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COMITÉ EJECUTIVO DEL FONDO MULTILATERAL
PARA LA APLICACIÓN DEL
PROTOCOLO DE MONTREAL
Cuadragésima Octava Reunión
Montreal, 3 al 7 de abril de 2006

PROPUESTA DE PROYECTO: INDIA

Este documento contiene los comentarios y las recomendaciones de la Secretaría del Fondo sobre la siguiente propuesta de proyecto:

Producción

- Eliminación del sector de producción de CFC: programa anual de ejecución de 2006 — Banco Mundial

Antecedentes

1. En nombre del Gobierno de India, el Banco Mundial presentó a la aprobación del Comité Ejecutivo en su 48ª Reunión el programa anual de 2006 para la ejecución del programa de eliminación gradual del sector de producción de CFC en India, con un monto de 6,15 millones $EUA más los gastos de apoyo, junto con el informe de verificación sobre la ejecución del programa de trabajo anual de 2005 (ambos documentos adjuntos). La propuesta se hace para cumplir con el Acuerdo firmado entre el Gobierno de India y el Comité Ejecutivo, que fue aprobado en la 29ª Reunión.

Tabla 1

País	India
Título del proyecto:	Eliminación del sector de producción de CFC
Año del plan	2006
N° de años terminados	7
N° de años restantes bajo el plan	5
Tope para la producción de SAO en 2005 (en toneladas métricas), plan anual de 2005	11 294 toneladas métricas
Tope para la producción de SAO en 2006 (en toneladas métricas), plan anual de 2006	7 432 toneladas métricas
Financiamiento total aprobado, en principio, para el plan de eliminación de CFC	82 millones $EUA
Financiamiento total liberado a diciembre de 2005	57,85 millones $EUA
Nivel de financiamiento pedido para el plan anual de 2006	6,15 millones $EUA

Programa de trabajo de 2006

2. El programa anual de trabajo de 2006 comienza con un análisis de la ejecución del programa de trabajo de 2005. El análisis constata el logro del objetivo de reducción de CFC en 2005: la producción admisible de CFC en el país para 2005, fijada en el Acuerdo en 11 294 toneladas métricas, y la producción bruta informada de 11 263 toneladas métricas. De los 5,85 millones $EUA desembolsados por el Fondo para el programa de trabajo de 2005, 5 265 millones $EUA se pagaron a las cuatro empresas en partidas, según el avance realizado con respecto al objetivo de reducción fijado para cada una de ellas, y se planificó desembolsar el saldo restante después de la verificación final de la producción de 2005. Se informó que se asignó 0,29 millón $EUA al PNUMA para fines de asistencia técnica. Muchas de las actividades de asistencia técnica que comenzaron en años anteriores continuaron en 2005 y una de las actividades que vale mencionar fue la elaboración de un plan de acción nacional para evitar el comercio ilegal. Asimismo en la Tabla B.5 se da un informe sobre las actividades de supervisión ejecutadas a lo largo del año.

3. La segunda parte de la propuesta describe el objetivo y las actividades del programa de trabajo de 2006. El límite de la producción de CFC, fijado en el Acuerdo para 2006, es 7 342 toneladas métricas, lo que requiere una reducción mayor, comparado con los años anteriores. El objetivo deberá lograrse continuando con el sistema de cuotas de producción de CFC. Las importaciones y las exportaciones seguirán controlándose mediante un régimen de otorgamiento de licencias.

4. El programa de trabajo enumera las actividades de asistencia técnica que se realizarán en 2006, muchas de las cuales son la continuación de actividades de los años anteriores, pero dos de ellas son iniciativas nuevas. Una es la colaboración más estrecha prevista entre el plan de eliminación de producción de CFC y el plan nacional de eliminación de consumo de CFC. La otra es la propuesta para examinar la posibilidad de reducir al mínimo las pérdidas por llenado en las plantas productoras de CFC, según la Decisión 42/28 del Comité Ejecutivo. Se solicita un total de 6,15 $EUA millones, lo que incluye 6 millones $EUA para la partida 2006 y 0,15 $EUA millón del programa anual de 2005 que fue retenido por el Fondo Multilateral por solicitud expresa del Banco Mundial en 2005. El Banco Mundial pide 461 250 $EUA como gastos de apoyo asociados, a 7,5 por ciento de la partida de 2006, más el saldo de la partida de 2005.

Informe de verificación de la producción de 2005

5. Det Norske Veritas AS (DVN) India hizo la verificación en enero de 2006; dicha empresa también realizó la verificación de 2005. El informe de verificación comienza con un resumen ejecutivo sobre los resultados generales de la verificación: la cuota de 2005, apertura del inventario de CFC, producción bruta, pérdidas, producción neta vendible, inventario adquirido, ventas, inventario al cierre y porcentaje de la cuota producido por cada uno de los cuatro productores y los totales nacionales. Según la Decisión 43/5, que estableció utilizar la producción bruta de CFC para medir el logro del objetivo para 2005 fijado en el Acuerdo, la verificación aplicó uniformemente 0,92% a la producción neta vendible para cada una de las cuatro compañías con el fin de llegar a un nivel de producción bruta. Este porcentaje uniforme representó la pérdida informada media para las compañías de los últimos cinco años. Por lo tanto, el equipo de verificación concluyó que la producción total bruta del país, calculada para el año 2005, fue 11 263 toneladas métricas, lo que estaba por debajo del objetivo fijado en el Acuerdo: 11 293,97 toneladas métricas.

6. El informe contiene una breve sección sobre los antecedentes del Acuerdo del cierre de la producción de CFC firmado entre India y el Comité Ejecutivo, las tecnologías de producción usadas por los cuatro productores y la capacidad de cambiar a la producción de HCFC-22 de dichos productores. Asimismo cubre la metodología de verificación, que incluye visitas *in situ* y una verificación al azar de 10 días mínimo de los registros pertinentes para ver la coherencia de los resultados informados. Los diarios de las operaciones de producción y los registros analíticos y de laboratorio se correlacionaron con los días de muestra a fin de determinar si los registros de los productos se mantuvieron adecuadamente. Se tomaron muestras del inventario existente para el análisis de cromatografía de gases. Asimismo el equipo de verificación trató diversas cuestiones con el personal de la planta.

7. El informe pasa luego a hacer observaciones y dar los resultados de la visita a cada una de las plantas. Para cada una de ellas, da un panorama de la historia y la tecnología usada; la metodología de la auditoría; los datos sumarios para 2003, 2004 y 2005 sobre la cuota de producción asignada; las fechas de operación para la producción CFC y en algunos casos HCFC-22, la producción de CFC-11 y de CFC-12 y el porcentaje realizado de la cuota; el consumo de materias primas y la relación entre el consumo de materias primas y la producción de CFC; las pérdidas informadas; y las conclusiones sobre el estado de cumplimiento en relación con la cuota asignada.

8. Finalmente, el informe da los resultados de la verificación en el formato para verificación de la eliminación de la producción de SAO, que incluye una historia del programa de eliminación de la producción desde el comienzo y los resultados de la verificación más reciente, con el análisis mensual de los datos sobre el número de días de operación, el consumo de materias primas y las toneladas de producción de CFC.

COMENTARIOS Y RECOMENDACIONES DE LA SECRETARÍA

COMENTARIOS

Programa anual de 2006

9. La propuesta da un objetivo claro máximo de producción de CFC que coincide con el objetivo fijado en el Acuerdo y las políticas para ayudar a lograrlo. Se observa que la reducción para 2006 sería más difícil de lograr que la de los años anteriores, porque será de 3 952 toneladas métricas, lo que representa más del doble de la reducción anual de 1 882 toneladas métricas lograda hasta el momento. Se seguirá haciendo la supervisión mediante licencias de importación y exportación de CFC. Asimismo se observa que se harán esfuerzos considerables para coordinar la aplicación del Acuerdo de eliminación de producción con el plan nacional de consumo de CFC.

10. La Secretaría tomó nota de que el Gobierno de India trabajará con los productores de CFC para buscar maneras de reducir las pérdidas por llenado en las plantas de CFC. Sin embargo, el Banco Mundial no respondió a la pregunta de la Secretaría sobre si dicho Gobierno haría el seguimiento de la recomendación del equipo de verificación con respecto a considerar el desmantelamiento de una de las plantas que cesó de producir en 2005.

Informe de verificación de la producción de 2005

11. La verificación de la producción de 2005, hecha por el Banco Mundial, continúa las mejoras notadas en la verificación de 2004. Sigue las directrices aprobadas por el Comité Ejecutivo y resulta ser muy clara. Esto es evidente especialmente en los datos proporcionados para tres de las cuatro empresas, a saber, Gujarat, Navin, y Chemplast, y en las aclaraciones hechas en respuesta a las preguntas de la Secretaría.

12. Sin embargo, SRF, una de las cuatro compañías productoras, sigue teniendo problemas. Durante la verificación de 2004 la empresa no proporcionó por separado y hasta muy tarde en el proceso los datos de consumo de HF para facilitar la convalidación de la producción de CFC. Este año los datos de la compañía sobre el consumo de CTC y HF provenientes del cambio de inventario no pueden apoyar el nivel de la producción de CFC.

13. Esto se demuestra en las tablas siguientes, usando los datos de la compañía. Desde el punto de vista mensual, el consumo de CTC y HF debería ser igual en las dos fuentes, como manera de convalidar el nivel informado de producción de CFC, a saber: uno, que se calcula multiplicando la producción mensual de CFC por la razón de consumo, CTC/CFC o HF/CFC; y el otro, que se calcula agregando el inventario de apertura a las adquisiciones y restando el inventario de cierre y

cualquier venta como producto. La Secretaría hizo los cálculos correspondientes e invitó al Banco Mundial que aclarara la diferencia indicada en las tablas siguientes. A continuación se dan los mismos datos que se enviaron al Banco Mundial el 17 de febrero de 2006. Al respecto, no ha recibido ninguna respuesta.

> "En las tablas del Anexo 1 de los datos provenientes de SRF, sobre la producción de CFC y consumo mensuales de materias primas, existe una variación importante entre el nivel de consumo de CTC y HF calculado a partir del nivel de producción de CFC multiplicado por la razón de consumo de CTC/CFC (HF/CFC), y ésta calculada a partir del cambio del inventario de materias primas. Para demostrar la variación se seleccionaron al azar los datos de enero, abril y octubre. Sírvase dar una explicación al respecto."

Consumo de CTC

Mes	Producción de CFC x razón de CTC/CFC			Cambio de inventario	Variación
	CFC-11	CFC-12	Total	Apertura +Adquisiciones-Cierre	
Enero	143,29	388,7	532	423,18	109
Abril	162,69	455,8	618,5	424,4	192,1
Octubre	89,95	310,6	400,5	347,6	52,5

Consumo de HF

Mes	Producción de CFC x razón de HF/CFC			Cambio de inventario	Variación
	CFC-11	CFC-12	Total	Apertura +Adquisiciones-Cierre	
Enero	20,28	108	128	- 51,4	179,4
Abril	22,9	125,74	148	28,97	119,1
Octubre	12,32	84,8	97	40	57

14. Debido a las discrepancias de los datos de consumo de CTC y HF provenientes de las dos fuentes, la Secretaría no pudo establecer el nivel de producción de CFC en SRF para 2005, según lo indicado en el informe de verificación.

15. De acuerdo con la práctica corriente de suministrar información al Comité Ejecutivo sobre la verificación de la producción de SAO, la Secretaría no incluyó la parte de datos del informe de verificación correspondiente a Gujarat, Navin, y Chemplast, sobre los cuales no hay cuestiones pendientes. No obstante, los datos pueden ponerse a disposición de cualquier miembro del Comité que lo solicite. Sin embargo, la Secretaría presenta la sección de datos de SRF sobre los cuales no pudo aclarar las discrepancias.

RECOMENDACIONES

16. Debido a las discrepancias de los datos de SRF, la Secretaría no está en condiciones de confirmar el total de producción de CFC para India correspondiente al año 2005 según lo verificado, ni de afirmar que el nivel se encuentra dentro de lo fijado en el Acuerdo. Por lo tanto, la Secretaría propone a la consideración del Comité Ejecutivo dos opciones para tratar la solicitud del Banco Mundial con respecto a la partida de 2006, a saber:

a) Opción I:

i) Posponer la aprobación de la partida de 2006 hasta la 49ª Reunión, en que el Banco Mundial habrá aclarado, junto con el equipo de verificación, las discrepancias de los datos de consumo de CTC y HF en lo referente a la producción informada de CFC de SRF para 2005; o

b) Opción II:

i) Aprobar los fondos de 2006 para las tres compañías, Gujarat, Navin, y Chemplast, correspondientes a 4,26 millones $EUA y los gastos de apoyo asociados de 319 500 $EUA para el Banco Mundial, dado que sus niveles de producción de CFC en 2005 han sido confirmados con datos verificados;

ii) Desembolsar el saldo de 150 000 $EUA de la partida anual de 2005 y los gastos de apoyo asociados de 11 250 $EUA para el Banco Mundial; y

iii) Retener los fondos para SRF y los gastos de apoyo asociados hasta una reunión futura, en que el Banco Mundial habrá aclarado, junto con el equipo de verificación, las discrepancias de los datos con respecto al consumo del CTC y HF en lo referente a la producción informada de CFC por SRF en 2005. Basado en la parte de SRF del 29% de la producción total de CFC en India en 2005, se debería retener la suma de 1,74 millón $EUA.

INDIA

CFC Production Sector Gradual Phase-out Project (ODS III)

2006 Annual Work Program

Submitted by

The Ozone Cell,
Ministry of Environment and Forests, India
and
The World Bank
South Asia Environment and Social Unit

INDIA

CFC PRODUCTION SECTOR
GRADUAL PHASEOUT PROJECT (ODS III)

CY2006 ANNUAL PROGRAM

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INDIA

CFC PRODUCTION SECTOR
GRADUAL PHASEOUT PROJECT (ODS III)

CY2006 ANNUAL PROGRAM

A. INTRODUCTION

In accordance with Decision 29/65, Annex VI of the Executive Committee of the Multilateral Fund, this Annual Program for the *CFC Production Sector Gradual Phaseout Projec*t for India, for the period "1 January - 31 December 2005", is being submitted for consideration at the 48th meeting of the Executive Committee, scheduled for April 2006. This Annual Program has been prepared by the World Bank, as Implementing Agency, in cooperation with the Ministry of Environment and Forests (MoEF) and the Project Management Unit (PMU) of the Ozone Cell, Government of India (GOI) and the United Nations Environment Programme (UNEP).

This document verifies the successful implementation of the CY2005 Annual Program by India and details the planned program and activities for 2006. It is being submitted for approval and release of the eighth tranche of funds, amounting to US$ 6.30 million for the implementation of the CY2006 Annual Program.

Through the implementation of the CY2005 Annual Program, India has reduced its CFC production to 11,294 metric tons (MT), which is 50% of its baseline production in accordance with the schedule approved by the Executive Committee. (Dec 29/65, Annex VI). Details of implementation performance and disbursement in CY2005 are provided in Section B of this document.

	Agreed Schedule		**Actual**			Annual
Year	CFC Production Quota (MT)	Phaseout Amount (MT)	Verified CFC Production (MT)	Phaseout Amount (MT)	Cumulative Phaseout Amount (MT)	Funding Level (US$ million)
1999	22,588	-	22,411	-		12.0
2000	20,706	1,882	20,407	2,181		11.0
2001	18,824	1,882	18,693	1,714		11.0
2002	16,941	1,883	16,890	1,803		6.0
2003	15,058	1,883	15,014	1,876		6.0
2004	13,176	1,882	13,069	1,945		6.0
2005	**11,294**	**1,882**	**11,263.48**	**1,805**		6.0
2006	7,342	3,952				6.0
2007	3,389	3,953				6.0
2008	2,259	1,130				6.0
2009	1,130	1,129				6.0
2010	0	1,130				6.0
Total Funding						**82.0**

* Gross Production

B. CY2005 ANNUAL PROGRAM ACHIEVEMENTS

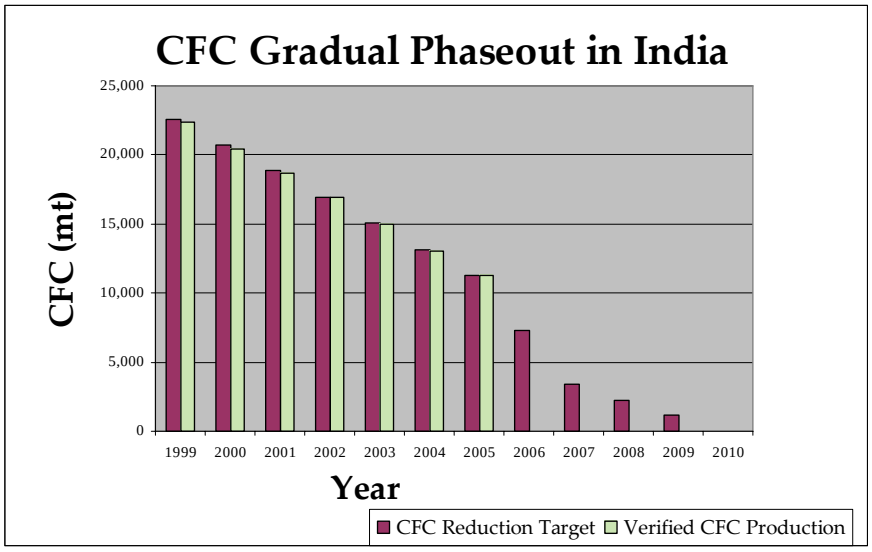
B.1 ODS Phase-out and Disbursement

2005:
The verified CFC production in 2005 amounted to **11,263.483 MT** against the quota of 11,294 MT, i.e at a level of 99.73% of the allowable production level for the year.

Disbursements to CFC producers in 2005 amounted to **US$ 5.265 million**, reflecting 90% of the CY2005 allocation of US$ 5.85 million, allocated for enterprise compensation. Additionally **US$ 0.29 million** was disbursed to UNEP in 2005, for the implementation of the TA component.

Production Phase-out		Grant Tranches (US$ m)	
Target (MT)	**Achieved**	**Allocation (US$ million)**	**Status of Disbursements**
11,294	Independent Audit Teams appointed by MoEF and WB separately verified CFC production in 2005. Total production of CFCs was ascertained by both teams as 11,263.483mt.	5.85	▪ 10% of CY2003 allocation (US$ 0.59 million) disbursed in February 2005 ▪ 60 % of CY2004 allocation disbursed in May 2005 (US$ 3.5 million) ▪ 30 % disbursed in November 2005 (US$ 1.75 million) ▪ *The last 10% (US$ 0.59 million) is to be disbursed after final verification of CY2005 production is completed*

Since the start of project implementation in 2000, CFC production volumes have reduced by about 50% over a 5year period.



As of December 2005, $ 57.7 million has been disbursed from the Multilateral Fund to the World Bank under this project, of which US$ 57.5 million has been disbursed to the beneficiaries. This comprises $ 56.3 million disbursed as enterprise compensation to the four CFC producing enterprises and $ 1.2 million disbursed to UNEP, of which about 95% has been disbursed to the PMU for implementation of TA activities.

B.2 Enterprise-Level CFC Production Phaseout targets (MT)

2005:
In accordance with the Executive Committee Decision 43/5, the data for CFC production is being submitted in gross terms for CY2005. This was calculated on the basis of loss factor of **0.92%,** which is an average of loss for the past five years and was agreed between the MoEF and the four producer enterprises.

In 2005, the MoEF cleared the second request for quota trading between two CFC producer enterprises. The table below reflects the quota orders for 2005 and the verified production figures achieved, at the individual enterprises level:

Enterprise	Quota	Gross Production	Percentage
Chemplast Sanmar Limited	963.37	963.173	100
Gujarat Fluorochemicals	4033.08	4025.032	98.80
Navin Fluorine International Ltd	2975.96	2956.111	99.33
SRF Limited	3321.56	3319.167	99.94
TOTAL	**11,293.97**	**11,263.483**	**99.73**

Between 2000 and 2005, the quota achievements by the four producer enterprises has ranged around an average of 99.3%, as is detailed in the table in Annex I.

B.3 Policy Measures

A number of policy measures which were identified in the CY2005 Annual Program were implemented during the course of the year as summarized below:

Activity	Key Actions	Target Dates	Status
Production Quota license	Applications for a CY2005 Production Quota license received from all four CFC producers will be examined by MoEF for issuance of licenses.	To be issued by January 31, 2005	Completed
Renewal of registration of producers	Applications for renewal of registration and Quota trading by CFC producers, as required by the Ozone Rules, will be examined by MoEF and processed.		Completed
Implementation of other provisions of ODS Rules.	Applications for registrations from sellers, stockists, dealers and buyers of CFC will be examined and submitted to Ozone Cell, MOEF. Applications for import and export of CFCs	July 2005 Throughout	Completed

	will be examined by PMU after which the Ozone Cell will submit recommendations for issuance of bulk licenses for export by CFC producers and licenses for import to DGFT. Ozone Cell will take into account information received by importing countries on registered importers	the year for import and export license, as and when received	

B.4 Technical Assistance Activities :

Since December 2004, a new project team has been in place at the Project Management Unit (PMU) and at the Ozone Cell. After an initial learning period, the new project team started implementation of the Technical Assistance component with a fresh thinking on the upcoming CFC phaseout scenario and its impact on the end-users and Government of India's policies. Status of the implementation of the CY2005 Annual Program is provided below:

Activity	Key Actions	Status and when completed	Budget (US$ '000)	Actual expenditure US $
Awareness	CFC production phase-out message to be disseminated at dealer workshops of NCCoPP and other related events. Development of regional networking strategy, including possible regional nodal Agencies	Completed. PMU participated in NCCoPP's dealer workshops at Delhi and Kochi. Participation at Ozone Day celebration The Regional Networking Strategy for strengthening compliance through networking was prepared and discussed. Workshop on the strategy was held in June to obtain inputs from regulatory agencies, industries and NGOs. It has been decided to revisit the strategy and implement the activities through other approached Updating of VATIS publication	23	21.5
Training/ Capacity building	Development of training program synchronized with GOI's Policy and custom training program. Development of e-based outreach technology pilot program for information dissemination on illegal trade	PMU participated as resources persons in the training program organized by NACEN[1] at Lucknow, Bangalore, Chennai and Hyderabad. PMU organized training program at Shimla for State Government Agencies of Himachal Pradesh on ODS and prevention of illegal trade.	20	12.70

[1] National Academy for Customs, Excise and Narcotics

Activity	Key Actions	Status and when completed	Budget (US$ '000)	Actual expenditure US $
	and ODS phaseout activities.	The proposal for e-based information dissemination program on illegal trade has been transferred to NACEN. PMU will continue to support NACEN on this activity.		
Operations of PMU	Technical audits of CFC producing enterprises. Discussions with REGMA[2] on addressing CFC production issues, impending phase-out scenarios and ExCom and MP related issues	New audit team was selected in 2005 and the half-yearly audit was completed in Sep. 2005. Meeting with REGMA and CFC producers was held in April, 2005 to discuss the issues of gross production and other related issues.	185	130.30
Information Exchange	Meeting of stakeholders to finalize MIS vision and roadmap Widening the scope of web-enabled MIS for cohesive data compilation on CFC production and consumption	MIS vision map was completed and discussed with WB and UNEP in Oct., 2005. The activities mentioned therein will be implemented in the year 2006. The Ozone Cell website has been revised and updated. It has been linked to the NCCoPP website for access to data on consumption. The production data is also available on the Ozone Cell website.	10	1
Data Collection	A desk study on assessment of stock piling requirement of CFC. Completion of existing study on demand – supply assessment of ODS undertaken in 2003. Assessment of quantum of illegal trade	Study not yet initiated The final report was completed and submitted by the consultant in 2005. PMU has compiled county-wide export data for CFCs received from CFC producers. This was sent to UNEP as a part of data compilation on illegal trade.	25	0
Policy	Preparation of National	The customs and policy training	0	0

[2] Refrigerant and Gas Manufacturers Association

Activity	Key Actions	Status and when completed	Budget (US$ '000)	Actual expenditure US $
	Action Plan for prevention of illegal trade.	program was included into the National Action Plan for prevention of illegal trade.		
TOTAL			**263**	**165.5**

B.5 Monitoring and Reporting Activities

The reporting mechanism is detailed below:

Report	By	Target Date	Comments
Supervision report	World Bank	January 2005 October 2005 January 2006	Supervisions undertaken and satisfactory reports prepared and disseminated.
Progress report	UNEP	July 2005 January 2006	Reports received from PMU/UNEP and reviewed during supervision missions in 2005. No financial reports received in 2005.
Financial Audit Report	UNEP	June 2005	Delayed and received in January 2006
Disbursement Report	IDBI	July 2005 January 2006	Satisfactory reports received
Financial Audit Report	IDBI	September 2005	Satisfactory reports received
Performance Audit Report	PMU		Not undertaken in 2003. Next performance audit to be initiated in 2006
Technical Audit	PMU	July 2005 January 2006	Satisfactory audit undertaken by independent auditor and reports received in October 2005 and January 2006
Technical Audit	World Bank	January 2006	Satisfactory audit undertaken by independent auditor and reports received in January 2006

C. CY2006 ANNUAL PROGRAM: OBJECTIVES AND ACTIVITIES

C.1 ODS Phase-out Objectives and Disbursement Allocation

- The primary objective of the CY2006 Annual Program is to ensure that CFC production does not exceed **7,342 MT**.
- The Bank, on behalf of the Government of India, is requesting the release of **US$ 6.15 million** to be disbursed to the four beneficiary CFC producing enterprises for reducing production levels in accordance with the annual production quota established for 2006. This amount is a sum total of CY2006 allocation (as per the schedule provided in Decision 29/65, ref Annex I) and balances of US$ 150,000 from the CY2005 allocation.

C.2 Enterprise-Level CFC production phase-out targets (MT)

In accordance with the Production Quota Order, the four CFC producers have submitted applications for the CY2006 quota. The Ozone Cell has issued the following quotas for the four beneficiary enterprises, and approved a request for quota trading between two CFC enterprises. The details of quotas and revised quotas are provided in table below:

Name of company	**Quota (MT) for CY2006**	
SRF Limited	2159.2822	2159.2822
Gujarat Fluorochemicals	2621.8282	2621.8282
Navin Fluorine International Ltd	1934.6170	2560.8896
Chemplast Sanmar Limited	626.2726	0
Total	**7342**	**7342**

C.3 Policy Measures

Activity	**Key Actions**	**Target Dates**
Production Quota license	Applications for a CY2006 Production Quota license received from all four CFC producers will be examined by PMU for MoEF to issue licenses. There is going to be quota trading between two enterprises.	January 2006
Implementation of other provisions of ODS Rules.	Applications for registrations from sellers, stockists, dealers and buyers of CFC will be examined and submitted to Ozone Cell, MOEF. Applications for import and export of CFCs will be examined by PMU after which the Ozone Cell will submit recommendations for issuance of bulk licenses for export by CFC producers and licenses for import to DGFT. Ozone Cell will take into account information received by importing countries on registered importers.	Ongoing

C.4 Technical Assistance Activities

The MoEF in collaboration with the World Bank and UNEP, has reassessed the TA program and redefined some activities, keeping in mind the overall priorities of the project and the upcoming zero CFC production scenario within 4 years. This year is also critical given that phase-down amount is 3,952mt in 2005 as compared to 1,882mt per annum over the past 5 years. Proposed activities to be undertaken during 2006 are summarized in the following table.

Activity	Key Actions	Target date	Budget (US$ '000)
Awareness	Under another Multilateral Fund initiative, the NCCoPP[3] there are ongoing training workshops for dealers and service technicians and other awareness programs related to CFC phase out. The PMU will support the awareness activities, targeted at end-users (i.e., owners of CFC equipment), particularly in the public sector. Public private partnerships, free-servicing days in 4 cities, addressing needs of taxis servicing are other initiatives which are to be considered.	Oct	15
	PMU to develop CFC production phase-out message for inclusion into existing training modules for dissemination at dealer workshops of NCCoPP and other related events.	Feb	3
	Supporting the Ozone Cell in implementing Ozone Day activities	Sept	10
	Promotion materials on CFC phaseout for dissemination during Meeting of Parties	Oct	5
Training/ Capacity building	PMU will support on-going activities of NCCoPP by funding additional dealer workshops to extend the coverage and bring in more secondary level dealers within the registration net. This will also facilitate compilation of CFC consumption data.	Ongoing	18
Monitoring	Development of a Monitoring Protocol which will define how Government of India will continue monitoring of CFC phaseout activities after 2010. This will help define what relevant systems need to be set up now and what activities need to be undertaken by the PMU until 2010.	Sept	10
Operations of PMU	Two technical audits of CFC producing enterprises.	June and Jan 2006	140
	Daily operations and overhead costs of PMU		
	Discussions with REGMA on addressing CFC production issues, impending phase-out scenarios and ExCom and MP related issues	Aug	
	REGMA and PMU to review measures and develop proposal, if needed to minimize filling losses at CFC production facilities, as per ExCom Decision # 42/28	June	

[3] National CFC Consumption Phaseout Plan

Activity	Key Actions	Target date	Budget (US$ '000)
Data Collection	Discussion and establish a working system to ensure data Triangulation between producer records, export licenses, DGFT and Customs to monitor flow of CFCs in domestic and international markets	Feb – Nov	0
Information Exchange	As defined in the MIS Vision, development of centralized web-enabled MIS for cohesive data compilation on CFC production and consumption. Updating and enhancing the Ozone Cell website.	Ongoing March	15
Coordination	Consultation and coordination workshops with implementing agencies responsible for NCCoPP and other sectoral plans, dealers, CFC producers and other relevant stakeholders to discuss a long-term collaboration between ODSIII and NCCoPP and other CFC phaseout activities.	Feb - June	10
Policy Studies	PMU to review approach on how to address servicing needs of second-hand refrigerators and MACs in the country, mostly in medium and smaller cities and rural areas. A techno-economic valuation study on adoption of non ODS refrigerants. The main purpose of the study is to bring out ways and means for early adoption of HC refrigerants, HFC blends as substitutes for HCFC- 22.	Dec Oct	10
TOTAL			**236**

In addition to the above core activities of ODSIII, the PMU will continue to provide technical support to the Ozone Cell in implementing ODS phaseout related activities, such as policy reviews, training and awareness programs.

C.5 Monitoring and Reporting Activities

The monitoring and reporting schedule for CY2006 will be undertaken in accordance with the reporting mechanism specified in Section B.5 above.

ANNEX I

Annual production phaseout targets and annual grant tranches

CY	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Production ceiling (ODP MT)	22,588	20,706	18,824	16,941	15,058	13,176	11,294	7,342	3,389	2,259	1,130	0
Grant Tranche (US$ million)	12.0	11.0	11.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	0
Of which: TA	0.29	0.27	0.27	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.12	0

Quota Achievements over the period 2000 - 2005

Name of enterprise	**2000 (Metric Tons)**		**2001 (Metric Tons)**		**2002 (Metric Tons)**		**2003 (Metric Tons)**		**2004 (Metric Tons)**		**2005 (Metric Tons)**	
	Quota adjusted for trades	Achieved	Quota	Achieved	Quota	Achieved	Quota	Achieved	Quota	Achieved	Quota	Achieved
SRF Ltd	6,146	6,053	5,536	5,518	4,982	4,973	4429	4422	3875	3872	963.37	963.173
GFL	7,482	7,352	6,722	6,615	6,050	6,037	5377	5370	4705	4623	4033.08	4025.032
NFIL	5,249	5,179	4,960	4,959	4,464	4,440	3968	3943	4270	4250	2975.96	2956.111
CSL	1,829	1,823	1,606	1,601	1,445	1,440	1284	1279	324	324	3321.56	3319.167
TOTAL	**20,706**	**20,407**	**18,824**	**18,693**	**16,941**	**16,890**	**15,058**	**15,014**	**13174**	**13,069**	11,293.97	11,263.483
		(98.5%)		**(99%)**		**(99.7%)**		**(99.71%)**		**(99.2%)**		**(99.73%)**

ANNUAL TECHNICAL AUDIT VERIFICATION OF CFC PRODUCTION SECTOR

REPORT

REPORT FOR THE CALENDAR YEAR 2005

JANUARY 2006

CONTENTS

EXECUTIVE SUMMARY

CFC production sector gradual phase out project for India (ODS III) is aimed at assisting the Government of India (GOI) to meet its international obligation under the Montreal Protocol, which requires India to phase out production of Chlorofluorocarbons (CFCs) by 2010. The Project was approved by the Executive Committee of the Multilateral Fund in 1999. The Project provides for a gradual phase out of CFC production, ahead of the specified time frame provided by the Montreal Protocol.

The four CFC producing enterprises which are beneficiaries under the ODSIII project are:

- Chemplast Sanmar Limited, Mettur Dam, Tamil Nadu. (CSL)
- Gujarat Fluorochemicals Limited, Ranjitnagar, Gujarat. (GFL)
- Navin Fluorine International Limited Surat, Gujarat. (NFI)
- SRF Limited, Alwar, Rajasthan. (SRF)

The annual disbursement of funds under this project to the aforementioned beneficiary enterprises is contingent on satisfactory implementation of annual programs and their independent verification of CFC production and subsequent confirmation that the production levels are within the annual quota allocated.

Det Norske Veritas AS was appointed by The World Bank, to verify the CFC production level for CY2005, against the Quota issued by Ozone Cell, Ministry of Environment and Forests (MoEF).

The verification team from Det Norske Veritas AS visited the four CFC producing enterprises, between 5 January 2006 and 10 January 2006 to perform verification of CFC productions for the year 2005.

The verification methodology for CFC production has been detailed later in this report. The verification was carried out based on data provided by the enterprises and the relevant operational and statutory records maintained by the enterprises. Random checks and laboratory tests were also carried out for verification.

Based on the audit, results of the CFC production for the year 2005 are furnished below.

CFC PRODUCTION SUMMARY (CY 2005):

(All quantities are in MT)

Enterprises	CSL	GFL	NFI	SRF	Total
	CFC11/12	**CFC11/12**	**CFC 11/12, CFC 113 pure and CFC for 113a export**	**CFC11/12**	
Quota	**963.37** (sub contracted to NFI)	**4033.08**	**2975.96 (for NFI) 3939.33(including CSL)**	**3321.56**	**11293.97**
Opening Stock	4.235	53.833	87.862	147.221	293.151
Gross Production	**963.173**	**4025.032**	**2956.111**	**3319.167**	**11263.483**
Losses	8.78	36.693	26.784	30.258	102.515
Net Saleable Production	954.394	3988.339	2929.327	3288.909	11160.969
Sales Return	0	102.618 *	4.848 **	35	142.466
Sales	958.628	4077.581	2970.916	3261	11268.125
Closing Stock	0	67.21	51.121	210	328.331
Percentage of Quota (on gross)	**99.97**	**99.80**	**99.33**	**99.94**	**99.73**

* 2.173 Mt confiscated material and 100.445 MT return from market.
** confiscated material from custom.

For the calendar year 2005, the gross production was considered for comparison with the target set by the Ozone Cell. The gross production was arrived at by considering losses of 0.92 % on the net saleable production. The percentage loss of 0.92 % represents the average of the reported losses in all the four manufacturing units over the previous five years.

While the data reporting guidelines were followed by two of the four units, one unit reported their own losses and another unit reported their net production in the questionnaire for reporting ODS III productions.

DNV has considered the gross production of all the units after considering 0.92 % losses. ***This gross production of 11263.483 MT amounts to 99.73% of the allocated quota for the year 2005.***

Hence, as a country, India is in compliance to the stipulated quota.

In order to have clear guidelines, DNV recommends that MoEF should define modalities for the following:

a) Exploring, accounting of the entire production of CFC113 crude against the quota, irrespective of whether subsequently this is getting processed/isomerised to CFC113 pure or CFC113a.
b) For defining, how CFC-113a as feedstock should be treated.
c) Procedures for total sub contracting of CFC production.
d) Maintenance / dismantling of such plants where there would be no production for prolonged periods.

1 INTRODUCTION

The manufacture and use of CFCs is controlled under provisions of Montreal Protocol, an international environment treaty. The protocol stipulates that production and consumption of all substances categorized under Annexure A Group I, to be completely phased out by Article 5 paragraph 1 parties by 1 January 2010. India is a signatory to the Montreal Protocol and CFC production is regulated by the Ozone Cell, Ministry of Environment and Forests (MoEF).

There are four CFC producers in India, namely:

- Chemplast Sanmar Limited, Mettur Dam, Tamil Nadu. (CSL)
- Gujarat Fluorochemicals Limited, Ranjitnagar, Gujarat. (GFL)
- Navin Fluorine International Limited Surat, Gujarat. (NFI)
- SRF Limited, Alwar, Rajasthan. (SRF)

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The four CFC producers have formed an association namely Refrigerant Gas Manufacturer's Association (REGMA) and this association represents the interests of CFC producing enterprises with other stakeholders.

CFC production sector gradual phase out project for India (ODS III) is aimed at assisting the Government of India (GOI) to meet its international obligation under the Montreal Protocol, which requires India to phase out production of Chlorofluorocarbons (CFCs) by 2010. The Project was approved by the Executive Committee of the Multilateral Fund in 1999. The project provides for a gradual phase out of CFC production, ahead of the specified time frame provided by the Montreal Protocol. The World Bank is the implementing agency which monitors implementation of this project. Funds are disbursed through Industrial Development Bank of India (IDBI), which is the financial intermediary.

CFC production control, as per the above agreement, is implemented through a Quota Order issued by the Ozone cell, Ministry of Environment and Forests. The

production level for each enterprise for a particular year is defined through this quota order and the enterprise controls CFC production based on the production levels provided in the quota order. ***Production for the year 2005 has been considered as "Gross production."***

CFC PRODUCTION PROCESS

All four enterprises adopt the same manufacturing process for producing CFCs. Carbon Tetrachloride (CTC) and Anhydrous Hydrogen Fluoride (AHF) or Hydrogen Fluoride (HF) are reacted in the presence of Antimony Chloride catalyst. This reaction results in a mixture of CFC-11 and CFC-12, commonly referred to as CFC crude. The crude is distilled to separate CFC-11 and CFC-12. While actual process conditions vary depending upon the technology being adopted, all the four plants also differ in their layout, raw material manufacturing or procurement process.

Production of HCFC is also through a similar process, except that chloroform (CFM) is used as the raw material instead of CTC. All the plants are designed to produce both CFC 11/12 and HCFC's, though not at the same time, but using the same facilities. This is normally referred to as 'Swing Operation'. Changeover from CFC to HCFC essentially involves: isolation of AHF and CTC feeds; purging of lines for removal of trace CFC's followed by feeding of CFM and AHF to the reactors. Changeover periods vary from plant to plant, but typically involve about one to two days.

Only Navin Fluorine International Limited also produces CFC113 using HF and Perchloroethylene (PCE). The production operations are carried out in a separate plant in the same premises as CFC production facilities. CFC-113 crude produced is purified as CFC113 pure, which is either sold or isomerised further to CFC113a. CFC113a is subsequently used as a feedstock in the manufacture of Trifluoro Acetic Acid (TFA), a non-ODS product.

All production plants monitor specific consumption of raw materials, a barometer which indicates the efficiency and consistency of productions. While ideally, these should be close to stoichiometric values, they could vary depending upon various factors such as losses, number of shut downs and plant restarts, choice of product and their frequent changeovers due to market demands etc.

CFC's produced are accounted as gross production and stored in storage tanks and subsequently filled into cylinders. In this filling process, it is likely that there could be some losses, normally referred to as filling and handling losses. Gross production minus the filling losses is treated as net production.

CTC's are stored in large tanks, both at the plants and at the port, in case imports are involved. These are transported through road carriers to the plant from the port.

VERIFICATION METHODOLOGY

Technical and Verification Audit was based on the Reported Data to be submitted to World Bank, in the Standard Format for ODS Phase-out (*UNEP/OzL.Pro/Excom/32/33*)**,** for the CFC production for the Calendar Year 2005. Gross Production figures were accounted as the production figures for 2005.

DNV conducted on-site inspections to verify and confirm the reported data against the CFC Quota issued by Ozone Cell. This comprised a walk-around audit of plant, stores (raw material & finished goods), establishing the consistency deployed in the production/ process, monitoring & measurement, records maintenance, calibration of monitoring equipments, finished goods sample analysis and interaction and interviews with company personnel. Any concerns arising from interaction and related to the Reported Data and ODS III Phase-out project has been identified and reported accordingly

The verification methodology included examination of data maintained by the enterprises and physical verification based on sample checks and walkthroughs. The verification did not include verification of HCFC-22 production data and data of other products using the same raw materials as CFCs (i.e., HF and CTC).

The data examined typically include:

- Raw material purchase and issues records, including statutory records
- Production logs, log sheets, daily production reports and material balance reports, downtime data, specific consumption trends, statutory records maintained for recording manufacturing products and other related production records.
- Quality control and analysis records.
- Stock transfer and sales records, to the extent found necessary.

Copies of sampled and other relevant records verified were also collected – such as plant daily log sheets, tank level sheets, daily reports, monthly reports, QC reports, consents/authorisations etc.

Random sampling for production records for trailing throughout was conducted based on the production pattern observed through the yearly data. On an average, at least ten days of pertinent records were verified and cross-checked for consistency in reported results, across the production days reported. The production logbooks and laboratory and analytical records were correlated for the sample days to assess whether the records are appropriately maintained for products produced. Further, samples from the existing stocks were taken for gas chromatograph analysis.

In addition to this, discussions were held with the plant personnel primarily to verify whether there were any major changes in the plant designs which can result in augmentation/expansion of production capacities, any significant abnormalities/events/accidents which affected production of CFCs and raw material consumption for the same. Based on their responses, subsequent checks, if found necessary, were conducted on the records.

OBSERVATIONS AND RESULTS

The results of verification process for the enterprises are presented in the following sections.

2 SRF VERIFICATION REPORT

Organisation Details:

Beneficiary ODS Producing Enterprise under ODS III Project	**SRF Limited (SRF)**
Office Addresses	Block-C , Sector - 45 Gurgaon - 122 003, Haryana, India
Plant Address	Jhiwana P.O., Alwar District, Rajasthan
Contact No.	Tel: +91 124 5354400 Fax: +91 124 5354500 Email: rkaul@srf-limited.com
Contact Person	Mr. Rabinder Kaul
Designation	Associate Vice President, Supply Chain Operations
SRF Personnel	Mukul Dixit, Vice President & Head of Works K.Chalam, Associate Vice President, Production Umang Bhatnagar, Chief Manager, Operations planning.
DNV Verification Team	C.Kumaraswamy- Team Leader Venkata Raman K
Verification Date	9 January, 2006

PLANT OVERVIEW

SRF commenced production of AHF, CFC's and HCFC's in 1989. The CFC facility is designed to produce CFC11, CFC12 and HCFC22 under swing operation. The facility has two separate streams for reaction of CFC11/12 and HCFC but common purification and distillation sections downstream. Changeover from one product to another is done essentially involving: isolating of AHF and CTC feeds; purging of lines for removal of trace CFC's followed by feeding of CFM and AHF to the reactors. Requirement of CTC for the process is met by production from the chloromethane plant and to an extent from imports also.

All plants were observed to be in good condition and no additions / modifications have been effected in the plants also, during the year 2005. Relevant valid consents and authorisation from the State Pollution control Board have been obtained by the company. *Certificate of registration from the Ozone Cell is also available, for manufacture of CFC11and CFC12 and valid until 17 October 2006*. SRF has also been certified to Quality Management Systems (ISO 9001:2000), Environment Management Systems (ISO 14001:1996) and Occupational Health and Safety Management Systems (OHSAS 18001:1999)

AUDIT METHODOLOGY:

Documents and records investigated:

- Daily Production reports
- Manual filling and daily filling reports
- Sales invoices
- Excise records
- Log sheets/ Level sheets – for CFC, HCFC
- Monthly production reports
- Procurement records
- Stock records
- Specific consumption trends, including downtime etc.
- QA/QC reports

Physical tour of the plants and storages of raw materials and finished goods was undertaken, and interaction with key company personnel.

Sampling:

Samples from HCFC and CFC-12 filled cylinders were drawn and analyzed in the QC laboratory (gas chromatography). The QC reports confirmed the presence of gases as labelled on the cylinders.

Copies of sampled and other relevant records verified were also collected – such as plant daily log sheets, tank level sheets, daily reports, monthly reports, QC reports,

consents/authorisations etc. On an average, at least ten days of pertinent records (for productions of CFC11, CFC12 and HCFC each) were verified and cross-checked for consistency in reported results, across the production days reported. System of record keeping, tracking, archiving and record retrieval was also looked into. The results of such sample verification were found to be in order.

2.1.1 SRF PRODUCTION (CFC – 11, 12):

A summary of production of CFCs at SRF is given below.

Particulars	**CY-2003**	**CY-2004**	**CY-2005 (n)**
Production quota for the year (MT)	4429	3875	**3321**
Production quota traded (MT)	Nil	Nil	Nil
Plant operation days - CFC-11/12 - HCFC-22	 83 Not available	 72 Not Available	 58 Not Available
CFC Production (gross) - CFC-11 (net) - CFC-12 (net) - Losses (0.92 %)	4422 1376 3046	3872 1444 2428	**3319.167** 781.363 2507.546 30.258
Percentage of quota used	99.84	99.9	**99.94**

(1) ***SRF has reported the net production in the questionnaire.*** SRF has not considered the loss factor of 0.92 % arrived at by the REGMA and PMU for the CFC-11/12 production, for reporting in the questionnaire for ODS production They have considered the 0.92 % losses only for the CFC-11 production separately. No losses have been considered for CFC-12 by oversight. The company does not measure losses during filling and handling. CFC production as recorded from the main product storage tanks is treated as net production and directly filled into cylinders for sale. **The aforementioned gross figure is inclusive of the losses of 0.92 %.**

(2) SRF produces AHF in their own premises. CTC is produced in-house and also procured from international suppliers. The in-house production of CTC during CY2005 was 5680.348 MT and the import was 2569.907 MT as per the bill of lading receipts. The loss during transit (based on the B/L receipt) was 1.25 % which is a reasonable figure. The raw materials are stocked at the production plant site and at the port, in case of imported raw materials. CFC stocks are maintained at both the plant and zonal depots.

(3) There have been market returns to the tune of 34.602 MT, (due to poor quality). These have been received at the factory and relevant records maintained. A small quantity of 0.072 Mt of CFC 12 was written off during the year.

(4) Process of recording production are as follows:

- Data such as number of operating days, process parameters / daily log data, CFC, CTC consumption / stocks, downtime etc. are maintained on a daily basis.
- The aforementioned data are collated on a daily, monthly and yearly basis, subsequently. An enterprise resource planning system is also in place.

2.1.1.1 SPECIFIC CONSUMPTIONS

Specific consumptions for the CY 2005 reported are:

	CY 2003	CY 2004	**CY 2005**
CTC:CFC11	1.1670	1.2000	**1.1740**
HF:CFC11	0.1630	0.1670	**0.1640**
CTC:CFC-12	1.3260	1.3620	**1.3330**
HF:CFC-12	0.3710	0.3770	**0.3700**

The specific consumption ratios of CY 2005 compare well with the previous years ratios.

Total CTC procurement, production and consumption for the year 2005 have been 2569.907 MT, 5680.348 MT and 4259.153 MT respectively. There have been 4615.86 MT domestic sales during the year. No discrepancies were observed in the process log sheets, daily production reports, monthly production reports and raw material consumption

2.1.1.2 LOSSES:

SRF has reported the production on net basis and does not report any loss of CFC's produced during handling and filling, in the questionnaire for reporting ODS production. On considering losses of 0.92 % on the net production, as per the methodology adopted by all the four CFC manufacturing units, the production (gross) comes to 3319.167 MT, which is within the quota order issued by the Ozone cell of MoEF to SRF.

The details of the production of CFCs, as per Decision 32/70, are presented in Annexure B.

2.2 OBSERVATIONS.

The plant closing stock of CFC-12 in the data provided does not tally with the figure in the ledger. There is a difference of 1.314 MT. This has been noted in the ledger as receipt of confiscated goods, and needs to be accounted in the data provided also.

2.3 CONCLUSION:

Gross production at SRF facility for the year 2005 is 788.552 MT of CFC11 and 2530.615 MT of CFC12. This is in line with the approved quota of 3321 MT, with 99.94% compliance on the quota used.

3 GFL VERIFICATION REPORT

Organisation Details:

Beneficiary ODS Producing Enterprise under ODS III Project	**Gujarat Fluorochemicals Limited (GFL)**
Office Addresses	ABS Towers, Old Padra Road. Vadodara – 390 007
Plant Address	Ranjitnagar – 389 380. Gujarat
Contact No.	Tel: +91 265 2330-057 Fax: +91 265 2310-312 Email: Deepak_asher@yahoo.com
Contact Person	Mr. Deepak Asher
Designation	Vice President – Corporate Finance
GFL Personnel	Mr.Gaitonde Manoj Agarwal Naganath Iyer
DNV Verification Team	R.Ramesh – Team Leader R.Shankaranarayanan
Verification Date	5 January 2006

PLANT OVERVIEW

GFL commenced commercial production of CFC and AHF in October 1989. While all AHF requirements are produced in situ, CTC and CFM are largely procured from domestic suppliers or imported. The CFC facility is designed to produce CFC11, CFC12 and HCFC22 under swing operation. The facility has a single stream of reaction, purification and distillation sections and changeover from one product to another is done essentially involving: isolating of AHF and CTC feeds; transfer of catalyst to holding tanks; purging of lines for removal of trace CFC's followed by feeding of CFM and AHF to the reactors.

All plants were observed to be in good condition and no additions / modifications have been effected in the plants also, during the year 2005. Relevant consents and authorisation from the Gujarat Pollution control Board have been obtained by the company and these are valid until 5 May 2007. Certificate of registration from the Ozone Cell is also available, for manufacture of CFC11and CFC12 and valid until October 2006. GFL has also been certified to Quality Management Systems (ISO 9001:2000)

HCFC-23 Incineration project as a part of CDM activity is getting commissioned.

3.1 AUDIT METHODOLOGY:

Documents and records investigated:

- Daily Production reports
- Manual filling and daily filling reports
- Sales invoices
- Excise records
- Check slips as part of gate pass
- Log sheets/ Level sheets – for CFC, HCFC
- Monthly material balances
- Stock records
- Specific consumption trends, including downtime etc.
- QA/Qc reports

Physical tour of the plants and storages of raw materials and finished goods was undertaken, as also interaction with key company personnel.

Sampling:
Samples from HCFC filled cylinders were drawn and analyzed in the QC laboratory (gas chromatography) to confirm absence of CFC's.

Copies of sampled and other relevant records verified were also collected – such as plant daily log sheets, tank level sheets, daily reports, monthly reports, QC reports, consents/authorisations etc. On an average, at least ten days of pertinent records (for productions of CFC11, CFC12 and HCFC each) were verified and cross-checked for consistency in reported results, across the production days reported. System of record keeping, tracking, archiving and record retrieval was also looked into. The results of such sample verification were found to be in order.

3.1.1 GFL PRODUCTION (CFC – 11, 12):

A summary of production of CFCs at GFL is given below.

Particulars	**CY-2003**	**CY-2004**	**CY-2005**
Production quota for the year (MT)	5377	4705	**4033.08**
Production quota traded (MT)	Nil	Nil	Nil
Plant operation days - CFC-11/12 - HCFC-22	 98 223	 90 242	 80 252
Production of CFCs (gross) - CFC-11(net) - CFC-12(net) -→ Filling losses (0.92 %)	5371 321 5050	4623 200 4423	**4025.032** 74.788 3913.552 36.693

Percentage of quota used	99.89	98.25	**99.80**

(1) ***M/s GFL has reported the gross and net productions of CFC in the questionnaire for reporting ODS production. The losses considered by them are actual values instead of the 0.92 % losses agreed on by the REGMA and PMU.*** The overall losses considered by M/s GFL are 0.817 % and lower than 0.92 %. The individual losses accounted by GFL amounts to 0.63 % for CFC-11 and 0.82 % for CFC-12.

(2) GFL produces AHF in their own premises. They procure CTC. The raw materials are stocked at the production plants and at the port, in case of imported raw materials. CFC stocks are maintained at both the plant and zonal depots.

(3) There have been market returns to the tune of 1.294 MT of CFC-11and 99.151 MT of CFC-12. The company has also reported captive consumption of 0 MT CFC-11 and 4.964 MT of CFC-12.

(4) GFL received 2.173 MT of confiscated CFC during the CY 2005.

(5) Process of recording production are as follows:

- Data such as number of operating days, process parameters / daily log data, CFC, CTC consumption / stocks, downtime etc. are maintained on a daily basis.
- The aforementioned data are collated on a daily, monthly and yearly basis, subsequently.

3.1.1.1 SPECIFIC CONSUMPTIONS

Specific consumptions for the CY 2004 reported are:

	CY-2003	CY-2004	**CY-2005**
CTC:CFC11	1.178	1.196	**1.201**
HF:CFC11	0.161	0.157	**0.153**
CTC:CFC-12	1.338	1.359	**1.365**
HF:CFC-12	0.366	0.357	**0.348**

The ratios of the CTC to CFC 11 and 12 are marginally higher compared to the previous year and can be due to lower scales of production, plant start-up's, shutdowns for changeovers.

Ratio of HF consumptions at 0.153 and 0.348 for CFC11 and CFC12 respectively, compare well with the previous year's pattern

Total CTC procurement and consumption for the year 2005 has been 5662.943 MT and 5359.435 MT respectively. No discrepancies were observed in the

process log sheets, daily production reports, monthly production reports and raw material consumption

3.1.1.2 LOSSES:

GFL has reported the following losses:

CFC11	– filling / handling losses	–	0.4770 MT
C12 –	-- filling / handling losses	–	32.1280 MT

CFC production as recorded in the main product storage tanks is treated as gross production. CFC filled into cylinders is treated as net saleable production. The difference between the above is treated as filling and handling losses. These losses are measured and reported on a daily basis.

It is observed that the actual reported losses are 0.817% of the net production of CFC.

The details of the production of CFCs, as per Decision 32/70, are presented in Annexure B.

3.2 OBSERVATIONS.

Calibration of weigh scales: Procedures need strengthening to have better control on the filled quantity in cylinders.

3.3 CONCLUSION:

Gross production (Net production + 0.92 %) at GFL facility for the year 2005 is 75.476 MT of CFC11 and 3949.556 MT of CFC12. This is in line with the approved quota of 4033.08 MT, at 98.80% compliance as quota used.

4 NFI VERIFICATION REPORT

Beneficiary ODS Producing Enterprise under ODS III project	Navin Fluorine International Limited (NFI)
Official & Plant Address	Bhestan, Surat -395023 (Gujarat)
Contact address	Tel 091-0261-2890325-329 Fax – 091-0261-2890288
Contact Person	Mr.P.Roy Chowdhury
Designation	Vice President – Finance & Accounts
NFI personnel	Mr. B.V.Kapadia Mr. M.G.Nadkarni Mr. Ketan Sablok Mr. P.G.Vashi Mr. Milind Wadnerkar.
DNV Certification Team	C.Kumaraswamy – Team Leader Venkata Raman K
Date of Audit	6th January 2006

PLANT OVERVIEW

NFI, established in 1967, has two lines of production units for CFC 11/12 and HCFC 22. While both are capable of swing operation, currently owing to the low requirement of CFC requirement, line 1 is on swing operation and line 2 is exclusively used for HCFC production. The changeover from one product to another is done essentially involving isolating of AHF and CTC feeds: transfer of catalyst to holding tanks: purging of lines to remove traces of CFC's followed by feeding of CFM and AHF to the reactors. While CTC and CFM are procured both from domestic and import sources, AHF is produced within the facility for captive production and for sale.

NFI also has a facility to produce CFC 113.The process essentially involves the use of feed materials such as AHF, Perchloroethylene and chlorine. CFC 113 crude is refined to produce pure CFC 113, which in turn is isomerised to CFC 113a. CFC 113a is further utilized to produce Trifluoro Acetic acid (TFA), a non ozone depleting substance. Pure CFC 113 produced is also sold.

All plants were observed to be in good condition, and no additions / modifications have been effected in the plants also, during the year 2005. Relevant consents and authorization from the Gujarat Pollution Control Board have been obtained and these are valid until 31st May 2008. NFI has been certified to Quality Management Systems (ISO 9001:2000) and Environment Management System (ISO 14001:1996).

4.1 AUDIT METHODOLOGY:

Documents and records investigated:

- Plant daily reports
- Maffron filling reports
- Sales ledgers
- Export registers
- All India Sales (monthly reports)
- Export Sales (monthly reports)
- Hold up reports
- Check slips as part of gate pass
- Log sheets – for CFC, HCFC, CFC-113, 113 A, TFA
- Plant monthly reports for all productions
- Specific consumption trends, including downtime etc.
- QA/Qc reports
- Log sheet, daily production report
- Material balance for Crude 113 to pure 113 to 113a to TFA was verified.

Physical tour of the plants and storages of raw materials and finished goods was undertaken, as also interaction with key company personnel.

Sampling:

Samples from HCFC filled cylinders were drawn and analyzed in the QC laboratory (gas chromatography) to confirm absence of CFC's.

Copies of sampled and other relevant records verified were also collected – such as plant daily log sheets, tank level sheets, daily reports, monthly reports, QC reports, consents/authorisations etc. On an average, at least ten days of pertinent records (for productions of CFC11, CFC12, CFC113, TFA and HCFC each) were verified and cross-checked for consistency in reported results, across the production days reported. System of record keeping, tracking, archiving and record retrieval was also looked into. The results of such sample verification were found to be in order.

4.1.1 NFI-CSL PRODUCTION (CFC – 11, 12):

A summary of production of CFCs at NFI is given below.

Particulars	**CY-2003**	**CY-2004**	**CY- 2005**
Production quota for the year (MT)	3968	**3471**	**2975.96**
Production quota traded (MT)	Nil	799 *(sub-contracted by Chemplast Sanmar Ltd (CSL))*	963.37 *(sub-contracted by Chemplast Sanmar Ltd (CSL))*
Revised Production Quota – Total (MT) (Authorised by Ozone Cell, MoEF)	Nil	**4270**	**3939.33**
Plant operation days - CFC-11/12 - CFC-113 (Crude production) - HCFC-22	 143 72 Not Available	 178.09 147.65 Not Reported	 143.93 93.24 Not Reported
Production of CFCs (Gross) - CFC-11 (net) - CFC-12 (net) - CFC-11/12 mixtures - CFC for CSL - CFC-113 (pure) -→ Balance CFC-113 for quota → Losses for CFC 11/12	3943 716 3077 118 32 -	**4250** 775 2646 - 799 30	**2956.111 *** **675.072** **2236.296** -- **954.394** **7.39 **** **10.568** **26.784**
Percentage of quota used	99.36	**99.5**	**99.33**

- **-* does not include the production for CSL.**
- **-** net production only. Does not consider the losses of 0.92 %**

(1) NFI has reported both the net and gross productions. The actual losses,as accounted and reported by NFI are to the tune of 40.818 MT. NFI, however has considered a loss of 0.92 % on the net productions of CFC 11 and 12 for accounting gross production against the quota. Actual losses are observed to be higher as compared to the figure of 26.784 MT which is 0.92 % of the CFC 11 & 12 produced. No loss has been considered on CFC 113 productions

(2) NFI has undertaken to produce 963.37 MT of CFC on behalf of Chemplast Sanmar Ltd as per authorisation by Ozone Cell, MoEF. Hence, the revised production quota of CFC's for NFI stands at 3939.33 MT for the year 2005.

(3) CSL provides NFI with the following raw materials – CTC, Fluorspar, and sulphur. Fluorspar and Sulphur are imported and directed sent to NFI.

(4) While production of CFC is common for both NFI and CSL, material filled in CSL cylinders only, is treated as CSL production. Monthly production data and raw material consumption data are kept separately as CSL accounts. Total transfer from NFI to CSL, between January '05 to December '05 is 959.212 MT of CFC-11&12.

(5) NF produces AHF at their own premises. They procure CTC from domestic and international suppliers. Perchloroethylene and chlorine are procured from domestic suppliers. The raw materials are stocked at the production plants and at the port, in case of imported raw materials. CFC stocks are maintained at both the plant and zonal depots

(6) M/s NFL also received a quantity of 4.848 MT of confiscated CFC-12. The records were verified.

(7) Process of recording production are as follows:

- Data such as number of operating days, process parameters / daily log data, CTC consumption / stocks etc. are common for both NFI and CSL productions.
- Actual quantity filled in CSL containers are accounted as production pertaining to CSL and these are accounted separately.
- Plant daily and monthly reports; however capture only CFC production with respect to NFI, and not of CSL's. These are being logged separately in the materials department. Also the excise records of M/c CSL are not being maintained at M/s NFI, which is a requirement of the Ozone Cell. However other records to this effect are being maintained.

4.1.1.1 SPECIFIC CONSUMPTIONS

	CY 2003	CY-2004	**CY-2005**
CTC:CFC11	1.173	1.181	**1.146**
HF:CFC11	0.163	0.164	**0.160**
CTC:CFC-12	1.340	1.413	**1.367**
HF:CFC-12	0.368	0.384	**0.390**

Reported specific consumptions for the CY 2005 reported are given above and are lower than the previous year mainly with respect to CTC/CFC.

Reporting and capturing of data, however needs to be streamlined, with respect to the retrieval of data.

OBSERVATION

There are no separate facilities for the manufacturing of CFC for M/s CSL and NFI. The CTC recording is common for both NFI and CSL productions. CTC consumption / accounting for M/s CSL are done based on a predetermined and agreed ratio. The rest of the CTC consumed is accounted for NFI production and the ratio arrived at subsequently for NFI.

The ratio's of HF consumptions for NFI productions at 0.160 and 0.390 for CFC11 and CFC12 respectively, compare well with the consumption pattern in the past.

4.1.1.2 LOSSES:

NFI has reported and considers filling / handling losses for arriving at the net saleable production.

CFC11	– filling / handling losses	–	19.040 MT
CFC12	– filling / handling losses	–	21.778 MT

While it is observed that CFC-12 losses are 0.96% of gross production, CFC11 is higher at 2.74% of gross production. The loss with respect to CFC 11 needs to be analyzed and controlled. These losses are higher than the 0.92 % formula arrived at by the REGMA and PMU.

There were no market returns during the year 2005.

4.1.2 PRODUCTION OF CFC-113/113a

Crude CFC-113 produced during the year 2005 aggregates to 212.336 MT. 7.39 MT of CFC-113 was processed to CFC-113 pure, of which 7.18 MT was sold. The closing stock of CFC-113 pure as of ending Dec 2005 was 0.21 MT.

The rest of the CFC 113 crude (204.946 MT) was isomerised to produce 185.122 MT of CFC 113a, at a specific consumption ratio of 1.107. 120.384 MT of CFC-113a (including 10.262 Mt of opening stock as of 1st January 2005) was converted to Trifluoroacetic Acid (TFA) at the same production facilities. This conversion results in complete chemical transformation of CFC-113a to TFA. Specific consumptions of 113 crude to CFC 113a are reported at 1.107 and for 113a to TFA is 3.1.

While both the ratios are on the higher side (as compared to stoichiometric ratios), NFI has on the recommendations of the previous year audit considered a ratio of 1.05 for conversion of CFC 113 to CFC 113a, and taken the difference of 10.568 for CFC quota. It is felt that NFI should take efforts, at least to control the losses

during conversion from 113 crude to 113a, as these are ODS products and directly related to the audit objective. *In line with DNV's recommendation in the last year audit report, a process audit / optimization exercise can be undertaken to improve the specific consumption ratios of CFC-113 to CFC-113a and CFC-113a to TFA.*

4.1.2.1 EXPORT OF CFC-113a

NFI has exported 75 MT of CFC 113a for feedstock purpose.. This amount has not been accounted against the CFC quota, for the following reasons:

- Export of 75MT of CFC has been informed by NFI to the Ozone Cell, vide letter dated 14th December 2005 and requested the same to be treated outside the revised quota of 3939.33 MT, as this material is being used as a feedstock for manufacture of an agrochemical intermediate.
- End user certificate has been obtained from the European firm, confirming use of CFC 113a as feedstock for manufacture of an intermediate for agrochemicals.

4.2 General Observations

In line with the Office order of the ozone cell, production details related to CSL are not getting reflected in the plant logbooks of M/s NFI. A separate record of daily dispatch and production report for M/c CSL is being maintained by the Raw Materials Department.

Copies of the excise records of M/s CSL are not being maintained at M/s NFI. However separate records to this effect were evidenced.

The details of the production of CFCs, as per Decision 32/70, are presented in Annexure B.

4.3 CONCLUSION

Net production for the year 2005at NFI is 675.072 MT of CFC11, 2236.296 MT of CFC12. The gross production of CFC 11 & 12 on considering the 0.92 % losses, is 2938.153 MT. CFC 113 pure production was 7.39 MT, and a balance of of CFC113 for quota is 10.568. Hence the total CFC produced is 2956.111 which is 99.33 % of the quota.

5 CSL VERIFICATION REPORT

Organisation Details:

Beneficiary ODS Producing Enterprise under ODS III Project	**Chemplast Sanmar Limited. (CSL)**
Office Addresses	9, Cathedral Road, Chennai – 600 086
Plant Address	Mettur Dam, Salem District – 636 403
Contact No.	Tel: +91 44 2811 8365 Fax: +91 44 2811 4116 Email: sv3@sanmargroup.com
Contact Person	Mr. K.Muthuraman
Designation	Asst.Vice President – Operations.
CSL Personnel	S.Venkataraghavan S.Palaniappan
DNV Verification Team	R.Ramesh - Team Leader
Verification Date	11 January 2006

PLANT OVERVIEW

CFC facility was initially set up in 1988. Apart from CFC's CSL also produces other chemicals such as CTC and other Chloromethane at their neighbouring facilities. The CFC facility is designed to produce CFC11, CFC12 and HCFC22 under swing operation. While the reactor systems for CFC11/12 and HCFC22 are separate, downstream purification and distillation systems are common. The changeover from one product to another is done essentially involves: isolating of AHF and CTC feeds; purging of lines for removal of trace CFC's followed by feeding of CFM and AHF to the reactors. While raw materials such as CTC and CFM are procured from the company's neighbouring site and also imported, AHF is procured from a domestic supplier.

Relevant consents and authorisation from the Tamil Nadu Pollution control Board have expired. The company has applied for renewal of the same.

5.2 AUDIT METHODOLOGY:

Documents and records investigated:

- Stock reports and data – raw materials & CFC
- Plant daily reports
- Sales invoices
- Export registers
- Log sheets – for CFC, HCFC,
- Plant monthly reports for all productions
- Specific consumption trends, including downtime etc.
- QA / QC reports
- Log sheet, daily production report and material balance for select months between June and December was verified to verify that there was no production of CFC'

Physical tour of the plants and storages of raw materials and finished goods was undertaken, as also interaction with key company personnel.

Sampling:

As there was no stock of CFC's or HCFC's, sampling of the same was not carried out.

There was no production of CFC's in the CSL plant during the year 2005.

5.3.1 CSL PRODUCTION (CFC – 11, 12):

A summary of production of CFCs at CSL is given below.

Particulars	**CY-2003**	**CY-2004**	**CY-2005**
Production quota for the year (MT)	1284	**324 (revised)**	**963.37 (transferred to M/s NFI)**
Plant operation days - CFC-11/12 - HCFC-22	 195 58	 85 29	 0 0
Production of CFCs - CFC-11 (net) - CFC-12 (net) -→ Filling losses (0.92 %)	 1440 284	 **9** **315**	**963.173** 5.984 948.409 8.78 *
Percentage of quota used	99.66	**100**	**99.97%**

(1) CSL has sub-contracted 963.37 MT of CFC manufacture to NFI, Bhestan, as per authorisation by Ozone Cell. Hence, the revised production quota of CFC's for CSL stands at 0 MT for the year 2005. Production on behalf of CSL at NFI was

effective from January 2005 and consequently, there has been no production of CFC's at CSL during 2005.***The production figures reported by CSL are those furnished by M/s NFI.M/s CSL has added a filling and handling losses of 8.78 MT (i.e. 0.92 % of the production for CSL at NFI) for the quantity produced and filled at NFI.***

(2) CSL provides NFI with the following raw materials – CTC, Fluorspar, and sulphur.While production of CFC is common for both NFI and CSL at NFI Bhestan, those that are filled in CSL cylinders only, as per plan, are treated as CSL production. Total transfer from NFI to CSL during the year 2005 is 959.212 MT of CFC 11 & 12 and closing stock at NFI is 0 MT.

(3) Process of recording production are as follows:

- Data such as number of operating days, process parameters / daily log data, CTC consumption / stocks etc. are being maintained for the productions. SAP system has also been introduced.
- Subcontracted CFC production has been reflected in the excise records maintained.

5.3.1.1 SPECIFIC CONSUMPTIONS

Specific consumptions for the CY 2005 reported areas per the production at NFI. This is a predetermined agreement between M/s NFI and CSL.

CTC:CFC-11 / 12 = 1.435

5.3.1.2 LOSSES:

CSL has reported filling losses to the tune of 0.92 % on the production at NFI. This is as per the agreement reached between the REGMA and PMU.

The details of the production of CFCs, as per Decision 32/70, are presented in Annexure B.

5.4 OBSERVATIONS.

As reported in the CY 2004 phase-out audit report, the CFC plants have been totally shutdown and some of the key instrumentation in the control room have been removed for use at other facilities. If CSL is planning to shut down its CFC production unit, requisite approvals / permissions need to be obtained from the Ozone Cell.

The opening stock indicated by CSL is 4.235, where as the opening stock indicated by NFI is 4.818. This has been clarified with M/s CSL and it has been stated that a quantity of 0.583 was invoiced on 31-12-2004 and removed from NFI after 1-1-2005.Hence the opening stock is 4.235.

5.5 CONCLUSION.

The details of the production of CFCs, as per Decision 32/70, are presented in Annexure B.

M/s CSL had sub-contracted for the manufacture of full quota of CFC with M/s NFI. The net salable production at NFI for CSL for the year 2005 was 954.393 MT against a quota of 963.393 MT. M/s CSL have reported a filling loss of 8.78 MT for the year. Hence the percentage production achieved on the quota is 99.97%.

6 RECOMMENDATIONS:

1) It is seen that there is no uniformity in the information being provided by the different manufacturers. While a losses factor of 0.92 % has been adopted by the REGMA members and PMU, no official communication is seen issued from the Ozone cell. In the absence on guidance on the basis on which production is to be reported, gross production has been considered for this report.

2) Clear modalities and ground rules need to be set for defining, how CFC-113a as feedstock should be treated.

3) DNV also recommends the option of exploring, accounting of the entire production of CFC113 crude against the quota, irrespective of whether subsequently this is getting processed / isomerised to CFC113 pure or CFC113a, until such time losses in the processes are controlled.

4) The Ozone Cell may lay down procedures for total sub contracting of CFC production and for the maintenance / dismantling of such plants where there would no production for prolonged periods, such as in the case of CSL.

UNIT WISE OBSERVATIONS

M/s SRF

The plant closing stock of CFC-12 in the data provided does not tally with the figure in the ledger. There is a difference of 1.314 MT. This has been noted in the ledger as receipt of confiscated goods, and needs to be accounted in the data provided also.

M/s GFL

Calibration of weigh scales : Procedures need strengthening to have better control on the filled quantity in cylinders.

M/s NFI

As there appears to be a predetermined ratio of CTC/CFC for M/s CSL, a correct picture of CTC consumption at NFI is not being reflected. Reporting and capturing of data needs to be streamlined.

Production of CFC for M/s CSL is to be logged in the daily plant log sheets.

Copies of the excise records of M/c CSL are to be maintained with M/s NFI as per the Office order of the Ozone Cell

M/s CSL

As reported in the CY 2004 phase-out audit report, the CFC plants have been totally shutdown and some of the key instrumentation in the control rooms have been removed for use at other facilities. Requisite approvals /permissions need to be taken by M/s CSL , in case they plan to shut down it's CFC production.

The opening stock for M/s CSL at NFI for CFC is 4.818 Mt, which does not tally with that of the opening stock shown by M/s CSL (4.235).However it has been clarified that the CSL stock is correct.

Questionnaire for
ODS Production Phase Out verification (including gradual closure)

A. Plant Identification

Name of Enterprise	:	SRF Limited
Plant Ref. No.	:	
Sector Plan No.	:	
SRI No.	:	
Address of the plant	:	Village Jhivana, Tehsil Tizara, Distt. Alwar Rajasthan, India
Contact person(s) and Functional Title	:	Roop Salotra, CEO
Telephone No.	:	91-124-4354474
Fax No.	:	91-124-4354500
e-mail No.	:	salotra@srf.com

B. Verification

Team composition	:	Mr. C Kumaraswamy, Mr. K V Raman

Leader

Name	:	Mr. C Kumaraswamy
Functional title	:	Manager (South Asia), Climate Change Services

Member(s)

1. Name	:	Mr. K V Raman
Functional title	:	Project Manager, Climate Change Services

Observers

2. Name	:	
Functional title	:	

Date of plant visit	:	9-Jan-06
Duration of plant visit	:	10.15 AM - 2.30 PM

C. Plant History

Figures in MT

Date of construction :

ODS Products	No. of lines	Capacity in Baseline year*	Production**							
			Baseline year*	Year 1 1999	Year 2 2000	Year 3 2001	Year 4 2002	Year 5 2003	Year 6 2004	Year 7 2005
CFC-11	One line common to CFC and HCFC.	25000 TPA		6268	2157	2086	1709	1376	1444	781
CFC-12					3896	3432	3265	3046	2428	2508
CFC-13	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
CFC-113	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
CFC-114/115	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Raw materials production***										
HF	One				4836	4469	4293	4969	5632	5788
CTC	One				7039	4635	6310	5452	5735	5680

Quota figures given are after trading

* The year from which data is used for approving the ODS production phase out project

** Till the year prior to the verification

*** This applies to plants where production of either HF or CTC or both is integrated

D. Plant activity in the verified

I. Plant for complete closure : Not applicable

No. of CFC-11/12 lines closed :

Date of CFC production ceased :

Date of dismantling completed :

Verification of destruction of key components by : (Name of certifying body)

Reactor tanks(s) dismantled or destroyed : Yes/No

Control and monitoring equipment dismantled and destroyed : Yes/No

Pipes dismantled and destroyed : Yes/No

Utilities dismantled and destroyed : Yes/No

Evidence of destruction (Photos or videos) :

Chance of resuming production : Yes/No

Assessment by the verification team to be included in the verification report :

II. Plant for gradual closure

Annual CFC-11/12 Quotas, production, sales and stocks since the baseline year[1]
(Please use one table for each CFC product) **Figures in MT**

CFC-11	Baseline year*	Year 1 1999	Year 2* 2000	Year 3 2001	Year 4 2002	Year 5 2003	Year 6 2004	Year 7 2005
Quota#	6643	6271	6146	5536	4982	4429	3875	3321
Opening stock at beginning of year			218	126	21	37	9	41
Production			2157	2086	1709	1376	1444	781
Sales			2256	2197	1703	1407	1413	837
Purchases			0	0	0	0	0	0
Sales return			7	6	12	3	1	30
Write off					1			
Closing stock at the end of the year			126	21	37	9	41	16

CFC-12	Baseline year*	Year 1 1999	Year 2* 2000	Year 3 2001	Year 4 2002	Year 5 2003	Year 6 2004	Year 7 2005
Quota#								
Opening stock at beginning of year			299	211	140	29	41	106
Production			3896	3432	3265	3046	2428	2508
Sales			3985	3551	3409	3050	2364	2424
Sales return			1	33	35	16	0	5,073
Write off				0	1		0	0,072
Purchases			0	15	0	0	0	0
Closing stock at the end of the year			211	140	29	41	106	194

Quota figure is combined for CFC-11 and CFC-12
For 1999, combined figure for CFCs is provided
* The year from which date is used to approve the ODS production phase out project
** Till the year of verification

Annual HF/CFC and CTC/CFC ratios

CFC-11	Baseline year*	Year 1 1999	Year 2* 2000	Year 3 2001	Year 4 2002	Year 5 2003	Year 6 2004	Year 7 2005
HF/CFC-11 ratio		0,161	0,161	0,163	0,165	0,163	0,167	0,164
CTC/CFC-11 ratio		1,18	1,173	1,181	1,168	1,167	1,200	1,174
CFC-12								
HF/CFC-12 ratio		0,366	0,362	0,367	0,372	0,371	0,377	0,370
CTC/CFC-12 ratio		1,336	1,332	1,341	1,326	1,326	1,362	1,333

Operational days per year

Type of production	Baseline year	Year 1 1999	Year 2 2000	Year 3 2001	Year 4 2002	Year 5 2003	Year 6 2004	Year 7 2005
CFC-11		115	104	94	97	83	72	47
CFC-12		115	104	94	97	83	72	58

Monthly CFC-11 production and raw material consumption* (2005)

Month	CFC-11	No. of operating days	CFC-11 production	CTC/CFC-11 ratio	CTC opg stock	CTC* procured or added to stock	CTC clg stock	
January		7,040	122,890	1,166	1269,585	0,000	846,412	
February		0,000	0,000	0,000	846,412	1044,986	1821,635	
March		8,130	130,058	1,179	1821,635	0,000	1328,084	
April		7,890	141,595	1,149	1328,084	0,000	903,683	
May		5,200	104,107	1,189	903,683	0,000	730,561	
June		8,510	129,888	1,164	730,561	0,000	139,413	
July		0,000	0,000	0,000	139,413	1047,692	1201,700	
August		0,000	0,000	1,149	1201,700	0,000	594,289	
September		0,000	0,000	0,000	594,289	0,000	594,068	
October		5,313	73,795	1,219	594,068	0,000	246,467	
November		4,826	79,030	1,217	246,467	0,000	61,509	
December		0,000	0,000	0,000	61,509	477,229	612,733	

* Includes CTC production and procurement

CFC - 11 production and HF consumption

Month	**CFC-11**	No. of operating days	CFC-11 production	HF/CFC-11 ratio	HF opg stock	HF procured or added to stock	HF clg stock
January		7,040	122,890	0,165	6,560	0,000	58,920
February		0,000	0,000	0,000	58,920	0,000	18,101
March		8,130	130,058	0,166	18,101	0,000	55,571
April		7,890	141,595	0,162	55,571	0,000	26,611
May		5,200	104,107	0,168	26,611	0,000	8,010
June		8,510	129,888	0,162	8,010	31,730	59,270
July		0,000	0,000	0,000	59,270	32,100	16,040
August		0,000	0,000	0,161	16,040	64,130	64,020
September		0,000	0,000	0,000	64,020	0,000	41,000
October		5,313	73,795	0,167	41,000	30,650	31,260
November		4,826	79,030	0,165	31,260	30,080	63,720
December		0,000	0,000	0,000	63,720	0,000	11,260

CFC - 12 production and CTC consumption

Month	**CFC-12**	No. of operating days	CFC-12 production	CTC/CFC-12 ratio	CTC opg stock	CTC procured or added to stock*	CTC clg stock
January		7,042	293,602	1,324	1269,585	0,000	846,412
February		0,000	0,000	0,000	846,412	1044,986	1821,635
March		8,132	355,821	1,339	1821,635	0,000	1328,084
April		7,885	349,286	1,305	1328,084	0,000	903,683
May		5,201	221,680	1,350	903,683	0,000	730,561
June		8,510	371,706	1,321	730,561	0,000	139,413
July		0,000	0,000	0,000	139,413	1047,692	1201,700
August		10,771	496,925	1,304	1201,700	0,000	594,289
September		0,000	0,000	0,000	594,289	0,000	594,068
October		5,313	224,422	1,384	594,068	0,000	246,467
November		4,826	194,104	1,382	246,467	0,000	61,509
December		0,000	0,000	0,000	61,509	477,229	612,733

* Includes CTC production and procurement.

CFC 12 production and HF consumption

Month	**CFC-12**	No. of operating days	CFC-12 production	HF/CFC-12 ratio	HF opg stock	HF procured or added to stock	HF clg stock
January		7,042	293,602	0,373	6,560	0,000	58,920
February		0,000	0,000	0,000	58,920	0,000	18,101
March		8,132	355,821	0,374	18,101	0,000	55,571
April		7,885	349,286	0,366	55,571	0,000	26,611
May		5,201	221,680	0,380	26,611	0,000	8,010
June		8,510	371,706	0,365	8,010	31,730	59,270
July		0,000	0,000	0,000	59,270	32,100	16,040
August		10,771	496,925	0,364	16,040	64,130	64,020
September		0,000	0,000	0,000	64,020	0,000	41,000
October		5,313	224,422	0,378	41,000	30,650	31,260
November		4,826	194,104	0,372	31,260	30,080	63,720
December		0,000	0,000	0,000	63,720	0,000	11,260