In the Matter of:

Air Pollution Control Permit #03-POY-328 dated April 26, 2004 Issued To Madison-Kipp Corporation

Case No: IH-04-02

CLEAN AIR'S BRIEF IN CHIEF

I. INTRODUCTION

Madison-Kipp Corporation ("MKC" or "Kipp" or "Company") has aluminum and zinc die casting operations at facilities on Atwood and Fair Oaks Avenues in Madison, Wisconsin. On April 26, 2004, the Wisconsin Department of Natural Resources (DNR) issued the Company Permit #03-POY-328. Approval of this permit depends on Kipp's facilities complying with requirements of Section 285.63 (1),Wis. Stats. these include:

1) Applicable emission limitations, and

2) Air quality standards

The DNR tested compliance with air quality standards using a dispersion modeling analysis. Approval of the new permit was therefore dependent on the accuracy of DNR's modeling analysis.

The DNR modeling analysis was fraught with errors. It did not accurately estimate air pollution concentrations at locations where the general public will be exposed. Indeed the model DNR used was absolutely incapable of doing so for

locations very close to Kipp, an area from which many complaints have originated. Section NR 406.09 Wis. Admin. Code, states that:

> *"The air quality impact of a proposed stationary source will be determined at such locations where members of the public might reasonably be exposed for time periods consistent with the ambient air quality standards for the pollutants for which analysis is carried out."*

DNR's modeling analysis did not meet the agency's legal obligation to make those determinations accurately. For areas close to Kipp, DNR's model was simply incapable of making predictions at all. Instead of estimates of pollutant concentrations, it returns error messages. Other errors involved inputs. DNR set up the model to predict air pollutant concentrations solely at ground level, on the assumption that MKC facilities were located in a flat, rural area. DNR ignored the surrounding populated urban area with rolling terrain and nearby multi-story homes, apartments and condominiums, some with upper floor balconies where people could be exposed to higher levels of contaminants and some immediately adjacent to the MKC buildings.

DNR had plenty of reason to know that it needed to be more careful. With DNR approval of increased air pollution emissions from MKC throughout the 1990's, neighborhood residents have continued to report health complaints for symptoms such as nausea, headaches, irritability, loss of appetite, difficulty sleeping, nose irritations, throat irritations, eye irritations and asthma. These are documented in DNR files, hearing transcripts and public health reports. Despite these complaints, DNR staff has not undertaken the steps necessary to determine exposures at locations where people are subjected to Kipp's emissions.

Kipp's right to a permit, even with all the presumptions and exclusions of information that DNR made to favor the Company, was right on the edge. DNR predicted that Madison-Kipp's emissions would create 139.7 ug/m^3 of TSP, consuming 93.1% of the 24-hour TSP air quality standard of 150 ug/m^3. (Exhibit 109, second page [unpaginated], first chart, right column ["TSP – 24 hr]). Only a 10.3 ug/m^3 or 7% increase in recognized emissions impact would demonstrate a violation such that the permit could not be issued.

Kipp's unlawful permit imposes illegal and unacceptable risks on vulnerable neighbors, some of whose houses abut Kipp's buildings, smokestacks and open doors and windows.

It is uncontested that:

1. The dispersion modeling program DNR used, ISC3, is *incapable* of analyzing impacts close to Kipp. Modeling programs that describe air contaminant concentrations instead of returning error messages for *locations close-in to Kipp* show illegally high concentrations of contaminants at nearby homes and publicly accessible locations;

2. Taking into account *terrain*, as directed by the ISC3 program - - the program DNR claims it must use "as is," - - reveals that Kipp's emissions contribute to a violation of air quality standards;

3. Taking into account *fugitive emissions*, which are allowed without limitation under Kipp's permit, shows that Kipp's emissions violate air quality standards.

See: Exhibit 81.

Beyond these major errors, the cumulative effect of other important errors, such as the failure to analyze impacts at balcony locations where people can be, to model for worst-case scenarios on air flow, emission rates or other parameters, or to consider the impact of nearby buildings on dispersion and concentration of

contaminants from Kipp, would, even without the "big three," result in an exceedance.

Thus, had DNR made any of the improvements presented by Petitioners ("Clean Air") to improve the accuracy of its dispersion modeling analysis, an air quality standard exceedence would have been predicted and Permit #03-POY-328 could not have been issued. Whether changes were made to incorporate terrain, address fugitive emissions, estimate downwash recirculation cavity concentrations, or correct the numerous modeling input errors, the result is the same: an exceedance is predicted.

Modeling techniques to address the site conditions around Kipp and to accurately estimate compliance with air quality standards are readily available. These techniques have been used by the DNR during issuance of previous air pollution control permits, and also by other state permitting agencies and MKC itself. Unless they are put to use, the fundamental purpose of the governing law will continue to be frustrated. Clean Air's specific recommendations for elements to include in an order requiring DNR to model consistent with its legal obligations are set forth in an description of RELIEF appended to this brief.

II. FACTUAL ANALYSIS.

A. DNR ILLEGALLY FAILED TO CONSIDER THE DOWNWASH RECIRCULATION CAVITY IN ITS MODELING ANALYSIS

1. Local homes are extraordinarily close to Madison Kipp, within the downwash recirculation cavity where they are exposed to uniquely high levels of Kipp's contaminants.

The close proximity of homes to Madison Kipp stacks is immediately apparent from walking the site and breathing the air there, reviewing the pictures (Exhibits #22 and #23) or considering the testimony. 173:23-24; 175:20 – 176:2; 207:6 – 208:3)

The proximity of homes means they are located within the downwash cavity, an area within 3L (three times the height of the building) of the emissions source.

There are people in the downwash cavity. They breathe the contaminants there. They are members of the public. They complained to DNR in the public hearing. In response DNR simply copied and pasted responses from a project approved four years earlier. These responses were repeated even though they were inaccurate. (Tr.: 1152:2 – 1153:20)

The downwash cavity extends beyond the Madison-Kipp buildings into the yards of surrounding homes and onto the nearby streets, ensuring the general public will be exposed to the cavity's elevated concentrations. Mr. Podrez, Kipp's expert witness, agreed. Tr.: 752:17 Kipp is unique because there exists no adequate buffer zone to separate members of the public from Kipp's emissions. Pages 18 and 19 of Exhibit #1 (Clean Air) or 222 (Kipp), Mr. Klafka's report, showed how USEPA references and personnel, as well as those of other states also issuing air pollution

permits, required consideration of concentrations within the downwash recirculation cavity. Even Mr. Podrez, Kipp's expert, remarked on the close proximity of the homes to the Kipp facility. (Tr.: 779: 6-16).

2. DNR knew exposures in the downwash cavity were a problem, but actively avoided doing anything to identify contaminant levels or to protect members of the public from being exposed to illegal levels of contaminants.

DNR, was alerted to compliance issues in the downwash cavity close to Kipp no later than 1994, when the agency itself ran the SCREEN model. Exhibit #35, 1153:21 – 1154:18 (Jablonski – Klafka). In the words of Mr. Roth, who ran the model, *"modeling of the downwind re-circulation cavity region using Screen2C shows that a potential problem may exist within the cavity. This region does extend off of Madison-Kipp property onto an adjacent residential area."* Since 1994 DNR has simply avoided looking, even though Kipp's operation has continually expanded, its emissions have continually increased, and the public has begged DNR to look.

Despite consistent and continued neighborhood complaints about the air quality surrounding Madison-Kipp, DNR staff did not visit the area to determine if changes were needed in the dispersion modeling procedures. (Tr: 1161:18 – 1162:8).

Ms. Good acknowledged that even though she knows the ISC3 model she ran to be incapable of estimating concentrations in the downwash recirculation cavity, she did not run an alternative dispersion model, such as SCREEN, in order to estimate these concentrations. (Tr.: 938:13 – 939:10)

Clean Air reconfirmed DNR's 1994 downwash analysis by using the SCREEN model to determine downwash cavity concentrations. SCREEN is used by DNR and

other states to issue air pollution permits. SCREEN, predicted violations of the TSP air quality standard. (Tr.: 1154:19 -1156:14) (Tr.: 753:11). Exhibit #1 (Clean Air) or 222 (Kipp).

3. ISC3, the model used by DNR, is unable to estimate concentrations in the downwash cavity; it returns error messages instead of descriptions of air contaminant concentrations.

There is no dispute that running SCREEN identifies compliance problems in the downwash cavity. The question is what to do about it. DNR had choices, but the range of choices could not legally include ignoring the problem by substituting a program incapable of identifying contaminant exposures for one that could. *The error messages that result for areas within the downwash cavity when you use ISC3 are not descriptions of contaminant exposures.* They are descriptions of the program's inability to determine exposures at locations where the law requires them to be determined.

To ignore exposures by pretending that the error messages are equivalent to readings of "no exposure" in the exact area where DNR knows exposures are highest, and from which DNR has received an enormous number of complaints about perceivable air contamination entails, of necessity, violation of the rule requiring DNR to regulate based on exposures at locations where members of the general public are exposed.

4. DNR had the tools available to do its job.

One choice for DNR would have been to rely on the SCREEN dispersion model to estimate concentrations within the downwash recirculation cavity. If DNR were actually limited to SCREEN and ISC3, SCREEN results would be the only

basis for appraising contaminant exposures within the downwash recirculation cavity because ISC3 just cannot do it. Kipp's expert recognized this to be a legitimate way to proceed. He acknowledge that, though it is better to use a more refined tool, "…an applicant could, you know, just present screening results and address whatever needs to be addressed based on screening results. (Tr.: 821:4-24) He concluded the results could be used to identify and correct problems or move on to using a refined dispersion model.

A better practice is probably to run a more refined model. *With respect to the downwash recirculation cavity, ISC3, the model, used by DNR, is not a more refined model.* ***With respect to the downwash cavity ISC3 is, without dispute, an incapable model. It is not that ISC3 does a poor job of estimating concentrations in the downwash area, it is that it does not do the job at all. For locations within the downwash cavity, running ISC3 will result in error messages***.

An error message is ***not*** a measure of exposure.

There is absolute consensus on the incapability of ISC3 to evaluate contaminant concentrations in the downwash cavity. Ms. Good agreed that the ISC3 model used for her analysis for Permit #03-POY-328 was *not able* to estimate concentrations within the downwash recirculation cavity. 937:20 - 938:12. Mr. Podrez similarly agreed that the ISC3 model used by the DNR for Permit #03-POY-328 was incapable of estimating concentrations within a distance 3L from Madison-Kipp, which includes, but is larger than, the downwash recirculation cavity. Tr.: 751:3-14; Tr.: 677:13 - 678:2.

Clean Air showed DNR had available to it tools to accurately estimate concentrations in the downwash recirculation cavity. Mr. Klafka identified several. (Tr.: 204:11 – 205:6; Tr.: 218:1-6), including the ISC-PRIME, SCREEN and AERMOD dispersion models. (Tr.: 1156:6-14). ISC-PRIME is the ISC model with an algorithm added to enable the program to correct for ISC3's inability to estimate exposures in the downwash recirculation cavity.

In Exhibit 1 (Clean Air) or 222 (Kipp), Mr. Klafka showed that several states recommended the use of the ISC-PRIME dispersion model, establishing that it is a scientifically acceptable model for regulatory use. These states included North Carolina, Oklahoma, Minnesota and Washington. (Tr.: 217:22-25). They openly use models other than ISC3 for the issuance of air pollution permits with EPA's approval and assistance through the SCRAM website. Mr. Roth acknowledged that ISC-PRIME had been scientifically tested. (Tr.: 1237:8-12) The notion that EPA rules prevent DNR from using tools adequate to meet its unequivocal legal obligation to appraise contaminant exposures to the public flies in the face of the fundamental purposes of Air Quality regulation.

As shown by Exhibit 41, Kipp also recognized the scientific acceptability of ISC-PRIME and used this model to estimate the impacts of its operations. (Tr.: 217: 2-21)

DNR acknowledged that the currently available AERMOD dispersion model with the PRIME algorithm would also provide more accurate estimates of concentrations in the downwash cavity than the ISC3 model used to evaluate Permit #03-POY-328. (Tr.: 984:4-16; Tr.: 1223:4-25)

5. DNR was subject to no federal limitations whatsoever concerning TSP.

The TSP standard is specific to Wisconsin. It has no federal counterpart. Thus, even if one were to accept DNR's assertion that some unidentified requirement under EPA rules prevents DNR from using ISC-PRIME or AERMOD to set limits for Clean Air Act contaminants, *this excuse would not encompass TSP.* Irrespective of whether DNR could use these tools for other contaminants, it could use them for TSP.

Clean Air Exhibit 81 shows the results of using ISC-PRIME to analyze contaminant concentrations in the downwash cavity. It shows exceedences of the TSP air quality standard and that nearby residents would be exposed to these violations of the Air Quality standard. 1156:15 – 1157:18.

DNR has a specific and inescapable legal obligation to analyze contaminant exposures, including TSP, at locations where members of the public are exposed. DNR only employed tools that it knew to be incapable of describing exposures in areas near Kipp where people would be most exposed to those contaminants. This is a violation of its most fundamental responsibilities.

The DNR must be ordered to employ a modeling program capable of accurately estimating impacts at locations where members of the public are reasonably likely to be exposed to TSP emissions from Kipp, specifically including, but not limited to, the downwash recirculation cavity. The program DNR used could not do it. The law requires it to be done. DNR cannot elevate itself above the law, and its position on this controversy is without any reasonable basis.

B. DNR IMPROPERLY FAILED TO ACCOUNT FOR TERRAIN IN ITS MODELING.

It is undisputed that

- Public comments notified DNR of the existence of, and the need to analyze for, elevation differences ("terrain") in the vicinity of Kipp,
- Elevation differences adequate to "require" (DNR's word [Tr.: 955:16 – 956:3; 959:18-19) terrain analysis under DNR guidelines are obvious if the site is visited or if differences are calculated using readily available tools such as USGS maps available on the internet;
- DNR's modelers neither visited the site nor conducted any quantitative analysis of terrain in advance of issuing the permit;
- DNR had, just prior to modeling for the contested permit, modeled terrain in several permit applications where the degree of terrain difference was less than at Kipp;
- DNR did not account for terrain in its modeling analysis, and
- Had DNR incorporated terrain into its modeling as set forth in its guidelines, DNR could not have issued the challenged permit because its modeling would have predicted an exceedance.

Under the *WDNR Dispersion Modeling Guidelines* ("Guidelines"), dispersion modeling must taken terrain into account if, within 1000 feet of the stack's base, elevation rises to more than 25% of any stack's height. (Tr.: (Exhibit 19 [Clean Air] and Exhibit 105 [DNR]) (Tr.: 188:12-20). For Madison Kipp, any one of 15 stacks at the Atwood address and any one of 10 stacks at the Fair Oaks address would trigger the terrain criteria. (Exhibit 83).

1. Quantitatively evaluating changes in terrain shows the permit should not have been issued.

DNR modeled Kipp as though it were in a flat area. Taking into account terrain around Madison-Kipp as required by the *Guidelines* changes the modeling

results. If you account for terrain, you cannot issue this permit. Taking into account terrain, *by itself*, results in dispersion modeling results that demonstrate exceedances. (Exhibit 81 and Tr.: 1087:25 - 1088:21)

Photographs juxtaposed with USGS elevation data demonstrate the differences in elevation in the area surrounding Madison-Kipp. (Exhibits 27 - 32, 83) The terrain change would have been obvious to DNR analysts had they bothered to visit the area or conducted a quantitative analysis using readily and publicly available tools, such as USGS Topographic maps or digital elevation files. (Tr.: 187:4 – 188:20).

The quantitative analysis is straightforward math:

> ". . .for the Atwood facility I used Stack 19F2, which is 46 feet in height. Twenty-five percent of that is eleven-and-a-half feet. And the stack elevation is 873 feet. The elevation at Lowell is 892 and so the difference going from the base of this stack to Lowell is 19 feet. And since that 19 feet exceeds eleven-and-a-half feet, then terrain should be considered. (Tr.: 198:25 – 199:7)

Fourteen other stacks at the Atwood address would also trigger the terrain criteria. (Exhibit 83)

Mr. Klafka conducted a similar analysis for the Fair Oaks component, using Lowell School's 892 foot elevation as the reference point, and finding it to be 36 feet higher than the base of an 18 foot stack at Fair Oaks. Although the elevation there is eight times greater than 25% of the height of the Fair Oaks reference stack, Lowell School turns out to be more than 1000 feet away from the base of Fair Oaks stack, and it was a mistake to use this as a reference for ascertaining elevations within 1000 feet of the Fair Oaks facility (it still works for the Atwood facility).

This mistake, however, is inconsequential. Exhibit 83, page 2 shows that that locations within 1000 feet still exceed the criteria by nearly eight times. In addition, nine other stacks at Fair Oaks would also trigger the terrain criteria.

Elevations1000 feet from reference stacks at Madison-Kipp range from 58% to 194% of stack height (Exhibit 83, page 1), greatly exceeding DNR's *Guideline* benchmark. Moreover, DNR's 25% terrain criteria are relatively weak and favorable to Kipp instead of to the citizens DNR's is charged with protecting. In North Carolina terrain has to be incorporated if it exceeds the height of the stack base *at all*. In Oklahoma, terrain must be considered if a point within *five kilometers* (about three miles) of the shortest stack is more than 20% of stack height above the base of that stack, and the preferred procedure in that State is to consider terrain in *all* modeling. (Exhibit 1 (Clean Air) or 222 (Kipp), p. 13)

2. Kipp concedes that taking into account terrain alone will, under DNR guidelines, demonstrate an exceedance of Air Quality standards.

Kipp's expert recognized the applicability of the DNR guidelines requiring consideration of terrain. In response to questioning from his attorney Mr. Podrez agreed that:

> "DNR guidance has some specific objective formula and criteria for determining when an elevation change is significant enough to be considered in modeling. (Tr.: 617:24 – 618:2).

When Kipp's expert witness Podrez "deconstructed" the analysis undertaken for Clean Air, he found several factors critical to determining whether the TSP standard was exceeded: terrain, fugitive emissions, and use of the Prime algorithm so that exposures in the downwash recirculation cavity would be assessed. Use of

ISC3 returns error messages for those locations. (Clean Air Exhibit 94 and Tr.: 1148:18 - 1152:1) Even if other, less dramatic factors are ignored or presumed to be resolved in favor of Kipp, taking Clean Air's perspective on any one of these three significant modeling errors results in concluding that there is no factual basis to support issuance of the challenged permit. Tr. 743:9 – 746:3).

Kipp's expert also conceded that taking into account terrain as required by the guidelines would result in a determination that there was an exceedance. (Tr.: 802:1-16)

3. DNR's refusal to evaluate terrain consistent with its guidelines relieved Kipp of air quality compliance obligations imposed on other entities.

Page 1 of Clean Air's Exhibit #83 compares the difference in terrain for Permit #03-POY-328 and five other air quality permits issued earlier by the DNR. The change in elevation greatly for Kipp exceeds the 25% threshold triggering the use of terrain elevations under DNR modeling guidelines.

DNR's modeler asserted she had never incorporated terrain into her analysis except one time as an academic exercise. (Tr.: 992:3-19) Investigation of DNR-issued permits proved her statement untrue. Clean Air secured the preliminary determinations and DNR modeling memos for five projects analyzed at about the same time as the Kipp permit, and Clean Air summarized the degree of terrain with respect to DNR guidelines in Exhibit 83. (Tr.: 1055:19 – 1056: In each of those cases, Thyssen-Krupp Waupaca, Inc. Plant 1 (Tr.: 1113:15 – 1124:12; 1123:19 – 1124:9) Thyssen-Krupp Waupaca, Inc. Plants 2/3, (Tr.: 1077:1 – 1079:2), St. Gobain Containers (Tr.: 1126:24 – 1128:16), Midwest Energy Resources Company (Tr.:

1095:7-25; 199:6 – 1100:16), and Madison Gas and Electric Company (Tr.: 1103:21 – 1104:21), the degree of terrain was less pronounced than at Kipp, but in each of those cases DNR, consistent with the Guidelines, incorporated terrain into the non-Kipp dispersion analyses.

In two of the cases, St. Gobain Containers (nine months before the analysis for Kipp) and Madison Gas and Electric (five months before the analysis for Kipp), the dispersion analysis incorporating terrain was conducted by the same DNR modeler who refused to incorporate terrain in the case of Kipp and who denied *ever* having incorporated terrain into a permit related dispersion analysis. In one of the cases, terrain was incorporated because of the complaints of a single citizen. (Tr.: 420:16 -421:4).

In all of these comparative cases, the degree of terrain difference within 1000 feet was less significant than at Kipp. As noted above, the change of elevation for stacks that should trigger, under the DNR guidelines, consideration of the terrain guidelines for Kipp's stacks ranges from 54 % to 198%. At the five locations identified above where DNR incorporated terrain into the dispersion modeling analysis, the change in elevation was 44% to 108%. (Exhibit 83, p. 1).

Kipp emphasized that it should be able to rely on the guidelines even when they called for the use of inaccurate tools, such as ISC3, that are wholly incapable of making the legally-required analysis of human exposures at locations near Kipp. Kipp's Vice President called for "consistent" treatment. If the "specific objective formula and criteria" in the Guidelines, upon which Kipp says one should be able to firmly rely, are relied upon in fact, then this permit cannot stand. If it is

appropriate to treat regulated businesses, consistently, then the permit cannot stand.

4. DNR failed to ascertain, and thus could not have evaluated prior to permit issuance, the changes in terrain.

The DNR's supporting file for Kipp's permit contained no evidence of review of topographic maps or terrain in response to the public comments. In the context of litigation testimony, however, the same DNR witness who had incorrectly denied previously incorporating terrain into air quality analysis asserted, for the first time, the novel position that "professional judgment" the DNR had never exercised - - it never analyzed elevation differences - - would have been grounds to ignore terrain, had DNR bothered to look. The basis for this assertion is that impacts from low stacks occur much closer to the stack. Of course, the analytical tool DNR used, ISC3, without Prime, cannot analyze impacts near to low stacks - - it returns error messages.

This position was first articulated in April, 2005, a year after the permit was issued. It was articulated in the context of a challenge, by a witness who had denied incorporating terrain into other dispersion analyses, even though she had done so at about the same time she was modeling Kipp.

Contemporaneous with permit work DNR indicated it was ignoring terrain for a different reason, i.e., because DNR deemed terrain to be insignificant. Had DNR evaluated the terrain surrounding Madison-Kipp, it would have determined that the change in elevation in the surrounding area exceeded its own criteria for using terrain in the dispersion modeling analysis. Instead of responding to public

concerns and conducting a quantitative analysis, the DNR stated incorrectly that the change in terrain as far away as Lowell School to be only 10 to 15 feet. DNR Exhibit #108 [p. 6, item # 3]).

Indeed, until cross examined, DNR's modeler *continued* to endorse DNR's inaccurate appraisal that Lowell School is only 10 to 15 feet higher than the base of Kipp's stacks. DNR's modeler neither calculated the elevation difference from representative information (pictures USGS maps, and digital files) nor visited the Kipp facility, though Kipp is less than three miles from DNR's office. (Tr.: 924: (Tr.: 948: 6- 18) (Tr.: 951: 11-16).

DNR did not develop facts to support its decision, preferring to state falsehoods as fact and to act on the basis of those falsehoods. Its post-hoc effort to assert some feeble retroactive rationalization for the inexcusable is not exercising discretion and cannot be excused as such. While an exercise of discretion depends on reasoning from facts, DNR willfully avoided securing facts, preferring to "cut and paste" answers developed in consideration of an earlier permit which was issued well in advance of DNR establishing its guidelines. (Tr.: 1084: 5 – 1085: 23).

The DNR must be ordered to review credible objective materials, such as USGS topographic maps or digital elevation files, and evaluate and establish elevation differences in modeling area that surrounds Madison-Kipp, and then incorporate terrain into the dispersion modeling analysis.

C. DNR ILLEGALLY FAILED TO CONSIDER FUGITIVE EMISSIONS IN ITS MODELING ANALYSIS

The challenged permit does not prohibit fugitive emissions. It directs Kipp to

minimize them. (Ex.49 and Tr: 237:19 - 239:15) Since something must first exist before it can be "minimized," the permit must contemplate fugitive emissions. Fugitive emissions of "0," after all, are not capable of being "minimized" because you can't reduce fugitive emissions below "none."

Because the permit contemplates fugitive emissions will exist, they have to be accounted for in modeling, and then subjected to reasonable controls to ensure they do not, alone or in combination with other emissions from Kipp, cause or exacerbate a violation of an air quality standard. Unless DNR and Kipp propose to overthrow the laws of logic as well as nullify the laws of our state, none of this can be contested.

By failing to account for fugitive emissions in its modeling analysis, DNR

1. Violated the permit approval criteria under Section 285.63 (1)(b),Wis. Stats., which requires DNR to determine if the source will violate, or exacerbate violation of, an air quality standard, and

2. Failed to comply with the requirements of s. NR 406.09, Wis. Adm. Code, which require DNR to evaluate the air quality impact, in this case the air quality impact of fugitive emissions, at locations where members of the public might reasonably be exposed.

There is no question DNR has the means to include fugitive emissions in modeling Kipp's emissions. It did so more than 10 years ago, in 1994. (Exhibit 35; Tr.: 243:25 – 244:23).

1. Fugitive emissions significantly impact nearby homes.

Because of the proximity of homes, any emission from Kipp's windows or doors can be almost immediately on someone else's property or in someone else's home. Mr. Podrez agreed that the incorporation of fugitive emissions would

significantly affect the results of the dispersion modeling analysis, stating: *"incorporating fugitive emissions, because they are low level, ground level kinds of releases, can many times have significant, large impacts close in to those emission sources."* (Tr.: 676:11 – 677:16, and particularly 677:8-12) When he deconstructed the modeling analysis, Mr. Podrez indicated that removal of fugitive emissions decreased the air quality impacts by 50%, noting, however, that even without fugitive emissions, there would be an air standard exceedance. (Tr.: 743:9-21)

2. Historical documents demonstrate an unresolved fugitive emissions problem at Kipp.

Kipp has a long history of fugitive emissions. The 1995 emissions inventory report filed by Madison-Kipp with the DNR, Exhibit 46, clearly indicated the presence of fugitive emissions. Exhibit 47 shows DNR responding to an inquiry from Dr. doPico in a way that verified Madison-Kipp had had fugitive emissions but asserted they had been eliminated. In 1999, however, it is clear that they had not been eliminated. In that year Madison-Kipp's own contractor indicated in its report to Kipp that there were still fugitive emissions (Exhibit #48). The Title V Operation Permit similarly recognizes the existence of fugitive emissions for Madison-Kipp in that it did not prohibit fugitive emissions, but only asked that they be "minimized." (Exhibit #49) (Tr.: 234:22 - 239:15)

The conditions for fugitive emissions continue to exist, and DNR has neither established they have been eliminated nor required Kipp to demonstrate they have been eliminated. Thus, for example, factors affecting fugitive emissions are wind and open doors and windows. Madison-Kipp was not required to analyze, control, or

compensate for the impacts of any of these. (Tr.: 252:6-22). Clean Air presented numerous recent photographs showing open windows and doors at Kipp and thus demonstrating they are not controlled. (Exhibits 54, 55 and 57) (Tr.: 240:1 – 214:8).

3. DNR did not verify the purported, and undocumented, absence of fugitive emissions before conducting its modeling.

Prior to her conducting her modeling analysis for Permit #03-POY-328, Ms. Good did not verify the presence of fugitive emissions or the accuracy of existing modeling files (Tr.: 999: 15 – 100:6)

She could have done so. Mr. Roth included fugitive emissions in a modeling analysis conducted at the same time as the Kipp permit. (Tr.: 1090:10-17; Tr.: 1092:25 – 1093:14). Although that particular modeling involved a discrete outdoor source, DNR's modeling of fugitive emissions is *not* limited to such sources. (Tr.: 123:7-20)

4. Had DNR modeled for even a quarter of the fugitive emissions modeled by Clean Air, it would have identified an air quality exceedance.

Exhibit 81 profiles Clean Air's analysis showing that if DNR had incorporated fugitive emissions into its modeling analysis for Permit #03-POY-328, it would have predicted an exceedence and the permit could not have been issued. Moreover, even if the emissions modeled by Clean Air were halved and then halved again, there would still be an exceedance. (Tr.: 1140:9 – 1143:1).

Moreover, Clean Air's fugitive emission modeling was substantially "conservative" in a way favorable to Kipp because Mr. Klafka modeled the emissions *as though they came equally from the exterior facade of the facilities*. He modeled fugitive emissions as an "area source." This has the effect of reducing modeled

impacts because, in practice, fugitive emissions will escape from discrete windows and doors. They are not going to leak out through impervious brick or metal walls. Clean Air's modeling of fugitives as an area source thus had the effect of diluting, for purposes of analysis, the actual concentrations of such emissions to which people adjacent to the emission points, i.e., near those windows and doors, will experience.

The DNR must be ordered to incorporate fugitive emissions into the dispersion modeling analysis, unless the new permit prohibits these emissions and incorporates ongoing requirements that assure they do not occur and document that they have not occurred.

D. DNR MADE NUMEROUS ADDITIONAL ERRORS IN ITS MODELING ANALYSIS, RESULTING IN AN INABILITY TO DETERMINE EXPOSURES AT LOCATIONS WHERE MEMBERS OF THE PUBLIC COULD BE EXPOSED.

Beyond the important and dispositive errors associated with the downwash cavity, terrain, and fugitive emissions, DNR made many additional modeling errors. The quantity of errors can only reflect a lack of concern for DNR's obligation to accurately determine compliance with air quality standards. Even disregarding the three large errors, correcting the cumulative effect of the additional errors would have itself disclosed a violation of the TSP air quality standard, and the permit to Kipp's could not have been issued. Indeed, Mr. Podrez rated the difference associated with one of these errors, failing the model the worst case scenario for emissions from certain processes through shorter stacks, specifically SO3 and SO5, *as Kipp is allowed to do under its permit*, as being of greater significance to the outcome than the "big three" - - cavity, terrain and fugitive emissions. (Tr.: 747:13-

25).

Errors in the DNR modeling analysis for Permit #03-POY-328 in addition to the "big three" portrayed in Exhibit 81 included the following:

- Failure to use the correct building location, orientation and shape.
- Failure to use the correct stack locations.
- Failure to use the worst-case emission rates from Fair Oaks facility Stacks S03 and S05.
- Failure to evaluate the worst-case flow rate from the Atwood facility roof vents.
- Failure to recognize the presence of rainhat obstructions on the Atwood facility roof vents.
- Failure to use the correct diameters for the Atwood facility Stack S19 roof vents.
- Failure to incorporate above ground locations such as balconies and accessible roof tops.
- Failure to consider the effect of off-site buildings such as nearby homes to address their effect on the air pollutant dispersion from Madison-Kipp stacks.

By incorporating these errors into its modeling analysis, DNR violated the permit approval criteria under Section 285.63(1)(b), Wis. Stats., which requires DNR to determine whether the source will violate or exacerbate a violation of an air quality standard. DNR also failed to comply with the requirements of s. NR 406.09, Wis. Adm. Code, to evaluate the air quality impact at such locations where members of the public might reasonably be exposed.

1. DNR modeled incorrect building locations, orientations, shapes, and the location of stacks

To describe DNR's errors as high-handed is an understatement. DNR simply cut and pasted old and flawed modeling files without verification. Ms. Good acknowledged that she neither visited the site (Tr.:948: 6-18) nor verified the accuracy of existing modeling files (Tr.: 999:15 – 100:6). Considering the continued air quality complaints from surrounding residents, Ms. Good should have closely scrutinized prior modeling files and techniques, rather than blindly accepting the older files and analyses.

Unsurprisingly, then, DNR used an incorrect building shape and size for the Fair Oaks facility, did not orient the buildings to true north, and located the Fair Oaks buildings 75 feet from their true locations. (Exhibits #15 to #18). DNR mis-located several stacks outside the Madison-Kipp buildings when in fact they were inside the buildings, apparently because DNR did not realize the building had been expanded. These errors have consequences because having a roof below a stacks that is emitting contaminants, instead of nothing between the top of the stack and its base far below, influences the dispersion of pollutants, and contributes to exceedances. (Tr.: 157:2 – 158:15)

CAM Exhibit #11 summarized some of the errors and corrections required for the DNR modeling analysis to accurately estimate the air quality impact of the Madison-Kipp discharges.

2. **DNR failed to analyze the worst-case scenario.**

The worst-case scenario describes the emissions a facility is allowed to emit, under maximum conditions, under its permit. The parameters of the worst-case are those that are *allowed*, not what a facility *plans or hopes* for under its current configuration. Regulators have to model the worst-case when determining whether a facility's emissions will violate an air quality standard because that is the condition in which the air quality standard is most likely to be violated. Under its permit Kipp *is allowed to operate* such that emission rates from Fair Oaks stacks S03 and S05 would result in *higher air quality impacts than the taller stacks modeled by DNR*. (Tr.: 102:9 -103:10; Tr.: 104:2-23). DNR therefore failed to model the worst-case scenario.

DNR did not model for the worst-case operating condition of the Atwood facility Stack S19 roof vents, which is represented by the lower flow rate projected to occur during the winter months when only 4 vents are operating. DNR instead used the much higher flow rates and greater contaminant dispersion associated with summer operation when all 11 vents are operating (more fans means higher flow rates means higher immediate dispersion). Mr. Podrez, Kipp's expert, explained the necessity of using lower flow rates to appraise the worst case scenario as follows:

> "I typically perform what's called a load screening analysis, where I do look at different stack flow rates and emission rates associated with that, because there can be times when, let's say, operating a boiler at half if its operating load because the flow rates are lower and the temperature is a little lower, the plume might impact a little closer even though the emissions are lower the ambient impact might be

> higher. So we do look at the range of reasonable operating scenarios to come up with what is called the worst-case scenario. (Tr.: 700:20 – 701:6)

Mr. Podrez also acknowledged that fewer fans operated in the winter for Stack S-19 than in summer. Under his procedures for determining the worst case, you would need to evaluate the low flow condition (same maximum emissions, fewer fans, slower air flow, poorer dispersion), which is the winter scenario. (Tr.: 707:16 – 708:5; Tr.: 710:8 – 711:6). DNR did not. It modeled the summer (same maximum emissions, more fans, faster air flow, better dispersion) as though it were the worst case when it clearly was not.

The result of choosing higher flow rates (summer flow rates) over lower ones (winter flow rates) was to predict lower air quality impacts (Exhibit 48). Prediction of lower impacts, of course, benefits Kipp. Mr. Podrez agreed that the worst-case modeling analysis must consider the lowest flow rate from an operation. (Tr.: 700:8 – 701:6)

DNR also failed to identify and model the worst-case operating condition, a condition that must account for the use of rain hats on the Atwood facility Stack S19 roof vents. *It is immaterial to DNR's modeling responsibilities, whether, at a given moment, a vent is not obstructed by rainhats or other obstructions*. If they are not prohibited, they are allowed, particularly in the context of a permit where rainhats are explicitly prohibited for some stacks, and the permit is silent as to whether such prohibitions apply to other stacks, and where plans provided to the DNR show obstructions as a feature of some stacks. (CAM Exhibit 49 & MKC Exhibit 260) This is exactly the situation at Kipp. Mr. Podrez verified that the

Madison-Kipp Title V permit did not prohibit exit obstructions on the S19 stacks, that Madison-Kipp plans showed the presence of stack obstructions (rainhats) obstructing vertical flow on the S19 stacks (Tr.: 769:1-25); and that DNR modeling guidance was not followed with respect to modeling stacks with exit obstructions. (Tr.:768:7 – 772: 25). He also conceded that the exit obstructions on the Stack S19 roof vents shown on Madison-Kipp plans were in fact allowed under the current Title V operation permit. (Tr.: 775:9-15). While only recently visiting the facility, he did not whether the Atwood facility roof vents were equipped with rainhats when modeled by the DNR in 2003. (Tr.: 872:2-18).

When modeling the Atwood facility Stack S19 roof vents, the DNR either used incorrect diameters or Madison-Kipp was in violation of its Title V operation permit. Mr. Podrez read the diameter limitation from the Madison-Kipp Title V operation permit (Exhibit #49) and showed that the diameters modeled by the DNR from its preliminary determination for Permit #03-POY-328 (Exhibit #3 [Clean Air] or 103 [DNR]) violated the previous permit's condition limiting the maximum diameter of these vents. (Tr.: 755:5 – 758:24)

3. DNR failed to estimate above ground locations even though people are at such locations and the EPA has recognized the propriety of measuring at them.

Clean Air's permit comments requested consideration of above ground locations such as balconies and roof tops. Obviously, balconies are specifically designed to be a place people can be. Balconies exist on homes adjacent to Kipp. (Exhibits 42 and 43) Given the obligation to model at locations where people are exposed to contaminants, and the obligation to model the worst case, those

balconies needed to be identified, and impacts at those locations modeled. For its modeling analysis or in response to public comments, DNR did not conduct a site visit to determine the presence of above ground locations where the public would be exposed. (Tr.: 219:4 0- 220:24). Clean Air demonstrated that USEPA applied the air standards at above ground locations (Exhibits 1 [Kipp Exhibit 222], 45 and 70) (Tr.:220:25 – 223:12) Mr. Roth agreed that while he had used an older 2000 memorandum from USEPA to determine the appropriateness of flagpole receptors to evaluate above ground air pollutant concentrations, DNR had ignored a more recent 2004 memorandum from the same USEPA staff person which instructed DNR that it was acceptable to use flagpole receptors. This is yet another example of DNR simply cutting and pasting old and inaccurate information. (Tr.: 1024:10 – 1042:4)

4. DNR failed to consider the effect of off-site buildings such as nearby homes on dispersion of air pollution from Madison-Kipp's short stacks.

The influence of nearby homes has to be incorporated into the modeling analysis because the homes affect how air pollution from Kipp's low stacks is dispersed. USEPA expects an assessment of the effect of building downwash on stacks located within 5L, i.e., five times the height of the building. DNR modeling guidance requires an assessment of downwash caused by buildings and structures affecting stack dispersion. (Tr. 164:18 – 187:3) (Exhibits 19, 20, 21, 22, 23) DNR modeled Kipp as though it were located on a flat field in the country surrounded by nothing. Mr. Roth admitted that DNR did not even investigate the potential impact of off-site structures such as adjacent homes on the dispersion of Madison-Kipp

stacks. Of course, it is well established that DNR did not undertake to observe, measure or evaluate the homes adjacent to Madison-Kipp. (Tr.: 1041:21-24).

DNR never bothered to visit the site. (Tr.: 948:14-18). As far as the DNR was concerned, Kipp was located in the middle of nowhere, rather than surrounded by residents asking for an accurate assessment of Kipp impacts on their air quality. The DNR must be ordered to conduct a dispersion modeling analysis that corrects its many errors.

III. LEGAL ANALYSIS.

There are few central legal questions, and the ones arising out of NR regulations are subsidiary to the one grounded in the statute. They are:

1. Will the source that sought the permit (in this case Madison Kipp) cause or exacerbate a violation of any ambient air quality standard? (Wis. Stat. §285.63) (In this case, as it has been limited, the standard is the 150 micrograms per cubic meter standard for TSP in Ch. NR 4.04(3) Wis. Admin. Code.)

2. In making the determination, did DNR establish accurately the potential contaminant concentrations where members of the public are likely to be exposed, as required by NR 406.09?

For points within the downwash recirculation cavity, the model DNR used was *not capable* of estimating contaminant concentrations *at all*. It returns error messages.

Clean Air's analysis is straightforward. To answer the question of whether "the source," in this case, Kipp, will cause or exacerbate the ambient air quality standard for TSP at places where people breathe air contaminated with Kipp's TSP emissions, DNR has to identify the concentrations at those locations. It cannot do so with ISC3 for points within the downwash recirculation cavity. It cannot identify

concentrations at those locations unless it uses a tool that identifies concentrations at those locations.

DNR cannot repudiate this obligation for TSP, or, for that matter, any modeled pollutant, without simultaneously repudiating its fundamental obligation under the law. It cannot fail to identify contaminant concentrations in the very areas where people are exposed to the highest concentrations and simultaneously be found to have acted properly.

To identify the concentrations of pollutants to which people are exposed in areas where there are differences in elevation, i.e., terrain, the DNR has established, and has applied, specific guidelines, *except in the case of Kipp*. Clean Air demonstrated that DNR followed those guidelines in five other cases, some quite contemporaneous with DNR's modeling work on Kipp. In each of those cases the degree of terrain difference within 1000 feet relative to stack height was less significant than in the case of Kipp. DNR never bothered to visit the site or quantify elevation differences at Kipp. By failing to incorporate terrain into its analysis DNR failed to identify the elevated concentrations to which people are subjected because of terrain. Just as it failed to employ a tool adequate to the task of determining concentrations in the downwash cavity, it failed to employ the tools it specifically developed to estimate pollutant concentrations in areas where there is terrain. The legal deficiency is equally manifest: DNR simply did not secure the information it needed to make the determinations the law requires it to make.

With respect to fugitive emissions, DNR expects Kipp to create them, but DNR failed to model them. Modeling fugitive emissions changes outcomes, in part

because fugitives are emitted at a different level i.e., not from stacks, and, in the case of Kipp, which has homes so close to it, those emissions flow immediately into someone else's back yard. DNR cannot determine peoples' exposures to these emissions that it concedes will exist without modeling to determine those exposures. As with concentrations within the downwash cavity and concentrations as impacted by differences in elevation, DNR did not secure the information needed to make the determinations of exposure that the law requires it to make.

Other factors would have also, as Kipp's expert recognized, pushed Kipp's TSP emissions beyond the 150 micrograms per cubic meter limit *even ignoring the influence of the "big three."* (Tr.:447:13-25). As modeled by DNR they were already just below 140. By ignoring scenarios describing ways that Kipp is allowed to emit under the permit, DNR failed to establish the worst case. For some of these additional parameters, as when DNR modeled high summer dispersion rates rather than low winter ones, or where it used the wrong diameters for Stack S19 roof vents, DNR even failed to model for the likely or inevitable case. Even DNR's accommodating (to Kipp) modeling found Kipp's emissions to be just a shade (1/10 of 1 microgram) below 140 micrograms per cubic meter. The worst case has to be established because the worst case describes the contaminant concentrations to which the applicant is allowed to expose the public under its permit. By failing to make that analysis DNR rendered itself incapable of making the determinations required by both statute and its own rules.

IV. CONCLUSION.

Clean Air has demonstrated that the modeling conducted by DNR is insufficient to, and in some instances, absolutely incapable of, answering the questions DNR must answer before it grants a permit to a source. Because DNR does not even have the information it needs to have to answer the questions the law requires to be answered, and because credible commonly-used tools demonstrate exceedences, the permit was illegally granted. The construction permit should be declared to have been improperly issued, i.e. a nullity, and ordered withdrawn. To assist DNR and ensure protection of the public, a decision should provide directions to DNR as indicated in the pages immediately following this brief, which are incorporated into it by reference.

Dated and respectfully submitted August 22, 2005.

_____

Frank Jablonski
State Bar No. 1000174

Frank Jablonski
Progressive Law Group
354 W. Main Street
Madison, WI 53703
frankj@progressivelaw.com

(608) 258 8511 (voice)
(608) 442-9494 (facsimile)

www.progressivelaw.com

REMEDY

Clean Air asks that the permit be declared void and withdrawn and that DNR be directed, in the event Kipp determines to reapply for a permit, to: 1) conduct a dispersion modeling analysis consistent with law and 2) establish permit conditions so that the new permit will not allow Kipp's emissions to cause or exacerbate a violation of an air quality standard at locations where members of the public might be exposed. Clean Air further requests the DNR be provided with guidance to the effect that, at a minimum, an adequate procedure that could result in a legal permit would require the agency to:

1. Employ a modeling program capable of accurately estimating impacts at locations where members of the public are reasonably likely to be exposed to TSP emissions from Kipp, specifically including, but not limited to, the downwash recirculation cavity surrounding Madison-Kipp.

2. Incorporate fugitive emissions into the dispersion modeling analysis, unless the new permit prohibits these emissions and incorporates ongoing requirements that assure they do not occur and document that they have not occurred.

3. Visit the site in person to review the location of buildings and emissions points and to verify the accuracy of modeling inputs.

4. Identify, verify, and incorporate into modeling, the effect of off-site buildings, such as nearby homes, and their effects on dispersion and concentration of air pollutants emitted from Madison-Kipp stacks.

5. Identify and describe, by address and comparable descriptive information, the locations accessible to the general public which are within the downwash recirculation cavity.

6. Identify and describe, by address, the locations of homes or buildings with outdoor balconies or accessible rooftops within the modeling area.

7. Incorporate flagpole receptors in the dispersion modeling analysis for all

above-ground locations including balconies and accessible rooftops.

8. Review credible objective materials, such as USGS topographic maps or digital elevation files, and evaluate and establish elevation differences in modeling area surrounding Madison-Kipp.

9. Incorporate terrain into the dispersion modeling analysis..

10. Identify, verify and use in modeling, the correct building location, orientation and shape for all Kipp buildings.

11. Identify, verify and use in modeling, the correct stack locations for all stacks at Kipp.

12. Identify, describe and use in modeling, the worst-case emission rates for all Madison-Kipp emission points, including, but not limited to, the Fair Oaks facility Stacks S03 and S05.

13. Identify, describe and use in modeling, the worst-case flow rate from all Madison-Kipp emission points, including the Atwood facility Stack S19 roof vents.

14. Model for, or preclude through permit conditions, the presence of rain hats or other obstructions on all emissions points.

15. Identify, verify and use in modeling, the correct diameters for the Atwood facility Stack S19 roof vents.

16. Install, calibrate and operate for three years an air quality monitor for TSP within 75 feet of the location where the new dispersion modeling analysis predicts the maximum 24-hour average concentration due to Madison-Kipp TSP emissions. The monitor shall operate at least once every 3-days.

17. Prior to conducting the new dispersion modeling analysis, identify, describe and analyze continuing public complaints about emissions impacts perceivable through the senses that members of the public attribute to Madison-Kipp, describe how long similar complaints have been lodged, identify what pollutants or combination of pollutants emitted from Kipp might trigger those perceptions, and identify procedures for improving the dispersion modeling analysis to more accurately reflect the public complaints.