3M's Greenhouse Gas Inventory Management System

Climate Leaders Meeting

October, 2004

Leading Through *Innovation*

Road Map

- 3M Background
- 3M's Greenhouse Gas (GHG) Inventory
- Inventory Management System

3M

- $18 billion diversified technology company
- Developed 60,000 product lines, operations in more than 60 countries
- Serves customers in nearly 200 countries.
- More than half of 3M's sales come from outside the United States.
- Component of Dow Jones Industrial Average & S&P 500

3M's Businesses

- Consumer and Office

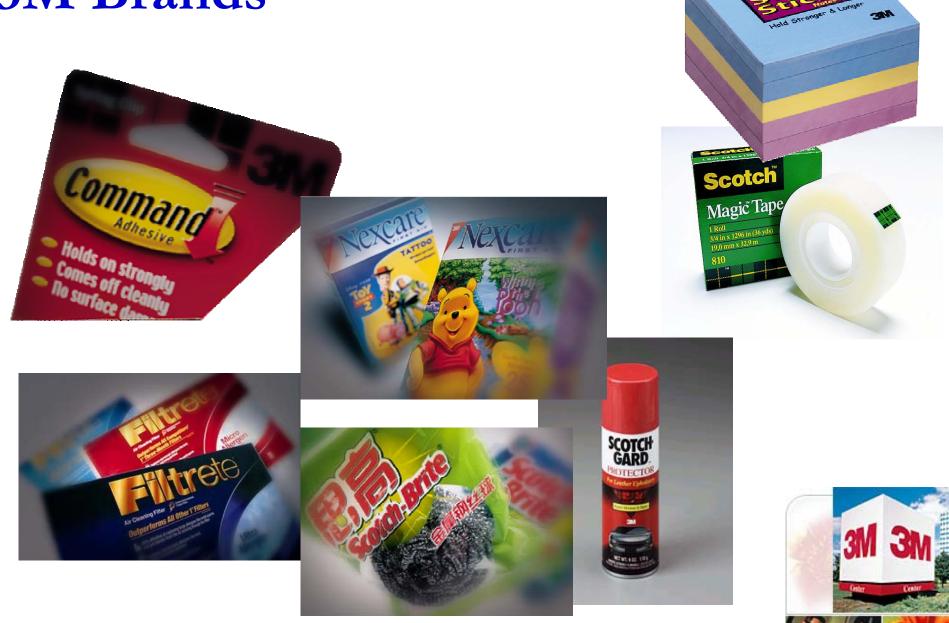- Electro and Communications
- Display and Graphics

- Industrial
- Safety, Security and Protection Services

- Health Care

- Transportation

3M Brands

3M's GHG Inventory

- Global Inventory

- Developed using WRI/WBCSD GHG Protocol
  - Scope 1 & 2 emissions

- Includes Kyoto & Non-Kyoto GHGs

- 3M's 2002 base year data *verified* by CH2M Hill

- 3M's 1990, 1995, & 2000 years inventory data *validated* by CH2M Hill

3M's GHG Inventory Objectives

- Sustainability Reporting

- Track Progress on GHG Reduction Goals
  – Reduce 1990 global GHG emissions by 50% by 2005

  – Reduce U.S. GHG emissions by 30% from 2002 to 2007 (Climate Leaders Goal)

3M's GHG Emission Inventory: Sources Included

- Energy related emissions (CO_2, CH_4, & N_2O)
  - Fuel use
  - Electricity use
- Incinerators (CO_2, CH_4, & N_2O)
- 3M owned landfills (CH_4)
- Solvent incineration in thermal oxidizers & fume incinerators (CO_2, CH_4, and N_2O)
- Industrial process emissions

Sources Included, continued . . .

- Mobile sources (CO_2, CH_4, and N_2O)
  - Fleet vehicles (sales & general fleet)
  - Owned/leased trucking
  - 3M corporate jets
  - Facility equipment
- 3M owned wastewater treatment (CO_2 & CH_4)
- Refrigeration (HFCs and PFCs)

Inventory Management System

- Developed utilizing 3M's existing laboratory quality system (ISO/IEC 17025 certified)

- GHG Inventory Management System
  - Inventory Management Plan
  - GHG Inventory Database
    - Emissions information (by location and emissions type)
    - Annual & Historic GHG boundary & source reports
    - SOPs

3M's Inventory Management Plan: Table of Contents

1) Purpose of Management Plan
   - ISO/IEC 17025
2) Scope
3) Quality System
   - SOPs
4) Archiving Procedures
5) Inventory Team Roles & Responsibilities
6) GHG Reporting and Data Management
   - Record retention
   - Data storage

3M's Inventory Management Plan: Table of Contents

GHG Boundary & Source Reports

- Developed to document GHG inventory methods & data sources

- Climate Leaders IMP table serves as Framework to organize reports & SOPs

- 50+ generated annually

- Housed in Laboratory Information Management System (LIMS) and accessible through GHG database

- Example Reports:
  - Organizational Boundary Development
  - Stationary Combustion in Thermal Oxidizers and Fume Incinerators
  - CO2 & CH4 emissions from Wastewater Treatment

Report Example In Depth: Stationary Combustion in Thermal Oxidizers and Fume Incinerators

Report Includes

- Description of the source/report scope
- Explanation of how source fits in & is rolled-up within the larger GHG inventory & reports
- Method used to obtain TOs & FIs data and confirm their continued use
- Activity data and collection methods
- Documentation of conversion & emissions factors
- Annual emissions estimates
- Documentation of internal review and corrections to methods and emissions estimates
- Reference to relevant SOPs

Key Components of 3M's IMP

- Documented roles & responsibilities
- Documented SOPs and annual boundary & source reports
- An internal, independent QA/QC group that audits against IMP & SOPs
- Continuous improvement
  - Six Sigma project to reduce inventory cycle time
  - IT project to automate annual survey to confirm operational boundaries

Questions?

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