



*Ignorance is Bliss (Series Supplement)*

## Remember the Kipp Dioxin Debacle?

*Lo and Behold, Kipp Has Been Producing Dioxins All This Time!  
(shhhh.....)*

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### *Dioxin from Kipp's Stacks? An "Urban Myth" of "Misinformed Activists"!*

The issue of whether or not Kipp produced dioxins was a focal point of citizen activism around Kipp for years ([see previous article](#)). Throughout the 1990s, many citizens in the Kipp neighborhood<sup>1</sup> asserted that dioxins were produced by the factory, but Kipp denied the possibility that the factory could produce them. In 2000, citizens formed a group called Clean Air Madison (CAM), which organized meetings, wrote letters and press releases, and held protests about Kipp's air pollution.

In fall of 2000, responding to pressure from Clean Air Madison and Mayor Sue Bauman, City of Madison and WI Division of Public Health tested three soil samples in the Kipp neighborhood for dioxins (on Dixon, Marquette and Center Ave—specific addresses not identified). Finding levels lower than ATSDR soil standards at the time,<sup>2</sup> Chuck Warzecha at the Division of Public Health concluded that the tests “did not identify a public health concern.” He said that additional investigations were not merited, but noted that “this evaluation does not completely rule out the potential for dioxin releases to ambient air.”<sup>3</sup>

Finally responding to CAM's requests, DNR required dioxin testing in Kipp's 2000 permit for the second aluminum furnace (within 180 days of issuance). Ironically, despite this implicit recognition by the DNR that Kipp could in fact produce dioxins, after the soil tests results were released Madison Kipp sent out press releases smugly ridiculing “some

#### ***Dioxins and Dioxin-like Compounds***

The term “dioxins” usually refers to one or more of 75 compounds in a group called “polychlorinated dibenzo-p-dioxins (PCDDs). Some types of PCDDs are more toxic than others. TCDD, or 2,3,7,8 tetrachlorodibenzo-p-dioxin is considered the most toxic PCDD. Polychlorinated dibenzofurans (PCDFs), or “furans,” are a closely related class of 135 compounds, ten of which have “dioxin-like” toxic properties. Polychlorinated biphenyls (PCBs) include 209 different forms, and twelve of them have “dioxin-like” toxic properties.

Dioxins and dioxin-like compounds are extremely potent toxins—the most toxic forms are harmful at parts-per-trillion levels. Very low levels of dioxins have been associated with endocrine disruption, reproductive and development problems, immune system and metabolic problems, and several other health effects in animals and humans. The EPA has classified them as “carcinogenic to humans.” Children and developing fetuses are particularly vulnerable to long-term effects of dioxins, especially if they are exposed during sensitive developmental periods. They do not readily break down, and therefore bioaccumulate in animals and biomagnify up the food chain.

Dioxins, furans, and PCBs are usually found in mixtures at sites contaminated with chlorinated compounds—PCBs are usually contaminated with dioxins and furans, and vice versa. Because each compound is toxic at somewhat different levels, with 2,3,7,8 TCDD being the most toxic, health assessors usually use “toxic equivalence factors” (TEFs) to calculate each compound's relative toxicity compared to 2,3,7,8, TCDD. They then sum these factors to calculate the combined toxicity of mixtures, called “Toxicity Equivalents” or TEQ.

High levels of PCBs have been found at the Kipp site, and dioxins and furans are known to be emitted from Kipp's stacks. This raises many questions. *Were PCBs also emitted from Kipp's stacks along with dioxins? Are they still emitted? Were they emitted from the die casting process? Are dioxins and furans in Kipp's PCB-contaminated soils, and at what levels? Why aren't the Kipp consultants or DNR testing for dioxins and furans? Why aren't the public health agencies insisting that they do so?*

<sup>1</sup> The Kipp neighborhood activists included several chemical engineers, doctoral students, professors, and a UW toxicologist/dioxin expert

<sup>2</sup> Soil levels were also lower than Mayor Bauman's yard; chlorinated pesticides are known to be contaminated with dioxins and it is not known what industrial sources were near her home.

neighbors' concern over a perceived dioxin threat from Kipp's die cast operations." Tom Caldwell quipped, "This dioxin issue has unfortunately been elevated to the status of urban myth by a handful of misinformed activists. We have been assuring our neighbors for years that there is no threat to anyone's health including dioxin coming from Madison Kipp and now we have test results to prove it. There is no, nor has there ever been, a risk to public health" (Eastside News, January/February 2001).

In 2001 and 2002, with a new DNR permit allowing increased emissions, and perhaps feeling vindicated by the soil test results (and dropped health study), Kipp used more chlorine than ever. State inventories show they used over 100,000 pounds (50 tons) in 2002. Did the factory also produce high levels of dioxin then? It's very likely, but unfortunately we'll never know.

### ***"Urban Myth" Comes True! Dioxins Are Emitted From Kipp After All...***

Clean Air Madison, not assured by the inadequate soil test results or intimidated by Kipp's ridicule (which they were quite accustomed to by that point), continued to push for stack testing. In early May 2001, Kipp did an unofficial stack test on one of its furnaces showing that the most toxic type of dioxin, 2,3,7,8 TCDD, was indeed emitted.<sup>4</sup> Aware now that they did emit dioxins (but still not admitting it publicly), Kipp tried to get the DNR to exempt them from any further dioxin testing. In a Sept. 4, 2003 letter<sup>5</sup> to Biren Patel at the DNR, Kipp consultant James Rickun proposed that processing changes at the factory will "make the chlorine reaction more efficient." Further, he argued, "MKC believes that the potential for production of 2,3,7,8 TCDD will not be increased as a result of this change, and since the measured value in the previous test was well below the allowable level, "it cannot justify the expense of testing for 2,3,7,8 TCDD again. *Therefore, MKC requests that it be excused from testing for 2,3,7,8 TCDD.*"

However, the level reported was just one form of dioxin (TCDD) and therefore significantly underestimated the total dioxins and dioxin-like compounds emitted. Further, the amount of 2,3,7,8 TCDD emitted per hour that was originally calculated and reported in the test summary was *later recalculated and found to be significantly higher than reported*. In November 2003, Kipp finally did an official (DNR-witnessed) stack test for all dioxin isomers (as well as particulate matter, aluminum salts, chlorine and hydrogen chloride). The summary findings from this test reported the emissions for just one dioxin form (2,3,7,8 TCDD) but not the total of all dioxin forms. The re-calculated total dioxin emissions number, buried in a 2004 letter to the DNR from Kipp's consultant, and never shared with the public *was over 170 times higher than the single-isomer number originally reported.*<sup>6</sup>

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<sup>3</sup> Nov. 27, 2000 Memo from Chuck Warzecha

<sup>4</sup> The results of these tests, as far as we know, were never shared with the public.

<sup>5</sup> Discovered in documents received in a 2013 FOIA request to USEPA by MEJO

When the Kipp consultant recalculated the potential total dioxin emissions using the correct total dioxin numbers from the 2003 test, and compared these levels with forthcoming DNR regulations, he advised them that they had a potential problem. In a June 22, 2004 letter to DNR,<sup>7</sup> he noted that though Kipp was within current reporting limits at the time, “*with the publication of the adopted revisions to NR 445...MKC would not be in compliance in the future.*”

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amounts of dioxins. At this point, it is difficult to estimate what levels of dioxins and other hazardous pollutants Kipp emitted during past years, but for some years levels were likely high enough to be over regulatory thresholds. From 1996-2000, when Kipp’s chlorine use ramped up significantly, Kipp was under a DNR “permit shield” allowing them to experiment with their processes, and many details of their chlorine usage and emissions were deemed confidential.<sup>8</sup> In 2001-2002, when their chlorine usage was higher than ever, Kipp was likely emitting dioxins and dioxin-like compounds well over current state reporting the threshold levels. But Kipp adamantly claimed they were not emitting dioxins—and government agencies, for the most part, supported

these claims until pressured repeatedly by citizens and elected leaders to test for dioxins.

Why did it take so long for the DNR to require dioxin tests at Kipp? If citizens hadn’t repeatedly asked for them (for nearly a decade), would they ever have happened?

### ***Chlorine, Hydrogen Chloride, Dioxins Coming Out the Stacks? Don’t Report Them, and Nobody will Notice!***

Kipp didn’t report dioxin emissions even after stack tests in 2001 and 2003 showed they emitted them, and the facility hasn’t reported dioxin emissions on any state air inventories since then.<sup>9</sup> Kipp has worked to keep its estimated emissions below state reporting thresholds using a variety of strategies, including using incorrect emissions factors from old or unofficial stack tests or not reporting hazardous emissions at all. Kipp’s reporting of chlorine and hydrogen chloride emissions on state inventories was also sporadic after 2007. Chlorine emissions were not reported at all for 2008-2011, and hydrogen chloride emissions were not reported in 2008-2009. For the years after 2007 that Kipp did report these emissions, they significantly underestimated

<sup>6</sup> Corrected dioxin emissions numbers for both the 2001 and 2003 tests were also discovered in documents included in the 2013 FOIA request.

<sup>7</sup> From FOIA request

<sup>8</sup> Kipp was also using fluorinated compounds such as sulfur hexafluoride in their demagging and degassing processes during this time. They are still using fluorinated compounds at Kipp. Fluorinated compounds can be very similar in their toxicity to chlorinated compounds (if not worse). What fluorinated compounds are emitted from Kipp’s stacks, vents, and other orifices? We don’t know. Is anybody at DNR or the public health agencies even asking these questions?

<sup>9</sup> In 2007, TCDD emissions are listed on Kipp’s air inventory record as .0000, but after that TCDD disappeared from the inventories completely.

them by using inaccurate emissions factors (using incorrect emissions factors is one of the issues Kipp was cited for by the EPA in the 2012 Notice of Violation).

Why did nobody at the Wisconsin DNR notice these obvious gaps and mistakes in Kipp’s hazardous air pollutant reporting (or if they did, not do anything about it) especially with all the public controversy about chlorine, hydrogen chloride, and dioxin emissions since the early 1990s? When asked about this in January 2013, DNR staff said that Kipp isn’t a high priority because there are other larger industries in the area requiring more of the agency’s time and attention.<sup>10</sup> As far as the reporting gaps, they explained, the DNR started using a new software program around 2007-2008 that didn’t report any emissions below the DNR required reporting levels, to “get rid of the noise.” Also, interestingly, they said that “facilities” (presumably including Kipp) had successfully advocated keeping emissions estimated at levels below reporting thresholds off public inventories.<sup>11</sup>

However, it turns out that Kipp’s chlorine and hydrogen chloride emissions numbers weren’t actually below reporting thresholds for all the years that Kipp didn’t report them—but Kipp’s use of incorrect emissions factors conveniently kept emissions estimates below them. In 2008, a DNR inspector sent Kipp letters outlining their use of incorrect emissions factors for chlorine and hydrogen chloride, but the agency never sent them an official noncompliance letter.<sup>12</sup> Oddly, DNR staff apparently didn’t notice when Kipp continued to use incorrect emissions factors for the next 4 years—until EPA did an unannounced inspection and discovered this problem, leading to the 2012 Notice of Violation (NOV).

EPA’s NOV also cited Kipp for bad record-keeping and sloppy practices inside the factory—practices that can increase dioxin emissions. These violations call into question all of Kipp’s hazardous air pollution emissions levels (reported or unreported) over the years, especially since there is evidence that these shoddy practices have been going on in the Kipp factory for a long time. Potential emissions from Kipp’s die-casting processes, which include volatile organic chemicals (VOCs), metals, particulates, polycyclic aromatic hydrocarbons (PAHs), and chlorinated compounds—possibly including dioxins—are particularly concerning, given that Kipp kept adding more die-casting machines over the years (the factory currently has

**Publicly Accessible Air Pollution Info:  
Why Does It Matter?**

Publicly accessible state air emissions inventories are critical for citizens to find out what chemicals industries near them are emitting and assess risks to themselves, their families, and the environment—and avoid exposures as much as possible.

This information is also essential for citizens to engage politically in addressing toxic pollution. Public emissions data is particularly important in the case of extremely toxic compounds like dioxins, which can cause health effects at miniscule levels.

Citizens cannot see, smell, taste these chemicals, nor do they have monitoring equipment, labs, or financial resources to test for them. If the government does not require that companies report their dioxin emissions—and then make sure they do so—citizens have no way of knowing these compounds are in the air they breathe and no reason to ask for better controls.

This is one reason why EPA and DNR require that companies report dioxin emissions *even at very low levels*. (Wisconsin DNR reporting level for dioxin is .00005 lbs/year.)

<sup>10</sup> This answer, of course, begs the question: What are these other sources that are larger than Kipp? Is the DNR adequately assessing and regulating their emissions?

<sup>11</sup> This is problematic in the case of assessing public and environmental health risks related to toxins, especially in cases in which health and/or environmental effects occur at levels below reporting thresholds.

<sup>12</sup> When MEJO asked why Kipp never received an official notice of non-compliance, DNR staff said that the inspector who had outlined the non-compliance issues passed away shortly after sending Kipp the letter in 2008. And no one else followed up. Instead DNR just let Kipp continue to underestimate their chlorine and hydrogen chloride emissions by using incorrect emissions factors

24 die casters in operation at the site). The factors being used to estimate emissions from Kipp's die casting processes are based on extremely old tests (1994-1995), and many believe they are under-estimating current emissions.<sup>13</sup>

Kipp's current permit requires controlling emissions from its die-casting processes by diluting the die lubricant to a certain ratio with water. However, EPA found that between 2007-2012, Kipp didn't always dilute the die lubricant with the proper amount of water—which results in even higher emissions. Further, EPA's inspection revealed that Kipp may not have been following procedures to assure that workers put only clean aluminum scrap in the furnaces. This is critical, because melting dirty aluminum scrap with chlorine injection produces more dioxins.

### ***To what lengths should citizens have to go for information about pollution in their communities?***

Sadly, given all of this, despite years of demanding more information about Kipp's dioxin and other hazardous air pollutant emissions, the public still has limited (and in some cases no) access to this information unless they are willing and able to spend a considerable amount of time and energy (and sometimes expense) submitting open records requests to the DNR and EPA and/or sitting for hours in agency offices looking through and copying records. Based on MEJO's experiences, even if they do this they may not ever find the information they are looking for.<sup>14</sup> Kipp has never publicly reported its dioxin emissions, and levels reported internally to agencies are questionable—for the reasons described above and others beyond the scope of this article. And, given Kipp's well-documented modus operandi of trying to avoid reporting and get around regulations—and DNR's disturbing tendency not to notice—can we really trust the accuracy of *any* of Kipp's reported emissions of hazardous air pollutants now and in the past?<sup>15</sup>

Let's hope that in negotiating the Notice of Violation, EPA asks Kipp to thoroughly and accurately monitor and control their toxic air pollution. Schools, daycare facilities, community centers, and homes are extremely close to the factory. Getting comprehensive up-to-date data about pollution coming out of Kipp's stacks—and making sure it is controlled—is the least that can be done to make sure people who live, work, and play near Kipp are not breathing extremely toxic compounds on a daily basis. Better yet, wouldn't it be great if our government agencies didn't allow Kipp and other industries to flout, bend, break, and ignore regulations in the first place?

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<sup>13</sup> Citizens have been demanding up-to-date testing on die casting emissions for years—to no avail.

<sup>14</sup> MEJO's experiences trying to access information held by public agencies have been convoluted, and at times troubling. A later article will outline some of the problems we have experienced to date with obtaining public records.

<sup>15</sup> Just as troublingly, in recent years there is no evidence that health officials at Public Health Madison Dane County are concerned about any of Kipp's air emissions, even as controversies continue over Kipp's significant soil and groundwater contamination (some of which came from the air in the first place). MEJO's recent review of PHMDC's records reveal no mentions of Kipp's hazardous air emissions in the last several years, other than scattered emails discounting citizens' questions and concerns about these issues.