



INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

We Protect Hoosiers and Our Environment.

Mitchell E. Daniels Jr.
Governor

Thomas W. Easterly
Commissioner

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Ms. Lynn Buhl
Regional Administrator
U.S. Environmental Protection Agency
Region V
77 West Jackson Boulevard
Chicago, IL 60604-3950

Re: Technical Addendum for the
Attainment Demonstration and Technical
Support Document for the Indiana Portion of the
Cincinnati-Hamilton, OH-KY-IN Ozone
Nonattainment Area

Dear Ms. Buhl:

The Indiana Department of Environmental Management (IDEM) has prepared this technical addendum to the Attainment Demonstration and Technical Support Document for the Indiana portion of the Cincinnati-Hamilton, OH-KY-IN Ozone Nonattainment Area to validate the original SIP quality Lake Michigan Air Directors Consortium (LADCO) Round 5 ozone modeling results for the Clean Air Interstate Rule (CAIR). IDEM submitted the Attainment Demonstration and Technical Support Document to the United States Environmental Protection Agency (U.S. EPA) on June 15, 2007 to demonstrate how the area will attain the National Ambient Air Quality Standard (NAAQS) for ozone by the attainment date (i.e. June 15, 2009).

On July 11, 2008, the U.S. Court of Appeals, for the District of Columbia Circuit, vacated U.S. EPA's CAIR in its entirety. Based on the implications of the court's ruling, LADCO in cooperation with IDEM has recently conducted SIP quality Round 5 ozone modeling to determine the air quality impacts associated with CAIR controls not being in place on Electrical Generating Units (EGUs) in the Midwest region. The 2009 modeled results show that all counties in the nonattainment area will attain the NAAQS for ozone of 0.08 ppm by June 15, 2009 without CAIR. Tables 1.2, 5.2, 5.4, 5.6, 6.1, 6.3, and 6.4, (to be considered updates to Tables 1.2, 5.2, 5.4, 5.6, 6.1, 6.3, and 6.4 on Pages 6, 24, 30, 32, 43, 45, and 46 of the Attainment Demonstration and Technical Support Document) show the LADCO Round 5 non-CAIR ozone modeling results.

Table 1.2
Attainment Test Results

Monitor ID	County (State)	Base Year Design Value 5-Year Weighted 2003-2007 (ppm)	2009	
			RRF	Future Design Value (ppm)
210150003	Boone (KY)	0.0753	0.949	0.071
210370003	Campbell (KY)	0.0853	0.978	0.083
211170007	Kenton (KY)	0.0783	0.965	0.075
390170004	Butler (OH)	0.0833	0.947	0.078
390171004	Butler (OH)	0.0823	0.950	0.078
390250022	Clermont (OH)	0.0810	0.962	0.077
390271002	Clinton (OH)	0.0823	0.941	0.077
390610006	Hamilton (OH)	0.0847	0.967	0.081
390610010	Hamilton (OH)	0.0820	0.955	0.078
390610040	Hamilton (OH)	0.0817	0.975	0.079
391650007	Warren (OH)	0.0877	0.947	0.083

Table 5.2
Number of Modeled Days Exceeding 0.085 ppm for Ozone Attainment Test

County (State)	Monitor ID	Number of Days at 0.085 ppm or greater
Boone (KY)	210150003	19
Campbell (KY)	210370003	28
Kenton (KY)	211170007	27
Butler (OH)	390170004	25
Clermont (OH)	390250022	31
Clinton (OH)	390271002	19
Hamilton (OH)	390610006	29
Warren (OH)	391650007	27

Table 5.4
LADCO Round 5 Modeling for Cincinnati Nonattainment Area
Modeled Attainment Year 2009

Monitor	County (State)	AVGDV (ppm)	RRF	FYDV (ppm)
390170004	Butler (OH)	0.0833	0.947	0.078
390171004	Butler (OH)	0.0823	0.950	0.078
390250022	Clermont (OH)	0.0810	0.962	0.077
390271002	Clinton (OH)	0.0823	0.941	0.077
390610006	Hamilton (OH)	0.0847	0.967	0.081
390610010	Hamilton (OH)	0.0820	0.955	0.078
390610040	Hamilton (OH)	0.0817	0.975	0.079
391650006	Warren (OH)	0.0877	0.947	0.083
210150003	Boone (KY)	0.0753	0.949	0.071
210370003	Campbell (KY)	0.0853	0.978	0.083
211170007	Kenton (KY)	0.0783	0.965	0.075

Table 5.6
Modeled Future Year Design Values for Surrounding Upwind
and Downwind Ozone Monitors

Monitor	County	US EPA CAIR 2010 Basecase (ppm)	LADCO Round 5 2009 Without CAIR (ppm)
210150003	Boone (KY)	0.0731	0.071
211170007	Kenton (KY)	0.0757	0.075
390610010	Hamilton (OH)	0.0788	0.078
390610040	Hamilton (OH)	0.0788	0.079
180190003	Clark (IN)	0.0782	0.075
180710001	Jackson (IN)	N/A	0.070

Table 6.1
Basecase Modeling Results from U.S. EPA for the Clean Air Interstate Rule

State	County	Design Value (ppm)	Future Year Design Value (ppm)	Future Year Design Value (ppm)
		1999-2003	2010 Base	2015 Base
Kentucky	Boone	0.0853	0.0731	0.0710
Kentucky	Campbell	0.0925	0.0816	0.0788
Kentucky	Kenton	0.0863	0.0757	0.0733
Ohio	Butler	0.0890	0.0782	0.0752
Ohio	Clermont	0.0900	0.0781	0.0751
Ohio	Clinton	0.0957	0.0817	0.0774
Ohio	Hamilton	0.0893	0.0788	0.0758
Ohio	Warren	0.0920	0.0802	0.0766

Table 6.3
LADCO's Round 5 Modeling Results for the Clean Air Interstate Rule

County (State)	Monitor ID	Design Value 2003-2007 (ppm)	2009 RRF	Basecase without CAIR 2009 (ppm)	2012 RRF	Basecase without CAIR 2012 (ppm)	2018 RRF	Basecase without CAIR 2018 (ppm)
Boone (KY)	210150003	0.0753	0.949	0.071	0.919	0.069	0.856	0.064
Campbell (KY)	210370003	0.0853	0.978	0.083	0.962	0.082	0.906	0.077
Kenton (KY)	211170007	0.0783	0.965	0.075	0.949	0.074	0.898	0.070
Butler (OH)	390170004	0.0833	0.947	0.078	0.925	0.076	0.851	0.070
Clermont (OH)	390250022	0.0810	0.962	0.077	0.941	0.076	0.877	0.071
Clinton (OH)	390271002	0.0823	0.941	0.077	0.910	0.074	0.830	0.0668
Hamilton (OH)	390610006	0.0847	0.967	0.081	0.948	0.080	0.881	0.074
Warren (OH)	391650007	0.0877	0.947	0.083	0.921	0.080	0.846	0.074

Table 6.4
Monitored Design Values for 2004-2006 Compared to Future Year Projected Design Values

Monitor ID	County (State)	2006 Design Value 2004-2006 (ppm)	Basecase without CAIR-2009 (ppm)
210150003	Boone (KY)	0.074	0.071
210370003	Campbell (KY)	0.067	0.083
211170007	Kenton (KY)	0.077	0.075
390170004	Butler (OH)	0.080	0.078
390171004	Butler (OH)	0.080	0.078
390250022	Clermont (OH)	0.079	0.077
390271002	Clinton (OH)	0.081	0.077
390610006	Hamilton (OH)	0.082	0.081
390610010	Hamilton (OH)	0.080	0.078
390610040	Hamilton (OH)	0.080	0.079
391650006	Warren (OH)	0.086	0.083

These modeling results validate the original Attainment Demonstration and Technical Support Document because the SIP quality modeling still shows that future national and local emission control strategies to be phased-in or implemented in 2008 and 2009 will ensure that the area's air quality will achieve attainment of the ozone NAAQS by June 15, 2009, and provide for ample margin of safety. Enclosed for your information, please find a copy of the LADCO's Regional Air Quality Analysis for Ozone, PM 2.5, and Regional Haze: Final Technical Support Document (Supplement), September 12, 2008.

Charts 3.1 through 3.4 and Table 5.11 and Chart 5.4 (to be considered updates to Charts 3.1 through 3.4 and Table 5.11 and Chart 5.4 on Pages 15 through 17 and Pages 38 and 39 of the Attainment Demonstration and Technical Support Document) have been revised to back out any 2009 projected emissions reductions associated with CAIR EGU control measures. The revised emissions projections are based on non-CAIR modeling recently conducted by LADCO utilizing 2007 as the base year.

Chart 3.1
NOx Emission Trends

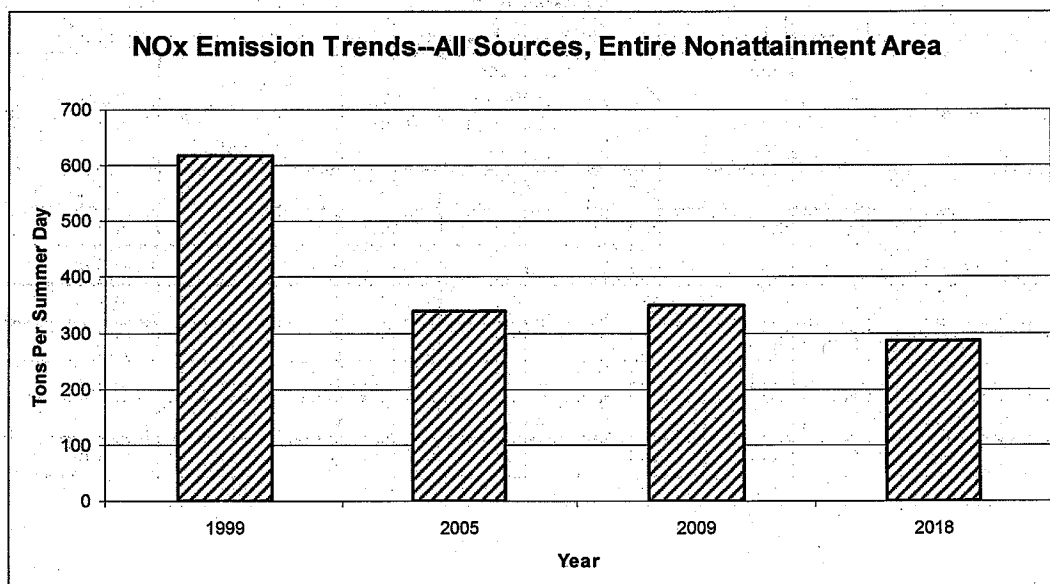


Chart 3.2
VOC Emissions Trends

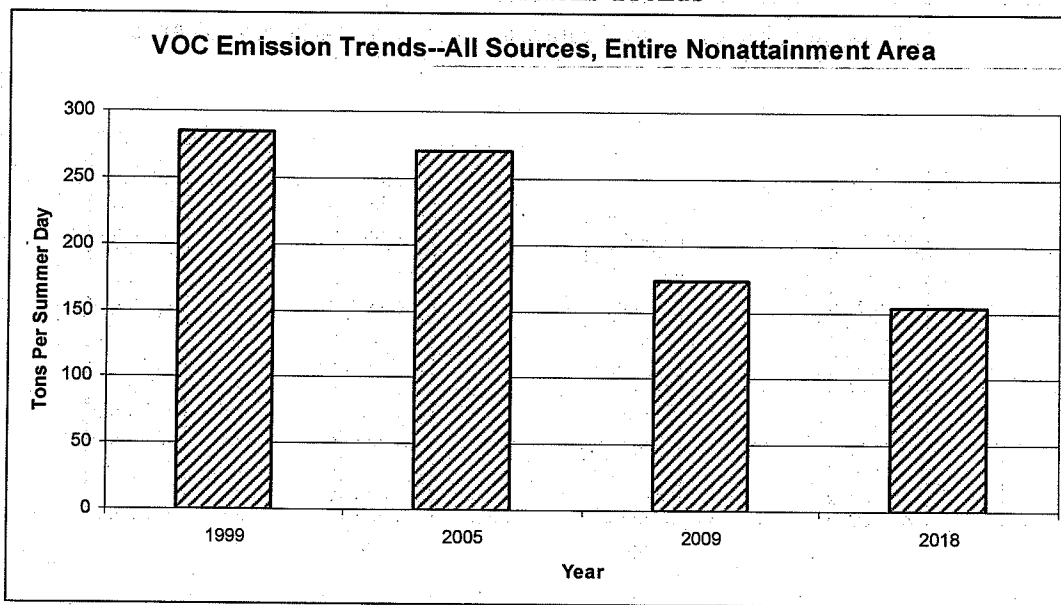


Chart 3.3
NOx Emission Trends—Point Source Category

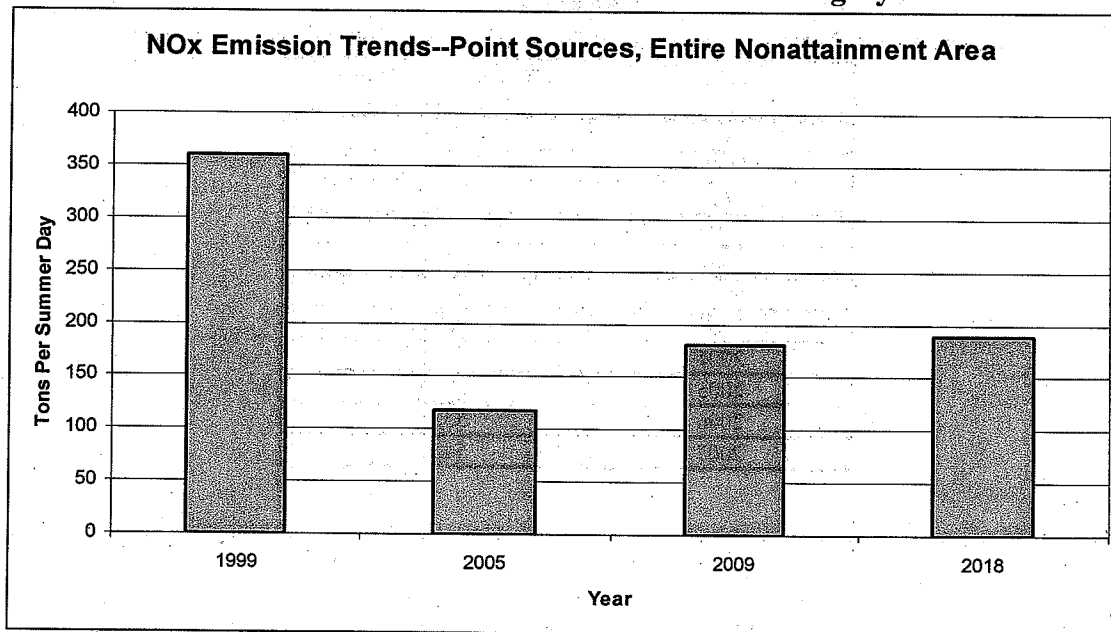


Chart 3.4
VOC Emission Trends—Point Source Category

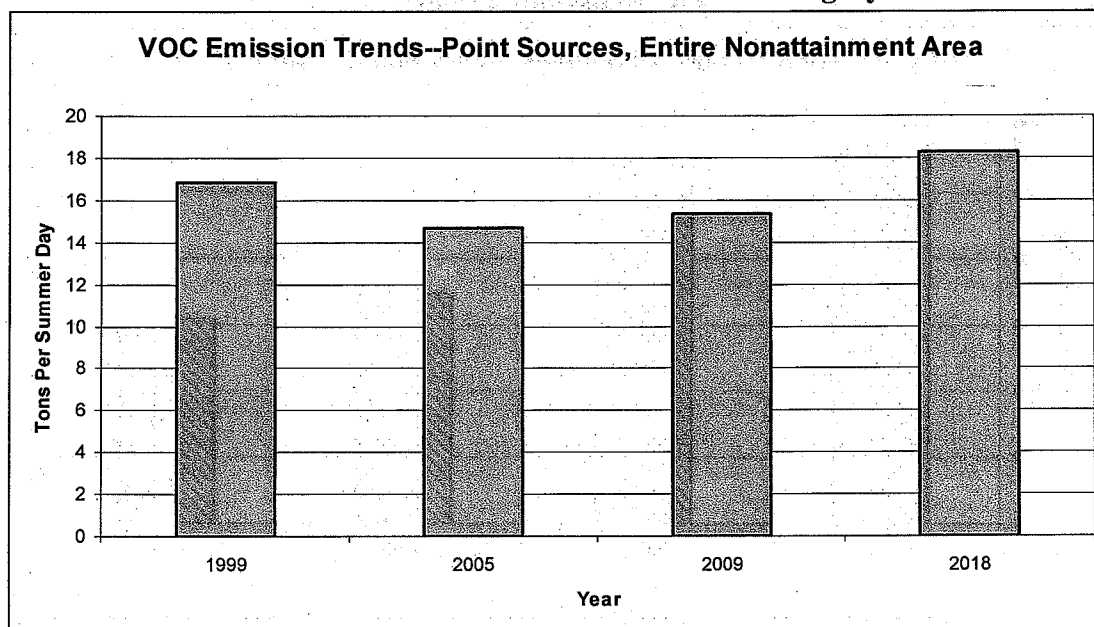
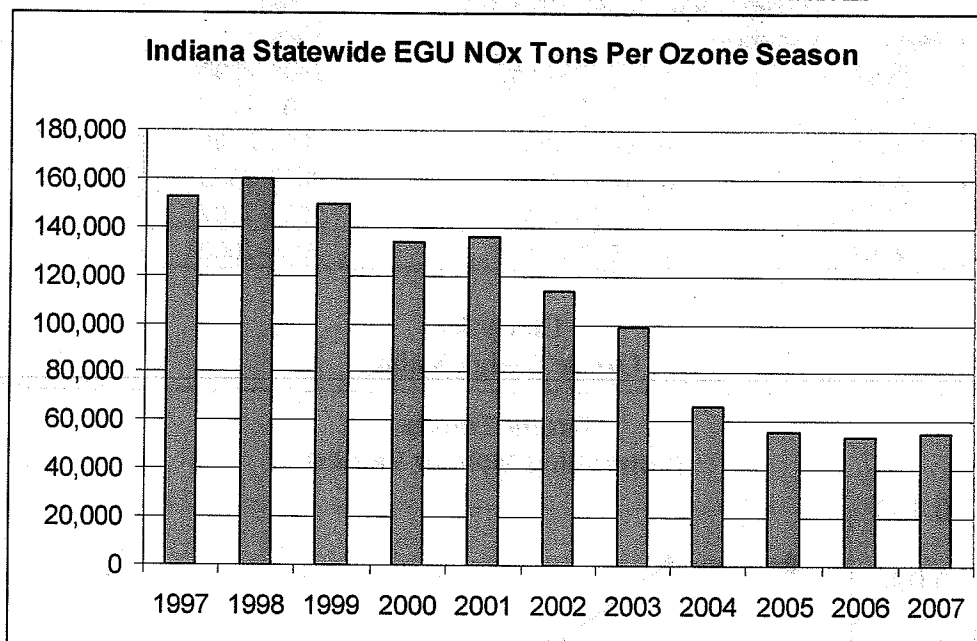


Table 5.11
Trends in EGU Ozone Season NO_x Emissions Statewide in Indiana

Year	NO _x Emissions (Tons Per Ozone Season)
1997	152,834
1998	159,931
1999	149,827
2000	133,881
2001	136,052
2002	113,996
2003	99,283
2004	66,568
2005	55,486
2006	53,768
2007	54,816

Chart 5.4
Indiana Statewide EGU Ozone Season NO_x Emissions



Charts 3.1 through 3.4 and Table 5.11 and Chart 5.4 clearly illustrate that regional VOC and NO_x emissions will continue to decline even without CAIR control measures in place, leading to local reductions between 2007 (base year) and 2009 (attainment year). Although the revised Charts 3.3 and 3.4 shows that regional NO_x and VOC emissions will remain relatively constant between 2005 (base year) and 2009 (interim year) and will slightly increase between 2009 and 2018 (maintenance year), LADCO Round 5 non-CAIR ozone modeling results show that the future mix of sources and emissions rates will **not** cause a violation of the ozone NAAQS. The revised emissions data along with Table 7.2 (to be considered an update to Table 7.2 on Page 51 of the Attainment Demonstration and Technical Support Document) along with Table 7.1 (which did not change) reaffirms the adequacy of the transportation conformity budget outlined in Section 7.0 of the Attainment Demonstration and Technical Support Document.

Table 7.2
Motor Vehicle Emission Budgets for the Ohio and Indiana Portions of the Cincinnati Ozone Nonattainment Area

	2005	2008	2018
VOC (Tons Per Day)	56.03	44.66	23.82
NO _x (Tons Per Day)	108.72	88.70	32.54

Tables 5.7, 5.8 and Charts 5.1, 5.2 and 5.3 (to be considered an update to Tables 5.7, 5.8 and Charts 5.1, 5.2 and 5.3 on Pages 32 through 34 of the Attainment Demonstration and Technical Support Document) show the updated ozone design values through 2008.

Table 5.7
Ozone Design Values

Year	Design Value (ppm) (Monitor Location)	3-Year Period
2003	0.096 (Clinton)	2001-2003
2004	0.091 (Clinton)	2002-2004
2005	0.089 (Warren)	2003-2005
2006	0.086 (Warren)	2004-2006
2007	0.089 (Warren)	2005-2007
2008	0.085 (Warren)	2006-2008

Chart 5.1
Ozone Design Values

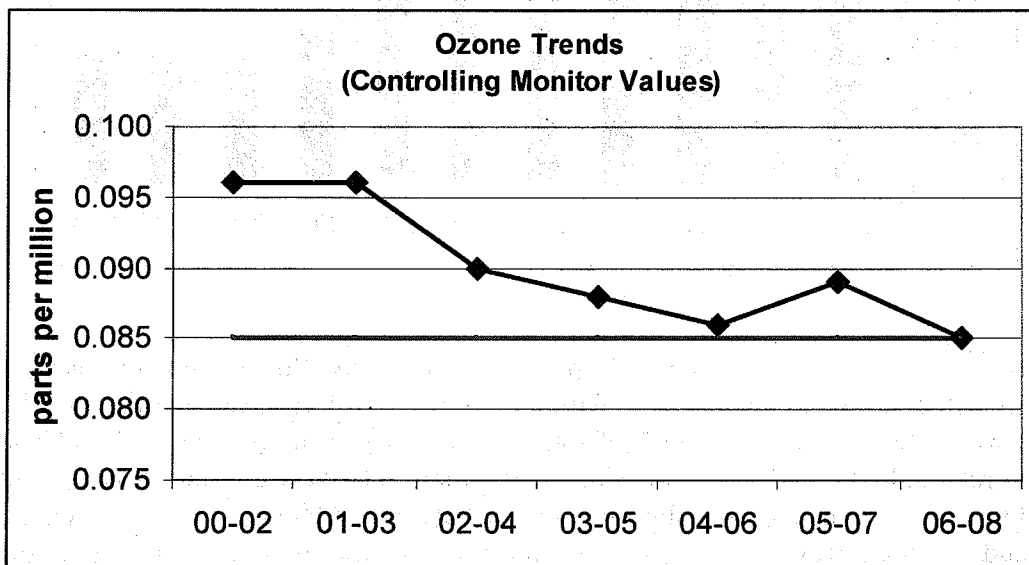


Table 5.8
Historical Design Values for Cincinnati Nonattainment Area from 1996-2008

County (State)	Monitor ID	Three Year Design Value (ppm)										
		96-98	97-99	98-00	99-01	00-02	01-03	02-04	03-05	04-06	05-07	06-08
Butler (OH)	390170004	0.090	0.091	0.089	0.087	0.088	0.092	0.090	0.085	0.080	0.085	0.080
Butler (OH)	390171004	0.093	0.093	0.091	0.089	0.090	0.089	0.085	0.082	0.080	0.085	0.082
Clermont (OH)	390250020	0.091	0.093	0.094								
Clermont (OH)	390250022				0.089	0.09	0.086	0.084	0.079	0.079	0.082	0.078
Clinton (OH)	390271002	0.098	0.098	0.099	0.096	0.096	0.092	0.087	0.082	0.081	0.082	0.080
Hamilton (OH)	390610006	0.092	0.092	0.088	0.086	0.090	0.092	0.088	0.085	0.082	0.086	0.085
Hamilton (OH)	390610010	0.084	0.085	0.085	0.082	0.085	0.086	0.085	0.081	0.080	0.084	0.081
Hamilton (OH)	390610037	0.089										
Hamilton (OH)	390610040				0.085	0.088	0.086	0.084	0.081	0.080	0.084	0.081
Warren (OH)	391650006	0.096	0.095	0.093	0.089	0.09	0.086	0.088				
Warren (OH)	391650007								0.086	0.086	0.089	0.085
Boone (KY)	210150003	0.083	0.085	0.086	0.086	0.087	0.085	0.081	0.077	0.074	0.077	0.071
Campbell (KY)	210370003					0.094	0.092	0.088	0.084	0.083		
Campbell (KY)	210371001	0.088	0.089									
Kenton (KY)	211170007	0.088	0.089	0.09	0.087	0.088	0.086	0.083	0.079	0.077	0.081	0.077

Chart 5.2
Ozone Design Values

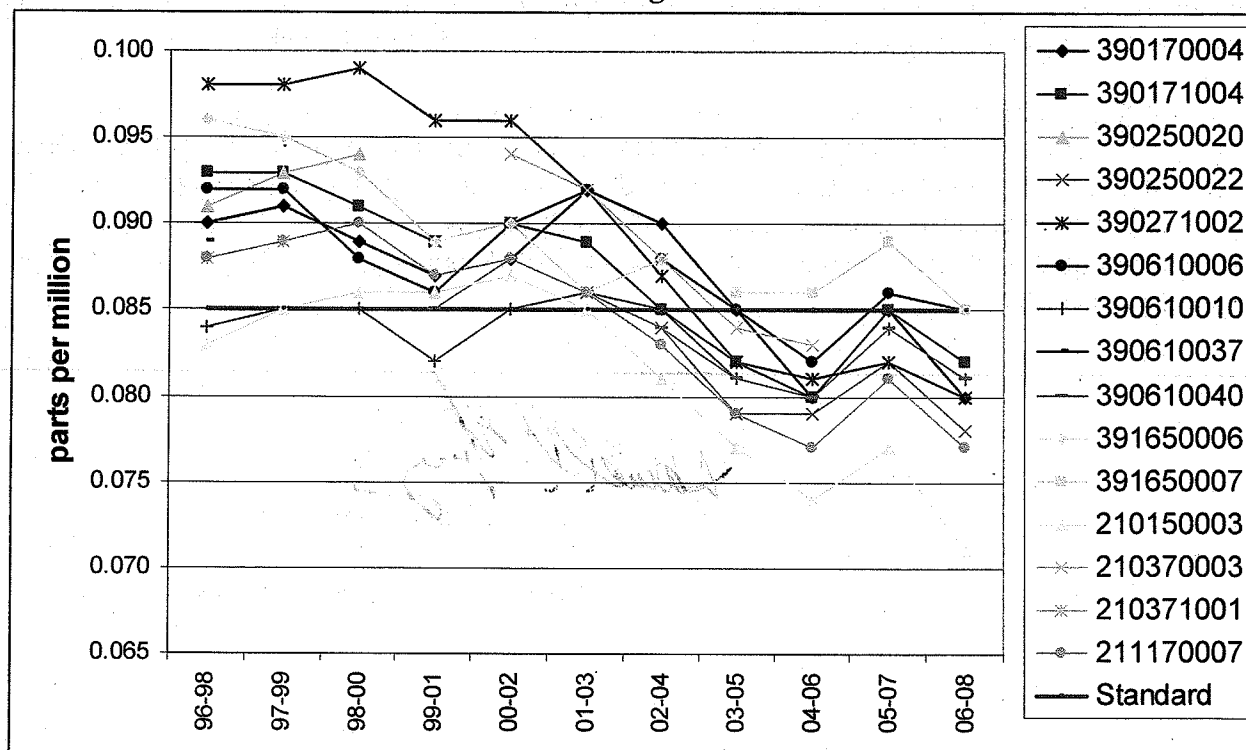
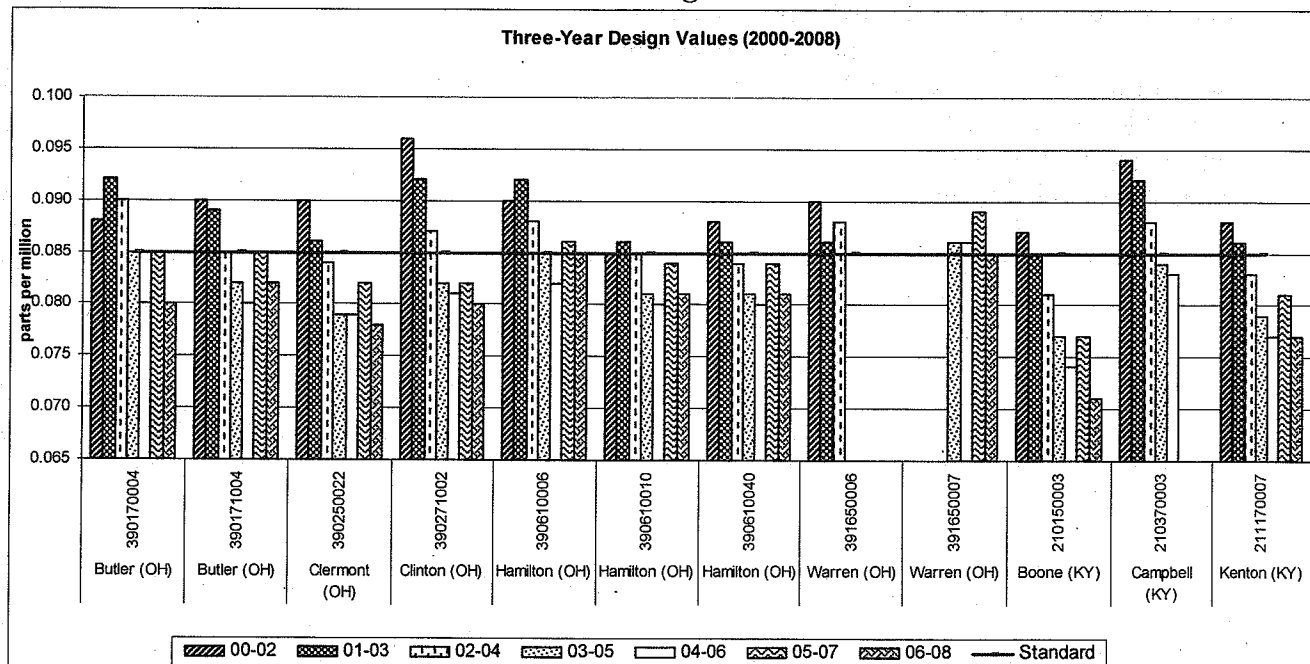


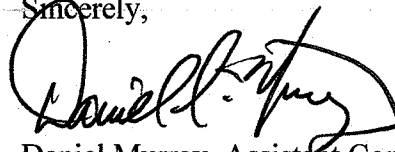
Chart 5.3
Ozone Design Values



IDEM believes that this technical addendum in conjunction with the Attainment Demonstration and Technical Support Document for the Indiana portion of the Cincinnati-Hamilton, OH-KY-IN Ozone Nonattainment Area satisfies Indiana's obligation under Section 172(c) of the Clean Air Act to demonstrate how the area will attain the NAAQS for ozone by the attainment date.

Therefore, IDEM requests that U.S. EPA proceed with final review and approval of the Attainment Demonstration and Technical Support Document for the Indiana portion of the Cincinnati-Hamilton, OH-KY-IN Ozone Nonattainment Area. If you have any questions or need additional information, please contact Mr. Scott Deloney, Chief, Air Programs Branch, at (317) 233-5694 or sdeloney@idem.in.gov, or Ms. Christine Pedersen, Chief, Air Planning Section, at (317) 233-5684 or cpedersen@idem.in.gov.

Sincerely,



Daniel Murray, Assistant Commissioner
Office of Air Quality
Indiana Department of Environmental Management

DM/sd/skr

Attachment:

LADCO Regional Air Quality Analyses for Ozone, PM_{2.5}, and Regional Haze: Final Technical Support Document (Supplement), September 12, 2008

cc: John Summerhays, U.S. EPA Region 5 (w/enclosures)
John Mooney, U.S. EPA Region 5 (no enclosures)
Cheryl Newton, U.S. EPA Region 5 (no enclosures)
Pat Morris, U.S. EPA Region 5 (w/enclosures)
Scott Deloney, IDEM
Christine Pedersen, IDEM
Sarah Raymond, IDEM