



# **Area Source Assessment Tool**

Steven Boone, E. H. Pechan and Associates, Inc.

Stephen Anderson, Texas Natural Resource Conservation Commission

Till Stoeckenius, ENVIRON Corporation

# Area Source Assessment Tool

- Introduction
- Requirements
- Design Parameters
- Database Design
- Data Flow
- Next Steps/Enhancements

# ASAT - Introduction

- State/Local/Tribal agencies
- NIF
- Area source emissions estimation tool
- County-level activity data
- One database versus multiple spreadsheets/databases

# ASAT Introduction

- Facilitate inventory development by allowing users to calculate emissions using similar methodologies for the same categories
- Modeled after TNRCC's Ammonia Tool and EPA's Area Source Emissions Model
- Structured systems life cycle design methodology

# ASAT Requirements

- 5 Major Requirements
  - Generate “what-if” scenarios
  - Store and document multiple cases
  - Base Data Flexibility
  - Reporting
  - Data Conversion/Transfer

# ASAT Requirements

- What-If Scenarios
  - Use default or county-specific data
  - Allow for control strategy development
    - Variable application of controls
    - Limitations of activity
  - Temporal designations

# ASAT Requirements

- Store and Document Multiple Cases
  - Allow for all variables to be documented as to the where/when/how/who of the data derivation
  - A case is defined as emissions for a specific selection of one or more emission calculation methodologies (equation), inputs (activities, controls, factors and/or physical data ), pollutants, SCCs, time periods, and counties
  - Allow user to select from cases generated to create an emission inventory

# ASAT Requirements

- Base Data Flexibility

- Ability to assign/change equation for a case
- Ability to update the equation inputs – i.e., activity, control, factors (emission/growth) and physical data such as temperature and use default or case specific values
- Ability to update groupings of SCCs and counties
- Ability to update pollutant list
- Ability to define time periods



# ASAT Requirements

- Reporting

- Emission summaries

- By county group
- By time period
- By SCC group
- Compare cases

- Generate to screen/printer or file

# ASAT Requirements

- Data Conversion/Transfer
  - Export
    - NIF – (EPA EI Reporting) Access format
    - NIF – ASCII format
    - EPS2 – Emissions Model
  - Import
    - Activity data
    - Growth Factors

# ASAT Design Parameters

- Specifications

- Multi-user, medium database size, security
- Visual Basic front end
- Oracle back end

- Reality

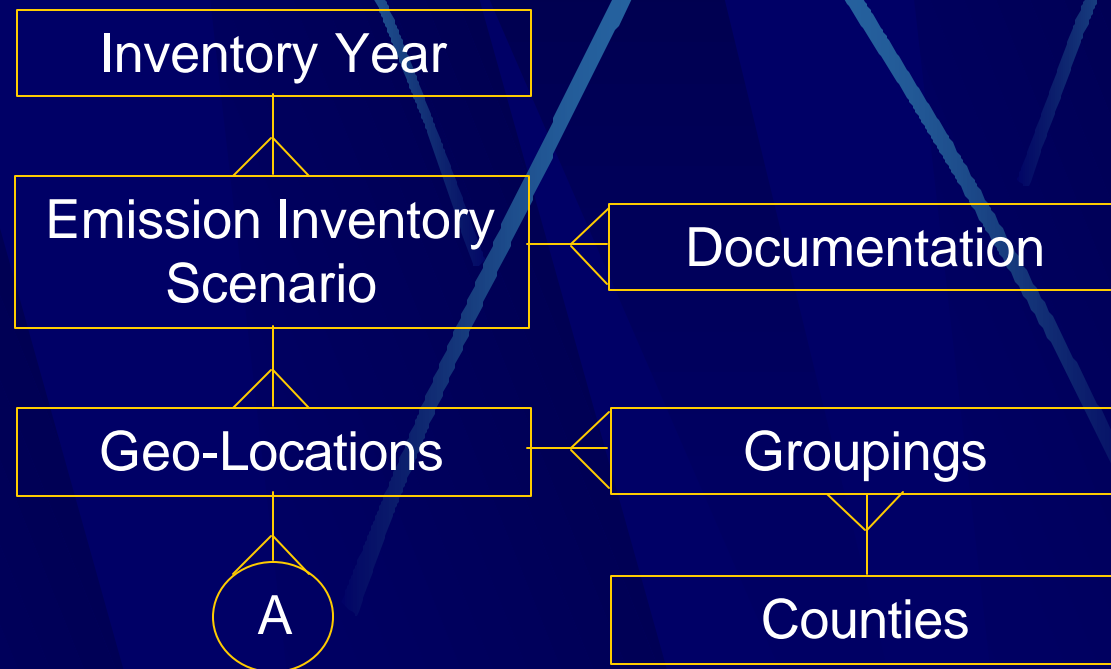
- Microsoft Access 2000
  - Front end
  - Back end – multiple MDB files employed

# ASAT Database Design

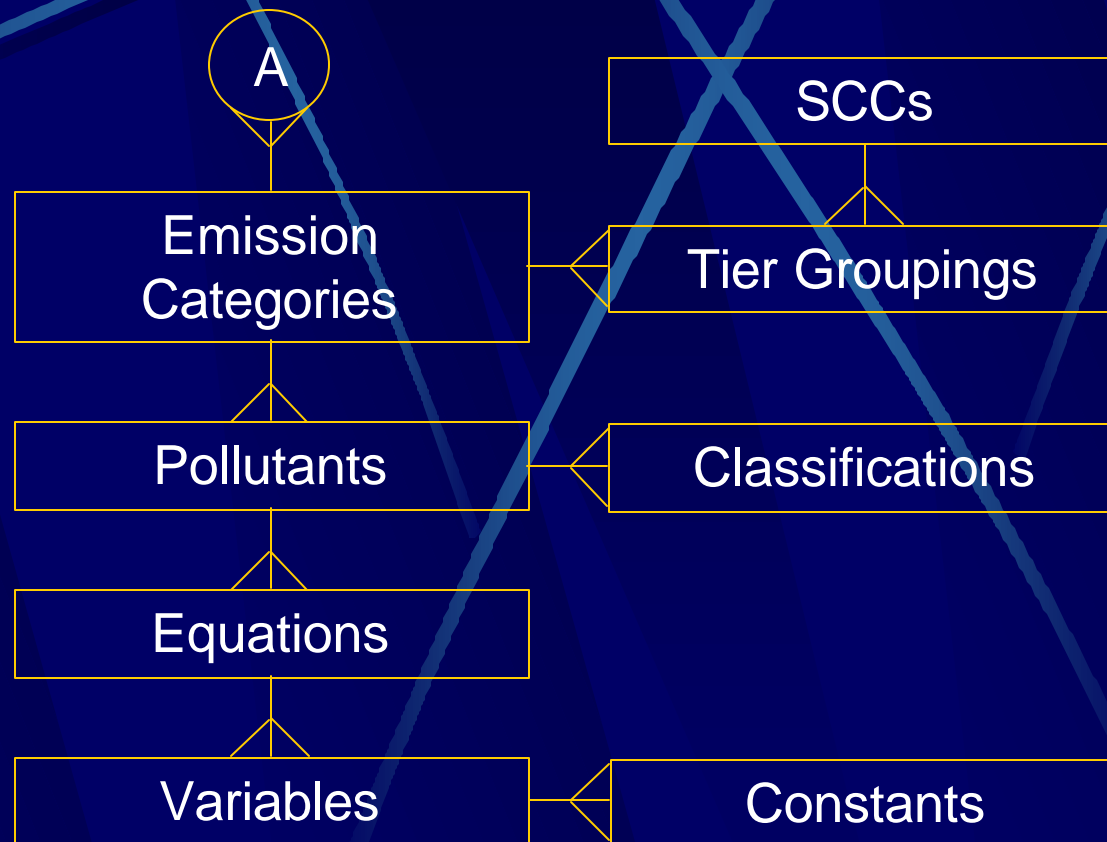
- Parameters
  - ODBC for connectivity and future upsizing
  - NIF Transportable
  - Relational

# ASAT Database Design

- High Level Entity Relationship Diagram



# ASAT Database Design

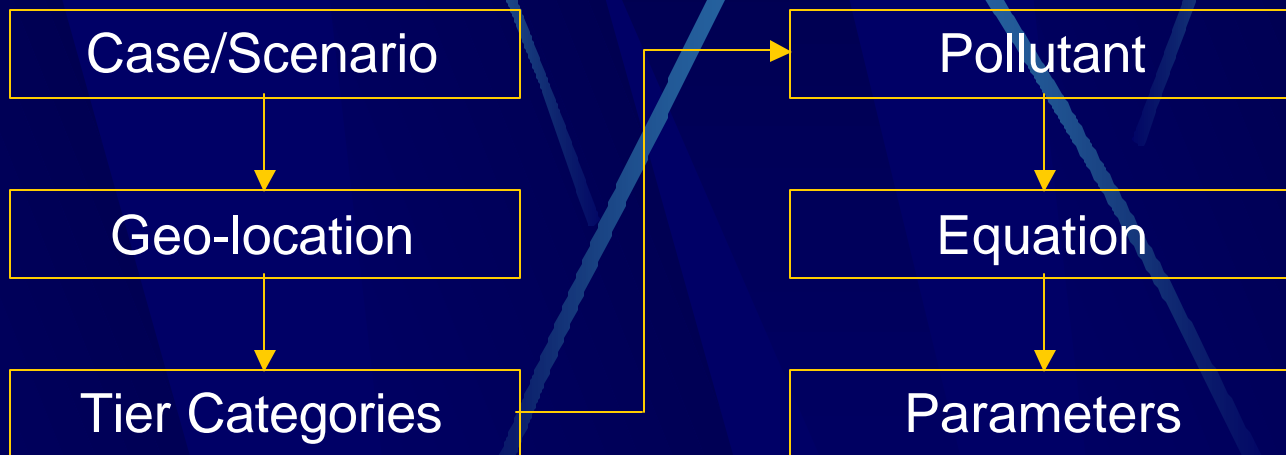


# ASAT Data Flow

- Base Data Setup
  - Pollutants
  - Equations
  - Equation inputs (activity, factors, controls and/or physical data)
  - SCC groups
  - County groups

# ASAT Data Flow

- Case Generation

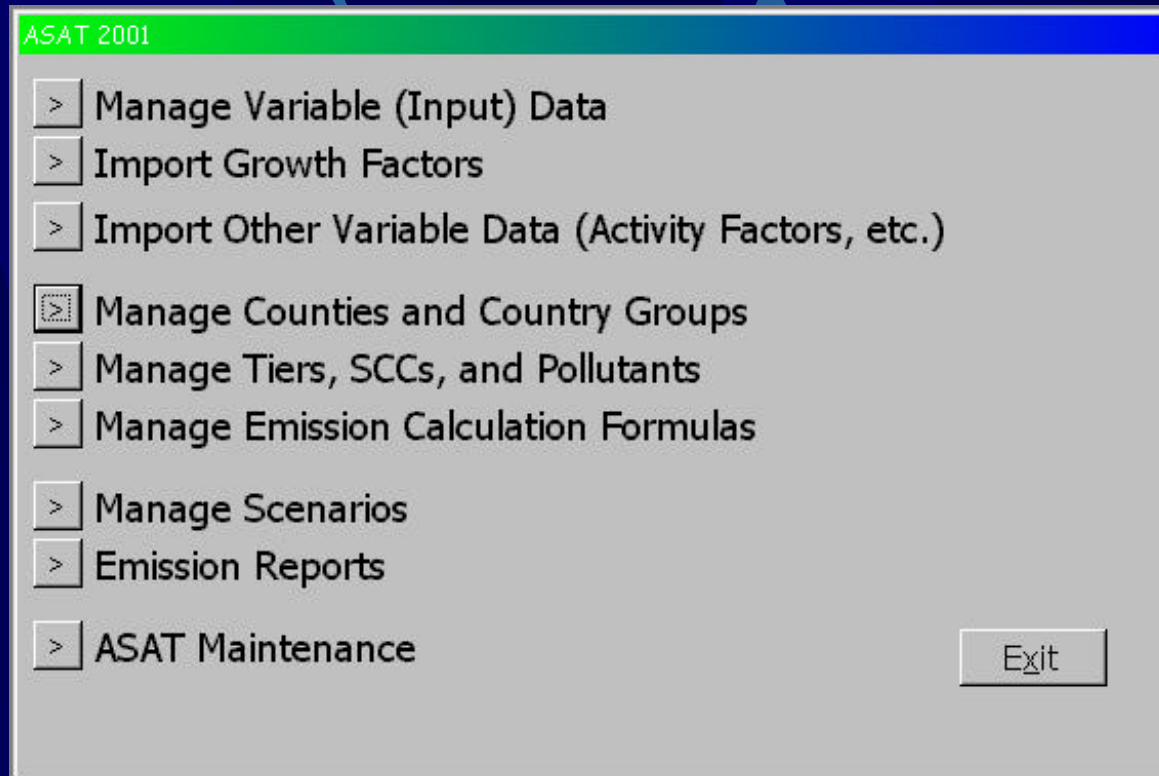




# ASAT Next Steps

- Default data
- NIF/EPS2 Export
- Multi-user, security
- Platform
  - Web enabled
  - VB/Java front end
  - Oracle back end

# ASAT Slide Show



Main Screen

# ASAT Slide Show

**Variables**

**Categories**

Heads of Cattle  
NH3 Var B  
NH3 Var LDGT1  
NH3 Var LDGT2  
NH3 Var LDGV

Add Category Edit Values Close

Save Cancel

Category: Heads of Cattle Units: Animals Add Unit

**Members / Data Sets**

Heads of Cattle (Average)  
Heads of Cattle (Average)

Add Member Edit Member Values Edit County Values

Save Cancel

**Member / Data Set**

Heads of Cattle (Average)

In: Animals

Year: 2001 Default?: No

	County Name	Value
▶	Anderson	10
	Andrews	20
	Angelina	30
	Aransas	40
	Archer	50
	Armstrong	60

Variable Management

# ASAT Slide Show

ASAT 2001 - Manage County Groups

Categories: EOI35 [Add] [Edit]

Sub Categories: [Add] [Edit] [Save] [Close]

Available Sub Categories:

- Central Texas Council of Governments
- Coastal Bend Council of Governments
- Concho Valley Council of Governments
- Corpus Christi
- Deep East T
- DFW
- East Centra
- EP
- Golden Cres
- Gulf Coast
- Heart of Te:
- HG

Selected Sub Categories:

- East
- East Texas Council of Governments

Add / Edit Category

Short Description: EOI35

Long Description: East Texas Modeling Domain (East of Highway 35)

[Save] [Cancel]

Manage County Groups

# ASAT Slide Show

ASTA 2001 - Manage Tiers, SCCs, and Pollutants

Select Group To Add or Edit

Tier  SCC  Pollutant

Save

Close

2102005000: Stationary Source Fuel Combustion: Industrial: Residual Oil: Total: All Boiler Types

Add Edit Delete Editing SCC

SCC	SCC 1 Name	Stationary Source Fuel Combustion
2102005000	SCC 2 Name	Industrial
<input checked="" type="checkbox"/> EPA Assigned	SCC 3 Name	Residual Oil
	SCC 4 Name	Total: All Boiler Types
	SCC Units	1000 Gallons

Manage Tiers, SCCs, and Pollutants

# ASAT Slide Show

ASAT 2001 - Emission Calculation Formulas

Tier and SCC to which Formula Applies

2505030000 - Storage and Transport: Petroleum and Petroleum Product Transport: Truck: Total: All Products

VOC: VOLATILE ORGANIC COMPOUNDS

Formula Creation / Editing

Constants

Estimated Constants (All Counties)

Variables (Unique for each County)

Global Variables (All Counties)

Test Estimated Constant

+

-

\*

/

(

)

Current Formula

Test Variable \* Test Constant \* Test Estimated Constant

Add >

Clear Last <

Clear All <<

Save

Close

Equation Editor

# ASAT Slide Show

ASAT 2001 - Scenario Management


Scenarios

Name	Description	
<input type="text" value="Landfill Emissions"/>	<input type="text" value="This case contains the emissions from landfills. This methodology will be used in all counties within the state."/>	<input type="button" value="Edit Filters"/> <input type="button" value="Edit DataSets"/>

Emission Year:  Growth Year:  Temporal:

Case Management

# ASAT Slide Show



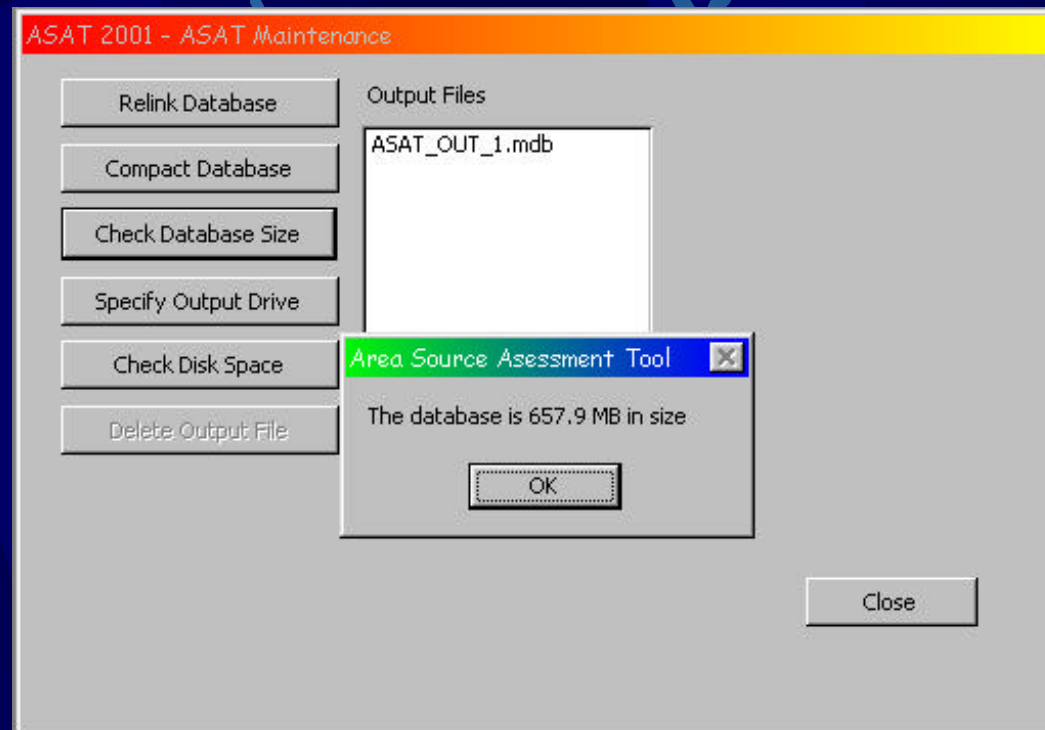
The screenshot shows a window titled 'Emissions' with a green title bar. The content area displays a report for 'Anderson County Landfill VOC Emissions'. The report includes a title 'Emissions', a subtitle 'Landfill', and a description. Below this, there are four key-value pairs: 'Emission Year' (1999), 'Growth Year' (2007), and 'Temporal Code' (YR). At the bottom, there is a table with columns for County Name, SCC, Pollutant, Start Date, End Date, and Emission.

<i>County Name</i>	<i>SCC</i>	<i>Pollutant</i>	<i>Start Date</i>	<i>End Date</i>	<i>Emission</i>
Anderson	2620000000	VOC	20070101	20071231	969.398304456881

Emissions Report



# ASAT Slide Show



ASAT Maintenance

# ASAT

- End of Presentation -