



# Pollutant Release and Transfer Registers (PRTR) Consultative Group

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Chris Hughes – MapMundi

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# Agenda

- Support
- Inspirations
- Design of an “Unnatural Experiment”
- Use of the site
- Future work
- Questions and comments.

# Support for the Project

- Funding from:
  - ◆ Business Schools: Fuqua, Harvard, and Tuck
  - ◆ Charlie Crane Foundation
  - ◆ Andrew King
  
- Developers
  - ◆ Chris Hughes, Evan Tice, Loren Sands-Ramshaw, Jason Reeves
  
- Academic Participants
  - ◆ Andrew King, Michael Lenox, Michael Toffel
  
- Mapping projects begun summer 2006, MapEcos work begun February, 2007

ional



CCC - Dec. 3, 2007

# Inspiration - Intellectual

- Little is know about the interaction of:
  - ◆ geographic characteristics and stakeholder interest
  - ◆ firm characteristics and stakeholder interest.
- Little is known about voluntary disclosure:
  - ◆ which firms will disclose information,
  - ◆ what they will disclose,
  - ◆ whether they will disclosure truthfully.
  - ◆ Empirical studies have mostly considered earnings estimates.

# Design of an “Unnatural” Experiment

- Package public information in a more accessible way to attract visitors.
- Invite a representative of every facility to take a survey (at HBS) at the end of which they are allowed to post information to the map.
- Launch the site publicly
  - ◆ Track where people are from, where they go, how long they stay on the site, what they look at, etc.
- Reiterate the invitation to a representative of each facility
  - ◆ Track when and what firms are disclosing.

Mozilla Firefox

File Edit View History Bookmarks Tools Help

Microphone

http://mapecos.org/survey

myHES TuckStreams 2.0 Mapmund/Mapecos ...

# MapEcos

ENVIRONMENTAL PERFORMANCE & MANAGEMENT

## Welcome to MapEcos


MapEcos is an interactive map that presents a balanced view of industrial environmental performance.

To help us understand usage patterns, please provide the following (optional) information:

What shall we call you?

In which zip code do you live?



[Skip the survey](#)




### What's on the MapEcos map?

You can view detailed industrial performance information on facilities across the US

Mapped facilities are color coded by emission level

-  Low emissions
-  High emissions

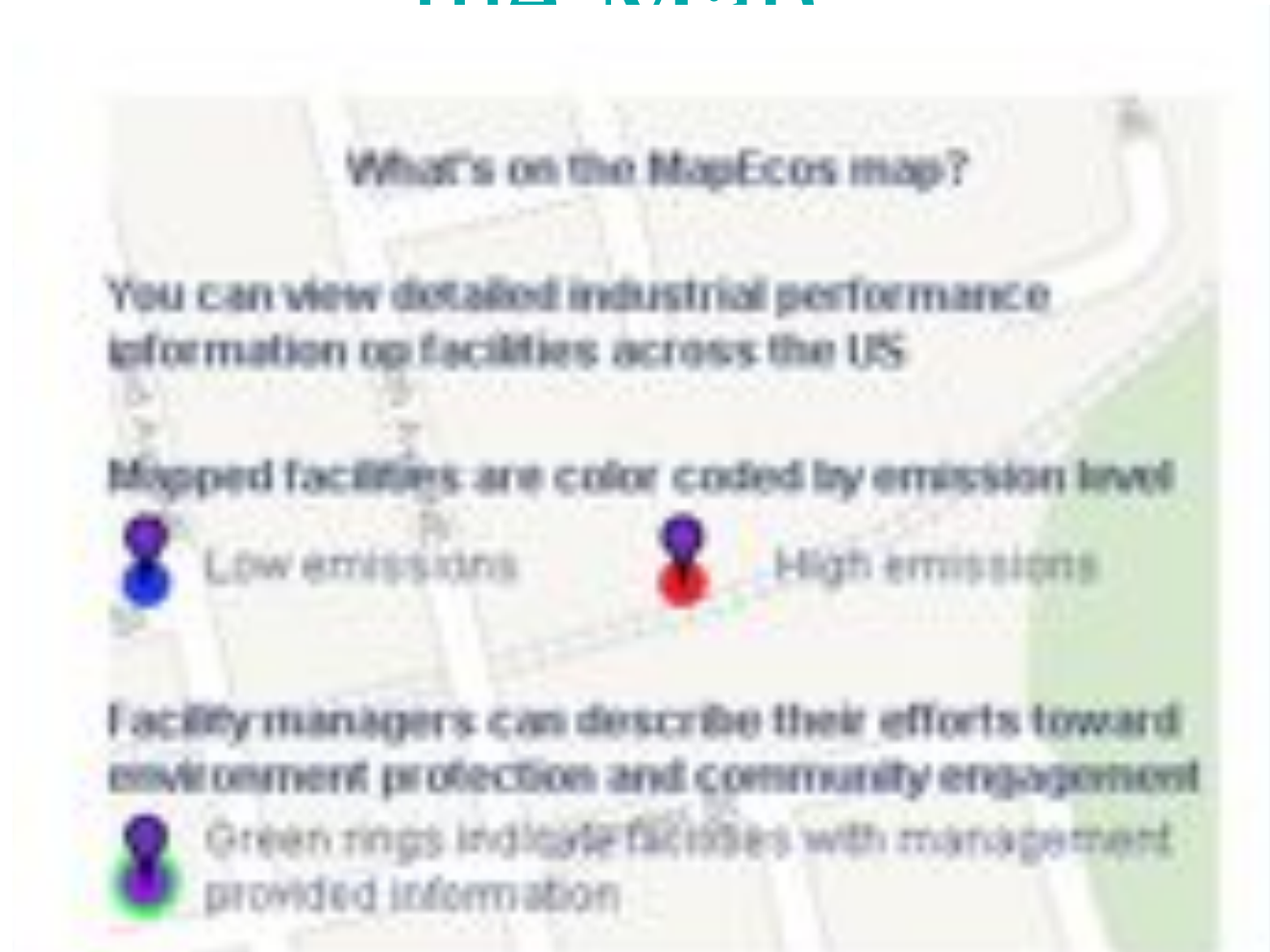
Facility managers can describe their efforts toward environment protection and community engagement

-  Green rings indicate facilities with management provided information

Developed by Mapmund

Done

# How the Sites are Marked on the Map



CEC – Dec. 3, 2007



# Full Map View

**MapEcos**  
ENVIRONMENTAL PERFORMANCE & MANAGEMENT

About MapEcos | FAQ | Report facility data

Tools Hide Help Feedback

Region Information  
Map center: 39.833, -98.503  
**United States**  
**Kansas**  
**Smith**

Search  
Sort by:  Distance  Name

Facility Name  
Industry or SIC  
Corporate Owner  
Main Chem. Emitted  
Emissions Level (0-9)  
Hazard Level (0-9)

Enter a location (e.g., Hanover, NH)

Map | Satellite | Hybrid

- When you zoom in, markers like this will appear in the center of the map.
- Double click to zoom.
- Click the markers to view location information.
- Drag the map with your mouse

Help

Developed by MapManfi

Management Provided Data:  TRI Emissions: High  Low

Done

# Full Map View

**MapEcos**  
ENVIRONMENTAL PERFORMANCE & MANAGEMENT

About MapEcos | FAQ | Report facility data

Tools Hide Help Feedback

Region Information  
Map center: 43.703, -72.288  
**United States**  
**New Hampshire**  
**Grafton**

Search  
Sort by:  Distance  Name

Facility Name  
Industry or SIC  
Corporate Owner  
Main Chem. Emitted  
Emissions Level (0-9)  
Hazard Level (0-9)

Map | Satellite | Hybrid

Enter a location (e.g., Hanover, NH)

500 mi  
500 km

Map data ©2007 LeadDog Consulting

Developed by **MapEcos** Management Provided Data:  TRI Emissions: High  Low

Done

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# Use Modes

- Finding Locations
  - ◆ Search, “Go”, Browse, Region
- Data
  - ◆ Bubble Data, Region Data
- Links and Aggregations
  - ◆ Region, Industry, Company

# Search

The screenshot displays the MapEcos web application interface. At the top left, the logo "MapEcos" is shown with the tagline "ENVIRONMENTAL PERFORMANCE & MANAGEMENT". To the right, there are links for "About MapEcos", "FAQ", and "Report facility data". Below the logo, a "Tools" menu is visible with a "Hide" option. On the right side of the top bar, there are "Help" and "Feedback" buttons.

The main content area features a map of the United States with several blue location pins. A search bar at the top of the map area contains the text "Enter a location (e.g., Hanover, NH)" and a "Go" button. The map includes navigation controls on the left side, including a "GO" button, directional arrows, and a vertical zoom slider. In the top right corner of the map area, there are buttons for "Map", "Satellite", and "Hybrid" views, along with a "Map and Labels" option.

On the left side of the interface, there is a "Region Information" panel showing "United States", "Iowa", and "Guthrie". Below this is a "Search Results" panel. The search results are sorted by distance and show the following entries:

- DU PONT KANSAS CITY REFINISHING SERVICE CENTER**  
Kansas City, Missouri
- DU PONT FORT MADISON PLANT**  
Fort Madison, Iowa
- DU PONT EL PASO PLANT**  
El Paso, Texas
- DU PONT CHICAGO REFINISHING SERVICE CENTER**  
Morton Grove, Illinois

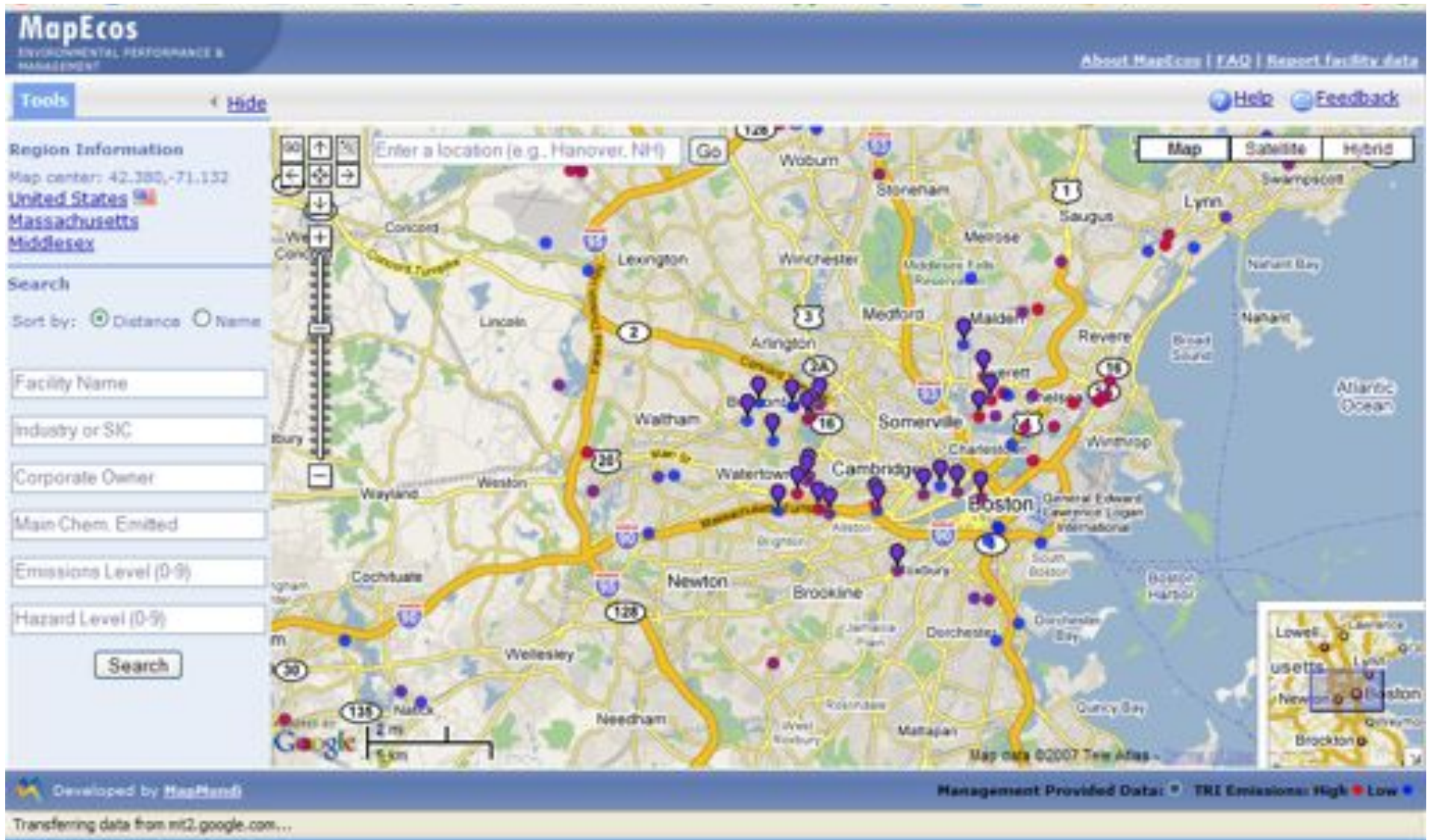
At the bottom of the search results panel, there are links for "New Search" and "Modify Search".

The bottom of the interface features a footer with "Developed by MapMind" on the left and "Management Provided Data: TRE Emissions: High Low" on the right. A status bar at the very bottom indicates "Transferring data from rc3.dartmouth.edu..."

# Go Tool



# Result of “Go”



# Browsing

**MapEcos**  
ENVIRONMENTAL PERFORMANCE & MANAGEMENT

About MapEcos | FAQ | Report facility data

Tools [Hide](#) [Help](#) [Feedback](#)

Region Information  
Map center: 39.833, -98.503  
[United States](#)  
[Kansas](#)  
[Smith](#)

Search  
Sort by:  Distance  Name

Facility Name  
Industry or SIC  
Corporate Owner  
Main Chem. Emitted  
Emissions Level (0-9)  
Hazard Level (0-9)

Enter a location (e.g., Hanover, NH)

Map | Satellite | Hybrid

Scale: 500 mi / 500 km

Map data ©2007 LeadDog Consulting, The Atlas

Developed by MapMind | Management Provided Data:  TRI Emissions: High  Low

Done

The screenshot displays the MapEcos web application. The main map shows the United States with numerous small colored dots representing facilities. A search bar at the top left contains the text "United States", "Kansas", and "Smith". Below the search bar are several filter fields for "Facility Name", "Industry or SIC", "Corporate Owner", "Main Chem. Emitted", "Emissions Level (0-9)", and "Hazard Level (0-9)". A "Search" button is located below these filters. The map interface includes navigation controls (pan, zoom, and a "Go" button for location entry), map style selection (Map, Satellite, Hybrid), and a scale bar. The bottom of the page shows the developer information "Developed by MapMind" and a legend for "Management Provided Data" with radio buttons for "TRI Emissions: High" and "Low".

# Browse: Markers Appear at Lower Zoom Levels

The screenshot displays the MapEcos web application interface. At the top left, the logo "MapEcos" is followed by the text "ENVIRONMENTAL PERFORMANCE & MANAGEMENT". On the top right, there are links for "About MapEcos", "FAQ", and "Report facility data". Below the header, a "Tools" menu is visible with a "Hide" option. The main content area is divided into a left sidebar and a central map. The sidebar contains "Region Information" (United States, Nevada, Eureka), a "Search" section with "Sort by" options for "Distance" and "Name", and several search filters: "Facility Name", "Industry or SIC", "Corporate Owner", "Main Chem. Emitted", "Emissions Level (0-9)", and "Hazard Level (0-9)". A "Search" button is located at the bottom of the sidebar. The central map shows a yellow route through Nevada with several purple and red markers. A search bar at the top of the map area contains the text "Enter a location (e.g., Hanover, NH)" and a "Go" button. Map navigation controls, including a compass and zoom in/out buttons, are on the left. A scale bar at the bottom left indicates 20 miles and 50 kilometers. A legend at the bottom right shows "Management Provided Data" with "TRE Emissions: High" represented by a red dot and "Low" by a blue dot. The footer includes "Developed by MapHunt" and "Transferring data from rc4.dartmouth.edu...".



# Data: Summary

The screenshot displays the MapEcos website interface. The top navigation bar includes the MapEcos logo, the tagline "ENVIRONMENTAL PERFORMANCE & MANAGEMENT", and links for "About MapEcos", "FAQ", and "Report facility data". A "Tools" menu is visible on the left, and "Help" and "Feedback" links are on the right. The main content area features a search bar with the text "Enter a location (e.g., Hanover, NH)" and a "Go" button. Below the search bar are tabs for "Summary", "Management", "Emissions", "Comparison", and "Corporation". The "Summary" tab is active, showing details for "CORTEZ GOLD MINES MILL 2" located "27 Miles S. Of I-80, Crescent Valley, Nevada, United States of America". The data includes: Industry or SIC: Gold Ores (SIC:1041); Corporate Owner: PLACER DOME US INC; Years Reporting to TRI: 1998-2005; Est. Position Accuracy: 30 meters; On-site emissions: 3,082,190 lbs in 2005 (Level:7); Est. Hazard of on-site emissions: 98.799 (Level:5); Main Chem. Emitted: Lead Compounds. A "More Info" link is provided. Below the text is an "Air Hazard Ranking" section with a bar chart showing two red bars. The left side of the interface contains "Region Information" (United States, Nevada, Eureka), a "Search" section with "Sort by: Distance" selected, and several input fields for "Facility Name", "Industry or SIC", "Corporate Owner", "Main Chem. Emitted", "Emissions Level (0-9)", and "Hazard Level (0-9)", along with a "Search" button. The bottom of the page features a footer with "Developed by MapHumb" and "Management Provided Data: TRI Emissions: High Low".

MapEcos  
ENVIRONMENTAL PERFORMANCE & MANAGEMENT

About MapEcos | FAQ | Report facility data

Tools [Hide](#) [Help](#) [Feedback](#)

Region Information  
Map center: 40.905,-116.477  
United States   
Nevada  
Eureka

Search  
Sort by:  Distance  Name

Facility Name  
Industry or SIC  
Corporate Owner  
Main Chem. Emitted  
Emissions Level (0-9)  
Hazard Level (0-9)

Enter a location (e.g., Hanover, NH)

Summary Management Emissions Comparison Corporation

**CORTEZ GOLD MINES MILL 2**  
27 Miles S. Of I-80  
Crescent Valley, Nevada  
United States of America

Industry or SIC: Gold Ores (SIC:1041)  
Corporate Owner: PLACER DOME US INC  
Years Reporting to TRI: 1998-2005  
Est. Position Accuracy: 30 meters  
On-site emissions: 3,082,190 lbs in 2005 (Level:7)  
Est. Hazard of on-site emissions: 98.799 (Level:5)  
Main Chem. Emitted: Lead Compounds

[More Info](#)

Highest

Air Hazard Ranking

Map data ©2007 Tele Atlas

Developed by MapHumb Management Provided Data: TRI Emissions: High Low

# Data: Summary



# Data: Management Tab

**MapEcos**  
ENVIRONMENTAL PERFORMANCE & MANAGEMENT

Microphone | Home | FAQ | Report Facility Data

Tools [Hide](#) [Help](#) [Feedback](#)

Region Information  
Map center: 41.459, -92.969  
[United States](#)  
[Iowa](#)  
[Marion](#)

Search  
Sort by:  Distance  Name

Facility Name  
Industry or SIC  
Corporate Owner  
Main Chem. Emitted  
Emissions Level (0-9)  
Hazard Level (0-9)

Summary **Management** Emissions Comparison Corporation

Information displayed on this page was provided by a representative of the facility. This data was last updated on Nov 19, 2007. "No information provided" indicates either that the facility decided not to disclose information about this item on a survey the MapEcos team sent them, or that the MapEcos team was unable to reach the facility to solicit a reply.

**Policies and reports**

[Policy](#)

Our policy is to conduct all business activities in a manner that protect the environment and the health and safety of our employees, contractors, customers and the public; through a positive and proactive approach. We accomplish this through fundamental and behavior based safety programs and employee involvement in the continuous improvement of safety and environmental affairs. Environment: We will comply with all applicable laws and regulations; promote waste reduction, resource and property conservation and environmental protection, and train employees to be knowledgeable about all environmental matters relevant to their work. Health and Safety: We will design, construct, maintain and operate facilities to protect human and physical resources;

Map data ©2007 Tele Atlas - [Terms of Use](#)

Developed by [MapEcos](#) Management Provided Data:  TRI Emissions: High  Low

Transferring data from ec3.dartmouth.edu...

# Data: Emissions Tab

**MapEcos**  
ENVIRONMENTAL PERFORMANCE & MANAGEMENT

About MapEcos | FAQ | Report facility data

Tools Hide Help Feedback

Region Information  
Map center: 42.195,-116.301  
[United States](#)  
[Idaho](#)  
[Owyhee](#)

Search  
Sort by:  Distance  Name

Facility Name  
Industry or SIC  
Corporate Owner  
Main Chem. Emitted  
Emissions Level (0-9)  
Hazard Level (0-5)

Enter a location (e.g. Hanover, NH)

[Summary](#) [Management](#) [Emissions](#) [Comparison](#) [Corporation](#)

**BALD MOUNTAIN MINE**

Emissions data are calculated from the 2007 release of the EPA's Toxic Release Inventory. The most recent data reported are for 2005. Only emissions to the air (as opposed to the water or ground) are reported in this detailed section. We hope to add emissions to other media soon. TRI emissions data to all media, and emissions in past years, are available [here](#):

[US EPA's TRI page for this facility](#)

Data from facility's most recent emissions reporting year: 2005

Toxic chemical air emissions (lbs): 9,084.1  
Hazard of chemical air emissions: 41,744.3

**Top Chemical Emissions, by Air Hazard**

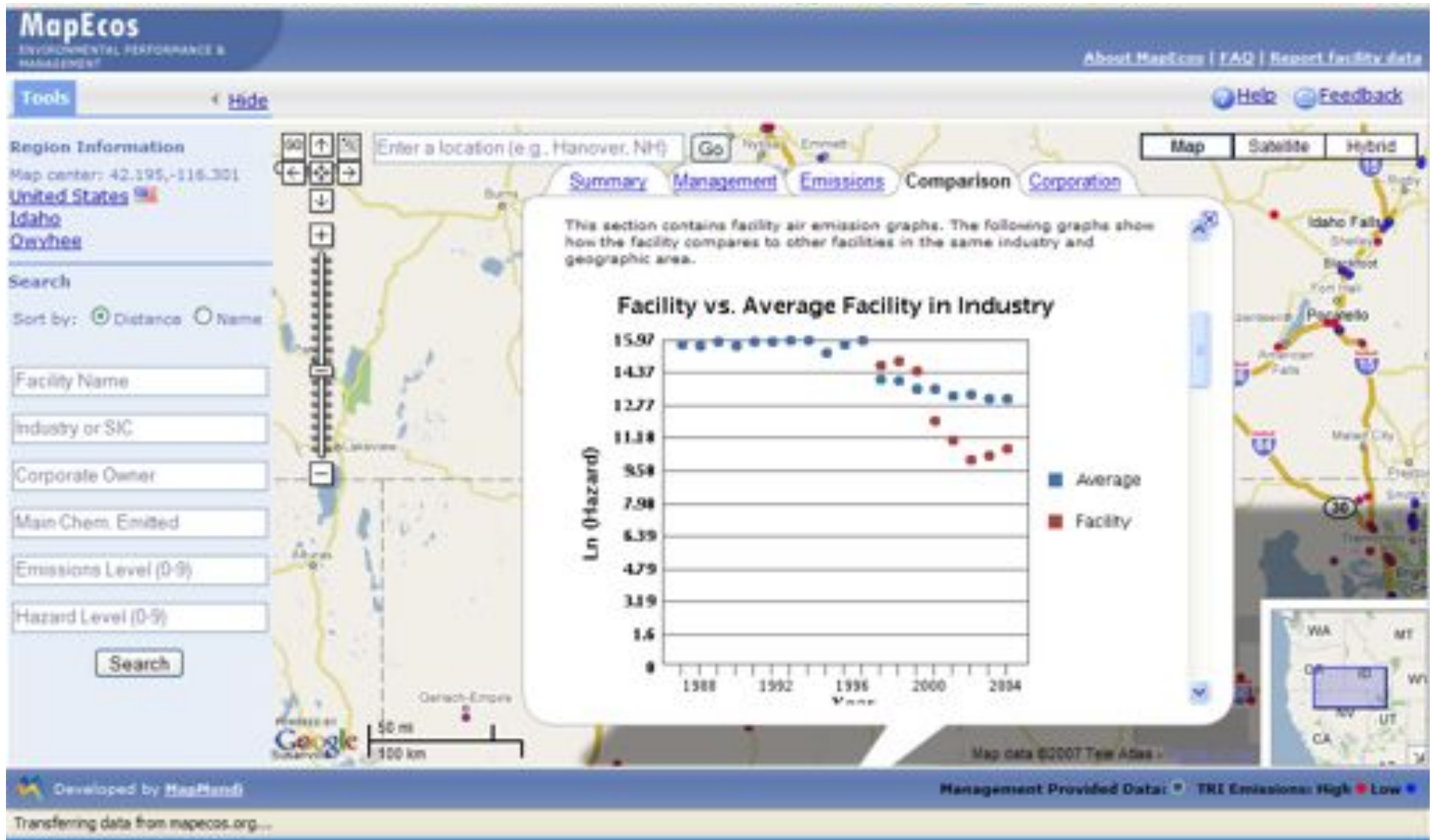
Chemical	lbs Emitted	Hazard
<a href="#">Hydrogen Cyanide</a>	8,200.0	37,840.2
Mercury Compounds	83.8	3,853.8
Lead Compounds	0.6	40.6
<a href="#">Methyl Tert-Butyl Ether</a>	800.0	3.7

Map data ©2007 Tele Atlas

Management Provided Data:  TRI Emissions: High  Low

Developed by [MapMatters](#)  
Read core [mapmundi.org](#)

# Data: Comparison Tab



# Data: Corporation Tab

**MapEcos**  
ENVIRONMENTAL PERFORMANCE & MANAGEMENT

Tools [Hide](#) [Help](#) [Feedback](#)

Region Information  
Map center: 42.195, -116.301  
[United States](#)  
[Idaho](#)  
[Owyhee](#)

Search  
Sort by:  Distance  Name

Facility Name  
Industry or SIC  
Corporate Owner  
Main Chem. Emitted  
Emissions Level (0-9)  
Hazard Level (0-9)

Enter a location (e.g., Hanover, NH)

Map

Summary Management Emissions Comparison **Corporation**

Facility	Location	Industry	% of corp. emissions	% of corp. hazard
<a href="#">NEWMONT MINING CORP. CARLIN SOUTH AREA</a>	Carlin, Eureka County, NV	Metal Mining	16.2%	31.2%
<a href="#">NEWMONT MINING CORP. TWIN CREEKS MINE</a>	Golconda, Humboldt County, NV	Metal Mining	36.1%	29.8%
<a href="#">NEWMONT MINING CORP. LONE TREE MINE</a>	Valmy, Humboldt County, NV	Metal Mining	24.9%	18.8%
<a href="#">NEWMONT MINING CORP. CARLIN NORTH AREA</a>	Carlin, Eureka County, NV	Metal Mining	4.2%	10.9%
<a href="#">NEWMONT MINING CORP. MULE CANYON MINE</a>	Battle Mountain, Lander County, NV	Metal Mining	0.3%	6.1%
<a href="#">NEWMONT MINING CORPORATION-COPPER CANYON FACILITY</a>	Battle Mountain, Lander County, NV	Metal Mining	3.1%	0.8%
<a href="#">KEN SNYDER MINE</a>	Midas, Elko County, NV	Metal Mining	15.2%	0.5%

Map data ©2007 Tele Atlas

Management Provided Data:  TRI Emissions: High  Low

Transferring data from rc4.dartmouth.edu...

# Region Tool

**MapEcos**  
ENVIRONMENTAL PERFORMANCE & MANAGEMENT

About MapEcos | FAQ | Report facility data

Tools Hide Help Feedback

Region Information  
Map center: 41,000,-116,801  
[United States](#)  
[Nevada](#)  
[Eko](#)

Search  
Sort by:  Distance  Name

Facility Name  
Industry or SIC  
Corporate Owner  
Main Chem. Emitted  
Emissions Level (0-9)  
Hazard Level (0-9)

Enter a location (e.g., Hanover, NH)

Map Satellite Hybrid

**Nevada**

**Information for the year 2005**

Population: 2,290,103  
Area (square miles): 110,670.0  
Population per square mile: 20.7  
Total air emissions (lbs): 1,979,361.4  
Total hazard from air emissions: 17,505,074.7  
Percentage of Total US Emissions (by Hazard): 0.3%

[Listing of facilities that have disclosed environmental management data.](#)

**Top-Emitting Facilities, by Air Hazard**

Facility Name	City	County	Parent Company	Hazard
<a href="#">KERR-MCGEE CHEMICAL L.L.C.</a>	Henderson	Clark	KERR-MCGEE CORP	3,588,092.8
<a href="#">NORTH VALLEY STATION</a>	Valley	Humboldt	SIERRA PACIFIC	2,633,767.8

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Developed by [MapMundi](#) Management Provided Data:  TRI Emissions: High  Low

Read [core.mapmundi.org](#)

# US Region List

**MapEcos**  
ENVIRONMENTAL PERFORMANCE & MANAGEMENT

About MapEcos | FAQ | Report facility data

Tools Hide Help Feedback

Region Information  
Map center: 43,703, -72,288  
[United States](#)  
[New Hampshire](#)  
[Grafton](#)

Search  
Sort by:  Distance  Name

Facility Name  
Industry or SIC  
Corporate Owner  
Main Chem. Emitted  
Emissions Level (0-9)  
Hazard Level (0-9)

Enter a location (e.g. Hanover, NH)

Map

<a href="#">US MAGNESIUM L.L.C.</a>	Rowley, UT	Tooele	RENCO GROUP INC	209,898,800.9
<a href="#">U.S. TVA CUMBERLAND FOSSIL PLANT</a>	Cumberland City, TN	Stewart	US TENNESSEE VALLEY AUTHORITY	123,195,104.0
<a href="#">ERAMET MARIETTA INC.</a>	Marietta, OH	Washington	ERAMET MANGANESE ALLIAGE	105,205,945.9
<a href="#">U.S. TVA PARADISE FOSSIL PLANT</a>	Draesdoon, KY	Muhlenberg	GOVERNMENT OF UNITED STATES	85,602,785.0
<a href="#">ALLEGHENY ENERGY INC. HARRISON POWER STATION</a>	Haywood, WV	Harrison	ALLEGHENY ENERGY INC	63,650,315.8
<a href="#">ALLEGHENY ENERGY INC. PLEASANTSWILLOW ISLAND POWER STATIONS</a>	Willow Island, WV	Pleasants	ALLEGHENY ENERGY INC	61,217,760.1
<a href="#">IPL PETERSBURG</a>	Petersburg, IN	Pike	AES CORPORATION	55,995,080.4
<a href="#">SEMINOLE GENERATING STATION</a>	Palatka, FL	Putnam	NA	55,610,966.6
<a href="#">GIBSON GENERATING STATION</a>	Pinckton, W. Va.	Gibson	DUKE ENERGY CORPORATION	50,771,571.7
<a href="#">LOUISVILLE GAS &amp; ELECTRIC</a>	Louisville, KY	Jefferson	LOBE ENERGY LLC	48,571,320.9

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Developed by MapMan® Management Provided Data: TRI Emissions: High Low

Done



# Unlucky Day for a Photo

The screenshot displays the MapEcos website interface. At the top left, the logo "MapEcos" is followed by the tagline "ENVIRONMENTAL PERFORMANCE & MANAGEMENT". On the top right, there are links for "About MapEcos", "FAQ", and "Report facility data". Below the header, a "Tools" menu is visible with a "Hide" button. A search bar contains the text "Enter a location (e.g., Hanover, NH)" and a "Go" button. To the right of the search bar are map style selection buttons for "Map", "Satellite", and "Hybrid".

On the left side, there is a "Region Information" section showing "Map center: 38.055, -85.906", "United States", "Kentucky", and "Jefferson". Below this is a "Search" section with a "Sort by:" dropdown set to "Distance" and "Name" options. There are several input fields for "Facility Name", "Industry or SIC", "Corporate Owner", "Main Chem. Emitted", "Emissions Level (0-9)", and "Hazard Level (0-9)", followed by a "Search" button.

The main content area is an aerial satellite image of an industrial facility. A large, irregular white spill is visible in the center of the facility, extending into a large body of water. The surrounding area includes green fields, a residential neighborhood with a grid street pattern, and a road with a "66" highway marker. A scale bar at the bottom left of the image indicates "1000 ft" and "305 m".

At the bottom of the page, there is a footer with "Developed by MapHunt" and "Management Provided Data: TRI Emissions: High Low". A status bar at the very bottom reads "Transferring data from mt0.google.com..."

# Extensions

- Extend internationally and topically
  - ◆ Any PRTR country
  - ◆ Interaction map of recovery of New Orleans
  
- On a different site, allow public reporting of
  - ◆ environmental resources
  - ◆ environmental problems

# Questions and Live Demo

CEC – Dec. 3, 2007

Thank you for your time!