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INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

We Protect Hoosiers and Our Environment.

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February 2, 2009

Mr. Bharat Mathur
Acting Regional Administrator
U.S. Environmental Protection Agency
Region V
77 West Jackson Boulevard
Chicago, IL 60604-3950

Re: Action Level Response for the 8-Hour Ozone Redesignation Petition and Maintenance Plan: Louisville KY-IN Basic Ozone Nonattainment Area

Dear Mr. Mathur:

The Indiana Department of Environmental Management (IDEM) prepared a final Redesignation Petition and Maintenance Plan for Clark and Floyd counties, Indiana, which were part of the Louisville KY-IN basic ozone nonattainment area, and submitted them to the United States Environmental Protection Agency (U.S. EPA) on November 15, 2006. The request for Redesignation Petition and Maintenance Plan for the 1997 8-hour ozone standard for Indiana's portion (Clark and Floyd counties) of the Louisville KY-IN basic ozone nonattainment area was approved on July 19, 2007. This letter addresses the Action Level Response listed in Section 8.0 of the Maintenance Plan.

A Warning Level Response shall be prompted whenever an annual (1-year) fourth high monitored value of 89 ppb or greater occurs in a single ozone season within the maintenance area. At the close of the 2007 ozone season (September 30) the monitor located in New Albany in Floyd County measured 82 ppb which is below the warning level trigger. The Charlestown monitor located in Clark County, Indiana measured 90 ppb. The high value at the Charlestown monitor should have prompted a Warning Level Response as outlined in the approved Maintenance Plan, however the Warning Level Response at the Charlestown monitor was superseded by the Action Level Response that was triggered by the high values at the Buckner monitor in Oldham County, Kentucky at the close of the 2007 ozone season.

An Action Level Response shall be prompted whenever a violation of the standard (three (3)-year average fourth high monitored value of 85 ppb or greater) occurs within the maintenance area. At the close of the 2007 ozone season (September 30), the Buckner monitor in Oldham County, Kentucky had a 3-year average fourth high monitored value of 85 ppb. All of the other monitors within the Louisville KY-IN basic nonattainment area had 3-year averages below the ozone standard. The high value at the Buckner monitor in Oldham County Kentucky prompted an

Action Level Response as outlined in the approved Maintenance Plan. IDEM has conducted a study to evaluate whether the event that triggered the Action Level Response was the result of an exceptional event, malfunction, or noncompliance with a permit condition or rule. The study also evaluated whether additional control measurers are necessary to assure future attainment of the NAAQS for ozone, and, if so, determining which control measures can be implemented in a short time in order to be in place within 18 months from the close of the ozone season that prompted the Action Level.

Tables 1 and Graphs 1 and 2 listed below show the fourth highest ozone values and 8-hour ozone design value trends for the past several years for the monitors in Indiana and Kentucky located within the Louisville KY-IN basic ozone nonattainment area. The fourth high monitored values at the end of the 2007 ozone season above the 8-hour ozone standard at the Charlestown, Clark County and Louisville monitors were isolated occurrences within the nonattainment area. The three-year average design value above the 8-hour standard at the close of the 2007 ozone season at the Buckner monitor in Oldham County, Kentucky was an isolated occurrence within the maintenance area with all other ozone monitors in the area recording three-year average values below the standard. The fourth high monitored values and three-year design values for all the monitors located in the nonattainment area were below the 8-hour ozone standard at the close of the 2008 ozone season. Modeling shows that measured ozone values will continue to decrease and the area will continue to attain the standard in the future. Air quality in the maintenance area along with the rest of region has and will continue to improve.

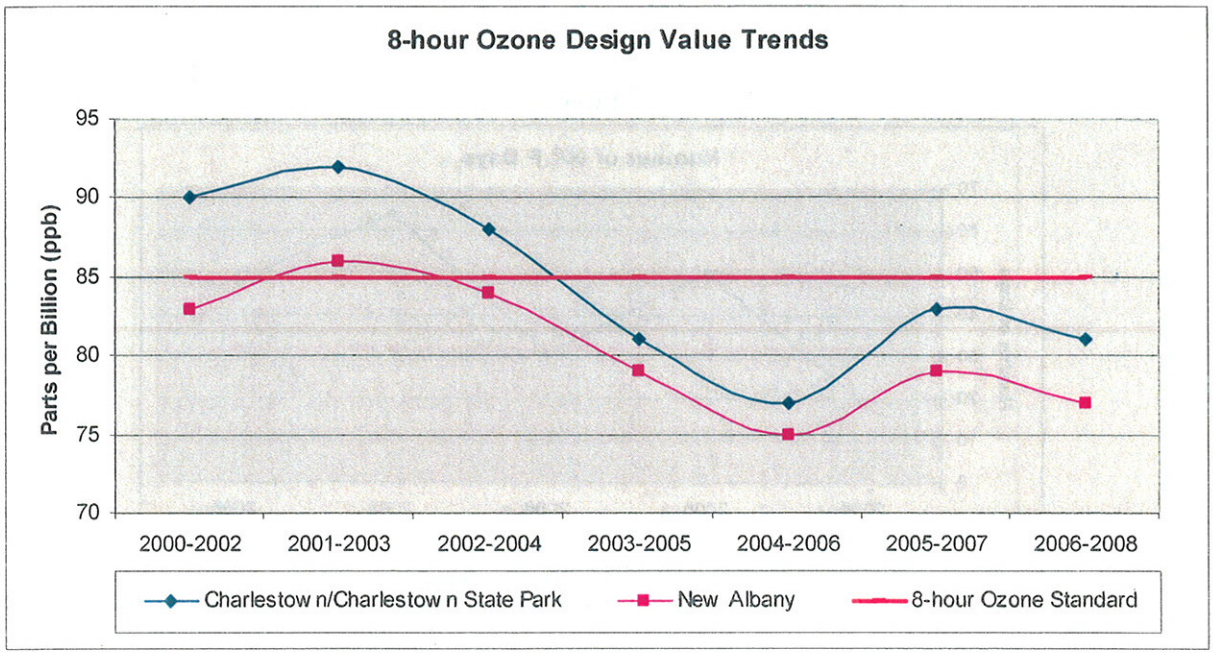
Table 1
Ozone Monitoring Data 2005-2008

County	Site ID	Site Name	2005 Fourth High (ppb)	2006 Fourth High (ppb)	2007 Fourth High (ppb)	2008 Fourth High (ppb)	2005-2007 Design Value (ppb)	2006-2008 Design Value (ppb)
Clark	18-019-0003/8	Charlestown/Charlestown State Park	80	79	90	75	83	81
Floyd	18-043-1004	New Albany	80	76	82	75	79	77
Bullitt	21-029-0006	Sheperdsville	80	71	78	69	76	73
Jefferson	21-111-0027	(Not in a city)	79	74	86	72	80	77
Jefferson	21-111-0051	Louisville	85	77	85	75	82	79
Jefferson	21-111-1021	Louisville	74	67	79	68	73	71
Oldham	21-185-0004	Buckner	89	83	84	77	85	81

Red numbers are greater than or equal to 85 ppb
Highlighted values have a three-year average over the 8-hour ozone standard

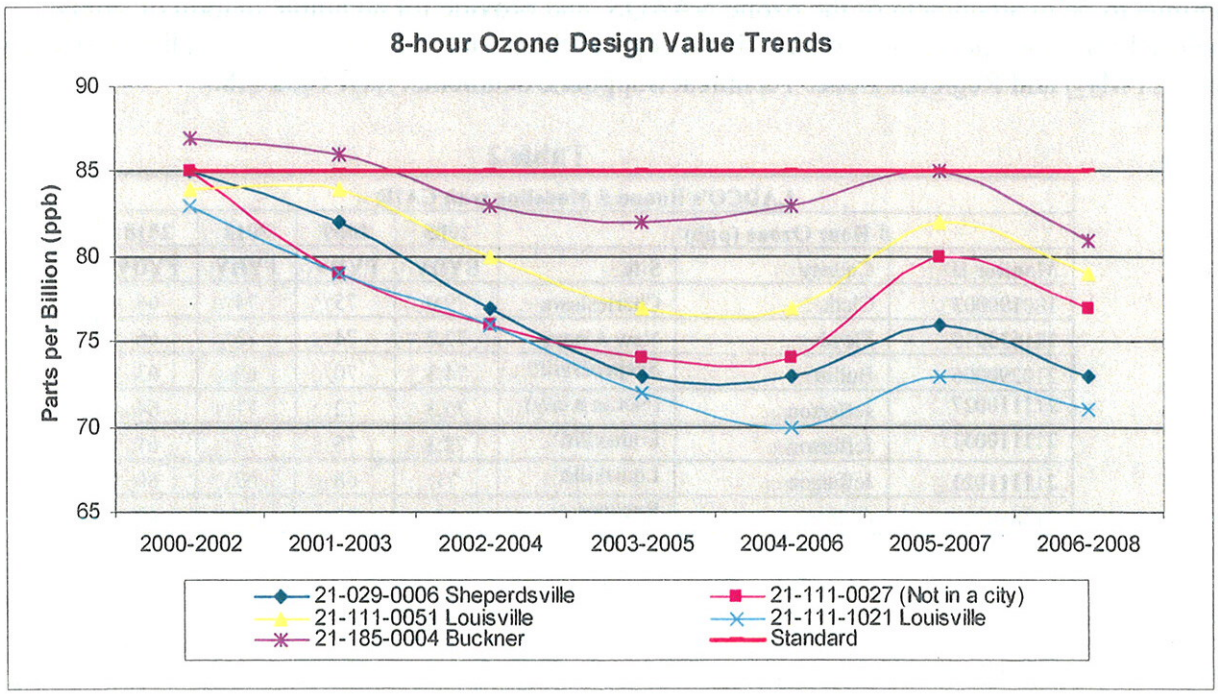
Graph 1 visually demonstrates the design values for Indiana's portion of the nonattainment area.

Graph 1
2000-2008 Design Values for Clark and Floyd Counties
(Indiana's Portion of Nonattainment Area)



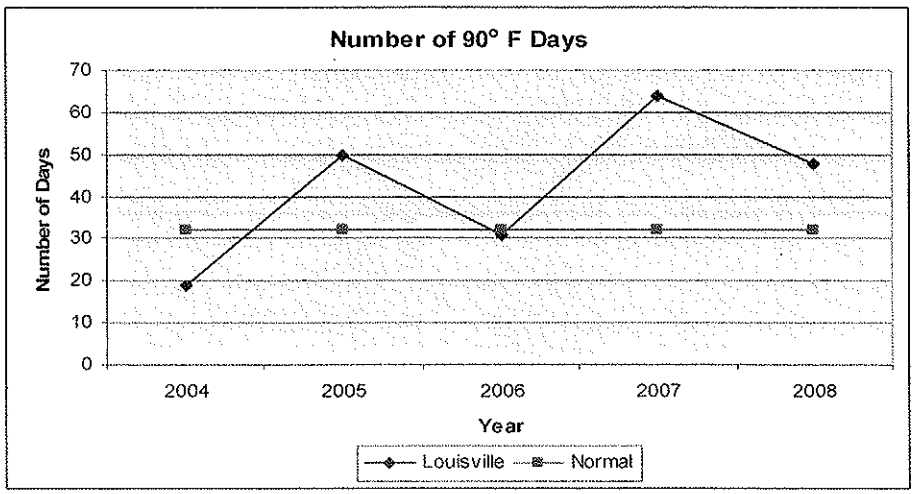
Graph 2 visually demonstrates the design values for Kentucky's portion of the nonattainment area.

Graph 2
2000-2008 Design Values for Bullitt, Jefferson, and Oldham Counties
(Kentucky's Portion of Nonattainment Area)



A meteorological evaluation was conducted for the year 2007 and showed that it was an abnormal year. There were an above average number of days above 90 degrees Fahrenheit (90° F) which led to more conducive weather conditions for ozone formation. Figure 2 below shows the actual number of 90° F for the Louisville KY-IN basic ozone nonattainment area over the past five years compared to the normal number of 90° F days for the area. Based on data from 1971 through 2000 the normal number of 90° F days for the Louisville area was 32 days; there were 64 days of 90° F or higher in 2007.

Figure 2



Lake Michigan Air Directors Consortium (LADCO) Clean Air Interstate Rule (CAIR) modeling for 2009, 2012 and 2018, listed in Table 2 below, shows that Clark and Floyd counties, as well as the Kentucky counties of Bullitt, Jefferson and Oldham in the Louisville KY-IN ozone nonattainment area will continue to be in attainment of the 8-hour ozone standard. These modeling results validate the original Redesignation Petition and Maintenance Plan Document because the State Implementation Plan (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 continue to be in attainment of the ozone NAAQS, and provide for an ample margin of safety. Enclosed for your information, please find a copy of the LADCO Regional Air Quality Analysis for Ozone, $PM_{2.5}$, and Regional Haze: Technical Support Document, April 10, 2008.

Table 2

LADCO's Round 5 Modeling with CAIR						
8-Hour Ozone (ppb)			2005	2009	2012	2018
Monitor ID	County	Site	BYDV	FYDV	FYDV	FYDV
180190003	Clark	Charlestown	79.0	75	74	66
181630013	Floyd	New Albany	77.7	74	73	66
210290006	Bullitt	Sheperdsville	74.3	70	69	63
211110027	Jefferson	(Not in a city)	75.3	72	71	64
211110051	Jefferson	Louisville	78.3	75	74	67
211111021	Jefferson	Louisville	71	68	67	60
211850004	Oldham	Buckner	83	79	77	69

Figures 3 through 6 clearly illustrate that regional Volatile Organic Compounds (VOC) and Oxides of Nitrogen (NO_x) emissions will continue to decline in the maintenance area as well as other counties in the region leading to local reductions. Future national and local emission control strategies to be phased-in or implemented in the near future will ensure that the area's air quality will continue to be in attainment of the ozone NAAQS, and provide for an ample margin of safety. Although Figure 6 shows that regional VOC emissions will remain relatively constant between 2005 and 2009 and will slightly increase between 2009 and 2018, LADCO ozone modeling results show that the future mix of sources and emissions rates will **not** cause a violation of the ozone NAAQS. Table 3 and Figure 7 also show the decrease in Indiana statewide Electrical Generating Units (EGU) ozone season NO_x emissions.

Figure 3

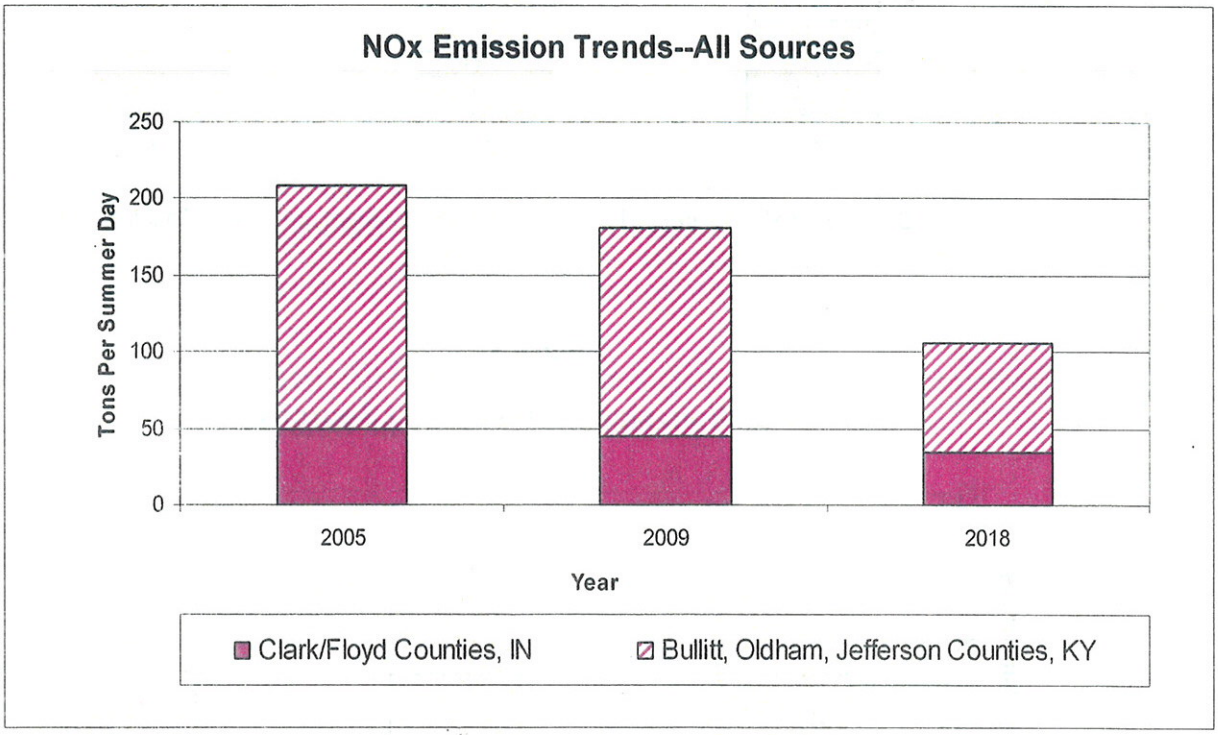


Figure 4

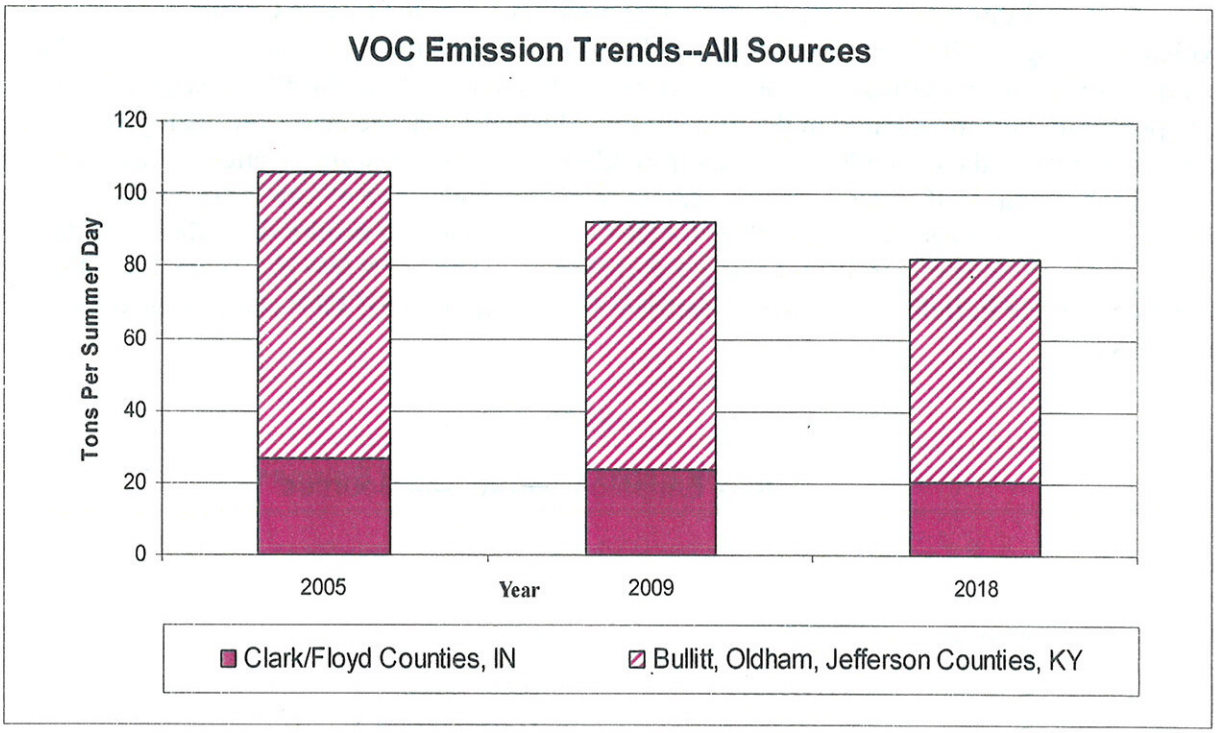


Figure 5

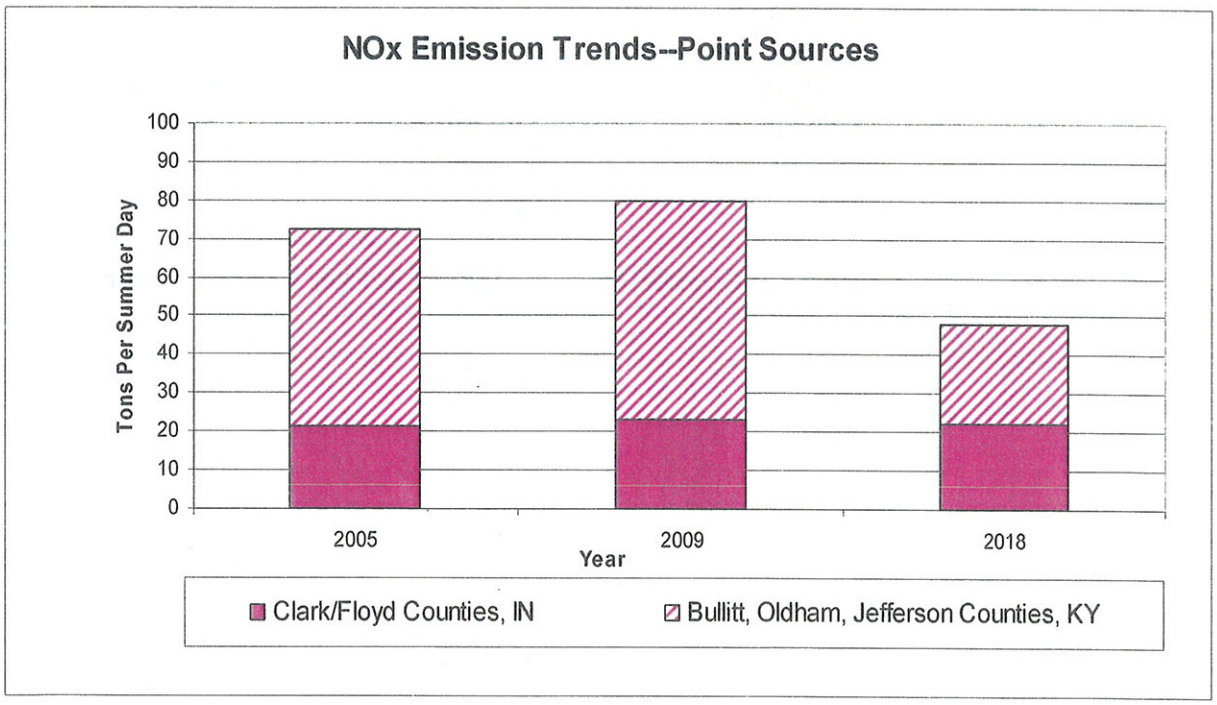


Figure 6

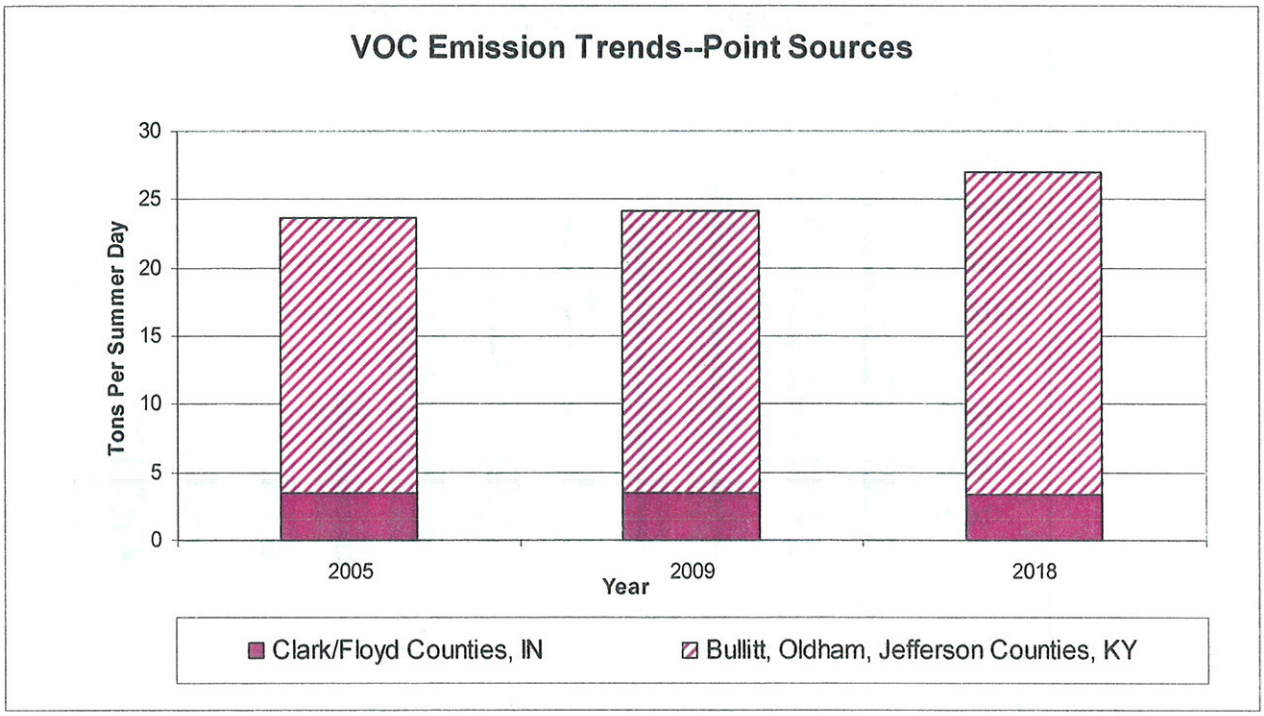
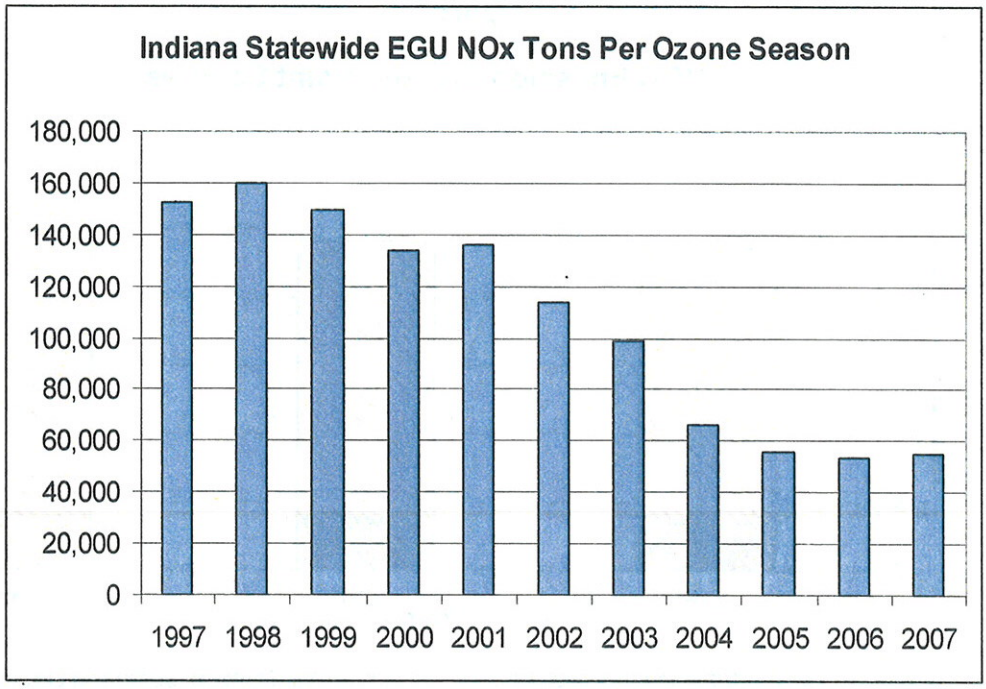


Table 3
Trends in EGU Ozone Season NOx Emissions Statewide in Indiana

Year	NOx 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

Figure 7



Additional control measures already in place or being implemented over the next few years will provide an ample margin of safety for the maintenance area. The control measures already in place (such as the NOx SIP Call, CAIR, Tier 2 Vehicle Standards, Heavy Duty Gasoline and Diesel Highway Vehicle Standard, Large Non-Road Diesel Engine Standards, Non-Road Spark-Ignition Engines and Recreational Engines Standard) and others that are on the way (Architectural and Industrial Maintenance Coatings, and the Consumer and Commercial Coatings Rule) can be implemented sooner than any of the contingency measures listed in the Maintenance Plan. These future national and local emission control strategies to be implemented in the near future will ensure that the area's air quality will continue to be in attainment of the ozone NAAQS, and provide for an ample margin of safety.

IDEM believes that this Action Level Response study in conjunction with the Redesignation Petition and Maintenance Plan for Clark and Floyd counties, Indiana satisfy Indiana's obligation under Section 172(c) of the Clean Air Act to demonstrate how the area attained and will continue to attain the NAAQS for ozone. 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/ghf

Attachments:
LADCO's Regional Air Quality Analyses for Ozone, $PM_{2.5}$, and Regional Haze: Final Technical Support Document, April 25, 2008.

cc: 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
Gale Ferris, IDEM