STATE OF NEW MEXICO
NEW MEXICO ENVIRONMENT DEPARTMENT
PROFESSIONAL SERVICES CONTRACT **No. 16 667 4000 0001**

ATTACHMENT 1

SCOPE OF WORK

I. Performance Measures

Successful completion of this Project will further the achievement of the following goals:

A. Goals

State Strategic Goals:

- Enhance delivery of services to constituents

Procuring Agency Strategic Goal:

- Increase transparency of environmental information

B. Objectives

Listed below are the specific objectives for this Project:

- The southern Dona Ana County region has the highest ozone levels of any area in New Mexico.

- Ozone modeling is necessary to evaluate the sources contributing to ozone and to develop strategies for reducing ozone in the region.

- The New Mexico Air Quality Control Act requires the New Mexico Environment Department to develop a plan for reducing ozone levels in areas that are within 95 percent of the ozone standard. The southern Dona Ana County area is within 95 percent of the federal standard for ozone.

- The first step towards developing the plan required by the Air Quality Control Act is to study the problem. The modeling study will accomplish that result.

C. Deliverables – Scope and Schedule may be revised by mutual agreement between Agency and Contractor

No.	Deliverable	Due Date	Amount	Description
1	Work plan and PowerPoint presentation of Weather Research Forecast (WRF) Meteorological Modeling Application/Evaluation Report	11/30/15		Prepare a work plan for the WRF modeling. Coordinate with WRF modelers in New Mexico. Use the current version of WRF to simulate summer ozone season (mid-April-August) meteorology for the year 2011. Modeling domains: 36-km CONUS, 12-km Western U.S., and 4-km Dona Ana/El Paso/Juarez. Convert WRF output to CAMx inputs for 12-km NM/West Texas/Northern Mexico and 4-km Dona Ana/El Paso/Juarez domains. Prepare documentation and model performance for Task 13.
2	PowerPoint presentation on Permian Basin oil and gas 2011 and future year emission update.	11/30/15		Permian Basin oil & gas inventory: Coordinate Permian Basin oil and gas emissions development with BLM New Mexico State Office study being performed under the Western Air Quality Study (WAQS). Update Permian Basin oil and gas emissions.
3	PowerPoint presentation on Mexico emissions to be used in 2011 base and future year modeling.	11/30/15		Juarez and Mexico border inventory (current and future years): Coordinate with U.S. EPA, NMED, and others as needed to gather the best available current and future year inventories for Northern Mexico. Develop deficient inventory components, as needed. Collect and process ancillary emissions data (spatial surrogates, temporal profile, chemical speciation), as needed.

No.	Deliverable	Due Date	Amount	Description
4	Technical memo for 2011 base year base case emissions modeling prepared with SMOKE.	2/29/16		Prepare base year emissions with SMOKE. Combine the WAQS year 2011 version B (WAQS 2011b) emission platform (models, inventories, and ancillary data) with updated Permian Basin oil and gas emissions from Task 2 and the Mexico inventories from Task 3 to create a Dona Ana Study Emissions Modeling Platform. Use SMOKE to prepare 2011 emissions for CAMx on the Study 12-km and 4-km modeling domains.
5	PowerPoint presentation on results of natural emissions modeling.	2/29/16		Prepare natural emissions for the project modeling: Prepare gridded, CAMx ready MEGAN version 2.10 biogenic emissions, WRAP windblown dust model dust emissions, lightning NOx, and PMDETAIL fires for the Study 12- and 4-km modeling domains.
6	PowerPoint presentation on the base year air quality modeling.	2/29/16		Base year air quality modeling: Prepare boundary conditions for the Study 12-km domain using the WAQS 12-km 2011b CAMx modeling results. Use the current version of CAMx to simulate year 2011 air quality during the summer ozone season in the Study 12- and 4-km modeling domains. The CAMx configuration will be based directly off of the WAQS CAMx 2011b CAMx modeling, unless directed otherwise by NMED.

No.	Deliverable	Due Date	Amount	Description
7	Base case modeling and model performance evaluation report.	4/30/16		Model performance evaluation and sensitivity modeling: Gather any aerometric data for the Dona Ana region from NMED that are not readily available from the EPA AQS or other Federal air quality monitoring systems. Conduct a model performance evaluation for ozone, NO2, CO, and VOCs (if available). Conduct short-time period emissions and/or other CAMx sensitivity modeling simulations to address any performance issues in the base year MPE as needed. Rerun CAMx 2011 12/4 km base case with revised configuration and update MPE (if needed).
8	PowerPoint presentations on future year emissions modeling.	4/30/16		Prepare future year emissions with SMOKE. Combine the U.S. EPA 2011 version 2 modeling platform 2017 projection inventory, future year oil & gas inventories from the WAQS, and future year Mexico inventories from Task 3 to create a future year component of the Dona Ana Study Emissions Modeling Platform. Use SMOKE to prepare year 2020 emissions for CAMx on the Study 12- and 4-km modeling domains.
9	PowerPoint presentation on future year air quality modeling.	5/31/16		Use the Task 6 CAMx configuration to simulate year 2020 air quality during the summer ozone season in the Study 12- and 4-km modeling domains. The CAMx configuration for this task will only differ from Task 6 in the emissions and possibly the 12-km boundary conditions, the boundary conditions will be decided in consultation with the WAQS.

No.	Deliverable	Due Date	Amount	Description
10	PowerPoint presentation on future year ozone projections.	5/31/16		Modeled attainment test: Prepare the base and future year CAMx results for input into the EPA Modeled Attainment Test Software (MATS). Use the current version of MATS to estimate future design values and relative response factors (RRFs) at monitors in the Study 12- and 4-km modeling domains. Perform MATS unmonitored area analysis (UAA) for region.
11	PowerPoint presentation on future year emissions sensitivity modeling.	8/15/16		Future year emissions sensitivity/control modeling: Conduct future year emissions sensitivities to evaluate the impacts of emissions reductions on attainment of the ozone NAAQS. Coordinate with NMED to implement current and future emissions control programs in the model. Use MATS to estimate future year design values and RRFs for the emissions sensitivity simulations.
12	PowerPoint presentation and interactive Excel spreadsheets on future year ozone source apportionment modeling.	9/15/16		Future year source apportionment modeling: Perform future year CAMx 12- and 4-km ozone source apportionment modeling of source region and source category contributions to ozone concentrations and ozone design values at ozone monitoring in Dona Ana county (and elsewhere). Post-process source apportionment modeling results and develop interactive spreadsheets for analysis of results.
13	Draft Technical Support Document (TSD), final TSD, and Response to Comments (RtC) document for NMED. Modeling data, RtC document, and final TSD also posted on WAQS data warehouse.	11/18/16		Technical support document: Prepare draft TSD documenting Tasks 1-12. Submit draft TSD for review. Update draft TSD to reflect comments received and prepare a Response to Comments (RtC) document. Submit final TSD on the results.