



STATE OF MICHIGAN
DEPARTMENT OF NATURAL RESOURCES & ENVIRONMENT
LANSING

JENNIFER M. GRANHOLM
GOVERNOR

REBECCA A. HUMPHRIES
DIRECTOR

May 12, 2010

Ms. Susan Hedman, Regional Administrator
U.S. Environmental Protection Agency
Region 5
77 West Jackson Boulevard
Chicago, Illinois 60604-3950

Dear Ms. Hedman:

The Michigan Department of Natural Resources and Environment (DNRE) submits this request in support of a redesignation to attainment of the 0.08 parts per million 8-hour ozone National Ambient Air Quality Standard for Allegan County, Michigan, and a proposed revision to the Michigan State Implementation Plan.

The attached redesignation request and maintenance plan for Allegan County documents the public notice and comment process.

The DNRE requests that the U.S. Environmental Protection Agency (EPA) proceed with final review and approval of this submittal. If you have any questions or need additional information, please contact Mr. G. Vinson Hellwig, Chief, Air Quality Division, at 517-373-7069, or you may contact me.

Sincerely,

Rebecca A. Humphries
Director
517-373-7917

Acting

Attachment

cc/att: Mr. John Mooney, EPA
Ms. Kathleen D'Agostino, EPA
Mr. Jim Sygo, Deputy Director, Environmental Protection, DNRE
Mr. G. Vinson Hellwig, DNRE



State of Michigan

Request

to

Redesignate Allegan County to Attainment Status
for the
Ozone National Ambient Air Quality Standard

and

Proposed Maintenance Plan Revision
to the
Michigan State Implementation Plan

Michigan Department of Natural Resources and Environment
Air Quality Division



May 12, 2010

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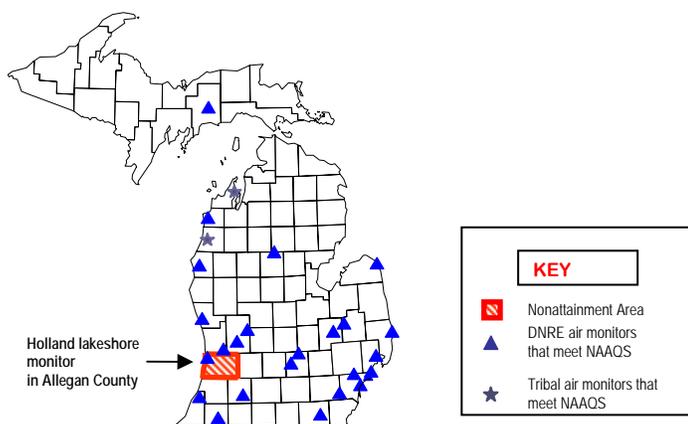
1. INTRODUCTION

The State of Michigan, through the Michigan Department of Natural Resources and Environment (DNRE), is asking the U.S. Environmental Protection Agency (EPA) to make a determination that Allegan County, Michigan, is in attainment with the 0.08 parts per million (ppm) ozone National Ambient Air Quality Standards (NAAQS), to change the legal status of the area from nonattainment to attainment, and to approve the maintenance plan as a revision to the Michigan State Implementation Plan (SIP).

The EPA established a revised NAAQS for ozone in 1997 and designated areas in Michigan as attainment or nonattainment of this standard in April 2004. The designations were based on design values derived from air quality monitoring data for the years 2001-2003. Design values above 0.084 ppm are considered to be violating the standard, too high to be protective of health. The EPA designated 25 counties in Michigan as nonattainment.

Air quality monitoring data collected in the 2002-2004 period showed improved ozone design values in 11 of the original 25 counties. For the 2003-2005 period an additional five counties had attainment level design values. The 16 counties were redesignated as attainment in 2007. In 2009, eight additional counties in Southeast Michigan were redesignated to attainment based on design values for 2006-2008. Now, the most recent ozone data, for 2007-2009, shows attainment levels of ozone at the Allegan County monitor in Holland, Michigan. This is the sole remaining ozone nonattainment area in Michigan (**Figure 1.1**).

Figure 1.1: Map of Ozone Monitors and Nonattainment Area



2. REDESIGNATION PACKAGE COMPONENTS

Section 107 of the Clean Air Act (CAA) establishes requirements to be met in order for an area to be qualified for redesignation to attainment including:

- A determination that the area has attained the NAAQS;
- An approved SIP for the area under Section 110(k) of the CAA;

- A determination that the improvement in air quality is due to permanent and enforceable reductions in emissions resulting from implementation of the SIP and applicable requirements;
- A fully approved maintenance plan under Section 175A of the CAA; and
- A determination that all Section 110 and Part D requirements under the CAA have been met.

This document summarizes compliance with each required component of an attainment redesignation.

3. DEMONSTRATION OF ATTAINMENT OF THE STANDARD

The DNRE maintains a comprehensive network of ozone air quality monitors throughout Michigan with the primary objective being to determine compliance with the ozone NAAQS. The DNRE submits network reviews to the EPA Region 5 annually to ensure that air monitoring operations comply with all applicable federal requirements.

Data from air quality monitors indicates whether or not violations of the ozone NAAQS are occurring. The design value is the three-year average of the fourth highest 8-hour average values, based on data from each of the monitoring sites in an attainment or nonattainment area, rounded to the nearest 0.01 ppm. For the period 2007-2009, the design value at the Allegan County site in Holland is 0.08 ppm. **Table 3.1** shows the design value for 2009, confirming attainment of the NAAQS. **Table 3.2** shows historic 8-hour ozone design values at the Holland site.

Table 3.1: Holland 2009 Monitor Data Design Value for Ozone NAAQS (ppm)

COUNTY	MONITORS (AQS ID)	4 TH HIGH 2007	4 TH HIGH 2008	4 TH HIGH 2009	3-YR AVG	DESIGN VALUE 3-YR AVERAGE ROUNDED
Allegan	260050003	0.094	0.073	0.076	0.081	0.08

Table 3.2: Historic 8-Hour Ozone Design Values (ppm)

*4th highest 8-hour average and 3-year average truncated

**Final site average rounded

SITE	AQS ID	YEAR	4 TH HIGHEST 8-HOUR MAX *	3-YR AVG	SITE DESIGN VALUE**
Holland	260050003	1992	0.058	8-25-92 sampling began	
Holland	260050003	1993	0.081		
Holland	260050003	1994	0.092		
Holland	260050003	1995	0.110	0.094	0.09
Holland	260050003	1996	0.090	0.097	0.10
Holland	260050003	1997	0.095	0.098	0.10
Holland	260050003	1998	0.097	0.094	0.09
Holland	260050003	1999	0.091	0.094	0.09
Holland	260050003	2000	0.080	0.089	0.09
Holland	260050003	2001	0.092	0.087	0.09
Holland	260050003	2002	0.105	0.092	0.09
Holland	260050003	2003	0.095	0.097	0.10
Holland	260050003	2004	0.079	0.093	0.09
Holland	260050003	2005	0.094	0.089	0.09
Holland	260050003	2006	0.091	0.088	0.09
Holland	260050003	2007	0.094	0.093	0.09
Holland	260050003	2008	0.073	0.086	0.09
Holland	260050003	2009	0.076	0.081	0.08

The completeness criteria for ambient monitoring data are specified in *Title 40 of the Code of Federal Regulations (CFR), Part 50, National Primary and Secondary Ambient Air Quality Standards, Appendix I*; and quality assurance criteria are specified in *40 CFR, Section 58.10, Quality Assurance*. A minimum completeness of 75 percent annually and 90 percent over a three-year period is required.

Data completeness information is presented in **Table 3.3**. The monitor in Holland meets the annual and three-year completeness criteria. The quality assurance criteria in *40 CFR, Section 58.10* have also been met.

Table 3.3: Data Completeness

SITE	AQS ID	YEAR	ANNUAL % COMPLETE	3-YEAR % COMPLETE
Holland	260050003	2007	95	95
		2008	95	
		2009	95	

4. APPROVAL AND COMPLIANCE WITH CAA SECTION 110 AND PART D REQUIREMENTS

The Allegan County nonattainment area is unclassified, and thus subject to requirements under Part D, Subpart 1 of the CAA. Section 110 of the CAA delineates general SIP requirements and Part D contains requirements specific to Subpart 1 nonattainment areas. Allegan County meets all applicable requirements for ozone redesignation under these provisions.

Allegan County was an unclassified, incomplete data nonattainment area under the 1-hour ozone NAAQS. The area was redesignated to attainment in 2001 (*65 CFR Federal Register [FR] 70490*). The EPA determined that all ozone SIP requirements had been met in approving the attainment redesignation of the 1-hour ozone NAAQS. New nonattainment area requirements for this 0.08 ppm 8-hour ozone NAAQS required to be completed for this attainment redesignation include only a new baseline emission inventory. Michigan's 8-hour ozone baseline inventory for 2002 was submitted to the EPA in July 2006. However, a 2005 baseline inventory, the nonattainment year in this redesignation package, is now being presented as Michigan's ozone baseline inventory to meet the baseline SIP inventory requirement. This nonattainment inventory is the 2005 base M inventory compiled for the Lake Michigan Air Directors' Consortium (LADCO) planning efforts. Onroad mobile emissions inventories were prepared by the Michigan Department of Transportation (MDOT).

Michigan's SIP contains all required emission control programs related to ozone under Section 110 of the CAA. Programs for emissions limitations, permitting, emissions inventories and statements, emissions fees, enforcement authorities, and ambient monitoring have been implemented in Michigan and are included in the SIP. Michigan has met all Section 172, Part D requirements relevant to this redesignation.

5. DEMONSTRATION OF AIR QUALITY IMPROVEMENT

Improvement in air quality must be reasonably attributed to emissions reductions of the ozone precursor pollutants nitrogen oxides (NO_x) and volatile organic compounds (VOC) that are permanent and enforceable. An examination of NO_x and VOC emissions from a period of nonattainment (2005) to attainment (2008) indicates a decline in overall emissions during this time period. The source of emissions data is the DNRE Emissions Inventory processed by LADCO to yield summer day county totals (base M). Both nonroad and onroad emissions were calculated specifically for 2005 using the latest version of the Mobile and National Mobile Inventory Model models. Details regarding this data are included in Appendix A. **Table 5.1** identifies emission reductions by source category. Both VOC and NO_x emissions decreased from 2005-2008 in Allegan County.

Table 5.1: Allegan County Emission Reduction Demonstration for 2005 and 2008
All Units are in tons per summer weekday

	Year	Point	Area	Onroad	Nonroad	Total
VOC	2005	2.02	10.00	4.70	6.16	22.88
	2008	1.52	9.33	3.93	4.59	19.37
NOx	2005	2.33	1.00	8.43	4.44	16.20
	2008	3.45	1.02	6.92	4.55	15.94

Reductions in emissions between 2005 and 2008 can be attributed to regional and federal emissions control programs. The Federal Motor Vehicle Control Program has produced significant emissions reductions from onroad and nonroad vehicles throughout the country. Phase-in of federal "Tier 2" standards began in 2004. Standards for light-duty passenger vehicles, including sport utility vehicles, minivans, and pick-up trucks; gasoline sulfur content regulations; nonroad diesel engine standards; and heavy-duty diesel vehicle regulations all contributed to a reduction in emissions of NOx and VOC. These reductions are permanent and enforceable and have contributed to the overall improvement in ozone levels. Additionally, electric generating units (EGUs) and other large sources of NOx such as stationary boilers have reduced emissions due to requirements of the NOx SIP Call and the Acid Rain program.

4. MAINTAINING OZONE ATTAINMENT INTO THE FUTURE

A maintenance plan must demonstrate continued attainment for at least ten years after approval of redesignation. Section 175A of the CAA sets forth the elements of a maintenance plan for areas seeking redesignation from nonattainment to attainment. Eight years after redesignation, a revised maintenance plan for the next ten years must be submitted to the EPA. To address the possibility of future NAAQS violations, the maintenance plan must contain contingency measures.

Future attainment is demonstrated through emission inventory projections, and includes an attainment year inventory for 2008, an interim year inventory for 2018, and a projected maintenance inventory for 2021. The future year 2021 inventories for VOC and NOx remain below attainment year 2008 emissions levels to assure that local contribution to ozone formation will not exceed current levels. Continuing reductions in ozone precursor emissions will be realized from fleet turnover, Maximum Achievable Control Technology (MACT) standards for hazardous air pollutants, and federal diesel emissions programs. The introduction in 2007 of less volatile consumer and commercial products through Michigan R 336.1660 and R 336.1661 will produce continuing reductions. Due to the legal uncertainty of the Clean Air Interstate Rule (CAIR) future year NOx reductions, a conservative 2018 and 2021 inventory was prepared without the NOx reductions assumed from CAIR for the two subject sources in this county. The maintenance plan inventory emissions totals for VOC and NOx are provided in **Table 6.1**.

Table 6.1: Maintenance Plan Emissions Inventories for 2008, 2018, and 2021
All units are in tons per day

	Year	Point	Area	Onroad	Nonroad	Total
VOC	2008	1.52	9.33	3.93	4.59	19.37
	2018	2.79	8.61	2.53	3.88	17.81
	2021	2.91	8.16	2.28	2.20	15.55
NOx	2008	4.45	1.02	6.92	4.55	16.94
	2018	2.10	1.09	3.10	2.04	8.33
	2021	2.13	1.11	2.71	2.11	8.06

A comprehensive baseline emissions inventory was prepared by the DNRE and MDOT for the year 2005. The inventory was further processed by LADCO to produce typical summer day totals for 2005 and 2018. These inventories are consistent with LADCO base M Round 5 modeling inventories, as posted in August 2007. The onroad mobile emissions inventories for 2005, 2008, 2018, and 2021 were prepared by MDOT. The future year inventories for 2018 and 2021 include existing control measures and control measures known to be on the way. Full documentation of methodologies and models used to derive emission inventories is contained in Appendix A. The attainment year 2008 stationary point source EGU and non-EGU summer day emissions were calculated by the DNRE using the 2008 Michigan Air Emissions Reporting System (MAERS) point source inventory. The 2008 stationary area source emissions summer day emissions were interpolated using Linear Regression Analysis. The 2008 marine, aircraft, and rail (MAR) summer weekday emissions were interpolated from the LADCO 2005, 2009, and 2018 summer weekday emissions inventories. The 2008 and 2021 nonroad mobile summer weekday emissions were estimated using the EPA NONROAD 2008 emissions model. The 2018 stationary point and area emissions, as well as MAR and nonroad emissions, are from LADCO emissions inventories. The 2021 stationary point EGU and non-EGU, stationary area, and MAR summer weekday emissions were extrapolated using Linear Regression Analysis from the 2005, 2008, 2009, and 2018 summer weekday emissions. NOx reductions from the federal CAIR are not included in the 2018 and 2021 inventories.

Maintenance Commitments

Michigan will develop and submit to EPA, no later than eight years after approval of this redesignation request, a new maintenance plan covering the next ten-year period.

The DNRE will continue to track ozone levels through the operation of an EPA-approved monitoring network as necessary to demonstrate ongoing compliance with the NAAQS. Data will be entered into the Air Quality Subsystem (AQS) on a timely basis in accordance with federal regulations. The DNRE will continue to produce periodic emission inventories as required by the federal Consolidated Emissions Reporting Rule (40 CFR, Part 51) to track future levels of emissions. The control measures for VOC and NOx emissions that were contained in the SIP before redesignation of these areas to attainment shall be retained as required by Section 175A of the CAA.

Michigan will expeditiously enact legal authorities needed for additional contingency measures, and/or studies of conditions resulting in unexpected ozone increases in response to triggering events.

Action Level Response

An Action Level Response will be prompted when a two-year average fourth high monitored value of 0.085 ppm or higher occurs within the maintenance area. A review of circumstances leading to the high monitored values will be conducted if this response is triggered. The DNRE will explore whether a special event, malfunction, or noncompliance with permit conditions resulted in high ozone levels in order to immediately address corrective measures. The DNRE will also review meteorological conditions and transport levels during high ozone episodes. This review will be conducted within six months following the close of the ozone season. If the DNRE determines that contingency measure implementation is necessary to prevent a future violation, the DNRE will select and implement a measure that can be put in place promptly.

Contingency Measure Response

If a violation of the ozone NAAQS occurs, Michigan will select one or more control measures from the following list of potential contingency measure options for implementation. The timing for implementation is dependent on the process needed for legal adoption and source compliance, which varies for each measure. Some potential measures/controls have already been promulgated and are scheduled to be implemented at the federal or state levels. Other measures will need state administrative rulemaking or legislative approval. The DNRE will seek to expedite the process for securing enabling authority and implementing the selected measures as needed to reduce ozone levels, with a goal of having measures in place as expeditiously as practicable, and within 18 months after state certification of the violation. Opportunity for public participation in the contingency measure response will be provided. The DNRE will submit the identified enforceable contingency measures to the EPA as revisions to the SIP as needed.

List of Potential Contingency Measures

1. Reduced VOC content in Architectural, Industrial, and Maintenance coating rule.
2. Auto body refinisher self-certification audit program.
3. Reduced VOC degreasing/solvent cleaning rule.
4. Diesel retrofit program.
5. Reduced idling program.
6. Portable fuel container replacement rule.
7. Food preparation flame broiler control rule.
8. Lower Reid Vapor Pressure gasoline program.

5. TRANSPORTATION CONFORMITY BUDGET

Transportation conformity is required by Section 176 (c) of the CAA. The EPA's conformity rule requires that transportation plans, programs, and projects conform to SIPs. The rule establishes the criteria and procedures for the determination. Conformity to a SIP means that transportation activities will not produce air quality violations, worsen existing violations, or delay timely attainment of the NAAQS.

Estimates of onroad motor vehicle emissions are projected for the maintenance period, which must be at least ten years, to assess emission trends and to ensure continued compliance with the ozone NAAQS. Onroad vehicle emissions include those from cars, buses, and trucks driven on public roadways. These estimates are considered a ceiling or “budget” for emissions and are used to determine whether transportation plans and projects conform to the SIP. Estimated onroad mobile emissions of VOC and NOx must not exceed the emission budgets contained in the maintenance plan. The emissions estimates for this sector reflect appropriate and up-to-date assumptions about vehicle miles traveled, socio-economic variables, fuels used, weather inputs, and other planning assumptions. Typically, the formula for calculating the maintenance conformity budgets is:

Onroad emissions inventory for maintenance year + safety margin

Where:

Safety margin = 90 percent of emission reduction from all sources between the attainment year and the maintenance year.

However, the general rule is not to let conformity budgets exceed the total onroad emissions from the attainment year inventory (2008). **Table 7.1** shows the conformity budgets resulting from this formula. The calculated budgets are equal to the attainment year emissions inventory. The final motor vehicle budgets are shown in **Table 7.2**.

Table 7.1: Allegan County Motor Vehicle Emissions Budget Calculation
In Tons per Day

		Point Total	Area Total	Onroad	Nonroad	Total
VOC	2008	1.52	9.33	3.93	4.59	19.37
	2021	2.91	8.16	2.28	2.20	15.55
	Emission Reduction					9.82
	Safety Margin					8.83
	Conformity Budget					3.93
NOx	2008	4.45	1.02	6.92	4.55	16.94
	2021	2.13	1.11	2.71	2.11	8.06
	Emission Reduction					8.88
	Safety Margin					7.99
	Conformity Budget					6.92

Table 7.2: Transportation Conformity Emissions Budget for Allegan County
In Tons per Day

Maintenance Area	VOC	NOx
Allegan County	3.93	6.92

8. PUBLIC INVOLVEMENT

In accordance with Section 110(a) (2) of the CAA, public participation in the SIP process was provided as follows:

Notice of availability of the ozone redesignation documents and notice of the public hearing and comment period were posted on the DNRE Web site and in the *DNRE Calendar* at <http://www.michigan.gov/mdnre> and <http://www.michigan.gov/mdnre/deqcalendar>.

The public hearing for this redesignation request, including the baseline emissions inventory of VOC and NOx and the maintenance plan SIP revision, was to be held on April 12, 2010, at Constitution Hall, 525 West Allegan, Lansing, Michigan, if a hearing was requested by March 31, 2010. The DNRE did not receive a hearing request and the tentative public hearing was cancelled. In addition, no written comments were received during the public comment period.

The March 1, 2010, DNRE Calendar posting comment and hearing notice for Allegan County Redesignation Request is provided in Appendix B, which contains the following notice:

Other Decisions Before the Office of the Director

AIR QUALITY
DIVISION
See Map - 

OZONE ATTAINMENT REDESIGNATION PETITION FOR ALLEGAN COUNTY, AND MAINTENANCE PLAN, STATE IMPLEMENTATION PLAN (SIP) REVISION. The DNRE has prepared a proposal for a redesignation petition and maintenance plan for Allegan County in association with the 0.08 parts per million National Ambient Air Quality Standards (NAAQS) for ozone. At the conclusion of the 2009 ozone season, the monitor in Holland, Michigan, recorded air quality that meets the 0.08 ppm NAAQS for ozone. The DNRE plans to submit the redesignation petition and maintenance plan to the U.S. Environmental Protection Agency to formally request that Allegan County be redesignated to attainment and classified as "maintenance." This public comment period will meet the public participation requirements for a SIP submittal. The proposed redesignation document can be viewed on the Web at www.michigan.gov/deq/air. Written comments will be taken through March 31, 2010. If a public hearing is requested in writing by March 31, 2010, a public hearing will be held April 12, 2010 (see April 12, 2010 listing in this calendar). Written comments should be sent to the Michigan Department of Natural Resources and Environment, Air Quality Division, P.O. Box 30230, Lansing, Michigan 48909-7760, to the attention of Mary Maupin. Information Contact: *Mary Maupin*, 517-373-7039. Decision-maker: *G. Vinson Hellwig*, Air Quality Division Chief.

Appendix A

OZONE REDESIGNATION EMISSIONS INVENTORY SUPPORT DOCUMENTATION

FOR

ALLEGAN COUNTY, MICHIGAN

Michigan Department of Natural Resources and Environment
Air Quality Division

May 12, 2010

Attainment and Maintenance Plan Inventories

Emissions inventory documentation for the Allegan County ozone redesignation request is provided herein. The onroad mobile estimates for 2005, 2008, and future years 2018 and 2021 were prepared by the Michigan Department of Transportation (MDOT). The stationary point source electric generating units (EGU) and non-EGU, stationary area, off-road, and marine, aircraft, and railroad (MAR) summer day emissions for 2005 and 2018 represent typical summer weekday emissions consistent with inventories for the Midwest Regional Planning Organization. The future year projections take into account existing control measures and measures that are known to be on the way. These inventories are taken from the Lake Michigan Air Directors Consortium (LADCO) base M Round 5 inventories, as posted in August 2007. The attainment year 2008 stationary point source EGU and non-EGU summer day emissions were calculated by the Michigan Department of Natural Resources and Environment (DNRE), Air Quality Division (AQD) using the 2008 Michigan Air Emissions Reporting System (MAERS) point source inventory. The 2008 stationary area source emissions summer day emissions were extrapolated using Linear Regression Analysis. The 2008 MAR summer weekday emissions were interpolated from the LADCO 2005, 2009 and 2018 summer weekday emissions inventories. The 2008 and 2021 nonroad mobile summer weekday emissions were estimated by the DNRE, AQD using the U.S. Environmental Protection Agency (EPA) NONROAD 2008 emissions model. The 2021 stationary point EGU and non-EGU, stationary area, and MAR summer weekday emissions were extrapolated from the 2005, 2008, 2009, and 2018 summer weekday emissions.

I. EGU Point Sources

The table below summarizes typical ozone season weekday EGU point source emissions in Allegan County for the years 2005, 2008, 2018 and 2021.

DAILY TOTAL VOLATILE ORGANIC COMPOUNDS (VOC) (tons)

COUNTY	2005	2008	2018	2021
Allegan	0.00	0.00	0.001	0.0

DAILY TOTAL NITROGEN OXIDES (NOX) (tons)

COUNTY	2005	2008	2018	2021
Allegan	0.30	0.08	0.08	0.03

2005 and 2008 EGU Point Source Methodologies

The 2005 and 2008 Point Source data is consistent with the data submitted for the National Emission Inventory (NEI) and follows the same required data preparation protocols. Typical summer weekday values are based on the annual total emissions reported at the emitting process level by facilities, adjusted to typical summer weekday values through use of quarterly throughput and days per week operating information at the emitting process level. For portable facilities, emissions are apportioned to the county of operation based on facility reporting. EGU emissions are segregated from non-EGU emissions using a list of EGU facilities developed in cooperation with the LADCO states.

Growing EGU Point Source Year 2018:

The 2018 data is extracted from LADCO emissions modeling and adjusted to eliminate assumed reductions from the Clean Air Interstate Rule (CAIR). The NOx emissions rate for 2018 and 2021 for the Holland Board of Power and Water turbines was changed from 0.125 lbs/mmBtu to 0.15 lbs/mmBtu. With the exception of these turbines, the source scenario is the base M round 5 modeling run posted in August 2007. The following is an excerpt from a Regional Planning Organization (RPO) Integrated Planning Model (IPM) document, which details the methodologies used to project EGU emissions to 2018 in the IPM model:

Inter-RPO IPM Global Parameter Decisions (May 11, 2005):

The following summarizes the decisions made by VISTAS, MRPO, CENRAP, and MANE-VU for global assumptions to be used in EGU forecasting with IPM. These decisions and changes are made to IPM version 2.1.9 assumptions, which can be referenced via the EPA's IPM website at:

<http://www.epa.gov/airmarkets/epa-ipm/>

A. Market Assumptions

1. National Electricity and Peak Demand
Decision: Use unadjusted Energy Information Administration (EIA) Annual Energy Outlook (AEO) 2005 national electricity and peak demand values.
2. Regional Electricity and Demand Breakout
Decision: Use the existing IPM region breakdown as conducted in earlier modeling.
3. Natural Gas Supply Curve and Price Forecast
Decision: Take existing supply curves and scale application to EIA AEO 2005 price point. In this approach, the EPA 2.1.9 gas supply curves will be scaled in such a manner that IPM will solve for AEO 2005 gas prices when the power sector gas demand in IPM is consistent with AEO 2005 power sector gas demand projections. In instances where the power sector gas demand in IPM is lower than that of AEO 2005 projections, IPM will project gas prices that are lower than that in AEO 2005 and vice versa.
4. Oil Price Forecast
Decision: Use EIA AEO 2005 values.
5. Coal Supply and Price Forecast
Decision: Take existing supply curves and scale application to EIA AEO 2005 price points, coal supply regions, and coal grades. In this approach, the coal supply curves used in EPA 2.1.9 are scaled in such a manner that the average mine mouth coal prices that the IPM is solving in aggregated coal supply regions are comparable to AEO 2005. Due to the fact that the coal grades and supply regions between AEO 2005 and the EPA 2.1.9 are not directly comparable, this is an approximate approach and has to be performed in an iterative fashion. This approach does not involve updating the coal transportation matrix with EIA assumptions due to significant differences between the EPA 2.1.9 and EIA AEO 2005 coal supply and coal demand regions.

- B. Technical Assumptions
1. Firmly Planned Capacity Assumptions
Decision: Use revisions and new data as provided by RPOs and stakeholders.
Decision: Allow North Carolina Clean Smokestacks 2009 data as provided to define “must run” units.
 2. Pollution Control Retrofit Cost and Performance [Sulfur Dioxide (SO₂), Nitrogen Oxides (NO_x), and Mercury] Decision: Retain pollution control retrofit cost and performance values.
 3. New Conventional Capacity cost and performance assumptions
Decision: Use EIA AEO 2005 cost and performance assumptions for new conventional capacity.
Decision: Retain existing 2.1.9 framework cost and performance for new renewable capacity.
Decision: Exclude constraint on new capacity type builds (i.e., no new coal).
 4. SO₂ Title IV Allowance Bank
Decision: Use existing SO₂ allowance bank value (4.99 million tons) for 2007.
 5. Nuclear Relicensing and Uprate
Decision: Use existing IPM configuration with updated EIA AEO 2005 (~\$27/kW) incurrence cost for continued operation.
- C. Strategy Assumptions
1. Clear Air Mercury Rule (CAMR)
Decision: Include CAMR in future rounds of IPM modeling.
 2. Renewable Portfolio Standards (RPS)
Decision: Model RPS based on the most recent Regional Greenhouse Gas Initiative (RGGI) documentation using a single RPS region for Massachusetts, Rhode Island, New York, New Jersey, Maryland and Connecticut. The RPS requirements within these states can be met by renewable generation from New England, New York and the PJM Interconnection, L.L.C. The EPA 2.1.9 methodology and hardwired EIA AEO 2004 projected renewable builds for the remainder of the country.
- D. Other Assumptions
1. Run Years
Decision: Revise runs years to 2008 [2007-08], 2009 [2009], 2012 [2010-13], 2015 [2014-17], 2018 [2018], 2020 [2019-22], and 2026 [2023-2030].
 2. Canadian Sources
Decision: Utilize existing v.2.1.9 configuration (no Canadian site specific sources).

II. Non-EGU Point Sources

The table below summarizes typical ozone season weekday non-EGU point source emissions for Allegan County for the years 2005, 2008, 2018 and 2021.

DAILY TOTAL VOC (tons)

COUNTY	2005	2008	2018	2021
Allegan	2.02	1.52	2.78	2.91

DAILY TOTAL NOX (tons)

COUNTY	2005	2008	2018	2021
Allegan	2.03	3.37	2.02	2.10

2005 and 2008 Non-EGU Point Source Methodologies

The 2005 and 2008 Point Source data is consistent with the data submitted for the National Emission Inventory (NEI) and follows the same required data preparation protocols. Typical summer weekday values are based on the annual total emissions reported at the emitting process level by facilities, adjusted to typical summer weekday values through use of quarterly throughput and days per week operating information at the emitting process level. For portable facilities, emissions are apportioned to the county of operation based on facility reporting. EGU emissions are segregated from non-EGU emissions using a list of EGU facilities developed in cooperation with the LADCO states. An increase in NOx emissions between 2005 and 2008 resulted from resumed production activity at a paper facility subject to NOx SIP Call limits.

Growing Stationary Non-EGU Point, Stationary Area, Locomotive, Shipping, and Aircraft Categories to the Year 2018:

The 2018 forecast of anthropogenic emissions is based on the work of E.H. Pechan & Associates, Inc., which is documented in a follow-up report, E.H. Pechan & Associates, Inc., Development of Growth and Control Factors for Lake Michigan Air Directors Consortium, Final Report, December 14, 2004. The report is available at: <http://www.ladco.org/reports/rpo/MWRPOprojects/Strategies/Growth&ControlDraftReportOct26-04.pdf>.

The Pechan growth factors were used to estimate LADCO base K future year emissions posted in January 2006. The future year emissions represent both emission controls that already exist and those that are known to be on the way. To assess the effectiveness of control strategy scenarios emission activity and control data were needed to forecast growth from the 2002 base year inventory to future year inventories for 2007, 2008, 2009, 2012, and 2018. Pechan prepared emission control factors to support forecasting for each of these years and prepared non-EGU point and area and nonroad source growth factors for each year over the entire period from 2002-2018.

Estimating Stationary EGU, Stationary Non-EGU Point, Stationary Area, Locomotive, Shipping, and Aircraft Categories to the Year 2021:

Summer day emissions for Future Year 2021 were estimated using Linear Regression Analysis. The non-Attainment Year 2005 for EGU and Non-EGU Point, the LADCO Base M 2005 summer day for MAR, Attainment Year 2008 for EGU and Non-EGU Point, the LADCO Base M 2009 summer day for MAR, and the Interim Year 2018 from LADCO Base M 2018

summer day for EGU, Non-EGU, and MAR were used in the Linear Regression Analysis to obtain the Future Year 2021 Summer Day emissions for NOx and VOC.

III. Stationary Area Sources

The table below summarizes typical ozone season weekday stationary area source emissions for Allegan County for the years 2005, 2008, 2018 and 2021.

DAILY TOTAL VOC (tons)

COUNTY	2005	2008	2018	2021
Allegan	10.00	9.33	8.61	8.16

DAILY TOTAL NOX (tons)

COUNTY	2005	2008	2018	2021
Allegan	1.00	1.02	1.09	1.11

A. Area Source Methodologies for the 2005 and 2008 Inventories

The following is a description of the various area source categories that were inventoried for the 2005 and 2008 emissions inventories as required under the Consolidated Emissions Reporting Rule (CERR) and the Air Emissions Reporting Rule (AERR) and documentation on the methodologies used to compile the inventories. The following chart shows the specific air pollutants required by the CERR, AERR and base-year inventories for the 8-hour ozone and PM_{2.5} National Ambient Air Quality Standards (NAAQS) and regional haze regulations.

Required Air Pollutants Emissions

	CO	NH3	NOX	Pb	PM ₁₀ -PRI	PM25-PRI	SOX	VOC
CERR and AERR	√	√	√	√	√	√	√	√
Ozone NAAQS	√		√					√
PM _{2.5} NAAQS		√	√		√	√	√	√
Regional haze		√	√		√	√	√	

Multiple emission estimates for the 2005 and 2008 inventories are provided to reflect temporal resolution as required by the CERR and AERR and for base-year inventories for the ozone and PM_{2.5} NAAQS.

These requirements are summarized as follows:

Temporal Resolution Requirements for Inventories

	Statewide Inventory	Summer Weekday
CERR and AERR	Required	
Ozone NAAQS	Required	Required
PM _{2.5} NAAQS	Required	Optional
Regional haze	Required	Optional

Consequently, the statewide year 2005 and 2008 emission estimates reflect the annual and summer weekday emissions for the referenced air pollutants.

Summary of Area Sources Pollutants Inventoried for 2002, 2005, and 2008:

The following stationary area source process and related methodologies were used to estimate the 2002, 2005, and 2008 annual and summer day emissions.

Oil and Natural Gas Production:

The oil and gas production area source category represents those VOC emissions that result from the exploration, drilling, and the field processing of crude oil and natural gas. Fugitive VOC emissions occur from control valves, relief valves, spills, pipe fittings, pump seals and compressor seals in the production and field processing of crude oil and natural gas. Individual county crude oil and natural gas production data was obtained from the DNRE, Geological and Land Management Division. The VOC emission factors were derived from the EPA publication entitled: Revision of Evaporative Hydrocarbon Emission Factors (EPA – 450/3-76-039). The emission factors are 107 pounds of emitted VOCs per thousand barrels of produced crude oil and 175 pounds of emitted VOCs per million cubic feet of produced natural gas. For crude oil production, emission controls reflecting National Emissions Standards for Hazardous Air Pollutants (NESHAP) application of a 45 percent reduction in VOCs were considered. This control level was based on the EPA determination of an overall 45 percent reduction in VOCs from oil and natural gas production facilities. This control reduction was obtained from a May 14, 1999, EPA fact sheet that was published with the Final Air Toxics Rules for Oil and Natural Gas Production Facilities and Natural Gas Transmission and Storage Facilities. Rule effectiveness of 80 percent was applied, and point source deductions were performed to estimate the area source contribution. For natural gas, emission controls from Michigan air pollution control rule R336.1629 of 72 percent and the federal emission control reduction in VOCs of 19 percent associated with NESHAP application to natural gas transmission and storage were applied. The 19 percent emission reduction was obtained from the May 14, 1999, EPA fact sheet that was published with the Final Air Toxics Rules for Oil and Natural Gas Production Facilities and Natural Gas Transmission and Storage Facilities. Area source emissions were reported using Standard Classification Code (SCC) 2310010000 for crude petroleum oil production and 2310020000 for natural gas production.

Vessel Loading/Ballasting:

Evaporative VOCs occur from Great Lakes ships when being loaded with gasoline and petrochemicals. Vapors are also displaced when cargo tanks are loaded with water for ballasting. The procedures used to estimate VOC emissions from vessel loading and ballasting activities started with obtaining a list of marine terminals at Michigan-based ports handling petroleum products from the MDOT. A survey form was sent to the marine terminals to acquire information on gasoline and petrochemical handling at each Michigan port and the time frames during which vessel loading/ballasting occurred. This state survey approach went beyond the EPA's prescribed inventory procedures in Volume III, Chapter 12 of the Emission Inventory Improvement Program January 2001 guidance for Marine Vessel Loading, Ballasting and Transit. The survey form requested information on days of operation, seasonal fuel transfer information on gasoline, distillate fuel oil, jet naphtha, jet kerosene, kerosene, residual fuel oil, and crude petroleum loading into ship and barge cargo tanks as well as ballast operations. The survey data was summed to derive individual county totals. The survey revealed that there were only two fuel types (contaminated gasoline, and residual fuel oil) where loading had occurred. VOC emission factors (0.00009 lbs/1000 gallons of residual fuel oil and 3.4 lbs/1000 gallons of gasoline) were applied to their respective fuel volumes to estimate emission losses. Although the EPA, on September 19, 1995, issued Federal Standards for Marine Tank Vessel Loading Operations and National Emission Standards for Hazardous Air Pollutants for Marine Vessel Loading Operations, the facilities in Michigan transferring fuel were exempt from control requirements. Emission estimates were based on emission factors without the application of control measures. Individual county VOC emission estimates from loading and ballasting operations were reported using the following SCC codes:

Vessel Loading/Ballasting Operations	Reported SCC Code
Vessel loading, distillate fuel oil	2505020090
Vessel loading, gasoline	2505020120
Vessel loading, residual fuel oil	2505020060
Vessel loading, crude oil	2505020030
Vessel loading, naphtha	2505020150
Vessel loading, jet kerosene	2505020180
Vessel loading, kerosene	2505020180
Vessel ballasting, gasoline	2505020900
Vessel ballasting, crude oil	2505020900

Service Station Loading (Stage I):

Gasoline vapor loss occurs at service stations when gasoline is unloaded from delivery tank trucks into underground storage tanks. The extent of vapor loss is dependent upon the method of filling (splash, submerge, or vapor balanced). In computing VOC emissions from service station loading, year 2002 gasoline throughput estimates were obtained from EIA's Petroleum Marketing Monthly data. The monthly data was summed to derive an estimated statewide gasoline total. County gasoline total estimates were determined by apportioning the statewide gasoline by the percent of state gasoline sales occurring within the county. County gasoline sales data was obtained from the U.S. Department of Commerce, Bureau of Census, Michigan 1997 Economic Census, Retail Trade, Geographic Area Series. State gasoline throughput consumption was apportioned on a county basis using the following mathematical equation:

$$Ct = St \times Cs/Ss$$

Where:

Ct = Estimated county gasoline consumption for year 2002

St = Statewide gasoline consumption for year 2002

Cs = County gasoline service station retail sales data

Ss = State gasoline service station retail sales data

VOC emission estimates were developed based upon the EPA's prescribed inventory procedures in Volume III, Chapter 11 of the Emission Inventory Improvement Program January 2001 Guidance for Gasoline Marketing (Stage I and Stage II) and subsequent September 2002 Draft Summary of the Analysis of the Emissions Reported in the 1999 NEI for Stage I and Stage II Operations at Gasoline Service Stations. Year 2002 and summer weekday emission factors were developed based on actual temperature, and Reid vapor pressure (RVP) fuel volatility information for various regions of the state to reflect the applicable RVP control measures. Monthly temperature data was obtained for the year 2002 from the NOAA, National Climatic Center Local Climatological Data that was utilized in determining year and summer day temperatures for the Michigan Upper Peninsula and Michigan Lower Peninsula regions. RVP data for marketed gasoline in 2002 was obtained from the Michigan Department of Agriculture, Motor Fuels Quality, Laboratory Division. VOC mission factors were developed for splash fill, submerge fill, and vapor balanced gasoline dispensing facilities on a county basis, which reflected the actual temperature and RVP of marketed gasoline products.

Stage I loading emission factors were determined using the methodology specified in September 2002 Draft Summary of the Analysis of the Emissions Reported in the 1999 NEI for Stage I and Stage II Operations at Gasoline Service Stations. The following equation is presented:

$$L = 12.46 \times SPM/T$$

Where: L = Loading loss (uncontrolled), pounds per 1000 gal of liquid loaded

S = A saturation factor where S = 0.6 for submerged loading with no vapor balance, S = 1.00 for submerge loading with vapor balance, and S = 1.45 = splash loading no vapor balance

P = True vapor pressure of liquid loaded, pounds per square Inch absolute (psia)

M = Molecular weight of vapors, pounds per pound-mole

T = Temperature of bulk liquid in degrees F + 460

The quantity of county gasoline throughput that is splash filled, submerge filled, and vapor balanced was estimated on the basis of past gasoline surveys, and the applicability of state regulations which require the installation of submerge fill or vapor balanced systems. These percentages were obtained from the year 1999 emissions inventory. The same county fractional percentages of splash filled, submerge filled, and vapor balanced were used in the year 2002 inventory for consistency with respect to prior emission inventories.

The respective emission estimates were reported using the following SCC codes:

Michigan Gasoline Marketing Stage I Emission SCC Codes

Stage I Type	SCC
Submerge filled loading	2501060051
Splash filled loading	2501060052
Vapor balanced loading	2501060053

The EPA, on December 19, 2003, issued final requirements for Stage I gasoline distribution in Standards of Performance for Bulk Gasoline Terminals and National Emission Standards for Gasoline Distribution Facilities (Bulk Gasoline Terminals and Pipeline Breakout Stations). These NESHAP requirements will be applied in point source inventories for bulk terminals.

Calculation of Stage I Emission Factors

Vapor Balance

Region	Year 2002	Ozone	Summer	Year 2002	Year 2002	Year 2002	Year 2002	Ozone	Summer	Year 2002	Year 2002	Year 2002	Year 2002	Ozone	Summer							
	Annual	Season	Weekday		Season						Summer	Season		Weekday	Annual	Season	Weekday					
	Emission	Emission	Emission		Annual						4/1/02-9/30/02	6/1/02-9/30/02		Season	Weekday	Annual	4/1/02-9/30/02	6/1/02-9/30/02	Saturation	Annual	4/1/02-9/30/02	6/1/02-9/30/02
	Factor	Factor	Factor		Temperature						Temperature	Temperature		Annual	RVP	RVP	True Vapor	True Vapor	True Vapor	Factor	Molecular	Molecular
lbs/1000 gal	lbs/1000 gal	lbs/1000 gal	F	F	F	RVP	4/1/02-9/30/02	6/1/02-8/31/02	Pressure P	Pressure P	Pressure P	S	Weight	Weight	Weight							
Upper Peninsula	0.70	0.85	0.93	50.6	66.7	76.3	10.7	9.4	8.8	4.4	5.4	6	1	65.06	66.4	66.8						
Lower Peninsula	0.79	0.96	1.01	57.5	73.2	81.3	10.7	9.4	8.8	5.02	6.2	6.6	1	65.06	66.4	66.8						
SE Michigan	0.78	0.85	0.87	57.5	73.2	81.3	10.4	8.5	7.5	4.95	5.4	5.6	1	65.47	67	67.7						

Submerge Fill

Region	Year 2002	Ozone	Summer	Year 2002	Year 2002	Year 2002	Year 2002	Ozone	Summer	Year 2002	Year 2002	Year 2002	Year 2002	Ozone	Summer							
	Annual	Season	Weekday		Season						Summer	Season		Weekday	Annual	Season	Weekday					
	Emission	Emission	Emission		Annual						4/1/02-9/30/02	6/1/02-9/30/02		Season	Weekday	Annual	4/1/02-9/30/02	6/1/02-9/30/02	Saturation	Annual	4/1/02-9/30/02	6/1/02-9/30/02
	Factor	Factor	Factor		Temperature						Temperature	Temperature		Annual	RVP	RVP	True Vapor	True Vapor	True Vapor	Factor	Molecular	Molecular
lbs/1000 gal	lbs/1000 gal	lbs/1000 gal	F	F	F	RVP	4/1/02-9/30/02	6/1/02-8/31/02	Pressure P	Pressure P	Pressure P	S	Weight	Weight	Weight							
Upper Peninsula	4.19	5.09	5.59	50.6	66.7	76.3	10.7	9.4	8.8	4.4	5.4	6	0.6	65.06	66.4	66.8						
Lower Peninsula	4.72	5.77	6.09	57.5	73.2	81.3	10.7	9.4	8.8	5.02	6.2	6.6	0.6	65.06	66.4	66.8						
SE Michigan	4.68	5.07	5.24	57.5	73.2	81.3	10.4	8.5	7.5	4.95	5.4	5.6	0.6	65.47	67	67.7						

Splash Fill

Region	Year 2002	Ozone	Summer	Year 2002	Year 2002	Year 2002	Year 2002	Ozone	Summer	Year 2002	Year 2002	Year 2002	Year 2002	Ozone	Summer							
	Annual	Season	Weekday		Season						Summer	Season		Weekday	Annual	Season	Weekday					
	Emission	Emission	Emission		Annual						4/1/02-9/30/02	6/1/02-9/30/02		Season	Weekday	Annual	4/1/02-9/30/02	6/1/02-9/30/02	Saturation	Annual	4/1/02-9/30/02	6/1/02-9/30/02
	Factor	Factor	Factor		Temperature						Temperature	Temperature		Annual	RVP	RVP	True Vapor	True Vapor	True Vapor	Factor	Molecular	Molecular
lbs/1000 gal	lbs/1000 gal	lbs/1000 gal	F	F	F	RVP	4/1/02-9/30/02	6/1/02-8/31/02	Pressure P	Pressure P	Pressure P	S	Weight	Weight	Weight							
Upper Peninsula	10.13	12.30	13.50	50.6	66.7	76.3	10.7	9.4	8.8	4.4	5.4	6	1.45	65.06	66.4	66.8						
Lower Peninsula	11.40	13.95	14.72	57.5	73.2	81.3	10.7	9.4	8.8	5.02	6.2	6.6	1.45	65.06	66.4	66.8						
SE Michigan	11.31	12.26	12.65	57.5	73.2	81.3	10.4	8.5	7.5	4.95	5.4	5.6	1.45	65.47	67	67.7						

Service Station Unloading/Vehicle Fueling (Stage II):

Motor vehicle fueling at service stations results in evaporative loss of gasoline. VOC emissions are produced during displacement of vaporized hydrocarbons and spillage of gasoline during refueling. EPA guidance, Volume III, Chapter 11 of the Emission Inventory Improvement Program January 2001 Guidance for Gasoline Marketing (Stage I and Stage II) recommends the MOBILE model be used to generate refueling (Stage II) emission factors for highway emission inventories. Additional procedures were presented in September 2002 Draft Summary of the Analysis of the Emissions Reported in the 1999 NEI for Stage I and Stage II Operations at Gasoline Service Stations. The MOBILE6 model was used to derive the Stage II emission factor by obtaining monthly emission factors in grams/ VOC mile, as well as fuel economy, as miles per gallon and vehicle miles traveled mix for the different gasoline vehicle types (e.g., Light Duty Gasoline Trucks, and Heavy Duty Gasoline Vehicles). For each vehicle type, the monthly emission factor was multiplied by the fuel economy to obtain an emission factor in unit grams of VOC/gallon.

$$\text{grams VOC/gallon} = \text{Grams/mile} \times \text{miles/gallon}$$

The Stage II grams/gallon refueling emission factor rates were prepared by the Southeast Michigan Council of Government (SEMCOG) using MOBILE6.2 reflecting state specific RVP and temperature data. The vehicle miles traveled mix for each vehicle types was used to calculate a single weighted monthly emission factor. Summer and average annual emission factors were developed for Southeast Michigan, the rest of the Lower Peninsula, and the Upper Peninsula. SEMCOG’s Stage II grams/ gallon emission factors are presented below.

SEMCOG Year 2002 Refueling Emission Rates for State of Michigan:

Average Type and Geographical Area	Grams/Gallon
Summer (Average of monthly refueling emission rates for June, July & August, 2002)	
Southeast Michigan (Livingston, Macomb, Monroe, Oakland, St. Clair, Washtenaw and Wayne counties)	2.398
Rest of Lower Peninsula (All counties in Lower Peninsula except the seven Southeast Michigan counties)	2.867
Upper Peninsula (All counties in the Upper Peninsula)	2.697
Average Annual (Average of monthly refueling emission rates)	
Southeast Michigan (Livingston, Macomb, Monroe, Oakland, St. Clair, Washtenaw and Wayne counties)	2.649
Rest of Lower Peninsula (All counties in Lower Peninsula except the seven Southeast Michigan counties)	2.765
Upper Peninsula (All counties in the Upper Peninsula)	2.542

All rates calculated using MOBILE6.2 model

The respective SEMCOG grams VOC/gallon were converted to lbs/1000 gallons.

$$\text{Lbs VOC/1000 gallons} = \text{Grams VOC/gallon} \times 1 \text{ lb/453 grams} \times 1000 \text{ gallons}$$

Year 2002 gasoline throughput estimates were obtained from EIA’s Petroleum Marketing Monthly data. The monthly data was summed to derive an estimated statewide gasoline total. County gasoline total estimates were determined by apportioning the statewide gasoline by the percent of state gasoline sales occurring within each county. County

gasoline sales data was obtained from the U.S. Department of Commerce, Bureau of Census, Michigan 1997 Economic Census, Retail Trade, Geographic Area Series. Total county emissions estimates are based on the county gasoline volume by the corresponding refueling emission factor. Emission rates are reported using the SCC 2501060100.

Service Station Tank Breathing:

Pressure changes occur within underground storage tanks as a result of temperature differences that exist between gasoline vapor and the liquid phases. The exchange of vapor within the storage tank to the atmosphere is commonly described as tank breathing. Underground gasoline storage tank breathing losses were estimated by applying a 1.0 pound per thousand gallon throughput emission factor using procedures presented in the EPA publications Volume III, Chapter 11 of the Emission Inventory Improvement Program January 2001 Guidance for Gasoline Marketing (Stage I and Stage II) and September 2002 Draft Summary of the Analysis of the Emissions Reported in the 1999 NEI for Stage I and Stage II Operations at Gasoline Service Stations. Year 2002 county gasoline consumption estimates were obtained by apportionment of the statewide gasoline consumption based on the county percentage of state gasoline retail sales. Statewide gasoline consumption data was obtained from Energy Information Administration's Petroleum Marketing Monthly and county retail gasoline sales information was identified in the U.S. Department of Commerce, Bureau of Census, Michigan 1997 Economic Census, Retail Trade, Geographic Area Series. Emission estimates were reported using the SCC of 2501060200.

Gasoline Tank Truck Transit:

Breathing losses from gasoline tank trucks occurs as a result of pressure changes within the containment vessel. The pressure change in the containment vessel is caused by temperature differences between the vapor and liquid phases as well as agitation during transport. Gasoline tank trucks leak VOC vapors and liquids from gaskets, seals, and seams during transport.

Because some gasoline is delivered to bulk plants rather than delivered directly to service stations from terminals, the amount of gasoline transferred in any area may exceed the total gasoline consumption due to additional trips involved. Therefore, gasoline tank truck transit evaporation emissions were based on the total volume of gasoline transferred rather than county consumption level. The total gasoline transferred in a given county was obtained by taking the sum of both the service station volume delivery and the bulk plant gasoline transfer. The bulk plant gasoline transfer volume in a county was obtained from point source data. VOC emissions estimates were developed using the gasoline tank truck transit emission factors identified by the EPA procedures in Volume III, Chapter 11 of the Emission Inventory Improvement Program January 2001 Guidance for Gasoline Marketing (Stage I and Stage II). In this document, VOC loss from gas-filled tank truck emission factor is 0.005 lbs/1000 gallons and empty vapor-filled tank trucks is 0.055 lbs/1000 gallons. A single emission factor of 0.06 lbs/1000 gallons was derived by taking the sum of the two respective factors, and applying this emission factor to the total transported gasoline volume. Further emission adjustments were made to the emission totals to reflect those delivery vessels in counties subject to Michigan Air Pollution Control Rule R 336.1627. A control efficiency of 76 percent was considered before subsequent application of an 80 percent rule effectiveness and 100 percent rule penetration factors for delivery vessels in those counties subject to R 336.1627. Emission estimates were reported using the SCC 2505030120.

Aviation Fuel Stage I Loading:

Gasoline vapor loss occurs at airports when gasoline is unloaded from delivery tank trucks into underground storage tanks. Because of the need to temporally adjust aircraft refueling emissions for all fuel types within all Michigan counties, the DNRE determined that local aviation fuel sales information could only be acquired by contacting each fuel distributor serving each airport. Because the aircraft fleet varies at each airport, the amount of fuel type consumed will likewise be dependent on the types of aircraft being serviced and not just based upon landings and takeoffs (LTOs) alone.

A list of those Michigan commercial and private airports where fuels are dispensed was obtained from the MDOT publication 2003 Michigan Airport Directory . A survey form was mailed to each airport operations manager. Total fuels sales information by fuel type(s) and season was obtained from airport staff or assigned fixed-base operators. The information was summed for each county to provide an estimate of the total volumes of jet kerosene, jet naphtha, and aviation gasoline handled at each airport facility. Stage I loading VOC emission factors for jet kerosene and jet naphtha were determined using the following equation:

$$L = 12.46 \times SPM/T$$

Where: L = Loading loss (uncontrolled), pounds per 1000 gal of liquid loaded
 S= A saturation factor where 1.45 = splash loading

 P = True vapor pressure of liquid loaded, pounds per square
 Inch absolute (psia)

 M = Molecular weight of vapors, pounds per pound-mole

 T = Temperature of bulk liquid in degrees F + 460

For Stage I aviation gasoline VOC emissions, an emission factor was obtained from the EPA publication, Documentation for the 2002 Nonpoint Source National Emission Inventory for Criteria and Hazardous Air Pollutants (January 2004 Version). The resultant emission factors were applied to the total county fuel throughput after considering point source fuel throughput deductions. Because the EPA does not have itemized SCC codes by fuel type, VOC emissions were added together and reported using an SCC of 2501080050.

Aircraft Refueling (Stage II):

Aircraft refueling at airports results in the evaporative loss of aviation gasoline, jet kerosene, and jet naphtha. VOC emissions occur when vapor-laden air in a partially empty fuel tank is displaced to the atmosphere during refueling. The quantity of the vapor being displaced is dependent upon the fuel temperature, fuel vapor pressure, aircraft fuel tank temperature, and the fuel dispensing rate.

Because of the need to temporally adjust aircraft refueling emissions for each respective fuel type within each county, the DNRE determined that local aviation fuel sales information could only be acquired by contacting each fuel distributor serving each airport. Because the fleet of the aircraft varies at each airport, the amount of fuel type consumed will be dependent on the types of aircraft being serviced and not just based upon LTOs alone.

A list of those Michigan commercial and private airports where fuel is dispensed was obtained from the MDOT publication, 2003 Michigan Airport Directory. A survey form was mailed to each airport operations manager. Total fuels sales information by fuel type(s) and season were obtained from airport staff or assigned fixed-base operators. The information was summed for each county to provide the total dispensed volumes of jet kerosene, jet naphtha, and aviation gasoline. VOC aviation refueling loss emission factors from the EPA publication, Compilation of Air Pollutant Emission Factors, Volume 1: Stationary Point and Area Sources, 5th Edition and Supplements (AP-42), were applied to the respective county total fuel volumes.

Aviation Fuel Type	Emission Factor as lbs of VOCs/1000 gallons fuel
Jet kerosene	0.08
Jet naphtha	5.58
Aviation gasoline	12.20

There is no provision currently to allow for the reporting of emissions by individual fuel type. Emissions were summed for all fuel types and reported using the SCC code 2275900000.

Traffic Marking Coatings:

Traffic marking coatings are paints that are used to mark pavement, including dividing lines for traffic lanes, parking space markings, crosswalks, and arrows to direct traffic flow. VOC emissions result from the evaporation of organic solvents during the application and curing of the marking paint.

VOC emissions were estimated for each county using the methodology identified in the EPA publication, Volume III, Chapter 14 of the Emission Inventory Improvement Program May 1997 Final Guidance for Traffic Markings. The preferred method was to conduct surveys to determine the volume of water and solvent-based coating consumption, coating formulation (in terms of pounds of VOC content per applied gallon), and months of year 2002 when the coatings were applied. Survey forms were mailed to all Michigan county road commissions, major municipality road maintenance departments, and to the MDOT. Where county road commissions failed to submit the information, emission estimates were based upon results of those counties that had responded to the survey. An average coating application rate (total gallons of coating applied per road miles in county) was first determined from survey respondents. Road length miles were obtained for the counties that failed to respond to the survey. Total coating gallon consumption was estimated for counties that failed to respond by applying the road length miles to the average coating application rate. Similarly, an average VOC content (as lbs/gallon) was obtained by dividing the total mass of VOC emissions by the total coating volume of survey respondents. The result was applied to the estimated coating volumes for survey non-respondent counties. This average density was reflective of the proportions of solvent- and water-based coatings by survey respondents. Seasonal coating application was also based upon county survey results of the months during which the coatings were applied. It should be recognized that year 2002 was a recession year in which county and local governments had limited budgets. It is likely that projected emissions would be greater during better economic times. Traffic marking paint emissions were reported using an SCC of 2401008000

Cutback Asphalts:

Cutback asphalt is a bituminous road coating material that is prepared by blending an asphalt cement tar with a petroleum distillate (such as naphtha, kerosene, or other fuel oils). Cutback asphalt is used as a pavement sealant, tack coat, pothole filler, and a bonding agent between layers of paving material. Evaporative loss of the solvent from bitumen cement occurs as the cutback asphalt cures on the road surface. The rate at which VOC emissions occur is dependent both upon the temperature of the applied road surface and the type of solvent used in the formulation of the cutback asphalt material. Gasoline or naphtha is used as a diluent in the production of “rapid cure” cutback asphalts. Kerosene and other low volatility fuel oils are also used as diluents in the production of “medium cure” and “slow cure” cutback asphalts.

VOC emissions were estimated for each county using the methodology identified in the EPA publication, Volume III, Chapter 17 of the Emission Inventory Improvement Program January 2001 Final Guidance for Asphalt Paving. In this document, the preferred method was to conduct surveys to determine locally-specific information on cutback asphalt use on roads.

To estimate VOC emissions from the application of cutback asphalt materials (rapid cure, medium cure, and slow cure), a survey was mailed to all Michigan county road commissions, major municipality road maintenance departments, and to the MDOT. The survey requested the following information:

- The quantities of rapid cure, medium cure, and slow cure cutback asphalt materials applied during year 2002;
- The type of petroleum distillate and volume used as a diluent in the formulation of each cutback paving material; and
- The months during which cutback asphalt materials were applied.

The EPA determined that evaporation occurs about four months with 75 percent by weight of diluent evaporating in the first day for rapid cure materials. It takes about one week for 50 percent by weight of diluent to evaporate from medium cure cutback asphalt materials. Conservative estimates were made by assuming that 100 percent of the diluent evaporates within the season during which it is applied.

VOC emission estimates were based on the amount of the petroleum based diluent that comprises the cutback asphalt material and then applying their respective solvent density. Emission estimates were reported using an SCC of 2461021000.

Emulsified Asphalts:

Emulsified asphalts are a type of liquefied road surfacing material that is used in the same application as cutback asphalts. Instead of blending the asphalt material with a petroleum distillate like their cutback asphalt counterparts, emulsified asphalts use a blend of water with an emulsifier (soap). Emulsified asphalts either rely on water evaporation to cure (anionic-high float emulsions) or ionic bonding of the emulsion and the aggregate surface (cationic emulsions).

The EPA publication, Volume III, Chapter 17 of the Emission Inventory Improvement Program January 2001 Final Guidance for Asphalt Paving, indicates the preferred method is to conduct a survey of emulsified asphalt application on Michigan roads. Survey forms were

mailed to all Michigan county road commissions, major municipality road maintenance departments, and to the MDOT. This form requested information on the quantities of asphalt materials (in pounds and barrels) applied to Michigan roadways and the months during which they were applied. Road length miles were also obtained for all Michigan counties. In those situations where a county road commission failed to submit such information, emission estimates were based upon results of those counties that had responded to the survey. An average application rate (total barrels of emulsified asphalts applied per road miles in county) was first determined from survey respondents. Total barrel consumption estimates were estimated for counties that failed to respond by applying the road length miles to the average emulsified asphalt application rate. VOC emissions were obtained by applying an EPA factor of 9.2 lbs VOC/barrel of applied asphalt. It was further assumed that all emissions occur during the season that the asphalt materials were applied, and reported using an SCC of 2461022000.

Breweries:

Breweries, microbreweries, brewpubs, and contract brewers emit VOCs including ethanol, ethyl acetate, myrcene and other higher alcohols from various brewing processes. For the smaller brewers, VOCs are lost by the fermentation, in brew kettles, hot wort, mash and lauter tuns, and through spent grain. Microbreweries and brewpubs typically produce beer for patron on-site consumption, although some may have limited keg distribution. These smaller microbreweries and brewpubs typically combine some processes, and canning/ bottling operations typically do not exist as the beer is consumed on-site or stored in kegs.

Various trade organization lists were obtained to identify brewers in Michigan and their beer production. There are some regional breweries, although the vast majority are brewpubs and microbreweries. These facilities have very small to insignificant VOC emissions. Emission estimates were based on a combined emission factor rate from Compilation of Air Pollutant Emission Factors, Volume 1: Stationary Point and Area Sources, 5th Edition and Supplements (AP-42) of 3.0465 lbs of VOC per 1000 barrels. The small emission factor and low beer production rates did not justify a need for a survey of these establishments. Emissions for each establishment were estimated on the basis of trade reported production and the application of the emission factors. An SCC of 2302070001 was used in reporting brewery emissions.

Distilleries:

Distilleries include ethanol production facilities that are used in the production of gasohol motor fuels, grain alcohol for industrial purposes, and distilled spirits for personal consumption. These products are produced from the fermentation of aged mashed grains with distillation for the capture of desired alcohol-based products. The fermentation products use yeast to convert grain sugars into ethanol, ethyl acetate, isoamyl alcohol, isobutyl alcohol and carbon dioxide. Grains used in the process may include corn, rye, barley, and wheat. A more detailed description of distilleries and their emissions can be found in EPA publication, Compilation of Air Pollutant Emission Factors, Volume 1: Stationary Point and Area Sources, 5th Edition and Supplements (AP-42).

In identifying distilleries in Michigan, contact was made with the Michigan Biomass Energy Program of the Michigan Department of Labor, Economic Growth and Energy. During year 2002, there was only one ethanol production facility in Caro, Michigan. This facility was

already being reported as a point source. The area source contribution from distilleries using SCC 2302070010 had zero emissions for all Michigan counties.

Wineries:

Wineries produce alcohol beverages from the fermentation of fruit juices. The major processes in vinification include fruit harvesting, crushing, pressing, fermentation, clarification, aging, finishing, and bottling. During this fermentation process of both red and white wines, primarily ethanol and smaller quantities of methyl alcohol, n-propyl alcohol, butyl alcohol, isoamyl alcohol, and acetaldehydes are produced along with carbon dioxide. This process involves the reaction of a yeast with glucose and fructose sugars to produce ethanol and carbon dioxide. The EPA emission factors are reflective of VOCs evolved during fermentation in vinification.

County estimates of wine production were based upon wine volume information of Michigan Department of Treasury tax receipt information supplied to the Michigan Grape and Wine Industry Council. A VOC emission factor was obtained from Compilation of Air Pollutant Emission Factors, Volume 1: Stationary Point and Area Sources, 5th Edition and Supplements (AP-42) of 4.6263 lbs VOC/ 1000 gallons. This emission factor is a sum of ethyl alcohol, methyl alcohol, n-propyl alcohol, n-butyl alcohol, sec-butyl alcohol, isobutyl alcohol, isoamyl alcohol and acetaldehyde for red wine from AP-42. Emission estimates were reported using an SCC of 230207005.

Stationary Source Fossil Fuel Combustion:

The combustion of natural gas, propane-LPG, distillate fuel oil, kerosene, and residual fuel oil in small boilers, furnaces, heaters, and stoves are also a source of VOCs, nitrogen oxides, particulates, sulfur dioxide, and ammonia emissions. Because these sources are too numerous to be identified in point source inventories, this area source category attempts to provide a collective estimate of emissions from these smaller energy consumption sources by subtracting all fuel used by point sources from total fuel consumption. Procedures for the estimation of these smaller sources are presented in the EPA's documents, entitled:

Volume II, Chapter 2 of the Emission Inventory Improvement Program January 2001 Preferred and Alternate Methods for Estimating Air Emissions from Boilers.

Emission Inventory Improvement Program –April 6, 1999, Area Source Category Abstract-Fuel Oil and Kerosene Combustion

Emission Inventory Improvement Program –April 6, 1999, Area Source Category Abstract-Natural Gas and LPG Combustion

Emission Inventory Improvement Program –April 6, 1999, Area Source Category Abstract-Coal Combustion

Documentation for the Draft 1999 National Emissions Inventory (Version 3.0) for Criteria Air Pollutants and Ammonia

Hanke, B.H, manuscript prepared for the EPA entitled: A National Methodology and Emission Inventory for Residential Fuel Combustion

The methodology for this area source sector involves determination of total fuel consumption over an area with fuel deductions made for point source fuel consumption, and the application of emissions factors to estimate fuel emissions.

Total fuel consumption information is based on data supplied by the U.S. Department of Energy, Energy Information Administration (DOE/EIA). This unaccounted fuel consumption was then apportioned to individual counties using U.S. Census Bureau information for the individual end use sector fuel types based upon LADCO states methodology. Area source fuel emissions were reported for the residential, commercial/institutional, and industrial end use sectors. Utility boilers are accounted for as point sources, so area source emissions are not reported for this end use sector.

Residential Boilers & Furnaces:

County emission estimates for the residential end use sector were based upon the consumption of natural gas, propane-LPG, distillate fuel oil, kerosene, and coal in DOE/EIA data. Because the EIA merely provides statewide fuel consumption totals, county fuel consumption estimates were obtained by apportioning the fuel consumption based upon the number of year 2000 occupied household census counts using the given fuel. Emission estimates were calculated using the following mathematical equation:

$$Cf = Ch/Sh \times Sf$$

Where:

Cf = Estimated county residential sector consumption of a given fuel type for year 2002

Ch = Number of year 2000 census occupied households in a given county that utilize a given fuel type

Sh = Total number of year 2000 census occupied households statewide that utilize a given fuel type

Sf = Total statewide residential sector consumption of a given fuel type

Michigan Residential Fuel Consumption Information Sources:

Residential Fuel Type	DOE/EIA Data Sources
Natural gas	Natural Gas Monthly
Propane LPG	Petroleum Marketing Annual, 2002
Distillate fuel oil	Fuel Oil and Kerosene Sales 2002 Report
Kerosene	Fuel Oil and Kerosene Sales 2002 Report
Coal	State Energy Data Report 2000 (most recent)

An emission factor specific to each fuel type was applied to the county residential fuel consumption estimates for the various fuel types.

Michigan Residential Fuel Emission Factors:

Residential Fuel Type	Units	CO	NH₃	NOx	PM10-PRI	PM25-PRI	SO₂	VOC
Natural gas	Lbs/million cubic feet	40	0.49	94	7.6	7.6	0.6	5.5
Propane LPG	Lbs/1000 gal	3.2		13	0.68	0.68	0.1	0.5
Distillate fuel oil	Lbs/1000 gal	5.0	0.8	18	2.38	2.13	42.60	0.7
Kerosene	Lbs/1000 gal	4.8	0.8	17.4	2.38	2.13	41.1	0.7
Coal	Lbs/ton	275	0.000565	3.0	20.7	5.4	58.5	10

Sources of emission factors:

EPA Documentation for the Draft 1999 National Emissions Inventory (Version 3.0) for Criteria Air Pollutants and Ammonia

Hanke, B.H, manuscript prepared for the EPA, entitled: A National Methodology and Emission Inventory for Residential Fuel Combustion

EPA. Final Report on Development and Selection of Ammonia Emission Factors

The resulting emission estimates were reported by individual fuel type using the following SCC codes.

Michigan Residential Combustion Emission SCC Codes:

Residential Fuel Type	SCC
Natural gas	2104006000
Propane LPG	2199007000
Distillate fuel oil	2104004000
Kerosene	2104011000
Coal	2104001000

Commercial/Institutional Boilers and Furnaces:

Estimation of fuel combustion by the commercial/institutional sector was performed using an adaptation of a methodology presented in the following EPA publications:

Emission Inventory Improvement Program –April 6, 1999, Area Source Category Abstract-Fuel Oil and Kerosene Combustion

Emission Inventory Improvement Program –April 6, 1999, Area Source Category Abstract-Natural Gas and LPG Combustion

Emission Inventory Improvement Program –April 6, 1999, Area Source Category Abstract-Coal Combustion.

County emission estimates for the commercial/institutional end use sector were based upon the consumption of natural gas, residual fuel oil, distillate fuel oil, kerosene, and coal obtained from DOE/EIA data. Fuels were subtracted for point sources, and the net area fuel contribution was apportioned or allocated using consistent procedures agreed to by the LADCO states. This procedure involved statewide commercial/institutional fuel apportionment to a county level using the commercial/ institutional employment data as obtained from a U.S. Department of Commerce, Bureau of Census publication entitled: County Business Patterns, Michigan: 2000 (CBP/00-24 issued May, 2002). County fuel estimates of individual fuel types were estimated using the following equation:

$$Cf = Ce/Se \times Sf$$

Cf = Estimated county commercial/institutional sector consumption of a given fuel type
 Ce= Total county employment in the commercial/institutional sector
 Se= Statewide employment in commercial/institutional sector
 Sf= Statewide commercial/institutional sector consumption of a given fuel type

Because the EIA data includes diesel fuel totals within the distillate fuel oil total, these motor vehicle fuels were deducted to provide only an estimate of #1, #2, and #4 fuel oils.

Michigan Commercial/Institutional Fuel Consumption Information Sources:

Fuel Type	DOE/EIA Data Sources
Natural gas	Natural Gas Monthly
Residual fuel oil	Fuel Oil and Kerosene Sales 2002 Report
Distillate fuel oil	Fuel Oil and Kerosene Sales 2002 Report
Kerosene	Fuel Oil and Kerosene Sales 2002 Report
Coal	State Energy Data Report 2000 (most recent)

An emission factor specific to each fuel type was applied to county commercial/institutional fuel consumption estimates.

Michigan Commercial/Institutional Fuel Emission Factors:

Commercial/Institutional Fuel Type	Units	CO	NH ₃	NO _x	PM10-PRI	PM25-PRI	SO ₂	VOC
Natural gas	Lbs/million cubic feet	84	0.49	100	7.16	7.6	0.6	5.5
Residual fuel oil	Lbs/1000 gal	5	0.80	55	9.07	3.37	194.05	1.13
Distillate fuel oil	Lbs/1000 gal	5	0.80	20	1.08	0.83	53.96	0.34
Kerosene	Lbs/1000 gal	5	0.80	18	2.38	2.13	41.1	0.713
Coal	Lbs/ton	6	0.000565	7.5	6.0	2.2	38	0.05

Sources of emission factors:

LADCO state uniform adopted emission factors for commercial/institutional natural gas combustion

EPA, FIRES database

EPA, Compilation of Air Pollutant Emission Factors, Volume 1: Stationary Point and Area Sources, 5th Edition and Supplements (AP-42)

EPA, Final Report on Development and Selection of Ammonia Emission Factors

The resulting emission estimates were reported by individual fuel type using the following SCC codes.

Michigan Commercial/Institutional Combustion Emission SCC Codes:

Fuel Type	SCC
Natural gas	2103006000
Residual fuel oil	2103005000
Distillate fuel oil	2103004000
Kerosene	2103011005
Coal	2103002000

Industrial Boilers and Furnaces:

Estimation of fuel combustion emissions of industrial boilers and furnaces was performed in similar manner as the commercial/institutional sector. Statewide industrial fuel consumption information was obtained from the DOE/EIA. Point source deductions were made for each fuel type to obtain the area contribution, which was apportioned to the county level using LADCO procedures.

County fuel consumption estimates of natural gas, residual fuel oil, distillate fuel oil, kerosene, and coal were based upon the following mathematical equation:

$$C_f = C_e / S_e \times S_f$$

C_f = Estimated county industrial sector consumption of a given fuel type

C_e = Total county employment in the industrial sector

S_e = Statewide employment in industrial sector

S_f = Statewide industrial sector consumption of a given fuel type.

Michigan Industrial Fuel Consumption Information Sources:

Industrial Fuel Type	DOE/EIA Data Sources
Natural gas	Natural Gas Monthly
Residual fuel oil	Fuel Oil and Kerosene Sales 2002 Report
Distillate fuel oil	Fuel Oil and Kerosene Sales 2002 Report (#1, #2, and #4 fuel oils--excludes diesel oil)
Kerosene	Fuel Oil and Kerosene Sales 2002 Report
Coal	State Energy Data Report 2000 (most recent)

County employment data was obtained from the U.S. Department of Commerce, Bureau of Census publication entitled: County Business Patterns, Michigan: 2000 (CBP/00-24 issued May 2002). Emissions estimates were derived by applying a fuel specific emission factor to county industrial fuel consumption estimates.

Michigan Industrial Fuel Emission Factors:

Industrial Fuel Type	Units	CO	NH₃	NO_x	PM10-PRI	PM25-PRI	SO₂	VOC
Natural gas	Lbs/million cubic feet	84	3.2	100	7.6	7.6	0.6	5.5
Residual fuel oil	Lbs/1000 gal	5.0	0.8	55	7.17	4.67	157	0.28
Distillate fuel oil	Lbs/1000 gal	5.0	0.8	20	1.0	0.25	142	0.2
Kerosene	Lbs/1000 gal	5.0	0.8	18	2.38	2.13	41.1	0.713
Coal	Lbs/ton	6	0.00057	7.5	6.0	2.2	38	0.05

Sources of emission factors:

LADCO state uniform adopted emission factors for industrial natural gas, residual fuel oil, distillate fuel oil, and coal combustion

EPA, FIRES database

EPA, Compilation of Air Pollutant Emission Factors, Volume 1: Stationary Point and Area Sources, 5th Edition and Supplements (AP-42)

EPA, Final Report on Development and Selection of Ammonia Emission Factors

Emission estimates were reported using the following SCC codes:

Michigan Industrial Combustion Emission SCC Codes

Industrial Fuel Type	SCC
Natural gas	2102006000
Residual fuel oil	2102005000
Distillate fuel oil	2102004000
Kerosene	2102011000
Coal	2102002000

Remedial Action, Site Clean Up and Leaking Storage Tanks:

Evaporative VOC emissions occur during remediation and clean up at those sites of environmental contamination. Such remediation activities may include air stripping or sparging of a VOC from contaminated groundwater or incineration of a spoil material removed from a contaminated site. In some instances carbon adsorption may be required to reduce VOC emitted during air stripping or spraying operations.

Estimation of VOC loss from remedial action activities was determined by summing the allowable emissions from permits to those parties that were engaged in such activities as provided by the DNRE AQD, Permit Section. Although site remediation activities are subject to National Emission Standards for Hazardous Air Pollutants (NESHAPs), these requirements did not apply at the time of the year 2002 emissions inventory. Emissions were reported using an SCC of 2660000000.

Municipal Waste Landfills:

A municipal solid waste landfill is defined as any facility that is regulated under Subtitle D of the Resource Conservation and Recovery Act (RCRA), which receives primarily household and/or commercial wastes.

VOCs are produced from municipal solid waste by: the volatilization of the waste material itself, the microbiological (anaerobic) putrefaction of organic waste materials that result in the formation of organic acids and alcohols which are vaporized, and the chemical reaction of one or more waste materials or chemical decomposition intermediate. The rate at which VOCs are emitted from a landfill is dependent upon the structural design of cells, the waste composition (physical/chemical properties), the moisture content of the waste, the amount of waste disposed, temperature, age of the landfill, the chemical reactivity of the waste, and the microbiological toxicity of the waste.

Estimation of VOC emissions from municipal landfills was based on the revised technical procedures presented in the EPA publication entitled: Volume III, Chapter 15 of the Emission Inventory Improvement Program January 2001 Revised Final Guidance for Landfills. The preferred method for the estimation of area source emissions is to use the LandGem model or the equations from the Compilation of Air Pollutant Emission Factors, Volume 1: Stationary Point and Area Sources, 5th Edition and Supplements (AP-42) section on landfills. LandGem is a computer-based model that uses the same equations as that of AP-42. The emissions calculation for the estimation of landfill gas requires site specific information including: landfill design capacity, accumulated waste totals from operation of the landfill, and existing control requirements from landfill gas collection systems. Landfills may be subject to either new source performance standards (40 Code of Federal Regulations part 60 Subpart WWW) or emission guidelines (40 Code of Federal Regulations, part 60, Subpart Cc). Landfills are also subject to NESHAPs, which did not apply at the time of the year 2002 emissions inventory as these standards became effective on January 16, 2003. In Michigan, most municipal solid waste landfills are inventoried as point sources of which landfill operators estimate their yearly emissions using a DNRE Emission Calculation Fact Sheet for Municipal Solid Waste Landfills. General fugitive emissions are reported using SCC codes 50400201 and 30502504. For landfills with gas recovery, landfill gas may be flared (50100410, 50200601, 50300601, 50100410, 50200601, and 50300601), used in boilers/heaters (10200701), or used in reciprocating/turbine engines (20100802 and 20100801). For those landfills that were not being reported in the point source inventory, area emission estimates were reported on the basis on LandGem model simulations using the SCC of 2620030000. These simulations reflected total waste receipts under the prior year 1999 inventory with addition made for waste receipts for years 2000-2002 as obtained from annual reports by the Michigan Department of Natural Resources and Environment, Waste and Hazardous Division Report of Solid Waste Landfilled in Michigan.

Architectural Surface Coating:

Architectural surface coating operations consist of the application of a thin layer of paint, primer, varnish or lacquer to the exterior or interior surfaces of architectural structures. From these coatings, or the solvents used as thinners and cleaning agents, VOCs are emitted.

To estimate these emissions, alternative method one was chosen from the EPA guidance document Emission Inventory Improvement Program (EIIP), Volume III, Area Sources

Preferred and Alternative Methods, Chapter 3: Architectural Surface Coating. Data was readily available for the use of per capita emission factors.

The DNRE determined per capita usage factors by dividing the national total architectural surface quantities for solvent and water-based coatings (U.S. Census Bureau MA325F, Paint and Allied Products) by the U.S. population for 2002 (U.S. Census Bureau, <http://www.census.gov>). <http://www.census.gov/industry/1/ma325f02.pdf>

Solvent-Based Paint:

Solvent-based paints produced and shipped in the United States in 2002 were totaled (total includes architectural lacquers and architectural coatings). The resulting number was divided by the 2002 population to produce a per capita solvent-based paint usage factor of 0.4428 gallons per person.

The resulting solvent paint use, in gallons per county, was multiplied by a VOC emission factor of 3.87 lb/gal, from Table 5-2 of the Emission Inventory Improvement Program (EIIP) guidance, Volume III, Area Sources Preferred and Alternative Methods, Chapter 3: Architectural Surface Coating to produce total VOC emissions from solvent-based paint.

Water-Based Paint:

Water-based paints produced and shipped in the United States in 2002 were totaled. The resulting number was divided by the 2002 population to produce a per capita water-based paint usage factor of 2.044 gallons per person.

The resulting water-based paint use in gallons per county was multiplied by a VOC emission factor of 0.74 lb/gal, from Table 5-2 from the EIIP guidance, Volume III, Area Sources Preferred and Alternative Methods, Chapter 3: Architectural Surface Coating. This produced total VOC emissions from water-based paint.

No point source deductions were performed for solvent-based or water-based paint, as none were needed for the category of architectural surface coating.

A seasonal adjustment factor of 1.3 was made for this category for the ozone season, per Table 5.8.1 of the EPA document, Procedures for the Preparation of Emission Inventories for Carbon Monoxide and Precursors of Ozone, Volume I: General Guidance for Stationary Sources. Ozone season daily emissions were calculated per the example on page 5-23 of this document. Ozone season throughput was also calculated. Seven activity days per week were selected, per Table 5.8.1. Annually, 365 days of operation were assumed.

Auto Body Refinishing:

Auto body refinishing is the repair of damaged automobiles, trucks, and other vehicles, and involves the application of paint coatings on top of that provided by the original equipment manufacturer assembly plants. VOCs are emitted from this activity. The majority of the sources engaged in auto body refinishing are area sources, but there are several such sources in Michigan's point source inventory. The point source emissions have been deducted from the total emissions estimated for this category to produce area source emissions.

Per the EIIP guidance Volume III, Area Sources Preferred and Alternative Methods, Chapter 13: Auto Body Refinishing (Jan. 2000 external draft), a per capita factor can be created by using population data from the U.S. Bureau of the Census to allocate a national emissions estimate for body shops. This estimate for VOC may be obtained from Section 4.1 of the auto body refinishing chapter. The national VOC emissions estimate is based on 1998 and 1999 data. Once allocated by population, an emission factor of 0.5 lbs/yr was obtained for the per capita method. The per capita method utilizes county population data to allocate the national emissions estimate.

A seasonal adjustment factor of 1.0 was made for this category for the ozone season. The category of auto refinishing was considered to be uniform throughout the year, per Table 5.8.1 of the EPA document, Procedures for the Preparation of Emission Inventories for Carbon Monoxide and Precursors of Ozone, Volume I: General Guidance for Stationary Sources. Ozone season daily emissions were calculated per the example on page 5-23 of this document. Ozone season throughput was also calculated. Five activity days per week were selected, per Table 5.8.1. Annually, 260 days of operation were assumed.

Consumer and Commercial Solvent Use:

The methodology for this category came from the EIIP, Volume 3, Chapter 5, Consumer and Commercial Solvent Use. The consumer and commercial solvent source category includes a wide array of products such as personal care products, household cleaning products and household pesticides. However, all VOC emitting products used by businesses, institutions and numerous industrial manufacturing operations are also included. A detailed list of products included in this category can be found on page 5.2-3 of the 1996 EIIP document. The majority of VOCs introduced into the atmosphere from this category are a result of evaporation of the solvent contained in the product or from the propellant released during product use.

SCCs

The following SCCs were utilized by the DNRE:

2460100000	Personal care products
2460200000	Household products
2460400000	Automotive aftermarket
2460600000	Adhesives and sealants
2460800000	FIFRA-regulated products
2460500000	Coatings and related products
2460900000	Miscellaneous products

These SCCs cover both consumer and commercial solvent use, whereas the EIIP guidance recommended SCCs that represented only consumer use and not commercial use.

Per the EIIP (1996), the DNRE utilized the recommended methodology, which was the use of per capita based emission factors.

1-Use of national average per capita emission factors adjusted for federal, state or local emission limits (preferred method).

Data Elements for using Preferred Method (Population-Based):

Population in the inventory area
Per capita emission factors, and
State and local regulations.

Example:

To estimate VOC emissions from personal care products:

$$\text{Emissions} = (\text{Population}) (\text{Per Capita Emission Factor})(1-(\% \text{ reduction}/100))$$

Given a population of 1 million persons for a particular area, the VOC emissions from personal care products would be:

$$(1,000,000 \text{ persons}) (2.32 \text{ lbs VOC/person/year})(1-.1211) = 2,039,048 \text{ lb VOC/year} = 1,019.5 \text{ tons VOC/year.}$$

Emission Factors: Personal Care*	Household*	Automotive Aftermarket*	Adhesives/ Sealants*	FIFRA- Regulated*	Coatings*	Misc.*
2.32	0.79	1.36	0.57	1.78	0.95	0.07

* lb/VOC/person

Obtained from Table 5.4-1, EIIIP Volume III, Area Sources, Preferred and Alternative Methods, Chapter 5, Consumer and Commercial Solvent Use.

Following federal rule reduction for first four categories:

12.11% Reduction	10.94% Reduction	8.97% Reduction	8.3% Reduction
Personal Care*	Household*	Automotive Aftermarket*	Adhesives/Sealants*
2.04	0.70	1.24	0.52

* lb/VOC/person

A seasonal adjustment factor of 1.0 was made for this category for the ozone season. Annually, 365 days of operation were assumed.

Dry Cleaning:

Standard Industrial Classification (SIC) 7215 (coin-operated dry cleaning establishments) was not considered for this inventory. The DNRE dry cleaning program indicated that virtually all coin-operated dry cleaning machines in Michigan have been discontinued due to the large cost of keeping them supplied with perchloroethylene. SIC 7216 (dry cleaning establishments, excluding coin-operated facilities) was considered instead. Under the North American Industrial Classification System (NAICS), SIC 7216 is known as NAICS 812320.

To calculate 2002 VOC emissions, the DNRE utilized alternative method two, a per-employee emission factor. The 2001 county employment data was obtained from the U.S. Census Bureau's document, 2001 Michigan County Business Patterns. Data from 2002

was not available, and was not expected until the spring of 2004. Employment data was obtained for NAICS 812320 (SIC 7216), for each county where it was available. Where available, employment data for the broader category of NAICS 8123 (SIC 72), personal and laundry services, was also obtained. The total population of each county for 2001 (to correspond to the 2001 County Business Pattern data) was obtained from the State of Michigan Library.

Next a ratio between the number of employees under NAICS 812320 (SIC 7216), and the number of employees under NAICS 8123 (SIC 72) was determined. For counties with employment numbers for both SIC 7216 and SIC 72, this ratio is one employee under SIC 7216 per each 2.17 employees under SIC 72. These SIC 72 employment numbers were multiplied by the 1 to 2.17 employment ratio for each county to create an estimate of the 4-digit SIC code employment for each county (except where the actual 4-digit SIC employment number for SIC 7216 was already provided in the 2001 Michigan County Business Patterns).

Michigan's 2002 point source emission inventory was queried to determine if any counties had point source employment for SIC 7216 (NAICS 812320). After estimates of employment for SIC 7216 were available for each county, an emission factor for VOC was obtained from Table 4.5-1 of EIIP Vol. III, Chapter 4 (1800 lbs/yr/employee).

From EIIP

Subcategory	Reactive VOC (lb/year/employee)	Total Organics (lb/year/employee)
All solvents (total)	1,800	2,300
Halogenated Solvents		
PERC, TCA and CFC 113		980
Coin Operated		52
Commercial/Industrial		1,200
Mineral Spirits and Other Unspecified Solvents	1,800	1,800

A seasonal adjustment factor of 1.0 was made for this category for the ozone season, per Table 5.8.1 of the EPA document, Procedures for the Preparation of Emission Inventories for Carbon Monoxide and Precursors of Ozone, Volume I: General Guidance for Stationary Sources. Ozone season daily emissions and ozone season throughput were calculated. Five activity days per week were selected per Table 5.8.1. Annually, 260 days of operation were assumed.

Graphic Arts, 2002:

The graphic arts industry uses several different technologies, such as rotogravure, flexographic and letter press printing, to apply inks or coatings to different substrates. The inks and coatings are sources of volatile organic compound emissions.

The EIIP area source guidance document, dated November 18, 1996, was followed. This was the most updated guidance available.

The EIIP preferred method was not utilized, as it required a survey of facilities. Alternative Method 1 was not feasible for Michigan, as (during calculation of the 1999 inventory) point

sources used more ink than the state proportion of national ink production was calculated to be.

Per Alternative Method 2, the population of the inventory region was obtained from state data for 2002, and multiplied by the per capita emission factor provided in the EIIP guidance. This produced total uncontrolled emissions from all graphic arts facilities with less than 100 tons per year of VOC emissions for the entire state. This method used a 1991 EPA emission factor of 0.00065 tons VOC per capita.

Total uncontrolled VOC emissions from area source graphic arts facilities (those with less than 100 tons per year of VOC emissions) were estimated for each county. This was done by obtaining uncontrolled VOC emissions from point sources with less than 100 tons per year of VOC, from the 2002 EI. SICs 2711, 2721, 2752 and 2754 queried. This number was subtracted from the total uncontrolled emissions from graphic arts facilities, on a county by county basis. The remaining number is the area source VOC emissions per year. If a negative number resulted, the value was set to zero for that county.

The seasonal adjustment factor = 1.0, uniform. Activity days of 5 days per week were assumed, per EPA document, Procedures for the Preparation of Emission Inventories for Carbon Monoxide and Precursors of Ozone, Volume I: General Guidance for Stationary Sources.

Solvent Cleaning 2002:

In this category, the use of solvents is broken into two broad classifications. The classifications are solvent cleaning (which is composed of cold cleaning and vapor/in-line cleaning), and solvent cleanup (predominantly wipe cleaning of external surfaces).

EIIP Alternative Method Solvent Cleaning Equipment (both Cold Cleaners and Vapor/In-line Cleaners):

Emission factors:

EIIP Table 6.5-2 provides per capita and per employee emission factors, as reproduced below. Michigan population estimates per county for 2002 were obtained from Mr. Ken Darga, State Demographer of the Library of Michigan. The population data was multiplied by the appropriate per capita emission factors. Area source emissions will then be determined by subtracting point source emissions from total emissions. When the result is a negative number, area source emissions will be set to zero.

Recommended Method for Solvent Cleaning Equipment:

One method is to use the per capita emission factor from Table 6.5-2 for calculating solvent cleaning equipment emissions. The document, Procedures for the Preparation of Emission Inventories for Carbon Monoxide and Precursors of Ozone: Volume I: General Guidance for Stationary Sources (EPA, 1991), states "Using per capita factors assumes that emissions in a given area can be reasonably associated with population. This assumption is valid over broad areas for certain activities such as dry cleaning, architectural surface coating, small degreasing operations and solvent evaporation from household and commercial products."

Cold cleaning and vapor/in-line cleaning can be calculated together by the use of the total solvent cleaning emission factor. After total solvent cleaning emissions are calculated with the per capita emission factor, point source emissions must be accounted for. One method for accounting for point source emissions is to subtract point source emissions from the total solvent cleaning emissions to generate area source emission estimates for each county.

The DNRE opted to use the per capita factors available in Table 6.5-2 for the 2002 emissions inventory. In times of economic fluctuation, the population numbers are likely to be steadier than the employment numbers. Also, Mr. Ron Ryan, EPA, indicated that for the subcategory of solvent cleaning (which consists of both cold cleaning and vapor/in-line cleaning), the per capita factor and the per employee factor were both estimated using the same national solvent use totals as a starting point. Per suggestion from Mr. Ryan, the general SCC of 2415000000 was utilized for reporting as one lump sum, because the individual categories were just fractions of this whole number.

Table 6.5-2: Per Capita and Per Employee Solvent Cleaning Emission Factors (EPA, 1991)

Subcategory	SIC Codes	Per Capita Factor (lb/yr/person)		Per Employee Factor (lb/yr/person)	
		VOCs	Organics	VOCs	Organics
Solvent cleaning (total)	25, 33-39, 417, 423, 551, 552, 554-556, 753	4.3	7.2	87	144
Cold Cleaning					
Automobile Repair	417, 423, 551, 552, 554-556, 753	2.5	2.5	270	270
Manufacturing	25, 33-39	1.1	1.1	24	24
Vapor and In-Line Cleaning					
Electronics and Electrical	36	0.21	1.1	29	150
Other	25, 33-39, 417, 423, 551, 552, 554-556, 753	0.49	25	9.8	49

Point source VOC data from 2002 was obtained from the MAERS. These values were deducted from the total emissions estimated by using the per capita emission factor and 2002 Michigan county population data.

Solvent Cleanup:

Per employee and per capita emission factors can be developed from information collected for the EPA's Alternative Control Techniques Document – Industrial Cleaning Solvents.

Recommended Method for Solvent Cleanup:

Unless states have good data for specific facilities, the preferred way to estimate emissions from solvent cleanup activities is per capita or per employee emission factors from EIIP.

The DNRE utilized the nationwide emission estimates from VOC solvent usage presented in Table 6.5-4 to create per capita emission factors. The national population data was obtained from the U.S. Census Bureau. The categories of industries considered in Table 6.5-4, and the SIC codes matched to them, are presented below.

Furniture:	SIC 25
Magnetic Tape:	included under SIC 36, Electrical Equipment
Packaging:	SIC 265
Photographic supplies:	SIC 3861
Automotive - manufacturing:	SIC 3711
Automotive - trucks and buses:	SIC 3713
Automotive - parts/accessories:	SIC 3714
Automotive - stamping:	SIC 3465
Electrical equipment:	SIC 36 (entire 2-digit SIC number considered for expediency)

SIC	National population in 1999	National solvent cleanup VOC emissions by SIC, tons/yr*	Solvent cleanup emissions per capita, tons/yr	Solvent cleanup VOC emissions per capita, lbs/yr
25	272,691,000	47000	0.00017236	0.344712513
265	272,691,000	7000	0.00002567	0.051340162
3465	272,691,000	330	0.00000121	0.002420322
36	272,691,000	2400	0.00000880	0.017602341
3711	272,691,000	34000	0.00012468	0.249366499
3713	272,691,000	16000	0.00005867	0.117348941
3714	272,691,000	2200	0.00000807	0.016135479
3861	272,691,000	480	0.00000176	0.003520468

* Table 6.5-4, EIIP Area Source Guidance Chapter 6 – Solvent Cleaning

A seasonal adjustment factor of 1.0 was made for this category for the ozone season, per Table 5.8.1 of the EPA document, Procedures for the Preparation of Emission Inventories for Carbon Monoxide and Precursors of Ozone, Volume I: General Guidance for Stationary Sources. Ozone season daily emissions were calculated per the example on page 5-23 of this document. Ozone season throughput was also calculated. Six activity days per week were selected, per Table 5.8.1. Annually, 312 days of operation were assumed.

Industrial Surface Coating:

Surface coating is the process by which paints, inks, varnishes, adhesives, or other decorative or functional coatings are applied to a substrate (e.g., paper, metal, plastic) for decoration and/or protection. After the coating has been applied, it is cured or dried either by conventional curing or radiation curing process. The surface coating products include either a water-based or solvent-based liquid carrier that generally evaporates in the curing process.

Source Identification:

Protocol Section 3.2.1-SIC codes

SIC code 2426-Hardwood Dimension & Flooring

SIC code 2429-Special Product Sawmills, NEC

SIC code 243%-Millwork, Veneer, Plywood & Structural Members

SIC code 244%-Wood Containers

SIC code 245%-Wood Buildings and Mobile Homes

SIC code 25%-Furniture and Fixtures

SIC code 26%-Paper and Allied Products

SIC code 341%-Metal Cans and Shipping Containers

SIC code 3479-Metal Coating and Allied Services, NEC

SIC code 35%-Industrial and Commercial Machinery & Computer Equipment

SIC code 3612-Transformers

SIC code 3357-Nonferrous Wire Drawing/Insulating

SIC code 37%-Transportation Equipment

Protocol Section 3.2.2-SCC/AMS codes:

SCC 2401015000-Factory Finished Wood

SCC 2401020000-Wood Furniture

SCC 2401030000-Paper Coating

SCC 2401040000-Metal Cans

SCC 2401045000-Metal Coils

SCC 2401055000-Machinery and Equipment

SCC 2401060000-Appliances

SCC 2401065000-Electronic and other Electrical

SCC 2401070000-New Motor Vehicles

SCC 2401075000-Other Transportation

SCC 2401080000-Marine Coatings

SCC 2401090000-Miscellaneous Manufacturing

SCC 2401100000-Industrial Maintenance

SCC 2401200000-Other Special Purpose

Chapter 8 of the EIIP Area Source technical documents presents the preferred and alternate methods for VOC emission estimation. The preferred method consists of the development of a SIC-Specific, area-specific per employee factor using point source emissions inventory and

employment information. This method is used for VOCs. Alternative Method 1 uses the national default per employee emission factors. Alternative Method 2 uses per capita emission factors and population estimates. The DNRE chose to use the per capita VOC factors available in Table 8.5-2 for the 2002 emissions inventory. In times of economic fluctuation, the population numbers are likely to be steadier than the employment numbers.

Michigan population estimates per county for 2002 were obtained from Mr. Darga, Library of Michigan. The population data was multiplied by the appropriate per capita emission factors. Area source emissions will then be determined by subtracting point source emissions from total emissions. Point source emissions by county were obtained for the relevant SIC (NAICS) codes from the 2002 EI, and the appropriate deductions were made to determine area source emissions per county. When the result was a negative number, area source emissions were set to zero.

A seasonal adjustment factor of 1.0 was made for this category for the ozone season, per Table 5.8.1 of the EPA document, Procedures for the Preparation of Emission Inventories for Carbon Monoxide and Precursors of Ozone, Volume I: General Guidance for Stationary Sources. Ozone season daily emissions were calculated per the example on page 5-23 of this document. Ozone season throughput was also calculated. Five activity days per week were selected, per Table 5.8.1. Annually, 260 days of operation were assumed.

Residential Wood Burning:

The following method was available to estimate the number of wood burning households per county.

Housing units with wood heat by county was determined by using the U.S. Census Bureau's DP-4, Profile of Selected Housing Characteristics: 2000, Data Set: Census 2000 Summary File 3 (SF 3) for Michigan. This file provided a total value of households using wood heating. However, no breakdown was given by county.

The DNRE decided to use the 2000 number of total wood burning households in Michigan, and to use the 1990 county proportions of the 1990 total to apportion the 2000 value to the county level for number of wood burning households per county.

Then, based on county value for number of wood burning households, the value for State Wood Use in Cords was apportioned to each county. The State Wood Use in Cords data came from the U.S. MAP States Page, *Table 8, Residential Energy Consumption Estimates, Selected Years 1960-2000, Michigan*, from the DOE/EIA. (http://www.eia.doe.gov/emeu/states/sep_use/res/use_res_mi.html). Data for 2002 was not yet available.

Once county wood use in cords was produced, the next step was to determine the wood weight in tons for each county. Utilizing the methodology prescribed in the Emission Inventory Improvement Program, Volume III: Chapter 2, Residential Wood Combustion, wood weight was determined by the following formula:

$$\text{Wood weight} = 'X' \text{ cords} * 79 \text{ cu. ft.} * 0.631 \text{ specific gravity} * 62.4 \text{ lb./cu ft. water}$$

0.631 was selected as the specific gravity based on North Central Oak-Hickory Hardwoods, with a weight of 39.4 lb./ft., through the following formula:

Specific gravity = 39.4 lb./ft. divided by 62.4 lb./cu. ft. water = 0.631

The DNRE did not have data available on the number of catalytic and non-catalytic woodstoves in Michigan, but did utilize 1993 survey data, which showed the proportions of fireplaces to woodstoves by county in Michigan. This was used to apportion wood weight per county between wood stoves and fireplaces. SCCs and emission factors were selected for fireplaces – cordwood (2104008001), woodstoves – general (2104008010) and non-catalytic woodstoves – conventional (2104008051). The SCC of 2104008051 was used because it contained a completely separate set of emission factors than 2104008010, and therefore was viewed as complimentary rather than duplicative.

The VOC, PM₁₀, carbon monoxide (CO) and NO_x emission factors were obtained from the Emission Inventory Improvement Program, Volume III: Chapter 2, Residential Wood Combustion, Table 2.4-1, for Residential Fireplaces, and for Residential Woodstoves – Conventional (reported under 2104008001 and 2104008051, respectively). The VOC, PM₁₀, PM_{2.5}, CO, SO_x and NO_x emission factors were obtained for 2104008010 from the EPA's Emission Factor and Inventory Group, per the latest update to the Great Lakes Commission methodology for toxics. The emissions estimated for 2104008051 for VOC, PM₁₀, CO and NO_x were believed to be duplicative of the emissions for 2104008010 and were therefore omitted from the National Inventory Factors 3.0 files prepared for this area source category. There were no other criteria pollutants associated with 2104008051.

It was assumed that 60 percent of wood burning in woodstoves or fireplaces occurred during the winter months, with 20 percent in the spring and 20 percent in the fall. It was assumed that there was no fireplace or wood burning stove activity during the summer months, therefore summer weekday emissions were not calculated.

Structure Fires:

The EIIP guidance from EIIP Volume III, Chapter 18: Structure Fires was followed. The preferred method for estimating emissions was used due to the availability of county level structure fire data for 2002. The data from the Michigan State Police Fire Marshal Division did not provide any detail on the extent of each structure fire or indicate if the structure was residential or commercial.

The default fuel loading factor provided in the EIIP guidance (1.15 tons of fuel per structure fire) was used. Emission factors for VOC, CO, and NO_x were obtained from Table 18.4-1.

A seasonal adjustment factor of 1.0 was made for this category for the ozone season. Annually, 365 days of operation were assumed.

Year 2018 Stationary Area Source Emission Inventory Projections:

See under Point Sources section **Growing Stationary Non-EGU Point, Stationary Area, Locomotive, Shipping, and Aircraft Categories for the Year 2018** for reference and methodology for projecting the Stationary Area Source inventory.

Year 2021 Stationary Area Source Emission Inventory Projections:

See under Point Sources section **Interpolating Stationary EGU, Stationary Non-EGU Point, Stationary Area, Locomotive, Shipping, and Aircraft Categories to the Year 2021** for reference and methodology for projecting the Stationary Area Source inventory.

IV. Nonroad Mobile:

The table below summarizes typical ozone season weekday nonroad mobile source emissions for the Allegan County redesignation for the years 2005, 2008, 2018 and 2021.

DAILY TOTAL VOC (TONS)

DNRE NMIM Modeling Results

VOC	2005	2008	2018	2021
Allegan	6.09	4.53	3.83	2.15
NOx				
Allegan	3.90	4.08	1.74	1.87

LADCO Marine, Aircraft and Rail

VOC	2005	2008	2018	2021
Allegan	0.07	0.06	0.05	0.05
NOx				
Allegan	0.54	0.47	0.30	0.24

Total Nonroad Emissions

VOC	2005	2008	2018	2021
Allegan	6.16	4.59	3.88	2.20
NOx				
Allegan	4.44	4.55	2.04	2.11

A. 2005 and 2008 Nonroad Emissions Estimation Exclusive of Locomotive, Shipping, and Aircraft Emissions

Emission estimates for nonroad sources were obtained from the EPA's National NONROAD2008 nonroad emissions model. NONROAD2008 calculates past, present, and future emission inventories (i.e., tons of pollutant) for all nonroad equipment categories except commercial marine, locomotives, and aircraft. Fuel types included in the model are gasoline, diesel, compressed natural gas, and liquefied petroleum gas. The model estimates exhaust and evaporative hydrocarbons (HC), CO, NOx, PM, SO₂, and carbon dioxide (CO₂).

Recent updates to the model were made by the EPA and can be found at: www.epa.gov/otaq/models/nonrdmdl/nonrdmdl2008/readme08.htm, (NONROAD2008 Update Chronology).

The main difference between NONROAD2005 and NONROAD2008 is that NONROAD2008 accounts for the emission reductions associated with two rules finalized in 2008:

Diesel recreational marine standards in the Loco/Marine final rule, (Federal Register Vol 73, No. 88, page 25098, May 6, 2008), and Small Spark Ignition and Spark Ignition Recreational Marine final rule, (Federal Register Vol 73, No. 196, page 59034, October 8, 2008).

NONROAD2008 was used to model summer day nonroad future year estimates for VOC and NOx for 2018, and 2021, as well as the 2005 nonattainment year and 2008 attainment year. Summer day values for VOC and nitrogen dioxides (NOx) are obtained from the NONROAD2008 model. The nonroad emissions modeling included all fuels and segments. Modeling did not utilize advanced features requiring additional input files nor the diesel retrofit option.

B. 2005 Aircraft Emissions Estimation

To estimate nonroad aircraft emissions, aircraft activity information was obtained from the MDOT. This aircraft activity operations information received from the MDOT consisted of the following:

Scheduled air carrier arrivals for commercial aircraft (as of the week of December 31, 2005).

Airport annual local and itinerant operations for year 2005.

Military annual local and itinerant operations for year 2005.

Due to need to have aircraft operations information expressed as LTO cycles, the following assumptions were made:

For commercial aircraft activity, the number of weekly scheduled aircraft arrivals equals the number of weekly departures, thereby representing the number of weekly LTO cycles. The weekly LTO cycle frequency was then adjusted to provide expected weekday, Saturday, Sunday, and yearly LTO cycles. For the annual local and itinerant airport operations, each respective operations total was divided by two to obtain the corresponding year local and itinerant LTO cycles. The expected daily local and itinerant LTO cycles then were obtained by dividing these annual totals by 365.

For military annual local and itinerant operations, each respective operations total was divided by two to obtain the corresponding year local and itinerant LTO cycles. The expected military daily local and itinerant LTO cycles then were obtained by dividing these annual totals by 365.

Airport LTO cycles were further categorized into commercial aircraft by plane and engine type, general aviation itinerant aircraft of unknown aircraft type, general aviation local aircraft of unknown aircraft type, and military aircraft. This was necessary in order to utilize the U.S. Department of Transportation, Federal Aviation Administration (FAA) EDMS 4.0 Emissions and Dispersion Modeling System. A description of this model can be found in the Federal Aviation Administration publication entitled: Emissions and Dispersion Modeling System (EDMS) Reference Manual. Emissions were determined by each commercial aircraft type using the EDMS 4.0 emissions model where possible. In most cases, default commercial aircraft taxi and queue times were used in the EDMS 4.0 model for all airports with the exception of Wayne County's Detroit Metropolitan Airport. Due to the volume of commercial

aircraft LTOs at this airport, a major connecting hub for Northwest Airlines/Delta Airlines, and the potential for air traffic delays, additional information was obtained from airport operations personnel regarding longer taxi and queue times. These longer taxi and queue times contributed to greater aircraft emissions. For those commercial aircraft types that could not be determined using the EDMS 4.0 emissions model, aircraft emission factors from the year 1999 inventory were then used to estimate their emissions. These included general aviation itinerant aircraft of unknown aircraft type, general aviation local aircraft of unknown aircraft type, and military aircraft. This former 1999 inventory relied upon a FAA aircraft emissions factor database, and fleet average emission factors. These fleet average factors were again used where aircraft types were unknown.

Aircraft emissions were then obtained by adding emissions contributions from commercial, itinerant general, and local general aircraft, and were reported using the following SCC codes.

Michigan Aircraft Emission SCC Codes

Aircraft Type	SCC
Military	2275001000
Commercial	2275020000
General Aviation	2275050000

C. Estimating Emissions for the Shipping, Locomotive, and Aircraft Category to the Year 2008 and 2021, and the 2018 Aircraft Emissions Estimation

Summer day emissions for reporting year 2008 and 2021 were estimated using Linear Regression Analysis. LADCO Base M Round 5 modeling inventory emissions for the years 2002, 2005, 2009, and 2018 used in the Linear Regression Analysis to obtain the Attainment Year 2008 and the Future Year 2021 Summer Day emissions for NOx and VOC.

The Interim Year 2018 Summer Day emissions for the Shipping, Locomotive, and Aircraft Categories were obtained from the LADCO Base M Round 5 modeling inventory.

D. 2005 Shipping and Locomotive Emissions Estimation

The 2005 nonroad shipping and railroad emissions are based on work of Environ International Corporation for LADCO for preparation of the 2005 LADCO Regional Inventory. Reference documentation can be found at:

<http://www.ladco.org/reports/general/index.php#References>

E. Year 2018 and 2021 Nonroad Mobile Source Emission Inventory Projections Exclusive of Locomotive, Shipping, and Aircraft

The nonroad source categories exclusive of locomotive, shipping, and aircraft were grown in the EPA NONROAD2008 nonroad model.

V. Onroad Mobile

The table below summarizes typical ozone season weekday onroad mobile source emissions for Allegan County for the years 2005, 2008, 2018 and 2021.

DAILY TOTAL VOC (tons)

COUNTY	2005	2008	2018	2021
Allegan	4.70	3.93	2.53	2.28

DAILY TOTAL NOX (tons)

COUNTY	2005	2008	2018	2021
Allegan	8.43	6.92	3.10	2.71

The following describes the MDOT procedures for estimating the nonattainment year (2005), attainment year (2008), interim year (2018), and maintenance year (2021) onroad emissions.

Allegan County

The MDOT prepared the on-highway motor vehicle emissions estimates using Federal Highway Administration (FHWA) and EPA approved methodology. The methodology the MDOT followed was the same process used for conformity analysis.

Development of Vehicle Miles of Travel and Speeds

To determine the Vehicle Miles of Travel (VMT) and speeds for Allegan County, the MDOT developed socio-economic data for the analysis years. This data is the base for forecasting in the travel demand models. Two, Holland Urban and Statewide, travel demand models are combined to provide coverage for all of Allegan County. The travel demand models were run for years 2005, 2008, 2018, and 2021. The latest project list and networks were used in this analysis. The VMT data generated by the travel demand models is scaled to the Highway Performance Monitoring System (HPMS) data by National Functional Classification (NFC). Vehicle hours of travel (VHT) were also obtained from the travel demand models and scaled to HPMS. Then the VMTs, by NFC, are collapsed into four groups to meet the requirements of Mobile6.2. These groups are: 1) rural interstate, 2) rural major and minor arterials/collectors/local streets, 3) urban interstate/freeway, and 4) urban principal and minor arterials/collectors/ local streets. The same procedures were applied to VHTs. The modeled speeds were derived by dividing each grouped VMT by the equivalent grouped VHT. The scaled travel demand modeled VMTs by year for Allegan County are summarized in Table 1 and speeds in Table 2.

**Table 1
Allegan County Vehicle Miles of Travel**

NFC	VMT 2005	VMT 2008	VMT 2018	VMT 2021
Rural Interstate/Freeway	544,631	587,373	732,305	773,738
Rural Major & Minor Arterial/Collector/Local Street	2,724,793	2,969,542	3,719,816	3,935,692
Urban Interstate/Freeway	114,406	118,505	135,441	140,554
Urban Principal & Minor Arterial/Collector/Local Street	146,363	150,614	163,481	167,172
Total	3,530,194	3,826,034	4,751,043	5,017,155

**Table 2
Allegan County Speeds**

NFC	Speed 2005	Speed 2008	Speed 2018	Speed 2021
Rural Interstate/Freeway	70.7	70.5	69.9	69.6
Rural Major & Minor Arterial/Collector/Local Street	48.7	48.5	47.4	46.8
Urban Interstate/Freeway	69.0	68.7	67.7	67.3
Urban Principal & Minor Arterial/Collector/Local Street	27.7	26.9	25.0	24.6

Mobile6.2 Input Assumptions

Mobile6.2 calculates emission factors for eight individual vehicle types in two regions of the country. Mobile6.2 emission factor estimates depend on various conditions such as ambient temperatures, average travel speed, operating modes, fuel volatility, and mileage accrual rates. Many of the variables affecting vehicle emissions can be specified by the user.

A summary of critical Mobile6.2 input assumptions are shown below:

1. Temperature:
 - Ambient temperature = 86.8° F
 - Maximum temperature = 95.0° F
 - Minimum temperature = 65.0° F

2. The RVP value = 9.0.

3. Emission factors are based on an average day during the month of July.
4. Where speed values are above the maximum allowed modeling input (65MPH for freeway without ramps, and 60.8 for freeways with ramps), actual modeled speeds were truncated and entered into the model as the maximum allowed value.

Mobile6.2 - Inputs

The inputs to the Mobile6.2 emissions factor model are VMTs and average speeds by grouped NFCs, for years 2005, 2008, 2018, and 2021 as shown in Tables 1 and 2.

Mobile6.2 - Results

Table 3 provides the results of Mobile6.2 emissions.

**Table 3
Allegan County Emissions by Year**

Year	Emissions in kg/day		Emissions in tons/day	
	VOC	NO _x	VOC	NO _x
2005	4261.6532	7646.4207	4.6976	8.4286
2008	3561.1466	6279.6726	3.9254	6.9220
2018	2296.244	2811.3386	2.5311	3.0989
2021	2071.2434	2455.3237	2.2831	2.7065

Appendix B

Michigan Department of Natural Resources and Environment
Air Quality Division

Calendar

March 1, 2010



MICHIGAN DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENT

**PO BOX 30473
LANSING MI 48909-7973**

ENVIRONMENTAL CALENDAR

March 1, 2010

**DEPARTMENT OF
NATURAL RESOURCES
AND ENVIRONMENT**

On October 8, 2009, Governor Granholm issued Executive Order 2009-45, creating the Department of Natural Resources and Environment (DNRE) to protect and conserve Michigan's air, water and other natural resources, effective January 17, 2010. The new department will assume the powers and functions of the former Department of Natural Resources and the former Department of Environmental Quality. More information about DNRE programs may be found at www.michigan.gov/dnre.

**ENVIRONMENTAL
ASSISTANCE CENTER
800-662-9278
E-mail: deq-ead-env-assist@michigan.gov**

The DNRE Environmental Assistance Center (EAC) is available to provide direct access to environmental programs, answers to environmental questions, referrals to technical staff, and quick response. Questions on any items listed in the calendar can be referred to the EAC.

**PUBLICATION
SCHEDULE**

The calendar is published every two weeks, on alternate Mondays, by the Michigan Department of Natural Resources and Environment. We welcome your comments.

CALENDAR LISTSERV

You may subscribe to receive the DNRE Calendar electronically by sending an E-mail to the listserv at LISTSERV@LISTSERV.MICHIGAN.GOV and in the body of the message type Subscribe, DNRE-CALENDAR, and your name.

**INTERNET ACCESS
[www.michigan.gov/
deqcalendar](http://www.michigan.gov/deqcalendar)**

The calendar is available on the DNRE Web site in pdf format. Access the calendar at www.michigan.gov/deqcalendar.

**TIMETABLE FOR
DECISIONS**

No decision listed in the DNRE Calendar will be made prior to seven days after the initial Calendar publication date.

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Map of DNRE Permit and Other Decisions Before the Office of the Director



Information relating to these decisions is available on the following pages.

**PART I:
ENVIRONMENTAL ISSUES, PERMITTING AND RELATED REGULATIONS**

Permit Decisions Before the Office of the Director

**AIR QUALITY
DIVISION**
See Map - ❶

WASTE MANAGEMENT OF MICHIGAN, INC. – PINE TREE ACRES, LENOX TOWNSHIP, MACOMB COUNTY, for the proposed Permit to Install application for eight landfill gas fired reciprocating internal combustion engines with associated generator sets, two enclosed flares, and one back-up open flare. The facility is located at 36600 29 Mile Road, Lenox Township, Michigan. Additionally, the proposed eight landfill gas fired reciprocating internal combustion engines with associated generator sets, two enclosed flares, and one back-up open flare will require revisions to Renewable Operating Permit (ROP) No. MI-ROP-N5984-2008. This public comment period meets the public participation requirements for a future administrative amendment to the ROP. The responsible official for the source is Charles H. Cassie, 36600 29 Mile Road, Lenox Township, Michigan. New Source Review and ROP public notice documents can be viewed at www.deq.state.mi.us/aps/. Public comment will be taken through March 2, 2010. An informational session and a public hearing will be held March 2, 2010 (see March 2 listing in this calendar). Written comments should be sent to the Michigan Department of Natural Resources and Environment, Air Quality Division, P.O. Box 30260, Lansing, Michigan 48909, to the attention of William A. Presson, Acting Permit Section Supervisor. All statements received by March 2, 2010, will be considered by the decision-maker prior to final action. Information Contact: **Jeff Rathbun**, Air Quality Division, 517-241-8072. Decision-maker: **G. Vinson Hellwig**, Air Quality Division Chief.

Other Decisions Before the Office of the Director

**AIR QUALITY
DIVISION**
See Map - ❷

OZONE ATTAINMENT REDESIGNATION PETITION FOR ALLEGAN COUNTY, AND MAINTENANCE PLAN, STATE IMPLEMENTATION PLAN (SIP) REVISION. The DNRE has prepared a proposal for a redesignation petition and maintenance plan for Allegan County in association with the 0.08 parts per million National Ambient Air Quality Standards (NAAQS) for ozone. At the conclusion of the 2009 ozone season, the monitor in Holland, Michigan, recorded air quality that meets the 0.08 ppm NAAQS for ozone. The DNRE plans to submit the redesignation petition and maintenance plan to the U.S. Environmental Protection Agency to formally request that Allegan County be redesignated to attainment and classified as "maintenance." This public comment period will meet the public participation requirements for a SIP submittal. The proposed redesignation document can be viewed on the Web at www.michigan.gov/deq/air. Written comments will be taken through March 31, 2010. If a public hearing is requested in writing by March 31, 2010, a public hearing will be held April 12, 2010 (see April 12, 2010 listing in this calendar). Written comments should be sent to the Michigan Department of Natural Resources and Environment, Air Quality Division, P.O. Box 30230, Lansing, Michigan 48909-7760, to the attention of Mary Maupin. Information Contact: **Mary Maupin**, 517-373-7039. Decision-maker: **G. Vinson Hellwig**, Air Quality Division Chief.

**AIR QUALITY
DIVISION**
See Map - ❸

SEVERSTAL DEARBORN, INC., DEARBORN, WAYNE COUNTY. Written comments are being accepted on a proposed Consent Order to administratively resolve alleged air pollution violations. You may obtain copies of the proposed Consent Order and Staff Activity Report on the Web at www.michigan.gov/deq/proposedconsentorders. Submit written comments to Ronald Pollom, Michigan Department of Natural Resources and Environment, Air Quality Division, P.O. Box 30260, Lansing, Michigan 48909. Written comments must be received by March 31, 2010. If a request is received in writing by March 31, 2010, a public hearing will be scheduled. Information Contact: **Ronald Pollom**, Air Quality Division, 517-335-4624. Decision-maker: **G. Vinson Hellwig**, Air Quality Division Chief.

**OFFICE OF
POLLUTION
PREVENTION AND
COMPLIANCE
ASSISTANCE**
See Map - ❹

CLEAN CORPORATE CITIZEN DESIGNATION, DIVERSIFIED MACHINE, INC. 5353 S. WILCOX ST., MONTAGUE, MUSKEGON COUNTY. The Michigan Department of Natural Resources and Environment has received an application for Clean Corporate Citizen (C3) designation from Diversified Machine, 5353 S. Wilcox St., Montague, Michigan as provided for under Administrative Rules R324.1508: Clean Corporate Citizen Program. The C3 program provides incentives for improved environmental protection. Regulated establishments that have demonstrated

environmental stewardship can receive C3 designation and public recognition for their efforts and are entitled to certain regulatory benefits. Information Contact: **Donna Davis**, Office of Pollution Prevention and Compliance Assistance, 517-335-2784. Decision-maker: **DNRE Director**.

Proposed Settlements of Contested Cases

NONE

Administrative Rules Promulgation

NONE

Announcements

LAND AND WATER MANAGEMENT DIVISION

The Michigan Coastal Management Program (MCMP) within the Land and Water Management Division (LWMD), Department of Natural Resources and Environment (DNRE), is pleased to announce the re-opening of a Request for Proposals (RFP) for coastal land acquisition projects (fee simple interest or conservation easement) that further the objectives of Michigan's Draft Coastal and Estuarine Land Conservation Program. It is expected that federal funds will become available for the purpose of protecting important coastal and estuarine areas that have significant conservation, recreation, ecological, historical, or aesthetic values, or that are threatened by conversion from their natural or recreational state to other uses, giving priority to lands that can be effectively managed and protected and that have significant ecological value. Project proposals will be scored and ranked by the MCMP and up to 3 projects will be submitted to the National Oceanic and Atmospheric Administration for participation in the national competition. Any funding appropriated by Congress will be allocated subsequent to the national ranking. Applications must be hand-delivered to the MCMP by 4:00 p.m., **March 15, 2010**, or postmarked no later than **March 15, 2010**. Additional information and the RFP is available on the MCMP Web site: www.michigan.gov/deqcoastal, or by contacting Ms. Ginny Berry, berryy@michigan.gov or at 517-335-3168. Further information regarding CELCP at the national level can be found at: <http://coastalmanagement.noaa.gov/land/welcome.html>.

LAND AND WATER MANAGEMENT DIVISION

The Michigan Coastal Management Program (MCMP) within the Land and Water Management Division, Department of Natural Resources and Environment, is pleased to announce the Request for Proposals (RFP) for Coastal Zone Management (CZM) projects that would begin January 1, 2011. Applications must be delivered or postmarked no later than **May 15, 2010**. The application form, supporting materials, and information on the CZM grant program are available on the MCMP Web site: www.michigan.gov/deqcoastal, or by contacting Ms. Ginny Berry, berryy@michigan.gov or at 517-335-3168.

OFFICE OF THE GREAT LAKES

DEADLINE FOR ALL OCEANGOING AND NON-OCEANGOING VESSELS OPERATING ON THE GREAT LAKES TO SUBMIT BALLAST WATER REPORTING FORMS. The Michigan Department of Natural Resources and Environment (MDNRE) requires all oceangoing and non-oceangoing vessels operating on the Great Lakes to report whether ballast water management practices are being implemented in accordance with Section 3103a of the Michigan Natural Resources and Environmental Protection Act, 1994 PA 451, as amended. The Ballast Water Reporting form can be found on the Ballast Water Reporting Web site: www.michigan.gov/deqballastwaterprogram. Completed forms can be submitted online via the Ballast Water Reporting Web site above, or mailed or faxed to the following address: Ballast Water Reporting Program, Office of the Great Lakes, Department of Natural Resources and Environment, P.O. Box 30473, Lansing, MI 48909-7973, FAX: 517-335-4053. Forms should be completed and returned to the MDNRE by February 19, 2010. A list of complying vessels is required by the statute to be available by March 1, 2010. Any owner or operator not identified on the MDNRE Ballast Water Reporting list of complying vessels, or any person in the state having contacts for the transportation of cargo with a vessel operator that is not on the list, will not be eligible for new grants, loans or awards administered by the MDNRE after March 1, 2010. Information Contact: **Jim Bredin**, Office of the Great Lakes, 517-335-4232.

Public Hearings and Meetings

Note: Persons with disabilities needing accommodations for effective participation in any of the meetings noted in this Calendar should call or write the appropriate meeting information contact listed below at least a week in advance to request mobility, visual, hearing, or other assistance.

<p>MARCH 2, 2010 6:00 p.m. - INFORMATIONAL SESSION 7:00 p.m. - PUBLIC HEARING</p>	<p>INFORMATIONAL SESSION, PUBLIC HEARING, AND DEADLINE FOR PUBLIC COMMENT REGARDING WASTE MANAGEMENT OF MICHIGAN, INC. – PINE TREE ACRES, LENOX TOWNSHIP, MACOMB COUNTY: Written comments are being accepted on a proposed draft permit for eight landfill gas fired reciprocating internal combustion engines with associated generator sets, two enclosed flares, and one back-up open flare. Additionally, the eight landfill gas fired reciprocating internal combustion engines with associated generator sets, two enclosed flares, and one back-up open flare will require revisions to Renewable Operating Permit No. MI-ROP-N5984-2008. This public comment period meets the public participation requirements for a future administrative amendment to the ROP. The facility is located at 36600 29 Mile Road, Lenox Township, Michigan. The responsible official for the source is Charles H. Cassie, 36600 29 Mile Road, Lenox Township, Michigan. New Source Review and ROP public notice documents can be viewed at www.deq.state.mi.us/aps/. The public hearing will be held at the Lenox Township Hall, 63775 Gratiot Avenue, Lenox, Michigan. Prior to the hearing, an informational session will be held from 6:00 p.m. to 7:00 p.m. Staff will provide a brief introduction regarding the proposed project and will be available to answer questions. The public hearing will follow. Written comments should be sent to the Michigan Department of Natural Resources and Environment, Air Quality Division, P.O. Box 30260, Lansing, Michigan 48909, to the attention of William A. Presson, Acting Permit Section Supervisor. All statements received by March 2, 2010, will be considered by the decision-maker prior to final action. Information Contact: Jeff Rathbun, Air Quality Division, 517-241-8072.</p>
<p>MARCH 3, 2010</p>	<p>DEADLINE FOR PUBLIC COMMENT REGARDING ANR PIPELINE COMPANY, GOODWELL COMPRESSOR STATION (SRN: N5576), 6759 EAST FIVE MILE ROAD, WHITE CLOUD, NEWAGO COUNTY, for the proposed approval of a draft Renewable Operating Permit (ROP) for the operation of a natural gas compressor station. The draft permit is intended to simplify and clarify the facility's applicable requirements and will not result in any air emission changes at the stationary source. The ROP public notice documents can be viewed on the Web at www.deq.state.mi.us/aps/. The responsible official of the stationary source is Anthony M. Cornaga, Director of Field Operations, 21453 Tamarack Road, Howard City, Michigan 49329. Comments on the draft permit are to be submitted to Karl P. Johnson, Michigan Department of Natural Resources and Environment, Air Quality Division, Grand Rapids District Office, 350 Ottawa Avenue N.W., Unit 10, Grand Rapids, Michigan 49503. The decision-maker for the permit is Heidi G Hollenbach, District Supervisor. If requested in writing by March 3, 2010, a public hearing may be scheduled. Information Contact: Karl P. Johnson, Air Quality Division, 616-356-0265.</p>
<p>MARCH 3, 2010</p>	<p>DEADLINE FOR PUBLIC COMMENT REGARDING THE CITY OF MARSHALL, ELECTRIC POWER PLANT (SRN: C6230), MARSHALL, CALHOUN COUNTY, for the proposed approval of a draft renewal of a Renewable Operating Permit (ROP) for the operation of an electric power plant. The draft permit is intended to simplify and clarify the facility's applicable requirements and will not result in any air emission changes at the stationary source. The ROP public notice documents can be viewed on the Web at www.deq.state.mi.us/aps/. The responsible official of the stationary source is Tom Tarkiewicz, Director of Utilities, 323 West Michigan Avenue, Marshall, Michigan 49068. Comments on the draft permit are to be submitted to Dale Turton, Michigan Department of Natural Resources and Environment, Air Quality Division, Kalamazoo District Office, 7953 Adobe Road, Kalamazoo, Michigan 49009. The decision-maker for the permit is Mary Douglas, District Supervisor. If requested in writing by March 3, 2010, a public hearing may be scheduled. Information Contact: Dale Turton, Air Quality Division, 269-567-3554.</p>
<p>MARCH 3, 2010</p>	<p>DEADLINE FOR PUBLIC COMMENT REGARDING EQ MICHIGAN DISPOSAL WASTE TREATMENT PLANT, WAYNE ENERGY ASSOCIATES AND WAYNE DISPOSAL LANDFILL (SRN: M4782), BELLEVILLE, WAYNE COUNTY, for the proposed approval of a draft renewal of a Renewable Operating Permit (ROP) for the operation of a hazardous waste treatment facility, landfill gas energy recovery project, and landfill operations. The draft permit is intended to simplify and clarify the facility's applicable requirements and will not result in any air emission changes at the stationary source. The ROP public notice documents can be viewed on the Web at</p>

www.deq.state.mi.us/aps/. The responsible official of the stationary source is Scott Maris, 48350 North I-94 Service Drive, Belleville, Michigan 48111. Comments on the draft permit are to be submitted to James Voss, Michigan Department of Natural Resources and Environment, Air Quality Division, Detroit Field Office, 3058 West Grand Boulevard, Suite 2-300, Detroit, Michigan 48202. The decision-maker for the permit is Teresa Seidel, Southeast Michigan District Supervisor. If requested in writing by March 3, 2010, a public hearing may be scheduled. Information Contact: **James Voss**, Air Quality Division, 313-456-4687.

MARCH 3, 2010

DEADLINE FOR PUBLIC COMMENT REGARDING MONTMORENCY-OSCODA-ALPENA SOLID WASTE AUTHORITY (SRN: N8248), ATLANTA, MONTMORENCY COUNTY, for the proposed approval of a draft initial Renewable Operating Permit (ROP) for the operation of a municipal solid waste landfill. The draft permit is intended to simplify and clarify the facility's applicable requirements and will not result in any air emission changes at the stationary source. The ROP public notice documents can be viewed on the Web at www.deq.state.mi.us/aps/. The responsible official of the stationary source is Lyle VanWormer, Chairman, 6751 Landfill Road, Atlanta, Michigan 49709. Comments on the draft permit are to be submitted to Rob Dickman, Michigan Department of Natural Resources and Environment, Air Quality Division, Cadillac District Office, 120 West Chapin Street, Cadillac, Michigan 49601. The decision-maker for the permit is Janis Denman, Cadillac District Supervisor. If requested in writing by March 3, 2010, a public hearing may be scheduled. Information Contact: **Rob Dickman**, Air Quality Division, 231-876-4412.

MARCH 3, 2010

DEADLINE FOR PUBLIC COMMENT REGARDING WEYERHAEUSER NR COMPANY, GRAYLING OSB (SRN: B7302), GRAYLING, CRAWFORD COUNTY, for the proposed approval of a draft renewal of a Renewable Operating Permit (ROP) for the operation of an oriented strand board manufacturing facility including dryers and presses. The draft permit is intended to simplify and clarify the facility's applicable requirements and will not result in any air emission changes at the stationary source. The ROP public notice documents can be viewed on the Web at www.deq.state.mi.us/aps/. The responsible official of the stationary source is Ian Faulkner, 4111 West Four Mile Road, P.O. Box 9777, Grayling, Michigan 49738. Comments on the draft permit are to be submitted to Allen Retlewski, Michigan Department of Natural Resources and Environment, Air Quality Division, Cadillac District Office, 120 West Chapin Street, Cadillac, Michigan 49601. The decision-maker for the permit is Janis Denman, Cadillac District Supervisor. If requested in writing by March 3, 2010, a public hearing may be scheduled. Information Contact: **Allen Retlewski**, Air Quality Division, 231-876-4414.

**MARCH 3, 2010
6:00 p.m.**

PUBLIC HEARING ON PERMIT APPLICATION SUBMITTED BY KENNETH KEELEY, BARBEAU, MICHIGAN. The Land and Water Management Division will hold a public hearing at the Bruce Township Hall, 3156 East 12 Mile Road, Dafter, Michigan 49724. The hearing will be for Permit Application Number 09-17-0086-P, submitted by Kenneth Keeley, 7283 East Neebish Ferry Road, Barbeau, Michigan 49710. The applicant proposes to construct a dock and seawall on the St. Mary's River at 16540 South Scenic Drive. Information Contact: **Jay Parent**, Land and Water Management Division, 906-346-8557.

**MARCH 4, 2010
5:00 p.m.**

PUBLIC HEARING ON PERMIT APPLICATION SUBMITTED BY CHEBOYGAN WATERFRONT, LLC, SOUTHFIELD, MICHIGAN. The Land and Water Management Division will hold a public hearing at the Cheboygan County Library, 100 South Bailey Street, Cheboygan, Michigan 49721. The hearing will be for Permit Application Number 09-16-0034-P, submitted by Cheboygan Waterfront, LLC, Attn: Todd Wyatt, 25900 Eleven Mile Road, Suite 250, Southfield, Michigan 48034. The applicant proposes to place fill and utilities in wetland and discharge stormwater to wetland for the purpose of constructing a motor coach resort community northeast of Duncan and South Eastern Avenues. Information Contact: **Scott Rasmusson**, Land and Water Management Division, 989-705-3437.

**MARCH 11, 2010
7:00 p.m.**

PUBLIC HEARING AND DEADLINE FOR PUBLIC COMMENT ON MAJOR LICENSE MODIFICATION, THE DOW CHEMICAL COMPANY, MICHIGAN OPERATIONS, MIDLAND PLANT, MIDLAND COUNTY, MICHIGAN. Written comments are being accepted on a major modification of the hazardous waste management facility operating license (License) that was issued to The Dow Chemical Company (Dow), Michigan Operations, Midland Plant, in June 2003 pursuant to Part 111, Hazardous Waste Management, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended. The License modification is being proposed to fulfill the requirements of paragraph 47 of the Administrative Settlement Agreement and Order on Consent for

Remedial Investigation, Feasibility Study and/or Engineering Evaluation and Cost Analysis, and Response Design, CERCLA Docket No. V-W-10-C-942 (AOC) for the Tittabawassee River/Saginaw River and Bay "Site." The AOC was entered into by the Michigan Department of Environmental Quality (MDEQ, now the Department of Natural Resources and Environment [DNRE]), the U.S. Environmental Protection Agency, and Dow on January 14, 2010, with an effective date of January 21, 2010. The draft License modification sets up a process in which specific corrective action obligations in the license that pertain to the "Site" can be satisfied by work conducted in compliance with the AOC. Some corrective action obligations will be transitioned to work under the AOC. In addition, the license modification would reserve certain rights of the DNRE, including the right to require corrective action for the "Site" beyond that required under the AOC and pursue cost recovery or take enforcement action under certain circumstances. The draft License modification also provides for the withdrawal of the MDEQ's February 1, 2008, approval with modifications of the Dow Remedial Investigation Scope of Work for the Saginaw River and Bay and Floodplain, as this work would be addressed under the AOC Statement of Work. The DNRE will hold a public hearing on Thursday, March 11, 2010, at Saginaw Valley State University, Curtiss Hall, Seminar Room G, 7400 Bay Road, Saginaw, Michigan. The hearing is scheduled for 7:00 to 9:00 p.m. Submit written comments by April 5, 2010, to Cheryl Howe, Department of Natural Resources and Environment, Waste and Hazardous Materials Division, P.O. Box 30241, Lansing, Michigan 48909. Information Contact: **Cheryl Howe**, Waste and Hazardous Materials Division, 517-373-9881, or e-mail at howec@michigan.gov. Decision maker: **George Bruchmann**, Waste and Hazardous Materials Division Chief.

MARCH 17, 2010

DEADLINE FOR PUBLIC COMMENT REGARDING CONSUMERS ENERGY COMPANY, B.C. COBB ELECTRIC GENERATING STATION (SRN: B2836), MUSKEGON, MUSKEGON COUNTY, for the proposed approval of a draft renewal of a Renewable Operating Permit (ROP) for the operation of an electric generating station. The draft permit is intended to simplify and clarify the facility's applicable requirements and will not result in any air emission changes at the stationary source. The ROP public notice documents can be viewed on the Web at www.deq.state.mi.us/aps/. The responsible official of the stationary source is Thomas J. Gesinski, Plant Manager, 151 North Causeway, Muskegon, Michigan 49445-3301. Comments on the draft permit are to be submitted to Stephen J. Lachance, Michigan Department of Natural Resources and Environment, Air Quality Division, Grand Rapids District Office, 350 Ottawa Avenue, N.W., Unit 10, Grand Rapids, Michigan 49503. The decision-maker for the permit is Heidi G. Hollenbach, District Supervisor. If requested in writing by March 17, 2010, a public hearing may be scheduled. Information Contact: **Stephen J. Lachance**, Air Quality Division, lachances@michigan.gov or 616-356-0239.

MARCH 17, 2010

DEADLINE FOR PUBLIC COMMENT REGARDING CONSUMERS ENERGY COMPANY, B.C. COBB ELECTRIC GENERATING STATION (SRN: B2836), MUSKEGON, MUSKEGON COUNTY, for the proposed approval of a draft renewal of an Acid Rain Permit, a draft renewal of a Clean Air Interstate Rule (CAIR) Annual Sulfur Dioxide Budget Permit, a draft renewal CAIR Annual Nitrogen Oxide Budget Permit, and a draft renewal CAIR Ozone Nitrogen Oxide Budget Permit for the operation of three natural gas fired boilers and two coal fired boilers. The Acid Rain Permit, CAIR Annual Sulfur Dioxide Budget Permit, CAIR Annual Nitrogen Oxide Budget Permit, CAIR Ozone Nitrogen Oxide Budget Permit public notice documents can be viewed on the Web at www.deq.state.mi.us/aps/. The responsible official of the stationary source is James R. Coddington, Vice President of Generation Operations, 17000 Croswell Street, West Olive, Michigan 49460. Comments on the draft permits are to be submitted to Brian Carley, Michigan Department of Natural Resources and Environment, Air Quality Division, Jackson District Office, 301 East Louis Glick Highway, Jackson, Michigan 49201. The decision-maker for the permits is Heidi Hollenbach, Grand Rapids District Supervisor. If requested in writing by March 17, 2010, a public hearing may be scheduled. Information Contact: **Brian Carley**, Air Quality Division, 517-780-7843.

MARCH 17, 2010

DEADLINE FOR PUBLIC COMMENT REGARDING A PROPOSED GENERAL PERMIT FOR RECREATIONAL GOLD PANNING AND SLUICING ON SELECT STREAM FRONTAGE OWNED BY THE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENT (DNRE). Pursuant to Part 301, Inland Lakes and Streams, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended, the DNRE's Land and Water Management Division is proposing to establish a General Permit for recreational gold prospecting along certain DNRE riparian frontage on select streams. Action has been taken to allow this activity along DNRE state administered lands by enacting Director's Order Number 2 of 2009. The issuance of a general permit, with proposed limitations and conditions will meet the environmental protection requirement of the Inland Lakes and Streams statute. The proposed General Permit can be found at

www.michigan.gov/documents/deq/lwm-gold_308221_7.pdf or may be requested from the address given below. Written comments should be submitted directly to the Michigan Department of Natural Resources and Environment, Land and Water Management Division, Attention: Mr. Martin Jannereth, P.O. Box 30458, Lansing, MI 48909-7958 or e-mail to jannerethm@michigan.gov. All comments must be received by March 17, 2010. Information contact: **Martin Jannereth**, Land and Water Management Division, 517-335-3458.

MARCH 24, 2010

PUBLIC MEETING REGARDING THE DRAFT RUDDIMAN CREEK E. COLI TOTAL MAXIMUM DAILY LOAD (TMDL). The draft Ruddiman Creek pathogen TMDL is for available for comment. This water body is located in Muskegon County, within the cities of Muskegon, Norton Shores, Muskegon Heights, and Roosevelt Park. This water body was included on Michigan's Year 2008 Section 303(d) list due to elevated *E. coli* levels. The draft TMDL is being developed to identify the pathogen reductions necessary to meet water quality standards. A public meeting will be held on March 24, 2010, at 7:00 p.m., at the McGraft Park Community Center, in McGraft Park, 2204 Wickham Drive, Muskegon, Michigan, to describe and take comments on the draft TMDL. Written comments on the draft TMDL may be submitted to Molly Rippke, Department of Natural Resources and Environment, Water Bureau, P.O. Box 30273, Lansing, Michigan 48909-7773, by March 30, 2010. Copies of the draft TMDL are available from Denise Page at 517-335-6969, or e-mail at paged@michigan.gov, or on the web at http://www.michigan.gov/dnre/0,1607,7-135-3313_3686_3728-12464--,00.html. Information Contact: **Molly Rippke**, Water Bureau, at 517-335-1125, or e-mail at rippkem@michigan.gov.

MARCH 30, 2010

DEADLINE FOR PUBLIC COMMENT REGARDING THE DRAFT RUDDIMAN CREEK E. COLI TOTAL MAXIMUM DAILY LOAD (TMDL). The draft Ruddiman Creek pathogen TMDL is for available for comment. This water body is located in Muskegon County, within the cities of Muskegon, Norton Shores, Muskegon Heights, and Roosevelt Park and was included on Michigan's Year 2008 Section 303(d) list due to elevated *E. coli* levels. The draft TMDL is being developed to identify the pathogen reductions necessary to meet water quality standards. Written comments on the draft TMDL may be submitted to Molly Rippke, Department of Natural Resources and Environment, P.O. Box 30273, Lansing, Michigan 48909-7773, by March 30, 2010. Copies of the draft TMDL are available from Denise Page at 517-335-6969, or e-mail at paged@michigan.gov, or on the web at http://www.michigan.gov/dnre/0,1607,7-135-3313_3686_3728-12464--,00.html. Information Contact: **Molly Rippke**, Water Bureau, at 517-335-1125, or e-mail at rippkem@michigan.gov.

MARCH 30, 2010

DEADLINE FOR PUBLIC COMMENT REGARDING PROPOSED MINOR PROJECT CATEGORY FOR BIOENGINEERING PRACTICES FOR STABILIZATION OF INLAND LAKE SHORELINES. Pursuant to Part 301, Inland Lakes and Streams; and Part 303, Wetlands Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended, the DNRE's Land and Water Management Division is proposing to issue a new Minor Project category (MP) to encourage the use of bioengineering practices to stabilize the shorelines of inland lakes. These practices -- also known as "soft" or "green" engineering -- are intended to prevent or control soil erosion and restore native shorelines while protecting and enhancing fish and wildlife habitat and other natural features associated with the lake. Bioengineering uses a combination of native plantings and biodegradable materials to engineer shoreline protection that, to the extent possible, mimics or enhances the natural shoreline. The department previously issued notice of a "General Permit" for this activity in June of 2009. However, the authority to issue General Permits and to establish Minor Project categories was amended in October of 2009. As a result, the department is revising their proposal. The process for authorization under an MP will not be substantially different than the process previously proposed, and activities authorized have not been significantly altered. Technical comments submitted under the earlier notice will be considered when making a final decision on this MP category. Parts 301 and 303 authorize the issuance of MPs for categories of activities that are similar in nature, have minimal adverse environmental effects when performed separately, and will have only minimal cumulative adverse effect on the environment. If this MP is approved, then the DNRE may review and authorize specific bioengineering projects under this MP in an accelerated manner without issuance of any additional public notice. In order to qualify for authorization under this MP, criteria specified in the proposed MP must be met. The detailed draft MP can be found at www.michigan.gov/deginlandlakes, or may be requested from the address given below. Written comments should be submitted directly to the Department of Natural Resources and Environment, Land and Water Management Division, P.O. Box 30458, Lansing, MI 48909-7958 to the attention of Ms. Peg Bostwick. All comments must be received by Wednesday, March 31, 2010. Information contact: **Peg Bostwick**, Land and Water Management Division, 517-335-3470.

MARCH 31, 2010

DEADLINE FOR PUBLIC COMMENT REGARDING FORD MOTOR COMPANY (SRN: A8648), DEARBORN, WAYNE COUNTY, for the proposed approval of a draft renewal of a Renewable Operating Permit (ROP) for the operation of an automobile painting and assembly plant, an engine manufacturing plant, a stamping plant, a diversified manufacturing plant and site services. The draft permit is intended to simplify and clarify the facility's applicable requirements and will not result in any air emission changes at the stationary source. The ROP public notice documents can be viewed on the Web at www.deq.state.mi.us/aps/. The responsible officials for the stationary source are Anthony Hoskins, Frank Piazza, Michael Felix, Karen Mills, and Christopher Leppi. Comments on the draft permit are to be submitted by March 31, 2010, to Robert Byrnes, Michigan Department of Natural Resources and Environment, Air Quality Division, Detroit Field Office, 3058 West Grand Boulevard, Suite 2-300, Detroit, Michigan 48202. The decision-maker for the permit is Teresa Seidel, Southeast Michigan District Supervisor. If requested in writing by March 31, 2010, a public hearing may be scheduled. Information Contact: **Robert Byrnes**, Air Quality Division, 313-456-4714.

MARCH 31, 2010

DEADLINE FOR PUBLIC COMMENT REGARDING DETROIT EDISON BELLE RIVER POWER PLANT, DETROIT EDISON ST. CLAIR POWER PLANT, DTE EAST CHINA TOWNSHIP (SRN: B2796), EAST CHINA TOWNSHIP, ST. CLAIR COUNTY, for the proposed approval of a draft reopening of a Renewable Operating Permit (ROP) for the inclusion of a Clean Air Interstate Rule (CAIR) Annual Sulfur Dioxide Budget Permit, a CAIR Annual Nitrogen Oxide Budget Permit, and a CAIR Ozone Nitrogen Oxide Budget Permit into the ROP. The ROP public notice documents can be viewed on the Web at www.deq.state.mi.us/aps/. The responsible official of the stationary source is Paul Fessler, Vice President of Fossil Generation, 2000 Second Avenue, 2410 WCB, Detroit, Michigan 48226. The responsible official for DTE East China Township is Fadi Mourad, Manager of Environmental Affairs, DTE Energy Services, 414 South Main Street, Suite 600, Ann Arbor, Michigan 48104. Comments on the draft permit are to be submitted to Brian Carley, Michigan Department of Natural Resources and Environment, Air Quality Division, Jackson District Office, 301 East Louis Glick Highway, Jackson Michigan 49201. The decision-maker for the permit is Teresa Seidel, Southeast Michigan District Supervisor. If requested in writing by March 31, 2010, a public hearing may be scheduled. Information Contact: **Brian Carley**, Air Quality Division, 517-780-7843.

MARCH 31, 2010

DEADLINE FOR PUBLIC COMMENT REGARDING HOWARD MILLER COMPANY (SRN: A5937), ZEELAND, OTTAWA COUNTY, for the proposed approval of a draft renewal of a Renewable Operating Permit (ROP) for the operation of wood furniture manufacturing and coating equipment, and one wood fired boiler. The draft permit is intended to simplify and clarify the facility's applicable requirements and will not result in any air emission changes at the stationary source. The ROP public notice documents can be viewed on the Web at www.deq.state.mi.us/aps/. The responsible official of the stationary source is Michael Wallace, 860 East Main Avenue, Zeeland, Michigan 49464. Comments on the draft permit are to be submitted to Denise Plafcan, Michigan Department of Natural Resources and Environment, Air Quality Division, Grand Rapids District Office, 350 Ottawa NW, Unit 10, Grand Rapids, Michigan 49503. The decision-maker for the permit is Heidi Hollenbach, District Supervisor. If requested in writing by March 31, 2010, a public hearing may be scheduled. Information Contact: **Denise Plafcan**, Air Quality Division, 616-356-0259.

MARCH 31, 2010

DEADLINE FOR PUBLIC COMMENT REGARDING OZONE ATTAINMENT REDESIGNATION PETITION FOR ALLEGAN COUNTY, AND MAINTENANCE PLAN, STATE IMPLEMENTATION PLAN (SIP) REVISION. The DNRE has prepared a proposal for a redesignation petition and maintenance plan for Allegan County in association with the 0.08 parts per million National Ambient Air Quality Standards (NAAQS) for ozone. At the conclusion of the 2009 ozone season, the monitor in Holland, Michigan, recorded air quality that meets the 0.08 ppm NAAQS for ozone. The DNRE plans to submit the redesignation petition and maintenance plan to the U.S. Environmental Protection Agency to formally request that Allegan County be redesignated to attainment and classified as "maintenance." This public comment period will meet the public participation requirements for a SIP submittal. The proposed redesignation document can be viewed on the Web at www.michigan.gov/deq/air. If a public hearing is requested in writing by March 31, 2010, a public hearing will be held April 12, 2010 (see April 12, 2010 listing in this calendar). Written comments should be sent to the Michigan Department of Natural Resources and Environment, Air Quality Division, P.O. Box 30230, Lansing, Michigan 48909-7760, to the attention of Mary Maupin. Information Contact: **Mary Maupin**, 517-373-7039.

MARCH 31, 2010

DEADLINE FOR PUBLIC COMMENT REGARDING SEVERSTAL DEARBORN, INC., DEARBORN, WAYNE COUNTY. Written comments are being accepted on a proposed Consent Order to administratively resolve alleged air pollution violations. You may obtain copies of the proposed Consent Order and Staff Activity Report on the Web at www.michigan.gov/deq/proposedconsentorders. Submit written comments to Ronald Pollom, Michigan Department of Natural Resources and Environment, Air Quality Division, P.O. Box 30260, Lansing, Michigan 48909. Written comments must be received by March 31, 2010. If a request is received in writing by March 31, 2010, a public hearing will be scheduled. Information Contact: **Ronald Pollom**, Air Quality Division, 517-335-4624.

MARCH 31, 2010

DEADLINE FOR PUBLIC COMMENT REGARDING VENICE PARK LANDFILL (SRN: N5910), LENNON, SHIAWASSEE COUNTY, for the proposed approval of a draft renewal of a Renewable Operating Permit (ROP) for the operation of a landfill. The draft permit is intended to simplify and clarify the facility's applicable requirements and will not result in any air emission changes at the stationary source. The ROP public notice documents can be viewed on the Web at www.deq.state.mi.us/aps/. The responsible officials of the stationary source are Robert Evans, President, North American Natural Resources, 4121 Okemos Road, Okemos, Michigan 48864, and John Gall, District Manager, WMI – Venice Park, 9536 Lennon Road, Lennon, Michigan 48449. Comments on the draft permit are to be submitted to Ken Damrel, Michigan Department of Natural Resources and Environment, Air Quality Division, Lansing District Office, P.O. Box 30242, Lansing, Michigan 48909. The decision-maker for the permit is Gerald Avery, Field Operations Supervisor. If requested in writing by March 31, 2010, a public hearing may be scheduled. Information Contact: **Ken Damrel**, Air Quality Division, 517-335-6305.

APRIL 7, 2010**6:00 p.m. –
INFORMATIONAL
SESSION
7:00 p.m. – PUBLIC
HEARING**

PUBLIC HEARING ON PERMIT APPLICATION SUBMITTED BY TEAM COMPLETIONS, LLC., KALKASKA, MICHIGAN. The Office of Geological Survey in conjunction with the United States Environmental Protection Agency will hold a public hearing at the Mill Creek Elementary School, 9039 Old M-72, Williamsburg, Michigan 49690. An information session will be held from 6:00 to 7:00 p.m. and a public hearing will be held from 7:00 to 8:30 p.m. The hearing will be for Permit Application Number MW080041, submitted by Team Completions, LLC, P.O. Box 1104, Kalkaska, Michigan 49646. The applicant proposes to re-permit an existing oil and gas brine disposal well, known as the Weber 4-8, in Mayfield Township, Grand Traverse County, Michigan, to allow it to accept industrial liquid waste. The proposed waste is landfill leachate. Information Contact: **Ray Vugrinovich**, Office of Geological Survey, 517-241-1532.

**APRIL 10, 2010
9:30 a.m.**

PUBLIC MEETING OF BOARD OF CERTIFICATION FOR MUNICIPAL WASTEWATER TREATMENT PLANT OPERATORS. The Michigan Department of Natural Resources and Environment, Water Bureau – Field Operations Division, will hold a meeting of the Board of Certification for Municipal Wastewater Treatment Plant Operators on April 10, 2010 at 9:30 am in the Art Iverson Conference Room, Constitution Hall, 525 W. Allegan, Lansing, Michigan. Proposed minutes of this meeting will be available 30 days after the meeting from the Michigan Department of Natural Resources and Environment, Water Bureau – Field Operations Division, Operator Training and Certification Unit, 3rd Floor South, Constitution Hall, 525 West Allegan, Lansing, Michigan 48913. Information Contact: **Dan Holmquist**, Operator Training and Certification Unit, 517-373-4753, or e-mail at holmquistd@michigan.gov.

**APRIL 12, 2010
10:00 a.m.**

TENTATIVELY SCHEDULED PUBLIC HEARING REGARDING OZONE ATTAINMENT REDESIGNATION PETITION FOR ALLEGAN COUNTY, AND MAINTENANCE PLAN, STATE IMPLEMENTATION PLAN (SIP) REVISION. The DNRE has prepared a proposal for a redesignation petition and maintenance plan for Allegan County in association with the 0.08 parts per million National Ambient Air Quality Standards (NAAQS) for ozone. At the conclusion of the 2009 ozone season, the monitor in Holland, Michigan, recorded air quality that meets the 0.08 ppm NAAQS for ozone. The DNRE plans to submit the redesignation petition and maintenance plan to the U.S. Environmental Protection Agency to formally request that Allegan County be redesignated to attainment and classified as "maintenance." The proposed redesignation document can be viewed on the Web at www.michigan.gov/deq/air. If a public hearing is requested in writing by March 31, 2010, a public hearing will be held April 12, 2010 at Constitution Hall, Lillian Hatcher Conference Room, 3rd Floor North Tower, 525 West Allegan Street, Lansing, Michigan. Those interested may contact the Air Quality Division at 517-373-7039 after March 31, 2010, to determine if a hearing will be held. Information Contact: **Mary Maupin**, 517-373-7039.

Division Permit Contacts

For additional information on permits, contact:

<p>Air Quality Division</p>	<p>517-373-7074 517-335-4607</p>	<p>Pam Blue Cari DeBruler</p>
<p>Land and Water Management Division (land/water interface permits)</p>	<p>517-373-8798</p>	<p>Wendy Fitzner</p>
<p>Office of Geological Survey (oil, gas, mineral well, and sand dune mining permits)</p>	<p>517-241-1545</p>	<p>Thomas Godbold</p>
<p>Waste & Hazardous Materials Division</p>	<p>517-335-4034</p>	<p>Wanda Williams</p>
<p>Water Bureau Groundwater Permits on Public Notice NPDES Permits on Public Notice Certificates of Coverage on Public Notice</p>	<p>517-241-1346</p>	<p>Susan Ashcraft</p>

PART II: CONFERENCES, WORKSHOPS AND TRAINING PROGRAMS

Conferences, Workshops, and Training

ANNOUNCEMENT – The DNRE’s Office of Pollution Prevention & Compliance Assistance (OPPCA) now accepts Visa, MasterCard, and Discover for all DNRE/OPPCA workshop payments!

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| <p>MARCH 3-5, 2010</p> | <p>THE MICHIGAN STORMWATER-FLOODPLAIN ASSOCIATION'S (MSFA) 22ND ANNUAL CONFERENCE, DOUBLETREE HOTEL, BAY CITY, MICHIGAN. This multi-day conference will provide persons interested in stormwater and floodplain issues an excellent educational training opportunity to hear presentations covering a variety of topics including flood hazard mitigation planning, environmental protection options for local governments, DNRE stormwater and floodplain permitting updates, and several case studies. Attendance at the 2009 MSFA Conference qualifies for several types of Continuing Education Credits (CECs). Certified floodplain managers can receive 12 CECs, building inspectors can receive 4 CECs, and emergency managers can receive up to 20 CECs. In addition to the CECs available, the certified floodplain manager exam, the DNRE stormwater operator review and exam, and a construction code workshop will be held. Information Contact: Les Thomas, Land and Water Management Division at 517-335-3448. For further information, go to www.mi.floods.org.</p> |
| <p>MARCH 4, 2010
3:00 p.m.-7:00 p.m.</p> | <p>MEECS TRAINING: MICHIGAN SCIENCE TEACHERS ASSOCIATION ANNUAL PRE-CONFERENCE, LANSING CENTER, LANSING. The Michigan Department of Natural Resources and Environment (DNRE) are holding five pre-conference Michigan Environmental Education Curriculum Support (MEECS) training workshops: Air Quality, Ecosystems & Biodiversity, Energy Resources, Land Use, and Water Quality. Registration is available for these workshops on the Web at www.michigan.gov/degworkshops, click on "Upcoming DNRE Workshops." Registration Fee: \$35.00. Information Contact: Thomas Occhipinti, Executive Division, 517-373-2379, or e-mail at occhipintit@michigan.gov. Registration Information: Environmental Assistance Center, 800-662-9278, or e-mail at deg-ead-env-assist@michigan.gov. General conference information is available on the Web at www.msta-mich.org/conference/</p> |
| <p>MARCH 2010</p> | <p>SOUTHEAST MICHIGAN ENVIRONMENTAL CONFERENCE: ENVIRONMENTAL REGULATIONS AFFECTING MUNICIPALITIES, VARIOUS LOCATIONS, MICHIGAN. The Southeast Michigan Council of Governments (SEMCOG) and the Michigan Department of Natural</p> |

Resources and Environment (DNRE) are partnering to offer Southeast Michigan communities a unique opportunity to learn about state and federal environmental regulations that may be affecting their municipal operations. This one-day workshop is geared specifically toward municipal activities that may be regulated under various categories. State and federal experts will provide explanations of the rules and regulations in these areas and identify ways municipalities can work to meet them. Storm water operators, county drain commission staff, municipal planners and engineers, county health officials, community emergency response personnel, public works directors, road maintenance staff, and building code officials should attend this workshop. Registration fee: \$25. Updated workshop information is available on the Web at www.michigan.gov/deqworkshops, click on "Upcoming DNRE Workshops". Information Contact: **James Ostrowski**, Office of Pollution Prevention and Compliance Assistance, 517-241-8057, or e-mail at ostrowski2@michigan.gov. Registration Information: **Environmental Assistance Center**, 800-662-9278, or e-mail at deq-ead-env-assist@michigan.gov.

<u>Date</u>	<u>Location</u>
3/9/10	Macomb Intermediate School District, Clinton Twp, MI
3/16/10	Summit on the Park, Canton Township, MI

MARCH 18, 2010

2010 SPRING CONFERENCE, WEST MICHIGAN CHAPTER OF THE AIR & WASTE MANAGEMENT ASSOCIATION, GVSU'S EBERHARD CENTER, GRAND RAPIDS, MICHIGAN. The 2010 AWMA Spring Conference, *Success in a Changing Climate*, is quickly approaching. The technical presentations are set and promise to enlighten and educate, including several timely environmental topics, including: Keynote Luncheon Presentation - John Viera, Ford Motor Company, *Sustainability Strategies, Alternative Fuels, and Fuel Efficiency*; Michigan Department of Natural Resources and Environment Transition Update by Rebecca Humphries, Director, MDNRE; Greenhouse Gas Reporting, Finding of Endangerment and Tailoring Rule, and Legislation Update; Brownfields Program Success Story Panel Discussion and Michigan Brownfields Opportunities Update; and, Green Remediation and Advances in Bioremediation. Attendees will also have the opportunity to network with some of Michigan's leading environmental professionals. Register today to make sure your attendance is guaranteed, space is limited. To register and pay at the Website, visit <http://www.wmawma.org/conf.htm>, select a registration option, add name(s) and company in the space provided, and click on the "Pay Now" button. Alternatively, you may register by e-mailing your information to jkwma@comcast.net. Payment may be sent via postal mail to 322 Clements Mill Ct. SE, Ada, MI 49301. Please contact Jill Kamp, jkwma@comcast.net or 616-540-3594, with any questions.

MARCH 24-26, 2010

MEHA ANNUAL EDUCATION CONFERENCE, DOUBLE TREE HOTEL, BAY CITY, MICHIGAN. The Michigan Environmental Health Association (MEHA) is a volunteer, 501 (c) (3) non-profit organization dedicated to the improvement and protection of health through management of the environment. Please join us at our Annual Educational Conference for quality educational sessions and a forum for professional collaboration and networking. Topics include: Food, Surface Water, Ground Water, Sewage and many other public health subjects such as Bed bugs, Lead, and Housing Issues. DNRE will have speakers at this event. For more information on the conference or information on joining this dedicated organization, please visit www.meha.net.

MARCH 25, 2010

CERTIFIED HAZARDOUS MATERIALS MANAGERS OF MICHIGAN ANNUAL CONFERENCE, BURTON MANOR, LIVONIA, MICHIGAN. The event will feature updates from DNRE, MIOSHA, and the national Alliance of Hazardous Materials Professionals, followed by a technical session on environmental and safety issues. The registration fee of \$125 (\$95 for CHMM-MI members, \$45 for full time students) includes continental breakfast, lunch, and snacks. For further information and online registration go to www.chmm-mi.org.

MARCH-APRIL, 2010

MS4 PERMIT COMPLIANCE ASSISTANCE WORKSHOP, VARIOUS LOCATIONS, MICHIGAN. This workshop is designed to provide compliance assistance to municipalities that have received permit coverage to discharge storm water from their Municipal Separate Storm Sewer System (MS4). The workshop will provide assistance in the development of a Storm Water Pollution Prevention Initiative (SWPPI) or Storm Water Management Program (SWMP). Presenters will focus in detail on developing a representative sampling program for Total Maximum Daily Load (TMDL) waterbodies, understanding post-construction storm water control for new development and redevelopment requirements, and developing and implementing a Storm Water Pollution Prevention Plan (SWPPP) for municipal fleet maintenance and storage yards. Please note that the SWPPP training will focus on municipal facilities and will not cover industrial facilities. This workshop is recommended for managers of municipal facilities, municipal planners, municipal officials, and

environmental consultants. Registration fee: \$25. Updated workshop information is available on the Web at www.michigan.gov/deqworkshops, click on "Upcoming DNRE Workshops". Information Contact: **Christe Alwin**, Water Bureau, 517-335-2576, or e-mail at alwinc@michigan.gov. Registration Information: **Environmental Assistance Center**, 800-662-9278, or e-mail at deg-ead-env-assist@michigan.gov.

<u>Date</u>	<u>Location</u>
3/29/10	Delta Township District Library, Lansing
4/12/10	Haworth Inn and Conference Center, Holland
4/14/10	Monitor Township Hall, Bay City
4/20/10	Southeast Michigan Council of Governments, Detroit

APRIL 14
 JUNE 9
 SEPTEMBER 8
 NOVEMBER 10

 2010 PTI SERIES

AIR PERMIT APPLICATION WORKSHOP FOR FIRST-TIME APPLICANTS, CONSTITUTION HALL, LANSING, MICHIGAN. For most first-time applicants, completing the Permit to Install application is a daunting task. However, submitting a complete and timely application can be more manageable if you know what's expected. The Michigan Department of Natural Resources and Environment is offering this workshop designed to give information on how to submit a complete permit application. Since this workshop is geared to first-time applicants, a significant portion of the session is devoted to your specific application. Air Quality Division permit engineers will be available to discuss your permit application with you one-on-one. To take full advantage of this time with the permit engineer, it is recommended you bring detailed information about your project with you to the session. This training is designed for first-time air permit applicants who need help completing their permit application; however, those who have applied before and need a refresher are welcome to attend as well. Updated workshop information is available on the Web at www.michigan.gov/deqworkshops, click on "Upcoming DNRE Workshops". Information Contact: **James Ostrowski**, Office of Pollution Prevention and Compliance Assistance, 517-241-8057, or e-mail at ostrowskij2@michigan.gov. Registration Information: **Environmental Assistance Center**, 800-662-9278, or e-mail at deg-ead-env-assist@michigan.gov.

APRIL 2010

2010 SARA TITLE III TIER TWO AND TOXIC CHEMICAL RELEASE INVENTORY REPORTING WORKSHOP, VARIOUS LOCATIONS, MICHIGAN. This workshop will focus on the Toxic Chemical Release Inventory (TRI) report due July 1 and the Hazardous Chemical Inventory (Tier Two) report due March 1 required under SARA Title III, also known as the Emergency Planning and Community Right-to-Know Act of 1986. You will also learn when and how to report releases, who must have a Risk Management Plan, and how to avoid or minimize federal penalties if you did not know you were supposed to report under one of these federal regulations. This workshop is recommended for owners, operators, and environmental and safety personnel of facilities that handle hazardous or toxic substances. Environmental consultants, LEPCs, and fire department personnel might also benefit from this workshop and are encouraged to attend. All attendees will receive the 8th edition of the Michigan Facilities' Guide to SARA Title III, Emergency Planning, and Release Reporting published January 2010. Updated workshop information is available on the Web at www.michigan.gov/deqworkshops, click on "Upcoming DNRE Workshops." Registration Information Contact: **Environmental Assistance Center**, 800-662-9278, or e-mail at deg-ead-env-assist@michigan.gov. Information Contact: **Ruth Borgelt**, Office of Pollution Prevention and Compliance Assistance, 517-373-9804, or e-mail at borgeltr@michigan.gov.

<u>Date</u>	<u>Location</u>
4/27/10	Northern Michigan University, Marquette
4/29/10	Treetops Resort, Gaylord
4/30/10	Mt. Pleasant Comfort Inn & Suites, Mt. Pleasant

APRIL 28-30, 2010

MICHIGAN SUSTAINABLE BUSINESS FORUM CONFERENCE AND EXPO – CREATING CONNECTIONS: REVITALIZING MICHIGAN, GRAND TRAVERSE RESORT AND SPA, ACME, MICHIGAN. Make a plan to attend and spend the weekend up north! The event will cover Michigan's top three industries: Manufacturing, Agriculture, and Tourism and how they can be connected. Two tours are available: agriculture and businesses. The event is Co-Sponsored by: Northwest Michigan Sustainable Business Forum, Grand Traverse Resort and Spa, West Michigan Sustainable Business Forum, Southwest Michigan Sustainable Business Forum, and Southeast Michigan Sustainable Business Forum. The Michigan Department of Natural Resources and Environment is on the planning committee. To register, please visit: www.nwmsbf.org for forms and exhibitor and sponsor opportunities. Information Contact: Patty O'Donnell at pattyodonnell@nwm.cog.mi.us or 231-929-5039.

MAY 6, 2010

TOXICS CHEMICAL RELEASE INVENTORY REPORTING (EPCRA SECTION 313) WORKSHOP, LANSING COMMUNITY COLLEGE, WEST CAMPUS, LANSING, MICHIGAN. The Michigan Department of Natural Resources and Environment is conducting this workshop on Toxics Chemical Release Inventory (TRI) Reporting. TRI reporting is required under Section 313 of the federal Emergency Planning and Community Right-to-Know Act (EPCRA), also known as SARA Title III. This workshop is designed for those with little or no knowledge of reporting requirements under Section 313. It will cover the regulation, eligibility criteria, reporting process, and forms completion in detail. The *TRI-MEWeb* electronic reporting and recent TRI reporting changes will also be discussed. Included in this workshop will be a presentation on Risk Management Plans and the EPA Self-Audit and Disclosure Policy. Registration fee: \$75 includes lunch and workshop materials. Updated workshop information is available on the Web at www.michigan.gov/deqworkshops, click on "Upcoming DNRE Workshops." Registration Information Contact: **Environmental Assistance Center**, 800-662-9278, or e-mail at deq-ead-env-assist@michigan.gov. Information Contact: **Ruth Borgelt**, Office of Pollution Prevention and Compliance Assistance, 517-373-9804, or e-mail at borgeltr@michigan.gov.

JUNE 2010

2010 MICHIGAN ENVIRONMENTAL COMPLIANCE CONFERENCE, VARIOUS LOCATIONS, MICHIGAN. The Michigan Department of Natural Resources and Environment is presenting this conference, which will offer three concurrent tracks with over 15 sessions on waste management, wastewater management, air quality requirements, environmental emergencies, and more. All conference attendees will receive the brand new 6th Edition of the *Michigan Manufacturers' Guide to Environmental, Health, and Safety Regulations*. Updated conference information is available on the Web at www.michigan.gov/deqworkshops, click on "Upcoming DNRE Workshops." Registration Information Contact: **Environmental Assistance Center**, 800-662-9278, or e-mail at deq-ead-env-assist@michigan.gov. Information Contact: **Jim Ostrowski**, Office of Pollution Prevention and Compliance Assistance, 517-241-8057, or e-mail at ostrowskij2@michigan.gov.

<u>Date</u>	<u>Location</u>
6/3/10	Treetops Resort, Gaylord
6/10/10	Devos Place, Grand Rapids
6/17/10	Laurel Manor, Livonia

OCTOBER 20, 2010

2ND ANNUAL MICHIGAN GREEN CHEMISTRY CONFERENCE: A CATALYST FOR THE ECONOMY, KELLOGG CONFERENCE CENTER, MICHIGAN STATE UNIVERSITY, EAST LANSING, MICHIGAN. The 2nd Annual Michigan Green Chemistry Conference continues the momentum of the green chemistry movement in Michigan. Now more than ever, Michigan organizations are transforming the way they do business with a focus on sustainability and the use of less-toxic materials and processes. Green chemistry can reinvigorate Michigan's economy through new processes and products that are safe and green from cradle to cradle. Come learn from leading experts in the fields of technology, chemistry, engineering, business process improvement, and economic development on advancing and sustaining green products and processes. Business leaders, engineers, chemists, researchers, teachers, policymakers, and anyone else interested in moving green chemistry forward in Michigan are invited to attend this event. Updated conference information is available on the Web at www.michigan.gov/deqworkshops, click on "Upcoming DNRE Workshops." Registration Information Contact: **Environmental Assistance Center**, 800-662-9278, or e-mail at deq-ead-env-assist@michigan.gov. Information Contact: **Jennifer Acevedo**, Office of Pollution Prevention and Compliance Assistance, 517-335-3203, or e-mail at acevedoj@michigan.gov.

CALENDAR

Editor: Barbara Lindsay
800-662-9278

The Michigan Department of Natural Resources and Environment (MDNRE) will not discriminate against any individual or group on the basis of race, sex, religion, age, national origin, color, marital status, disability, or political beliefs. Questions or concerns should be directed to the MDNRE Office of Human Resources, P.O. Box 30473, Lansing, Michigan 48909.