

Review of the Arkansas Emission Inventory Improvement Effort

Authors: William Hodan and Lori Williams

MACTEC Federal Programs
5001 S. Miami Blvd., Suite 300
Durham, NC 27703

Phone: 919-941-0333

The Arkansas Department of Environmental Quality (ADEQ) purchased the *i*-STEPS program from MACTEC in 2000 primarily for the purpose of building and submitting annual emissions inventories to EPA.

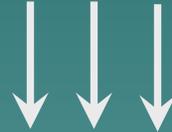
What is *i*-STEPS?

- *i*-STEPS is a powerful tool for storing, reporting, and managing air emissions data
- Developed by MACTEC initially for reporting to EPA's AIRS, and then to the NEI
- *i*-STEPS has maintained compatibility with EPA emission inventory input format continuously through transitions
- Has been used by 15 States and 10 local agencies for emissions inventory development and compliance tracking
- Has been used by 100+ industrial and Department of Defense clients for emissions inventory and compliance tracking

Arkansas Department of Environmental Quality (ADEQ)



Air Division



- Planning and Air Quality Analysis Branch
- Permits Branch
- Enforcement and Compliance Branch

Historically ADEQ has used *i*-STEPS to:

- Develop annual emissions inventories for the State
- Submit annual emissions inventories to EPA
- Maintain a consistent database of inventory data that can be compared from year to year using customized reports
- Tracking of key permit and compliance related information

Since 2000 MACTEC has provided support to ADEQ in the following areas:

- Training ADEQ personnel on *i*-STEPS data entry and functionality
- Assistance with installing program updates
- Solving questions related to *i*-STEPS operation
- Assisting on an as-needed basis with such tasks as compiling annual emissions inventory for final submittal to EPA

In 2004, ADEQ hired MACTEC to assist with assessment of their emissions inventory program

MACTEC was tasked to:

- Learn how ADEQ collects and processes emissions inventory and other data
- Review emissions inventory data collection forms and instructions and assist with improvements
- Assist with quality assurance of 2002 emissions inventory data
- Improve data entry and quality assurance procedures
- Work with ADEQ Planning Branch staff to implement changes

MACTEC worked on-site with ADEQ in order to have access to key personnel as well as original emissions inventory submittals, permits, and compliance information

Conducted interviews with:

Planning Branch personnel

Permits Branch personnel

Enforcement and Compliance Branch Personnel

MACTEC identified the following focus areas specifically related to improving the quality of the emissions inventory:

1. Format of emissions inventory data request forms
2. Quality assurance and follow-up of emissions inventory submittals
3. Emissions inventory data formatting and entry procedures

Format of emissions inventory data request forms

Problems:

- Source Classification Codes not required
- Throughput and associated units often missing and/or not related to reported emissions
- Assumptions used to fill mandatory data fields

Improvements:

- Revised emissions inventory data request forms
- Developed more detailed instructions for industry

Quality assurance and follow-up of emissions inventory submittals

Problems:

- Timely review of emissions inventory submittals
- Lack of follow-up with industry to gather missing or corrected information

Improvements:

- Promote timely review of emissions inventory submittals by qualified personnel
- Suggest changes to the schedule to allow time for industry follow-up.

Emissions inventory data formatting and entry procedures

Problems:

- Emission inventory organization reported by industry often different than permit organization
- Planning Branch data entry personnel were forced to attempt to interpret emissions inventory submittals

Improvements:

- Improvement of emissions inventory instructions
- Suggested including *i*-STEPS reports with permit structure with data requests

Quality Assurance of the 2002 Emissions Inventory

A review of the 2002 emissions inventory highlighted the following areas with room for improvement:

- Duplication of information in *i*-STEPS
- Outdated permit and emissions inventory data
- Use of chemical species synonyms
- Association of emissions unit controls

Duplication of information in *i*-STEPS

Problems:

- Emissions unit cataloging system used by data entry personnel caused duplication of information

Improvements:

- MACTEC developed a program to reorganize and condense the existing data in a more efficient manner

Outdated permit and emissions inventory data

Problems:

- Old permit and emission inventory data from previous years

Improvements:

- MACTEC verified actual data from original emission inventory submittals
- Trained data entry personnel on improved format

Use of chemical species synonyms

Problems:

- Differences in chemical nomenclature used by industry resulted in addition of chemical species synonyms and incorrect CAS numbers

Improvements:

- MACTEC reviewed pollutant industries in *i*-STEPS and resolved the duplicates

Association of emissions unit controls

Problems:

- Association of emissions units controls intended for use by industry to assist with emissions calculations.

Improvements:

- Associations of emissions unit controls were removed
- Staff were trained on correct entry of control information in *i*-STEPS

Results of 2002 Emissions Inventory Quality Assurance

Upon completion of 2002 Emissions Inventory Quality assurance effort, MACTEC compiled results of the changes and revealed an average 37% reduction in criteria pollutant emissions reported to EPA.

This revised inventory was then submitted to EPA