

**ILLINOIS ENVIRONMENTAL PROTECTION AGENCY  
BUREAU OF AIR**

August 2006

Responsiveness Summary for  
Public Questions and Comments on the  
Construction Permit Application from  
Springfield City Water, Light and Power for  
Proposed Dallman Unit 4

Site Identification No.: 167120AAB  
Application No.: 04110050

**TABLE OF CONTENTS**

Introduction.....3  
Description of the Proposed Project.....3  
Comment Period and Public Hearing.....3  
Availability of Documents.....4  
Appeal Provisions.....4  
General Response to Common Public Concerns.....4  
Additional Requirements pursuant to an Agreement between CWLP  
    And the Sierra Club.....6  
Questions and Comments with Illinois EPA Responses.....7  
    General Comments on the Proposed New Generating Unit.....7  
    Alternatives to the Project.....8  
    Alternatives - Project Size.....9  
    Alternatives - Renewable Energy.....12  
    Alternatives - Energy Conservation.....15  
    Alternatives - Coal Gasification.....17  
    Alternatives - General Comments.....26  
    BACT for the Proposed Boiler - Particulate Matter.....28  
    BACT for the Proposed Boiler - Sulfuric Acid Mist.....40  
    BACT - Boiler - Requirements for Startup, Shutdown & Malfunction.....45  
    BACT and Other Requirements for Material Handling.....47  
    BACT and Other Requirements for Roadways.....51  
    Air Quality Impacts - Particulate Matter .....55  
    Air Quality Analysis.....57  
    Requirements for the Boiler for Emissions of NOx and SO2.....62  
    Permit Provisions for Other Pollutants (CO, HAPs, CO2, etc.).....67  
    Compliance Procedures.....70  
    Consultation on Endangered Species.....73  
    Administrative Procedures.....75  
    Public Health Impacts.....77  
For Additional Information.....78  
Listing of the Significant Changes between the Draft and Issued Permit.....79

## **INTRODUCTION**

Springfield City Water, Light and Power (CWLP) has applied for an air pollution control construction permit to build a 250 megawatt coal-fired electric generating unit, Dallman Unit 4, at its existing power plant on Lake Springfield. The proposed project is considered a major source of emissions and is subject to the federal rules for Prevention of Significant Deterioration of Air Quality (PSD), 40 CFR 52.21.

Upon review of comments received during the public comment period and final review of the application, the Illinois Environmental Protection Agency (Illinois EPA) has determined that the application meets the standards for issuance of a construction permit. Accordingly, on August 10, 2006, simultaneously with the issuance of this Responsiveness Summary, the Illinois EPA issued a permit to CWLP to construct the proposed project. The project must be constructed and operated in accordance with applicable regulations and the terms and conditions of the issued permit.

## **DESCRIPTION OF PROPOSED PROJECT**

Proposed Dallman Unit 4 would be a pulverized coal boiler. In a pulverized coal boiler, the coal is ground (pulverized) to a fine powder immediately before being burned and is blown with primary combustion air into the boiler through a series of nozzles. Secondary air is blown into the boiler through other nozzles to complete combustion. The boiler would be a modern design, with features to enhance the unit's energy efficiency.

The boiler would be equipped with a multi-stage system to minimize and control emissions. The boiler would be equipped with low NO<sub>x</sub> burners and use good combustion practices to reduce emissions of nitrogen oxides (NO<sub>x</sub>), carbon monoxide (CO) and volatile organic material (VOM). The add-on control train for the boiler would include selective catalytic reduction (SCR) for control of NO<sub>x</sub>, a fabric filter or baghouse for control of particulate matter (PM), a scrubber for control of sulfur dioxide (SO<sub>2</sub>), and a wet electrostatic precipitator (WESP) for control of sulfuric acid mist and condensable particulate matter. The permit also includes provision for use of sorbent injection to control emissions of mercury, if effective control of mercury cannot be assured with "co-benefit" from the control devices for other pollutants. The exhaust from the boiler would then be vented through a new 450-foot high stack.

## **COMMENT PERIOD AND PUBLIC HEARING**

The Illinois EPA Bureau of Air evaluates applications and issues permits for sources of emissions to the atmosphere. An air permit application must appropriately address compliance with applicable air pollution control laws and regulations before a permit can be issued. Following its initial technical review of CWLP's application, the Illinois EPA Bureau of Air made a preliminary determination that the application met the standards for issuance of a construction permit and prepared a draft permit for public review and comment.

The public comment period began on February 4, 2006, with the publication of a notice in the State Journal Register on February 4th, 11th, and 18th 2006.

A public hearing was held on March 22, 2006, at Springfield Southeast High School to receive oral comments and answer questions regarding the application and draft air permit. The comment period originally was scheduled to close on April 21, 2006, to receive written comments. The comment period was extended once with the comment period ultimately closing on May 22, 2006.

#### **AVAILABILITY OF DOCUMENTS**

The permit issued to CWLP and this responsiveness summary are available on the Illinois Permit Database at [www.epa.gov/region5/air/permits/ilonline.htm](http://www.epa.gov/region5/air/permits/ilonline.htm) (please look for the documents under All Permit Records (sorted by name), PSD/Major NSR Records). Copies of these documents may also be obtained by contacting the Illinois EPA at the telephone numbers listed at the end of this document.

#### **APPEAL PROVISIONS**

The permit being issued for the proposed project grants approval to construct pursuant to the federal rules for Prevention of Significant Deterioration of Air Quality (PSD), 40 CFR 52.21. Accordingly, individuals who filed comments on the draft permit or participated in the public hearing may petition the U.S. Environmental Protection Agency (USEPA) to review the PSD provisions of the issued permit. In addition, as comments were submitted on the draft permit for the proposed project that requested a change in the draft permit, the issued permit does not become effective until after the period for filing of an appeal has passed. The procedures governing appeals are contained in the Code of Federal Regulations (CFR), "Appeal of RCRA, UIC and PSD permits," 40 CFR 124.19. If an appeal request will be submitted to USEPA by a means other than regular mail, refer to the Environmental Appeals Board website at [www.epa.gov/eab/eabfaq.htm#3](http://www.epa.gov/eab/eabfaq.htm#3) for instructions. If an appeal request will be filed by regular mail, it should be sent on a timely basis to the following address:

U.S. Environmental Protection Agency  
Clerk of the Board, Environmental Appeals Board (MC 1103B)  
Ariel Rios Building  
1200 Pennsylvania Avenue, N.W.  
Washington, D.C. 20460-0001  
Telephone: 202/233-0122

#### **GENERAL RESPONSE TO COMMON PUBLIC CONCERNS**

The proposal to issue a permit for the proposed project has generated a variety of comments from the public and several environmental organizations. These comments were fully considered prior to issuing the permit on today's date, and these comments were helpful to the Illinois EPA in the decision making process. Indeed, these comments facilitated a number of significant

changes to the issued permit, as compared to the draft permit, as summarized at the back of this document.

One concern was that the proposed new generating unit, Dallman Unit 4, would be "dirty" and similar to existing coal-fired generating units because the new unit does not have "state of the art" pollution controls. However, the proposed new unit will be much cleaner than existing coal-fired generating units and will be equipped with modern pollution control devices. The other technology that might be considered "state of the art" for purposes of these comments, is Integrated Gasification Combined Cycle (IGCC) technology. The Illinois EPA has examined the status of IGCC technology at the present time. While IGCC technology is generally expected to be the next generation of technology for coal-fired power plants, it is still a developing technology. The claims that IGCC technology is an available alternative for the proposed project do not survive close scrutiny. In addition to the challenges that must generally be overcome for the use of IGCC technology, use of IGCC technology would pose additional challenges for the proposed project, due to its relatively small size and location at the existing CWLP plant. Accordingly, it is not appropriate for the permit to require use of IGCC technology for this project.

A large number of comments addressed alternatives to the proposed project, with most of them expressing the belief that various alternatives, i.e., energy efficiency, energy conservation, or the use of renewable energy sources, notably wind power, would avoid the need for the proposed project. These comments do not demonstrate that these alternatives would completely eliminate the need for coal-fired electrical generation. These alternatives, which CWLP is already implementing to varying degrees, allow the demand for electricity to be managed and satisfied with a reduction in the emissions from its existing coal-fired generating units. In this respect, these alternatives are actually similar to the proposed project. This project, as well as providing generating capacity to meet future demand for electricity, would physically replace CWLP's oldest coal-fired units, Lakeside Unit 7 and 8, and functionally displace CWLP's other existing coal-fired units with a more efficient and better controlled, lower emitting unit. As such, this project will generally act to reduce emissions from CWLP's coal-fired power generation, on an emissions per watt basis. While the alternatives identified in comments are to be supported, they do not provide a basis for the Illinois EPA to restrict or otherwise act to alter the nature of the proposed project. As related to emissions, these comments should be directed towards the operation of the three existing Dallman generating units, which are outside of the scope of the proposed project. While CWLP's present programs for energy efficiency, energy conservation, and the use of renewable energy sources must be acknowledged, CWLP should be encouraged to enhance and expand these programs as this would serve to further reduce the emissions of its existing coal-fired generating units.

Another comment was that the plant would emit an unacceptable level of particulate matter. While the plant would contribute to background levels of particulate matter in Sangamon County, improvements in particulate matter air quality will continue to occur in the area. This is because the emissions of the proposed plant would be well controlled. More importantly, Illinois' power plants have been and will continue to be subject to regulations like the NO<sub>x</sub> Trading Program that restrict their overall emissions as a group.

These programs address the air quality and potential public health impacts of the emissions of coal-fired power plants in Illinois as a whole.

A number of comments supported construction of the project because it will create jobs and economic development for Springfield. The construction and operation of the plant will directly create and provide jobs in construction, mining and operation of the new unit. However, these economic benefits from the project did not influence the Illinois EPA's decision on this project because the Illinois EPA cannot consider consequences positive or negative that do not relate to the emissions from a proposed emission unit. The decision whether to grant a permit is a legal and technical one, based on compliance with applicable environmental laws and rules.

#### **ADDITIONAL REQUIREMENTS PURSUANT TO AN AGREEMENT BETWEEN CWLP AND THE SIERRA CLUB**

This permit also includes requirements for the Permittee, proposed Dallman Unit 4, and the existing generating units operated by the Permittee at its Springfield power plant that have their origin in an agreement between the Permittee and the Sierra Club. The Permittee initiated discussions with the Sierra Club and voluntarily entered into this agreement with the objective of avoiding an appeal of this permit, which would act to delay the effectiveness of the permit. By the terms of the agreement, these requirements would only take effect if the objective is achieved, i.e., the issuance of the permit is not appealed. These requirements go beyond applicable regulatory requirements and address matters that the Illinois EPA would not normally be able to address during permitting. However, these additional requirements are reasonably related to the emissions and the air quality and environmental impacts of the proposed project and the Permittee's activities and thus may be appropriately included in this permit. These requirements are similar to the commitments and restrictions at times accepted by sources for certain proposed projects to keep the projects from being major, with the objective of avoiding the substantive and procedural requirements for permitting of a major project.

The additional requirements pursuant to the agreement are contained in Attachment 5 through 5.6 of the issued permit. Alternative limits are set for emissions of particulate matter (PM), sulfur dioxide (SO<sub>2</sub>), nitrogen oxides (NO<sub>x</sub>), sulfuric acid mist and mercury from proposed Dallman Unit 4. Emission limits are also established for the overall emission rates of SO<sub>2</sub>, NO<sub>x</sub> and mercury from proposed Dallman Unit 4 and existing Dallman Units 1, 2 and 3. Requirements are also established related to control of emissions of carbon dioxide (CO<sub>2</sub>) from the power plant, promotion of renewable energy through the acquisition or purchase of wind powered electrical generating capacity by CWLP, the generation of electricity for wholesale sale, and enhancements to CWLP's programs for energy conservation, efficiency improvements and purchase of renewable energy.

## QUESTIONS AND COMMENTS WITH ILLINOIS EPA RESPONSES

### General Comments on the Proposed New Generating Unit

1. Any new coal-fired power plants must employ state-of-the-art technologies to minimize pollution.

**This is correct. New coal-fired generating units are subject to federal New Source Performance Standards adopted by USEPA, which set minimum requirements for control of emissions from a new unit. More stringent requirements may be set for particular pollutants based on the circumstances of the proposed unit.**

2. The electrical capacity of the two Lakeside units is about 75 MW and the capacity of the proposed new unit is approximately 250 MW. Even though the new unit is cleaner, it is approximately three times the size of the older units. Such a big unit would not be necessary if CWLP would reduce the peak demand of its customers.

**It is not in CWLP's own self-interest to build a new generating unit that is any bigger than is reasonably needed to meet the future electrical needs of the City of Springfield. CWLP includes an Energy Conservation Office, which administers programs to reduce the amount of electricity that is consumed and that CWLP must supply.**

3. The proposed unit is going to be larger than the two Lakeside units that are closing down. However, with its newer technology and with dispatching, the other older units now will not run as much as they are currently running. Won't this mean that the overall emissions of the plant will decrease?

**Emissions of certain pollutants will certainly decrease with this project. Given the difference in control technology between the units that are being shut down and proposed Dallman 4, the plant's emissions of SO<sub>2</sub> and NO<sub>x</sub> will certainly decrease. For other pollutants, the circumstances are not as simple. In particular, for PM, there will certainly be an immediate decrease in emissions, as suggested in this comment. However, as Dallman 4 is being built to address future demand, with the growth of Springfield, at some point many years in the future it is possible that there will be an increase in the plant's PM emissions. However, whether such an increase will actually occur will depend upon whether, by then, CWLP has replaced Dallman 1 or 2 with new, even cleaner units.**

4. Has CWLP considered alternatives to building a new coal-fired generating unit?

**The application submitted by CWLP shows that it has considered alternatives to the proposed project. Even with its ongoing programs and efforts for energy conservation, CWLP indicates that the demand for electricity grows steadily as a rate of between 1 and 2 percent per year. This means that CWLP's planning must include development of new generating capacity for the future, as well as address replacement of**

its oldest generating units, i.e., Lakeside Units. For this purpose, CWLP projects growth in native demand requirements of 125 MW by 2025, in addition to the 76 MW of capacity needed to replace the Lakeside Units.

5. There are other types of wet scrubber technology, such as bubbling jet reactors and magnesium enhanced limestone, that I believe would achieve greater SO<sub>2</sub> removal than the conventional limestone scrubbing proposed by CWLP.

CWLP's selection of technology for the wet scrubber is not a significant factor in the level of SO<sub>2</sub> control that will be able to be achieved by the scrubber. The efficiency of the scrubber is a consequence of the design of the scrubber and is dictated by applicable regulatory requirements and CWLP's operational goals for the scrubber. In this case, the scrubber will be designed to comply with applicable federal NSPS requirements for SO<sub>2</sub> emissions and to assure that the project results in a net decrease in SO<sub>2</sub> emissions for purposes of PSD. The scrubber will also be designed to meet CWLP's goal of minimizing its SO<sub>2</sub> emissions so that its emissions are covered by its annual allotment of SO<sub>2</sub> allowances.

#### Alternatives to the Project

6. When CWLP discussed alternatives to the project, it mainly focused on coal and only a bit on wind power and IGCC. However, the traditional dirtier method, coal-fired electrical generation, was found to be in Springfield's best interest. Building a unit three times the size of the current unit relies excessively on coal for Springfield's power. A greater emphasis should be made on cleaner renewable energy and energy conservation by consumers.

Because of growth in the demand for electricity and the age of its other generating units, it is not unreasonable for CWLP to build a new unit that is significantly larger than the Lakeside Units that will actually be shut down. However, the Illinois EPA also agrees that a greater emphasis should be placed on alternatives to coal-fired generation. In this regard, the State of Illinois is working to develop a renewable energy portfolio standard to encourage or require more of the electricity consumed in Illinois to be renewable energy. The State of Illinois also supports a variety of programs to promote energy conservation.

7. The choice of coal in Illinois is not in step with the choice of natural gas throughout the nation due to the impacts of subsidies favoring coal plant construction in Illinois. The capital cost of the proposed Dallman 4 includes these subsidies and thus, biases the decision to burn coal.

The decision to use coal to fuel power plants, rather than natural gas, is not unique to Illinois and occurs in many regions of the country. It is not a consequence of subsidies for coal. It is a direct consequence of both higher current cost and greater uncertainty about

the future cost of natural gas, as compared to cost of coal. Moreover, the availability of reliable and affordable electricity, as provided by coal, is an important factor in the high standard of living enjoyed in the United States. Use of coal in power plants in areas where coal is available helps assure an adequate supply of natural gas and oil for heating homes, businesses and the vast majority of industrial plants.

8. Springfield doesn't need the proposed new unit because CWLP has the ability to re-dispatch excess capacity back to Springfield that has traditionally been provided at a loss to non-municipal customers.

This is not correct. First, CWLP has evaluated its alternatives to meet the future demand for power and its other obligations and constraints and has determined that a new generating unit is the most economical solution. Second, while CWLP may at times generate "extra" power that is sold on a wholesale basis to other power companies, this is balanced by the power that it must buy on a wholesale basis when it is "short," due to scheduled maintenance or unexpected outage of units. Third, under the current arrangements for wholesale sale of electricity, power companies do not intentionally sell wholesale power at a loss, because they set the asking price for any extra power they are prepared to sell.

9. The analyses underlying the decision to use coal do not reflect the likelihood that global warming policies will increase the operational costs of coal plants.

While these analyses did not directly address the issue of CO<sub>2</sub> emissions and global warming, these issues were indirectly addressed as thermal efficiency was a consideration during these analyses. As proposed Dallman 4 has a higher thermal efficiency than the existing generating units at the plant, especially the Lakeside units, it will emit less CO<sub>2</sub> per MW-hour of electricity that it generates.

#### Alternatives - Project Size

10. I cannot find data on the per capita utilization of electricity in Springfield or what CWLP predicts is going to happen in the next 20 years. This data should be made available to the public.

**CWLP indicates Springfield consumption of electric power increases steadily at a rate of about 1.5 percent per year. This data is not expressed on a per capita basis because population is only one factor in electricity consumption, which is also affected significantly by commercial, institutional and industrial consumption of electricity.**

11. CWLP has not demonstrated the need for a new 250 MW coal-fired generating unit. The threshold question in considering any prospective new fossil-fuel fired generating unit is why the unit should be constructed at all. From an air pollution perspective it is preferable to rely on improvements in energy efficiency and renewable energy than to construct a new unit. The Illinois EPA must consider these alternatives when reviewing the application for proposed Dallman 4.

From an emissions perspective, it is preferable to both replace existing units and to improve energy efficiency and use of renewable energy. While CWLP could have adequate generating capacity to meet the current demand for power with a smaller project than proposed by CWLP, this does not mean that the residents of Springfield would not benefit from the project. In addition to benefits in terms of lower emissions from a new, cleaner, coal-fired generating unit, Illinois would benefit from a new unit as it would be more efficient than older units at the plant. Looking ahead, even with conservation and efficiency improvements, electricity needs will certainly increase in the future and the proposed project reasonably addresses such growth. Given that a new generating unit takes a number of years to complete, any such discussion must include what generating capacity will be needed years from today.

12. A 400 MW wind-farm power plant is proposed to be constructed east of Bloomington by Horizon Wind Energy. The Illinois EPA should consider this as an alternative to the proposed project.

The Horizon project or other wind power project would not serve as an alternative to the proposed project. Wind power plants can displace other sources of electricity when the wind is blowing. When the wind is not blowing, or is not blowing strongly, those other sources of electricity are still needed to meet the demand for power. Accordingly, wind power plants work to complement other, more traditional sources of electric power.

It must also be noted that the successful development of wind power plants is subject to a variety of hurdles. In addition to acquisition of land and necessary financing, this can also include governmental reviews and approvals to address the impacts of such projects on nearby residents, wildlife, and, most recently, aircraft safety as related to effects of the elevated wind turbines on radar. Accordingly, the announcement of a proposed wind power project does not assure that the project will actually be developed.

13. The Illinois EPA should consider whether additional energy efficiency measures could minimize or even eliminate altogether the need for proposed Dallman 4. Such measures would also reduce other environmental impacts from the proposed unit, such as use of water and wastewater discharges.

The Illinois EPA recognizes the benefits of energy efficient measures in the residential, commercial and industrial sectors, and encourages companies and individuals to pursue projects to reduce energy consumption. However, based upon the information concerning the availability and effects of these alternatives presented in comments and the Illinois EPA's knowledge of such alternatives, the Illinois EPA does not have a legal basis to require that additional energy efficiency measures be implemented as an alternative to the proposed project.

14. The proposed plant is not needed. Slight increases in energy efficiency could easily eliminate any perceived need for this plant. New standards for air conditioning, lighting, and other electrical uses

are a cleaner, far more environmentally and health friendly alternative. These are not even in the equation but they should be.

**Improvements in energy efficiency are "part of the equation." Improvements in energy efficiency were considered by CWLP as they act to lower the rate at which the demand for electricity grows. The possibility of more stringent efficiency standards for new air conditioning, lighting, and other electrical uses, or standards that would require changes to existing buildings and equipment, is not a relevant factor that the Illinois EPA can consider in the permitting of the proposed project. The permitting of the proposed project is governed by state and federal law and is based on whether the application for the project demonstrates that it would comply with established environmental standards and criteria that are applicable to the project.**

15. If the electricity were needed, there are many options that could be used to generate it. Wind, active solar, geothermal, hydro, biomass, fuel cells and other proven technologies can provide electricity without the environmental and health consequences that accompany burning coal.

**At this time, in Illinois, wind power technology is the most promising alternative to the use of coal-fired power plants to generate electricity. In addition, some alternative electricity is already generated with "biomass," with landfill gas to energy facilities. As already explained, for the proposed project, the Illinois EPA does not have a basis to require CWLP to utilize wind power or other alternative power generation technologies.**

16. CWLP has not demonstrated that it needs a 250 MW coal-fired generating unit to supply power for the City of Springfield, as CWLP predicts that it will sell a significant amount of electricity on the open market.

**The sale of surplus power is a separate issue from the need for proposed Dallman 4. As previously explained, CWLP has proposed a project with the capacity to address Springfield's power needs for the next 20 years. This is necessary because it is very expensive to build a number of small generating units. With the proposed project, it is likely that CWLP will have surplus capacity in the initial years after Dallman 4 becomes operational. However, whether CWLP sells surplus power at that time will depend on the cost to generate power from its oldest generating units, Dallman 1 and 2. To the extent that is economically advantageous to sell surplus power, such sales will balance out purchases of power during periods when CWLP is "short" and will subsidize other expenses, such as the capital costs for construction of Dallman 4.**

17. For a proposed major project subject to PSD, Section 165(a)(2) of the Clean Air Act requires the permitting agency to consider alternatives to the project. This is because the Act requires that interested parties be given a reasonable opportunity to comment on four issues: "...the air quality impact of such source; alternatives thereto; control

technology requirements; and other appropriate considerations." In combination with the permitting authority's obligation to respond to all reasonable comments, the permitting agency must consider alternatives "to such source," including alternate sites, when appropriately raised by the public. Why else would Congress require that interested parties have an opportunity to present comments on "alternatives" to the proposed source?

**The Illinois EPA has appropriately considered alternatives to the proposed project. The plain language of the Clean Air Act contemplates a public hearing in which interested parties are provided an opportunity to make oral comments on, among other matters, alternatives to the proposed source. The language does not, as this comment suggests, require a permitting authority to conduct an analysis or otherwise require from an applicant, information regarding alternative sites, locations or project types. The language merely establishes certain parameters for public participation in the PSD permitting process, confirming the right of the public, including individuals who may be interested in developing other projects in an area, to comment on alternatives to a proposed source during the permitting process. While the provision requires that a broad range of public comment be allowed in the permitting process, it cannot be assumed that Congress intended that a wide-ranging analysis of alternatives must be conducted by the permitting authority.**

#### Alternatives - Renewable Energy

18. This proposed project does not include the use of any renewable sources of energy. For instance, unlike coal, wind power produces no emissions and is a renewable resource power. CWLP should have some renewables. The City of Chicago is close to utilizing 8 percent renewables.

**The government of the City of Chicago is to be commended for its purchase of some of the electricity for its buildings and operations from renewable sources. However, the circumstances of the City of Chicago are different from those of CWLP and the proposed project. The City of Chicago does not operate a municipal utility to supply electricity to its residents. CWLP is the municipal utility of Springfield and has proposed a project to address the electrical needs of city residents.**

19. The State of Illinois is CWLP's biggest customer. The State of Illinois is striving to have an 8 percent renewable energy standard in Illinois, requiring at least 8 percent of all electricity to come from renewable sources. The State of Illinois cannot buy renewable wind energy for its facilities in Springfield because CWLP does not have wind energy.

**CWLP cannot provide wind generated electric power to the State of Illinois because there are not currently wind power plants from which CWLP can buy such power at the wholesale level, so as to then be able to provide such power to the State of Illinois, as well as other customers. For a variety of reasons, wind power plants are normally**

developed as commercial ventures by companies that specialize in such projects, with electricity then being sold to other companies or entities for distribution. In the case of CWLP, CWLP does not currently own or control the amount of land that is needed to develop a utility-scale wind farm. In addition, the areas in Illinois that are best suited to development of wind farms are not located in Sangamon County. However, if CWLP were able to obtain access to wind power, it would be reasonable that the State of Illinois would take advantage of that opportunity, given the State's goal of establishing a renewable energy standard of 8 percent.

20. Renewable power sources, like wind, solar power, geothermal and hydroelectric power, should be used to produce 10 to 20 percent of electricity. While not everything is practical in central Illinois, given its geology and topography, there needs to be vision for the future.

The broad objective of the State of Illinois is to begin generating a significant amount of Illinois's electricity from renewable resources. However, this objective is not achievable at the present time. In addition, this objective is not a basis for the Illinois EPA to refuse to issue a permit for CWLP's present proposal, which responds to its current circumstances and needs.

21. A study of the potential of wind power by the Environmental Law and Policy Center indicates that if all the wind resources in the upper Midwest states were developed, it could provide 25 percent of the entire U.S. energy needs.

The statistic cited by this comment assumes that the wind resources of the entire upper Midwest would be aggressively developed, along with construction of new interstate power lines to carry power from the rural areas where power would be generated to the urban areas where most power is consumed. For Illinois, given the nature of its wind resources, the Environmental Law and Policy Center suggests that aggressive development of wind power within state boundaries could supply no more than about 10 percent of the electricity consumed on an annual basis.

22. We need alternatives to energy from fossil fuels that are eventually going to run out. Neither coal nor oil will last forever. Energy production should be based on sustainable resources such as the sun or wind rather than resources that will run out in the next 50 years. We should look to the future and build something a bit more permanent.

While alternatives to fossil fuels, whose supply is finite, are needed on a national and international basis, this does not mean that CWLP should not pursue the proposed project to meet the present needs of the City of Springfield.

23. A wind farm with a capacity of 400 MW is proposed nearby, in the Bloomington area, aiming for startup in 2007. This is good opportunity for CWLP and the residents of Springfield to invest in a cleaner source of electricity. While not all of the electricity needs of Springfield

can be met with wind power, not all of the electricity has to come from coal.

**The Illinois EPA agrees that the proposed Horizon wind farm, which would be spread out on over 2,000 acres of land near Bloomington, is an important opportunity to develop wind power in Illinois. This is particularly true for Central Illinois because the proposed project is located an area grid that is administered by MISO (Midwest Independent System Operator), which also administers distribution of electricity to and from CWLP. Accordingly, the Illinois EPA is carefully watching reports on the progress of that proposed project as it undergoes the various approval processes that are necessary before it can actually proceed.**

24. CWLP would benefit from the use of solar power. CWLP should consider the cost of installing solar panels on its customers' homes while retaining ownership of the power. Customers' rates would likely go down by 35 percent while CWLP might earn 125 percent or more of its previous revenue. While the up-front costs to construct a 250 MW power plant are dramatically lower than the costs associated with the installation of solar panels sufficient to generate 250 MW (i.e., about one-tenth of the cost), the fuel costs are minimal for the solar panels as compared to the power station.

**As confirmed by this comment, for a city like Springfield, residential solar panels are not yet an economical alternative to a central fossil fuel-fired power plant. This is because of the dramatic difference in capital costs, which the subsequent savings in fuel costs with solar panels can never make up.**

25. Some of the alternative technologies suggested by other commenters at the public hearing are not commercially proven or would be very expensive. Due to the recent increases in the cost of natural gas and gasoline, many people in Springfield cannot afford to risk higher prices for their electricity as a result of investing in those sorts of alternative technologies.

**Certainty, or reliability, and cost are obviously relevant considerations when one is identifying the types of alternative technologies and projects than one should pursue.**

26. Renewable energy resources are not a realistic alternative to the proposed project. While this project has been in the works since 2000, there has been no realistic alternative proposed. CWLP has proposed a solution that will employ the best available technology and reduce emissions. Moreover, even if this project is built, it does not mean that that it has to be operated at 100 percent. As renewable energy sources become available in the future, the operation of the new unit and other existing units can be scaled back.

**While renewable energy resources may not be a realistic alternative to the proposed project, some renewable energy resources are currently available to generate electricity, and they will become increasingly**

available in the future. In this regard, the State of Illinois is seeking to develop a "Renewable Portfolio Standard," which would encourage or require electric utilities in Illinois to produce or buy more electricity from renewable sources, such as wind, solar and biomass. However, as noted by this comment, the proposed project is not inconsistent with those efforts, especially as they would allow the operation of CWLP's existing coal-fired generating units to be scaled back.

#### Alternatives - Energy Conservation

27. We should consider clean energy sources such as improved energy efficiency. According to studies by the Midwest Energy Efficiency Alliance, an energy efficiency program can cut energy needs by as much as 13 percent.

**The actions identified by the Midwest Energy Efficiency Alliance that can achieve substantial reductions in current electricity usage entail substantial investments by homeowners to replace existing air conditioning systems with higher efficiency systems, install high efficiency heat pumps or geothermal systems to replace current heating/cooling systems, and/or replace existing windows with high-efficiency windows. As a result, these are actions that CWLP can encourage and facilitate through its various energy efficiency rebate programs but that CWLP cannot impose upon homeowners, as would be required to obtain the reduction in electricity consumption cited in this comment.**

28. Many communities have found that energy efficiency measures, such as better building codes that require better insulation of homes and buildings and energy efficient lighting, for public uses and for residential and commercial building, can reduce electrical demand by 10 percent.

**The Illinois EPA recognizes the benefits of energy efficient measures in the residential, commercial and industrial sectors, and encourages companies to pursue such projects. However, based on the potential effectiveness of such measures indicated by this comment, such measures would not affect the need for proposed Dallman 4.**

29. Many communities have renewable energy standards requiring 20 percent of their electricity to come from renewable energy, which is nonpolluting for the most part. This sounds like a good solution.

**Certain communities have established targets for the purchase of electric power in the future. The ability of these communities to actually meet these targets will depend upon whether the market place develops the new facilities required to supply such power at prices that the community is able to afford.**

30. CWLP is very effective at producing clean electricity and selling it at a good rate. However, CWLP is not a company, but a branch of city government. As such, its responsibility is to reduce the price that

city residents pay for power, as well as to produce energy efficiently. Whether energy efficiency could meet some of these needs does not seem to have been addressed.

**Unlike a commercial power company, CWLP is directly responsible to the customers that it serves. As a result, energy conservation is an integral part of its activities because improvements in energy efficiency by individual customers reduce the overall cost of electricity for Springfield residents. In addition, to the environmental benefits of improved energy efficiency, energy efficiency has direct economic benefits, as it extends the life of existing generating units and reduces the size and capital investment needed for new units.**

31. CWLP, as a municipality, should be on the cutting edge of employing energy efficiency.

**CWLP does not have the ability to be on the cutting edge of efforts to improve energy efficiency. In addition to the legal restraints on the scope of its energy conservation programs, CWLP's ability to implement energy efficiency programs is constrained by the willingness of the residents of Springfield to support and accept such programs.**

32. Why can't Springfield have more efficient street lighting to help it meet electricity needs?

**CWLP has made and continues to make improvements in street and traffic lights to reduce electricity consumption.**

33. The State of Illinois has a plant that provides steam for state buildings. There should be "cogeneration" with the State of Illinois.

**The steam plant for the state capitol complex is not of a size or design that makes it amenable to conversion for cogeneration of electricity.**

34. Construction of an IGCC plant or a wind farm would also create jobs. In addition, more jobs would be provided in Springfield by retrofitting houses for energy efficiency than by mining coal for proposed Dallman 4.

**The comparative economic benefits of different alternatives to a project, in the terms addressed by this comment, are not a matter that the Illinois EPA can consider during the review of the proposed project.**

35. In other States, such as Wisconsin and California, power companies have to show that conservation measures will not meet the need for electricity. In Illinois, this is not required. That may be acceptable for a private utility but here we have part of the city government glossing over what efficiency can do. CWLP has an office that does some of those activities but not anywhere near what could be done. Why is that not part of the evaluation for what CWLP, part of the City of Springfield, is doing for its residents?

Since the proposed project is being undertaken by CWLP, a municipal utility, the review sought by this commenter is inherent in the supervision of CWLP's activities by the Springfield City Council, the elected representatives of the residents of Springfield. An obvious issue that the City Council had to address for the proposed project was whether there were other feasible alternatives to the project, including improved conservation measures.

The review of power generation projects that is conducted by public service commissions in other states is linked to the role of those commissions in providing certain benefits to such projects, typically a guaranteed return on their investment. With the deregulation of the generation of electric power in Illinois, this approval process is no longer required in Illinois. This is because the generators of public power are not guaranteed a return on their investment but compete on the open market like other companies that sell a product.

36. An obvious alternative to proposed Dallman 4 would be for CWLP to restructure its retail rates in a manner that created greater incentives for the investment in energy efficiency rather than to invest in a new generating unit. For instance, CWLP could establish a usage threshold below which electricity would be free, or nearly so. Above this usage threshold, rates would be higher. Another option would be to subsidize investments in energy-efficiency equipment or providing low-interest loans to target certain investments that are more environmentally friendly.

CWLP has chosen to facilitate energy conservation through a variety of programs administered by its Energy Conservation Office. Consumer investment in energy efficiency equipment is subsidized through a system of rebates. As a matter of policy, CWLP has decided that this is currently the most effective way for it to encourage investment in energy efficiency. Changes in the rate structure would not directly relate to actions taken by consumers to improve energy efficiency and could have other undesirable effects on the economy of Springfield and the welfare of its residents. Loan programs would require greater initial outlay of funds and would be more difficult to administer than the current rebate programs.

#### Alternatives - Coal Gasification

37. Coal-fired power plants for the most part are not clean. The residents of Springfield and CWLP can do better using IGCC technology, the cleanest available "state of the art coal" technology, which has a lot less emissions from burning the coal. CWLP can be an example, a leader for a cleaner energy future for Illinois but not with a new coal-fired unit employing older technology.

When CWLP initially evaluated different alternatives to meet Springfield's future electricity needs, CWLP considered IGCC technology. It found that IGCC technology would not be a cost-effective choice for new electrical generating capacity for

Springfield. One of the major difficulties with IGCC technology was that CWLP would not be able to develop and operate its own generating capacity, but would have to participate in a venture with a private company for a share of the electrical output of an IGCC plant that would be much larger than needed to meet CWLP's power requirements. As a result, issues such as project timing, final project cost, and the ability to actually receive power in Springfield over the transmission network would largely be outside the ability of CWLP to direct and control.

38. CWLP's analysis of Best Available Control Technology (BACT) does not reflect BACT because it failed to consider Integrated Gasification Combined Cycle (IGCC) technology, which would have lowered the emissions and reduced the air quality impacts of the proposed project. If the Illinois EPA had appropriately evaluated IGCC in the BACT analysis, the emission rates for PM, CO and sulfuric acid mist would have been 50 percent lower.

CWLP appropriately considered IGCC technology as a control technology alternative in its BACT evaluation for the proposed project. The Illinois EPA also considered IGCC technology as part of its evaluation of BACT for the proposed project. The claims that IGCC technology is an available alternative for the proposed project do not survive close scrutiny. In addition to the challenges that must generally be overcome for the use of IGCC technology, use of IGCC technology would pose additional challenges for the proposed project, due to its relatively small size and location at the existing CWLP plant. Accordingly, it is not appropriate for the permit for this project to require use of IGCC technology.

39. The USEPA recognizes IGCC technology as an "inherently low-polluting process/practice" for generating electricity, as indicated in various presentations given by USEPA personnel. IGCC is a "clean fuel" option because it will inherently have only trace SO<sub>2</sub> emissions as over 99 percent of the sulfur present in the coal is removed by the fuel gas cleanup system. IGCC is also an "innovative fuel combustion technique" within the definition of BACT. Consistent therewith, the Illinois EPA has determined that IGCC must be considered in the BACT analysis for a coal-fired power plant. Contrary to prevalent misconceptions, considering cleaner production processes does not "redefine" the source. In fact, a pulverized coal plant and an IGCC plant are the same process: both create electricity from coal. Under BACT, CWLP must identify all available control technologies, including the most stringent, and must provide adequate justification for dismissing any of the technologies.

The position of USEPA on IGCC technology is more complex than described in this comment. While clearly supportive of the development of IGCC technology, USEPA does not support using the BACT requirement of the PSD program as a means to foster development of IGCC technology. USEPA has officially gone "on record" stating that IGCC Technology does not need to be considered as part of the BACT evaluation for a proposed coal-fired generating unit (Letter from Stephen Page, Director, Office of Air Quality Planning and Standards, USEPA, to Paul Plath, Senior Partner, E3 Consulting LLC, regarding Best Available Control Technology

Requirements for Proposed Coal-Fired Power Plant Projects, dated December 13, 2005.) Accordingly, the consideration of IGCC technology that CWLP and the Illinois EPA provided as part of the BACT evaluation for the proposed project goes beyond current requirements of the federal PSD program as administered by USEPA. Accordingly, as this comment suggests that at this time IGCC technology should, as a matter of law or policy, generally be required to be considered as part of a BACT determination for any proposed coal-fired generating unit, the comment should be directed to USEPA.

At the same time, USEPA has also gone on record that it "...considers integrated gasification combined cycle (IGCC) as one of the most promising technologies in reducing environmental consequences of generating electricity from coal. EPA has undertaken several initiatives to facilitate and incentivize development and deployment of this technology." USEPA, *Final Report: Environmental Footprints and Costs of Coal-Based Integrated Gasification Combined Cycle and Pulverized Coal Technologies*, EPA-430/R-006, July 2006.

However, as also confirmed by USEPA in this report:

Development and implementation of IGCC technology is relatively immature compared with the pulverized coal technology that has hundreds or thousand of units in operation globally. While there are a number of gasification units installed at petroleum and chemical plants, there are only a few installations using coal to make electric power. Most of these IGCC installations were installed with government subsidies and have experienced technical and commercial problems common to startup of new technologies. While many of the problems with the operability and maintainability have been mitigated, successful application of IGCC technology at commercial installations is needed to address any remaining concerns. Page ES-1

Cost and availability are issues of uncertainty for IGCC technology. Even given higher thermal efficiency and lower emissions, the cost and availability differences between IGCC and pulverized coal plants continue to be a major hurdle to commercial applications. Page ES-5

40. Gasification technologies represent a large number of the new coal proposals in the Midwest to produce electricity, methane fertilizer, and low-sulfur diesel fuel from coal. These include American Electric Power's 600 MW plant scheduled to be operational in 2010; Cinergy's proposed 600 MW plant near Edwardsport, Indiana; Southern Illinois Energy Complex's proposed 640 MW plant; ERORA's proposed 630 MW plants in Illinois and Kentucky; and Excelsior Energy's proposed 600 MW plant in Hoyt Lake Minnesota. Other gasification projects include Power Holdings and Peabody in Illinois that would each make substitute natural gas; Rentech in Illinois that would make ammonia fertilizer; and Beard Energy in Ohio that would produce diesel fuel. While not all of the IGCC projects cited in previous comments produce electricity from coal, the projects illustrate the widespread commercial application of coal gasification technology. The second component of

an IGCC facility is a combined cycle electric generating system; this is now common for new natural gas fired power plants.

The existence of various proposals for IGCC power plants does not demonstrate that IGCC technology is available for the proposed project nor that IGCC technology is generally available. When a new technology is being developed and promoted, like use of IGCC technology for generation of electricity, they are "special" or "exceptional" projects, which due to their particular circumstances propose to use the new technology. For IGCC, the most obvious examples of such projects are the historic IGCC projects supported by funding from the the United States Department of Energy (USDOE), i.e., the Wabash River, Tampa Electric/Polk , and Pinon Pines projects. Because of their special circumstances, these projects do not demonstrate that IGCC technology is generally appropriate and, indeed, one purpose of these USDOE projects was to further develop IGCC technology so that it would be available for privately financed projects.

The other power plant projects pointed to by this comment must also be considered special projects. They are being pursued by companies that have voluntarily decided to pursue a project that would use IGCC technology and that are willing to face the technical and commercial challenges that are posed by that decision. In addition, the fact that an application has been submitted does not demonstrate that a proposed project will be built. The Illinois EPA has received applications for proposed coal-fired power projects involving boilers that have not been pursued to permit issuance by the applicant. Moreover, the issuance of a permit does not demonstrate that a proposed project will be built, especially as financial arrangements for such projects usually are not finalized until after the construction permit is issued. For example, Duke Energy (formerly Cinergy/PSI) indicates that its final decision to build its "proposed" Edwardsport IGCC plant is currently not scheduled to occur until the third quarter of 2007. Lastly, the construction of a project may not show that the technology actually performs as designed or hoped, as shown by the failure of the USDOE financed Pinon Pines IGCC project.

The existence of proposals for gasification plants or actual gasification plants for the production of materials other than electricity has no relevance to the availability of IGCC technology for the proposed project.

41. IGCC is an established technology that is already "available" for commercial power production applications and at a competitive cost. Two full scale commercial IGCC generating units are in operation in the United States: Cinergy, Wabash River, Indiana, 192 MW, and Tampa Electric, Polk, Florida, 262 MW.

The plants cited in these comments were demonstrations projects that were heavily subsidized by the Department of Energy. While they address the technical feasibility of IGCC technology, they do not demonstrate its commercial availability.

42. IGCC plants constructed with multiple gasifiers can achieve the same reliability levels as conventional base load coal-fired boiler power plants.

Whether IGCC power plants with multiple or spare gasifiers can achieve the same level of availability as coal-fired boilers is a matter of opinion. Certainly, the inclusion of multiple units and gasifiers in an IGCC plant acts to improve plant availability, as other units may still be available while one unit is out of service. Construction of a spare gasifier would also act to improve availability. However, this improved availability would be accompanied by the additional expense for the spare gasifier. Neither of these options are practical for the proposed project, which is barely large enough for a single gasification/IGCC train.

43. IGCC is available from major well-known vendors such as GE, Shell, and ConocoPhillips.

While IGCC technology is available from major, well-known vendors, this does not show that IGCC technology should be required for the proposed project. Indeed, there are only a handful of such companies working to develop IGCC technology, each working with its own proprietary gasification process.

44. Both CWLP and the Illinois EPA claim that the existing plant cannot support the necessary infrastructure required for an IGCC unit. Appendix B of the application includes a plot plan for the Dallman 4 expansion which shows that the expansion encompasses approximately 12 acres. The Dallman site could easily accommodate an IGCC plant up to 262 MW as the Wabash IGCC plant, a repowered pulverized coal plant, currently sits on approximately 20 acres. However, the actual gasification plant, combustion turbine, flare, clean-up systems and cooling towers actually sit on approximately 12 acres. As such, there is no basis to eliminate IGCC technology for the proposed project based on site constraints.

The issue posed by the CWLP plant site is not just the footprint of the equipment but the size and nature of the available site for development of an IGCC generating unit. This is because these affect the complexity and expense of construction, operation and maintenance of an IGCC unit and provide a buffer from other operations at the site and from neighboring land uses. Accordingly, the companies that are pursuing development of new IGCC plants generally start with sites that are much larger than the actual footprint of the IGCC facilities. A review of the Wabash River IGCC plant also shows a substantial buffer space around the IGCC plant, which, for the most part, is completely separated from the coal-fired generating units at the site. In contrast, the CWLP site is already congested with two existing coal-fired generating facilities (Lakeside and Dallman) and a water treatment plant.

It should also be recognized that the nature of the existing CWLP power plant site was a very minor factor in the Illinois EPA's determination that IGCC technology could not be required for the proposed project. In addition, it is a factor that certainly would not be relevant for a

proposed new "green field" power plant, instead of a project at an existing plant that would serve to replace existing generating capacity.

45. CWLP claims that the current state of IGCC technology does not offer a proven record of reliability; CWLP requires a technology with a high availability record to avoid the need to purchase replacement power on the open market during those periods when IGCC units are unavailable. IGCC plants can provide the requisite availabilities sought by CWLP. For instance, the three IGCC plants operating at Italian refineries have capability factors of 90 to 94 percent. Notably, the gasifier and all the key downstream equipment is exactly the same at these Italian plants and at the proposed Dallman site if CWLP elected to utilize GE technology. Moreover, all of the major IGCC equipment vendors in the United States are offering coal-based IGCC systems with 90 percent and greater availabilities. While Wabash and Polk's availability does not exceed 85 percent, these are older units. Thus, availability cannot be used as a basis for eliminating IGCC technology.

The uncertainty of availability of an IGCC generating unit is a recognized issue for use of IGCC technology. As reported by USEPA in *Final Report: Environmental Footprints and Costs of Coal-Based Integrated Gasification Combined Cycle and Pulverized Coal Technologies*, the availability of existing single gasifier train IGCC plants has been below the design availability target of 85 percent. It is expected that new plants with spare gasifiers will be able to meet this target. However, even then, this level of availability is below the availability of power plant boiler technology, for which demonstrated availability exceeds 90 percent.

Accordingly, availability is a key issue for development of IGCC technology, as it affects the capital cost of a plant, because of the expense for a spare gasifier, and the subsequent revenue stream that will be available to cover that cost, which is both reduced and made less certain. This affects the willingness of investors to invest in IGCC technology and the rate of return that will demand for such an investment. In this regard, it is more appropriate to evaluate availability of a generating unit in terms of "unavailability." As explained above, the unavailability of the existing coal-fired IGCC plants, the only types of plants that are relevant for this discussion, is greater than 15 percent. The unavailability of conventional plants is less than 10 percent. Thus, with an IGCC plant one may have to obtain alternative power 50 percent significantly more of the time than with a conventional plant. The IGCC plant also has 5 percent less revenue to cover its capital and operating costs. This magnifies the effect of the higher capital cost of the IGCC plant, when expressed in \$/MW of capacity. Moreover, the actual effect of this difference is made uncertain as the value or cost of electricity at the generation or wholesale level varies depending upon the demand for power. If a unit is unavailable during periods of high demand, the price for alternative power is much higher than during periods when the demand is low. Accordingly, high availability of a generating unit is important to be able to minimize the possible expense to obtain alternative electrical power when the unit is not available.

46. CWLP claims that "IGCC plant load following capabilities do not support the forecasted CWLP generation requirements." While CWLP did not indicate their future forecasted generation requirements, its current coal system has capacity factors of approximately 50 percent suggesting that the system turns down significantly at night and on weekends. IGCC plants are capable of meeting this type of load following scenario as illustrated by the Negishi and the Nippon IGCC plants in Japan. Moreover, an IGCC plant can co-produce chemicals, which is not possible with a conventional coal-fired plant. For instance, during periods when electricity is in demand, the gasifier feeds syngas to the power block and produces electricity. During off-peak hours, the syngas can be directed to a chemical production unit to produce substitute natural gas, low-sulfur diesel, or methanol, thereby keeping the cost of electricity low.

Capacity factors are not the same as the variation in electrical demand over the course of a day, which is addressed by the load following capabilities of a generating unit. Given the nature of an IGCC plant, with multiple "sub-units" that must operate together in an integrated manner to generate electricity, IGCC plants cannot respond to changes in the demand for electricity as easily as boilers. In addition, coal gasification is a chemical process, so it is desirable to operate gasification technology under steady-state conditions and the technology is less tolerant of changing loads than boiler technology. Accordingly, alternative arrangements for disposition of fuel gas during periods when electrical power is not needed (or operation to produce electricity only during periods when electrical demand is high) are often considered as part of development of a plant with IGCC technology, as observed by this comment. However, CWLP is not a commercial company and it is unlikely that the City of Springfield will support development of a combined power plant/chemical facility by CWLP, as suggested by this comment.

47. IGCC technology was improperly evaluated economically. The Illinois EPA has improperly concluded, separate from other aspects of IGCC technology, that in any case financing would not be available from private lenders for an IGCC-based project so that the project could be financed. However, this conclusion ignores new types of financing arrangements, like "limited recourse financing."

The availability of limited recourse financing for IGCC projects in Europe, does not demonstrate that coal-based IGCC projects in the United States can be privately financed. First, it addresses a different type of IGCC plant, i.e., IGCC plants using heavy petroleum materials as feedstocks, with backup diesel fuel for the turbines. Second, it addresses project financing relative to the circumstances present in Europe. Finally, the information does confirm that project risk is a critical factor in successfully obtaining financing for a project using IGCC technology.

IGCC is commonly recognized as having a capital cost that is at least 20 percent higher than that of pulverized coal boilers. This situation is compounded by doubts about reliability of performance due to the limited and checkered track record of IGCC pilot projects, which make recovery of investment uncertain in the absence of governmental

guarantees or subsidies. While efforts are underway to address these obstacles to IGCC technology, these efforts have not yet moved on to concrete solutions to these obstacles. For examples of these efforts, refer to *An Analysis of the Institutional Challenges to Commercialization and Deployment of IGCC Technology in the U.S. Electric Industry*, DOE/NARUC Partnership for Advanced Clean Coal Technology, March 2004, and *Deploying IGCC in the Decade with 3Party Covenant Financing*, William Rosenberg et al, July 2004.

This comment does highlight a key issue for the commercial use of IGCC technology for power generation. This is the development of forms for financing, supported by appropriate regulations, that allow the risks associated with IGCC technology to be shared and managed. In addition to the technical aspects of IGCC technology, USDOE and others are concerned about developing an understanding of these financial obstacles and overcoming them. Otherwise, the real or perceived risk from use of IGCC technology is generally too large for main-stream investors.

48. The Illinois EPA and CWLP claim that the capital cost of an IGCC plant is higher than pulverized coal. However, at the 200 MW size proposed by CWLP, a conventional coal project has diseconomies of scale, e.g., as measured on a dollar per kW of installed capacity, the Dallman 4 project is one of the most expensive in the nation. An IGCC plant at the Dallman 4 site would be less expensive to build. A recent article from Gas Turbine World suggests that IGCC plants are "conservatively" estimated to cost about \$1500/kW. This cost would increase to approximately \$2,000/kw with the inclusion of owner's costs and other fees. As the diseconomies of scale at a 200 MW plant are more pronounced with pulverized coal boiler technology than IGCC technology, the IGCC plant could be built by as much as \$350 per kW cheaper than a conventional pulverized coal boiler plant.

This is not correct. The "diseconomies of scale" that are applicable to the proposed project because of its relatively small size would also exist if IGCC were used. As the capital costs of IGCC technology are greater than those of boiler technology, the small size of the proposed Dallman 4 project would act to increase the difference in costs between IGCC and boiler technology, not reduce the difference in costs. As noted in other comments, companies that are working to develop IGCC power plants are proposing plants with multiple gasification trains and generating units, with capacities that are in the range of 600 MW, over twice the size of the proposed project.

49. While IGCC plants have higher fixed operational and maintenance costs, these are offset by the greater efficiency of IGCC plants and thus, lower fuel costs.

**The higher efficiency of an IGCC plant is not sufficient to offset the higher costs of an IGCC plant, as noted in this comment.**

50. Due to the better heat rate or energy efficiency of an IGCC unit, less coal would have to be mined in comparison to conventional coal-fired generating unit.

**This is also another benefit of improved energy efficiency, as achieved by IGCC technology and, to a lesser extent, by replacing old generating units with new generating units.**

51. Because it is more energy efficient, a plant using IGCC technology would also emit significantly less carbon dioxide (CO<sub>2</sub>) than a plant using pulverized coal boiler technology, as proposed. Moreover, IGCC can achieve even further reductions in CO<sub>2</sub> as it can be captured in the syngas and sequestered at a fraction of the cost of conventional coal plants.

**Lower CO<sub>2</sub> emissions are one of the benefits hoped for with IGCC technology, due to the improvements in energy efficiency and potential for sequestration of CO<sub>2</sub>. However, significantly lower CO<sub>2</sub> emissions have only been achieved with certain IGCC technology using a solid coal feed, rather than a coal slurry. Sequestration is a further refinement on top of IGCC technology that is still being developed with support by USDOE. It is important to remember that at this time CO<sub>2</sub> is not a regulated pollutant. Applicable standards or requirements have yet to be enacted for CO<sub>2</sub>.**

52. Proposed Dallman 4 is not needed. Slight increases in efficiency of electrical generation as provided by new technologies like IGCC would easily eliminate any perceived need for the proposed unit.

**IGCC would not eliminate the need for new power plants, it would only change the type of technology used at those plants. In addition, the Illinois EPA has considered whether the proposed plant should use gasification technology (Integrated Gasification Combined Cycle or IGCC) and has required CWLP to conduct a detailed evaluation of the feasibility of using this technology. The Illinois EPA concluded that coal gasification is still a developing technology for power generation. As a result, the uncertainty about the performance and cost of this technology would prevent the plant from being developed with gasification technology. Given these findings, the Illinois EPA does not have the necessary technical basis to require CWLP to use coal gasification technology at the proposed plant.**

53. IGCC achieves significantly lower emission rates than those of pulverized coal boilers, as shown by the emissions of recently permitted IGCC plants, which have lower emission rates than those proposed by CWLP.

**Significantly lower emission rates are certainly the promise of IGCC technology. However, improvements are also occurring in the emissions control technology for boiler-based power plants, as shown with the proposed project. Moreover, as already explained, emissions performance is only one aspect of the evaluation of a candidate control technology for use as BACT.**

54. The waste leaving an IGCC plant is vitrified, thus reducing some of the issues associated with disposal of coal combustion waste. In addition, IGCC power plants produce approximately 30 to 50 percent less solid waste than pulverized coal boiler power plants.

**This is another environmental and economic benefit that is provided by IGCC technology. However, the magnitude of this benefit is not sufficient to justify requiring use of IGCC technology for the proposed project.**

55. IGCC technology should be seriously considered for the project now that the impacts of greenhouse gases are better understood and there is a very high likelihood that regulations addressing CO<sub>2</sub> emissions will be adopted in the near future. Some utility companies already factor future CO<sub>2</sub> regulation into their plans. The prospect of future regulatory costs must be considered to determine the full costs of the options for minimizing emissions of currently regulated pollutants.

**The Illinois EPA agrees with the spirit of this comment and encourages all electrical generating companies to consider future regulations for CO<sub>2</sub> in their planning.**

56. The control technology being proposed for this plant is not BACT when better technology for power generation, such as IGCC technology, could be used.

**For purposes of BACT, a permitting authority does not have the legal authority to require that an applicant for a proposed project use a technology that is still being developed and perfected, if doing so would mean that the proposed project or similar projects at other locations could not be built.**

#### Alternatives - General Comments

57. CWLP has put together a project that will utilize the latest technology to make new Dallman 4 as clean as possible, replacing the two obsolete Lakeside units, and ensuring the residents of Springfield will have some of the lowest electric rates in the State. In so doing, CWLP has maintained control of the City of Springfield's electricity needs. I urge the Illinois EPA to expeditiously approve this permit so that this new unit can be built and the dirty Lakeside units can be shut down.

**The Illinois EPA agrees with this assessment of the proposed project made in this comment as related to its implications for emissions. The consequences of the project for CWLP, as related to its continued control over Springfield's electrical power supply and the cost of electricity, are not matters that are relevant to the Illinois EPA's review of the application for the proposed project.**

58. CWLP's assumptions regarding future costs do not consider the changes in the electricity generating business. CWLP assumes that the low cost of capital typically afforded to municipalities in the past will continue to allow it to compete against the deregulated generating companies. No evidence has been presented that the economic efficiency advantages achieved by the deregulated generating industry will not out compete the capital subsidy typically provided to CWLP and its ensuing competitive advantage. The City could use this low-cost capital to invest in energy efficiency.

The deregulation of the power generation industry does not appear to be having the effects suggested by this comment. While the commercial power industry is more competitive, this competition appears to have allowed lower rate increases than would have been needed without deregulation. It has not resulted in a reduction in the cost of generating electricity. In any event, CWLP has evaluated the economic and practical advantages and disadvantages of maintaining its own generating capacity, as compared to meeting future electrical demand by buying power on a commercial basis. This conclusion was that it will be less costly for Springfield if CWLP proceeds to develop a new generating unit.

59. While Springfield residents currently have low utility rates, if this project moves forward, electric rates will increase by 34 percent.

Increases in Springfield's electric rates are inevitable, even without the proposed project, due to new requirements for control of emissions, the aging of CWLP's existing generating units, the continued growth of Springfield and electric demand, increases in the price of natural gas and petroleum, etc. However, CWLP expects that its electric rates will still be low when compared with those of other surrounding electric utilities, which are also projecting increases in electric rates for similar reasons.

60. An improved rate structure would more accurately reflect the cost and value of peak and off-peak period electric power and could be implemented by CWLP utilizing its new Customer Information System combined with meter upgrades. CWLP could address power demand growth through an improved electric rate structure that provides incentive for off-peak use and support programs that reduce peak demand.

This is correct and the Illinois EPA expects that CWLP will initiate a time-based meter program when and as it becomes effective to do so. However, time-based metering is not a meaningful alternative to the proposed project. This is because time-based metering does not directly reduce the amount of electricity that is consumed; it only affects when electricity is consumed. As such, time-based metering is a means to manage generating unit capacity and delay the need to install additional capacity to address peak electrical demand.

61. Electric restructuring nationwide has brought unprecedented price volatility to wholesale power markets. Experience shows that having surplus capacity during peak periods is far more prudent than being caught short.

**This is correct.**

62. The way electricity is dispatched now with deregulation of electrical generation, there is no guarantee that a municipal utility like CWLP will be able to buy economically through the marketplace when the needs are high and a generating unit breaks down or is out of service for maintenance. It happened in California a few years ago. It could happen here.

Actions were taken following the California energy crisis that should prevent similar energy crises, especially in Illinois, which has ample peak generating capacity. The challenge facing CWLP is how to best manage the cost of electricity for Springfield residents, while also meeting new requirements for control of emissions that apply to the existing plant.

63. The expected life span of the proposed generating unit is approximately 50 years. Consideration should be given to whether the proposed unit will remain in compliance with applicable regulations or be subject to expensive retrofits.

The lifespan of emission units is generally considered as part of the overall approach to regulations for new units to minimize the likelihood that a unit will need to be upgraded or replaced to meet new regulatory requirements. The emission standards for new units are more stringent than those for existing units, broadly reflecting the levels of emissions that are achievable at the time a new unit is built. Similarly, individuals proposing new major units routinely seek to install control systems that will not become inadequate or obsolete because they fail to meet future regulatory requirements. This leads many sources to install controls systems that surpass current control requirements as it is feasible and affordable to do so.

This is the situation for proposed Dallman 4. Because the project is subject to PSD for emissions of PM and sulfuric acid mist, the boiler must be equipped with control systems to very effectively control these pollutants. In addition, for SO<sub>2</sub> and NO<sub>x</sub>, which are not subject to PSD, CWLP will still be using very effective control systems to be able to minimize emissions of these pollutants.

64. Why does the Illinois EPA not encourage power companies to look into alternative energy rather than coal? Is there some form that power companies have to submit showing that they have looked into these alternative energy sources before they can submit an application for this proposal.

During the permitting process for a proposed project, the Illinois EPA's function is to determine whether the project meets the criteria for issuance of a permit, which are set by applicable laws and regulations. For power companies, these laws currently do not allow the Illinois EPA to require that a company has looked at alternative sources of electricity before submitting an application for a proposed project.

The efforts undertaken by the State of Illinois to support renewable energy and energy efficiency are shared among a number of agencies. The Department of Commerce and Economic Opportunity takes the lead role in these activities, including administering state grant programs for energy efficiency projects and development of wind power plants.

65. Other new coal-fired units have limits for filterable PM that are lower than those contained in the draft permit at 0.015 lbs/million Btu. For instance, Trimble Power in Kentucky and WyGen 2 in Wyoming are set at 0.012 lbs/million Btu and Inter-Mountain Power has a filterable PM limit of 0.013 lbs/million Btu.

In the issued permit, the Illinois EPA has set the BACT limit for filterable PM for proposed Dallman 4 at 0.012 lb/million, rather than 0.015 lb/million Btu as contained in the draft permit. This is a result of further review of the limits set for other new coal-fired generating units, notably the permit recently issued in 2005 to Newmont Nevada Energy's "TS Power Plant." That project involves a boiler, which is similar in type, pulverized coal boiler, and size, 200 MW, to proposed Dallman 4, so that the limit set for that project should also be applicable to Dallman 4.

66. The draft permit would set BACT limits for proposed Dallman 4 for total PM and filterable PM at 0.035 and 0.015 lb/million Btu, respectively. A lower limit, as low as 0.018 lb/million Btu, may be set for total PM based upon an operational evaluation as provided for in Condition 2.1.15. Lower filterable PM limits may be achieved with a baghouse. For instance, the following plants have lower limits: Newmont Nevada (PM10 at 0.012 lb/million Btu on a 1-hour block); Indeck-Elwood (PM total at 0.015 lb/million Btu on a 3-hour block); Longview Power (PM total 0.018 lb million Btu on a 6 hour rolling average); Intermountain Power - Unit 3 (PM filterable at 0.0130 lb/million Btu); Wygen 2 (PM filterable at 0.012 lb/million Btu); and Trimble County Unit 2 (PM filterable and condensable at 0.018 lb/million Btu).

The collection of projects and limits assembled in this comment provide mixed support for any change to the limit for filterable PM in the draft permit. The Illinois EPA's understanding is that the permit for Longview sets a limit for filterable particulate at 0.018 lb/million Btu, as well as a separate limit at the same level for total PM. The permits for both Trimble County 2 and Indeck-Elwood set limits for filterable particulate matter at 0.015 lb/million Btu. At best, the cited limits show a range of limits for PM emissions in the permits for new coal-fired generating units.

In addition, because of the difference in the nature of filterable PM and total PM, which also includes condensable particulate, filterable PM and total PM should be addressed separately. Control and regulation of the emissions of filterable PM from coal-fired power plants has a long history. Control equipment for filterable PM is universally used, test methods for filterable PM are well-established, and there is an extensive body of data on the emissions of filterable PM from units. In contrast, the study of condensable particulate is much more recent, presumably because condensable particulate is only a small fraction of the uncontrolled emissions of coal-fired generating units and only became of concern after and as the filterable emissions were effectively controlled. As a result, while there is awareness of condensable particulate, there is less understanding of the mechanisms by which it is formed and how it can be controlled and there is only a limited body of test data for condensable particulate. The USEPA did not update its published compilation of air pollutant emission factors

to include a factor for condensable particulate from coal-fired boilers until 1998 and only provided two factors for pulverized coal boilers, one for boilers equipped with scrubbers and one for units without scrubbers. In 2005, when the USEPA last updated the particulate standards in the federal New Source Performance Standards for utility boilers, the USEPA lowered the standard for filterable particulate but did not adopt a standard for emissions of total PM, including condensable particulate.

67. Based on a lower filterable PM limit, the total PM limit should be lowered as total PM includes filterable PM.

The lowering of the limit for filterable PM, as also requested by this commenter, does not enable a parallel reduction in the limit for total PM. First, the limit for total PM already includes consideration for variability in the emissions of filterable PM. The lower limit for filterable particulate reduces the compliance margin, but does not actually change the level of filterable particulate emissions that would typically be expected, i.e., less than 0.010 lb/million Btu. Second, the lowering of the limit for filterable particulate does not address available emission data for total PM, which is the relevant data for setting a BACT limit for total PM. Finally, the limit for total PM<sub>10</sub>, as it also addresses condensable particulate, should be set from a sound understanding of the phenomena that lead to the formation of condensable particulate, or otherwise, empirically, as is the case for proposed Dallman 4.

68. BACT requires "the most stringent . . . alternative is set as BACT" unless based on technical considerations, or energy, environmental, or economic impacts indicate that the "most stringent technology is not 'achievable'" 1990 NSR Manual, p. B. 2. As 0.018 lb/million Btu is an achievable limit for PM total, the emissions limit for total PM should be no higher than this limit. As currently drafted, CWLP has no incentive to lower its PM emissions because it will only be rewarded with a stricter PM limit.

Comments have not supplied evidence that a limit of 0.018 lb/million Btu for total PM, including condensable particulate, is achievable for the proposed project. The approach that has been taken for BACT is set based on relevant technical considerations. First, it includes consideration of the limited amount of data that is available for condensable particulate. It also considered the range of available data on actual emissions of total particulate. Key information is the emission data for three coal-fired boilers in New Jersey burning Eastern coal reported by Corio and Sherwell in an article in the *Journal of the Air and Waste Management Association*. The total PM emissions reported for these boilers, L.P. Cogen, Mercer 1, and Mercer 2 were 0.0253, 0.0499 and 0.0648 lb/million Btu, respectively. (For only one plant, Bonanza power in Utah, which burns local western coal, did the article report a total PM<sub>10</sub> emission rate, 0.0163 lb/million Btu, that is less than 0.018 lb/million Btu.) The emissions of condensable particulate from the three boilers were 0.0208, 0.0373 and 0.0563 lb/million Btu. While the condensable particulate was over 90 percent inorganic for two of the boilers, as would be associated mainly with sulfate and nitrate compounds, over 50 percent of the condensable

particulate was organic for one of the boilers, at 0.0215 lb/million Btu. Accordingly, emissions of condensable particulate from proposed Dallman 4 could be well in excess of 0.018 lb/million Btu.

Second, the BACT determination considers the BACT limits set for total PM10 for other new generating units. A key precedent is the BACT limit set by USEPA for AES Puerto Rico, a new plant with a pair of circulating fluidized bed (CFB) boilers burning low-sulfur coal from South America. For these boilers, USEPA has set BACT for total PM at 0.030 lb/million Btu, based on the results of emission testing, following issuance of an initial permit that contemplated total PM emissions of up to 0.050 lb/million Btu. Proposed Dallman 4 should be expected to achieve similar, or at most only slightly higher emission levels, as this CFB boiler because Dallman 4 will be equipped with a wet electrostatic precipitator.

Third, the BACT determination reflects a cautious approach to the limit for total PM because of technical concerns about USEPA Method 202, the established test method for condensable particulate. This test method is commonly recognized as having the potential to overstate condensable particulate, due to the conversion of SO<sub>2</sub> to particulate in the sampling train. Not only does this affect the limit that is set for the proposed Dallman 4 but it also places into question test results for existing boilers. This is because Method 202 allows various adjustments to the implementation of the test method, on a source or state-specific basis to attempt to prevent this conversion phenomenon or to maintain consistency with a state's historic practices for measurement of condensable particulate.

Finally, the BACT determination for total PM is also based on legal requirements for BACT. Under the PSD regulation, a BACT limit must be set at a level that is achievable, not a level that may be achievable.

Given these consideration, the Illinois EPA is confident that a base limit can be set for total PM for Dallman 4, subject to likely reduction based on an empirical, operational evaluation of the actual performance of Dallman 4 for total PM. Because separate BACT limits are also set for emissions of filterable PM and sulfuric acid mist, which are both constituents of total PM, CWLP must operate the wet electrostatic precipitator on Dallman 4 for effective control of total PM emissions. While CWLP would prefer not to operate during emission testing to show low emissions of total PM, as noted by this comment, CWLP must operate the control train for Dallman 4 effectively because of its need to comply with the limits that are set for other pollutants. In addition, an incentive does exist for CWLP to expeditiously demonstrate that a lower limit is achievable for total PM, if this is indeed the case, as it would reduce the amount of additional emission testing that must be performed and the effort entailed in evaluating and establishing an intermediate limit for total PM.

69. As Trimble County Unit 2 proposes to use a baghouse and a wet electrostatic precipitator and also burns bituminous coal, it is comparable to the Dallman 4. Consistent with Trimble County Unit 2,

the total PM limit for Dallman 4 should be set no higher than 0.018 lb/million Btu.

As already explained, the BACT limit set for total PM for Trimble County 2, as well as several other proposed new generating units, 0.018 lb/million Btu, is included in the permit for Dallman 4 in an appropriate manner. The permit provides that the BACT limit for total PM for Dallman 4 shall be lowered based on the actual results of emission testing, if such testing confirms that a lower limit can be achieved without unacceptable consequences (See Condition 2.1.15). The target or "default" value for this lower limit is 0.018 lb/million Btu. Accordingly if a limit of 0.018 lb/million Btu is achievable with the control train on Dallman 4, as confirmed empirically by emission testing, as various commenters suggests it will, Dallman 4 will also be subject to this limit.

It is also appropriate to note that the BACT limit for filterable PM for Trimble County 2 is set at 0.015 lb/million Btu. However, the Illinois EPA has discounted Trimble County 2, which is much larger than proposed Dallman 4, with a capacity of 750 MW, as a basis upon which to retain a limit of 0.015 lb/million Btu for proposed Dallman 4 because of the difference in the size of the units. The size of a generating unit is a relevant factor in setting a limit for filterable PM, as this also affects the size and complexity of the particulate matter control system, with potential consequences for the selection of the BACT limit.

70. CWLP acknowledges that other projects have set filterable PM limits at 0.015 lb/million Btu. This approach to setting the filterable PM limit is not consistent with BACT that is based on the maximum degree of reduction that is achievable. CWLP's analysis narrowly-focused its BACT analysis on pulverized coal boilers that fire high sulfur coal. Rather than limiting its analysis, CWLP should have considered the amount of particulate matter in the flue gas and the capability of the baghouse to remove it consistent with the requirement of considering technology transfers. NSR Manual, p. B. 11 and p. B. 19 (The availability of a control option for BACT depends on the characteristics of the gas stream and the capability of the technology).

The evaluations of BACT by both CWLP and the Illinois EPA's were not limited to the performance of pulverized coal boilers firing high-sulfur coal. Circulating fluidized bed (CFB) boilers and pulverized coal boilers burning low sulfur coals were also considered. However, the sulfur content of the coal supply to a boiler is a relevant consideration for the BACT determination, as the sulfur content of the coal affects the composition of the flue gas and the conditions to which the filter material and the inside of the baghouse will be subject.

In addition, the performance of particulate matter control devices on boilers, especially baghouses, is appropriately focused on the loss of particulate matter from the device, rather than a theoretical determination of overall control efficiency. The evaluation of BACT was properly focused on the limit or loss rate that was achievable for

filterable particulate matter emissions. For filters, the technical issue is the amount of material that passes through the filter that becomes emission, which is not directly related to and can be largely independent of the amount of material that is collected by the filter. In addition, the character of the flue gas generated by a boiler, which is affected by the sulfur content of the coal supply burned in a boiler, has implications for the selection of an appropriate control device whose materials and design can tolerate the range of operating conditions to which it will be subjected by the flue gas.

71. The RBLC data base identifies the following units with lower permitted filterable PM10 limits: Spurlock 4 (0.009 lb/million Btu); JEA Northside 1 and 2 (0.011 lb/million Btu); Wygen II (0.012 lb/million Btu); and Intermountain Power (0.012 lb/million Btu). Spurlock and JEA Northside are circulating fluidized bed (CFB) boilers that burn high sulfur coals. CFB boilers create a flue gas stream with approximately twice the particulate as a pulverized coal boiler. As such, a CFB is a worst-case PM control due to the higher control efficiency that must be met by the baghouse. Thus, lower filterable PM limits should be easier to achieve at Dallman 4.

CFB boilers do not present the "worst-case" application of a baghouse for control of filterable particulate. This is because the baghouse is the final control device in the control train for a CFB boiler. In addition, the limestone introduced into the bed of the boiler generates particles of a type and size that act to enhance the performance of the filter material in the baghouse. Similar circumstances are present for boilers like Wygen II in Wyoming that are equipped with spray dryer absorbers for control of SO<sub>2</sub> emissions, which are located before the baghouse in the control train on a boiler. Intermountain Unit 3 in Utah is designed to burn a low-sulfur coal containing less than 1.5 lb SO<sub>2</sub> equivalent/million Btu. Thus, one should not expect that it will be "easier" to achieve lower limits for Dallman 4 than at the boilers cited in these comments.

However, the limit recently set by Kentucky Division of Air Quality for Spurlock Unit 4 is also one of the recent actions that led to setting the BACT limit for filterable particulate for proposed Dallman 4 at 0.012 lb/million Btu. Although Spurlock 4 is a CFB boiler, it is similar in size to proposed Dallman 4 with a net output capacity of 300 MW. However, based on information available to the Illinois EPA, the actual BACT limit for Spurlock 4 is 0.009 lb/million Btu, on a 30-day average basis. This is comparable to a limit of 0.012 lb/million Btu, on a three-hour average basis, i.e., testing to verify compliance consists of three 1-hour runs, with the results of the tests expressed as the numerical average of the three runs.

72. Performance tests should be considered in the identification of control technologies. NSR Manual, page B.11. Stack tests on other coal-fired generating units suggest that much lower filterable PM limits are achievable. The Florida database contained 225 tests that measured PM or PM10 at less than 0.015 lb/million Btu. Sixty-five percent of these recorded emissions less than 0.01 lb/million Btu and thirty-six percent recorded emissions less than 0.005 lb/million Btu.

Results of performance tests are certainly relevant in the selection of BACT limits. However, this comment only reports on test results that are less than 0.015 lb/million Btu and disregards test results that are higher than 0.015 lb/mmBtu, it reflects a selective presentation of the available data from Florida. Considered more broadly, the extensive database of test results from Florida confirms significant variability in the tested PM emissions of power plants, with measured emissions that are often below the applicable limit by a very large factor of safety. For example, test data for the two units at St. Johns River Power Park, which are subject to a limit of 0.03 lb/mmBtu, consistently show test results less than 0.015 lb/mmBtu (11 tests for Unit 1 ranging from 0.0028 to 0.01 lb/mmBtu and 10 tests for Unit 2 ranging from 0.0004 to 0.0081 lb/mmBtu). However, both units have experienced test results greater than 0.015 lb/mmBtu (two tests at Unit 1 at 0.016 and one test at Unit 2 at 0.0211). Similar results are found for the Stanton Energy Center in Orlando.

73. The State of Georgia also reports lower rates, including 0.003 lb/million Btu at Scherer Unit 4 in 1998; 0.004 lb/million Btu at Scherer Unit 4 in 2000; 0.006 lb/million Btu at Yates Unit 7; 0.008 lb/million Btu at Yates Unit 6 and Hammond Unit 4; 0.010 lb/million Btu at Scherer Unit 3 in 1998; and 0.011 at Scherer Unit 2 in 2000. Performance tests in New Jersey and Utah ranged from 0.0045 lb/million Btu to 0.0126 lb/million Btu. As such, the BACT limit should be revised to reflect the lowest limit achievable.

This comment reports on the results of selected tests of particular boilers. Data from other tests confirms variability in performance. In particular, when the Scherer plant, which is subject to a limit of 0.1 lb/million Btu, was recently tested in 2004, the measured emissions of the Scherer Units were 0.0123 and 0.0083 lb/mmBtu, respectively. In 2003, the measured emissions of Yates Unit 6 and 7, which are subject to a limit of 0.24 lb/million Btu, were both 0.017 lb/mmBtu. In 2002, the emissions of Hammond Unit 4, also subject to 0.24 lb/million Btu, were 0.016 lb/million Btu. As a general matter, data from a single particulate emission test or a pair of tests can show compliance with an established emission limit but is not a sufficient basis to act to establish a limit at the level measured during the test or tests. This is because of the variability that occurs in emission test results for units even when units are being properly operated.

74. The Illinois EPA states that the proposed 0.015 lb/million Btu limit "provides an appropriate margin of compliance to address the normal variability in performance of a baghouse . . . and to address the additional variability that may be present given the sulfur content of the coal supply to the boiler." Project Summary, page. 9. The Illinois EPA has not provided information on the margin of compliance thus, making it impossible for the public to comment on the margin. Data summarized in earlier comments indicate that the proposed filterable limit is approximately three times higher than achieved elsewhere thereby suggesting a compliance margin of three.

As stated in the Project Summary and in the provisions of the draft permit, the Illinois EPA expects that the tested emissions of filterable PM of Dallman 4 would typically be no more than 0.10

**lb/million Btu. Based on the ratio between the expected level of emissions and the specified limit, the compliance margin in the draft permit was 50 percent  $((0.015 - 0.010)/0.010 = 0.5$ , or 50%). With the lowering of the PM limit to 0.012 lb/million Btu, the compliance margin is reduced to 20 percent  $((0.012 - 0.010)/0.010 = 0.2$ , or 20%).**

75. As discussed in earlier comments, the proposed filterable PM limit is based on a compliance margin of three. No evidence has been provided that the variability of baghouses causes PM emissions to vary by a factor of three or any other factor. If the permit conditions are met, such as maintenance of the baghouse in accordance with good air pollution control practices and the monitoring of pressure drop across the baghouse, there should be little variability in particulate emissions.

**There is significant variability in the tested particulate matter emissions for boilers, such that the performance of baghouses on boilers can vary by a factor greater than three. In particular, emission data for JEA Northside Units 1 and 2 indicates that particulate matter emissions, as measured by test, can vary by a factor of five. The results of 33 tests of the particulate matter and PM10 emissions of these units have ranged from 0.002 to 0.00107 lb/million Btu.**

76. The Illinois EPA states in the Project Summary that the margin of compliance is necessary due to the variability that may be present in the sulfur content of the coal supply. However, nothing in the record reviewed provided information that could be utilized to assess coal quality variability and as such, the claim is unsupported.

**This comment incorrectly describes the Illinois EPA's concern related to the sulfur content of the coal supply for the proposed boiler, as addressed by the Illinois EPA in the Project Summary. The Illinois EPA expressed concern that the normal variability of the performance of the baghouse for proposed Dallman 4 may be greater (as compared to the variability of other baghouses on other coal-fired boilers) because of the sulfur content of the coal supply to Dallman 4. With a design coal supply containing 3.55 percent sulfur by weight, Dallman 4 will burn a coal with a sulfur content that is much higher than the sulfur content of the coal fired in pulverized coal boilers that are typically controlled with baghouses. The Illinois EPA was not expressing any concern for affect from variation in the actual sulfur content of the coal supply to proposed Dallman 4.**

77. The Illinois EPA's statement that the margin of compliance is necessary due to the variability that may be present in the sulfur content of the coal supply is refuted by the fact that the coal is currently washed and will continue to be washed. As stated by CWLP in a 2005 letter, washed coal provides very little variability (one to two percent) in total ash (eight to ten percent) and thus, does not warrant a margin of safety factor of three. Nor did CWLP in their vendor bid documents ask what was achievable but merely requested PM10 guarantees of 0.012 lb/million Btu filterable and 0.035 lb/million Btu.

As explained above, the Illinois EPA did not express concerns for the variability in the sulfur content of the coal supply to proposed Dallman 4. The Illinois EPA also did not express concerns for variability in the ash content of the coal. The concern is the sulfur content of the coal supply for proposed Dallman 4, which is 7.0 lb SO<sub>2</sub> equivalent per million Btu, which is much higher than the sulfur content of the coal supply for most pulverized coal boilers that are equipped with baghouses. This high level of SO<sub>2</sub> has implications for the design and operation of the baghouse that are not present when a lower sulfur content coal is being burned.

78. The Illinois EPA may base an emission limitation on a control efficiency that is "somewhat lower than the optimal level" under certain conditions. In re Masonite, 5 E.A.D. 551, 560 (EAB 1994). These include: "(1) where there is little experience with the application of the technology to that type of facility; (2) the control efficiency is known to fluctuate; (3) past decisions involved different source types; and (4) the permit requires tests to be performed to determine optimum operating conditions for technology, which then has to be followed." As none of these conditions are applicable, the Illinois EPA should set the filterable limit at no higher than 0.004 lb/million Btu.

The circumstances of proposed Dallman 4 for filterable PM meet both the first and second criterion from the Masonite case, as cited in the comment. First, there is little experience with the use of baghouses to control PM emissions from pulverized coal boilers firing high sulfur coal. There is also limited experience with baghouses situated in the control train between an SCR and a wet scrubber. Second, the measured PM emissions of boilers equipped with baghouses fluctuate. This is well demonstrated. It is confirmed by information provided in other comments, including the Florida database of measured PM emission rates from coal-fired boilers and data for other coal-fired generating units that provide the results of multiple emission tests.

79. The draft permit would set a limit for total PM, consisting of filterable and condensable PM, at 0.035 lb/million Btu and provide that a lower limit may be set to 0.018 lb/million Btu based on an evaluation. The record indicates that BACT is no higher than 0.018 lb/million Btu. As such, the permit should set this level as BACT and include an optimization study. In the event that the optimization study shows that the BACT limit cannot be met, the permit should be reopened to establish a higher limit.

The Illinois EPA is not aware of the use of "Optimization" Studies to set higher limits. The goal of an Optimization Study is to achieve lower levels of emissions with the control technology on a particular unit (or to demonstrate that lower levels of emissions are achievable), ideally accompanied by establishment of lower emission limits for the unit

In addition, the approach suggested in this comment is not readily feasible as a legal matter. The approach would improperly place the owner or operator of an emission unit in noncompliance with the limit in the permit until the revision of the permit was final.

Alternatively, the permit would have to allow the BACT limit to be revised by administrative action, without opportunity for public comment, as appears to have occurred for the revision of the permit for AES Puerto Rico. Moreover, either approach would perpetuate the problem that occurs when unachievable limits are placed in permits and subsequent permit applicants become bound by the poor or uncertain technical judgment of a prior applicant.

80. While the Project Summary recognizes that a total PM10 limit of 0.018 lb/million Btu has been set in a number of permits, the Illinois EPA states that this does not provide an adequate basis to set a limit because none of the boilers have been built and are operating. Thus, according to the Illinois EPA, none of these limits have been "achieved in practice." To be BACT, a limit need not be "achieved in practice" rather, consistent with the technology forcing component of BACT, the emission rates need only be "achievable." 40 CFR 52.21(b)(12). The only constraint to an "achievable" limit is "energy, environmental and economic impacts and other costs." 40 CFR 52.21(b)(12).

It is correct that a limit may be considered to be "achievable," even if it has not been "achieved in practice." However, the fact that limits of 0.018 lb/million Btu for total PM have been set in permits for certain other projects does not demonstrate that such limit should be considered achievable for the proposed project. These other permits address projects that differ from the proposed project in terms of type of boiler, size, and fuel, and occurred in other jurisdictions, with different practices with regard to emission testing and revision of permits. A finding that a particular limit is achievable requires a careful weighing of the entire body of science and data for the emissions of a pollutant as related and relevant to a proposed project.

81. The total PM10 limit of 0.018 lb/million Btu that has been proposed recently by applicants indicates that owners and markets consider this limit to be achievable.

The presence of a limit of 0.018 lb/million Btu for total PM in permits for certain proposed coal-fired generating units is not sufficient to demonstrate that this limit is achievable. Along with the permits for certain proposed projects that have set limits at this level, there are also applications and permits that take a different approach to emissions of total PM. In 2002, for Tucson Electric's Springerville Units 3 and 4, the Arizona Department of Environmental Quality set a limit of 0.055 lb/million Btu for total PM. In 2004, USEPA formally acted to set a revised limit for total PM for AES Puerto Rico at 0.030 lb/million Btu. This action was taken administratively, as the initial permit allowed a revised limit that would not exceed 0.05 lb/million Btu to be set based on the results of stack testing. The underlying provision authorizing such action was retained in the revised permit, which allows further revision based on the results of additional stack tests. In April 2006, TXU Generation submitted an application for a proposed 860 MW unit at its Lake Creek Station, near Riesel Texas, proposing a limit of 0.04 lb/million Btu for total PM.

Perhaps most significantly, for Newmont Energy's proposed TS plant, the Nevada Department of Environmental Protection (NDEP) proposed a limit

of 0.038 lb/million Btu for total PM in the draft permit prepared for the project. However, the issued permit, which has been affirmed by the USEPA's Environmental Appeals Board, did not include any limit for total PM. The NDEP found, among things that there was not a sufficient basis to set a BACT limit for total PM, including condensable particulate, for the proposed TS power plant.

82. Total PM limits lower than 0.035 lb/million Btu have been both permitted and achieved in practice including the following: 0.0088 lb/million Btu for Northampton; 0.010 lb/million Btu for Seward; 0.018 lb/million Btu for Hawthorn. Test data includes the following: 0.012 and 0.0044 lb/million Btu for Northampton in 2001 and 1995; 0.0041 lb/million Btu for Seward in 2005; and 0.0114 to 0.0170 lb/million Btu for Hawthorn 5 in 2001 through 2004.

The limits for total PM for these plants are not directly transferable to the proposed project. These plants have CFB boilers or are equipped with dry scrubbers, so that the baghouse is the final device in the control train. In addition, for Kansas City Power and Light's Hawthorn 5, for which the results of four tests are provided, the data is not representative because Hawthorn 5 burns low-sulfur coal, likely Powder River Basin coal, and is limited to use of a coal-supply that contains no more 1.60 lb SO<sub>2</sub> equivalent/million Btu. Even if the plants were representative, as data from one or two emission tests is provided, the data is not a sufficient basis to set a BACT limit.

Incidentally, the test data for Hawthorn 5 also provides further evidence that a BACT limit for filterable PM of 0.012 lb/million Btu should be achievable for proposed Dallman 4. Hawthorn 5, with a capacity of 570 MW, is about twice the size of proposed Dallman 4. For filterable particulate, the four emission tests for Hawthorn 5 cited in this comment provide results of 0.0078, 0.00104, 0.0108 and 0.0118 lb/million Btu, all within 0.012 lb/million Btu, although one test barely meets this rate. The construction permit issued for Hawthorn 5 also provides support for permit provisions that allow a BACT limit to be revised based on the emission data collected during an evaluation period. For emissions of NO<sub>x</sub>, the permit for Hawthorn 5 establishes a 36-month evaluation period during which higher limits apply, following which period lower limits take effect unless Kansas City Power and Light demonstrates that they are not achievable even with use of "best practices."

83. In support of the BACT limit for sulfuric acid mist in the draft permit, the Illinois EPA relied upon the permits discussed in previous comments for unbuilt units. In the Project Summary, the Illinois EPA stated that sulfuric acid mist is a major component of condensable particulate. As the same sulfuric acid mist limit is proposed for Dallman 4, the condensable PM emissions should be comparable; the total PM limit should be 0.015 lb/million Btu (0.010 + 0.005 = 0.015).

The approach suggested by this comments is not appropriate. This is because it fails to account for components of the condensable PM that are not sulfuric acid mist, including both inorganic and organic constituents of condensable particulate. This is another aspect of the challenge posed in setting a limit for condensable PM. If these other

constituents of condensable PM contribute 0.020 lb/million Btu, the limit for total PM should be 0.035 lb/million Btu (0.010 + 0.005 + 0.020 = 0.035).

84. BACT was not required for particulate matter (PM). The proposed filterable PM limit is not BACT for proposed Dallman 4.

The emission limit being set for filterable particulate matter for BACT for proposed Dallman 4 represents the maximum degree of reduction, with an appropriate safety factor to accommodate the normal variation in performance of the control system that may be present when the control system is properly operated and maintained. The safety factors associated with limits for PM emissions must be significantly larger, in relative terms, than those associated with the limits set for emissions of SO<sub>2</sub> and NO<sub>x</sub>. This is a consequence of the nature of particulate control systems, the very high levels of control that must be achieved, the resulting low levels of emissions and the use of short-term testing to confirm compliance.

85. Much lower PM rates have been achieved than the 0.015 lb/million Btu BACT limit proposed in the draft permit. The BACT analysis should be revised to explicitly evaluate a much lower PM filterable rate.

The very low PM emission rates achieved in practice in certain tests are not a sufficient basis to set the BACT limit for proposed Dallman 4 for PM emissions at such rates, as they do not provide the necessary safety factor that must be associated with an emission limit. For PM, in particular, the emission limits set in permits for other plants, or even proposed in the applications for new plants are more useful as they reflect consideration of normal variation in performance. However, as previously explained, based on further review, the Illinois EPA has set a lower BACT limit for filterable PM in the issued permit, 0.012 lb/million Btu.

86. The permit must include an opacity limit that constitutes BACT for emissions of particulate matter (PM), as well as sulfuric acid mist. The only opacity limit in the draft permit is the limit in the federal New Source Performance standard (NSPS), which is insufficient. The definition of BACT at 40 CFR 52.21(b)(12) clearly provides that BACT shall include a visible emissions standard. Other new coal-fired power plants subject to BACT have limits on opacity, which limit range from 5 to 15 percent.

The language in 40 CFR 52.21(b)(12) being addressed by this comment is contained within parentheses. Therefore, the question is whether the language requires an opacity limit to be set as BACT or allows an opacity limit to be set as BACT. The comment does not provide any discussion to support the former position. The Illinois EPA believes that the latter position is appropriate. The definition of BACT in the Clean Air Act does not include the parenthetical phrase in question. It simply states that BACT is an emission limitation for each pollutant subject to regulation. Since opacity is not a pollutant, there is not a statutory obligation to set an opacity limit. The enhancement to the regulatory definition of BACT by USEPA must be construed as a clarifying action on USEPA's part indicating that it is acceptable for

**a permitting authority to set opacity limits as BACT, even though it is not required.**

87. An opacity limit of 5 percent should be initially set as BACT for proposed Dallman 4, with a requirement that CWLP undertake an optimization study to determine the final opacity limit.

**The information accompanying this comment does not support setting a 5 percent opacity limit for Dallman 4. This is because the proposed unit and its control train, which includes a baghouse, wet scrubber and wet ESP, are different from those of the cited units for which opacity limits have been set. The control trains for these other units do not have wet control systems after the baghouse. The presence of a wet control system potentially interferes with the use of opacity as a simple means to limit the emissions from a unit. Moreover, as a BACT opacity limit is not required under the PSD program, requirements related to opacity from Dallman 4 are better set as part of the Compliance Assurance Monitoring Plan that will be required for the unit under 40 CFR Part 64. This is because such requirements can address the actual opacity levels achieved by the boiler and its control train, as well as the role of the required continuous particulate matter emissions monitoring system in verifying the performance of the control train for particulate.**

BACT for the Proposed Boiler - Sulfuric Acid Mist

88. The draft permit establishes a BACT limit for sulfuric acid mist of 0.0050 lb/million Btu, based on a 3-hour block average and in support of this limit, the Illinois EPA states that the limit is "in line with the BACT limits set for other recently permitted new coal-fired utility boilers." The definition of BACT is not satisfied by a limit set "in line with" but rather should be based on the maximum degree of reduction that is achievable. CWLP also states that the sulfuric acid mist limit is "consistent with" sulfuric acid mist limits in recent permits. No supporting data or explanation is provided for these limits.

**The other proposed new coal-fired generating units that are the basis for the BACT limit for proposed Dallman 4 are Elm Road, Longview, Trimble County Unit 2, and Weston 4. These projects also would all use a bituminous, high sulfur coal, generally similar to the coal supply for which Dallman 4 is designed. The limits set as BACT for sulfuric acid mist for these units range from 0.005 to 0.010 lb/million Btu, with compliance time periods ranging from 3 to 24-hours. (The limit for Trimble County Unit 2, which is set in pounds/hour, 30-day average, is estimated to be equivalent to a short-term, heat-input based limit in the range of 0.005 to 0.007 lb/million Btu.)**

89. CWLP and the Illinois EPA failed to consider low-sulfur coal when evaluating BACT for sulfuric acid mist.

**CWLP and the Illinois EPA both considered the use of low-sulfur coal as the fuel supply for proposed Dallman 4. The Illinois EPA's analysis specifically considered the possible effect of the use of low-sulfur**

coal on emissions of sulfuric acid mist. This is documented in the Project Summary that was prepared in conjunction with the release of the draft permit. The portion of the BACT discussion in the Illinois EPA's Project Summary that addresses the nature of the proposed project states "Use of low-sulfur coal would not result in meaningful reductions in emissions of pollutants from the project that are subject to PSD," Project Summary, Page 7. The key factor affecting the significance of fuel selection in the BACT determination for sulfuric acid mist is the low emissions of sulfuric acid mist from the project with the selected coal supply, i.e., potential emissions of only about 50 tons per year. Even if one assumes that use of low-sulfur coal could eliminate all sulfuric acid mist emissions, the emission reduction would not be large enough to justify the additional cost and other impacts entailed in using low-sulfur coal for Dallman 4. For example, even if the additional cost to use low-sulfur coal were only \$1,000,000 per year, the cost would be in excess of \$20,000 per ton of sulfuric acid mist controlled.

90. The first step in the BACT analysis is incomplete as it failed to identify all available control options. While the analysis identified, co-removal during scrubbing, the use of a wet electrostatic precipitator, and sorbent injection, it failed to identify a low SO<sub>2</sub> to SO<sub>3</sub> conversion SCR catalyst, lowering the temperature across the SCR catalyst, using more frequent soot blowing, a more efficient SO<sub>2</sub> scrubber, regenerating the SCR catalyst rather than replacing it, and any combinations of these control options.

The BACT analysis focused on the add-on control devices for control of sulfuric acid mist, as those add-on control techniques are more effective than operating measures that serve to minimize the level of uncontrolled sulfuric acid mist emissions leaving the boiler. BACT for emissions of sulfuric acid mist from Dallman 4 has been determined to be the use of a wet electrostatic precipitator (wet ESP). This is considered to be the most effective add-on control device available for control of sulfuric acid mist from coal-fired boilers. The use of this device also has additional benefit as it provides a final control device, located after the scrubber, for particulate emissions from the proposed unit.

91. A significant fraction of the sulfuric acid mist is created by the SCR that must be used to control NO<sub>x</sub> emissions. The SCR catalyst converts SO<sub>2</sub> in the boiler to SO<sub>3</sub> that subsequently combines with water to form sulfuric acid mist. While CWLP acknowledged that conversion rates of less than one percent is feasible, CWLP claimed that this will "reduce the catalyst reactivity for the reduction of NO<sub>x</sub>." There was no mention of the fact that reduced catalyst reactivity is overcome by utilizing a more reactive catalyst formulation or modifying the catalyst management plan.

The Illinois EPA is aware that a number of techniques are available to minimize the conversion of SO<sub>2</sub> to SO<sub>3</sub> by an SCR, which otherwise potentially leads to increased emissions of sulfuric acid mist from a unit equipped with an SCR. However, these techniques also have implications for the operation and effectiveness of the SCR for the pollutant that it is installed to control, i.e., NO<sub>x</sub>. These techniques

may also be counterproductive for control of mercury emissions, as SCRs can facilitate oxidation of elemental mercury, thereby improving the mercury removal achieved by other downstream devices in the control train.

There are also potential side effects from operational techniques to minimize formation of SO<sub>3</sub>. For example, as these techniques involve the air heater or other components in the boiler, they may act to decrease the energy efficiency of a boiler. A decrease in energy efficiency acts to increase overall emissions from a unit, including emissions of carbon dioxide. Accordingly, the BACT determination for sulfuric acid mist emissions from Dallman 4 requires the use of a specific control device for sulfuric acid mist emissions, a wet electrostatic precipitator (wet ESP), as the final device in the control train. This allows CWLP to operate the remainder of the boiler system and the SCR for effective control of NO<sub>x</sub> and mercury and optimum thermal efficiency.

92. The proposed SO<sub>2</sub> to SO<sub>3</sub> conversion rate for the SCR catalyst was not disclosed by CWLP. As the achievable sulfuric acid mist limit depends directly on this factor (sulfuric acid mist emissions can be reduced by over fifty percent using a low SO<sub>2</sub> to SO<sub>3</sub> conversion catalyst), the failure to provide this information prevents the public from providing meaningful comment on sulfuric acid mist limit. However, in the May 2006 contract, the vendor guaranteed a maximum 0.5% SO<sub>2</sub> to SO<sub>3</sub> conversion.

As explained, the SO<sub>2</sub> to SO<sub>3</sub> conversion rate of an SCR ceases to be a significant factor for emissions of sulfuric acid mist if a unit is also equipped with a wet ESP to control the additional SO<sub>3</sub> generated by the SCR. This allows the SCR to be operated for effective control of emissions of NO<sub>x</sub> and mercury without the further constraints that would likely otherwise be needed if a wet ESP were not also present.

93. The application states that the wet scrubber for proposed Dallman 4 is expected to remove only 50 percent of the SO<sub>3</sub>. Many vendors of conventional scrubbers do not guarantee 50 percent control for sulfuric acid mist. As such, CWLP should be required to not only disclose the type of SO<sub>2</sub> scrubber that will be used but the guaranteed sulfuric acid mist removal efficiency. In addition, other more efficient scrubbing technologies should be evaluated.

As with the SCR, the BACT determination for sulfuric acid mist does not rely on removal of sulfuric acid mist with the SO<sub>2</sub> scrubber. SO<sub>2</sub> scrubbers are designed for effective removal of SO<sub>2</sub>, a gas, from the exhaust of a boiler, not removal of SO<sub>3</sub>, which is present as very fine particulate matter. Accordingly, wet scrubbers are generally considered relatively inefficient in controlling sulfuric mist. Sulfuric acid mist emissions are most effectively controlled with a device that is very effective in controlling very fine, acidic particulate matter, i.e., a wet electrostatic precipitator.

94. The BACT analysis for sulfuric acid mist fails to rank the control technologies according to effectiveness.

Wet electrostatic precipitators, as required for Dallman 4, are considered the most effective add-on control technology for control of sulfuric acid mist emissions. They do not interfere with control of emissions of other pollutants and indeed enhance control of particulate, especially PM2.5. Sorbent injection and SO<sub>2</sub> scrubbing are of moderate effectiveness, with a relative ranking that is difficult to set because of the broad, overlapping ranges of performance. Other operational techniques are considered least effective and are also difficult to distinguish. Finally, the sulfur content of the coal supply has a separate role in determining the uncontrolled sulfuric acid mist emissions from a coal-fired boiler.

95. The only supporting evidence in the record suggests lower limits for sulfuric acid mist are possible. Lower limits have been set for SEI Birchwood (0.002 lb/million Btu); MidAmerican Energy (0.0042 lb/million Btu); and Prairie Energy Corn Belt Energy (0.0046 lb/million Btu). Other sources for which data is provided in the RBLC database have lower sulfuric acid mist limits such as: Santee Cooper Cross (0.0014 lb/million Btu); Parish Units 5 through 7 (0.004 lb/million Btu); Parish Unit 8 (0.0015 lb/million Btu); and Manitowoc (0.0045 lb/million Btu). Additional sources must also be considered such as other permitting authorities, source tests, technical literature, and vendors, etc. This review found the following limits: Newmont Nevada Energy, TS Power (0.0010 lb/million Btu); AES Puerto Rico (0.0024 lb/million Btu); and Trimble Unit 2 (0.004 lb/million Btu). A justification should be provided for the rejection of these more stringent limits. Moreover, CWLP received a guarantee of 0.004 lb/million Btu. If low sulfur coal is the basis for ignoring these lower limits, the BACT analysis should be expanded to include a consideration of low sulfur coal. Moreover, it is arguable whether these limits can be distinguished on the basis of the sulfur content in the coal, as CWLP has stated that the stack emissions of sulfuric acid mist will be the same regardless of the use of Illinois coal or low sulfur coal.

The limits for these other sources can be distinguished from the BACT limits for proposed Dallman 4 for a number of reasons, including the sulfur content of the coal supply to the boiler, which is a relevant factor and was considered. It is commonly recognized that the sulfur content of the coal supply to a boiler is a factor that affects the sulfuric acid mist emissions from the boiler, a fact that is indeed acknowledged in this comment. CWLP may have suggested in its application that the sulfuric acid mist emission rate for the unit would not change based on the sulfur content of the coal supply to the boiler. However, this statement must be read in the context of the proposed project for which it was made. As proposed Dallman 4 would be equipped with a wet electrostatic precipitator, sulfuric acid mist emissions would be reduced by the control of emissions separate from the sulfur content of the coal supply. As a result, the sulfur content of the coal supply would be a secondary factor in determining the level of emissions of sulfuric acid mist of Dallman 4, as compared to a proposed coal-fired generating unit burning low-sulfur Western coal, which are not equipped with electrostatic precipitators, for which the sulfur content of the coal supply is a key factor in the emissions of sulfuric acid mist.

At a minimum, the lower limits cited in this comment are not applicable to proposed Dallman 4 because most address boilers than burn much lower sulfur content fuels. They are also distinguishable in other ways. For example, the limit for Parish Santee Cooper Cross is an annual emission limit, not a limit that applies as a 3-hour average, consistent with the time period of an emission test. It also appears that the limit cited for Trimble County Unit 2 does not reflect the actual limit set by the Kentucky Department of Natural Resources for this unit. There may be other ways in which the units and limits cited by this comment should be distinguished from the proposed unit.

Similarly, the comment does not provide the details of the guarantee provided to CWLP for the wet ESP. These details are important to understand what is really being provided. For example, if the cited emission rate is the conditional guarantee for sulfuric acid mist emissions, it would reasonably be expected that such rate would be below the expected emission limit for the boiler. This is because the conditional guarantee needs to assure that the boiler can operate with a margin of compliance with the applicable limit to address the normal variability in performance of the unit and the precision of the emission test method.

96. The record fails to indicate how the sulfuric acid mist limit of 0.005 lb/million Btu was derived. None of the relevant information such as the sulfur content of the coal, the type of boiler, the type of SO<sub>2</sub> scrubber, the type of particulate control device, the design removal efficiency of the WESP, the type of air preheater, and the type of SCR catalyst was found in the record. Thus, there is no basis for rejecting the lower sulfuric acid mist limits previously identified in comments.

As already explained, the BACT limit for sulfuric acid mist was not arithmetically derived but set after consideration of the limits set for other similar new units. However, the range of required overall control efficiency for sulfuric acid mist can be readily calculated. In general, between 0.7 and 1.6 percent of the uncontrolled SO<sub>2</sub> from a boiler burning bituminous coal would normally be converted to SO<sub>3</sub>. The SCR can be assumed to convert an additional 0.5 percent of the uncontrolled SO<sub>2</sub> to SO<sub>3</sub>. Based on the design coal supply for Dallman 4, 7.0 lb SO<sub>2</sub> equivalent per million Btu, the uncontrolled sulfuric acid mist emissions from the boiler will be in the range of 0.13 and 0.21 lb/million Btu. Accordingly, the BACT limit for sulfuric acid mist, 0.005 lb/million Btu requires a minimum of 96 to 97 percent overall control of sulfuric acid emissions.

97. The sulfuric acid mist BACT limit is typically calculated utilizing the Southern Company method and the unit-specific assumptions as outlined in previous comments. As the record failed to include this information, this commenter calculated sulfuric acid mist emissions based assuming worst-case coal (6.96 lb SO<sub>2</sub>/million Btu) and default removal efficiencies for the air preheater, fabric filter and scrubber. Based on such calculation, CWLP should be able to achieve a sulfuric acid mist emission rate of 0.0024 lb/million Btu.

The sulfuric acid mist emission rate calculated by this commenter does not constitute a sound basis upon which to set a BACT limit. This is because it is based upon a calculation method whose purpose is to estimate annual actual emissions of sulfuric acid mist for purposes of annual reporting of emissions under USEPA's Toxic Release Inventory Program. The so-called Southern Company method was not developed for the purpose of setting BACT limits for sulfuric acid mist. Accordingly, it appears unlikely that BACT limits for sulfuric acid mist are routinely calculated using this method.

BACT - Boiler - Requirements for Startup, Shutdown and Malfunction

98. Emissions during startups and shutdowns do not appear to be addressed in the draft permit. It is not clear what emission limits would apply during startup and shutdown and during malfunctions. These periods could be overlooked and could result in significant amounts of emissions.

**Emissions during periods of startup and shutdown are addressed by the permit. Given the variable conditions during those periods, the permit has an alternative approach to dealing with these periods. The permit limits the total amount of emissions. The permit also imposes qualitative requirements, work practices that have to be followed to minimize the emissions that occur during these periods. (Refer to Conditions 2.1.2(d) and 2.1.6.)**

99. The draft permit states that emissions for startup, shutdown and malfunction for PM filterable and PM will be addressed in Condition 2.1.2(e). However, there is no Condition 2.1.2(e). Based on Attachment 1, Table 1-A, it appears that periods of startup, shutdown and malfunction are excluded from all emission limits except the annual emission limits. As such, these periods are inappropriately excluded from BACT for PM filterable. Restrictions on what constitutes startup, shutdown and malfunction and how long each is allowed to exceed the limits should be addressed. In re Tallmadge Energy Center.

**As observed in the comment, the reference to Condition 2.1.2(e) in Conditions 2.1.2(b) (i) (A) and (B) in the draft permit was a typographical error. The reference should have been to Condition 2.1.2(d), as was referenced in Conditions 2.1.2(b) (ii) and (iii). However, the language in the conditions of the draft permit is clear on which numerical emission limits are intended to apply and not apply during startup, shutdown and malfunction of proposed Dallman 4. The proposed approach to emission limits during such periods was also discussed in the Project Summary prepared by the Illinois EPA, which accompanied the draft permit.**

In particular, the note to Condition 2.1.2(d) (which is located where a Condition 2.1.2(e) would have been found in the draft permit), states that the numerical limits set by Condition 2.1.7(b) (which refers to Attachment 1, Table 1) are applicable during periods of startup, shutdown and malfunction for the pollutants for which the BACT limits expressed in lb/million Btu are not applicable during such periods.

100. The emissions elimination/reduction analysis for startup and shutdown is inappropriately left to the Permittee to be conducted in the future without any Illinois EPA approval. This is not acceptable under the Clean Air Act. In re Tallmadge Energy Center. The permit should include the design, control and methodological or other changes that are necessary to minimize emissions allowed during startup and shutdown.

**The permit satisfies the requirement cited in this comment. The permit identifies specifies measures that must be followed to minimize emissions during startup and shutdown of proposed Dallman 4. (Refer to Conditions 2.1.2(d) (i), (ii) and (iii) and Conditions 2.1.6(a), (b), (c) and (d).)**

101. The startup provisions in the draft permit are inconsistent with USEPA guidance concerning excess emissions during malfunctions, startup and shutdown. Kathleen Bennett, 1982 Memorandum and Steven Hermann, 1999 Memorandum. Automatic exemptions for excess emissions during startup are prohibited. Bennett Memorandum. However, the USEPA provides states with some discretion to forego enforcement actions in certain instances of excess emissions. This state discretion is limited to 1) refraining from taking any enforcement action when excess emissions were caused by events entirely beyond the control of the owner or operators; 2) excusing a source from penalties during an enforcement case for excess emissions if the source can demonstrate it meets certain affirmative defenses; and 3) providing an affirmative defense for penalty actions not injunctive relief actions. States may not excuse excess emissions that would otherwise be violations of applicable emissions limits. Inconsistent with such guidance, the draft permit authorizes operation ". . . in violation of the applicable state emission standards . . . during startup." The startup provisions must be revised to make clear that excess emissions in these periods are still violations and that any affirmative defense is only available in actions for penalties.

**The USEPA guidance cited in this comment is not relevant to the draft permit. USEPA's guidance addresses emission standards that are adopted and approved as a part of a State Implementation Plan (SIP) to attain and maintain compliance with air quality standards. The provisions in the permit addressing startup, shutdown and malfunction do not authorize violations of the SIP emission standards that apply to proposed Dallman 4.**

102. USEPA policy requires that a Permittee must demonstrate that "all reasonable efforts have been made to minimize startup emissions, duration of individual startups and frequency of startups." Hermann Memorandum. The misuse of the startup/shutdown exemption is clearly needed in this case based on a review of opacity exceedances at existing CWLP's generating units. An analysis of CWLP's reports indicates that CWLP operates units for many hours with excess opacity, claiming several hour periods are "startup." Pursuant to Section 39(a) of the Illinois Environmental Protection Act, the Illinois EPA may take into account the operating history of a permit applicant. These facts dictate that the Illinois EPA strictly limit the ability of CWLP to

operate during startup and to claim that protracted periods of excess emissions are excused.

**The USEPA's Hermann Memo also addresses SIP emission standards and is not applicable to the permit. However, the permit does require that good air pollution control practices be used to minimize emissions during startup of Dallman 4, consistent with this guidance.**

**The occurrence of opacity exceedances by CWLP's existing units, as noted by this comment, does not require specific action in the permitting of proposed Dallman 4. This new unit would be equipped with new PM control devices, with continuous PM emissions monitoring required as a compliance assurance monitoring technique. As this comment also expresses concerns about the operation of CWLP's existing units, this comment has been referred to the Bureau of Air, Compliance Section, for it to follow up as appropriate.**

103. The permit conditions concerning excess emissions during malfunction should be revised to include a definition of malfunction as the term is vague in the permit and thus, practically unenforceable. Consistent with the Herman Memorandum, the following definition of malfunction should be included in the permit: "a sudden and unavoidable breakdown of process or control equipment." Concerning excess emissions during malfunctions or breakdowns, the Illinois EPA must require those measures identified in the Herman Memorandum as well.

**The requested "definition" of malfunction is effectively included in the provisions of the permit. (Refer to Condition 2.1.6(a) (iv) (B).)**

#### BACT and Other Requirements for Material Handling

104. The draft permit does not state that either the technology determinations or the emission limits for the material handling equipment are set pursuant to BACT. The permit should be clarified throughout to identify the BACT limits.

**As explained in Finding 4(b), the BACT determinations for various emissions units are contained in the conditions for different units that contain the Control Technology Determination, including Condition 2.2.2.**

105. The baghouse BACT determination is based on the application in which CWLP stated that the "industry standard" for baghouse outlet emission rates is 0.01 grains per dry standard cubic foot (gr/dscf). However, the information supplied by CWLP does not support its claim wherein lower reported limits include 0.004 gr/dscf for coal and limestone collectors at the Elm Road plant; 0.005 gr/dscf for coal and limestone collectors at the MidAmerican plant; and 0.009 gr/dscf for coal collectors at the Wygen 2 plant. Moreover, the BACT limit set by the Illinois EPA for the proposed Indeck plant is no more than 0.005 gr/dscf. The BACT limit for PM for material handling operations vented to a baghouse should be a grain loading of not more than 0.004 gr/dscf.

The so-called "baghouse BACT determination" is an element of the larger BACT determination made for material handling operations. This BACT determination is based on the BACT demonstration provided by CWLP in its application, a review of the BACT determinations made for material handling operations associated with other new coal-fired generating units, and the Illinois EPA's experience with material handling operations. The resulting BACT determination appropriately establishes BACT for the material handling operations when considered in its entirety. While there may be differences from the specific limits for baghouses in other permits, as cited in this comment, these differences do not mean that BACT is not required for the proposed project.

For various dry material transfer operations that are part of the proposed project, the BACT determination requires that: 1) Operations be enclosed to prevent visible fugitive emissions; 2) Collected dust from the operations be exhausted through properly designed and operated control devices (which shall be filter-type devices unless the Illinois EPA concurs that another type of device is preferable due to safety considerations); and 3) The control devices shall be designed to achieve an emission rate of 0.01 gr/scf. The first two elements of this determination are consistent with the BACT determination made for similar operations associated with other new generating units. The determination differs in the third element, so far as the emission rate for the baghouse or other control device.

As observed in this comment, some permits for new generating units do set emission rates or performance criteria for baghouses that are lower than 0.01 gr/scf. However, these permits are not necessarily consistent in their approach to such limits. In particular, the limit in the permit for the Elm Road plant is 0.005 gr/scf for handling of coal and limestone; however the limit is 0.02 gr/scf for the handling of dry fly ash. Likewise, while the limits for certain material handling operations at MidAmerican 4 are 0.005 gr/scf, the limit for the baghouse on the lime silo is 0.01 gr/scf. There are also other permits that do not set any performance criterion for baghouses, e.g., Newmont Nevada Energy and Longview. The permit for Hawthorn 5 only requires that the opacity from baghouses not exceed 10 percent. In these circumstances, the Illinois EPA believes that it is appropriate to set a performance criterion for baghouses that represents the performance that is reliably and consistently achievable, and which is commonly guaranteed by suppliers of baghouses for use in material handling service, i.e., 0.01 gr/scf. This assures effective control of captured emissions. It is consistent with requirements for such operations associated with other new generating units, e.g., Weston 4, Comanche 3, Two Elk Generation and Roundup Power. It should also be noted that control devices associated with material handling operations for some new generating units, such as Spurlock and Trimble County 2, are expressed in terms of control efficiency, for example 99 percent control for PM. However, this approach is considered much less desirable because it requires an assessment of uncontrolled PM emissions. It also does not directly address the actual emission rate of the control device, as different types of material handling operations can generate different levels of uncontrolled PM emissions depending upon the measures that are present that act to reduce the generation of PM emissions.

As a final matter, the provisions for material handling operations at the proposed Indeck-Elwood plant are not governing for the proposed project, as the circumstances of that plant are significantly different from those of the proposed project. The Indeck-Elwood plant is located on a relatively small piece of property, immediately adjacent to the Midewin National Tallgrass Prairie and a rail-to-truck intermodal center at which new cars and light-duty trucks are transferred from railcars to transport trucks for distribution throughout the greater Chicago area. Because of the presence of these facilities next to the proposed Indeck-Elwood plant and general concerns expressed by these facilities about windblown dust, Indeck committed to control measures that it did, as reflected in the permit. These circumstances are not present for the proposed project.

106. The emission calculations for the material handling operations were inappropriately based on emission factors published by USEPA (*Compilation of Air Pollutant Emission Factors*, AP-42) and the control efficiencies for the dust collectors rather than the grain loadings. The assumed dust collector control efficiency is 99 percent rather than BACT as dust collectors can achieve 99.9 percent PM control. The design flow rates through the baghouses do not appear to have been provided and thus, it is not possible to determine if the calculated PM emission rates are consistent with the BACT determination. Such information should be provided.

**The calculations for the PM emission rates from material handling operations were properly calculated. These emissions were intentionally performed in a conservative manner so as to overstate PM emissions. They were not based on the BACT allowed emission rates, which would have yielded lower PM emission rates. This approach assured that the air quality modeling, which was based on the calculated PM emission rates, was conservative, i.e., overstated the predicted air quality impacts of these units.**

107. The grain loading limit for the material handling baghouses is not enforceable because the draft permit does not require any testing to determine if the limit is met. The only performance testing required for material handling equipment is initial testing to determine compliance with NSPS limits. Other emission conditions are tested only at the request of the Illinois EPA. The permits should require testing of all baghouses subject to BACT grain loading limits on startup and subsequently, at least once every five years.

**Mandatory testing is not a necessary element in the "basic" compliance procedures for baghouses on material handling operations at the plant. The performance of baghouses on these operations can be adequately assessed from design information, visual inspections, and operating and maintenance records for the baghouse. The "test upon request" provision reinforces these elements, as the Illinois EPA can require emission testing if a source fails to properly operate or maintain a particular baghouse. As necessary, based on actual experience, these basic compliance procedures can also be refined in the CAAPP Permit for Dallman 4, based upon actual operating experience.**

108. The draft permit establishes BACT for coal and limestone storage piles as no visible emissions, determined by EPA Method 22, or a nominal control efficiency of 90 percent for coal and 99 percent for limestone. The application concludes BACT for these piles is wet suppressions employing water or chemical surfactants. The record contains no support for either of these limits. Permits have required additional measures. Other controls are available such as pile compaction, cover materials, enclosures, wind screens and weekly inspections. Nor are the limits practically enforceable as the draft permit requires no monitoring.

**The various control techniques listed in this comment would be the means that CWLP would use to comply with the BACT requirements that are specified for the project. These control techniques have not been specified as BACT because the enforceability of such techniques, by themselves, is less practical than the specified BACT requirements. In particular, what criteria would be used to determine whether compaction or cover material for a storage pile was adequate?**

**The BACT requirements for material handling include readily enforced performance standards as it is practical to do so, e.g., no visible emissions and use of appropriately designed filtration devices. For storage piles, for which such direct standards are not available, control measures must be used that achieve at least certain minimum levels of control efficiency, as demonstrated by standard engineering calculations developed by USEPA for assessment of the control of fugitive dust. The selected numerical values for nominal levels of control reflect emission data compiled by USEPA and the Illinois EPA's experience controlling fugitive dust from storage piles, where limestone is a potentially much dustier material and therefore must be controlled more aggressively. These BACT requirements are accompanied by requirements for Performance Testing, Periodic Testing, Operational Instrumentation, Inspections, Recordkeeping, Notifications and reporting as specified in Conditions 2.2.8-1 through 2.2.13, as well as certain specified Operating Requirements in Condition 2.2.6.**

109. The draft permit fails to contain any BACT determination for conveyors and drop points. The only means to control drop emissions are contained in Condition 2.2.6 that requires the drop distance be minimized. This is not listed in the control technology section and does not appear to be based on BACT. Nor does the application contain a BACT analysis for conveyors and drop points. As the project will increase the amount of coal processed through this system, it is subject to BACT for PM. A BACT analysis should be performed for all conveyors and drop points for both new and existing units.

**BACT requirements for the various material handling operations, including the units addressed in this comment, are contained in Conditions 2.2.2(a), (b), (c) and (d) of the permit. For conveyors and associated conveyor transfer points with the potential for PM emissions, for which enclosure and aspiration to a control device are practical, such measures are commonly recognized as providing the most effective control of PM emissions and are required. These BACT requirements apply to both new emission units and existing units that handle materials for Dallman 4. In addition, in Condition 2.2.6, the**

**permit specifies that certain techniques be used to control emissions. For storage piles, devices, such as adjustable stackers or ladders, must be used to reduce the distance that material falls when being added to a storage pile. These devices must be used to minimize visible emissions and operated in accordance with good air pollution control practices.**

110. The draft permit provides an emission limit of 11.8 tons/year for all the material handling operations combined. Compliance is to be determined employing a 12 month average, calculated from the amount of material handled and emission factors. In addition, the PM emission rates in Table B-1 must be met. However, these limits are not practically enforceable. These emissions rates were calculated based on emission factors from USEPA's *Compilation of Air Pollutant Emission Factors*, AP-42, and certain assumptions about the amount of material handled and PM control efficiency. The draft permit fails to provide any independent verification of these emissions. Nor is there any means to verify the factors and assumptions relied upon to convert the emission factors into emission rates. The USEPA has noted that AP-42 emission factors are not an adequate basis for determining compliance but that they must be confirmed by testing the pollutants in the emission stream or verifying the factors used in the calculation. The permit should be revised to require testing to confirm the emission factors and calculations used to estimate emission rates in Table 1-B. The permit should also be revised to require the factors used in the emission calculations, amount of material processed and control efficiency, be recorded and reported.

**The permit requires recordkeeping for the items requested by this comment. This allows for verification of the actual data that CWLP uses to calculate emissions on a continuing basis. Reporting of this data is not needed, particularly as the Illinois EPA's verification of CWLP's emission data will most likely occur during the course of an inspection of the source. If copies of particular records are needed, CWLP is required to provide them to the Illinois EPA upon request. The permit also provides for testing of emissions to be performed if deemed necessary to verify CWLP's emission data. (See Condition 2.2.8(b).)**

#### BACT and Other Requirements for Roadways

111. The fugitive emissions from truck traffic on roadways are the main contributor to ambient PM concentrations in the immediate vicinity of the plant. In response to an Illinois EPA inquiry, CWLP indicated that the only controls identified in the RBLC database were water spray and vacuum sweeping and thus, CWLP proposed such controls at up to one hour intervals or as the conditions warranted. CWLP's BACT determination concerning the frequency of application for various haul roads is not included in the draft permit. The permit should be revised to include the applicant's more restrictive BACT determination.

**The issued permit sets an opacity limit for emissions from roadways and other open areas at the plant, which was not present in the draft permit. The selected numerical limit is 10 percent, which is the generally applicable state standard for roadways and parking areas at**

plants in Illinois' historic PM10 nonattainment areas. Very effective control of fugitive dust emissions from roadways and parking areas was needed in these nonattainment areas as part of Illinois' attainment demonstration. An exception to the limit is established for high wind speed, during which conditions the technical ability to comply with or verify compliance with the selected opacity limit is uncertain. This limit is accompanied by requirements for observation of opacity from roadways and other open areas at the plant.

This opacity limit directly addresses the effectiveness of the measures that CWLP must use to control emissions of fugitive dust from roadways and parking areas at the plant. This limit also provides appropriate flexibility to address the other factors that affect the potential for emissions of fugitive dust from roadways, i.e., the volume and type of vehicle traffic, the efficacy of the selected treatment method(s), and weather conditions. In particular, a set frequency of road cleaning would not address: (1) Periods when there is not truck traffic on roadways, e.g., Sundays; (2) Variation in the effectiveness of different cleaning techniques; and (3) Weather conditions that control dust, i.e., precipitation, or increase dust, i.e., hot weather. An opacity limit accounts for these factors. With the opacity limit, during hot weather when the volume of truck traffic is high, CWLP would be required to clean roadways at an appropriate frequency to control dust during such conditions, perhaps even clean roadways continuously. This is fully consistent with CWLP's statement in the application that roadways would be treated at up to hour intervals or as conditions warranted.

112. The applicant inappropriately limited itself to a search for haul road fugitive dust controls to BACT determinations as reported on the RBLC and thus, failed to specify BACT-level controls. Other haul road mitigation measures that should have been considered include the use of dust suppressants, prompt removal of materials deposited on the roadway, covering of open trucks transporting material likely to become airborne, salting/sanding for snow and ice conditions, paving or otherwise stabilizing the shoulders of haul roads, and use of wind breaks to prevent wind erosion for adjacent areas. The BACT determination and permit should require the use of these additional measures.

The draft permit and the issued permit require a fugitive dust control program that is very effective, as the opacity from truck traffic on roadways is limited to no more than 10 percent. The various measures specified in the comment could be components of the program that CWLP must implement to comply with this requirement, particularly as they address a factor that is determined would otherwise significantly affect emissions from roadway. However, it is not necessary or appropriate in the permit to specify particular measures that must be part of the dust control program.

113. The 90 percent nominal control in the draft permit is inconsistent with the assumptions employed in the calculations of PM<sub>10</sub> emissions from the roads in the dispersion modeling. The emission calculations assumed 96 percent PM control for new and existing trucks on entrance roads and 94 percent PM<sub>10</sub> control for ammonia, ammonia loop, brine solids and brine

solids loop roads. The permit should require at least the same level of control assumed in the dispersion modeling.

The apparent inconsistencies noted by this comment do not require a revision to the 90 percent efficiency specified for the fugitive dust control program, as contained in the permit. First, PM emissions from traffic on the entrance road were not actually calculated based on an efficiency of 96 percent, but were in fact conservatively calculated using a control efficiency less than 90 percent. Second, the efficiency value used in emission calculations for the ammonia loop, brine solids and brine solids loop roads is an artifact of the low volume of traffic predicted for these "special purpose" roadways. Accordingly, this control efficiency is not a statement of the minimum level of control efficiency that must actually be achieved by the fugitive dust control program, as is being specified in the permit.

114. The record provides no evidence that the control efficiencies provided in the draft permit (90 percent) and assumed in the fugitive dust emission calculations (79 to 96 percent) will be met. The fugitive dust studies cited in my other comments suggest that additional mitigation measures are necessary to meet these high control efficiencies assumed in the PM10 emissions calculations.

If additional mitigation measures must be used to control dust from roadways to comply with either the BACT requirements set in the permit or the amounts of emissions allowed by the permit for roadways, CWLP will have to implement such measures.

115. The draft permit fails to provide how 90 percent control efficiency will be achieved for roadways but merely requires the development of a "written operating program" that will ultimately be submitted to the Illinois EPA for review and approval. As this written program is part of the BACT determination, it should have been included in the draft permit to allow for public comment.

The permit adequately sets forth how control efficiency requirements for roadways are to be achieved. As noted by the comment, CWLP must prepare a written operating program setting forth the specific measures that are being used to control fugitive dust from various roadways, which program must, among other matters, address the control efficiency that will be achieved by such measures. This procedural requirement is separate from the BACT determination for roadways and is one of the compliance procedures associated with the BACT determination, as well as the permitted emissions from roadways. As such, it need not be included in the draft permit. Moreover, inclusion of the plan in the draft permit, and presumably the issued permit, would not provide the necessary operational flexibility to CWLP to address changes in the control measures being used for roadways, as new techniques become available. It also would not provide the necessary flexibility for the Illinois EPA to assure that CWLP timely addresses developments in quantification methodology for roadway emissions, which could require a reevaluation and realignment of the control measures that are being used.

116. The modeled 24-hour PM<sub>10</sub> concentration (149 µg/m<sup>3</sup>) is close to the standard (150 µg/ m<sup>3</sup>) and the increase in the 24-hour PM<sub>10</sub> due to the proposed project (26.9 µg/ m<sup>3</sup>) is close to the 24-hour Class II Increment (30 µg/ m<sup>3</sup>). The draft permit merely limits annual PM<sub>10</sub> emissions from the haul roads, which is not adequate to ensure the short term ambient standards are met nor is it practically enforceable.

**The issued permit includes specific daily and annual limits for the PM emissions of the entrance road, which is the roadway that is of greatest concern for PM<sub>10</sub> air quality levels near the fence line of the plant. These additional limits will ensure that emissions are within the levels needed to protect ambient air quality.**

117. It is possible to meet the annual limit on PM emissions but exceed the 24-hour PM<sub>10</sub> ambient air quality standards. The impact of haul road emissions on ambient standards varies depending upon the haul road segment. For instance, the entrance haul roads have the largest impact followed by the coal haul roads. A very small increase in PM emissions from the entrance or haul roads offset by an equivalent decrease in emissions from other haul roads could cause an exceedance of the 24-hour PM<sub>10</sub> NAAQS and increment while still complying with the 6.0 tons/year limit. The permit should be modified to include separate PM<sub>10</sub> mission limits on each class of haul roads.

**The issued permit appropriately addresses the entrance road with a daily emission limit. Given the distance that other roadways are from the fence line and the imposition of operating requirements for other roadways, separate limits are not needed for roadways other than the entrance road.**

118. The haul road emission limit is a blanket annual emission limit of 6.0 tons/year. An inspector cannot verify compliance with an annual limit and it does not limit emissions during the first year of operation. "Blanket emissions limits alone (e.g. tons/yr, lb/hr) are virtually impossible to verify or enforce, and are therefore not enforceable as a practical matter." NSR Manual, p. C.5; see also, NSR Manual, p. H.5. The permit should be revised to set short-term limits, including a limit for the first year.

**Operational requirements for control of PM emissions are established for roadways to provide practical enforceability. These operational requirements are applicable on an "instantaneous" basis, so that appropriate action could be taken whenever a lapse in required control practices is observed.**

119. As set forth in the application, appendix C, the fugitive PM<sub>10</sub> emissions employed in the air quality modeling are based on certain assumptions, including the amount of material hauled, the type of trucks, the presence of paving, and a specific surface silt content. The assumptions that there will be no increase in the truck trips over the entrance haul roads and the silt content of the surface roads is only 2 g/m<sup>2</sup> appear to have been selected to reduce the ambient 24-hour PM<sub>10</sub> concentrations to just below the 24-hour NAAQS and Class II increment. These assumptions should be verified by actual monitoring.

**The issued permit includes requirements to verify silt loadings on roadways by actual measurements, as recommended by this comment.**

120. The draft permit fails to include any emission testing, operational monitoring and measurement, or emission monitoring to determine compliance with the haul road emission limit; thus, there is not assurance that the PM10 modeling accurately represents site conditions.

**As discussed, the issued permit includes a range of compliance procedures to address the emission control requirements for roadways.**

121. The draft permit fails to require any demonstration that the haul road emissions will be less than or equal to those assumed in the dispersion modeling except a calculation. As discussed in previous comments, emission factors are not an acceptable basis for a compliance demonstration. The permit should be modified to require a study to measure the key variables such as haul road length, number of truck trips, truck weight, and haul road silt content used in the emission calculations.

**As acknowledged by the comment in closing, engineering calculations using relevant operating information are routinely used to determine fugitive particulate emissions from roadways. The issued permit includes a comprehensive approach to both the control and quantification of fugitive emissions at the plant, to reasonably assure that actual emissions are within the levels used in the air quality analysis.**

122. The draft permit fails to provide any limits on the truck trips over paved haul roads. The permit should be revised to limit the amount of material hauled to be assumed in the PM10 emission calculations.

**The amount of different materials handled at the plant is adequately restricted by the size and nature of the various generating units at the plant. It is not necessary to further limit the amounts of different materials that are handled. In addition, assumed information about vehicle traffic is not needed for the purpose of emissions calculations, as actual PM emissions can and must be calculated based upon actual information for the amount and nature of vehicle traffic.**

#### Air Quality Impacts - Particulate Matter

123. The atmosphere can only absorb a limited amount of air pollution in the Springfield region. Providing the remaining absorptive capacity to a dirty coal-fired electrical generating unit will necessarily limit cleaner industries in the future.

**As the proposed project replaces the two older Lakeside generating units with a net reduction in emissions, the overall effect of the proposed project will be to improve air quality. This is often the result as new industrial equipment with improved technology replaces older equipment. Moreover, because of the general improvement in emission control technologies over time, air quality is generally improving. This provides ample room for new cleaner industries using**

**modern control technology to enter the Springfield area while still maintaining the quality of the air.**

124. The air quality data for 2005 shows that Sangamon County did not meet the annual National Ambient Air Quality Standard for PM<sub>2.5</sub> set by USEPA. This standard addresses the very small particulate that causes heart attacks, lung disease, asthma and death. More particulate should not be added with this project if Sangamon County does not meet this standard. Instead, particulate emissions should be decreased.

**Sangamon County is in compliance with the annual PM<sub>2.5</sub> air quality standard. Compliance with this standard is determined as a three-year average. When USEPA evaluated the appropriate form for this standard, it determined that the standard should be set in terms of three years data, not a single year. For the three-year period, for 2003, 2004 and 2005, the PM<sub>2.5</sub> air quality in Sangamon County is about ten percent better than the standard, so Sangamon County is in compliance. Air quality for PM<sub>2.5</sub> should improve as a result of national and state programs that are reducing the emissions of pollutants that contribute to PM<sub>2.5</sub>, notably the federal Clean Air Interstate Rule (CAIR).**

**Incidentally, USEPA also set a short-term ambient air quality standard for PM<sub>2.5</sub> that applies on a 24-hour basis. Air quality data shows that Sangamon County complies with this standard, with maximum PM<sub>2.5</sub> levels that are about 30 percent better than the standard.**

125. Even if the annual PM<sub>2.5</sub> air quality standard has not been exceeded, the air quality data for 2005 was above the numerical standard and indicates a trend with increasing levels of PM<sub>2.5</sub>. The Illinois EPA should have a policy for an area that is getting close to, and, in this case, really close to being in nonattainment. It is not appropriate to add 400 tons of PM to an area in these circumstances.

**The 2005 air quality data does not show a trend of increasing PM<sub>2.5</sub> air quality and is consistent with a long-term trend of improving air quality for PM<sub>2.5</sub>. Air quality for PM 2.5 varies from year to year based on a number of factors including the weather. While the average air quality in 2005 was higher than in a typical year, this is a consequence of particular weather conditions that were more favorable for the formation of PM<sub>2.5</sub>. It does not show an upward trend in PM<sub>2.5</sub> air quality.**

**Moreover, there are various emission control programs that are reducing emissions of precursor compounds that contribute to formation of PM<sub>2.5</sub> in the atmosphere, including the Clean Air Interstate Rule (CAIR), that are going to have significant effects. The Illinois EPA is developing attainment strategies to bring the heavily developed metropolitan areas, including the Chicago and St. Louis metropolitan areas, into attainment. Those actions will also improve air quality in less urbanized areas like Springfield.**

**Finally, this project results in an overall decrease in emissions of precursors to PM<sub>2.5</sub> and should be accompanied by a general improvement in PM<sub>2.5</sub> air quality. First, annual emissions of SO<sub>2</sub> will be reduced by over 5,000 tons. This is ten times the increase in PM emissions**

that would potentially occur using the worst-case arithmetic that is used to evaluate the net change in emissions from a proposed project. This project will likely result in a far greater reduction in emissions of SO<sub>2</sub> as it is accompanied by a reduced use of the other existing units at the plant, which was not considered in the evaluation of the net change in emissions. Second, the actual increase in particulate matter emissions from the project will also likely be far less than 400 tons, as this reflects continuous operation of the new unit at the allowable rate, rather than actual operation.

#### Air Quality Analysis

126. The air quality analysis for the proposed project improperly used meteorological data from the Springfield Airport, which is located 8 miles from CWLP. Such data is not site specific to the CWLP plant, but particular to a facility experiencing many landings, take offs and idling airplanes. Moreover, the quality of the meteorological data collected at the airport is much less than recommended by the USEPA for air dispersion modeling. See, *Meteorological Monitoring Guidance for Regulatory Modeling Applications*, EPA-454, R-99-005, February 2000.

Meteorological data from the National Weather Service (NWS) surface station at Springfield Airport, the nearest NWS station to the project site, is suitable for the performance of dispersion modeling for the proposed project. Such data is spatially and climatologically representative of the meteorological data at the actual project site. Consistent with the requirements set forth in USEPA's *New Source Review Workshop Manual: Prevention of Significant Deterioration and Nonattainment Area Permitting*, (NSR Manual), five years of meteorological data were used, which assures that the dispersion modeling addressed the full range of weather conditions experienced in Sangamon County and Central Illinois.

The USEPA guidance document cited in this comment does not indicate that it is inappropriate to use NWS data from an airport weather station for modeling. With respect to airport data, USEPA states "Although data meeting this guidance are preferred, airport data continue to be acceptable for use in modeling. In fact observations of cloud cover and ceiling, data which traditionally have been provided by manual observation, are only available routinely in airport data." Page 6-30. USEPA's focus in the cited document is providing guidance for collection of in-situ meteorological data in the vicinity of a project. Accordingly, the document addresses circumstances in which airport data is not available or where the topography in an area is such that data from the nearest airport would not be representative. In such circumstances, the quality of data collection is important as meteorological data may only be collected for a limited period of time, most likely one year, but perhaps as little as four months. Data is also collected by the permit applicant or a consultant working for the applicant, not the NWS.

127. The air quality analysis improperly addressed periods of calms. I analyzed the effect of setting calm winds to 1.0 meters/second and then randomizing the associated hourly flow vectors. Modeling using this

approach showed higher concentrations than predicted by the modeling conducted for CWLP.

The modeling was properly conducted in accordance with USEPA guidance for the performance of dispersion modeling. Modeling using the Industrial Source Complex Short Term Model, Version 3 (ISCST3) with default options is fully acceptable, including use of the default option for processing of calms. The ISCST model is already very conservative in not allowing the centerline of the Gaussian distribution plume to vary at all over a 1-hour averaging period. The use of a method to replace the default calms processing option (specifically NOCALM) adds an inappropriate and unrealistic degree of conservatism to the modeling analysis. Calms, periods of little or no winds, are not well represented in Gaussian type models by design, so that it is necessary for models like ISCST to include specific methods or algorithms to address such periods. The default calms processing option contained in the ISCST Model is the most appropriate method. In this regard, when discussing the treatment of calms in *Meteorological Monitoring Guidance for Regulatory Modeling Applications*, USEPA observes that "EPA recommended models such as ISCST accomplish with routines that nullify concentrations estimates for calm conditions and adjust short-term and annual average concentrations as appropriate." Pages 6 and 7.

128. Site specific meteorological data should have been collected and used for the air quality analysis. The emissions from CWLP are not only enormous but complex. The PSD application should not be approved until CWLP has collected at least one year of meteorological data consistent with the USEPA's Meteorological Monitoring Guidance for Regulatory Modeling Applications. For instance, two recent projects in Nevada, Granite Fox Power and Newmont Nevada have collected at least one year of pre-construction meteorological data consistent with state guidelines. Nevada Bureau of Air Pollution Control, Ambient Air Quality Guidelines, May 4, 2000. Moreover, the Santa Barbara County Air Pollution Control District requires at least one year of pre-construction air quality and meteorological monitoring. Santa Barbara County Air Pollution Control District, Rule 803, Prevention of Significant Deterioration.

The circumstances of the proposed project did not warrant collection of site-specific meteorological data. The meteorological data collected at the Springfield National Weather Service site, which is less than 8 miles from the project site, is representative of the area surrounding the proposed project and was suitable for the air quality analyses performed for this project. This is because of the topography of Sangamon County, the circumstances in the States of California and Nevada, which were referred to in this comment, are not relevant to those in Illinois, as these states have a much more varied terrain, including both mountains and deep valleys. As a result, these states may find it necessary to more frequently require site-specific meteorological monitoring for proposed projects to address the effect of the unique terrain near proposed projects. In this regard, the rules and guidelines of the other jurisdictions cited in these comments also provide for alternatives to site-specific collection of meteorological data subject to approval on a case-by-case basis.

129. The modeling results for particulate matter are based on underestimated emissions of fugitive dust from roadways. The haul road PM10 emissions assume a background silt loading value of 2 gram/meter<sup>2</sup> (g/m<sup>2</sup>); if a slightly higher silt loading value were used, the project would result in violations of the 24-hour PM10 NAAQS and Increment. The paved roads are within the boundary of an existing industrial site and are heavily traveled. Thus, they are industrial roadways that have silt loading values much higher than 2 g/m<sup>2</sup>. In its *Compilation of Air Pollutant Emission Factors*, AP-42, USEPA recommends that either site-specific data should be used, or if such data is not available, an appropriate mean value from a table listing silt loadings from a variety of industrial roads should be used. The industrial roadway table provides a range of mean silt loading values from 7.4 to 292 g/m<sup>2</sup>. AP-42 Sec. 13.2.1-4, Table 13.2.1-4.

**The values for silt loadings in USEPA's *Compilation of Air Pollutant Emission Factors*, AP-42, represent uncontrolled silt loadings. CWLP does have a voluntary fugitive dust control program in place, and will increase the frequency of treatment to enhance the level of control. The silt loading value of 2 g/m<sup>2</sup> that was used in the PM10 modeling for the proposed project is within the general range of suggested silt loading values provided in AP-42. The silt loading values in AP-42 go as low as 0.03 g/m<sup>2</sup>. Table 13.2.1-4 in AP-42 does not have a silt loading value for power plants. However, there are silt loading values for iron and steel production that are as low as 0.09 g/m<sup>2</sup>. Other categories of sources are also listed, and have higher silt loading values, but are much more prone to particulate generation, such as sand and gravel, quarrying, and concrete batching. Therefore, it is not reasonable to compare their paved roads at those types of sources to those in a power plant.**

130. If the lower end of the silt loadings from industrial roadways, 7.4 g/m<sup>2</sup>, is assumed, the modeled concentrations from the plant would contribute to exceedances of the 24-hour PM10 ambient air quality standard and the PSD increment. In fact, modeled violations of the 24-hour air quality standard would be predicted if the silt loading factor is increased by 10 percent, from 2 to 2.2 g/m<sup>2</sup>.

**The issued permit includes appropriate provisions to assure that emissions of PM from roadways at the CWLP power plant are within the levels that CWLP used in its air quality modeling. Accordingly, if the silt loadings on roadways are higher than used by CWLP in its analysis, as would be revealed by measurements of silt loading on roadways at the plant, as required by the issued permit, CWLP would have to implement additional control measures for roadways, as needed to keep actual levels of PM emissions within the levels used in the air quality modeling. Such additional control measures would be both practical and feasible for CWLP as there would be greater amounts of "uncontrolled" particulate emissions theoretically present if such control measures were not being implemented.**

131. CWLP has not analyzed impacts of the proposed project on air quality for PM2.5 and ozone.

The proposed project will act to improve PM2.5 air quality, as it is accompanied by a net decrease in emissions of SO<sub>2</sub> and NO<sub>x</sub>, precursors compounds that contribute to the formation of PM2.5 in the atmosphere. For the direct emissions of particulate matter, the PM10 modeling for the project shows that the project will not have a significant impact on these metropolitan areas, on either a 24-hour or annual average. This is because the significant impact area for the project, i.e., the area within which modeling predicts significant impacts from the project, extends for less than two kilometers from the plant. Even if one makes the conservative assumption that all PM10 emissions from the project are PM2.5 emissions, this shows that the direct emissions of PM2.5 from the project will not have a measurable effect on PM2.5 air quality on areas that are more than 2 kilometers from the plant, including the "nearby" St. Louis nonattainment area whose northern border is over 80 kilometers from the plant.

An analysis of the project's impact on ozone air quality, 8-hour average, is not required because NO<sub>x</sub> emissions decrease with the project and the increase in VOM emissions is not significant. However, the Illinois EPA has previously analyzed the effect of proposed power plants on ozone air quality, *An Assessment For Ozone Air Quality Impacts From Proposed Electric Generating Units in Illinois* and *Assessing the Impacts on the St. Louis Ozone Attainment Demonstration from Proposed Electrical Generating Units in Illinois*. In these studies, the Illinois EPA evaluated the effect of a number of proposed power plants on the 1-hour ozone attainment demonstrations for the Chicago and St. Louis Metropolitan areas were evaluated to determine whether they would affect the demonstrations. Also relevant to this matter is guidance issued by USEPA indicating that, until further guidance is provided, assessments of impacts on ozone air quality conducted as part of PSD permitting should use the 1-hour ozone ambient air quality standard as a surrogate for the 8-hour ozone standard. The assessments conducted by the Illinois EPA for ozone addressed a number of proposed power plants including: the proposed Indeck-Elwood plant on the edge of the Chicago metropolitan area; the proposed conversion to coal (which has since been shelved) of Midwest Generation's Collins station to coal, located near the Chicago metropolitan area; and the proposed Prairie State Generating Station east of the St. Louis area. The studies found that the addition of these plants, as well as plants farther away, would not interfere with the attainment plans for these metropolitan areas. Accordingly, the proposed project, which is over 200 km away from the Chicago area and 80 kilometers from the St. Louis area and for which there is a net decrease in emissions of ozone precursors, will not worsen ozone air quality measured in these areas.

132. The air quality analysis submitted by CWLP failed to address the impact of proposed Dallman 4 on the Greater Chicago and Greater St. Louis nonattainment areas, which are located close to Springfield. Consideration of impacts on these areas, which are nonattainment for ozone and PM2.5, is required by Section 165(a)(3) of the Clean Air Act.

The Clean Air Act does not require the action claimed by this comment nor is such action otherwise appropriate given the nature of the proposed project and the work that is underway to bring these other areas into attainment. The focus of the permitting exercise for the

proposed Dallman 4 project is on the area in which the project is located, i.e., Sangamon County. The air quality analysis for the project adequately shows that the emissions from the project will not cause or contribute to exceedances of PM air quality standards in the area in which it is located. The analysis indirectly shows less than significant impacts in the distant nonattainment areas.

The air quality in the distant Greater Chicago and St. Louis nonattainment areas cited by this comment is being addressed by work by the USEPA, the Illinois EPA and other state air pollution control authorities. This work addresses the emissions of the existing sources that as a group are responsible for nonattainment, and is separate from the permitting of proposed new projects. This work addresses both sources in the nonattainment areas, whose emissions can directly contribute to nonattainment, and sources located outside the nonattainment areas, as such outlying sources contribute to regional background levels of pollutants in the atmosphere. For coal-fired power plants, these efforts have resulted in the NO<sub>x</sub> Trading Program, which caps the total, seasonal NO<sub>x</sub> emissions of coal-fired power plants on a regional basis. Additional caps on regional emissions of both NO<sub>x</sub> and SO<sub>2</sub> are scheduled to take effect under the USEPA's Clean Air Interstate Rule (CAIR). As a result of the work that has already occurred, there have been significant improvements in air quality in these distant urban areas and the improvements will continue.

133. For purposes of determining the impact of a proposed facility, the Clean Air Act does not provide an exception for sources that cause or contribute to nonattainment in less than a "significant" amount. Instead, the Clean Air Act provides a bright line that applies to all sources that cause or contribute to violations of NAAQS, including those whose contribution is not "significant." Accordingly, a permit must be denied if CWLP cannot affirmatively demonstrate that it will not cause or contribute to such nonattainment conditions.

The Clean Air Act does not act in the manner suggested by this comment. Like other provisions of the Clean Air Act, the cited provision is administered by USEPA through its regulations, guidance and policy. As administered by USEPA, the principle of *de minimis* air quality impacts or "significant impacts levels" is an essential element of the performance of air quality analyses. The principle is addressed in the USEPA's NSR Manual, which states the following with regard to a modeled violation of a NAAQS: "The source will not be considered to cause or contribute to the violation if its own impact is not significant at any violating receptor at the time of each predicted violation. In such a case, the permitting agency, upon verification of the demonstration, may approve the permit" (NSR Manual, page C. 52). For this purpose, for each averaging time, USEPA has set a numerical significant air quality impact level that defines the level at which a modeled impact may be presumed to have an effect on existing ambient air quality. If the modeled impact of a proposed project is below this level, the project is not expected to affect current air quality in a way that could be distinguished as a practical matter, i.e., current air quality will in effect be unchanged with the project. Alternately stated, a project would not be considered to contribute to current ambient air quality levels and would be considered to have zero impact.

In contrast, the interpretation suggested by the commenter would lead to the absurd result that no major facility could ever be constructed. This is because an individual proposing a new major facility would have to address the impact of the proposed facility on every area of the United States that was nonattainment and demonstrate that the proposed facility would have absolutely no affect on ambient air quality in any such area. Such a showing would be impossible to make and, by blocking the development of major facilities, would have a result that is clearly contrary to the purposes of the Clean Air Act.

Requirements for the Boiler for Emissions of SO<sub>2</sub> and NO<sub>x</sub>

134. In the netting exercise for NO<sub>x</sub> emissions, CWLP used data for the Lakeside units from 2002 and 2003. With more recent emission data from 2004 and 2005, the project would show a significant increase in emissions, so that the project should be subject to BACT for NO<sub>x</sub>. In the name of air quality, the data from 2004 and 2005 should be used in determining the net change in emissions.

**CWLP has properly evaluated the change in NO<sub>x</sub> emissions from the proposed project, in a manner that is consistent with applicable regulatory requirements. The Illinois EPA does not have the authority to impose requirements for the netting exercise that deviate from those requirements.**

135. The netting analysis for proposed Dallman 4 uses emission decreases from the shut down of Lakeside Units 7 and 8. To be used in a netting exercise, an emission decrease must be contemporaneous with the proposed emission increase. However, the draft permit does not require the shut down of the Lakeside units until 18 months after the Dallman 4 initially starts up. At this point, no firm time frame is provided for the shut down of the Lakeside units.

**A specific timeframe or date is not needed to make the future shut down of the Lakeside units enforceable. The shut down of the Lakeside units can be and is made enforceable in relation to the initial start up of Dallman 4. Because of uncertainty in the timing of the development and construction of new emission units, the precise date of initial start up of new emission units cannot be known in advance. Accordingly, requirements to shut down existing units are routinely expressed in relation to the initial startup of the new unit.**

136. It is unlikely that proposed Dallman 4 is a replacement for the Lakeside units as the former is much bigger than the later, 250 MW versus a total of 75 MW for the Lakeside units. As Dallman 4 is not a replacement, a shakedown exemption for emission increases is not appropriate.

**The difference in the capacity of Dallman 4 and the Lakeside units does not alter the fact that Dallman 4 is a replacement for the Lakeside units. The Lakeside units are part of CWLP's current inventory of generating units, which are used to supply electricity to its customers. To continue this function without interruption or**

**potentially severe disruption in the cost of the power for its customers, CWLP may not be able to remove the Lakeside units from its inventory of generating units until compliant, reliable operation of new Dallman 4 has been confirmed.**

137. Assuming that the proposed Dallman 4 is a replacement unit, the draft permit allows an indefinite extension of the shakedown period. During the shakedown period, the Lakeside units are allowed to operate so long as NO<sub>x</sub> and SO<sub>2</sub> emissions are respectively less than 420 and 2,580 tons/quarter thereby triggering PSD review.

**This is not correct. The duration of any extension of the shakedown period is subject to approval by the Illinois EPA. The provisions for the extended shakedown are included in the permit in the event of an extraordinary event that would prevent operation of the new unit once it had initially started up, such as a failure of the steam turbine, generator or major component of the unit. Because the shakedown period is measured in calendar days from the start of the shakedown period, rather than the number of days that a new unit actually operates, such an event would prevent the normal shakedown of Dallman 4, since the unit would not actually be able to operate during most of the shakedown period.**

138. After the extended shakedown period, for 18 months after the end of the extended shakedown, the Lakeside units are allowed to operate when Dallman 4 is out of service for an extended outage. This is a change in operation that triggers PSD review for NO<sub>x</sub> and SO<sub>2</sub>.

**This provision is also included in the permit as a contingency measure to address an extraordinary event that would interfere with the operation of Dallman 4 for an extended period of time. The potential for such events to occur for a new unit extends beyond the formal shakedown period. For a new unit, the occurrence of such an event would reflect a condition that was not so severe that it made its presence known during the shakedown period, but still relates to a flaw in the design, fabrication or installation of a component of the boiler system. As such, the consequences of such event are properly related to the original construction project and not treated as a separate project. To assure this is the case, the duration of the transition period allowed by the issued permit has been reduced to 12 months. The criteria for any operation of the Lakeside Units during this period have also been strengthened and a requirement added for notification to the Illinois EPA, with explanation, prior to any operation of the Lakeside Units.**

139. To be used in a netting exercise, emissions decreases must be creditable. The decrease in actual emissions are not creditable because they are not enforceable as CWLP's CAAPP permit has not been revised to require the shut down of Lakeside Units 7 and 8 by a specific date. Nor does the draft PSD construction permit require the shut down of the Lakeside units. Moreover, under the state regulations, 35 IAC 203.303(a), emission offsets must be effective prior to the start up of the new or modified source and must be federally enforceable.

The emissions decreases from the shutdown of the Lakeside units are credible for the purpose of a netting exercise. The permit clearly states that the Lakeside units must be shut down in conjunction with the development of new Dallman 4. The permit also provides a schedule, which includes specific dates, by which this must occur. Any adjustment to these dates is subject to stated criteria and action by the Illinois EPA. The permit includes provisions to assure that any overlapping operation of Dallman 4 and the Lakeside units that would occur after the basic 180 day shakedown period is not accompanied by any net increase in emissions of SO<sub>2</sub> or NO<sub>x</sub>. This is done by limiting the combined emissions of the Lakeside units and Dallman 4, on a quarterly basis, to less than one quarter of the historical emissions of the two Lakeside units.\* Finally, as these conditions are included in the issued permit, they are enforceable.

\* These limits are lower than those in the draft permit, as a result of the correction of an arithmetic error made when calculating the limits in the draft permit.

140. The emission decreases from the shut down of the Lakeside units are not creditable because they are not based on the lower of actual or allowed emissions. The emission decreases were based on the average 2002 and 2003 actual emissions. For a decrease to be creditable, "[t]he old level of actual emissions or the old level of allowable emissions, whichever is lower, exceeds the new level of actual emissions." 40 CFR 52.21(b)(3)(vi)(a). As the allowable NO<sub>x</sub> emissions are lower than the actual NO<sub>x</sub> emissions, the allowable emissions should have been used in the netting. If the allowable emissions had been used, it would have shown that the increased NO<sub>x</sub> emissions exceed the PSD significance threshold.

The emissions decrease from the Lakeside units is based on the lower of actual or allowable emissions, as it is based on the actual emissions of the Lakeside Units. CWLP has always complied with the applicable emission standards for NO<sub>x</sub> emissions as they are applicable to the Lakeside units. While standards for NO<sub>x</sub> emissions from the Lakeside units became effective in May 2003, these standards did not require the Lakeside Units to comply with a seasonal NO<sub>x</sub> limit of 0.25 lb/million Btu, as claimed by these comments. 35 IAC Part 217, Subpart V, also allows compliance to be demonstrated with an averaging demonstration, which is the method by which CWLP has demonstrated compliance. Therefore, the actual NO<sub>x</sub> emissions of the Lakeside units have always been below the allowable emissions. No adjustment to the historical actual NO<sub>x</sub> emissions of the Lakeside units is needed in the netting analysis to address alleged noncompliance.

To assure that CWLP is able to continue to operate the Lakeside units in compliance with requirements for NO<sub>x</sub> emissions until these units are permanently shut down, provisions have been included in the issued permit that maintain CWLP's ability to demonstrate compliance by means of an averaging demonstration. These provisions incorporate conditions from the CAAPP permit for the source, which is not yet effective, that authorize the Lakeside Units to participate in averaging demonstrations for purposes of Part 217, Subpart V. In addition, provisions have been included in the issued permit to address

**the "credits" that existing Dallman 1, 2 and 3 contribute to the averaging demonstration and assure that the NO<sub>x</sub> emissions of these units remain within the levels that were necessary to show compliance by means of an averaging demonstration even after the Lakeside units are permanently shut down.**

141. Illinois rules, 35 IAC 203.104, provide that the netting exercise for NO<sub>x</sub> should have been based on data for 2004 and 2005, the two-year period that immediately precedes the project.

**The netting exercise for emissions of NO<sub>x</sub> is governed by the federal rules for Prevention of Significant Deterioration (PSD), 40 CFR 52.21, not the cited state rules. Under the PSD rules, a source proposing an electric power project can use any 24-month period in a contemporaneous five year period prior to commencement of construction on a project. (Refer to 40 CFR 52.21(b) (3) (i) (b) and 52.21(b) (48) (i) .)**

142. By employing the incorrect time period for the baseline actual emissions in the netting exercise (2002 and 2003), CWLP failed to properly determine the emissions increase and decrease for NO<sub>x</sub> and SO<sub>2</sub>. The PSD rules define baseline actual emissions as "the average rate, in tons per year, at which the unit actually emitted the pollutant during any consecutive 24-month period selected by the owner or operator within the 5 year period immediately preceding when the owner or operator begins actual construction of the project." 40 CFR 52.21(48) (i). However, state regulations, 35 IAC 203.104, provide that the actual emissions are the average rate, in tons per year, at which the emissions unit actually emitted the pollutant during the two year period which immediately precedes the particular date or such other period that is determined by the Illinois EPA to be representative of the normal source operation. If the correct period is used, 2004 and 2005, the net change in NO<sub>x</sub> emissions exceeds the significant emissions rate, thereby triggering PSD review. No rationale has been provided as to why the 2002 - 2003 time period is "more representative" than the 2004-2005 time frame.

**The state rules cited in this comment are not applicable to the permitting of the proposed project. This is because the project is not taking place in a nonattainment area. The permitting of the proposed project is subject to the PSD rules, not 35 IAC Part 203. As also noted in the comment, the period of time used by CWLP to select the baseline actual emissions for this project are consistent with the federal PSD rules.**

143. The SO<sub>2</sub> netting analysis failed to consider the contemporaneous emissions increase that resulted from CWLP's April 2002 request that the Illinois EPA modify its operating permits for the Lakeside and Dallman units to increase the plant-wide SO<sub>2</sub> cap from 2,304 lb/hour. This change was carried over into the CAAPP permit issued to CWLP by the Illinois EPA. This change increases potential SO<sub>2</sub> emissions, exceeding the significant emission rate, thereby triggering PSD review.

**CWLP's request in April 2002, and subsequent action by the Illinois EPA, to correct the state SO<sub>2</sub> emission standard listed in the operating permits for CWLP's Dallman and Lakeside units does not constitute a**

**modification. Moreover, this correction accompanied a request to revise the operating permits for Dallman 1 and 2 to also address a new SO<sub>2</sub> scrubber that began operation in 2001, an action by CWLP that significantly reduced SO<sub>2</sub> emissions from these units.**

144. For each pollutant subject to netting, all source-wide creditable and contemporaneous emission increases and decreases must be included in the PSD applicability determination. The SO<sub>2</sub> netting analysis also failed to include the contemporaneous emission increase that will result from the change in the sulfur content of the coal supply to the plant. The design coal supply for proposed Dallman 4 has a sulfur content of 6.96 lbs/million Btu. The proposed fuel has a higher sulfur content than the fuel historically burned by CWLP, 6.0 lbs/million Btu. As such, the burning of the fuel plant-wide will result in SO<sub>2</sub> emissions that were not considered in the netting analysis.

**The sulfur content of the coal supply is not relevant to the netting analysis for a number of reasons. Most importantly, existing Dallman 1, 2 and 3 are equipped with scrubbers. Thus, the sulfur content of the coal supply to the units plays at most a minor role in their SO<sub>2</sub> emissions, which is largely determined by the control efficiency that is achieved in practice by the scrubbers.**

145. Data from USEPA's Clean Air Markets Division for Dallman 1 and 2 suggests that their firing rate increased in 2004 and 2005, as compared to previous years suggesting a modification to those units or a change in the method of operation. The Illinois EPA must investigate the increased firing rate to determine if PSD review is required.

**The increased utilization of the Dallman 1 and 2 observed by this commenter does not represent a physical change or change in the method of operations of the units for purposes of the PSD rules. Reviewing data for a number of years, the increased utilization reflects normal variation in utilization of units. This is caused by a variety of factors, most notably, the availability or outage of different generating units and the weather, as it affects the demand for electricity.**

146. Because of the various flaws in CWLP's netting exercise, as addressed in other comments, the net increase in NO<sub>x</sub> emissions for the proposed project is above 40 tons/year, the significant emission rate for NO<sub>x</sub>, so that the project is subject to BACT for emissions of NO<sub>x</sub>. A "top down" BACT analysis should be conducted. Consideration should be given to the 0.05 lb/million Btu 24-hour average limit set for Louisville Gas & Electric's Trimble County Unit 2.

**As explained in the responses to individual comments on the netting exercise, the netting exercise for NO<sub>x</sub> was not flawed. Accordingly, Dallman 4 is not subject to PSD and BACT for emissions of NO<sub>x</sub>.**

147. The limits for SO<sub>2</sub> emissions in the draft permit do not reflect a determination of BACT for SO<sub>2</sub>. SO<sub>2</sub> limits that represented BACT would be lower than those in the draft permit.

This is correct. However, as the proposed project would result in a net decrease in SO<sub>2</sub> emissions, the SO<sub>2</sub> emissions of the project are not subject to PSD or BACT. The permit contains limits that are sufficient to ensure that this project will be accompanied by a net decrease in SO<sub>2</sub> emissions. Based on the limits in the permit, the project would be accompanied by an annual net decrease in SO<sub>2</sub> emissions of at least 5,000 tons.

In actual practice, CWLP will likely control SO<sub>2</sub> emissions from the proposed unit much more effectively than required by the permit. Under the allowance program for SO<sub>2</sub> emissions from power plants, CWLP will have to hold and retire allowances for the SO<sub>2</sub> emissions of the new unit, like it does for its existing units. Accordingly, it will be in CWLP's own self-interest to minimize its SO<sub>2</sub> emissions to the extent feasible with installed control equipment, so that it operates with a surplus of allowances, never having to buy SO<sub>2</sub> allowances from other sources.

148. "Netting" is not an appropriate way to determine the permissible emissions of proposed Dallman 4. This is because the Lakeside units are 50 years old and would have to be shut down or be upgraded to comply with new emission control requirements that are coming into effect in 2010. The Lakeside units have not had to comply with the majority of the new Clean Air Act standards. CWLP has decided to shut them down because they cost too much to clean up. In its prospectus to sell bonds to finance proposed Dallman 4, CWLP indicates that the Lakeside units are reaching the end of their useful life and are scheduled to close by 2010, as it would otherwise cost approximately \$114 million to extend their life to 2017. The permissible emissions from proposed Dallman 4 need to be determined on what this new unit would be permitted to emit, not determined by how much CWLP will be reducing emissions by getting rid of with the Lakeside units. I know that that this is not how the law works, but that is not right when old units are going to have to be shut down regardless of building a new unit.

"Netting" is only one factor in the permissible emissions of proposed Dallman 4. As a new boiler, Dallman 4 must use modern emission control technology to comply with applicable emission standards for a new boiler under the federal New Source Performance Standards. What the netting exercise affects is whether it is necessary to consider more stringent standards for certain pollutants on a case-by-case basis under the PSD program. For this project, the netting exercise excuses Dallman 4 from such further consideration for two pollutants, NO<sub>x</sub> and SO<sub>2</sub>. This is possible because of CWLP's commitment to shutdown the Lakeside units.

CWLP's decision to shut down the Lakeside units, while driven by economic considerations, is nevertheless a voluntary action for purposes of the Clean Air Act. CWLP has operated the Lakeside units in compliance and has complied with the applicable requirements of the new Clean Air Act of 1990, e.g., the Acid Rain Program. The Clean Air Interstate Rule (CAIR), which will become effective in 2010, does not require that additional control equipment be installed on the Lakeside units. Rather, as a market-based allowance program, CAIR encourages

electric companies to install additional control equipment on their larger and newer units, on which the investment in such control equipment will provide the greatest reduction in emissions. As a voluntary action, it is not inappropriate to allow the shutdown of the Lakeside units to be included in a netting exercise.

149. CWLP should not be able to take credit for the emission decreases associated with the decommissioning of the Lakeside units as, according to CWLP representatives, the shut down of the Lakeside units is necessary for compliance with new Clean Air Act regulations.

As explained above, Lakeside units do not have to be shut down to comply with Clean Air Act requirements. CWLP has decided that the most economical way to meet Clean Air Act requirements and its other requirements is to shut down and replace its Lakeside units. This decision results in many benefits that would not have occurred if CWLP had simply chosen to do the minimum needed to comply with Clean Air Act requirements for the Lakeside units, including lower emissions, improved energy efficiency, and additional generating capacity for the future.

Permit Provisions for Other Pollutants (CO, HAPs, CO<sub>2</sub>, etc.)

150. CWLP's application contains data on the potential emissions of various hazardous air pollutants (HAPs) from the proposed unit. However, the draft permit does not contain limits on the emissions of HAPs. Can limits on the emissions of HAPs be included in the permit?

While CWLP included information on emissions of various hazardous air pollutants (HAPs) in its application, it is neither necessary nor appropriate to include limits in the permit on emissions of all individual HAPs. First, the USEPA has evaluated the emissions of HAPs from coal-fired power plants and found that their emissions of HAPs, other than mercury, do not pose a hazard to public health. Second, emissions of many HAPs can be and are routinely addressed through limits on surrogate compounds. In particular, limits for PM serve to address emissions of HAPs that occur as PM. Accordingly, the permit only needs to set limits for emissions of two HAPs, mercury and hydrogen chloride, to address HAP acid gases.

151. The draft permit requires proposed Dallman 4 to control mercury, hydrogen chloride and VOM emissions. However, the draft permit does not even set HAP limits close to what the application states the unit can achieve. The majority of the requirements pertaining to HAP emissions deal with testing.

The permit appropriately addresses emissions of HAPs. The permit sets limits for emissions of mercury, hydrogen chloride and VOM that are the emission rates that CWLP indicated in its application that proposed Dallman 4 would meet. The permit also sets requirements that would represent Maximum Achievable Control Technology (MACT) for HAPs, to address the possibility that a determination of MACT would be required for the proposed boiler. For this purpose, MACT limits are set for emissions of different classes of HAPs, either directly or indirectly

by means of surrogate compounds. Because emissions of various classes of HAPs are addressed in this way, consistent with USEPA practice in setting MACT for a variety of types of sources, it is not necessary to set limits for all HAP compounds in each class. Like BACT, the MACT determinations consider and address variability in the performance of the emission control technology used to control a class of pollutants. The MACT determinations include numerical emissions limit and, in some cases, alternative work practice or control efficiency standards. For example, the MACT determination for hydrogen chloride sets an emission limit of 0.02 lb/million Btu, which is the MACT standard established by USEPA for coal-fired non-utility boilers in 40 CFR 63, Subpart DDDDD. An alternative control efficiency standard is also established at 97.5 percent, based upon the chlorine content of the fuel supply to the boiler. In addition to establishing compliance procedures to accompany these requirements, the permit also requires emission testing for the proposed boiler for certain metal HAPs and dioxin/furan, even though actual control of these pollutants is being addressed with the limits set for PM, VOM and hydrogen chloride.

152. The allowable mercury emission limit in the draft permit, set at 0.023 tons per year is significantly higher than either the permit application, proposed at 0.017 tons per year, or the presently reported air emissions from the entire CWLP plant averaged for the past three years at 0.013 tons per year.

The observed disparity in mercury emissions generally occurs because of the difference in the way that emissions of existing units and the new unit are expressed, i.e., the difference between potential and actual emissions. The allowable emissions in the permit for Dallman 4 reflect potential emissions. Potential emissions are the amount that an emission unit would theoretically emit if operated to its full capacity with emissions at the level of the most stringent applicable emission standard or other enforceable limitation established for a unit by a permit. Potential emissions are normally significantly higher than actual emissions because emission units do not usually operate to full capacity and typically comply with applicable limits by some margin. Expected actual emissions of new units are not generally described in permits, since they usually don't affect the permitting process. In contrast, the actual mercury emissions of the existing plant, as reported by CWLP, are based on the actual utilization of units and the actual emission rates. In addition, a further disparity likely occurs because USEPA set an emission standard for mercury emissions from new coal-fired utility boilers that was higher than its proposed standard, which was the basis of the mercury emission estimates in CWLP's original application.

In practice, the mercury emissions of the plant will be much better controlled with Dallman 4. This is because Dallman 4 will be equipped with a control train that provides very effective control of mercury, whereas the mercury emissions of the Lakeside units, while comparatively small, are effectively uncontrolled.

153. For other HAPS besides mercury, the permitted emissions of HAPs of proposed Dallman 4 appear to equal the emissions for the entire CWLP plant. As only the Lakeside units are proposed for shut down, the new

unit together with the existing units suggest that the plant will emit significantly higher levels of HAPs. Under such a scenario, a qualitative health and welfare equivalency demonstration should be conducted. NSR Manual, A. 38-39.

**As already explained, the disparity in emissions noted in this comment results from the comparison of the potential emissions of proposed Dallman 4 and the actual emissions of the existing plant. The demonstration requested by this comment is not needed because the project is not netting out of PSD for PM. This means that metal HAPs that are emitted as particulate are being addressed and controlled with the BACT requirements for PM emissions. For hydrogen chloride and hydrogen fluoride, which are acid gases like sulfuric acid mist, this project results in a substantial net decrease in emissions of SO<sub>2</sub> and should also result in net decreases in emissions of HAP acid gases.**

154. The draft permit does not address emissions of carbon dioxide and other greenhouse gases, which by law it does not have to. However, the proposed unit, if it were built, would be the largest new source of greenhouse gases in the state. In the future, these emissions are going to be regulated, and at some point, the source is going to have to pay for its greenhouse gas emissions.

**Illinois law does not provide the Illinois EPA with the authority to directly address the emissions of greenhouse gases during permitting. While emissions of greenhouse gases are a concern at a global level, emissions of CO<sub>2</sub> and other greenhouse gases from a single source do not satisfy, on the basis of either empirical evidence or scientific judgment, the legal standard in Illinois to be considered air pollution.**

155. Do not permit ozone depleting emissions.

**Coal-fired generating units do not pose a concern for emissions of ozone depleting substances, which adversely affect the "ozone layer" in the earth's upper atmosphere.**

#### Compliance Procedures

156. The draft permit requires continuous monitoring for PM emissions to begin within 12 months of the completion of shakedown of proposed Dallman 4. Continuous emissions monitoring systems for PM have not yet been demonstrated as a mature technology for a boiler of the size and type of Dallman 4 and the associated pollution control train, particularly a wet scrubber and wet electrostatic precipitator. Rather, leak detectors and opacity monitoring in accordance with 40 CFR Part 60, Subpart Da, are the appropriate means to determine compliance.

**It is precisely because of the presence of the wet scrubber and wet ESP in the control train for proposed Dallman 4 that a bag leak detection system is not considered sufficient. While the bag leak detection system would address the performance of the baghouse (and use of such a system is recommended downstream of the baghouse), it would not address the level of PM in the stack, after the scrubber and the wet ESP.**

While continuous monitoring for PM may not be a mature technology, it is sufficiently developed to be required for purposes of compliance assurance monitoring for Dallman 4, especially as PM monitoring technology will likely further develop while construction takes place. To facilitate ease of installation and operation, the permit does not require that such monitoring be initiated with the shakedown of the boiler, but allows monitoring to be installed after shakedown has been completed so that installation can consider the actual moisture conditions in the stack.

157. The reference to "good combustion practices" in the draft permit should be defined including an indication of how it is measured.

The term "good combustion practices" is used to refer to the practices that are normally present with proper operation of a combustion device. The term includes consistent operation of the device with an appropriate rate and distribution of combustion air for the rate at which fuel that is being introduced. It also includes appropriate maintenance and repair of the various components of the combustion system. The term need not be further defined in the permit for proposed Dallman 4, as the term simply serves to describe the control technique that is being used as BACT for CO emissions. As such, the term is used in a manner similar to the terms "scrubber" and "baghouse," in the provisions requiring Dallman 4 to be equipped with such devices.

Similar to the provisions requiring Dallman 4 to be equipped with add-on control devices, the adequacy of the implementation of good combustion practices would normally be measured against the limit for the relevant pollutant, i.e., CO for good combustion practices. As with the provisions for add-on control devices, it is not anticipated that the unit would ever be operated without good combustion practices. However, the provision requiring good combustion practices could be cited in the unlikely event of a lapse in operational control of the boiler that was accompanied by an exceedance of the CO limit.

158. The draft permit would require continuous monitoring for CO emissions if test results show that CO emissions from the boiler are greater than 0.09 lb/million Btu. The intended method of assuring compliance with the CO emission limit is with a Boiler Outlet CO Characterization and Performance Optimization Plan. With such a plan, the likelihood of the proposed boiler exceeding the proposed CO limit is remote; thus, there is no need for a continuous monitoring.

The potential exists for proposed Dallman 4 to at times to exceed the applicable CO limit, as acknowledged by this comment as it admits the remote potential for the CO limit to be exceeded. Therefore, the permit must include appropriate compliance procedures to accompany the CO limit. For this purpose, the permit would require continuous monitoring if testing of the boiler does not demonstrate compliance with a margin of at least 25 percent, i.e., achievement of an actual emission rate of no more than 0.09 lb/million Btu, as compared to the applicable limit of 0.12 lb/million Btu. However, if the plan proposed by CWLP for the boiler is able to achieve a CO emission rate that demonstrates compliance with the applicable limit with a reasonable

margin of compliance, as CWLP expects, monitoring will not be required for CO and the Performance Optimization Plan, accompanied by periodic emission testing, will be considered sufficient.

159. The draft permit requires the use of USEPA Method 5 or 17 for particulate matter emissions and Method 9 for opacity performance testing for fuel and bulk material handling, storage, processing and load out operations. Methods 5, 9 and 17 cannot be applied to fugitive emission testing as these emissions fundamentally differ from point source emissions.

**The permit does not require use of USEPA Method 5 or 17 for fugitive particulate emissions. Use of these test methods is required for stack emissions of particulate matter.**

**USEPA Method 9 is an appropriate method for measurement of the opacity of fugitive emissions. This method is used with federal emission standards for the opacity of fugitive emissions from a variety of types of emission units, including 40 CFR 60 Subparts DD, Y, and OOO. It is also used under state rules that set opacity limits for fugitive emissions from various units, including 35 IAC 212.316 and 212.443.**

160. The applicable state emission standard for fugitive emissions of particulate matter is 35 IAC 212.301 rather than 35 IAC 212.123.

**This is not correct. 35 IAC 212.123, which is part of 35 IAC Part 212, Subpart B: Visible Emissions, is the state opacity standard of general applicability, "No person shall cause or allow the emissions of smoke or other particulate matter, with an opacity greater than 30 percent into the atmosphere from any (emphasis added) emission unit..." 35 IAC 212.301, which is part of 35 IAC Part 212, Subpart K: Fugitive Particulate Matter, imposes an additional standard for fugitive emissions, "No person shall cause or allow the emissions of fugitive particulate matter from any process, including any material handling or storage activity, that is visible by an observer looking generally toward the zenith at a point beyond the property line of the source."**

161. The draft permit requires inspections of the unit's bulk material handling, processing and storage operations by "personnel who are not directly responsible for the day to day operations" of the facilities. There is no basis for requiring monthly inspections of the coal handling, ash handling, limestone handling and gypsum handling units as these units do not result in visible emissions at the property line. Nor is there any reason that the inspections must be conducted by personnel not involved in the day-to-day operations of the facility.

**As well as misquoting the relevant condition of the draft permit, this comment repeats an interpretation of the relevant provision of the draft permit that a number of other power plants have taken in response to their Clean Air Act Permit Program permits. The relevant condition of the permit is fully justified. The condition requires that CWLP take a reasonable measure, i.e., periodic inspections, for the equipment and facilities engaged in handling bulk materials for the proposed unit to verify that control measures for PM emissions are being properly implemented. Consistent with well established practice**

for quality control activities, these inspections are to be conducted by a different individual than the one who is routinely operating these units. If the person who was operating the units on a day-to-day basis were to also carry out these inspections, the inspections would not provide the necessary independent verification that control measures were being properly implemented. The required inspections of these units by another employee should be able to be quickly completed as emission control measures are being properly implemented on a day-to-day basis. In the event that a lapse in emission control measures is identified during a particular inspection, any additional effort for that particular inspection would clearly be warranted.

Compliance procedures are generally justified for equipment and facilities handling dry bulk materials as they are sources of particulate emissions. These emissions are subject to various state and federal emission standards. Finally, in the case of the proposed project, the emissions of these units are subject to various limitations and requirements established as BACT under the PSD rules.

162. The draft permit requires detailed inspections of the dust collection equipment while the associated unit is not in service. The majority of the equipment requires inspections every fifteen months, but detailed inspection for the dust collection equipment for units handling dry fly ash must be inspected at least every nine months. There is no basis for the more frequent inspections of the dust collection equipment for dry fly ash.

**Mandatory inspections of the dust collection equipment for dry fly ash should be more frequent than the inspections of the dust collection equipment for other materials because of the nature of fly ash. Dry fly ash is a very fine material compared to coal and limestone that may easily become airborne if dust collection equipment does not function properly.**

The issued permit does include revised provisions for the required inspections of fly ash equipment. These provisions would allow such inspections to be coordinated with periods of time when proposed Dallman 4 would be out of service, in the event that Dallman 4 operates for more than 9 months without a scheduled outage.

#### Consultation on Endangered Species

163. The issuance of this permit would be a federal action subject to requirements under the federal Endangered Species Act for review and consultation to address potential affects of the project on threatened or endangered species. The necessary consultation by the USEPA has not occurred for the proposed project.

**Appropriate consultation as required by the federal Endangered Species Act occurred for the proposed project before the permit was issued. The USEPA and the US Fish and Wildlife Service found that the proposed project met applicable criteria under the Endangered Species Act for a permit to be issued, as emissions from the project will not adversely**

**affect any federally listed endangered species that are or may be present in the surrounding area.**

164. Consultation under the federal Endangered Species Act (ESA) must be addressed in the fact sheet for the issuance of a proposed PSD permit and consultation must be completed before a draft permit is released for a proposed project. This is a logical consequence of reading various provisions of the Clean Air Act, the PSD rules, and USEPA's Procedures for Decisionmaking together. These actions did not occur for the proposed project.

**Consultation under the federal Endangered Species Act (ESA) does not have to be addressed in the fact sheet for a proposed draft permit or completed prior to release of the draft permit. As USEPA has stated, "...consultation under the ESA is inherently intragovernmental [sic] as between the relevant federal agencies (with potential for involvement by permit applicant). The ESA and implementing regulations do not provide for public involvement in or comment on the consultation process." In re Indeck-Elwood, LLC, EAB PSD Appeal No. 03-04, Brief of EPA Office of Air and Radiation, dated March 17, 2006. For a project like the proposed project, the Illinois EPA believes that it is most efficient to initiate the consultation process at the same time as the draft permit is released. This is because the draft permit sets forth the nature and amounts of emissions that the Illinois EPA would propose to allow for a project.**

165. Consultation for the proposed project under the ESA must address whether the NO<sub>x</sub> emissions from the project will adversely affect endangered species of plants, due to nitrate deposition, as has occurred in the consultation conducted for other proposed power plant projects.

**This project does not pose a concern for potential affects on endangered species of vegetation due to deposition of nitrates. This is because the project is accompanied by a reduction in emissions of NO<sub>x</sub>, which contribute to nitrate deposition. Second, the area surrounding the power plant does not contain endangered species of vegetation.**

166. The impact of the proposed project on two endangered coral species, Elkhorn and Staghorn coral, which are threatened by global warming and higher ocean temperatures, needs to be considered before a permit is issued.

**The USEPA's consultation under the Endangered Species Act was appropriately focused on species that might be present in the vicinity of the CWLP power plant, i.e., the Bald Eagle and the Indiana Bat. Consultation on oceanic species of coral was not required or appropriate.**

167. The consultation for the proposed project also fails to meet the requirements imposed by the Illinois Endangered Species Protection Act. 17 IAC 1075.40 provides that "the proposed action shall not commence until the completion of the consultation process." This requirement has not been fulfilled as the consultation does not address impacts

beyond a one mile radius, does not address direct and indirect impacts, does not address cumulative impacts and is inconsistent with the USFWS determination that endangered and threatened species have habitat in areas that could be substantially impacted by increased PM emissions from the project.

**The Illinois EPA has completed consultation with the Illinois Department of Natural Resources, as required under Illinois Endangered Species Protection Act, for the proposed project.**

#### Administrative Procedures

168. CWLP failed to make certain information related to vendor guarantees for the proposed boilers and its control equipment available in response to a request from a member of the public pursuant to Illinois' Freedom of Information Act (FOIA). The information that was being requested would be needed for the Illinois EPA to determine the appropriate BACT limits for the project.

It is the Illinois EPA's understanding that CWLP, which is a local governmental entity, did provide information that was in its possession in response to a number of FOIA requests from members of the public. However, CWLP did not have the information that is referred to by this comment, so could not make available information that it did not possess. In any event, there are appeal procedures under the FOIA that a member of the public should follow if he or she believes that a governmental entity has not provided copies of information that is in its possession upon public request, as provided for by the FOIA. The Illinois EPA is not authorized to introduce itself into this appeal process for another governmental entity, particularly as this comment does not demonstrate that CWLP failed to comply with the FOIA.

In addition, the information that was being requested by this commenter, which related to vendor guarantees, was not needed to determine BACT for the proposed project. USEPA has indicated that "...vendor guarantees can provide an indication of the commercial availability and the technical feasibility of a control technique..." "Manufacturer's data, engineering estimates and the experience of other sources provide the basis for determining achievable limits," NSR Manual. As confirmed by USEPA, vendor guarantees may be useful in certain aspects of BACT determinations such as an evaluation of the basic feasibility or availability of a particular control technique. However, vendor guarantees are not essential for the establishment of BACT limits for a demonstrated control technique, as occurred for the proposed project. The determination of BACT limits relies on a broader body of information. In addition, vendor guarantees often do not reflect the level at which a BACT limit should be established. On one hand, they may understate the initial performance of control devices, so as to minimize the monetary risks being taken on for non-performance. On the other hand, they routinely apply only for limited period of times, so do not address the performance of devices over their entire useful life.

169. Because of the deficiencies associated with the processing of the application for the proposed project raised in other comments, e.g., CWLP's failure to provide certain requested information pursuant to the FOIA and the failure for consultation under the ESA to be completed before a draft permit was released, the Illinois EPA should extend the public comment period on the draft permit for the proposed project until these deficiencies have been corrected.

**As explained in the response to the particular comments, the comments did not identify deficiencies in the processing of the application for the proposed project. They do not provide grounds to extend the public comment period held for the proposed plant.**

170. The community did not have a good opportunity to participate in the discussion regarding proposed Dallman 4. CWLP's first public meeting concerning the proposed unit occurred at a Sierra Club meeting for Sierra Club members. Many people may not have attended the public hearing because they thought that this project had been decided.

**CWLP's plans for proposed Dallman 4 have been a matter of public record for several years, as CWLP is a branch of the City of Springfield and subject to oversight by the city council. Accordingly, a more relevant question is why the Sierra Club did not express its interest in the project sooner.**

171. The public hearing took place 16 months after CWLP filed its application for a construction permit for this project. The delay is unfortunate, as the proposed project will result in drastic reductions in SO<sub>2</sub> and NO<sub>x</sub> emissions. This delay now makes it nearly impossible for CWLP to meet the new clean air requirements by 2010. This will end up costing CWLP and its customers more money.

**The permitting of a proposed coal-fired generating unit is not a simple undertaking, as a number of project-specific evaluations and determinations must be made. In addition, the public is entitled by law to an opportunity to review and comment upon the draft permit that has been prepared for a proposed unit. As noted in other comments, these requirements are not inappropriate given the magnitude of emissions and operating life of a coal-fired generating unit. As noted in this comment, these requirements also have costs as they affect the timing of proposed projects.**

172. Why did it take so long before a public hearing was held on the proposed project? The application was received in November 2004 and the hearing was not held until March 2006? Can this period be shortened so that the public can raise concerns before a project is so close to implementation?

**The Illinois EPA does not begin formal public involvement on an application until it has completed its technical review of the application, prepared a draft permit, and is ready to accept public comments on the proposed action to issue a permit. The Illinois EPA would not be involving the public if it had decided that the application was not adequate. This is really a public hearing to get comments on the Illinois EPA's proposed action on the application, not**

to receive general comments on a project that has been developed over the years by CWLP.

173. Are there conditions under which the Illinois EPA would deny the permit other than if the permit did not meet current standards? What would it take for a permit not be issued?

**The permitting process is governed by applicable laws and regulations. If the application demonstrates that the project will comply with applicable law and regulations, the Illinois EPA is obligated to issue the permit for the project. To demonstrate that a permit should not be issued, a showing would have to be made that the application does not satisfy an applicable requirement in some respect.**

#### Public Health Impacts

174. Based on 2003 data compiled by USEPA, Illinois ranked sixth in the nation for emissions of mercury from coal-fired power plants. Every lake, river and stream in Illinois is currently subject to an advisory that recommends limiting fish consumption from our local waters due to health concerns associated with mercury.

**Proposed Dallman 4 will be subject to requirements designed to reduce its contribution to mercury contamination of fish. Dallman 4 must comply with applicable federal and state regulations for control of mercury emissions and use modern emission controls, so that it will emit only a fraction of the mercury currently being emitted by most existing coal-fired generating units, on a per watt basis. The State of Illinois is also engaged in a rulemaking to adopt regulations that would require existing power plants to control mercury emissions. At the same time, until these and other efforts are effective, the public should manage its consumption of certain species of fish from local waters, as explained in advisories issued by the Illinois Department of Public Health, to address the potential health effects of mercury.**

175. Consensus exists in the world's scientific community that global warming is taking place and is impacting the earth's climate. If the proposed generating unit is built, it will be one of the largest sources of global warming in the area. If global warming is not controlled, by the end of the century, Illinois' climate will be similar to that in east Texas and crops currently grown in Illinois will no longer be grown here. In addition, there will be other impacts, such as a greater likelihood of higher-intensity storms, rising sea levels, etc.

**As previously explained, the Illinois EPA does not have the authority to directly address the emissions of greenhouse gases during permitting. Moreover, CWLP, like other existing power plants in Illinois, is responding to the public need and demand for electricity. As such, society as a whole must take responsibility for conserving energy and pursuing energy efficiency, to reduce emissions of greenhouse gases and other environmental impacts associated with production of electricity.**

176. Pollution is hazardous to people's health and there are costs associated with the related disease and death from emissions. I am very concerned about people who already have asthma, other respiratory conditions or heart disease and who are directly affected by the quality of the air they breathe. Due to the compounding of health impacts over time, as the population grows and ages, and for the health of future generations, we need to seriously consider how this proposed project is permitted because of the health impacts of emissions.

**The health impacts of coal-fired electric power plants have been the subject of considerable scientific scrutiny. Power plants do emit pollutants that in sufficiently high concentrations can have health effects, particularly for people suffering from asthma, chronic respiratory diseases or heart disease. Some studies have found that emissions from existing coal-fired power plants do contribute to these effects at levels that can be predicted mathematically. However, those studies do not demonstrate that new coal-fired generating units, like the proposed unit, pose a significant risk to public health individually. Indeed, having an adequate, reliable and affordable supply of electricity is also essential to modern society, and to the health and well-being of the public. Rather, the purpose of those studies is to influence public policy toward reducing the emissions and any associated health impacts from existing "grand-fathered" power plants, many of which are over forty years old. As such, one goal of those studies is to have those existing power plants upgraded to approach the levels of emission control that would be present with proposed Dallman 4.**

177. The Illinois EPA should work towards cleaner air, particularly focusing on the pollution in inner cities that causes lung and respiratory problems.

**Improvement of air quality in urban areas is a major focus of the Illinois EPA and USEPA.**

#### **FOR ADDITIONAL INFORMATION**

Questions about the public comment period and permit decision should be directed to:

Bradley Frost, Community Relations Coordinator  
Illinois Environmental Protection Agency  
Office of Community Relations  
1021 N. Grand Avenue East, P.O. Box 19506  
Springfield, Illinois 62794-9506  
217-782-7027 Desk line      217-782-9143 TDD      217-524-5023 Facsimile  
[brad.frost@epa.state.il.us](mailto:brad.frost@epa.state.il.us)

## ATTACHMENT 1

### **Significant Changes between the Draft And the Issued Permits**

Finding 9: This finding is added to discuss additional requirements for CWLP, proposed Dallman Unit 4, and the existing Dallman units that have their origin in a voluntary agreement between CWLP (the City of Springfield) and the Sierra Club. The finding explains that CWLP entered into this agreement to avoid an appeal of the issued permit and the requirements of the agreement would only take effect if the permit is not appealed. While the finding recognizes that the requirements of the agreement go beyond applicable regulatory requirements, the additional requirements are reasonably related to air quality and environmental impacts of the proposed project and thus, are appropriately included in the permit.

Condition 1.5(a)(i): This condition, which addresses the shutdown of the existing Lakeside units, lowers the quarterly emissions limit from the Lakeside units and the proposed Dallman 4 during an extended shakedown period and any transition period to 300 and 1,900 tons of NO<sub>x</sub> and SO<sub>2</sub>, respectively from 420 and 2,580 tons of NO<sub>x</sub> and SO<sub>2</sub>, respectively. The provisions for the transition period are revised to reduce the duration of the transition period and impose additional requirement on any operation of the Lakeside Units during the Transition period.

Condition 1.5(b): A condition is added to the permit authorizing Lakeside Units 7 and 8 to participate in NO<sub>x</sub> averaging plans that also include other existing electrical generating units operated by CWLP for purposes of the requirements in 35 IAC Part 217, Subpart V.

Condition 1.5(c): A condition is added to the permit limiting NO<sub>x</sub> emissions from existing Dallman Units 1, 2 and 3, as a group to 0.175 lbs/million Btu, average for the ozone control period, after the shut down of the Lakeside units.

Condition 1.6: Consistent with the agreement between CWLP and the Sierra Club, as discussed in Finding 9, this new condition requires the Permittee to comply with the applicable requirements and emission limits in that agreement, as contained in Attachment 1, Table 1-C and in Attachment 5 of the permit, provided that the permit is not appealed. In the event of an appeal, the later requirements would only become effective if the agreement is reaffirmed by the Permittee and the Sierra Club.

Condition 2.1.2(b)(i)(A): The BACT limit for PM (filterable) emissions from the coal-fired boiler is set at 0.012 lb/million Btu, lower than the 0.015 lb/million Btu proposed by the draft permit.

Condition 2.1.8(a)(iv): This condition, which addresses the timing of the PM emissions testing for the new boiler, now requires testing not less than 30 months apart, except when two consecutive PM tests demonstrate that filterable PM emissions are 0.009 lb/million Btu or less, rather than an emission rate of 0.010 lb/million Btu, as proposed by the draft permit.

Condition 2.1.10(d): This provision, which addresses the requirement for a continuous emissions monitoring system (CEMS) for PM emissions, now provides CWLP with up to an additional 12 months if needed to reasonably complete installation the CEMS after the shakedown period for the boiler, rather than an additional 6 months as would have been provided by the draft permit.

Condition 2.1.15(a): The emission testing to support the evaluation of lower for the revision to the emission limit for total PM must now include measurements for filterable particulate matter, condensable particulate matter and sulfuric acid mist, as well as for total PM.

Condition 2.2.10(b): Changes have been made to the inspection requirement for units handling dry fly ash to address the possibility that the affected boiler operates for more than 9 months between scheduled maintenance outages. Units handling dry fly ash shall now be inspected at least every 9 months or in the event that the affected boiler has operated without a scheduled outage for more than 9 months since the last inspection, the inspection shall occur during the next scheduled inspection or during any unscheduled outage that extends for more than 6 days (143 hours), whichever occurs first.

Condition 2.4(a): Additional requirement added to this condition, which set BACT for PM emissions from roadways, parking areas and other open areas associated with the operation of Dallman 4 that may be sources of fugitive emissions from vehicle traffic or wind blown dust. The opacity of fugitive particulate emissions is limited to no more than 10 percent except during periods of high wind speeds.

Condition 2.4.7: This condition, which sets limits on PM emissions from roadways, has been revised to include daily limits, as well as annual limits, and to set separate limits for the entrance road to the plant.

Condition 2.4.9: Provisions added to require observation of opacity from roadways as related to the opacity standard for roadways.

Condition 2.4.10: Provisions added to require sampling of the silt loading on roadways and other areas as related to the quantification of PM emissions.

Attachment 1, Tables 1-A and 1-C: Revisions made to Table 1-A, which provides the short-term and annual limits for emissions from the boiler, to reduce the limits for filterable PM, consistent with the setting of the BACT limit at 0.012 lb/million Btu. Table 1-C added to identify alternative limits for boiler emissions, to address the effect of the agreement as it would lower the permitted emissions of the boiler.

Attachment 2, Tables 2-A and 2-B: Correction made to Table 2-A, which addresses the potential emission of Dallman 4, to the PM emission limit for roadways associated with the project. Revision made to Table 2-B to address the above change and the reduction in the BACT limit for filterable PM emissions from the boiler.

Attachment 5 (including Attachments 5.1 through 5.6): These attachments are added to the permit to incorporate additional requirements for CWLP, proposed Dallman 4 and the existing Dallman units that have their origin in an agreement between CWLP and the Sierra Club, that are applicable if the permit is not appealed, consistent with Finding 9 and Condition 1.6. The additional requirements include requirements related to energy efficiency; commitments to reduce CO<sub>2</sub> emissions from native load production and to promote renewable energy; and performance restrictions and environmental set-asides for wholesale sales. Additional emission limitations for NO<sub>x</sub>, SO<sub>2</sub> and mercury are included for Dallman Units 1 through 4. The agreement also includes alternative limits for Dallman 4 for emission of PM (total and filterable), sulfuric acid mist, NO<sub>x</sub>, SO<sub>2</sub> and mercury and opacity.

