

# PDT Data Model Team

## Phase II Report Out

Phase II took much longer than we expected, but the time spent was highly productive.

## Team Members

- Anna Watkins Wood, Alabama
- Marnie Stein, Idaho
- *Mark Wert, Co-Chair, Massachusetts*
- Elliott Bickerstaff, Mississippi
- Deborah Boleware, Mississippi
- Matt Carpenter, Mississippi
- Tammy Manning, North Carolina
- Dave McClard, South Carolina
- Ben Way, Wyoming
- Jonathan Miller, EPA
- Brandon Little, EPA
- *Sally Dombrowski, Co-Chair, EPA*

The Data Model team was comprised of various air agencies with different levels of sophistication in their inventory systems ranging from paper submissions to highly sophisticated and integrated.

Mark Wert and I would like to thank each of our participants for all of their hard work and perseverance. Everyone of you made major contributions to the outcome of this project.

## Phase II Scope

- Original scope
  - Data solutions and documentation
    - Additional data fields needed from State/Local/Tribal air agencies (SLTs), Federal Registry System (FRS), Toxic Release Inventory (TRI), Emission Inventory System (EIS), for the Common Emissions Form (CEF)
  - Business Rules for CEF
  - Workplan for Development of CEF
  - Targeted Pre-Pilot Assessment
- Amended scope
  - Data solutions and documentation
    - Calculator requirements for CEF

This slide shows our original scope, but it did not take the team long to realize that the original scope, as laid out in our project description, was more than this team could accomplish in the timeline needed.

Our main concentration then became Task 1, the documentation of data fields, beyond EIS, which would be required to meet the needs of the pilot and the MVP. In discussions about needed data fields, the team also discussed the need for a calculator to estimate emissions. We will be covered more later in this presentation.

## Data Solutions and Documentation

- Phase I Survey
  - Additional Pollutant Codes
    - All pollutant codes (Substance Registry System) reportable
  - Addition of Percent Sulfur and Percent Ash
    - Reduction in EIS range check to 0.0001 to account for low sulfur requirements and standards
  - Billable/Nonbillable
    - Allow the display of billable/nonbillable flags
    - Passed to Facility IPT for consideration as part of facility data
  - Insignificant Source/Activity
    - Allow flag to indicate whether emissions should be submitted to EPA or not

We had several questions from the Phase I Survey which required further investigation. The first of these questions was the ability to report all pollutant codes at one time rather than the specific pollutants required under each program. The team recommended that this would be a time saving step for SLTs and would prevent having to create several different versions of a given inventory year to meet the requirements of different programs. Whether this is done at the CDX level or at the program level will need further discussion. EIS may implement this for the 2020 inventory.

Several SLTs requested that percent Sulfur and Ash be added to EIS. This is currently available in the EIS system but an additional request was received to lower the range check to 0.0001 (one ten thousandth) to account for low sulfur requirements and standards. This change is being considered for the 2020 in EIS.

Some SLTs also requested Billable/Nonbillable data fields. Our finding was that SLTs should be allowed to display billable flags to the facility filer as part of the facility attributes on the CEF. This will be passed on the Facility IPT Team for consideration.

On Insignificant Source/Activity, we needed to get a better understanding of what these terms meant. These emissions were not reported to EPA by some SLTs and reported by others. Some collected the data once and carried the value forward for subsequent reporting periods. We did decide that a flag should be available to indicate to the filer whether the facility or unit was an insignificant source or activity.

## Data Solutions and Documentation - Cont'd

- Facility and Point Data Field Matching Exercise
  - Comparison Iowa, North Carolina, South Carolina, Massachusetts and Wyoming vs FRS
  - Comparison of State systems to FRS and EIS for facility/emissions
  - Comparison of TRI to FRS and EIS
  - Data fields not matching were considered to be additional fields needed
  - Facility data fields passed to the FRS IPT
  - Data fields identified as required for pilot CEF

Our search for additional data fields started with a comparison of state systems to the new FRS data model. We were able to identify matches as well as data fields in the state systems that were not represented in FRS. In all cases, the states had corresponding EIS data fields already in place. A comparison was also done with TRI.

Any data fields in the state systems that were not represented in either FRS or EIS were considered to be added fields. With each field we asked if the field was required, what the data field type and length was and finally, is the data field used.

Data fields which pertained to the facility configuration were forwarded to the Facility IPT (FRS) for evaluation. These discussions are ongoing as we talk through the matches and start discussing the differences in field types and lengths.

Any data field identified as required in EIS was automatically forwarded as a need for the CEF pilot.

## Additional Data Fields - Facility

- Company's Employee Count
- Construction Limit Description
- Insignificant Source/Activity Flag
- Federal Enforceable Limit Text
- Engine Use Type
- Engine Use Text
- Regulatory Significance Flag
- UTM Zone, UTM Easting, UTM Northing
- Release Point Stack Geo
- Release Point Bypass Flag
- Release Point Exit Gas Temperature Ambient Flag
- Release Point Exhaust Moisture Percent
- Control Installation Date
- Control Manufacture Make
- Control Manufacture Model
- Contact/Mailing Component
- Entire Facility/Partial Facility (TRI)

The data fields listed on this slide were identified by state/local members of the Data Model Team as additional data fields which would be essential for reporting. None of these fields were designated as required and therefore will not be included in the CEF pilot but have been passed on to the Facility IPT for inclusion in FRS at a later date.

## Additional Data Fields - Permitting

- Permit Number
- Permit by Rule Flag
- Permit or Rule Limit Text
- Permit Maximums
  - Emissions Allowed (Permit)
  - Maximum Hours Per Day
  - Maximum Hours Per Week
  - Maximum Hours Per Year
- Permit Type-
  - Title V
  - Synthetic Minor, etc.
- Permit Operating Type -
  - Potential
  - Permitted
  - Allowable
  - Maintenance
- E-Enterprise E-Permitting project

The data fields shown on this slide were also suggestions from the state/local agencies on our team but seemed to all be permit centric. Since E-Enterprise has just started work on the E-Permitting project, we felt that these data fields should be forwarded to them and we would work with the permitting team in the future on how we can incorporate this data into the CEF without having to create duplicate records in two different systems.

## Additional Data Fields - Emissions

- Customizable Reporting Period Type (i.e. two month ozone period)
- Supplemental Calculation Parameter Type expanded beyond Heat, Sulfur and Ash
- General Waste Stream (TRI) - Always "A" for Air

There were very few suggestions for the emissions side of the house.

One suggestion was for the ability to report custom ozone periods. In discussions with the EIS developers, we believe this function is already available in EIS by adding an "Ozone Season" type reporting period code combined with the use of the start date/end date data fields.

Another suggestion was to expand the supplemental calculation parameter types beyond heat, ash, and sulfur. The list of additional types is available in Appendix 1 of the final report.

The data field "General Waste Stream" is a TRI requirement with a fixed value of "A" which represents Air.

## Emissions Calculator and the CEF

- Stand alone tool similar to GHGRP
- Three Calculation Types
  - EPA or SLT supplied emission factor
  - Filer supplied emission factor
  - Enter emissions directly
- Web Services for EPA and SLT Emission Factors
  - WebFIRE and Emission Factor Compendium
- Total Emissions = Emission Factor x Throughput x ( 1- Reduction Efficiency)
  - Control efficiency is only used if emissions calculation type indicates emission factor is uncontrolled or pre-control
- Unit conversion function (not in pilot)

An emissions calculator was not part of our tasks for Phase II but discussions started down this road when we discussed how the data fields may impact each other when estimating emissions.

We envisioned this calculator to be a stand alone similar to what is being used by the GHGRP. The calculator would have the ability to use EPA or SLT supplied emission factors, filer supplied emissions factors or the ability to enter emissions directly.

This tool would have the capability of using both WebFIRE and Emission Factor Compendium web services based on the SCC provided.

For the pilot the calculator could use the basic emissions formula provided here with the more complex formulas being introduced in later versions.

Details on the emissions calculator are available in Appendix 2 of the our final report.

## Appendix 1

Now we will do a quick review on how to navigate Appendix 1 and what the columns, color coding and worksheets mean. Appendix 1 contains the main portion of the work completed by the Data Model Team.