shanghai Chlor-Alkali Chem. Co Ltd	144	115	161
Haotian Chem Co Ltd.	281	252	199
Wuxi Chem Group Co Ltd	370	284	345
Zhejiang Xin-an Chem. Group Co Ltd	121	162	142
Jiangyin Fasten Co Ltd	300	247	152
He-nan Puyang oilfield CR Factory	29.2	12	13
Shangyu Qimin Chemical Co., Ltd	45.05	81.77	130.35
Sub-Total	1,290	1,154	1142
CP 70 (CTC)			
Huanghua City Jinghua Chem. Co., Ltd.	21.4	23.1	72.6
Zhejiang Xin-an Chem. Group Co Ltd	61	73	85
Jiangyin Fasten Co Ltd	280	243	240
Shenyang Chem. Co Ltd.	159.7	89.13	31.5
Luzhou Longmatanqu Hongyuan Chem	0	0	75
Longchang Shouchang Chem Co Ltd	78	67	67
Longchang Shenghua Chem Factory	33.6	65	83.4
Chongqing Tianyuan Chemical General	0	0	0
Longyou Lude Pesticide Chem Co Ltd	49	51	45
Dalian city Jiangxi Chem Ind Head Co.	198.4	188.3	287
Harbin Yibin Chem Ind. Co Ltd	18.8	19.3	20.1
Shanxi Fenyang Catalyst Factory	0	0	0
Sub-Total	900	819	1007
CSM (CTC)			
Jilin Chem. Ind. Co Ltd	710	720	827
PTFE (CFC-113)			
Shanghai 3F New Materials Share Co Ltd	0.25	1.75	3.5
Chenguang Chem Research Institute	0	0	7.92
Shanghai Tianyuan Group Fluor-chem.	0	0	0
Jinan 3F Chemical Co Ltd	4.37	3.1	4.1

Jiangsu Meilan Chemical Co Ltd	0	0	5
Fuxin Fluor-chemical Co Ltd	1	1	1
Subtotal	5.6	5.9	21.5
Ketotifen (CTC)			
Zhejiang Huahai Pharm Group Co Ltd	8.6	11.8	10.5

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CHINA CFC PRODUCTION PHASE-OUT PROGRAM
2002 VERIFICATION REPORT
February 4, 2003

Inspection Team

F.A. Vogelsberg: Mission Leader and primary text preparation
Hua Zhangxi: Senior Chemical Engineer
Wu Ning: Financial analyst

Assisted and Accompanied By

Chang Yansheng: State Environmental Protection Administration

Inspection Mission Time Frame

January 16-30, 2003

Plants Covered in Visitation Order

Guangdong Xiansheng Chemical Co. Ltd – Guangdong Province, Zencheng City
Zhejiang Chemical Industry Research Institute – Zhejiang Province, Hangzhou City
Zhejiang Linhai Limin Chemical Plant – Zhejiang Province, Linhai City
Zhejiang Dongyang Chemical Plant – Zhejiang Province, Dongyang City
Zhejiang Juhua Fluoro-chemical Co. Ltd – Zhejiang Province, Quzhou City
Jiangsu Changsu * 3F Refrigerant Co. Ltd. – Jiangsu Province, Changshu City
Jiangsu Meilan Electro-chemical Co. Ltd – Jiangsu Province, Taizhou City

*All World Bank documents spell as Changsu: while the true spelling is Changshu

Report Format and Contents

Summary: Verification Conclusions for CFC Production in China for year 2002.
Annex I – Complete text describing the mission's verification efforts for each of seven enterprises' year 2002 production. (Lead author: F.A. Vogelsberg)
Annex II – CFC production verification 2002 Tables (lead author: Hua Zhangxi)
Annex III - Financial Verification of CFC Production in China in 2002 (Lead author: Wu Ning)

Summary: Verification Conclusions with respect to China's CFC Production in 2002

There was no complete closure project in China CFC Production Sector 2002. Therefore, there were still seven enterprises producing CFC products in China 2002, same as that in 2001. The verified overall national production of CFCs in 2002 is 32,895.5 tons (ODP). The following table is the breakdown in accordance with various types of product.

Type of CFC Product	Number of Producers	Total Production (in tons)	
		ODS	ODP
CFC-11	3	15,770.5	15,770.5
CFC-12	6	14,755	14,755
CFC-13	1	27.0	27.0
CFC-113	1	2,750	2,200
CFC-114	1	29.0	29.0
CFC-115	2	190	114
Overall National			32,895.5

The total consumption of CTC for the production of 15,770.5 tons of CFC-11 product is 18,950.9 tons; and the overall average CTC/ CFC-11 ratio is 1.202. Among the three CFC-11 producers, the producer that had the lowest CTC/ CFC-11 ratio (1.209) is Jiangsu Changsu 3F Refrigerant Co. Ltd.SRI# A 10); while the highest ratio (1.309) is Jiangsu Meilan Electro-chemical Plant (SRI# A 8) .

The total consumption of HF for the production of 15,770.5 tons of CFC-11 product is 2,530.3 tons; and the overall average HF/ CFC-11 ratio is 0.160. Among the three CFC-11 producers, the producer that had the lowest HF/ CFC-11 ratio (0.158) is Jiangsu Changsu 3F Refrigerant Co. Ltd. (SRI# A10); and the highest ratio (0.186) is Jiangsu Meilan Electro-chemical Plant (SRI# A 8).

The total consumption of CTC for the production of 14,755 tons of CFC-12 product is 20,152 tons; and the overall average CTC/ CFC-12 ratio is 1.366. Among the six CFC-12 producers, the producer that had the lowest CTC/ CFC-12 ratio (1.313) is Jiangsu Changsu 3F Refrigerant Co.Ltd. (SRI# A 10); while the highest (1.413) is Zhejiang Dongyang Chemical Plant. (SRI# B 12)

The total consumption of HF for the production of 14,755 tons of CFC-12 product is 5,685.1 tons; and the overall average HF/ CFC-12 ratio is 0.385. Among the six CFC-12 producers, the producer that has the lowest HF/ CFC-12 ratio (0.363) is Zhejiang Dongyang Chemical Plant. (SRI# B 12) and the highest (0.416 is Jiangsu Meilan Electro-chemical Plant (SRI# A8).

A detailed summary of China CFC production in 2002 as well as the raw material consumption is attached in the next page.

SUMMARY OF CHINA CFC PRODUCTION IN 2002

CFC-11

SRI #	Name of Enterprise	Production (ODS)	Production (ODP)	CTC Consumption	HF Consumption	Ratio CTC/ CFC-11	Ratio HF/ CFC-11
A 8	Jiangsu Meilan Electro-chemical Plant	1,049.7	1,049.7	1,374.0	195.3	1.309	0.186
A 10	Jiangsu Changsu 3F Refrigerant Co. Ltd.	10,231.9	10,231.9	12,156.3	1,618.9	1.187	0.158
B 14	Zhejiang Juhua Fluoro-chemical Co. Ltd.	4,489.0	4,489.0	5,420.6	716.1	1.208	0.160
	Overall	15,770.5	15,770.5	18,950.9	2,530.3	1.202	0.160

CFC-12

SRI #	Name of Enterprise	Production (ODS)	Production (ODP)	CTC Consumption	HF Consumption	Ratio CTC/ CFC-12	Ratio HF/ CFC-12
A 8	Jiangsu Meilan Electro-chemical Plant	1,314.7	1,314.7	1,836.6	546.9	1.397	0.416
A 10	Jiangsu Changsu 3F Refrigerant Co. Ltd.	3,034.7	3,034.7	3,984.7	1,239.6	1.313	0.408
A 13	Guangdong Xiansheng Chemical Co. Ltd.	620.9	620.9	825.3	251.4	1.329	0.405
B 8	Zhejiang Linhai Limin Chemical Plant	886.9	886.9	1,225.5	361.5	1.382	0.408
B 12	Zhejiang Dongyang Chemical Plant	1,740.7	1,740.7	2,459.3	689.0	1.413	0.396
B 14	Zhejiang Juhua Fluoro-chemical Co. Ltd.	7,157.0	7,157.0	9,820.7	2,596.6	1.372	0.363
	Overall	14,755.0	14,755.0	20,152.0	5,685.1	1.366	0.385

CFC-13

SRI #	Name of Enterprise	Production (ODS)	Production (ODP)	CFC-12 Cons'ption	Ratio CFC-13/CFC-12
B 8	Zhejiang Linhai Limin Chemical Plant	27.0	27.0	74.7	2.765

CFC-113

SRI #	Name of Enterprise	Production (ODS)	Production (ODP)	PCE Consumption	HF Consumption	Ratio PCE/ CFC-113	Ratio HF/ CFC-113
A 10	Jiangsu Changsu 3F Refrigerant Co. Ltd.	2,750.0	2,200.0	2,737.5	1,259.1	0.995	0.458

CFC-114

SRI #	Name of Enterprise	Production (ODS)	Production (ODP)	CFC-113 Consumption	HF Consumption	Ratio CFC-113/ CFC-114	Ratio HF/ CFC-114
B-11	Zhejiang Chemical Research Institute	29.0	29.0	34.8	4.4	1.202	0.153

CFC-115

SRI #	Name of Enterprise	Production (ODS)	Production (ODP)	CFC-113 Consumption	HF Consumption	Ratio CFC-113/ CFC-115	Ratio HF/ CFC-115
A-10	Jiangsu Changsu 3F Refrigerant Co. Ltd.	100.0	60.0	176.8	67.0	1.768	0.670
B-11	Zhejiang Chemical Research Institute	90.0	54.0	52.2	32.5	1.341*	0.362
	Overall	190.0	114.0	228.9	99.6	1.560*	0.524

*Zhejiang Chemical Research Institute made use of 68.5 tons of CFC 113a, which is a non-ODS obtained from their HCFC 123 unit, as part of feedstock for CFC 115 production. This amount has been incorporated to the ratio calculation.

ANNEX I

Friday/Saturday January 17, 18 – Guangdong Xiansheng Chemical Co. Ltd

3000 TPA CFC-12

General

As this was the 4th year of data inspection, it has become a rather simple process since the enterprise has upgraded their record keeping based on prior suggestions from our Team. This plant agreed to be closed with compensation by 2003 and while the official closure documentation will occur later it was logical and efficient to verify the closure activity during this mission.

Verification of Year 2002 Data

In 2002, the CFC (mainly for CFC11/12) producers used a new SEPA generated reporting form with the site supervisors oversight system that insures high quality and reliable data. This was our first view of this new form coupled with the inspector oversight.

The form is generated daily during periods of production or sales and covers the following: daily CFC production, MTD production, raw materials inventory as well as receipts or purchases, raw material use, CFC sales and CFC inventory. The form is signed each day by; financial director, warehouse manager, statistics manager (production) and the materials receiver (production). Two inspectors from different competitive companies hired by SEPA are resident on the plant site for all periods of operation.

They are paid by SEPA, who also covers their living expenses. Both inspectors sign the daily form. If the plant is to be shutdown for any period, the inspectors seal and lock key raw material valves as well as production valves and remove same when they return to the site for production resumption.

Guangdong Xiansheng Chemical did not operate in 2002 until March; at which time the outside inspectors began their plant residency, and stayed even for the non-production periods in August, October and November.

The plant operated a total of 115 days over seven months of operation in 2002, producing 620.9MT of CFC-12 vs their quota of 622MT.

Monthly cylinder filling records were verified as accurate for the seven operating months. The two reactor log sheet sets were examined to verify the AHF and CTC feed rates as well as operating days. Raw material weight tank feed rates are recorded every ½ hour and these values totaled for each shift, each day and each fiscal month. These values agree with reported raw material consumptions and CFC-12 production.

As in the past, Wu Ning concentrated on the financial records while the rest of the Team examined production records. The Team is fully satisfied with the quality and accuracy of Guangdong Xiancheng's year 2002 data.

It is rewarding to note that raw material efficiencies were better in 2002 vs 2001 for both CTC and AHF.

Plant Closure

The last CFC production occurred December 26, 2002. Plant dismantlement started December 28th and was completed on January 2, 2003. All work was done by plant personnel, witnessed by SEPA and local EPB officials. All equipment was removed from the process building and destroyed so it could not be reused. The three large 300 MT (each 7 m^3 ø) CTC storage tanks were emptied and holes were cut in the tank sides. The two-day CFC-12 receivers and large CFC-12 storage tank were emptied and holes cut in the tanks. The plants 770MT of CFC-12 inventory has all been stored in tonne and ½ tonne cylinders. At 2002 sales rate, this inventory could exceed 3 years sales from this enterprise.

Total plant employment was 40 persons; eighteen were terminated at the end of 2002 and compensated one-year's salary plus one additional month's salary for each year's service. The remaining 22 will stay on for the foreseeable future. We viewed video made during the plant dismantlement and took a complete set of photographs to document the current dismantled state.

The local EPB will issue the enterprise a dismantlement certificate in February and the scrap metal will be disposed of after the February Spring Festival.

Sunday, January 19 – Zhejiang Chemical Industry Research Institute

150 TPA CFC-114/115

General

Readers of last year's report will recall that several issues in 2001 required clarification. Also, we suggested that future verification would be enhanced if they maintained a bound notebook for daily cylinder filling records; this has been done for 2002. There were no unusual situations to deal with in this year's data review.

Verification of year 2002 Production

The plant only operated eight months in 2002 (January – August) and remained shutdown for the last four months of 2002. The prior mentioned special SEPA form and inspector system are not used at this small production plant.

Cylinder filling records are now kept in a bound notebook and provide excellent detail on each cylinder filled, including: date, cylinder number, product grade/purity, date sampled/date accepted by warehouse, tare weight, starting cylinder weight (any heel adds to tare but is not new production, gross weight, net weight and cumulative net weight (new production).

CFC-114 was only produced in four of the eight operating months (May-August)

All cylinder filling records were found to be accurate.

Transfer records for raw material consumptions were also examined and found to be correct as reported. When producing CFC-114 for sales, rather than as an intermediate for CFC-115, they use a factor to allocate raw material split between CFC-114 and CFC-115. Therefore, the only meaningful figures are total CFC-113 and total AHF for combined CFC-114/115 production.

Readers of last year's report will recall that in 2001 the enterprise started using a by-product of HCFC-123 production, CFC-113a, a non-ODS, as partial feedstock; this practice

continues. We were satisfied that all records for raw materials consumption were accurately reported.

The overall yield of CFC-113 and CFC-113a to CFC-114 and CFC-115 were 91.3% and 90.5% respectively; reasonable values. AHF is fed in excess to drive CFC-113 conversion, hence AHF yields are not of value in evaluating this plant's performance.

The enterprise produced essentially 100% of their SEPA agreed 2002 quota. 28.974MT of CFC-114 and 89.996MTof CFC-115,vs.29MT and 90MT respectively.

Reactor log sheets were examined and found to accurately reflect reported operating days and production rates.

Wu Ning spent his day at the downtown office examining financial records. The other three-team members concentrated on the plant records located at the plant.

The Team is fully satisfied that Zhejiang Chemical Research Institute data as reported is accurate.

Monday/Tuesday January 20-21 – Zhejiang Linhai Limin Chemical Plant

3,000TPA CFC-112 (2 Reactors; only one operating at a given time)

100 TPA CFC-13

15,000 TPA HCFC-22 (prior reported capacity was 10,000 TPA)

General

Linhai Limin and SEPA agreed to compensation for plant closure in China's Production Sector CFC program for year 2003; hence, the plant was shutdown at year-end 2002 and dismantled in early 2003. Official closure documentation will follow later but for efficiency reasons our Team verified the closure during this current mission.

Verification of Year 2002 Data

As mentioned in this mission's first plant visit at Xiansheng Chemical, Linhai Limin also utilized the newly instituted SEPA inspector form and hosted two competitive inspectors for all production periods in 2002.

Verification for CFC-12

CFC-12 cylinder filling records for every day of each of eleven operating months were reconciled against the plant's official reported production and the new SEPA form for each month and found to be correct for all months in 2002. CFC-12 production also includes material to be used as feedstock for CFC-13 production. This material transferred from the CFC-12 plant to the CFC-13 unit was verified as accurate.

AHF is purchased in cylinders for the site's CFC-12 and other fluorine based operations. Cylinder weights are the basis of consumption in the various plants. Reported AHF use for CFC-12 production agreed with reported figures for all months of 2002.

CTC is purchased primarily in bulk. The supplier ships to Linhai via rail car and the plant off-loads the tank cars to tank trucks for movement to the plant's 300MT CTC bulk storage. At plant closure, when remaining CTC was collected and sold, it became apparent that the official paper inventory figure was 16.202 MT greater than the actual. This approximately 16MT loss over the past three years (last time actual vs paper inventory were reconciled)

amounts to a handling loss of 0.03% of the 5356 MT of CTC handled over these last three years; a perfectly acceptable loss rate.

CTC transfers from the warehouse (bulk storage tank) to the production day tank are recorded on a transfer slip signed by persons involved in the transfer. All transfers were totaled for each of the operating months and found to be correct.

CFC-12 transfers to the CFC-13 unit are documented by transfer slips generated for each transaction and signed by the persons involved in the transfer. All transactions were checked for each month and found to be correct.

Therefore, the net 2002 CFC-12 production of 886.892MT was verified as correct vs.their 2002 quota of 887MT.

Verification of CFC-13 Data

As mentioned above, all transfers of CFC-12 for the CFC-13 disproportionation reactor were verified as correct. This is the only raw material for CFC-13 production.

All CFC-13 is typically loaded into 35kg or 8kg cylinders and these filling records were checked for every day and each month and found to be in 100% agreement with reported CFC-13 production of 26.999MT vs their 2002 quota of 27MT. The 74.659MT of CFC-12 feed stock corresponds to a CFC-12/CFC-13 ratio of 2.765 and is typical of their inefficient technology. The year 2001 ratio was 2.771.

Based on our examination of raw material transfer and product cylinder filling records we were satisfied that reported operating days were realistic for the Linhai Limin site.

As at all inspections, Wu Ning concentrated on the financial records while the rest of our Team dealt with production plant records. The Team is fully satisfied that Zhejiang Linhai Limin Chemical's 2002 reported data is accurate.

Plant Closure

The last CFC-12 production for this site was December 22. Plant dismantlement was carried out by plant forces with the help of a rented hoist, from January 2 through January 5. Twenty (20) MT of scrap metal was sold for 19,600RMB. They destroyed one of two raw gasholders, both CFC-12 reactors, product receivers, distillation columns, distillation column reboilers, as well as piping and controls.

All plant personnel associated with CFC-12 production will remain employed in continuing and expanding activity at this site. While we were examining the former CFC-12 building they were installing glass- lined vessels in the vacant space as part of a new, fine chemical facility now under construction.

The two original CFC-12 reactors were integrated into the two HCFC-22 buildings and CFC-12 refining was a separate structure. Photos were taken to show where the removed CFC-12 equipment had been housed.

The dismantlement was viewed by SEPA and the local EPB officials and fully recorded on video and still photographs, which we examined.

CTC was stored in one of 3 – 300MT bulk tanks (two were chloroform service). The CTC tank has been put into chloroform service. Remaining CTC has since been sold.

Wednesday, January 22 – Zhejiang Dongyang Chemical Plant

5,000 TPA CFC-12

8,000 TPA HCFC-22

20,000 TPA AHF

General

This is our team's fourth visit to Dongyang Chemical for annual production data review; the last visit was January 30, 2002. One notable change at this site is they are now operating a HFC- 227ea plant of about 1000MT/yr capacity; likely used as halon replacement.

In spite of our prior reviews, we still spent excessive time getting them to provide appropriate documents.

Verification of Year 2002 Data

We examined the daily cylinder filling records and verified the total monthly production records for CFC-12 to be accurately reported for the plant's eleven operating months (no production in December). Total CFC-12 produced was 1740.73MT vs.their 2002 quota of 1741MT. The daily cylinder filling records are available to us but time would not permit adding all such figures for each month, hence we relied on the fact that all necessary key data is documented on daily and monthly forms signed by appropriate plant personnel and the special inspectors hired and paid for by SEPA. The form used at this site contains the following information: starting CTC inventory, CTC purchases, CTC used, CTC ending inventory in bulk plant storage, similar data for AHF, total beginning CFC-12 inventory, CFC-12 produced for the day, MTD CFC-12 produced, CFC-12 daily sales, CFC-12 transferred from production to warehouse, and total plant CFC-12 inventory.

They maintain a bound notebook showing CTC inventory, purchases, daily transfers to production and consumption for the month. Monthly CTC transferred to production slips are also generated from this bound book to officially record monthly figures. Identical records are kept for AHF. Monthly CTC and AHF consumption figures were verified as accurate.

They have two CFC-12 reactor sets, operate three shifts per day and record raw material feed rates every ½ hour. A representative number of log sheets were examined and we are fully satisfied they are "real time" records that accurately reflect plant operating rates, downtime and total number of operating days as reported to SEPA.

The Team that inspected the production data is fully satisfied that Zhejiang Dongyang Chemicals reported 2002 data is accurate and complete.

Wu Ning's financial records analysis found everything in order.

Thursday, January 23 – Zhejiang Juhua Fluoro-chemical Co. Ltd.

12,000 TPA CFC-11/CFC-12

15,000 TPA AHF (increased from 10,000 TPA in past year)

70,000 TPA Chloromethanes – nominal 20,000 TPA CTC (expanded from 30,000 TPA and 14,000 TPA respectively last year)

General

Our last team visit to Juhua was January 29, 2002. As noted above a significant change at this site is the 50% increase in AHF capacity and a more than 2X expansion in chloromethanes; primarily chloroform for HCFC-22 manufacture. They have constructed a second HCFC-22 line bringing merchant market capacity to 19,500 TPA (excludes the Russian JV HCFC-22 capacity of about 6,000MT which is dedicated to PTFE).

Verification of Year 2002 Data for CFC-11/12

CFC-11 product is transferred to two different warehouse accounts; one for bulk railcar and tank truck shipments and the other for drums. All daily transfer slips for each report form is filled out and signed by the SEPA inspectors hired from the competitive producers staff. All of these records were found to be in order and properly signed.

Reconciliation of the site's CTC figures was made easier in 2002 since they did not have any outside purchases. CTC is transferred from the warehouse bulk storage to one of three-day tanks in the CFC plant. They never transfer into the tank that is active plant feed making it possible to use CTC day tank level changes to generate a daily CTC transfer slip. All CTC transfers were checked for each month and found to be correct as reported. Juhua produced 16,993MT of CTC in 2002.

AHF is transferred from the HF plant via pipeline and the daily transfers are measured by a mass flow meter in the CFC production unit. All daily AHF transfer slips were totaled for each month and found to be exactly as reported to SEPA. The expanded HF plant produced 16,080MT of AHF, just slightly above rated capacity. They purchased 912MT of AHF in 2002 to meet internal and external needs.

Their 11,646MT of CFC-11/12 production in 2002 represents 97% of their 12,000MT rated capacity. They operated 319 days, for a plant "in-time" of 87.3%; quite good and realistic for this well designed and maintained plant.

They reported year 2002 CFC-11 production as 4488.99MT vs their 4489MT quota. They reported 7157MT of CFC-12 production in 2002 vs. their 7157 MT quota. Because they were so close to quota, we examined year-end 2001 and year-end 2002 product receiver levels since it is obvious that they use these tanks as cushion or safety valve to stay within their yearly quota.

Readers of last year's mission report may recall that we raised concern about the large intermediate inventory that is not counted as production until accepted by the warehouse; about 700MT of CFC-11/12 in 2001. In November 2002, they transferred 218MT of CFC-11 and 298MT of CFC-12 from intermediate to finished product inventory.

All daily CFC-12 transfer slips were reconciled against official reported figures for all months and found to be correct.

The plant has an excellent set of records to document all finished product packaging and transfer to the warehouse account. Cylinder sheets are filled out each day showing: cylinder number, volume, pressure, tare weight, gross weight and net weight. As mentioned in past reports they fill cylinders to exact net weights of 450kg, 900kg, 500kg, 1100kg and DAC's of 12.6kg and 22.7kg for export. Returnable cylinders daily filling sheets are used to generate a daily total cylinder filling transfer sheet. Bulk shipments, drums and DAC's are entered into a separate daily transfer sheet. These figures are then entered into a fluorocarbon plant daily

activity report showing methyl chloride, methylene chloride, CFC-11, CFC-12, and HCFC-22 packaged and transferred to the warehouse for the day.

Their combined "in process' or intermediate stocks of CFC-11/12 were 0.1 m^3 lower at year end 2002 than at the end of 2001, which is cutting it very close for this size plant. We cautioned them again about operating so close their legal limits.

We examined the SEPA report terms for each month end and saw that they were all signed by appropriate plant personnel and SEPA hired competitive inspectors.

Wu Ning concentrated his activities on the financial records and found all to be in order.

The team is fully satisfied that Juhua reported 2002 data is accurate.

Saturday/Sunday – January 25-26 – Jiangsu Changsu 3F Refrigerant Co. Ltd.

10,000 TPA CFC-11

5,000 TPA CFC-12

4,000 TPA CFC-113

400 TPA CFC-115

General

While this site has responded to past concerned and kept better records. Some Financial Dept. dictated changes in how to handle in-process raw materials at month end complicated reconciliation, particularly in the CFC-113 and CFC-115 plants.

Verification of Year 2002 CFC Production

As in the past Mr. Wu Ning conducted the financial review while Messers Vogelsberg, Hua and Chang (SEPA) verified plant production records for 2002. As mentioned in our prior reports 3F keep extensive records, which allow several avenues to cross check, their data.

CFC-113

3F produces CFC-113 for; merchant sales, Zhejiang Chemical Research (ZRC) for conversion to CFC-114/115, internal conversion to CFC-115, feedstock for internal CTFE polymer and conversion to non-ODS CFC-113a as a pesticide feedstock.

CFC-113 was produced ten months, Jan – Oct in 2002 producing 2750MT equal to their 2002 quota.

All CFC-113 drum-filling records were examined for each month and found to be correct as reported.

CFC-113 transfers from the warehouse to the CFC-115 plant for the five operating months (June – October) were found to be correct. This was a clumsy exercise for 2002 since the financial department dictated a change in accounting in August. Prior to August, transfer of CFC-113 from the warehouse could be reconciled to CFC-113 consumed by adding the starting CFC-113 inventory to new transfers and subtotaling unused CFC-115 plant inventory of CFC-113. In August any unused CFC-113 was treated as used, forcing additional data adjustment to get actual monthly consumption figures. Monthly CFC-113 consumption figures reported were incorrect but the five-month's totals were accurate.

CFC-113 unutilized in CTFE and to be isomerized to non-ODS CFC-113a was lumped together in their report to SEPA. Reconciliation was complicated by beginning and ending inventories of unused CFC-113 feedstock that had to be added and subtracted respectively to get actual monthly consumption for CTFE and CFC-113a. The August financial change to "in-process" inventories of raw materials further complicated this exercise.

October and November reported site figures for CFC-113 use in CTFE are incorrect individually but correct for the two month use when added together. This occurred because they produced more CFC-113 in October to be used in November for feedstock uses, but, than incorrectly reported the use as occurring in October, when in reality it occurred in November.

In examining AHF, use for CFC-113 production we found that the February/March two month total to be correct but 7160 kg was shifted from March to February after they found an error in the financial record.

Perchlorethylene is transferred to the CFC-113 plant via pipeline and level changes converted to weight and entered into a bound notebook. These figures were compared to the official transferred figures entered into the monthly report and found to be correct for all months.

The CFC-113 transferred (sold) to ZCR were checked at ZCR and found to be correct and 3F's report mirrored these data. The net CFC-113 production as quota ODS is; total CFC-113 minus CFC-113 to ZCR minus CFC-113 converted to CTFE minus CFC-113 converted to CFC113a. The net monthly figures were found to be correct as reported.

CFC-115

This facility operated only five months, June – October and reported exactly 100.000MT production vs their quota of 100MT. This closeness to quota is not credible and more on this issue of producing within just a few kilograms of quota will be discussed later

The AHF transfers to CFC-115, as well as, CFC-113 transfers for feedstock were found to be correct as reported.

The statistical person keeps a bound notebook covering CFC-115 production and we examined the data, which is reproduced below:

MT

	CFC-115 IN PROCESS	**CFC-115 IN CYL NOT ACCEPTED BY WAREHOUSE**	**OFFICIAL CFC-115 PRODUCED**
June	4.858	7.142	12
July	0.858	2.284	19.42
August	1.858	3.254	24.000
September	0.358	1.284	27.500
October	0	0	22.358
			100.000

They claim that at the end of a campaign estimated process holdup is only 60kg, which is stored in the final vessel and used to restart the plant in the next year.

In defense of their number, being exactly equal to their quota they stated that the competitive inspectors are satisfied; though they have no documentation showing specific ending 2001 and ending 2002 in-process inventory.

CFC-11

3F operated all twelve months to produce 10,231.879MT vs their quota of 10, 232MT for 2002.

All monthly CFC-11 drum filling and transferred record to the warehouse were added and found in agreement with stated official figures.

Each of two CFC-11 reactors feed into one of two-day receivers on each line; each receiver has a capacity of 3 m^3 (≈ 3MT). It is noted that the third CFC-11 reactor was removed in 2001 since they did not need its capacity. While the above-mentioned day receivers have, sight glasses there is no recorded beginning and ending inventory for their nominal 12m^3 storage space. Since they were within 120 kg of their 2002 quota (0.01%) they need to have a certified record of this inventory if they expect their report to be credible to anyone familiar with CFC plant technology. Again, they claim the competitive inspectors were satisfied.

The same bound notebook with perchlorethylene daily transfers also contains daily records of CTC to CFC-11 and CTC to CFC-12. The records for CFC-11 use of CTC were reconciled with the monthly report sheet where starting and ending CTC inventories are used to calculate actual consumption by adjusting the monthly new CTC transferred into the plant. These data were found to be correct for each month.

AHF transfers are documented on individual transfer slips and entered into above mentioned bound notebook. All AHF transfers were examined along with the inventory adjustments and consumption of AHF as reported and found to be accurate.

CFC-12

Examined CFC-12 cylinder filling and transfer records for each of the ten operating months (January – October) and found that the 3034.74MT of CFC-12 production was reported correctly vs their 2002 quota of 3035MT.

The bound book CTC figures were reconciled with inventory adjustments on the monthly report and verified that reported CTC consumption was correctly reported.

The AHF figures are handled the same as in the CFC-11 plant and were checked and found to be correct.

The CFC-12 plant's two reactors feed into a single distillation train which in turn feeds into three day finished product receivers, each at 5 m^3 capacity or a total of 15 m^3 for all three. They also have three 15m^3 bulk tanks (45m^3 total). Therefore, their combined maximum capacity for in-process (non-cylinder stock) is 60 m^3 or about 60MT of CFC-12. We asked to see starting and ending levels for these storages since they claimed 2002 production that was within 0.26MT of their quota. They claim they do not have these records but that the competitive inspectors checked these levels before and after 2002 CFC-12 production and were satisfied with the readings; presumably no greater inventory at year end 2002 than at the start of the production year.

Summary for 3F

We can find no errors in production data reporting, hence we accept their reported CFC-113, CFC-115, CFC-11 and CFC-12 production for 2002 as correct. However, their credibility is in serious question in anyone's mind that understands CFC plant operation. In the future, they must have process receiver and process storage level reading (converted to MT) for beginning and ending of each production year. These data must be certified as real and maintained on site for examination by any parties checking official reported production figures.

In addition, it would seem to be prudent to cease production a few tonnes short of the official quota to remove suspicion from their reported figures.

Wu Ning found all financial records to be in order.

While examining CTC figures, we noted that while 3F is a purchaser of CTC that they produced 19.5MT of CTC over a two- month period by chlorinating methylene chloride in their HCFC-141b plant. This was presumably done to see if they could lower their cost for CTC (averaged price for domestic supply, 4700 RMB/MT or 26¢/lb; while the import price was 3174 RMB/MT or 17.6¢/lb. In year 2000.)

Monday January 27 – Jiangsu Meilan Electro-chemical Co. Ltd.

3,000 TPA CFC-11

3,000 TPA CFC-12

20,000 TPA HCFC-22

16,000 TPA AHF

70,000 TPA Chloromethanes (expanded from 30,000 TPA in 2002; typically 3-5% CTC)

General

Our last verification was February 5, 2002. The only significant plant change is the expansion of their methanol based chloromethane unit from 30,000 to 70,000 TPA.

Verification of 2002 Production Data

Operated eight month in 2002 (February – June, September, and November – December) for both CFC-11 and CFC-12.

They generally package CFC-12 into exact net weight cylinders of 350, 450, 500, 1000 and 1100 kg. However, they have a few 160, 460, 600 and 780 kg cylinders. All such fillings are noted in a daily cylinder filling record, which can be used to tabulate monthly production; with one important notation. About once/month, they fill client cylinders (usually quite small) and note the weight on the filling log sheet but since those are not owned cylinders they do not list them separately on the log sheet. However, payment and weight information is available in the financial records and we cross-checked.

In addition to the above filling log records the CFC-12 distillation shift log sheets can be examined where the shift's CFC-12 production is noted. There are two-day production receivers that are alternately filled and drained to obtain the shift's production. We verified CFC-12 production using a combination of the above records. Since there was no production in July and August they used the three-month period of June – August to package the 257.5MT of

June reported production. Only 497.794Mt of December's production of 176.1MT was packaged by year-end.

We found their reported official production to be correctly stated.

To verify CFC-11 production for 2002 we used the reactor/distillation log sheets. While this requires examining about 90 pages per month, it also verifies that their plant records are real and unaltered. We added monthly log reported CFC-11 production figures for each shift and verified their reported figures (they actually over reported March production by 30kg.)

AHF for both CFC-11 and CFC-12 production is transferred via a pipeline to a weigh tank, then a transfer slip is created for each transfer which are totaled to obtain monthly figures. Their reported AHF transfers to both the CFC-11 and CFC-12 plants were found to be correct as reported.

CTC is transferred via pipeline to a weigh tank in the warehouse and then sent to day tanks in either the CFC-11 or CFC-12 plant. A transfer slip is created for each transfer. At month end, the plant measures the amount of unused CTC and a credit slip created. This figure is subtracted from the month's transfers to obtain the net consumption. In the next month, the previous month's unused CTC is added to new transfers and unused CTC is subtracted to obtain the month's CTC consumption. We examined all CTC transfers and inventories and found reported CTC consumptions to be correct for both CFC-11 and CFC-12.

We are fully satisfied that Meilan's 2002 production data is correct as reported.

Wu Ning also found financial records to be in order.

It was noted that of the 3,081.42MT of CTC added to plant-stocks in 2002 only 814.56MT came from their chloromethane plant.

Meilan exported both CFC-11 and CFC-12. All exported CFC-12 is in returnable cylinders.

General Comment from Overall 2002 Verification

As in 2001, four companies exported CFC-12 in 2002, most in DAC's:

Dongyang - 454.67, Juhua-2,372.1MT, 3F-559.8MT and Meilan-105.6MT. The total of 3,492.1MT in 2002 vs 2,692MT of exported 12 in 2001 suggest that conversion in China away from CFC-12 is occurring more rapidly than expected since total CFC-12 domestic sales were only 9,762MT in 2002.