

NEWMOA



# EMFACT<sup>TM</sup> Introduction

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Northeast Waste Management Officials'  
Association (NEWMOA)

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- How does EMFACT<sup>TM</sup> relate to green chemistry?
- What is EMFACT<sup>TM</sup>?
- What reports can EMFACT<sup>TM</sup> produce?
- EMFACT<sup>TM</sup> example – spray booth



- EMFACT™ is an acronym for Energy & Materials Flow & Cost Tracker
- Product of collaboration between government assistance providers in pollution prevention & other topics relating to sustainability:
  - Northeast Waste Management Officials' Association (NEWMOA)
  - Massachusetts Office of Technical Assistance & Technology (MA OTA)
- EMFACT™ is a **free** software tool
  - [www.newmoa.org/prevention/emfact/register.cfm](http://www.newmoa.org/prevention/emfact/register.cfm)



# EMFACT – Green Chemistry & Materials Accounting



- Green chemistry focuses on developing chemicals & products that are effective, relatively less toxic/hazardous, reduce non-product output, & maximize the efficient use of resources
- Increased supply chain pressures & demands for greater transparency in products – public attention & pressure
- Environmental Management Accounting or Materials Accounting enhances the ability of manufacturers & others to make decisions & set priorities related to use of resources (i.e., chemicals, materials, energy, water) through tracking & analyzing the flow through the process & associated costs
- Small & medium-sized firms have not had software tool for materials accounting - managing & analyzing materials & energy use information

- The objectives of EMFACT™ are to provide:
  - A fully developed **easy-to-use & well-documented** energy, materials, chemicals, releases, & associated costs tracking & data analysis tool
  - Well-developed **training support materials** & a **user's guide** to support the implementation of the tool
  - Online **downloadable free access** to the software application as well as the training materials & user's guide
  - **Training workshops**



- **Sponsors:**

- NEWMOA
  - Nate Bisbee
  - Andy Bray
  - Terri Goldberg \*
- MA OTA
  - David Haas
  - Morgan Mihok
  - Phil Milmoie
  - Rick Reibstein \*

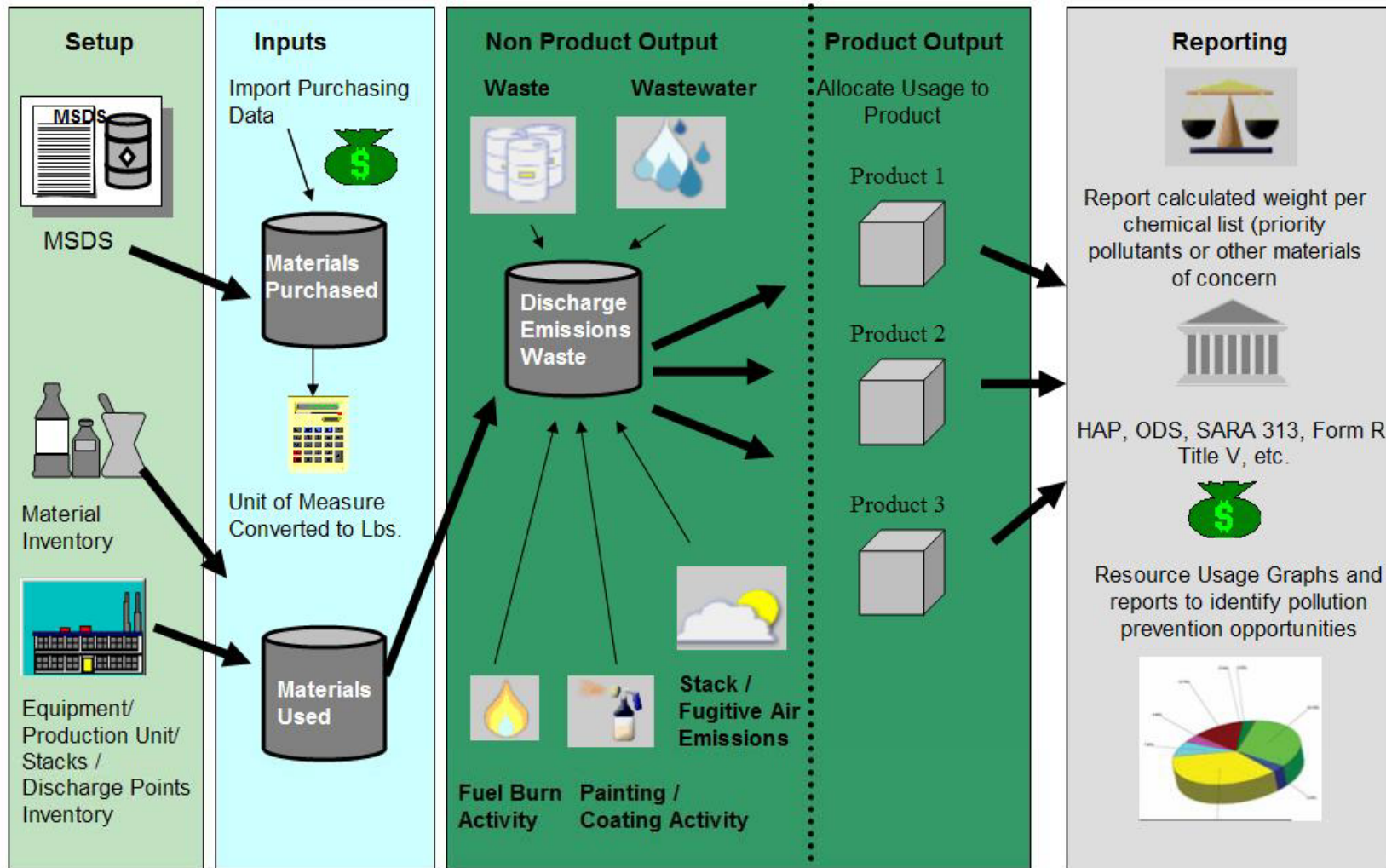
- **Consultants:**

- Sullivan
  - Kathy Bates
  - Joan Cianciolo
  - Betsy Cottle
  - Liz Ostwald
- EMARIC
  - Deb Savage
- **EPA ORD**
  - Collaborative Science & Technology for Sustainability

\* **Primary managers**



- In Phase 1, EMFACT™ was designed to help users understand & analyze their materials (including water & fuels) & chemical use in one or more facilities
- EMFACT was designed to help track fuels, (i.e., oil, natural gas, coal, or bio-based fuels); treats these material inputs the same as others
- For Phase 1, EMFACT™ was not designed to enable users to fully track & evaluate all of their energy use, particularly their use & purchasing of electricity







## EMFACT - Procedure Flow



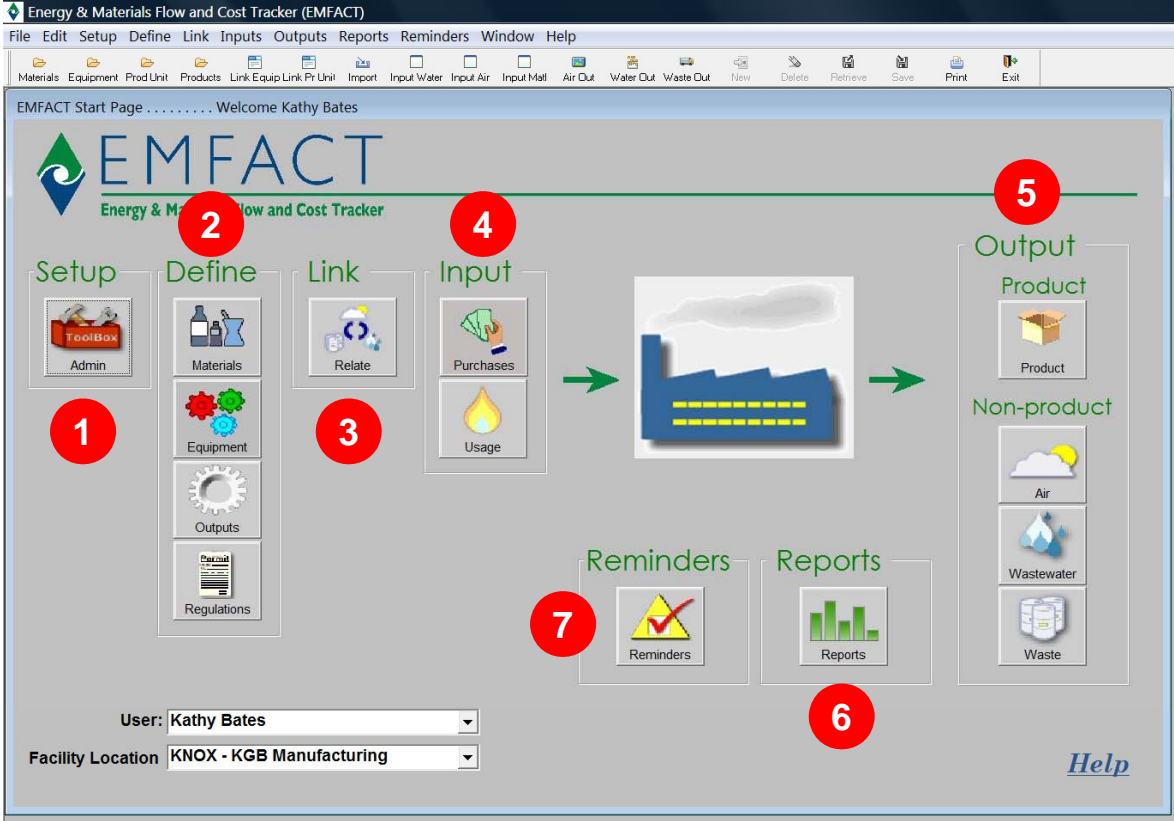
The Energy & Materials Flow and Cost Tracker (EMFACT) is an easy-to-use, well-documented tool to assist the small and medium size enterprise manage their fuel, water and materials usage. Using EMFACT, companies can track air emissions, wastewater, solid/hazardous waste, and related costs associated with the day-to-day operations of their business. Several reports are available to assist, along with a calendar to set up due dates and reminders.

The purpose of this document is to provide a high-level overview of the entire EMFACT process. Refer to specific training and documentation for additional details.



# EMFACT™ Dashboard

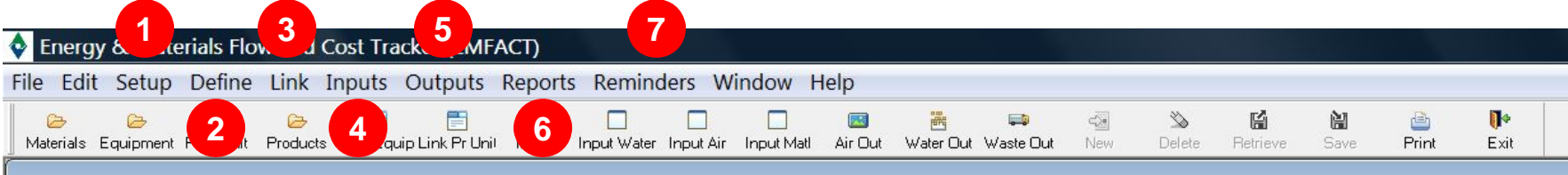




The EMFACT™ **Dashboard** displays seven distinct areas of functionality accessed via **icons** or **Toolbar** menus:

1. Setup
2. Define
3. Link
4. Input
5. Output
  - Product
  - Non-product
6. Reports
7. Reminders

## EMFACT™ Toolbar



- EMFACT™ designed to enable data input & data analysis/reports based on equipment, production unit, or entire facility – maximizes **flexibility** depending on interest/needs of the user
- **Manages lists** of equipment & materials/chemicals
- **Pre-populated** with numerous lists – focusing on federal regulatory lists & thousands of CAS numbers

- EMFACT includes **21 boiler plate reports** to help users track products, air, water, & waste on a variety of levels
- **Filters** enable user to define report parameters ; **Search** window enables searching by a variety of fields - output can be printed or saved to Excel
- Access the EMFACT **Reports Procedure Guide** from **Contents** in the **Help** menu:  
[pg\\_emf\\_reports.pdf](#)

- Materials & chemicals **Purchased & Used & Non-Product Output** *per equipment, per production unit, per facility*; costs
- Materials & chemicals **Purchased & Used** *incorporated into product vs. into non-product output*; costs
- Non-product output reports for air emissions, including 12- month rolling averages; costs
- Water pollutant outputs as well as water usage; costs
- Waste activity reports; group data by waste type; costs

# Example: Material Usage Report



Energy & Materials Flow and Cost Tracker (EMFACT)

File Edit Setup Define Link Inputs Outputs Reports Reminders Window Help

Materials Equipment Prod Unit Products Link Equip Link Pr Unit Import Input Water Input Air Input Mat Air Out Water Out Waste Out New Delete Retrieve Save Print Exit

**Materials Used: Weight per CAS Number Report**

Find CAS Number.:

Filter Data

From Date: 01-2007 To Date: 12-2008

List Name:

Include Data for No Equipment/Prod Unit AND:

- Equipment (not in Prod Unit) + Prod Unit
- All Equipment only

Scope

- All detail
- CAS / Material Summary
- CAS Summary

**Materials Used: Weight per CAS Number Report From 01-2007 To 12-2008**

Note: Gas usage is not included

CAS Number	Material	Usage Type	Usage Cost	Usage in Lbs.	Usage Date	Production Unit / Equipment ID	Department
100-51-6	Benzyl Alcohol						
	<b>PAINT 100</b>	Product Paint				\$ .00	
	<b>Total for PAINT 100:</b>		<b>\$3.10</b>	<b>17.9538</b>			
	<b>Total for 100-51-6:</b>		<b>\$3.10</b>	<b>17.9538</b>			
107-98-2	Propylene Glycol, 1-Monomethyl Ether						
	<b>PAINT 100</b>	Product Paint				\$ .00	
	<b>Total for PAINT 100:</b>		<b>\$4.65</b>	<b>26.9306</b>			
	<b>Total for 107-98-2:</b>		<b>\$4.65</b>	<b>26.9306</b>			
28064-14-4	Bisphenol F Epoxy Resin						
	<b>PAINT 100</b>	Product Paint				\$ .00	

Test Facility

Ready

start AIM AIM 3 Micro... Mercury i... Microsoft... pf\_EMFA... Documen... Energy &... Microsoft... 12:35 PM Monday 2/2/2009



# Example: Waste Management Report



**EMFACT**

Energy & Materials Flow and Cost Tracker

Waste Management Reports

Select Report:

Activity Costs

Filter Report by:

Activity Date From:

01-2007

To:

10-2007

Hazardous?:

Yes or No

Refresh Data

03/01/2008 16:05:10

## Waste Management Report - Activity Costs

Page 1 of 1

Waste Type	Activity Type	Activity Date	Weight in Lbs.	Internal Cost in \$	Vendor Cost in \$	Total Cost in \$
<b>Cardboard</b>		Hazardous? <input type="checkbox"/>				
	Shipment for Disposal	10/04/2007	220	\$ .00	\$ .00	\$ .00
	Shipment for Disposal	10/04/2007	22	\$22.00	\$11.00	\$33.00
	Shipment for Recycle	10/15/2007	-80	\$-50.00	\$-300.00	\$-350.00
<b>Total Weight For Waste Type: Cardboard</b>			<b>162</b>	<b>\$-28.00</b>	<b>\$-289.00</b>	<b>\$-317.00</b>
<b>Oil, Hazardous Waste</b>		Hazardous? <input checked="" type="checkbox"/>				
	Shipment for Disposal	10/04/2007	2,200	\$444.00	\$121.00	\$565.00
	Offsite Treatmnt	10/17/2007	100	\$500.00	\$44.00	\$544.00
<b>Total Weight For Waste Type: Oil, Hazardous Waste</b>			<b>2,300</b>	<b>\$944.00</b>	<b>\$165.00</b>	<b>\$1,109.00</b>

# Example: 12-month Rolling Air Emissions



**EMFACT**

Energy & Materials Flow and Cost Tracker

Energy & Materials Flow and Cost Tracker (EMFACT)

File Edit Setup Define Link Inputs Outputs Reports Reminders Window Help

Materials Equipment Prod Unit Products Link Equip Link Pr Unit Import Input Water Input Air Input Matf Air Out Water Out Waste Out New Delete Retrices Save Print Exit

**Air Emissions: Weight per Pollutant with 12 Month Rolling Report**

**Filter Data**

Report Detail Level:  Monthly From Date: 01-2007 To Date: 12-2008

Production Unit/Equipment ID: All

Include Data for Prod Unit:  
 Input as Prod Unit  
 Input for Equipment where part of the Prod Unit

Refresh Data Clear Filter

---

02/02/2009 12:55:39 **Air Emissions: Weight per Pollutant with 12 Month Rolling Report** Page 1 of 1  
 From 01-2007 To 12-2008

Usage Month	Current Month Totals				12 Month Rolling Totals			
	Hours	Usage	Pollutant	Total Emissions	Hours	Usage	Pollutant	Total Emissions
12-2008	4.00	33.88	TSP	0.4812 Lbs.	0.00	33.88	TSP	0.4812 Lbs
<b>Grand Total:</b>	4.00	33.88	TSP	0.4812 Lbs.				

Test Facility



- Mass Balance Reports available at many levels
- **Complex reports to generate** – need all inputs & outputs in same units (generally pounds)
- EMFACT™ helps user to make sure units are consistent & appropriate conversions are made

# Example: Mass Balance for Purchased Inputs



**Mass Balance Report**

**Filter Data**

Production Unit/Equipment ID:  From Date: 01-2007 To Date: 04-2008

Include Data for Prod Unit:  
 Input as Prod Unit  
 Input for Equipment where part of the Prod Unit

**Refresh Data** **Clear Filter**

---

04/14/2008 16:18:31 **Mass Balance Purchased Report** Page 1 of 2

**(IN) Materials Purchased: Weight per Material**

Material ID	Material Name	Purchase Qty in Lbs.
003	Material 3	30.00
BETSY	Betey	33.00
GLIDDEN1	Glidden Eggshell Paint	73.00
<b>Total Purchased Weight:</b>		<b>136.00</b>

**(OUT) Product: Weight per Material Report**

Material ID / Name	Product Model	Intermediate Product No.	Product Output in Lbs.
FAC PAINT1	Krylon Ultra Flat Black 1602		
V100	Product Name		
	IP101	Part 101	18,975.0000
	IP103	Part 103	236,241.0666
<b>Total for V100:</b>			<b>255,216.0666</b>
<b>Total for FAC PAINT1:</b>			<b>255,216.0666</b>

# Example : Mass Balance Air Output Report



**EMFACT**

Energy & Materials Flow and Cost Tracker

<b>GLIDDEN1</b>	Glidden Eggshell Paint		
<b>V100</b>	Product Name		
	<b>IP101</b>	Part 101	14,375.0000
		<b>Total for V100:</b>	14,375.0000
		<b>Total for GLIDDEN1:</b>	14,375.0000
		<b>Total Product Weight:</b>	269,591.0666

**(OUT) Air Emissions: Lbs. per Pollutant**

Pollutant	Emission Qty in Lbs.
CO	5,068.0000
Lead	10,200.0000
NOx	11,515,420.9001
PM10	84,693.0000
SOx	23,198,866.0000
TSP	1,263.6852
VOC	6,600.4033
<b>Total Air Emissions Weight:</b>	<b>34,822,111.9886</b>

# Example: Mass Balance Output Report



EMFACT

Energy &amp; Materials Flow and Cost Tracker

## (OUT): Wastewater Discharge: Lbs. per Pollutant

Pollutant	Discharge Qty in Lbs.
BARIUM	0.9623
CADMIUM	3.9203
<b>Total Wastewater Discharge Weight:</b>	<b>5.8427</b>

## (OUT) Waste: Lbs. per Waste Type

Waste Type	Hazardous?	Waste Weight in Lbs.
Acid Sludge	<input checked="" type="checkbox"/>	170.0000
Acids, Non-hazardous	<input type="checkbox"/>	22.0000
Cardboard	<input type="checkbox"/>	162.0000
Filters with Paint	<input checked="" type="checkbox"/>	135.0000
Oil, Hazardous Waste	<input checked="" type="checkbox"/>	2,300.0000
Scrap	<input type="checkbox"/>	3,330.0000
<b>Total Waste Weight:</b>		<b>6,119.0000</b>



- EMFACT™ incorporates lists of regulated chemicals:
  - ◆ SARA 313
  - ◆ Hazardous Air Pollutants (HAPs)
  - ◆ Ozone Depleting Substances – Classes I & II
  - ◆ Ability for users to add **their own chemical lists** (i.e., priority pollutants, state regulated chemicals)
- Reminders:
  - ◆ Screens to list/describe **permits**
  - ◆ A **calendar with event reminders** (e.g., permit renewal)

Energy & Materials Flow and Cost Tracker (EMFACT)

File Edit Setup Define Link Inputs Outputs Reports Reminders Window Help

Materials Equipment Prod Unit Products Link Equip Link Pr Unit Import Input Water Input Air Input Mail Air Out Water Out Waste Out New Delete Retrieve Save Print Exit

Calendar Event List

**Filter Data**

Event Name:  Due Date: > 00/00/0000

Location:  Reminder Date: > 00/00/0000

Event Status: Open Recurring? No

Dept.:

Refresh Data  
Clear Filter Data  
More Detail

Due Date	Event No.	Site Code	Event Name	Event Location	Init Reminder	Final Reminder	Event St
03/31/2008	0000001	ABC	Permit Expiration for: 2008-0001		00/00/0000	00/00/0000	Open
03/12/2008	0000002	ABC	Permit Renewal Due for: 2008-0001		00/00/0000	00/00/0000	Open
03/05/2008	0000003	ABC	Permit Renewal Start for: 2008-0001		00/00/0000	00/00/0000	Open
03/31/2008	0000004	ABC	Permit Expiration for: 2008-0001		00/00/0000	00/00/0000	Open
06/30/2008	0000005	ABC	Permit Expiration for: 2008-0001		00/00/0000	00/00/0000	Open
09/30/2008	0000006	ABC	Permit Expiration for: 2008-0001		00/00/0000	00/00/0000	Open
12/31/2008	0000007	ABC	Permit Expiration for: 2008-0001		00/00/0000	00/00/0000	Open

Enable Advanced Fields

Reminders Window Help

- Calendar Reminder List
- Calendar Reminder Details
- View Calendar Events Coming Due

7 Records  
REM001

## Reminders

The **Reminders** feature enables users to track the renewal and expiration dates of permits, regulations, etc.

When permits and regulations are first set up, users have the option of entering the Issue, **Expiration, Renewal Due** and **Renewal Start Dates**

When this is done, EMFACT automatically creates calendar events and reminders

Users can also set up independent calendar events for other reasons (e.g., audit reminders, etc.)

Energy & Materials Flow and Cost Tracker (EMFACT)

File Edit Setup Define Link Inputs Outputs Reports Reminders Window Help

Materials Equipment Prod Unit Products Link Equip Link Pr Unit Import Input Water Input Air Input Mail Air Out Water Out Waste Out New Delete Retrieve Save Print Exit

Calendar Event Detail: 0000001

Event No.: 0000001 Site Code: ABC Due Date: 03/31/2008 Status: Open

Name: Permit Expiration for: 2008-0001 Location:

Desc:

Contact Person: BAS Basic User Last Update: 02/29/2008

Event Filename GO

Reminder

Initial Reminder Date: Final Reminder Date:

Responsible Department:

Recurring Event

Recurring:  Yes  No Frequency: of Occurrences: Event No.:

Create Recurring Events

Recurring

Event No.	Event Name	Final Reminder Due Date	Status
0000004	Permit Expiration for: 2008-0001	03/31/2008	Open
0000005	Permit Expiration for: 2008-0001	06/30/2008	Open
0000006	Permit Expiration for: 2008-0001	09/30/2008	Open
0000007	Permit Expiration for: 2008-0001	12/31/2008	Open

Reminders Window Help

Calendar Reminder List

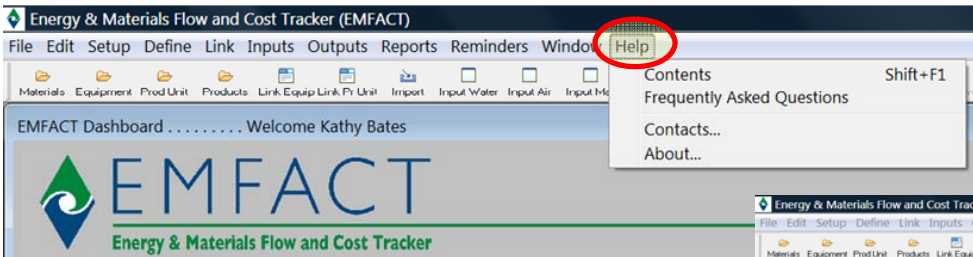
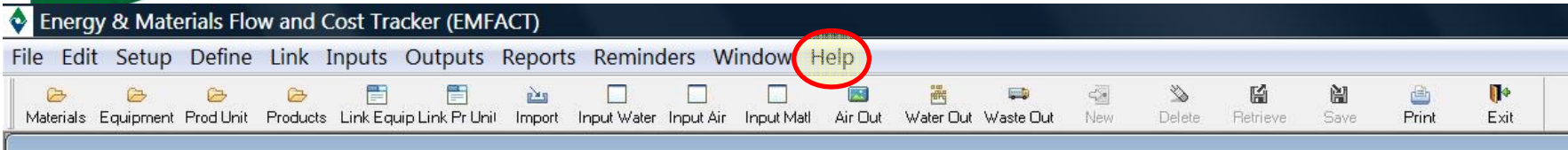
Calendar Reminder Details

View Calendar Events Coming Due

1 of 4 Records REM002

## Reminders

The **Event Details** window provides a full screen view of all fields available to manage events

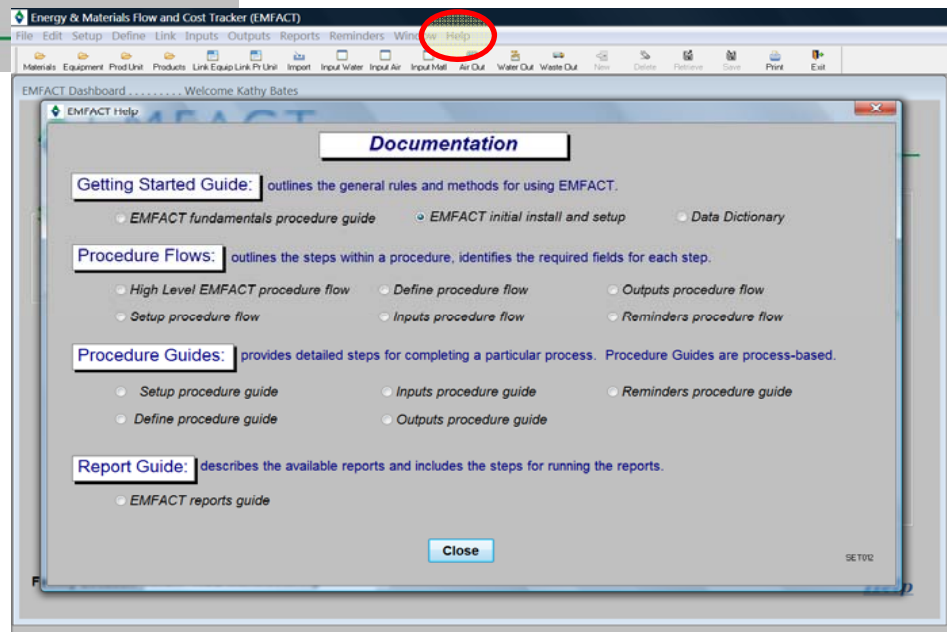


**Example** – “Contents” displays EMFACT™ documentation; click the button next to the documentation to view, print, or download (Adobe PDF)

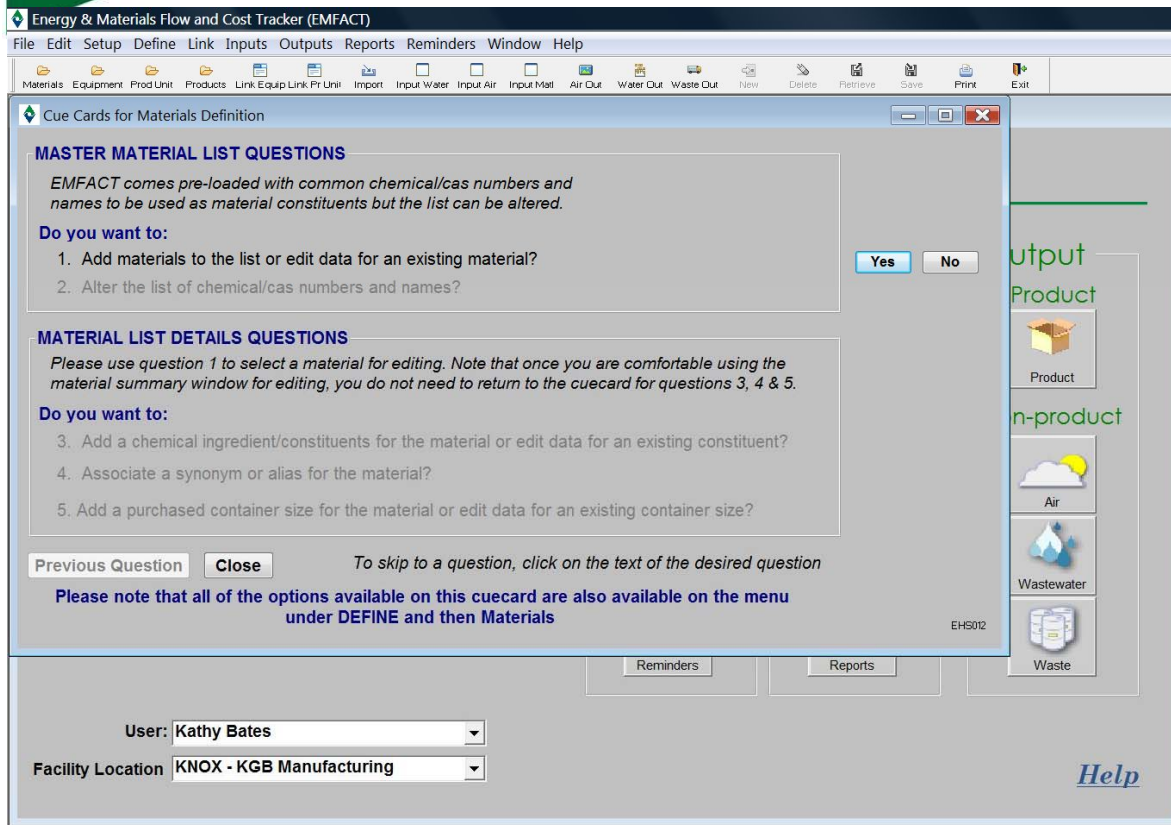


## Toolbar - Help

**Help** menu on the Toolbar provides access to various EMFACT™ help resources







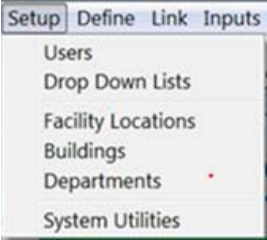
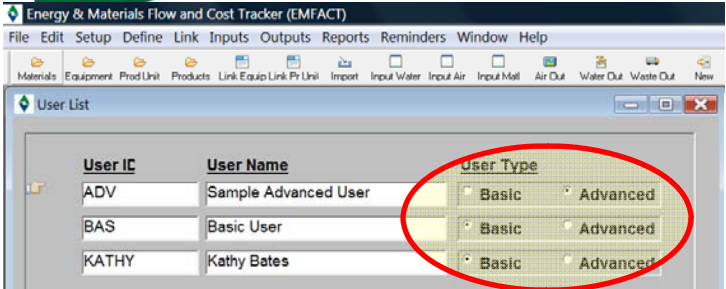
“**Cue Cards**” are provided for users to guide them through the logical series of tasks associated with EMFACT™ windows

Cue Cards are displayed when users click a **dashboard** icon

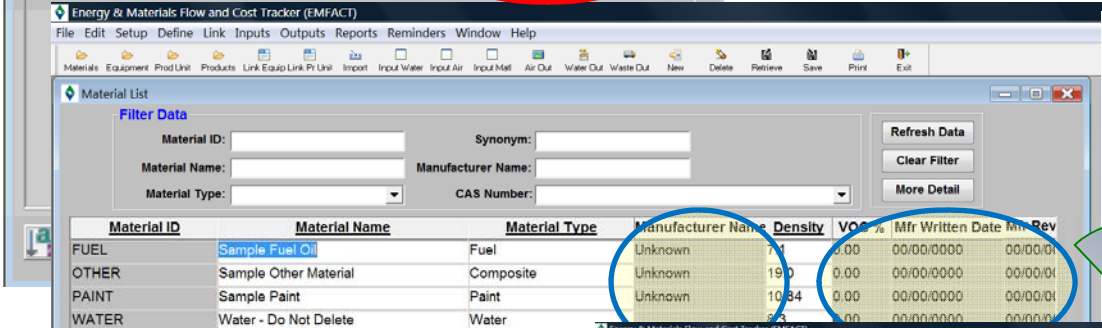
To access a window **without** using Cue Cards, select the desired functionality from the **Toolbar** menus

Each Cue Card contains a series of questions. Users click **Yes** or **No** to the questions. When answering **Yes**, the appropriate EMFACT™ window will display. If answering **No**, the prompt advances to the next question.

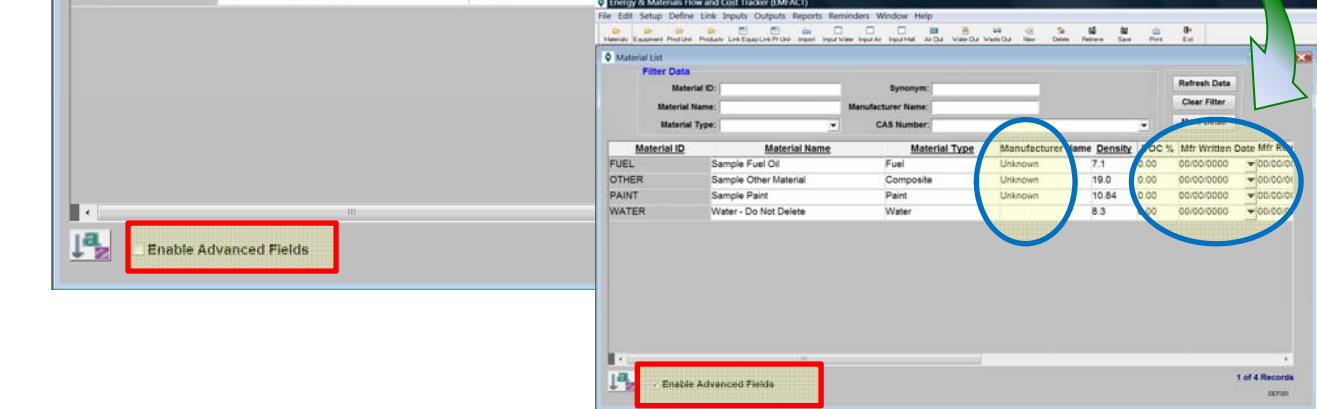
# NEWMOA EMFACT™ Basic or Advanced User Level



Access **Setup** → **Users** to indicate if a user has a **Basic** or **Advanced** permission level as a default



**Advanced** users have access to more data entry fields. **Basic** users default to less data entry fields



Click the **Enable Advanced Fields** checkbox and the additional data entry fields will change from gray to white

# NEWMOA EMFACT™ Binoculars



Equipment Links for: EQ1000

Equipment ID: EQ1000 Name: Equipment 1000

Building: 1A Manufacturing Building

Location: Updated: 11/12/2008

Materials Products Air Source Emission Air Factors Discharge Water Poll Waste

Material ID	Material Name	Material Type	Manufacturer Name	Active?	Update Date
FUEL	Sample Fuel Oil	Unknown			
OTHER	Sample Other Material	Unknown			
PAINT	Sample Paint	Unknown			

Search For Materials

Material ID: Material Name: sa

CAS: Chemical:

Mfr.: Trade:

Material ID Material Name Manufacturer Name

FUEL Sample Fuel Oil Unknown

Trade Name:

OTHER Sample Other Material Unknown

Trade Name:

PAINT Sample Paint Unknown

Trade Name:

Don't Show Inactive Materials Number of Materials

Select This Material Search For Materials Save As Print Close

Enter **Search Criteria** and click **Search for Materials**.

Records with matching criteria will be displayed.

Select the desired **Material ID** and click **Select This Material**.

## Yellow Binoculars Button

**Fields** that are “searchable” will have the **Yellow Binoculars** icon next to them



Click the **Yellow Binoculars** icon. The appropriate Search window will open

Equipment Links for: EQ1000

Equipment ID: EQ1000 Name: Equipment 1000

Building: 1A Manufacturing Building

Location: Updated: 11/12/2008

Materials Products Air Source Emission Air Factors Discharge Water Poll Waste

Material ID	Material Name	Material Type	Manufacturer Name	Active?	Update Date
PAINT	Sample Paint	PAINT	Unknown		

Search For Materials

Material ID: Material Name:

CAS: Chemical:

Mfr.: Trade:

Material ID Material Name Manufacturer Name

PAINT Sample Paint Unknown

Trade Name:

Don't Show Inactive Materials Number of Materials

Select This Material Search For Materials Save As Print Close

In this example, the **Search For Materials** window is launched



- EMFACT™ is programmed in Oracle Express (free downloadable version of Oracle)
- Need to first install Oracle Express and then EMFACT™
- If already have Oracle installed, do not need to reinstall
- Online instructions explain process for downloading/installing EMFACT™

- Training slides available on EMFACT™ webpage along with documentation & support materials – [www.newmoa.org/prevention/emfact/register.cfm](http://www.newmoa.org/prevention/emfact/register.cfm)
- Seeking opportunities for additional workshops around the U.S. – [would like your help/partnership](#)
- Developing online e-learning support for EMFACT™



- More on what is EMFACT™  
<http://newmoa.org/prevention/emfact/about.cfm>
- Downloading EMFACT™ (including registration)  
<http://newmoa.org/prevention/emfact/register.cfm>
- EMFACT™ Version 2 – seeking support to upgrade/improve
- For more information:

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# Set Up: Facility



Energy & Materials Flow and Cost Tracker (EMFACT) - [Facility Location List]

File Edit Setup Define Link Inputs Outputs Reports Reminders Window Help

Materials Equipment Prod Unit Products Link Equip Link Pr Unit Import Input Water Input Air Input Mat Air Out Water Out Waste Out New Delete Restore Save Print Exit

Facility Location Code: ABC Facility Location Name: Sample Location

Address1:

Address2:

City Name:

State Code:   Zip:  Country:

External Phone No: ( ) -

---

Facility Location Code: NEW Facility Location Name: NEWMOA

Address1:

Address2:

City Name:

State Code:   Zip:  Country:

External Phone No: ( ) -

Enable Advanced Fields

Costs

1 of 3 Records

SET003

Test Facility



# Set-Up: Building



**EMFACT**

Energy & Materials Flow and Cost Tracker

Energy & Materials Flow and Cost Tracker (EMFACT)

File Edit Setup Define Link Inputs Outputs Reports Reminders Window Help

Materials Equipment Prod Unit Products Link Equip Link Pr Unit Import Input Water Input Air Input Matl Air Out Water Out Waste Out New Delete Restore Save Print Exit

**Building List**

Facility Location: **ABC** Building Code: **1A** Name: **Building 1A**  
 Facility Location Code: \_\_\_\_\_  
 Facility Location: **TEST** Building Code: **100** Name: **Main Building**  
 Facility Location Code: \_\_\_\_\_

1 of 2 Records SET004

Enable Advanced Fields

Costs 1 of 3 Records SET003

User: **Terri Goldberg**

Facility Location: **TEST - Test Facility**

[Help](#)

Test Facility

**Output Product**  
 Product  
**Non-product**  
 Air  
 Wastewater  
 Waste

# Define: Materials & Materials List



**EMFACT**

Energy & Materials Flow and Cost Tracker

Energy & Materials Flow and Cost Tracker (EMFACT) - [Material List]

File Edit Setup Define Link Inputs Outputs Reports Reminders Window Help

Materials Equipment Prod Unit Products Link Equip Link Pr Unit Import Input Water Input Air Input Matl Air Out Water Out Waste Out New Delete Refresh Save Print Exit

**Filter Data**

Material ID:  Synonym:

Material Name:  Manufacturer Name:

Material Type:  CAS Number:

Refresh Data  
Clear Filter  
More Detail

Material ID	Material Name	Material Type	Manufacturer Name	Density	VOC %	Mfr Written Date	Mfr Re
FAC PAINT 1	Krylon Ultra Flat Black 1602	Paint		6.52	52.00	00/00/0000	00/00/00
FUEL	Fuel	Fuel	Unknown	7.1	0.00	00/00/0000	00/00/00
OTHER	Sample Other Material	Composite	Unknown	19.0	0.00	00/00/0000	00/00/00
PAINT	Sample Paint	Paint	Unknown	10.84	0.00	00/00/0000	00/00/00
PAINT 100	Product Paint	Paint		10.84	0.00	00/00/0000	00/00/00
PAINT 101	Product Paint	Paint		10.85	0.00	00/00/0000	00/00/00
WATER	Water - Do Not Delete	Water		8.3	0.00	00/00/0000	00/00/00

Enable Advanced Fields

1 of 7 Records  
DEF001

Test Facility

# Define: Materials Detail



**EMFACT**

Energy & Materials Flow and Cost Tracker

Energy & Materials Flow and Cost Tracker (EMFACT) - [Material Detail: FAC PAINT 1]

File Edit Setup Define Link Inputs Outputs Reports Reminders Window Help

Materials Equipmat Prod Unit Products Link Equip Link Pr Unit Import Input Water Input Air Input Mtrl Air Out Water Out Wastes Out View Define Reports Save Print Exit

Material ID: FAC PAINT 1    Written Date: 00/00/0000    Revision Date: 00/00/0000    Active?

Material Type: Paint    Material Name: Krylon Ultra Flat Black 1602

Trade Name:    Hazardous Warnings:    Costs

Mfr Name:    Target Organs:    Update Date: 07/31/2008

Density: 6.52    VOC %: 52.00

File Name:    GO

Constituent    Synonyms    Container

CAS Number	From %	To %	Avg %	Chemical Name	Update Date
108-88-3	.0	.0	33.0	Toluene	07/31/2008
74-98-6	.0	.0	18.0	Propane	07/31/2008

Enable Advanced Fields    Comments    1 of 2 Records  
DEF002

Test Facility

# Define: Equipment & Equipment List



**EMFACT**

Energy & Materials Flow and Cost Tracker

Energy & Materials Flow and Cost Tracker (EMFACT) - [Equipment List]

File Edit Setup Define Link Inputs Outputs Reports Reminders Window Help

Materials Equipment Prod Unit Products Link Equip Link Pr Unit Import Input Water Input Air Input Matl Air Out Water Out Waste Out New Delete Routines Save Print Exit

**Filter Data**

Equipment ID:  Building:  Production Unit ID:  Refresh Data Save

Name:  Category:  Clear Filters

Department:  More Detail

Equipment ID	Name	Building	Building Name	Category
PB11	Paint Spray Booth	100	Main Building	Paint Spray Booth
PB11-W	Paint Spray Booth Washer	100	Main Building	Washing Machine, Industrial

1 of 2 Records

Enable Advanced Fields

DCR004

Test Facility

# Define: Equipment in Production Unit List



**EMFACT**

Energy & Materials Flow and Cost Tracker

Energy & Materials Flow and Cost Tracker (EMFACT) - [Production Unit List ]

File Edit Setup Define Link Inputs Outputs Reports Reminders Window Help

Materials Equipment Prod Unit Products Link Equip Link Pr Unit Import Input Water Input Air Input Matf Air Out Water Out Waste Out New Delete Refresh Save Print Exit

**Filter Data**

Production Unit ID:  Department:

Name:

Production Unit ID	Name	Location	Department	
PB11-LINE	Painting Line	Column H	Department 1111	Line of Paint

Enable Advanced Fields 1 of 1 Records

DEF006

Test Facility



# Define: Outputs - Products


**EMFACT**




Energy &amp; Materials Flow and Cost Tracker


Energy & Materials Flow and Cost Tracker (EMFACT) - [Product List]

File Edit Setup Define Link Inputs Outputs Reports Reminders Window Help

Materials Equipment Prod Unit Products Link Equip Link Pr Unit Input Input Water Input Air Input Matl Air Out Water Out Waste Out New Delete Retrieve Save Print Edit

[More Detail](#)

<u>Product Model No</u>	<u>Product Name</u>	<u>Weight in Lbs.</u>	<u>Update Date</u>
SAMPLE2	Sample 2 Product	50.00	07/24/2008
Comments: Sample Product for testing only			 Costs
V100	Painted Case	1,000.00	02/02/2009
Comments: This is a product we make			 Costs
V200	Product V200	5,000.00	02/02/2009
Comments: Another product			 Costs

  Enable Advanced Fields

1 of 3 Records

DEF008

Test Facility

# Define: Outputs – Air Sources



Energy & Materials Flow and Cost Tracker (EMFACT) - [Air Source List]

File Edit Setup Define Link Inputs Outputs Reports Reminders Window Help

Materials Equipment Prod Unit Products Link Equip Link Pr Unit Import Input Water Input Air Input Matl Air Out Water Out Waste Out New Delete Retrieve Save Print Exit

**Filter Data**

Air Source ID:  Building: 100   
 Category:  Status:

Air Source ID	Exit Direction	Air Source Lining	Air Source Category	Through Roof?	Fugitive Emission?	Rainhat?	Active?	Building Code	Permit No	Ex
R-001	Vertical <input type="button" value="v"/>	Metal	Ambient Air Vents - Sky v	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	100	PERMIT-100	

Enable Advanced Fields

1 of 1 Records

## Define: Air Source Detail



EMFACT

Energy &amp; Materials Flow and Cost Tracker

**Air Source Detail 123**

**Air Source ID:** 123 **Category:** Air Intake **Active?**

**State Source ID:** 123A **Building:** 200

**Permit No:** **Other Building:**

**Gas Information:** **Exhaust Flow:** 1 (ACFM)

**Property Line Information:** **Property Line Dist:** 20.0 **Units:** Feet

**Dimensions:** **Diameter:** 1.0 Ft **Width:** 0.0 Ft  
**Height:** 3.0 Ft **Depth:** 0.0 Ft  
**Area:** 2.0 Sq Ft

**Exit Information:** **Direction:** Vertical

**Lining Information:** **Lining:** Refractory

**Questions:** **Through Roof?:**  Yes  No **Rainhat?:**  Yes  No  
**Fugitive Emission?:**  Yes  No

**Update Date:** 07/20/2007

**File Name:** **GO**

**Enable Advanced Fields**  **Comments** **Costs**

DEF011



# Define: Wastewater Discharges



**EMFACT**

Energy & Materials Flow and Cost Tracker

Water Discharge Point List					
	<u>DSN:</u> 123-456	<u>Description:</u> Water Discharge	<u>Active?</u> <input checked="" type="checkbox"/>		
<u>Discharge Point Type:</u>	NPDES	<u>Permit Nbr:</u>	12345	<u>Update Date:</u>	
<u>Receiving Entity:</u>	CT River			12/07/2007	
<hr/>					
	<u>DSN:</u> 234-567	<u>Description:</u> Basement System	<u>Active?</u> <input checked="" type="checkbox"/>		
<u>Discharge Point Type:</u>	Sanitary	<u>Permit Nbr:</u>		<u>Update Date:</u>	
<u>Receiving Entity:</u>				11/06/2007	

# Define: Waste Types



Energy & Materials Flow and Cost Tracker (EMFACT) - [Waste Type List]

File Edit Setup Define Link Inputs Outputs Reports Reminders Window Help

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Waste Type	Hazardous?	Physical State	Cost per Lb. in \$
Absorbents, Saturated Media	<input checked="" type="checkbox"/>	<input type="radio"/> Liquid <input checked="" type="radio"/> Solid <input type="radio"/> Sludge <input type="radio"/> Other	.00
		<b>Update Date:</b> 07/25/2008	<b>EPA Codes...</b>
Filters	<input checked="" type="checkbox"/>	<input type="radio"/> Liquid <input checked="" type="radio"/> Solid <input type="radio"/> Sludge <input type="radio"/> Other	.00
		<b>Update Date:</b> 02/02/2009	<b>EPA Codes...</b>
Filters with Paint	<input type="checkbox"/>	<input type="radio"/> Liquid <input checked="" type="radio"/> Solid <input type="radio"/> Sludge <input type="radio"/> Other	10.00
		<b>Update Date:</b> 07/31/2008	<b>EPA Codes...</b>
Oil, Used	<input type="checkbox"/>	<input checked="" type="radio"/> Liquid <input type="radio"/> Solid <input type="radio"/> Sludge <input type="radio"/> Other	.00
		<b>Update Date:</b> 02/21/2008	<b>EPA Codes...</b>
Paint cans (dry)	<input type="checkbox"/>	<input type="radio"/> Liquid <input checked="" type="radio"/> Solid <input type="radio"/> Sludge <input type="radio"/> Other	.00
		<b>Update Date:</b> 02/21/2008	<b>EPA Codes...</b>

Enable Advanced Fields 1 of 6 Records



Linking – production unit with materials, products, air sources, emissions, air factors, discharges, water pollution, waste products, products



Linking – production unit with materials, products, air sources, emissions, air factors, discharges, water pollution, waste products, products

# Example: Linking Products to Prod. Unit



**EMFACT**

Energy & Materials Flow and Cost Tracker

Energy & Materials Flow and Cost Tracker (EMFACT)

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Production Unit Links for: PB11-LINE

Production Unit ID: PB11-LINE Name: Painting Line Active?

Location: Column H Department: 1111

Description: Line of Painting Operations

Materials Products Air Source Emission Air Factors Discharge Water Poll Waste

Product Model No.	Product Name	Active?	Update Date
V100	Painted Case	<input checked="" type="checkbox"/>	2/2/2009
Intermediate Product: IP101 Painted Part 101			
Comments:			
V100	Painted Case	<input checked="" type="checkbox"/>	2/2/2009
Intermediate Product: IP102 Painted Part 102			
Comments:			
V100	Painted Case	<input checked="" type="checkbox"/>	2/2/2009
Intermediate Product: IP103 Painted Part 103			
Comments:			

Enable Advanced Fields

1 of 3 Records

LN002

Test Facility

Once Set-Up, Define, & Linking are Completed,  
Ready for Day-to-Day Use to Manage, Store, &  
Analyze Data on Materials Use, Fuel/Paint , &  
Water Use, Product, & Non-Product Output

# NEWMOA Input – Materials Purchased



The screenshot shows the EMFACT software interface. At the top, there is a menu bar with options: File, Edit, Setup, Define, Link, Inputs, Outputs, Reports, Reminders, Window, Help. Below the menu bar is a toolbar with icons for Materials, Equipment, Prod Unit, Link Equip, Link P/Unit, Import, Input Water, Input Air, Input Mat, Air Out, Water Out, Waste Out, New, Delete, Retrieve, Save, Print, and Exit. A dialog box titled 'Import Data from a File' is open, showing a 'Data Source' dropdown menu, a 'Load Purchase Data' button, and a 'Close' button. The main dashboard features a central factory icon with a green arrow pointing to it from the 'Purchases' category and another green arrow pointing from it to the 'Output' category. The 'Output' category is divided into 'Product' (with a box icon) and 'Non-product' (with icons for Air, Wastewater, and Waste). There are also 'Reminders' and 'Reports' sections. At the bottom, there are dropdown menus for 'User: Sample Advanced User' and 'Facility Location: TEST - Test Facility', along with a 'Help' link.

## Input Material Purchased

There are two methods to enter **Material Purchased** – electronically through a file upload (*data upload template provided with EMFACT*) or manually.

This close-up shows the 'Inputs' menu in the EMFACT software. The menu items are: 'Materials Purchased' (with a right-pointing arrow), 'Material Usage' (with a right-pointing arrow), and 'Welcome Sample Advanced User'. A sub-menu is open for 'Materials Purchased', showing the following options: 'Import from File', 'Enter Data', 'View List', and 'Manage List'.



# Input – Water Use



**EMFACT**

Energy & Materials Flow and Cost Tracker

Energy & Materials Flow and Cost Tracker (EMFACT) - [Enter Water Usage]

File Edit Setup Define Link Inputs Outputs Reports Reminders Window Help

Materials Equipment Prod Unit Products Link Equip Link Pr Unit Import Input Water Input Air Input Matl Air Out Water Out Waste Out New Data Review Spec Print Exit

Production Unit/ Equipment ID: PB11-W Paint Spray Booth Washer Department: 1111

Material ID: WATER Usage Date: 12/10/2008 Usage Qty: 3,600.00 Units: Gallons Frequency: Per Month

Save Usage Cost (US \$): 0.00 Comment:

Entered Data so far...

Production Unit / Equipment ID	Material ID	Date	Start Qty/Units	Frequency	Qty in Lbs.
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Usage Report  Enable Advanced Fields WP101

Test Facility