# Benzene Reduction Action Team

## Profile

### Wisconsin Department of Natural Resources
WDNR

The WDNR is an integrated resource management agency responsible for coordinating the many disciplines and programs necessary to provide a clean environment, well managed natural resources and a full range of outdoor recreational opportunities.

The WDNR is made up of seven divisions that include Air and Waste, Land, Forestry, Water, Customer Assistance and External Relations, Administration and Technology, and Enforcement and Science. To carry out the policies and programs of each of the seven Divisions, so that the needs of local citizens can best be met, the state is divided into five Regions.

Air Management Program, within the Air and Waste Division, works to protect human health and the environment through developing air quality implementation plans and collaborating with local, state, regional and international partners. Air quality trends, the status of attaining the ambient air quality standards and the need for public health advisories are determined through air monitoring operations.

Implementation of air quality plans happens as staff conduct inspections, initiate compliance actions, develop rules to set air quality standards and methods of attaining the standard and operate the permit program in accordance with state and federal requirements.

### Wisconsin Cast Metals Association
WCMA

The Wisconsin Cast Metals Association is a trade association consisting of some 55 member firms, representing more than 20,000 employees and approximately 85% of the production of metal castings in Wisconsin. WCMA's policy is to be proactive, rather than reactive, on legislative and regulatory issues affecting the foundry industry.

The Wisconsin Cast Metals Association originated in the mid-1960's, was one of the first organized efforts by foundries to begin dealing with legislative/regulatory issues. Formed initially to provide industry input on an air pollution control ordinance being proposed by Milwaukee County, the organization's focus shortly thereafter shifted to the state level.

WCMA can be credited with helping to accomplish legislation leading to beneficial reuse of high-volume industrial by-products, outside of landfills, for the first time, contributing to research determining the effect on groundwater from stored foundry sand as compared to native soils and assembling a national database on successful reuse applications, including a website that can be accessed and updated, with the assistance of grants from the Recycling Market Development Board and the American Foundry Society. WCMA can be counted on to provide constructive input into WDNR air quality implementation efforts.

## Fenceline

### Benzene Reduction Action Team – BRAT Co

Representatives from the WDNR and WCMA came together in July 2000 forming a virtual company, the benzene reduction action team (BRAT Co) to develop processes and means to manage benzene emissions. BRAT Co. is a cooperative partnership between the Wisconsin Cast Metals Association and Wisconsin Department of Natural Resources Air Management Program.

These 10-12 individuals make up the Core and Implementation teams and also lead environmental management program (EMP) teams, performing all functions in development of the Company's environmental management system.

The fenceline for BRAT Co.'s environmental management system is a unique application of the ISO 14001 standard bounded around a single pollutant rather that a physical site. BRAT Co is committed to reducing benzene emissions from foundry operations and developing innovative regulatory methods that offer quantifiable environmental and economic benefits.

Aspects for this type of application of ISO 14001 are the **areas of interaction** between foundry benzene emissions and regulatory actions that influence emissions.

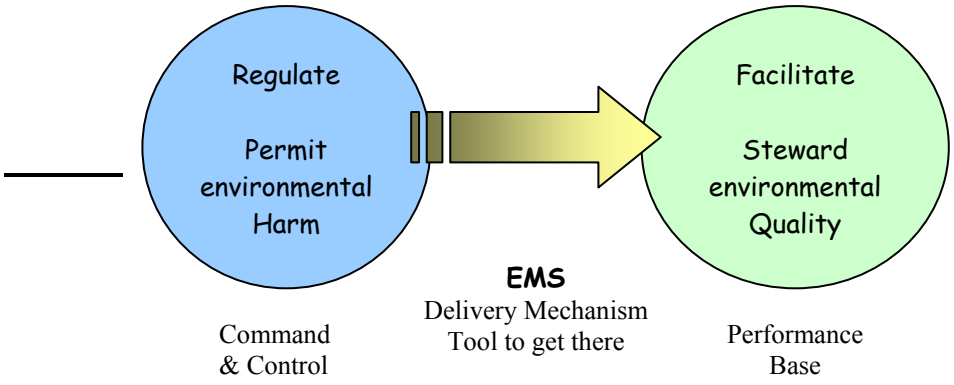
**Aspects**

- CASTING- the source of hazardous air pollutants from thermal decomposition,
- PERMITTING-the primary vehicle of regulatory agencies,
- RULE DEVELOPMENT- how limitations, standards and compliance methods are set.

## Key Drivers for Adopting an EMS

An environmental management system provides a tool to evaluate an identified issue and work toward emission reductions along a new path. Traditional regulatory approaches allow a specified level of a hazardous air pollutant to be emitted by foundry processes. Regulations dictate the level and often restrict operations as a means of meeting emission limitations.

Systematic management of a pollutant will enable BRAT Co to shift toward continual reductions in Benzene through education of best practices based on pollution prevention and provide a regulatory framework to recognize these efforts.




Implementation and maintenance of an EMS at a foundry, another part of the pilot, will recognize responsibility for environmental improvement lies with the foundry and new relationships/dialogue between regulators and those regulated are needed.

## Objectives and Targets

| Environmental Policy Element | Aspect | Objective |
|---|---|---|
| Research innovative technologies, strategies and raw materials that prevent the formation of benzene from foundry casting operations. Provide exchanges of scientific and technological information for benzene reduction | **Casting** | Study changes to the casting process that will reduce benzene emissions. Process changes may include; material substitution, casting process redesign, process optimization, core and sand additive or abatement alternatives. |
| | | Monitor changes to air quality resulting from implementing process change activities. |
| Explore and test regulatory approaches that support and promote the reduction of benzene emissions reducing their impact on the environment. | **Permitting** | Study how a regulated foundry can use it's EMS to demonstrates compliance with benzene limitations as regulated under Wisconsin's Hazardous Air Pollutant rule, ch. NR 445, Wis. Adm. Code. |
| | | Study revisions to the existing permitting process in order to make more efficient and effective progress toward reducing benzene emissions. |
| | | Study the effectiveness of innovative regulatory options and permit efficiency efforts on the control and regulation of benzene. |
| Explore and test regulatory approaches that support and promote the reduction of benzene emissions reducing their impact on the environment. | **Rule Development** | Design a process by which a rule may be developed to address hazardous air pollutants. The process is to be based upon the core elements of an environmental management system, as defined in the ISO 14001 standard. The process must contain a plan, do, check, act cycle and support continual reduction in environmental impact of the pollutant |
| | | Provide language to the WDNR Air Program for inclusion in the revision to Wisconsin's Hazardous Air Pollutant rule that will allow the use of EMS based compliance methods for benzene emissions from regulated foundries. |

## Benefits of Adopting an EMS

### What BRAT Co has Learned

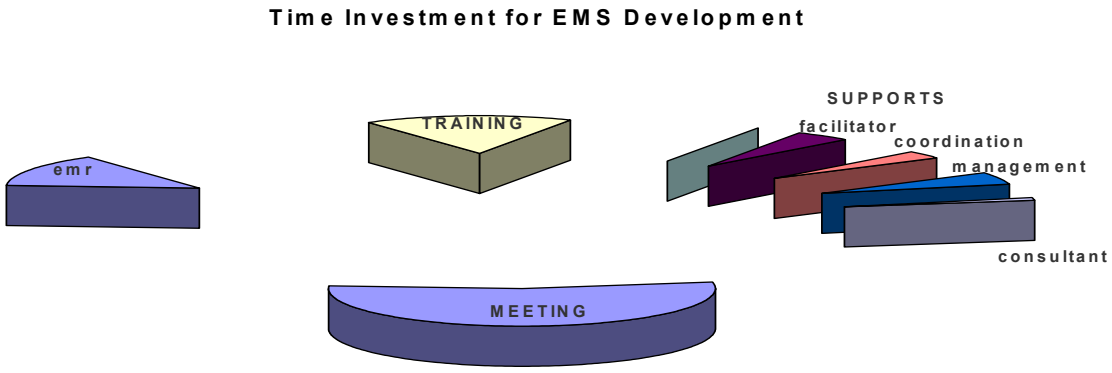
- Aspect identification exercises lead to a better understanding of the complexity and interconnections of regulatory and industrial activities.
- Working as partners in BRAT Co builds understanding of how regulatory work is perceived by those outside the WDNR.
- Allows learning by Doing

### Benefits of our Environmental Management System Approach:

- Provides the Department and Industry with response to increased public awareness and concern about benzene.
- Provides tool for reducing benzene emissions outside of current regulatory structure.
- Provides an opportunity to pilot alternative regulatory approaches.
- Supports WDNR and WCMA missions to promote environmental quality by sharing knowledge, responsibility, decision making, recognition and costs.

## Costs

**Time spent by members of BRAT Co to come together to develop the EMS for benzene.**




**Monetary costs, including salary, are in the range of $213,000 to $220,000 per year. BRAT Co has been fortunate to engage consultant time pro bono.**

## Next Steps

**Find out more by visiting the Web Site:**

environmental management system

http://www.dnr.state.wi.us/org/secretary/EMS/sites/Air/air.html