Monthly Technical Report

(Due to AQRP Project Manager on the 8th day of the month following the last day of the reporting period.)

PROJECT TITLE	Targeted Improvements in the Fire INventory from NCAR (FINN) Model for Texas Air Quality Planning	**PROJECT #**	14-011
PROJECT PARTICIPANTS **(Enter all institutions with Task Orders for this Project)**	The University of Texas at Austin ENVIRON International Corporation	**DATE SUBMITTED**	7/9/15
REPORTING PERIOD	**From:** June 1, 2015 **To:** June 30, 2015	**REPORT #**	11

A Financial Status Report (FSR) and Invoice will be submitted separately from each of the Project Participants reflecting charges for this Reporting Period. I understand that the FSR and Invoice are due to the AQRP by the 15th of the month following the reporting period shown above.

Detailed Accomplishments by Task

Work this month is focusing on preparations for the AQRP Data Workshop to be held on June 17-18, 2015.

Task 1. Regional Land Cover Characterization
Processing of ArcGIS raster files for the global and U.S. national and regional land cover datasets has been completed as described in previous reports. These land cover products have been used alone or in combination in sensitivity studies with FINN v.2 to estimate emissions of carbon monoxide (CO), nitrogen oxides (NO_x), and fine particulate matter ($PM_{2.5}$) associated with fire events during 2012.

Task 2. Mapping of Croplands Data
This task has been completed.

Task 3. Estimation of Burned Area
This task has been completed.

Task 4. Sub-grid scale Partitioning of NO_x Emissions to NO_z in Fire Plumes
An approach has been developed to speciate FINN NO_x to NO_z compounds as a function of fire size relative to grid resolution and fire plume rise during the EPS3 fire processing chain. Ramboll ENVIRON is working on code to support an optional NO_x partitioning algorithm as well as to accommodate the processing of both MOZART-4 and CB6r2 chemical speciation profiles produced by FINN. We anticipate that the NOx partitioning algorithm will continue to evolve and feel that it is best left as an option for processing rather than embedded within the PREFIR code.

The plan is for the code to be transferred to Dr. McDonald-Buller's team. Her team will complete the CAMx runs for the land cover scenarios (seven are anticipated in total) without the new algorithm for the NO_x partitioning. Additional sensitivity studies will be conducted that examine the specific effects of the NO_x partitioning algorithm selecting two of the land cover scenarios.

Task 5. Comprehensive Air Quality Model with Extensions (CAMx) Sensitivity Studies

Sensitivity studies using emissions estimates from the final FINNv.2 configuration will be conducted as soon as possible.

The team presented findings from the study at the AQRP Data Workshop on June 17-18, 2015. An early version of the project report has been drafted.

Data Collected *(Include raw and refine data.)*
As described above.

Identify Problems or Issues Encountered and Proposed Solutions or Adjustments
None encountered.

Goals and Anticipated Issues for the Succeeding Reporting Period
Priorities for next month include completing the EPS3 emissions processing and CAMx simulations, as well as continuing to work on the draft project report.

Detailed Analysis of the Progress of the Task Order to Date *(Discuss the Task Order schedule, progress being made toward goals of the Work Plan, explanation for any delays in completing tasks and/or project goals. Provide justification for any milestones completed more than one (1) month later than projected.)*
Ongoing.

Submitted to AQRP by:

Principal Investigator: Elena McDonald-Buller