

APPENDIX G

TNRCC MEMO, REGIONAL MODELING RESULTS FOR POINT SOURCES, 9/1/99

REGIONAL STRATEGY

APRIL 2000 REVISION

Texas Natural Resource Conservation Commission

INTEROFFICE MEMORANDUM

To: Dan Eden
Executive Assistant

Thru: Jim Thomas
Air Quality Planning and Assessment Division

Candy Garrett
Air Quality Planning and Assessment Division

From: Cyril Durrenberger
Air Quality Planning and Assessment Division

Date: September 1, 1999

Subject: Results for regional modeling with 1993, 1995 and 1996 episodes.

The University of Texas has performed regional scale photochemical modeling with the 1993, 1995 and 1996 episodes. The 1993 episode was used for the Houston/Galveston nonattainment area State Implementation Plan (SIP) and the 1995 and 1996 episodes were used for modeling in the Dallas/Fort Worth nonattainment area SIP. All results are based on a future base 2007 emissions inventory. For the 1993 episode the emissions were projected to 2007 directly from the base 1993 emissions inventory. For the 1995 and 1996 episodes the future base 2007 emissions inventory was projected using emissions from the 1993 episode with day specific temperatures and day of the week information.

This modeling was designed to evaluate the impact of various levels of reductions on areas for which detailed urban scale modeling has not been performed. Due to the large area covered, the grid size has been larger than used for detailed urban scale modeling used for state implementation plan (SIP) development in the nonattainment areas (Houston/Galveston, Dallas/Fort Worth, and Beaumont/Port Arthur). For nonattainment areas evaluation of emissions reductions from sources outside of nonattainment areas has been covered in the modeling for those SIPs. The results from this modeling will be limited to the areas that are not covered by SIPs.

A series of model sensitivity evaluations was made with elevated NO_x emissions reduced across-the-board by 20%, 30%, 40% and 50% applied to the sources located in the area of Texas generally east of I-35. This was the area formally identified as the Texas Clean Air Strategy (TCAS). This analysis is based on the 50% reductions. The maximum 1-hour ozone reductions range from 13.7 ppb to 26.7 ppb. In general, these maximum reductions are located in northeast Texas. Depending on the day simulated, reductions in excess of 12 ppb are found in 10 to 37 counties. The reductions occur where high ozone is predicted.

Maximum 8-hour ozone reductions ranged from 11.8 ppb to 22.3 ppb. In general these maximum reductions are located in northeast Texas and range over a number of counties and are located where high 8-hour ozone concentrations are predicted.

More details are included in the attached table.

One-hour concentrations

	Maximum		Maximum Difference in ppb			
	Day	Difference	Near Nonattainment areas			
	ppb	County	Austin	San*	CC *	TL *
9/7/93	21.8	Cherokee	7 to 8	7 to 8	6 to 7	> 12
9/8/93	24.9	Cass	7 to 8	9 to 10	5 to 6	> 12
9/9/93	23.5	Louisiana	5 to 6	6 to 7	5 to 6	> 12
9/10/93	23.7	Sabine	7 to 8	6 to 7	3 to 4	> 12
9/11/93	18.9	Van Zandt	6 to 7	3 to 4	1 to 2	> 12
6/20/95	20.1	Rusk	5 to 6	4 to 5	1 to 2	20.1
6/21/95	13.7	Freestone	4 to 5	3 to 4	1 to 2	> 12
6/22/95	22.6	Harrison	5 to 6	5 to 6	2 to 3	22.6
7/2/96	22.6	Louisiana	3 to 4	4 to 5	2 to 3	> 12
7/3/96	26.7	Harrison	5 to 6	3 to 4	1 to 2	> 12
7/4/96	17.4	Henderson	5 to 6	3 to 4	2 to 3	> 12

* San San Antonio
 CC Corpus Christi
 TL Tyler/Longview

Eight-hour concentrations

	Maximum		Maximum Difference in ppb			
	Day	Difference	Near Nonattainment areas			
	ppb	County	Austin	San	CC	TL
9/7/93	15.7	Freestone	5 to 6	6 to 7	2 to 3	> 12
9/8/93	17.1	Harrison	6 to 7	7 to 8	2 to 3	17.1
9/9/93	16.3	Shelby	3 to 4	5 to 6	3 to 4	> 12
9/10/93	16.9	Leon	5 to 6	5 to 6	1 to 2	9 to 10
9/11/93	11.8	Kaufman	5 to 6	5 to 6	1 to 2	9 to 10
6/20/95	17.5	Rusk	3 to 4	2 to 3	< 1	17.5
6/21/95	14.0	Rusk	4 to 5	2 to 3	< 1	14.0
6/22/95	18.3	Harrison	4 to 5	3 to 4	< 1	18.3
7/2/96	18.9	Cass	3 to 4	< 1	< 1	> 12
7/3/96	22.3	Harrison	3 to 4	< 1	< 1	22.3
7/4/96	14.5	Titus	3 to 4	< 1	< 1	> 12

CC: Commissioner Ralph Marquez
 Randy Wood, Deputy Director, OEPAA