Use of "Next" Generation Programs to Inventory Methane and Carbon Dioxide Emissions

Prepared by

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Why Look at Methane and CO_2 Emissions?

- STAR Program Saves 176 BCF of Gas
- Gas Prices Stabilizing at $4- $6/ MCF
- CO_2 Optimization Saves Fuel; Increases Efficiencies
- International GHG Pressures
- Improve Public Relations

A Brief History...

- 1992 - UN Adopts Climate Change Framework. 1997 becomes Kyoto Protocol
- 1992 – EPA Forms Gas STAR to Reduce Methane Emissions
- 1996 – PanCanadian Conducts Company Wide GHG Inventory
- 1998 – Texaco Inventories GHG; to be used as a planning tool

… and Finally

- 2000 – BP Amoco Inventories GHG; Announces reductions and internal exchange program
- 2001 – API Publishes GHG Inventory Standards
- 2003 – “Next” Generation Inventory Programs Available

Setting up a Methane and CO_2 Program

1. Goals and Objectives
2. Scope
3. Management and Operating Group Support
4. Costs and Rewards
5. Technical Approach
   - A. Accuracy and Reliability of Data
   - B. Consistency of Data
   - C. Methodology of Calculations
6. Selection of Inventory Programs

Early Emission Inventory Programs

- "In-house" spreadsheets
- User developed
- Standardized calculations not used
- Limited in ability to handle vast quantities of data
- Results not always comparable
- Attempts to modify "criteria" programs

WANTED!! Standardized Calculations

- Industry desires standardized techniques
- API develops “Compendium of Greenhouse Gas Emissions and Estimation Methodologies for the Oil and Gas Industry”

Second Generation Programs

- Spreadsheet or database platform
- Use standardized calculations
- Spreadsheet programs still limited by platform
- Database programs web-enabled

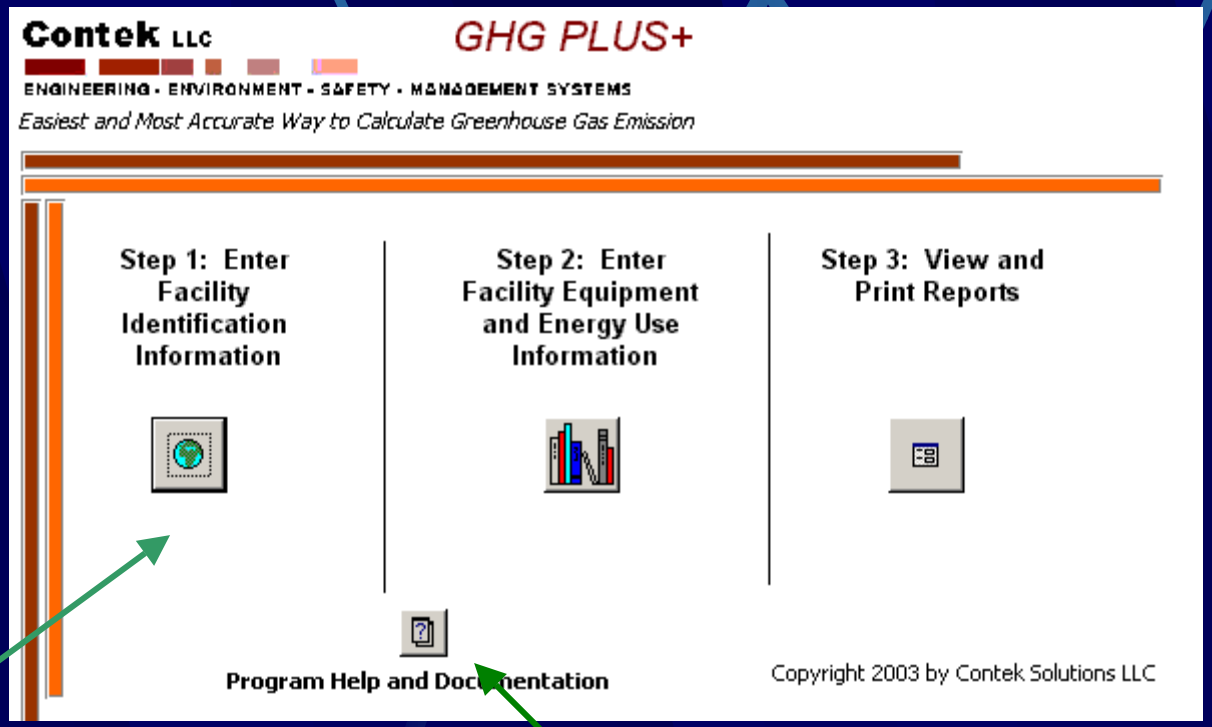
"Wish List" for "Next" Generation Programs

- Standardized Calculations
- Handle thousands of data points
- Monthly, quarterly or yearly input
- "Web" Feel
- Easy to use by field and engineering staffs
- Easy to understand reports
- Adapted to inter or intra-net

GHG Plus +: Meeting the "Next" Generation Requirements

- Uses API Calculations
- Database platform; Unlimited data input
- Time interval determined by user
- "Web" look and feel
- Built in help and program documentation
- Easy to use input screens
- Customizable reports
- Can be placed on intra or inter-nets

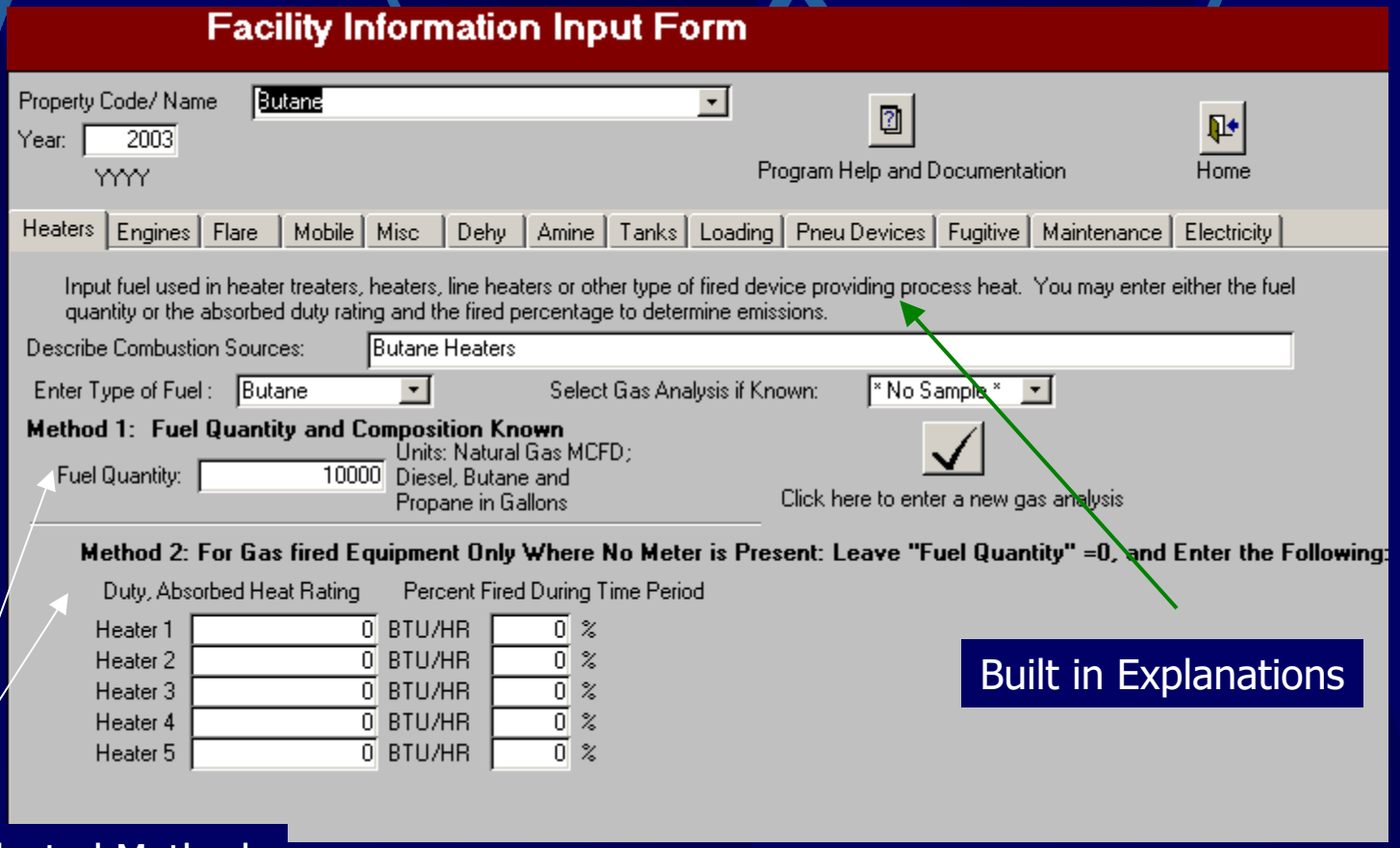
GHG PLUS+ Entry Screen



Easy to Understand Icons

Built in Help and Documentation

Facility Input Screen

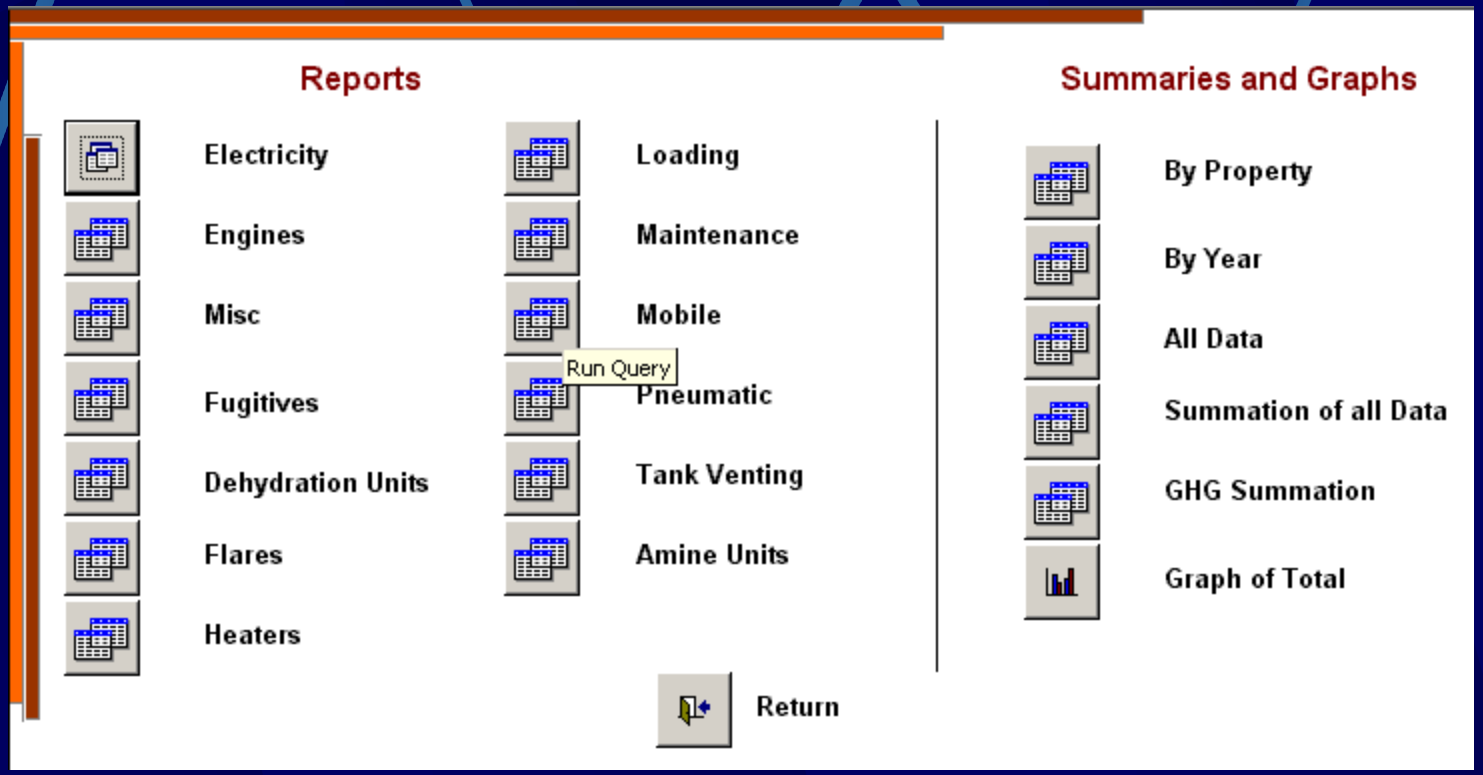


Easy to use tabs

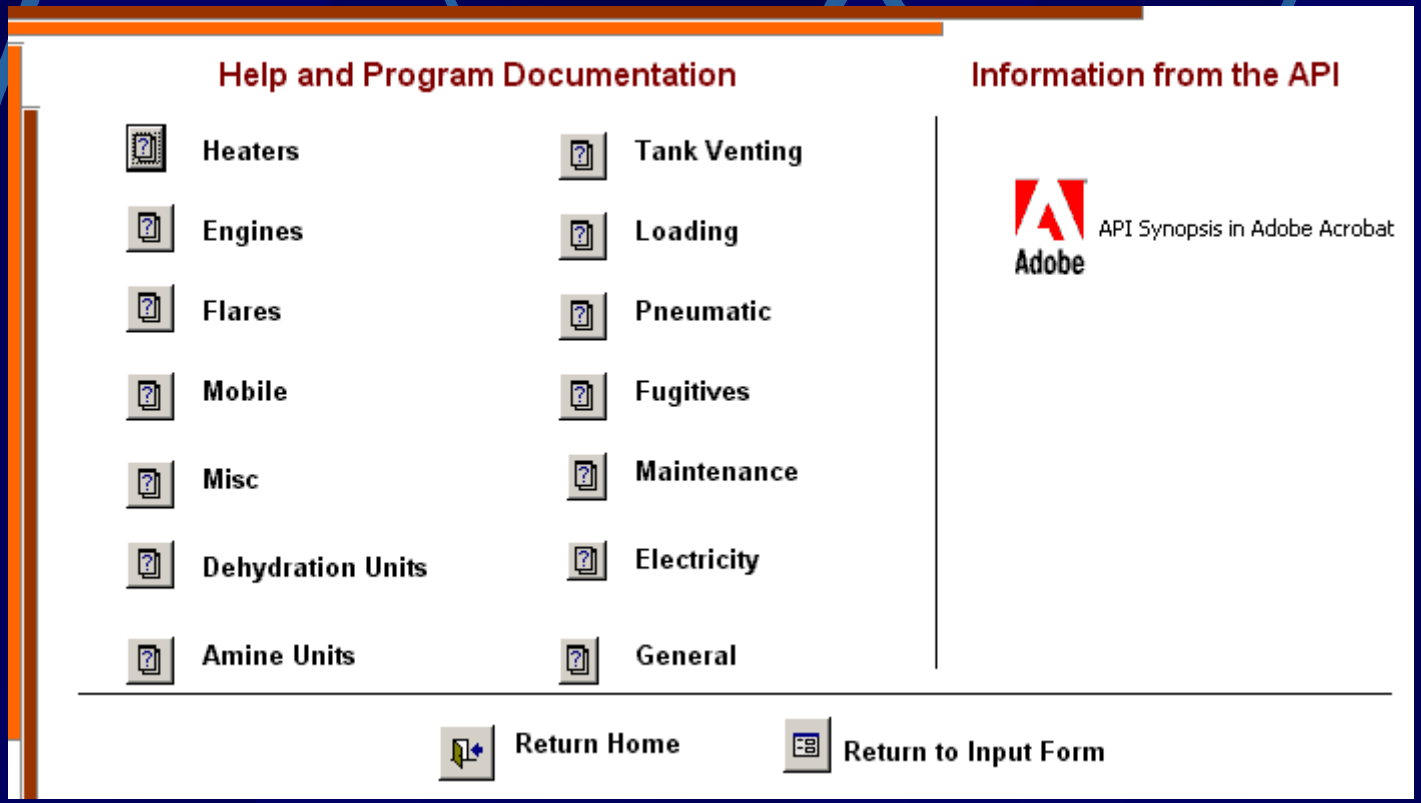
User Selected Methods

Built in Explanations

Easy to Customize Reports and Graphs



Built in Help and Documentation



Intranet Data Input

GHG Emission5 / Operation Property Editor - Microsoft Internet Explorer provided by BP Group Digital Business

File Edit View Favorites Tools Help

Back Search Favorites History

Address http://

Go Links

Greenhouse Gas Reports

INPUT DATA -- BP OPERATIONS -- PROPERTY -- PRODUCING LEASE INFORMATION

All Property Codes | 2002 | 1st Quarter | All Persons | Search | |< | < | 1 of 213 | > | >| | New Property | GHG HOME

INFORMATION ABOUT THE PROPERTY

PROPERTY NAME	ARCO "AB4" 1	PROPERTY CODE	622105000
QUARTER	1	YEAR	2002
		COMPLETED BY	ALTON CALLIHAN

PRODUCTION AND WELL INFORMATION

BOPD	0	GAS WELLS	0
OIL GRAVITY	25	INJ/DISP WELLS	0
BWPD	0	OTHER WELLS	0
MCFD	10	GAS GRAVITY	1
OIL WELLS	1	GAS TYPE	1

COMPRESSOR DATA

NUMBER OF COMPRESSORS	0
COMPRESSORS THROWS	0

DIESEL FUEL USED

DIESEL ENGINE FUEL USE (Gallons)	0

TREATERS

TREATERS TOTAL NO	0
TREATERS BURNER RATING BTU/HR	0
TREATERS % RUN TIME	0

FWKOS

FWKO TOTAL NO	0
FWKO BURNER RATING BTU/HR	0
FWKO % RUN TIME	0

TREATERS, BOILERS AND OTHER FIRED VESSELS

HEATERS TOTAL NO	0
HEATERS TOTAL BTU/HR	0

OTHER LEASE EQUIPMENT

SEPARATORS, ETC TOTAL NO	0
OIL TANKS, NUMBER	2

Local intranet

Start | Inbo... | Ove... | Ove... | Ove... | Ove... | GHG... | Pres... | gree... | GHG... | 1:48 PM

Using GHG PLUS+ to Advance Your Reporting to the Next Level

- GHG PLUS+ is the "Next" generation program developed for the oil and gas industry
- Can be easily customized for your operations and reporting criteria
- User friendly
- "Web" look and feel to user
- Flexible for your ever changing property portfolio
- Reports can be changed or modified as needed
- No proprietary platforms; uses well known Microsoft Access platform
- Can be web-enabled