

APPENDIX K

Development of COAST CAMx Initial and Boundary Conditions

HOUSTON/GALVESTON ATTAINMENT DEMONSTRATION - PART II

OCTOBER 1999 REVISION

Development of COAST CAMx Initial and Boundary Conditions

This report discusses the development of initial conditions (IC) and boundary conditions (BC) used for modeling conducted for both the Houston-Galveston and Beaumont-Port Arthur ozone nonattainment areas. The initial and lateral boundary conditions for the COAST CAMx modeling were extracted from the Texas regional ozone modeling results. In the previous COAST ozone modeling activity, TNRCC used the Texas regional ozone modeling results provided by Environ (see "*Future-Year Boundary Conditions for Urban Airshed Modeling for the State of Texas*", 1996) to obtain the initial and lateral boundary conditions for both base and future case modeling. For the current COAST ozone modeling exercises, TNRCC used the same meteorological inputs as before, but modified the emissions to mirror those being used in other regional modeling activities being conducted. A second change from previous modeling is the use of CAMx v 1.13 instead of UAM-V for all future modeling. Finally, the previous regional modeling had been conducted for a four-week period (August 15 - September 11, 1993), but the current modeling is limited to two periods: August 29-September 2, 1993 and September 5-11, 1993. These periods correspond to the two COAST episodes (August 31 - September 2, 1993, and September 6-11, 1993, but allow extra "spin-up" days prior to the start of the monitored ozone exceedances.

Several sets of boundary and initial conditions were generated for the base future base cases and the control scenarios. Table 1 lists these cases and discusses the regional modeling performed for each. All emission adjustments were applied directly to the model-ready emissions data files through use of a masking operator.

Table 1. Texas regional ozone modeling runs used for obtaining IC and BC for the COAST ozone modeling

COAST Modeling Case	Ozone Model	EI Input
1993 Base Case	UAM-V v1.24	Environ 1993 base case emissions
2007 Future Base	CAMx v1.13	Environ 2007 base emissions, adjusted to back out Texas statewide control assumptions. On-road mobile adjusted for Tier II, low sulfur
2007 TCAS	CAMx v1.13	Same as 2007 Future Base, with 50% point source NO _x emission reduction in TCAS areas (including nonattainment counties), TCAS gasoline in TCAS counties.
2007 NO _x SIP Call	CAMx v1.13	Same as 2007 TCAS, except Tier III point source reductions in H/G, 59% point source NO _x reduction in TN, AL, and 30% NO _x reduction in remaining states and non-TCAS Texas counties. Adjust on-road mobile to account for new Tier II, low sulfur data.
Tier II TCAS	CAMx v1.13	Same as 2007 NO _x SIP Call, except Tier II utility point source controls in TCAS.