

**Documentation in Support of a Request to Designate the PM_{2.5} Episode
of Eastern Wisconsin September 13 - 14, 2011 as an Exceptional Event**

Version 2

Bureau of Air Management
Wisconsin Department of Natural Resources
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1.0 Purpose and Background

An air quality-related exceptional event occurred in Wisconsin on September 13 and 14, 2011 caused by a smoke plume originating from a wildfire in the Superior National Forest in northeastern Minnesota, hereafter referred to as “the Pagami Creek Fire.” The purpose of this report is to provide documentation and scientific support to declare the following Federal Reference Method (FRM) fine particulate matter (PM_{2.5}) monitored concentration was directly caused by this exceptional event:

- Monitor Name: Milwaukee 16th Street Health Center
- Monitor ID: 550790010
- PM_{2.5} Concentration: 44.8 µg/m³
- Date: September 13, 2011
- Monitor Make: R&P 2025 Sequential Sampler
- Applicable National Ambient Air Quality Standards (NAAQS): 2006 PM_{2.5} Annual (15 µg/m³) & 24-Hour (35 µg/m³)

This report is intended to satisfy item #3 of the Wisconsin Department of Natural Resource’s (WDNR’s) exceptional event protocol (*Appendix 1*) and to address the requirements contained in 40 CFR 50.14. The WDNR protocol primarily reinforces the federal requirements of 40 CFR 50.14. However, additional detail was added regarding requirements for public notification, data flagging and the public comment process for the flagged data.

The WDNR hereby request the U.S. Environmental Protection Agency (EPA) take the following two inter-related regulatory steps:

1. Officially declare Wisconsin’s PM_{2.5} episode of September 13 – 14, 2011 as an exceptional event caused by the Pagami Creek Fire.
2. Invalidate the FRM 24-hour PM_{2.5} concentration of 44.8 µg/m³ monitored at the Milwaukee 16th Street Health Center monitor on September 13, 2011. Taking this action would exempt this concentration from being used to calculate PM_{2.5} design values.

This revised report is intended to replace the first version sent to the U.S. EPA in July 2012. Comments provided by the U.S. EPA (*see Appendix 2*) have been addressed in this version of the report.

2.0 Overview of Federal Regulatory Requirements

On March 22, 2007, the U.S. EPA promulgated the “Treatment of Data Influenced by Exceptional Events; Final Rule” [72FR13560] pursuant to the 2005 amendment of Clean Air Act (CAA) Section 319. This rule, known as the Exceptional Events Rule (EER), superseded the U.S. EPA’s previous natural events guidance and those sections of the interim fire policy document that addressed exceptional events. The EER created a regulatory process codified in 40 CFR 50 and 51 (50.1, 50.14 and 51.930). These regulatory sections contain definitions, procedural requirements, requirements for air agency demonstrations, and criteria for U.S. EPA approval for the exclusion of air quality data from regulatory decisions under the EER.

The definition of an exceptional event under 40 CFR 50.1(j) repeats the CAA definition which provides that an exceptional event is one that affects air quality, is not reasonably controllable or preventable, and is caused by human activity that is unlikely to recur at a particular location or a

natural event. Additional requirements in 40 CFR 50.14(a)(2) and (b)(1) identify that an air agency must demonstrate “a clear causal relationship between the measured exceedance or violation of such standard and the event” and that “an exceptional event caused a specific air pollution concentration in excess of one or more national ambient air quality standards.” The rule further requires under 40 CFR 50.14(c)(3)(iv) a demonstration to justify data exclusion shall provide evidence that the event is associated with a measured concentration in excess of normal historical fluctuations, including background, and evidence that there would have been no exceedance or violation but for the event.

When considered together, the EER identifies the following six elements that air agencies must address when requesting that the U.S. EPA exclude event-related concentrations from regulatory determinations:

1. the event affected air quality,
2. the event was not reasonably controllable or preventable,
3. the event was caused by human activity that is unlikely to recur at a particular location, or was a natural event,
4. there exists a clear causal relationship between the specific event and the monitored concentration,
5. the event is associated with a measured concentration in excess of normal historical fluctuations including background, and
6. there would have been no exceedance or violation but for the event

3.0 Exceptional Event Criteria

Criterion #1: The Event Affected Air Quality

Several WDNR continuous, non-FRM air monitoring sites in northern and eastern Wisconsin measured PM_{2.5} concentrations at unprecedented high levels during September 13 – 14, 2011. They were among the highest PM_{2.5} concentrations measured in the 13 years of PM_{2.5} monitoring in the state. During this episode, nine sites measured peak hourly-averaged PM_{2.5} concentrations (based upon continuous PM_{2.5} monitoring) above 60 µg/m³ (Table 1, Figure 1). Five of these sites had peak 1-hour averaged PM_{2.5} concentrations that were in excess of 100 µg/m³. Four monitoring sites had rolling 24-hour PM_{2.5} averages that exceeded the Air Quality Index (AQI) level designated as “Unhealthy” (55.5 µg/m³ – “Red”). Previously, ambient air pollution concentrations in Wisconsin had reached the Red AQI level only once (in December, 2007 – for one site, for one hour). The impacted continuous air PM_{2.5} monitors are not certified as meeting Federal Equivalent Method (FEM) requirements, with the exception of the Green Bay-East monitoring site (550090005), which did not operate during a period that included September 13 – 14, 2011. Consequently, none of the PM_{2.5} data collected by the WDNR’s continuously-operated PM_{2.5} instruments are eligible for use in calculating design values for comparison with the PM_{2.5} NAAQS.

Figure 1 and Table 1 show that there were other Wisconsin sites (mostly in the western half of the State) that witnessed low PM_{2.5} concentrations during these two days. This contrast between sites in western Wisconsin and the eastern Wisconsin sites suggest that the western sites were not impacted by the Pagami Creek Fire smoke plume. In addition, Figure 2 shows continuous hourly PM_{2.5} concentrations at southeast Wisconsin monitoring sites on September 13 and Figure 3 shows continuous 24-hour rolling PM_{2.5} concentrations at southeast Wisconsin monitoring sites.

The active burn area during on September 14 is shown in Figure 4. Emissions, both anthropogenic and natural, that came from Wisconsin-based sources during this period appear to have made only a negligible contribution to the high PM_{2.5} levels.

Criterion #2: The Event Was Not Reasonably Controllable or Preventable

The Pagami Creek Fire was caused by a lightning strike – so it was not preventable. Regardless of whether the National Forest Service (NFS) could have contained the fire during its early stages, the WDNR had no jurisdiction regarding the fire.

Criterion #3: The Event Was Caused by Human Activity That Is Unlikely To Recur At A Particular Location, Or Was A Natural Event

The Pagami Creek Fire, which caused the air quality exceptional event in Wisconsin, was a natural event (i.e., a forest fire).

Criterion #4: There Exists A Clear Causal Relationship Between The Specific Event And The Monitored Concentration

Based upon satellite, radar and other data taken of the Pagami Creek Fire smoke plume during September 12 - 13, a conceptual depiction of the plume's horizontal dimension and pathway aloft is displayed in Figure 5 (Arlington Heights (IL) Cardinal, 2011). As noted by Huttner (2011), the majority of this smoke plume had gone relatively unnoticed over Wisconsin through early September 13, drifting aloft between 3,000 and 10,000 feet above ground level (AGL).

By early September 13, it is likely that the vertical profile of wind flow, in which the plume was embedded, began a slow alteration under a large high pressure system that was intensifying behind a cold front moving through the area (Figures 6A, 6B). The large-scale subsidence associated with this high pressure system likely forced the plume to lower levels in the atmosphere, with portions of the plume beginning to mix to the surface for varying periods.

On September 13 many people in southeastern Wisconsin noted substantially high amounts of smoke in the air. Numerous reports detailed the smell of smoke, the sky's considerable smoky haze appearance, stinging eyes, and burning odors (Milwaukee Journal-Sentinel, 2011). Figure 7 shows that large amounts of smoke were apparent over downtown Milwaukee on September 13. The smoke was so thick in Milwaukee on this day that the retractable roof over Miller Park was closed that evening for the Milwaukee Brewers baseball game.

A GOES satellite image, taken at 9:15 AM CDT, September 13 of Northern Minnesota / Lake Superior / Northern Wisconsin, is superimposed with concurrent streamlines of surface air flow (Figure 8) (Huttner, 2011). The left side of the image shows that the wind flow was initially heading in a northeastward direction at that time. However, in the right side of the image, which includes northeastern Minnesota, the wind flow took a turn to a southeastward direction (towards Wisconsin), behind the cold front passing through the region.

The circle in Figure 8 identifies the general location of the active burn to the Pagami Creek Fire at 9:15 AM CDT on September 13. To the immediate lower right of this circle, it is possible to see the fire's smoke plume as it travels southward (embedded in the flow behind the cold front) across Lake Superior and part of northern Wisconsin and Michigan's Upper Peninsula.

The National Weather Service (NWS)-measured visibility (Figure 9) was quite low (2 to 4 miles) in southeastern Wisconsin on September 13. This map also shows that nearby areas not affected by the plume had relatively clear visibility (i.e., 10 mile visibility reported).

A schematic graph of the trajectory of the Pagami Creek Fire smoke plume (Figure 10 [Milwaukee Journal-Sentinel, 2011]) is corroborated by several back air trajectories that were generated using an on-line version of National Oceanic and Atmospheric Association's (NOAA's) Hybrid Single Particle Lagrangian Integrated Trajectory (HYSPLIT) model (2012). Figure 12 displays these backward trajectories (start: 7:00 PM CDT September 12) that ended at the WDNR monitoring sites at Waukesha, Milwaukee-Southeast Region (SER) and Chiwaukee at 10:00 AM CDT, September 13, when all monitoring sites were near their peak hourly $PM_{2.5}$ values (Figure 2). The HYSPLIT trajectories help confirm that the Pagami Creek burn area was the source region for the smoke plume that impacted southeastern Wisconsin during September 13 - 14.

As part of a U.S. EPA field study on black carbon (BC) source apportionment in Milwaukee (U.S. EPA, 2012), an aethalometer was operated at the Milwaukee-SER monitoring site for much of 2011, including during the Pagami Creek Fire episode. The aethalometer, at an optical absorption wavelength of 880 nanometers (nm), principally measures BC $PM_{2.5}$, which mostly results from fossil fuels burning. The aethalometer also measures at the wavelength 370 nm, which is sensitive to ultra-violet particulate matter ('UVPM') $PM_{2.5}$ levels - indicative of aromatic organic compounds, including smoke from burning wood and other biomass (Allen, 2011). A positive difference between the UVPM and BC data (i.e., "Delta-C" ["DC"] = $UVPM_{370nm}$ minus BC_{880nm}) serves as an indicator of wood combustion (Wang, et.al., 2011).

Figure 12 presents a time series of hourly-averaged measurements of both aethalometer DC data and $PM_{2.5}$ data collected at the Milwaukee-SER monitoring site during September 2011. The anomalously-high, well-correlated spikes in both DC and $PM_{2.5}$ during September 13 - 14 clearly corroborate each other in identifying when the Pagami Creek Fire smoke plume made its greatest impact at the Milwaukee-SER monitoring site.

Criterion #5: The Event Is Associated With A Measured Concentration In Excess Of Normal Historical Fluctuations Including Background

In order to evaluate if the single FRM $PM_{2.5}$ concentration is in excess of normal historical fluctuations, the WDNR has followed the U.S. EPA guidance document entitled "Draft Exceptional Events Rule Frequently Asked Questions" (June 2012, available at www.epa.gov/ttn/analysis/exeevents.htm). The WDNR constructed a graph (Figure 13) of historical seasonal fluctuations in non-seasonal FRM 24-hour $PM_{2.5}$ data at the Milwaukee 16th Street Health Center monitoring site for the most recent 5 year period (2007-2011). The WDNR used this approach because all $PM_{2.5}$ monitoring sites in Wisconsin appear to have met the U.S. EPA's "non-seasonal" definition (i.e., the site is subject to high concentrations all year that can be caused by non-exceptional event processes).

In Figure 13, attention is called to the $PM_{2.5}$ value ($44.8 \mu\text{g}/\text{m}^3$, September 13, 2011). During the third calendar quarter of 2007-2011, this value is $11.8 \mu\text{g}/\text{m}^3$ (almost 2 standard deviations) higher than the next highest FRM $PM_{2.5}$ measurement ($33.0 \mu\text{g}/\text{m}^3$). Figure 13 shows that the $44.8 \mu\text{g}/\text{m}^3$ concentration, both graphically and statistically, meets the U.S. EPA's requirement in the EER that the event is associated with a measured concentration in excess of normal historical fluctuations.

Criterion #6: There Would Have Been No Exceedance Or Violation But For The Event

In order to quantify the impact of the Pagami Creek Fire smoke plume on the FRM monitor in Milwaukee on September 13, the WDNR has applied statistical and graphical techniques to compare FRM PM_{2.5} data collected at the Milwaukee 16th Street Health Center monitoring site with the FRM PM_{2.5} data at the Madison-University Ave (550250047) monitoring site for calendar year 2011, with a focus on the September 13 data.

The Madison site (43.07 N. Lat, 89.44 W. Lon) is located approximately 77 miles due west of the Milwaukee 16th Street Health Center site (43.02 N. Lat, 87.93 W. Lon). Data from Madison are used for comparison with the data from Milwaukee because Madison has an FRM PM_{2.5} value on September 13 and the graphical displays (Figures 5, 9, 10, 11) indicate that the Pagami Creek Fire smoke plume did not impact the Madison site. A backward trajectory plot (Figure 14) indicates that both sites were exposed to the same synoptic Canadian air mass during September 13. Also a portion of the backward trajectory path for the Madison site is noticeably shifted to the west of the smoke plume's southeastward-moving path.

A statistical comparison between the Madison and Milwaukee data are displayed in Figure 15. This display shows an overall good correlation (square of the correlation coefficient [r^2] = 0.678) between PM_{2.5} concentrations at both sites across the 305 days during 2011 when FRM PM_{2.5} samples were collected at both sites. As expected, the Milwaukee site had slightly higher PM_{2.5} levels compared to the Madison site for 2011. The Milwaukee site is located on a major arterial street within a mile of the industrialized Menomonee River Valley and approximately 2 miles from the busy I-94 corridor and downtown Milwaukee. The Madison site is located in an area that is mostly residential with some retail.

Figure 15 shows one substantial exception to the relative agreement between the FRM PM_{2.5} values at the two sites during 2011. The PM_{2.5} measurements from September 13 was 44.8 µg/m³ for the Milwaukee site and 7.2 µg/m³ for the Madison site. The net difference in these concentrations (37.6 µg/m³) is 10 times greater than the standard deviation in differences between the sites' daily PM_{2.5} values (3.73 µg/m³). The Milwaukee site's 44.8 µg/m³ concentration is almost 2 standard deviations higher than the site's next highest value (33.1 µg/m³) for 2011.

These sizable discrepancies in the PM_{2.5} concentrations between these 2 sites on September 13, 2011 lead to the conclusion that on this day, the Milwaukee monitoring site was heavily impacted by the Pagami Creek Fire smoke plume while the Madison monitoring site was not impacted by the smoke plume.

It is possible to derive the net contribution from the smoke plume to the Milwaukee PM_{2.5} concentration. The first step is to normalize the mean concentrations between the Madison and Milwaukee sites by adding the average net difference (Milwaukee minus Madison) in daily PM_{2.5} concentrations for 2011 (+0.5 µg/m³ - see Figure 15). The next step for estimating the net amount of PM_{2.5} that the Pagami Creek Fire smoke plume likely contributed to the FRM 24-hour PM_{2.5} concentration at the Milwaukee site on September 13, 2011 is to subtract the Madison site concentration for September 13 plus the normalizing factor from the Milwaukee concentration for September 13 [44.8 µg/m³ - (7.2 µg/m³ + 0.5 µg/m³) = 36.1 µg/m³]. This estimate does not directly consider background PM_{2.5} concentrations.

On September 12 (the day before the plume's full impact on Milwaukee) and September 14 - 15 (the two days after the plume impact day), the Milwaukee site measured FRM 24-hour PM_{2.5} concentrations of 9.3 µg/m³, 11.9 µg/m³ and 3.7 µg/m³, respectively. Hypothetically, removing

the impact from the Pagami Creek Fire smoke plume on September 13, the Milwaukee FRM monitoring site would likely have measured a 24-hour PM_{2.5} concentration for the day that would have been much lower than the recorded 44.8 µg/m³ value, probably much closer to the FRM PM_{2.5} concentration of 7.2 µg/m³ measured at the Madison monitoring site on this day. Consequently, it is reasonable to assume that the estimated net impact of the Pagami Creek Fire smoke plume on the Milwaukee 16th Street Health Center FRM monitor for September 13 was in the range of the mid-30 µg/m³ as calculated above.

4.0 WDNR Public Notification and Air Quality Advisories

The federal exceptional event requirements include the need to address mitigation requirements (i.e., agencies must take appropriate and reasonable actions to protect public health from exceedances or violations of the NAAQS, including public notification, public education, and implementation of control measures). During the course of this two day episode, the WDNR issued several notifications to the public, including two air quality health advisories. These notifications were released in order to alert residents in the areas affected to take precautionary steps to minimize exposure, risk or injury from the smoke plume.

During September 13 and 14, the WDNR closely tracked the rapidly increasing PM_{2.5} concentrations, both hourly-averaged (Figure 2) and rolling 24-hour values (Figure 3). PM_{2.5} concentrations are reported in real-time from the WDNR statewide monitoring network. By early afternoon on September 13, the WDNR and the Wisconsin Department of Health Services (WDHS) issued a joint press release around Noon regarding the smoke plume's increasing impacts on public health ("Air News – Smoke Complaints" [see Appendix 3]). This notice gave an overview of what was causing the visible smoke and smell in the lower atmosphere, what people could do to minimize negative health impacts from exposure to the smoke plume and instructions to watch for further notifications from the WDNR and / or the WDHS on the public health issue.

By 5:00 PM CDT, the rolling 24-hour PM_{2.5} concentrations at several WDNR monitoring sites had just exceeded 35.5 µg/m³, which is the 24-hour PM_{2.5} NAAQS and the level at which the AQI exceeds 100 and is classified as unhealthy for sensitive groups (USG ["Orange"]). At this level, the WDNR, following protocol, issued a public air quality advisory for PM_{2.5} at 5:30 PM CDT (see Appendix 4). This advisory was effective immediately for the counties Dodge, Waukesha, Milwaukee, Racine and Kenosha and set to end by 11:00 AM CDT on September 14.

The Pagami Creek Fire smoke plume's impact on PM_{2.5} levels continued to grow dramatically in southeastern Wisconsin throughout the night of September 13 - 14 (Figures 2, 3). When the rolling 24-hour PM_{2.5} concentrations at several WDNR monitoring sites approached the "Unhealthy / Red" AQI level (55.5 µg/m³), the WDNR updated its USG / Orange advisory to Unhealthy / Red at 9:30 AM CDT September 14 (see Appendix 4). The updated advisory was for the same five counties and extended the end of the advisory to 11:00 PM CDT on September 14. This was only the second "Red" air quality advisory ever issued by the WDNR.

5.0 Public Comments on the Draft Pagami Creek Fire Exceptional Event Report

In May 2012, the WDNR completed a draft report on the Pagami Creek Fire smoke plume impacts on Wisconsin. In accordance with the public review process of the U.S. EPA Exceptional Event rule [40 CFR 50.14 (c)(3)(i)], the WDNR has completed several actions to solicit public comment on this draft report.

In May 2012, the WDNR published a Notice of Public Informational Meeting that took place on May 23, 2012 at the WDNR's headquarters in Madison, Wisconsin. This meeting notice, which is contained in Appendix 5, stated that the WDNR was seeking public comment on several monitoring issues, including the Pagami Creek Fire exceptional event. A slide presentation of the report was given at this meeting. The notice stated that WDNR was accepting public comment in person at the meeting, as well as written comments through June 4, 2012.

In June 2012, the WDNR posted the original Pagami Creek exceptional event report to its public website¹. In addition, on June 4, 2012 the WDNR sent an e-mail to all members of the Wisconsin Clean Air Act Task Force (CAATF) notifying them that the WDNR was accepting public comments on the Pagami Creek Fire exceptional event report through July 9, 2012. A copy of that e-mail is in Appendix 5.

The WDNR received only two public comments on the draft Pagami Creek Fire exceptional event document. These written comments were from the Chequamegon-Nicolet National Forest and the Forest County, WI Potawatomi Community. Both commenters expressed support for the WDNR seeking to have the Pagami Creek Fire episode be declared an exceptional event by the U.S. EPA. Both of these written comments are contained in Appendix 5 of the report.

6.0 Conclusion

This report provides documentation related to the Pagami Creek Fire smoke plume impacts on air quality in Wisconsin during September 13 and 14. The WDNR strongly believes that the resulting PM_{2.5} episode was from a natural event that meets the U.S. EPA's definition of an exceptional event [40 CFR 50.1(j)]. As a result, the WDNR is hereby requesting that the U.S. EPA officially declare the FRM PM_{2.5} measurement of 44.8 µg/m³ observed at the Milwaukee 16th Street Health Center (550790010) monitor on September 13, 2011 was caused by an exceptional event.

¹ <http://dnr.wi.gov/topic/AirQuality/Monitor.html>

7.0 References

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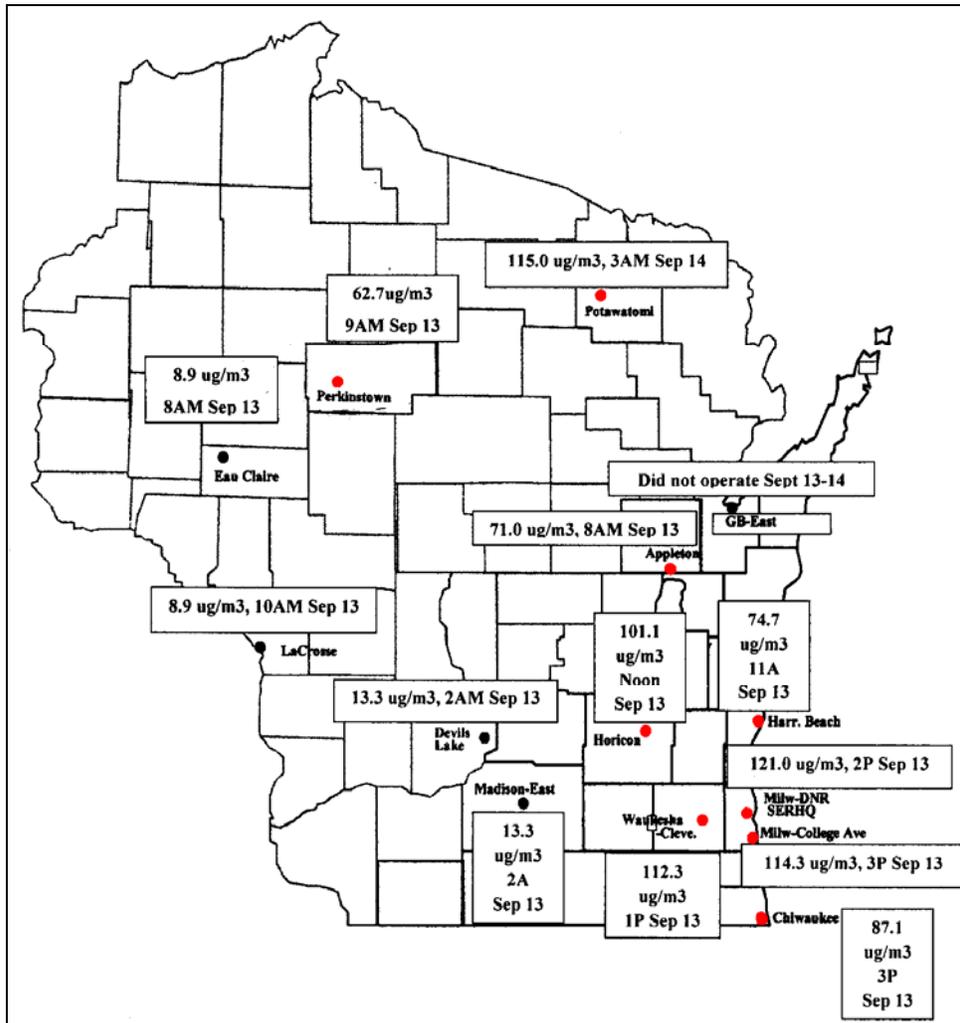
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9.0 Figures

Figure 1: Peak 1-Hour PM_{2.5} Concentrations from September 13 – 14, 2012



Note: Monitoring sites impacted by smoke are denoted in red.

Figure 2: Hourly PM_{2.5} Concentrations at Southeast Wisconsin Monitoring Sites
September 13, 2011 7:00AM CDT – September 14, 2011 8:00AM CDT

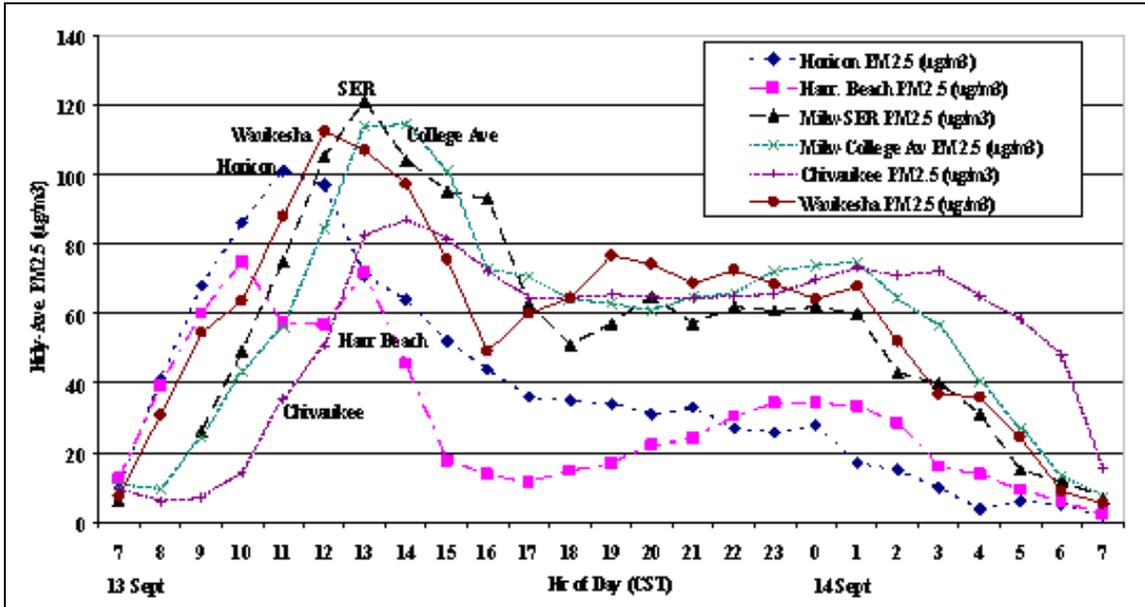


Figure 3: Rolling 24-Hour Average PM_{2.5} Concentrations
September 13, 2011 6:00AM CDT – September 14, 2011 11:00PM CDT

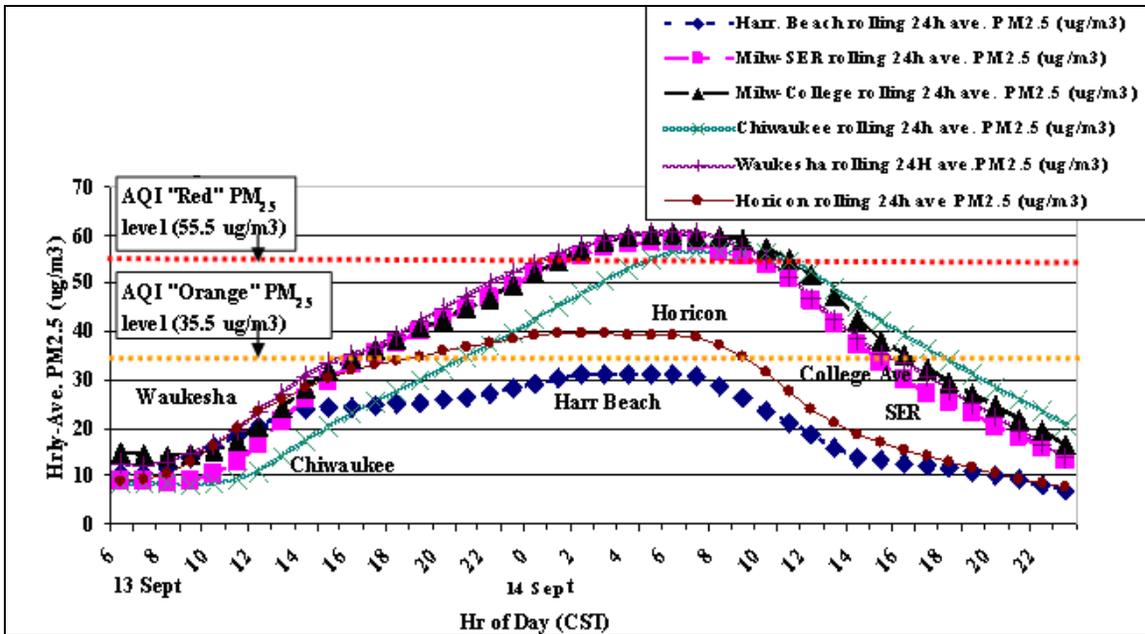
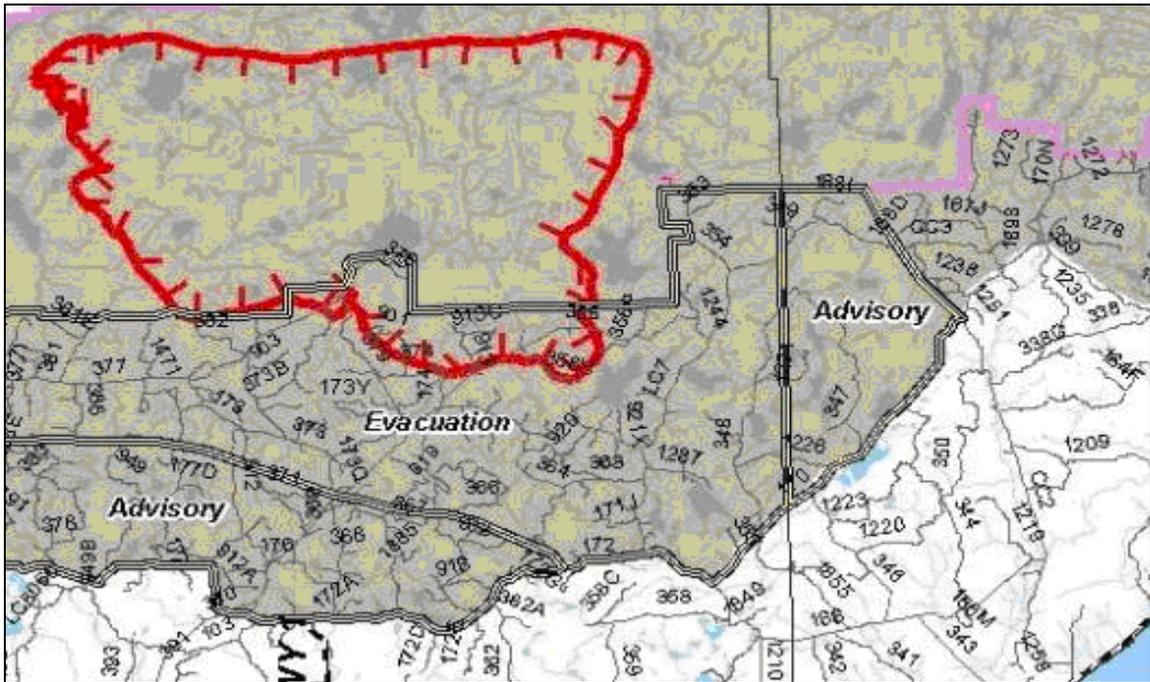


Figure 4: Pagami Creek Burn Area



Note: Burn area enclosed by red line.

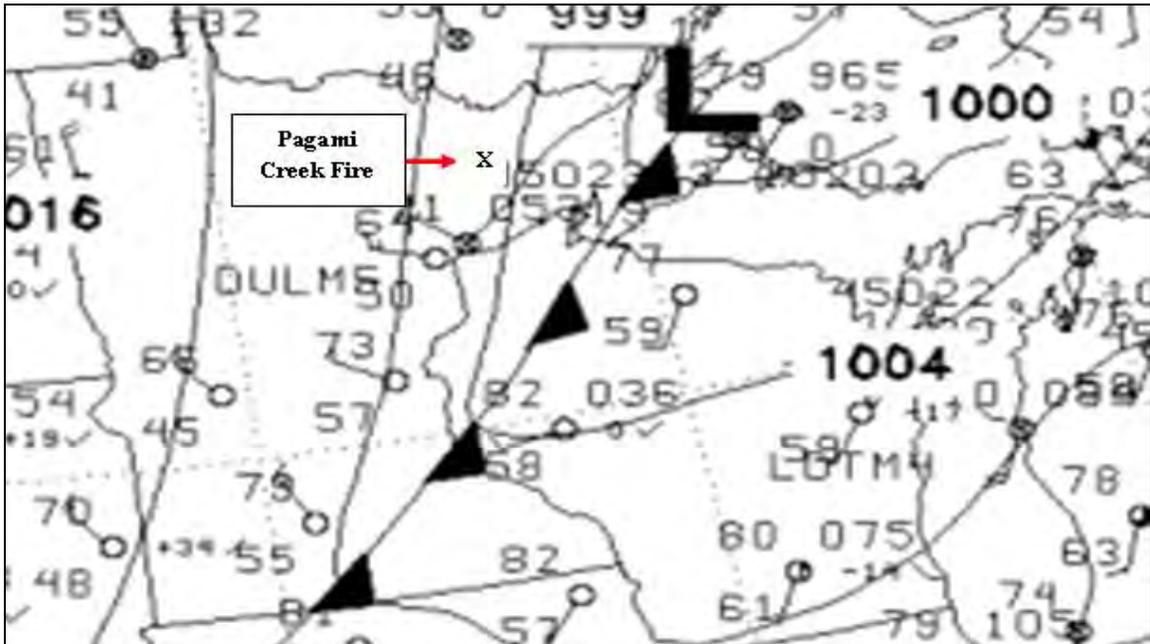
Source: Wildfire Today Website, September 14, 2011

Figure 5: Conceptualized Pagami Creek Plume Positions



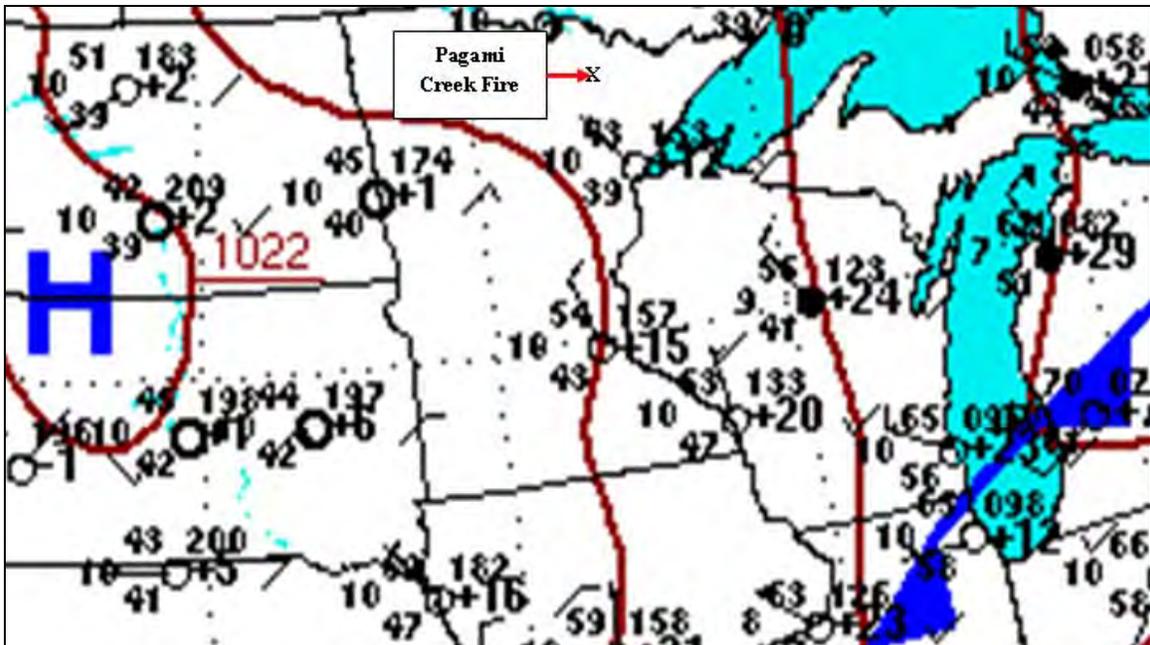
Source: Cardinal (2011)

Figure 6A: Surface Weather Map, September 12, 2011 at 7PM CDT



Source: NOAA Daily Weather Maps Website

Figure 6B: Surface Weather Map, September 13, 2011 at 7AM CDT



Source: NOAA Daily Weather Maps Website

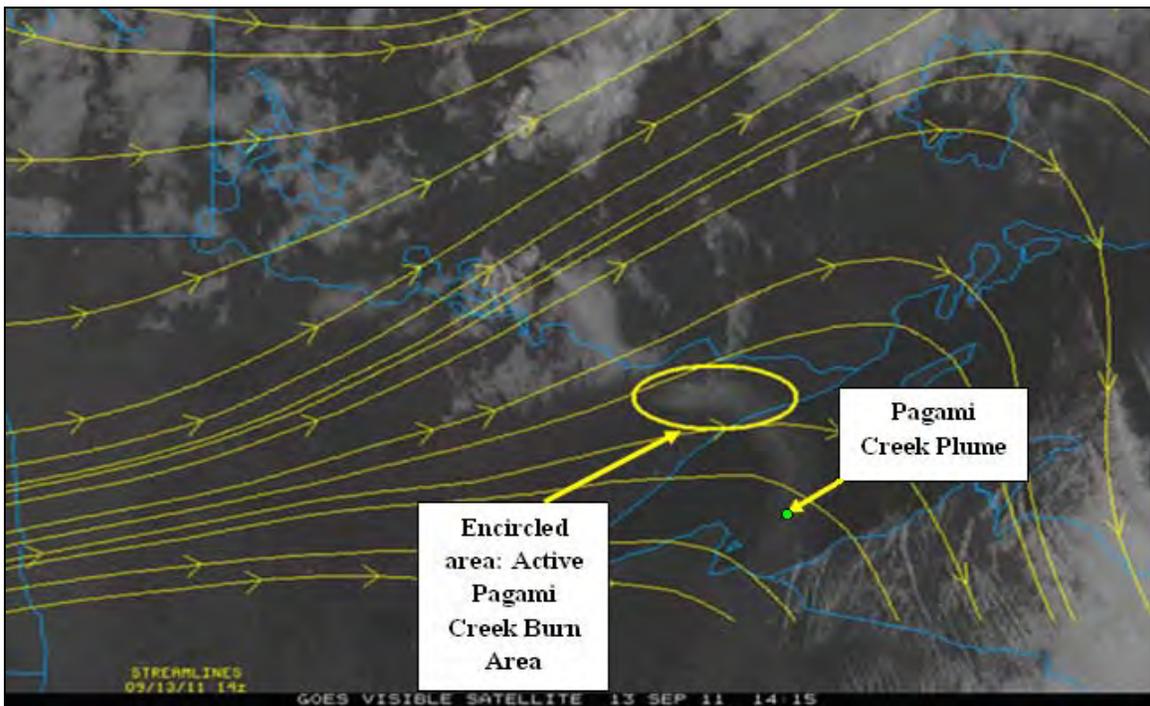
Figure 7: Pagami Creek Fire Plume Smoke Over Downtown Milwaukee, Wisconsin



Note: September 13, 2011

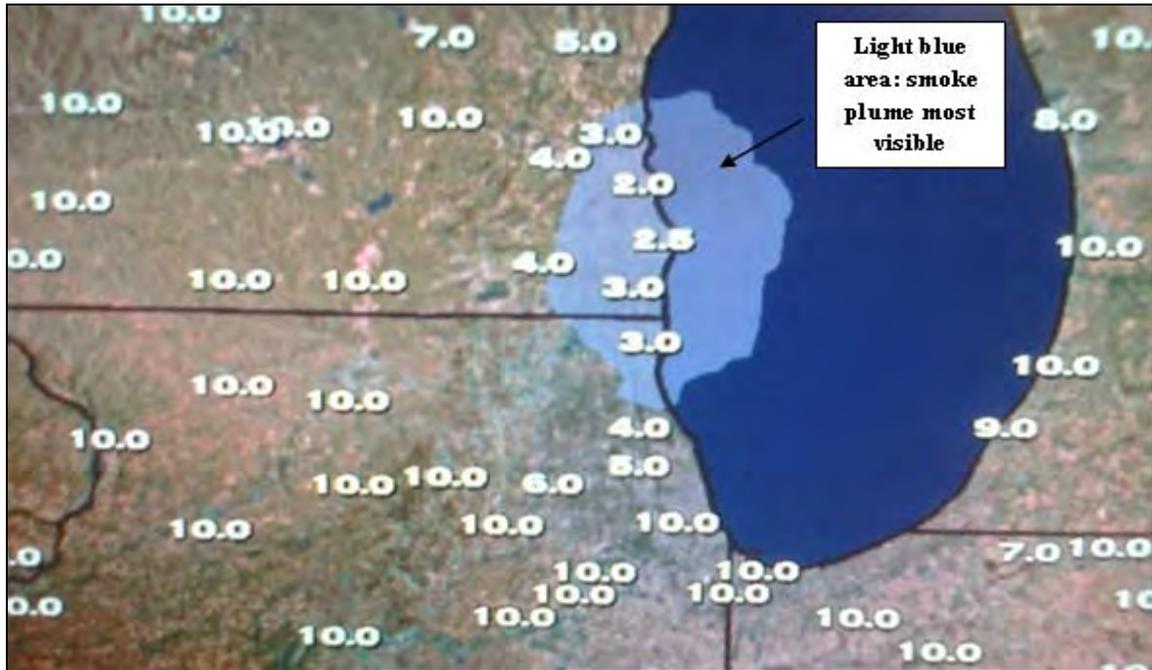
Source: Milwaukee Journal-Sentinel Website

Figure 8: GOES Satellite Image, September 13, 2011 at 9:15AM CDT



Source: Huttner (2011)

Figure 9: Visibility Reports on September 13, 2011 at 7:00PM CDT



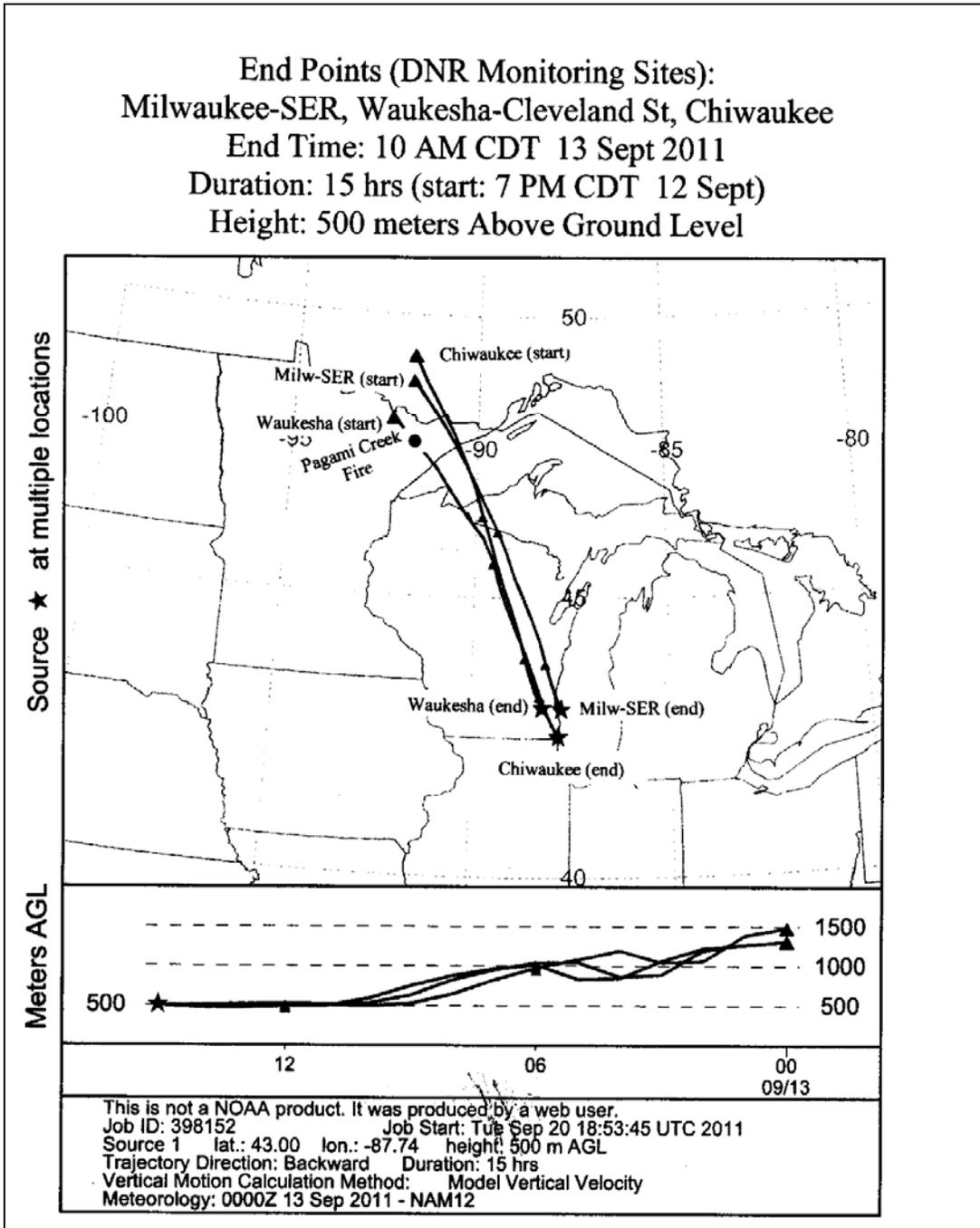
Source: Huttner (2011)

Figure 10: Generalized Path of the Pagami Creek Fire Plume to Milwaukee, WI



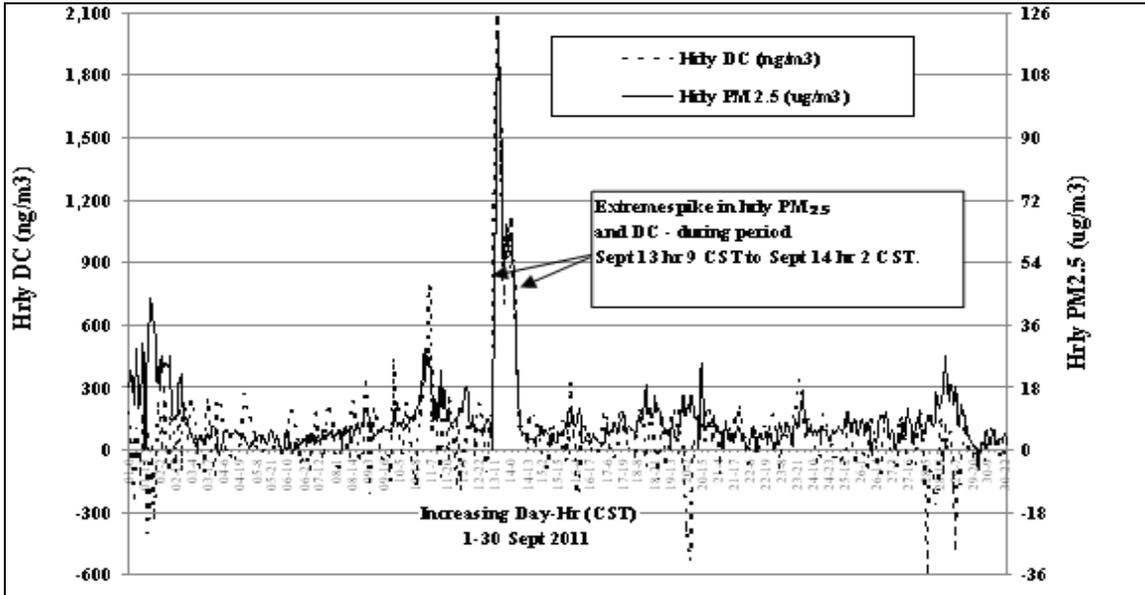
Source: Milwaukee Journal-Sentinel Website

Figure 11: Backward Air Trajectories



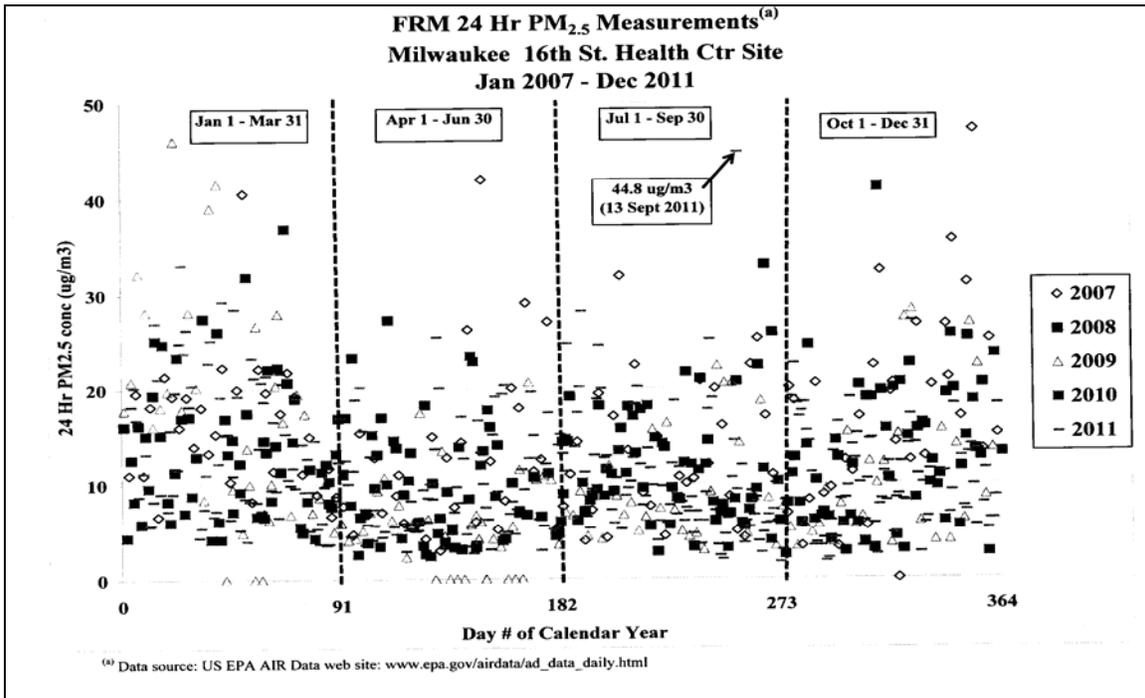
Source: Derived from NOAA's Online HYSPLIT Trajectory Model (12 km NAM met. fields)

Figure 12: Time Series of Hourly PM_{2.5} Concentrations at Milwaukee, WI
September 1 – 30, 2011



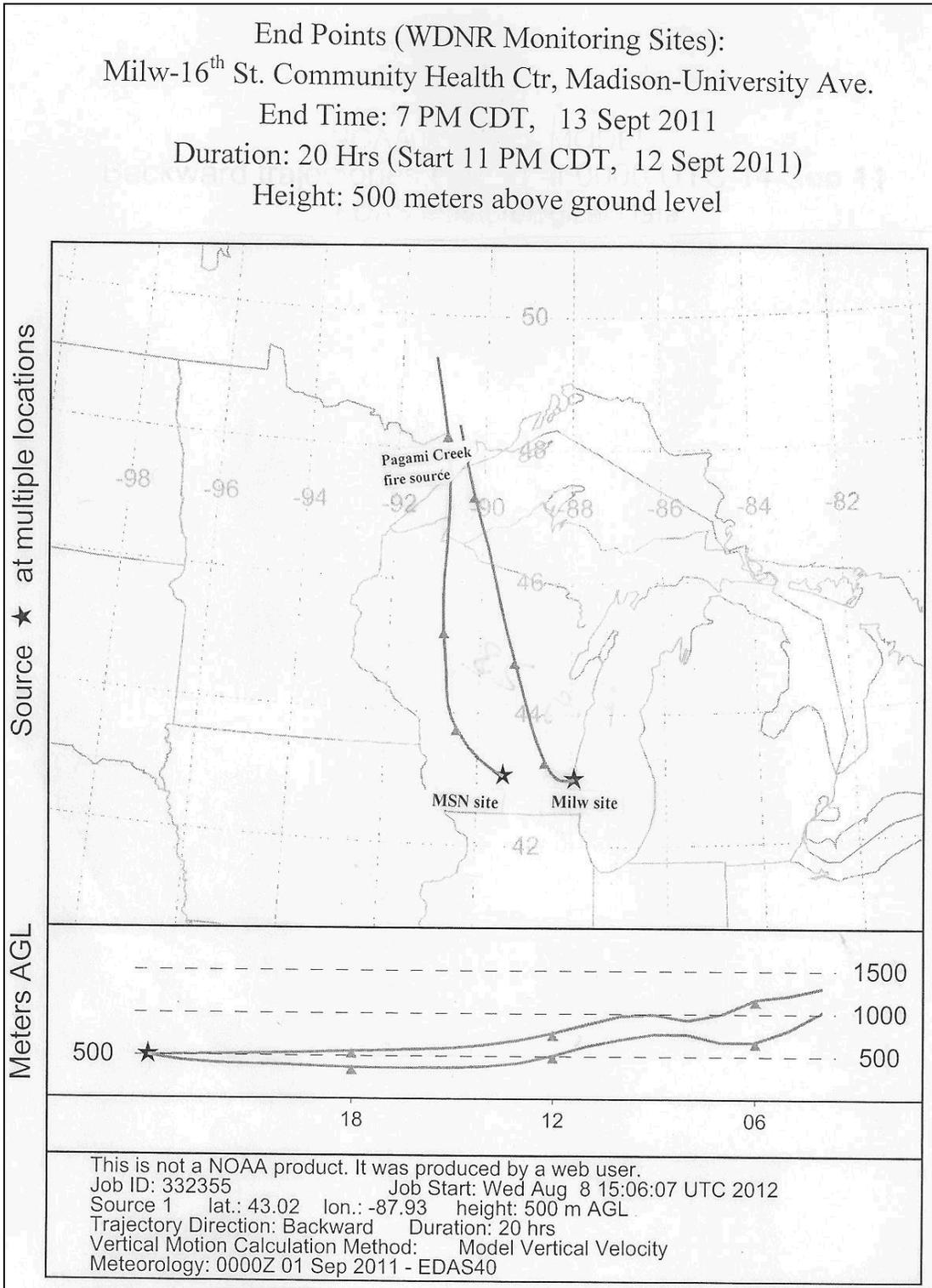
Note: Aethelometer Delta-C (DC) data (units: nanograms [ng]/m³). DC = UVPM370nm minus black carbon (BC880nm). Positive DC values are associated with wood combustion. Negative DC values suggest the burning of fossil fuels (Wang, et.al., 2011).
Source: Milwaukee DNR SERHQ Monitoring Site Data

Figure 13: FRM 24-Hour PM_{2.5} Concentrations
January 2007 – December 2011



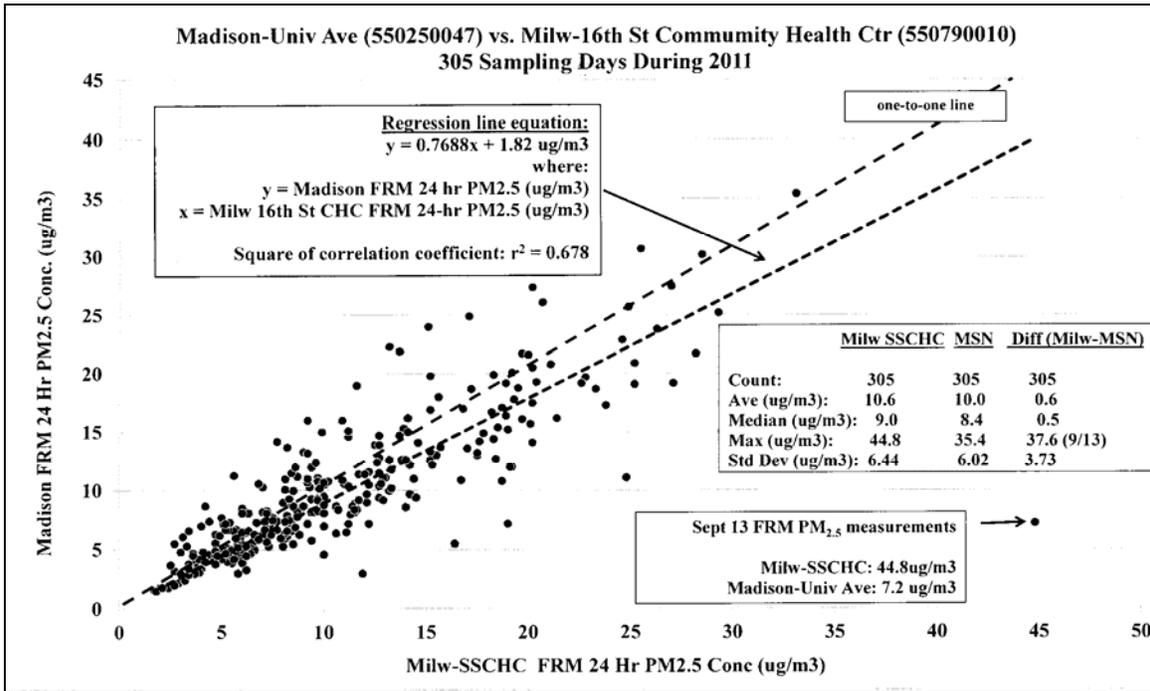
Source: U.S. EPA AIR Data Website - Milwaukee 16th St. Health Center Monitoring Site Data

Figure 14: Backward Air Trajectories



Source: Derived from NOAA's Online HYSPLIT Trajectory Model (12 km NAM met. fields)

Figure 15: Scatterplot of FRM 24-Hour PM_{2.5} Concentrations



Appendix 1 Wisconsin Exceptional Event Guidelines & Procedures (Wisconsin Department of Natural Resources draft: May 12, 2009)

Policy Decision: Together, the Wisconsin Department of Natural Resources (WDNR) Air Monitoring (AM) and Regional Pollutants and Mobile Sources (RPMS) sections will follow an exceptional event procedure when potential exceptional events occur in the state. The AM section will flag the data in accordance with the federal Exceptional Event Rule (EER) in the U.S. Environmental Protection Agency (EPA) Air Quality System (AQS). If the event may be defined as an exceptional event that causes a violation of a standard and requires an exclusion request flag, staff scientists will complete an analytical demonstration (similar to a weight-of-evidence analysis) within the timeline requirements set forth in the EER. A period for public comment will be given. The demonstration and documentation of the public comment period will be submitted to EPA in a timely manner.

Exceptional Event Definition:

The criteria for defining an exceptional event are as follows. The event:

- must affect air quality
- must be natural or caused by human activity **and** unlikely to recur at a particular location.
- was not reasonably controllable or preventable
- was not caused by an air mass stagnation, inversion, high temperature, lack of precipitation or due to source noncompliance.
- must be determined to be an exceptional event by the EPA Administrator through the process established in the federal exceptional event rule.

There are special provisions in the EER regarding fireworks and prescribed fires. *Fireworks:* EPA will exclude data, from regulatory determinations for monitoring stations, whose exceedances or violations have been determined to be caused by emissions from fireworks displays on a case-by-case basis. The State should alert the public to the potential for short-term air quality impacts that may result from the discharge of fireworks at large displays. WDNR will post a public information web page on the potential impact of fireworks on public health to address this topic. *Prescribed Fire:* A prescribed fire is defined as any fire ignited by management actions to meet specific resource management objectives. EPA approval of exceedances linked to a prescribed fire used for resource management purposes is contingent on the State certifying that it has adopted and is implementing a Smoke Management Plan (SMP), as described in that policy. A State SMP establishes a basic framework of procedures and requirements for managing smoke from a prescribed fire managed for resource benefit. In Wisconsin, the public is notified of prescribed burns through the Department's Forestry Division burn permit system.

Background:

Section 319 of the Clean Air Act, as amended by the SAFE-TEA-LU Act of 2005, required US EPA to promulgate a rule to govern the review and handling of exceptional events data. On May 21, 2007, US EPA's exceptional event regulation became effective.

The purpose of the federal rule is to set criteria and a process for US EPA to concur to exclude event influenced data when determining NAAQS compliance and design values. The rule applies broadly to all criteria pollutants but only ozone, PM_{2.5}, PM₁₀ and lead (Pb) are currently listed explicitly. EPA will formally extend the rule to other criteria pollutants as the respective NAAQS are revised.

There are 4 basic steps to completing an exceptional event decision under the federal Exceptional Event Rule (EER). They are: (1) State flagging of data [AM Section] (2) annual State submittal of an initial exceptional event description in US EPA's AQS system [AM Section] (3) State submission of a demonstration to justify data exclusion [RPMS Section] and (4) EPA review followed by approval or disapproval. Note, for all flagged events, the demonstration to justify data exclusion must be submitted within 3 years of the calendar quarter following an event, but no later than 12 months prior to a regulatory decision.

The draft guidance outlining the procedure that the Wisconsin Air Monitoring Section will use for compliance with the federal rule begins on the next page.

Exceptional Event Guidelines & Procedures

The Process:

Public Notification Requirements:

The WDNR is responsible for notifying the public of the occurrence, or anticipated occurrence, of the event. The Department has been forecasting ozone seasonally since the 1980s and fine particles year-round since 2004. The established Air Quality Watch and Advisory program satisfies the public notification requirement. (Notification of prescribed burns in Wisconsin is handled by a separate notification system managed by the Department's Forestry Division. The Forestry system is independent of Air Management's Air Quality Watch/Advisory system.)

Data Flagging & Description Requirements: Annually, by July 1 of the following year, the Department must notify EPA by flagging and providing an initial event description of data in AQS suspected of being an exceptional event. Flagging of data is independent of advising the public. The Department is aware of revised exceptional event data qualifiers and will distinguish between "data exclusion" (REQEXC) and "informational only" (INFORM) qualifiers. Only data flagged with REQEXC flags needs to go through the public process.

New EPA Qualifier Codes for use in Wisconsin's System:

New codes will be added in order to: (a) enable the State to differentiate between regulatory and documentation purposes, (b) match regulatory definitions for events. (c) use the "other" category for undefined events, and (d) use comments to assist in defining the event. In addition, the Department will perform the AQS notification function within the required timeframe.

INFORM - The INFORM qualifier code type is used for informational purposes only and there is no application for the EER. INFORM is used to document any event that might affect a measured concentration and it is used with any pollutant. Data flagged with an INFORM code will not go through a public process but will be noted within the annual network review.

REQEXC - The REQEXC qualifier code type is used for criteria pollutants, where the measured concentration is either above the NAAQS or there is a clear contribution to an exceedance. It requires documentation and comments and has a defined submission schedule. Data flagged with REQEXC flags must go through the public process. It also requires EPA to concur with this the exclusion request, which is based on submitted documentation.

Public Comment Process Related to Flagged Data Requirements:

A public comment process is only required when data is flagged with an exclusion request (REQEXC) flag and the flagged value impacts the designation status of a location. The Department must provide a 30-day opportunity for public review of all relevant REQEXC flagged data, along with the reasons for the data being flagged, and a demonstration that the flagged data are caused by exceptional events. The WDNR commits to posting the demonstration document on the DNR public website for at least 30 days. The name of a contact person will be stated in the posting. In addition, an e-mail will be sent to the Clean Air Act Task Force, as the task force members are the key stakeholders that may be interested in the exceptional event process. The WDNR will document that the public comment process was followed with submission of the demonstration and submit the public comments it received along with its demonstration to EPA. The Department will perform these functions concurrently with its annual network review. The EPA does not require that public hearings be held on exceptional events demonstrations (p. 13574).

Exceptional Event Definition:

The criteria for defining an exceptional event are as follows. The event must:

- affect air quality
- be natural or caused by human activity **and** unlikely to recur at a particular location.
- not be reasonably controllable or preventable
- not be caused by an air mass stagnation, inversion, high temperature, lack of precipitation or due to source noncompliance.
- be determined to be an exceptional event by the EPA Administrator through the process established in the federal exceptional event rule.

Note, in order for an “event” to be considered as an “Exceptional Event” the air data must exceed the critical value at a given monitoring location. The critical value is determined annually and it is the value that is used to determine if a violation of the standard has occurred. Exceedance of the critical value is determined on a site-by-site basis.

Description of Air Monitoring Daily Routine: It is the responsibility of air monitoring data personnel to monitor all continuous data values every day of the week during normal work hours throughout the year. Frequent, periodic looks at monitoring data collected by the WISARDS data system satisfies this need. A simple “first look” decision tree routine is used to evaluate the data.

The first look routine includes criteria to determine if data meets preliminary exceptional event thresholds. These criteria include, but are not limited to:

1. Are data reporting at or above National Ambient Air Quality Standards?
2. Are data reporting at or above the site’s respective critical value?
3. Is a potential event occurring (tire fire, controlled burn etc.) that may warrant EER classification?

Examples:

- (1) Are values approaching or above NAAQS levels? YES = Are values real or reflective of equipment malfunction?

(2) If values are real = Are there known possible EER scenario's reported? YES = follow EER data routines (notify public through WEB message, add "high value data" dates to list for further annual review, etc.) and follow watch, warning, advisory routines. NO = follow watch, warning, advisory routines.

This approach will allow Air Management personnel to react to high values in the short term, notify the public of known causes, and flag the incident for future evaluation as an exceptional event.

Demonstration to EPA: For all events that are flagged with the REQEXC flag and contribute to a violation, the demonstration to justify data exclusion must be submitted within 3 years of the calendar quarter following an event, but no later than 12 months prior to a regulatory decision. An example of a regulatory decision is when attainment decisions are made by US EPA.

A demonstration to justify data exclusion shall provide evidence that:

- the event satisfies the Statutory Definition of Exceptional Event under §50.14(3)
- there is a clear causal relationship between the measurement under consideration and the event that is claimed to have affected the air quality in the area
- the event is associated with a measured concentration in excess of normal historical fluctuations, including background; and
- there would have been no exceedance or violation "but for" the event

Air quality data cannot be excluded except where a State shows that exceedances or violations of applicable standards would not have occurred "but for" the influence of exceptional events i.e. to the extent that it is possible to determine that the resulting air quality concentrations for an area would be above the level of the critical values, even without the influence of the exceptional event, the air quality data for the day(s) in question should not be excluded. For example, if monitored 8-hour rolling average concentrations of ozone concentrations exceed the critical value at monitoring location X and are substantially higher than surrounding sites, but ozone levels are elevated throughout the entire region, the data should not be excluded.

The type, amount, and detail level for presentation of evidence (weight-of-evidence) will vary by the circumstances for each event.

The WDNR must document that the public comment process was followed with submission of the demonstration and submit the public comments it received along with its demonstration to EPA. This will also be documented in the annual network review document.

Provided that all the EER requirements are met and EPA concurrence is attained, EPA will exclude such data from use in determinations of a NAAQS violation.

The types of data that may be considered in the demonstration evaluation are:

- event characteristics such as type, size, location, duration, estimated emissions, press accounts, response agency records, photos, videos, etc...
- comparisons to the concentration history at that monitor
- comparisons to nearby monitors
- diurnal patterns of concentrations, if available
- PM2.5 composition data, if available
- satellite data products and related models
- weather data including wind direction & speed, weather maps, trajectories (HYSPLIT)

- wind roses and pollution roses
- statistical models relating air pollutant to weather

Selected measures that the Department may employ are as follows.

1. Are the peak measured concentrations of concern (e.g., peak 8-hour rolling ozone concentration) at a given monitoring location statistically significantly different from the seasonal average concentration at that same monitoring location?
2. Are the peak measured concentrations of concern (e.g., peak 8-hour rolling ozone concentration) statistically significant from all peak measured concentrations in the rest of the air monitoring network on the day(s) of interest? If elevated concentrations occur at a monitoring location near a state boundary, valid QAed monitoring data from the bordering state may be used for comparison i.e., data from Illinois, Iowa, Michigan or Minnesota.
3. What are the peak, measured concentrations of concern across the statewide monitoring network? How do concentrations compare to data from agencies in Illinois, Iowa, Michigan or Minnesota? Is there a known reason for the regionally elevated measured concentrations, such as large forest fires in Mexico, the US or Canada?

There are special provisions in the EER regarding fireworks and prescribed fires. WDNR will post a public information web page on the potential impact of fireworks on public health to address this topic. For prescribed burns in Wisconsin, the public is notified through the Department's Forestry Division burn permit system, not Air Management Bureau's air quality watch/advisory system.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

REPLY TO THE ATTENTION OF:

Loretta Lehrman
77 W. Jackson Blvd
Chicago IL 60604

July 25, 2012

Bart Sponseller
Director
Bureau of Air Management
Wisconsin Department of Environmental Resources
101 S. Webster Street
Box 7921
Madison, WI, 53707-7921

Dear Mr. Sponseller,

This is the initial response from US EPA Region 5, Air and Radiation Division to the document sent by Wisconsin DNR Bureau of Air Management on July 11, 2012 titled "Documentation in Support of a Request to Designate the PM_{2.5} Episode of Eastern Wisconsin September 13-14, 2011 As an Exceptional Event." We are requesting that the Bureau of Air Management resubmit the document with the following changes and additional information.

1. For each value to be evaluated by EPA list the monitor ID, date, time and appropriate NAAQS. Both the PM_{2.5} Annual and 24-hour NAAQS might apply to these values. Any exceeding value for any FRM or FEM monitor will be used for attainment decisions regardless of the monitor type, e.g. "SLAMS," so it is recommended that WDNR attempt to demonstrate that any appropriate violating values from these monitors were caused by the event.
2. For each value quantify how much of that value was due to the event and demonstrate that but for the contribution from the event the value would not violate or contribute to a violation of the NAAQS. Section 5.4 of the document does not cover this with enough detail to meet the quantitative requirement of the CFR.
3. For each value demonstrate a clear causal connection between that value and the event. It is not enough to show that other monitors in the state were affected by the event, or that the event occurred on the same day. For example the event might have affected monitors in one area of the state but not contributed to violations at other nearby monitors.

4. For each monitor with an exceptional value demonstrate that the values observed during the event are in excess of normal historical fluctuations.
§40 CFR 50.14 (c)(3)(iv)(C) states there must be evidence that “The event is associated with a measured concentration in excess of normal historical fluctuations, including background.” In section 5.3 of the document this is demonstrated with monitors that do not use FRM or FEM methods and values from these monitors are not being requested to be excluded. Values at the FRM/FEM monitors that are being requested to be excluded might fall within normal ranges even though other monitors in the state are reading abnormally high values. This may be demonstrated using percentiles and historical seasonal variations.
5. Ensure that all dates and times are listed correctly for their time zone. Dates and times do not match between Figure 1, Table 1, Figure 15, Figure 16 and the narrative. This is due in part to using both CDT and CST time zones, but the days of the violations also do not match.
6. Submit evidence that the public review process was followed and include any comments from the public.
§40 CFR 50.14 (c)(3)(i) states “A State must submit the public comments it received along with its demonstration to EPA.” §40 CFR 50.14 (c)(3)(v) states “With the submission of the demonstration, the State must document that the public comment process was followed.”

If you have any questions regarding this request please contact Jesse McGrath (mcgrath.jesse@epa.gov, 312-886-1532)

Sincerely



Loretta Lehrman, Chief
Air Monitoring and Analysis Section

cc: George Czerniak — US EPA Region 5 — electronic
Michael Rizzo — US EPA Region 5 — electronic
Patricia Schraufnagel — US EPA Region 5 — electronic
Jesse McGrath — US EPA Region 5 — electronic
Joe Hoch — AM/7 — electronic
Jason Treutel — AM/7 — electronic
Bill Adamski — AM/7 — electronic
Grant Hetherington — AM/7 — electronic

encl: none

Appendix 3

Public notification of smoke complaints in Eastern Wisconsin due to the Pagami Creek Fire Plume -- Issued by the Wisconsin Department of Natural Resources (WDNR) and the Wisconsin Department of Health Services (WDHS) on Sept 13, 2011

AIR NEWS

September 13, 2011

Smoke Complaints - Eastern Wisconsin

The Department of Natural Resources (DNR) and the Department of Health Services (DHS) are receiving numerous calls from local health departments and citizens in eastern Wisconsin about heavy smoke odors, ash and concerns about smoke inhalation. The smoke moving through the area is from a large [wild fire in Pagami Creek, MN](#). A satellite image of the smoke plume can be seen [here](#).

- Short-term, elevated fine particle (PM2.5) values were noted overnight on the Forest County PM2.5 monitor; the smoke plume has now moved south and east.
- DNR issues PM2.5 advisories when the 24-hour standard (an average of hourly measurements) is exceeded. DNR monitors are showing hourly peaks above the standard, but the 24-hour average is not being exceeded so no advisories have been issued. From the perspective of DNR, temporary peaks in PM2.5 can cause problems in sensitive individuals (those with chronic lung or cardiovascular disease) even if the 24-hour standard has not been exceeded.
- DNR is [monitoring the values](#) and aware of this smoke incident and will issue advisories if necessary.
- DHS is aware of this smoke incident and working with local health departments and the DNR to get information out to the public.
- In healthy people, symptoms of smoke exposure usually include irritation of eyes, nose and throat, or breathing discomfort, and more severe symptoms may include chest tightness, wheezing, shortness of breath, and coughing. Smoke exposure can aggravate chronic lung or cardiovascular disease.
- Depending on the smoke concentrations and an individual's sensitivity to smoke, actions to take include remaining indoors with the doors and windows closed, using a high-efficiency particulate air (HEPA) filter on air conditioners, reducing other sources of indoor air pollution and leaving the area if an individual has particular sensitivity.

Listen for news updates on the smoke in your area. Continue to follow all precautions and instructions given by local health and governmental departments.

Contacts

Primary contact: Dr. Rob Thiboldeaux, DHS (608) 267-6844
Email: Robert.thiboldeaux@dhs.wisconsin.gov

Other: Bart Sponseller, DNR (608) 266-1058
Email: bart.sponseller@wisconsin.gov



WISCONSIN
DEPT. OF NATURAL RESOURCES

Wisconsin Department of Natural Resources
Bureau of Air Management
Box 7921-AM/7
Madison, WI 53707
Phone 608-266-7718
Fax 608-267-0560

The Wisconsin Department of Natural Resources provides equal opportunity in employment, programs, services and functions under an Affirmative Action Plan. If you have any questions, please write to Equal Opportunity Office, Department of Interior, Washington, DC 20240.

This publication is available in alternative format (large print, Braille, audio tape, etc.) upon request. Please contact the Bureau of Air Management, phone 608-266-7718, for more information.

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WRKMKX
WIZ056-150400

UPDATED AIR QUALITY ADVISORY
WISCONSIN DEPARTMENT OF NATURAL RESOURCES MADISON WI
RELAYED BY NATIONAL WEATHER SERVICE MILWAUKEE/SULLIVAN WI
930 AM CDT WEDNESDAY SEPTEMBER 14 2011

...UPDATED AIR QUALITY ADVISORY ISSUED FOR THE COUNTIES OF
DODGE...WAUKESHA.... MILWAUKEE...RACINE AND KENOSHA

THE WISCONSIN DEPARTMENT OF NATURAL RESOURCES HAS ISSUED AN
UPDATED AIR QUALITY ADVISORY FOR FINE PARTICULATES WHICH WILL
REMAIN IN EFFECT UNTIL 11 PM TONIGHT. THIS ADVISORY, WHICH REPLACES
THE CURRENT ADVISORY, AFFECTS THE PEOPLE LIVING IN THE COUNTIES OF
DODGE...WAUKESHA....MILWAUKEE... RACINE AND KENOSHA.

THE UPDATED AIR QUALITY ADVISORY REFLECTS THAT THE AIR QUALITY INDEX
IS CURRENTLY AT THE UNHEALTHY LEVEL FOR ALL PEOPLE IN THE COUNTIES
OF WAUKESHA....MILWAUKEE...RACINE AND KENOSHA.

FOR DODGE COUNTY, THE AIR QUALITY INDEX REMAINS AT THE UNHEALTHY
LEVEL FOR PEOPLE IN SENSITIVE GROUPS INCLUDING CHILDREN... ELDERLY
PEOPLE... INDIVIDUALS WITH RESPIRATORY AND CARDIAC PROBLEMS...OR
ANYONE ENGAGED IN STRENUOUS OUTDOOR ACTIVITIES FOR A PROLONGED
PERIOD OF TIME.

THE CURRENT, OFFICIAL AIR QUALITY INDEX LEVELS REFLECT FINE
PARTICULATE CONCENTRATIONS MEASURED OVER THE PAST 24 HOURS. THE
CURRENT HOURLY LEVELS ARE IN DECREASING RAPIDLY.

IT IS ANTICIPATED THAT BY THIS AFTERNOON NO SITES WILL HAVE AN AIR
QUALITY INDEX THAT IS AT UNHEALTHY LEVEL FOR ALL PEOPLE. BY TONIGHT -
ALL COUNTIES IN WISCONSIN WILL OFFICIALLY NO LONGER BE IN ANY AIR
QUALITY INDEX CATEGORY CLASSIFIED AS UNHEALTHY FOR ANYONE.

THIS UPDATED AIR QUALITY ADVISORY IS BEING ISSUED DUE TO THE
SUBSTANTIAL INCREASE IN LEVELS OF FINE PARTICULATES IN SOUTHEASTERN
WISCONSIN FROM A FOREST FIRE SMOKE PLUME EMINATING FROM
NORTHEASTERN MINNESOTA.

FOR CURRENT INFORMATION ON AIR QUALITY READINGS PLEASE CALL THE
DAILY AIR HOTLINE AT 1-866-DAILYAIR...1-866-324-5924. \$\$ NNNN

Capital Newspapers Proof of Publication Affidavit

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DEPT OF NATURAL RESOURCES
Sharon Reeve
P.O. Box 7921
Attn: Sharon Reeve
MADISON, WI 53707-7921

Proof of publication: Notice of a May 2012 public informational hearing by the WDNR Air Monitoring Section on a review of several air monitoring issues – including the Pagami Creek wildfire plume PM_{2.5} episode in Sept 2011.

RECEIVED
MAY 31 2012
AIR MANAGEMENT

STATE OF WISCONSIN
The Wisconsin with disabilities upon request. http://www.madison.com

General Notices

BEFORE THE DEPARTMENT OF NATURAL RESOURCES NOTICE OF PUBLIC INFORMATIONAL MEETING
The Department of Natural Resources (DNR) will hold a public informational meeting to review its ambient air quality monitoring network throughout Wisconsin.

Monitoring Network
In 1981 the U.S. Environmental Protection Agency (USEPA) approved a portion of the Wisconsin State Implementation Plan (SIP) for the Clean Air Act monitoring an dealing with air quality surveillance, which is required by Parts 51 and 58 of the 40 of the Code of Federal Regulations. That monitoring plan presented a detailed scheme for ambient air quality monitoring, including a detailed proposal for a comprehensive network of ambient monitors throughout Wisconsin. In addition, the DNR proposed to conduct an annual review of the monitoring network and to notify the public of significant changes to the network by conducting a public informational meeting.

The DNR will review the changes that occurred in 2012 and will present an outline of proposed changes for 2013. An explanation will be provided for each deviation from the previous year's plan as well as the proposed changes. Public comments on the changes will also be received at the informational meeting.

Exceptional and Uncontrollable Events
In 1987, 1997, and 2008 the USEPA promulgated ambient air quality standards for PM₁₀ and PM_{2.5} (see particulate matter definitions below) under 40 CFR 50.6 and 40 CFR 50.7 respectively. Appendix 1 to 40 CFR part 50, "Interpretation of the National Ambient Air Quality Standards for PM₁₀", in section 2.4, "Adjustments or Exceptional Events and Trends", always state agencies conducting monitoring the opportunity to remove monitoring data from consideration for SIP purposes, the agency can demonstrate that the data resulted from an "exceptional event", provided that the state presents the evidence for its reasons to delete or flag the data. The DNR will post the demonstration document on the DNR public website for at least thirty days. In addition, Appendix 1 to 40 CFR part 50, "Interpretation of the National Ambient Air Quality Standards for PM_{2.5}", in section 1.0(b), indicates that in some cases, it may be appropriate to exclude data resulting from uncontrollable or natural events such as structural fires, high winds or wildfires.

Through April 30, 2012 there has been one exceptional or uncontrollable particulate matter event in Wisconsin that influenced design value calculations of which the DNR is aware. The exceptional event was the Pagami Creek fire in northeastern Minnesota which adversely impacted Wisconsin air quality on September 13, 2011 and September 14, 2011. This event and the impacts on the monitoring data will be described during the public informational meeting.

General Notices

1. Particle pollution (also known as "particulate matter") in the air includes a mixture of solids and liquid droplets. Some particles are emitted directly; others are formed in the atmosphere when other pollutants react. Particles come in a wide range of sizes. Those less than 10 micrometers in diameter (PM₁₀) are so small that they can get into the lungs (inhalable particulate matter), potentially causing serious health problems. Ten micrometers is smaller than the width of a single human hair.

• Fine particles. Particles less than 2.5 micrometers in diameter (PM_{2.5}) are called "fine" particles. These particles are so small they can be detected only with an electron microscope. Sources of fine particles include all types of combustion, including motor vehicles, power plants, residential wood burning, forest fires, agricultural burning, and some industrial processes.

• Coarse dust particles. Particles between 2.5 and 10 micrometers in diameter (PM_{10-2.5}) are referred to as "coarse." Sources of coarse particles include crushing or grinding operations, and dust stirred up by vehicles traveling on roads.

The DNR will hold the public informational meeting to review the ambient air quality monitoring network on:

Wednesday, May 23, 2012, at 1:00 p.m., Room 413, GEF II, 101 South Webster Street, Madison, WI 53703

Written comments on the monitoring network may be submitted directly to: Mr. Grant Hetherington, c/o Air Monitoring Section, Bureau of Air Management, P.O. Box 7921, Madison, WI 53707, no later than noon on Monday, June 4, 2012. Written comments will have the same weight and effect as oral comments presented at the meeting.

A copy of the proposed revision to the Monitoring Plan is available for public inspection at the Bureau of Air Management, 7th Floor, 101 S. Webster Street, Madison, Wisconsin, on the following web address: <http://dnr.wi.gov/topic/AirQuality/documents/2013NetworkPlanProposed.pdf> or by mail (at no charge) from Mr. Grant Hetherington at the address noted above. Dated at Madison, Wisconsin May 9, 2012

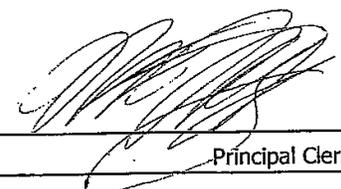
STATE OF WISCONSIN
DEPARTMENT OF NATURAL RESOURCES
Bureau of Air Management
By: /s/ Joseph Hoch for
Bart Sponseller, Director
Bureau of Air Management
PUB. WSJ: May 12, 2012
#1920143 WNAXLP

MATT MIJOLEVIC

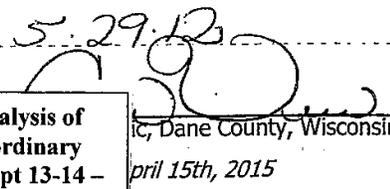
being duly sworn, doth depose and say that he (she) is an authorized representative of Capital Newspapers, publishers of

Wisconsin State Journal

newspaper, at Madison, the seat of government of said State, and that an advertisement of which the annexed is a true copy, taken from said paper, was published therein on May 12th, 2012

(ed) 
Principal Clerk

Subscribed and sworn to before me on

5-29-12

Matt Mijolevic, Dane County, Wisconsin
April 15th, 2015

Reference to an analysis of Wisconsin's extraordinary PM_{2.5} episode of Sept 13-14 – caused by the Pagami Creek wildfire plume.

From: Wisconsin Department of Natural Resources [mailto:widnr@service.govdelivery.com]
Sent: Monday, June 11, 2012 2:05 PM
Subject: Public Comment on Report for 2011 Pagami Creek Wildfire Air Quality Impacts

Dear Clean Air Act Task Force members,

The Department of Natural Resources (DNR) is accepting public comments on a report designating the air quality impacts from the 2011 Pagami Creek wildfire as an exceptional event.

Sometimes naturally-occurring events such as forest fires or wind storms can result in a violation of a National Ambient Air Quality Standard. In these instances, emissions from anthropogenic sources such as cars, factories, and power plants, were not responsible for violation of the Air Quality Standard. EPA then allows states to request to have the naturally-occurring event designated as an "Exceptional Event". If EPA approves the state's request, all high pollutant values associated with the event can be flagged by DNR and allowed to be no longer considered for comparison with a National Ambient Air Quality Standard.

The DNR is accepting public comments on the documentation for this request. Written comments should be sent **by 4 p.m. on Monday, July 9, 2012**. Comments should be sent to:

Bill Adamski
DNR Bureau of Air Management
PO Box 7291 - AM/7
Madison, WI 53707-7921

You may direct questions to Mr. Adamski by phone at 608-266-2660 (work) or 608-354-1974 (cell).

- [Documentation in support of a request to designate the PM2.5 episode of eastern Wisconsin \(September 13-14, 2011\) as an exceptional event \[PDF\]](#)

Check out the DNR's new website at: <http://dnr.wi.gov>.



POTAWATOMI
(Keeper of the Fire)

Forest County Potawatomi Community
P.O. Box 340, Crandon, Wisconsin 54520

Bill Adamski
DNR Bureau of Air Management
PO Box 7291 - AM/7
Madison, WI 53707-7921

June 18, 2012

Dear Mr. Adamski:

The Forest County Potawatomi Community (FCPC) would like to thank the Wisconsin Department of Natural Resources (WDNR) for the opportunity to submit comments on the *Documentation in Support of a Request to Designate the PM_{2.5} Episode of Eastern Wisconsin September 13-14, 2011 As an Exceptional Event* designation report. WDNR's request, which WDNR proposes to submit to the United States Environmental Protection Agency (USEPA), relates to the Pagami Creek Fire within the Superior National Forest in northeastern Minnesota.

The FCPC operates an air monitoring station on tribal lands in northeastern Wisconsin, located on Sugarbush Hill near Crandon, WI. The site is operated in compliance with USEPA air monitoring regulations and criteria, and the data is submitted to the USEPA's Air Quality System (AQS).

The FCPC air monitoring program is part of a Primary Quality Assurance Organization (PQAO) with the WDNR and the Bad River Chippewa Tribe. As such, FCPC's air monitoring data can be affected by decisions that the WDNR makes regarding the data collected.

The continuous particulate sampler at FCPC was the first in the state to register high readings from the Pagami Fire on late in the evening of September 12, 2011. Normal readings at the FCPC site generally range from 4 to 15 $\mu\text{g}/\text{m}^3$. The readings in the very early morning hours on September 13th spiked to 3 successive hourly averages over 100 $\mu\text{g}/\text{m}^3$.

FCPC supports WDNR's request to the USEPA to officially flag data collected at monitoring sites within the State, including FCPC's data, as part of a designated exceptional event (EE) for September 13-14, 2011 due to the Pagami Creek Fire. FCPC agrees that the Pagami Creek Fire meets the definition of an "Exceptional Event" in 40 CFR 50.1(j):

•

[Faint signature or stamp]

...an event that affects air quality, is not reasonably controllable or preventable, is an event caused by human activity that is unlikely to recur at a particular location or a natural event, and is determined by the [EPA] Administrator in accordance with 40 CFR 50.14 to be an exceptional event. It does not include stagnation of air masses or meteorological inversions, a meteorological event involving high temperatures or lack of precipitation, or air pollution relating to source noncompliance.

FCPC believes that WDNR has met the regulatory requirements (40 CFR 50.14) to support its request that the Pagami Creek Fire be designated as an EE, and has also complied with WDNR's EE guidance.

Sincerely,

A handwritten signature in black ink, appearing to read "Harold Frank". The signature is written in a cursive style with a long horizontal stroke at the end.

Harold Frank, Chairman, or
James Crawford, Vice-chairman

6-20-12

EE_Appendi x5

From: Adamski, William J - DNR
Sent: Monday, July 09, 2012 5:11 PM
To: Adamski, William J - DNR
Subject: RE: Public Comment on Report for 2011 Pagami Creek Wildfire Air Quality Impacts

From: Rabuck, Jennifer -FS [mailto:jrabuck@fs.fed.us]
Sent: Wednesday, June 13, 2012 8:38 AM
To: Adamski, William J - DNR
Subject: FW: Public Comment on Report for 2011 Pagami Creek Wildfire Air Quality Impacts

I have reviewed the draft report, and I would like to show my support for the Pagami Creek Wildfire exceedance to be confirmed as an exceptional event, and be excluded from consideration for a violation of the PM2.5 NAAQS. I believe the report clearly demonstrates the episode meets the criteria intended by the definition of an exceptional event. Factual documentation shows the lightning strike cause falls within the uncontrollable or non-preventable category.

It is also clear, given the nature of wildfires, that the situation is unlikely to reoccur with any regularity within the same location (lightning doesn't strike the same place twice). Additionally, the report clearly illustrates the connection between the fire and the exceedance. I have no doubt that the wildfire caused the air quality standards to be exceeded.

Thorough documentation and a history of accurate data collection demonstrates that this situation was historic in proportion. Working on the Chequamegon-Nicolet, and having been on many fires in the Boundary Waters, I am familiar with common weather patterns, fuel conditions and fire behavior. I feel that it is a safe claim to make that had it not been for the Pagami fire making its unprecedented run, an exceedance would not have existed. Clearly, this air quality impact meets all 40CFR 50.14 requirements.

I believe the WDNR has provided conclusive evidence for the EPA that this air pollution episode be designated as an exceptional exceedance.

Such wildfire situations were factored in when the EPA and the State of Wisconsin drafted air quality regulations. The proactive fore-thought and guidelines for natural/uncontrollable situations was well placed.

I appreciate the opportunity to provide input.

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From: Wisconsin Department of Natural Resources
[mailto:widnr@service.govdelivery.com]
Sent: Monday, June 11, 2012 2:05 PM
To: Clean Air Act Task Force members
Subject: Public Comment on Report for 2011 Pagami Creek Wildfire Air Quality Impacts

Dear Clean Air Act Task Force members,

The Department of Natural Resources (DNR) is accepting public comments on a report designating the air quality impacts from the 2011 Pagami Creek wildfire as an exceptional event.

Sometimes naturally-occurring events such as forest fires or wind storms can result in a violation of a National Ambient Air Quality Standard. In these instances, emissions from anthropogenic sources such as cars, factories, and power plants, were not responsible for violation of the Air Quality Standard. EPA then allows states to request to have the naturally-occurring event designated as an "Exceptional Event". If EPA approves the state's request, all high pollutant values associated with the event can be flagged by DNR and allowed to be no longer considered for comparison with a National Ambient Air Quality Standard.

The DNR is accepting public comments on the documentation for this request. Written comments should be sent by 4 p.m. on Monday, July 9, 2012. Comments should be sent to:

Bill Adamski
DNR Bureau of Air Management
PO Box 7291 - AM/7
Madison, WI 53707-7291

You may direct questions to Mr. Adamski by phone at 608-266-2660 (work) or 608-354-1974 (cell).

Documentation in support of a request to designate the PM2.5 episode of eastern Wisconsin (September 13-14, 2011) as an exceptional event [PDF]

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