

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
BUREAU OF AIR POLLUTION CONTROL

RESPONSIVENESS SUMMARY

FOR
CORN PRODUCTS INTERNATIONAL,
BEDFORD PARK,
CIRCULATING FLUIDIZED-BED BOILER PROJECT

June 2004

Bureau of Air
Facility Identification No.: 031012ABI
Application No.: 03090020

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Decision

On June 3, 2004, the Illinois Environmental Protection Agency (Illinois EPA) issued a Bureau of Air construction permit to Corn Products for its new fluidized bed boiler project at its facility located at 6400 South Archer Avenue in Bedford Park.

Copies of the documents can be obtained from the contact listed at the end of this document. The permits and additional copies of this document can also be obtained from the Illinois EPA website www.epa.state.il.us/public-notices/.

Background

On September 8, 2004, Corn Products International applied for a construction permit to construct a new coal-fired boiler (Boiler 10). Corn Products operates boilers to supply steam and generate electricity for its corn processing operations. The proposed boiler would be a circulating fluidized bed boiler. To control emissions, the new boiler would be equipped with limestone injection to the bed, selective noncatalytic reduction, dry lime injection, and a baghouse. Ancillary emission units would include coal, ash and limestone handling and storage for the new boiler, a small cooling tower, and other minor operations.

In conjunction with the startup of the proposed boiler, Corn Products would shut down its three existing coal-fired boilers and its two older gas-fired boilers. The new boiler would be fired on coal as the primary fuel, with natural gas used as the startup fuel. The boiler would generally be designed for coal mined in Illinois, with use of petroleum coke as supplemental fuel. The boiler would also have the capability to use biofuels such as corn kernels, cobs and cleanings, grain fibers or hulls, and similar materials.

A public comment period was held on the proposed issuance of a construction permit for the proposed project. The public comment period opened with the publication of a hearing notice in the Daily Southtown on January 17, 2004. The notice was again published in the Daily Southtown on January 24, and 31st. The Illinois EPA, Bureau of Air held a public hearing on March 3, 2004 at the Bedford Park Village Hall, 6701 Archer Avenue. The purpose of this public hearing was to accept oral comments into the written hearing record and answer questions about the proposed project. The public comment period remained open until April 2, 2004.

Procedures For Appeal

As the permit provides approval for the proposed boiler project with respect to emissions of carbon monoxide, the permit constitutes a PSD permit under the federal rules for Prevention of Significant Deterioration of Air Quality (PSD), 40 CFR 52.21. The issuance of a PSD permit may be appealed to the Environmental Appeals Board (EAB) of USEPA in accordance with USEPA's Procedures for Decision Making, 40 CFR Part 124. In particular, 40 CFR 124.19(a) provides that within 30 days of a final PSD permit decision any person who filed comments on the draft permit or participated in the public hearing may petition the EAB to review the decision

or conditions of the issued permit. A person who did not file comments or did not participate in the public hearing on the draft permit may petition for review only to the extent of changes from the draft permit to the final decision.

The petition for review of a PSD permit must include a statement of the reasons supporting the review, including a demonstration that the issues being raised in the petition were also raised during the public comment period, and when appropriate, a showing that the matter in question is based on (1) a finding of fact or conclusion of law that is clearly erroneous, or 2) an exercise of discretion or an important policy consideration which the EAB, in its discretion, should review.

The extent of public comment required to support an appeal of the issuance of a PSD permit or the terms of a condition contained in the PSD permit is set forth by 40 CFR 124.13. These regulations provide, in brief, that the person must raise all reasonably ascertainable issues and submit all reasonably available arguments supporting their position during the public comment period on the draft permit. Any supporting material must be submitted in full and may not be incorporated by reference, excluding certain specified materials clearly available to the USEPA.

Appeal petitions filed by mail must be addressed to the Environmental Appeals Board, MC 1103B, U.S. EPA, Ariel Rios Building, 1200 Pennsylvania Avenue, N.W., Washington, D.C. 20460. Documents that are hand-carried may be delivered to the Board at its offices at 607 14th Street, N.W., Suite 500, Washington, D.C. 20005. Documents may be filed with the Clerk of the Environmental Appeals Board only between the hours of 8:30 a.m. and 4:30 p.m. Eastern Time Monday through Friday (excluding Federal holidays). The Clerk of the EAB may be reached at telephone (202) 501-7060. [Also refer to www.epa.gov/eab/eabfaq.htm]

Questions and Comments

General

1. Why is Corn Products no longer proposing to build new natural gas fired boilers as previously planned?

Corn Products has stated that because of the increase in the price of natural gas and general uncertainty about the future price of natural gas it is no longer desirable or advisable to replace its existing three coal-fired boilers with natural gas fired boilers. Accordingly, it has elected to replace its existing boilers with a modern circulating fluidized bed boiler (Boiler 10), a much more costly undertaking than its previous plans.

Corn Products will continue to use natural gas fired boilers to respond to the short-term variation in the steam needs of the facility and to cover periods of time when the new coal-fired boiler is out of service for maintenance. For this purpose, Corn Products will use the single new natural gas fired boiler that it did install last year (Boiler 7), as well its natural gas fired boiler that is only about ten years old (Boiler 6).

2. Where will the coal for the proposed boiler be from, from southern Illinois?

The proposed boiler would be designed to burn Illinois coal, which is currently being mined in central and southern Illinois.

3. Were potential emissions from the project based on low sulfur coal or high sulfur coal?

The potential emissions of the new coal-fired boiler are based on burning high sulfur coal with emissions effectively controlled by boiler features and add-on control equipment, as required by the permit.

4. With the proposed boiler will there be more coal burned at the facility than there is now?

The proposed new boiler will be capable of burning more coal than is currently burned by the three existing coal-fired boilers. This has been accounted for in the evaluation of the project's emissions. Given the improvements in emission control technology, the project still results in substantial reductions in emissions of critical pollutants.

5. How much will emissions be reduced as a result of this project?

The reductions in emissions from the project, comparing historic actual emissions and future potential emissions of the various boilers involved in the project, are listed below. Because the new boiler will have modern emission controls for particulate matter, sulfur dioxide and nitrogen oxides, its potential emissions for these three critical pollutants, assuming continuous operation at maximum capacity, are still substantially less than the actual emissions of the existing boilers.

Change In Annual Emissions (Tons)

Particulate Matter (PM)	-399
Sulfur Dioxide (SO₂)	-7,634
Nitrogen Oxides (NO_x)	-2,352
Carbon Monoxide (CO)	639
Volatile Organic Material (VOM)	21.4
Fluorides	2.4
Sulfuric Acid Mist	3.0

6. Why does this project have such a large increase in carbon monoxide (CO) emissions?

This increase is a consequence of several factors, including the nature of boiler technology, the differences in circumstances, and the manner in which the change in emissions is evaluated. The existing boilers do have low levels of CO emissions, which is a product of incomplete combustion. Accordingly, the shutdown of the existing boilers will not provide much of a decrease in actual CO emissions. The new boiler will also have low levels of CO emissions. However, to account for variability in operation, the boiler must be permitted at the emission rate that it can consistently and reliably achieve, not at a typical or average

emission rate. In this regard, both the new and existing boilers use good combustion practices to minimize CO emissions, rather than add-on controls, consistent with standard practice for coal boilers.

Also, the manner in which the change in emissions must be evaluated further magnifies the calculated change in emissions, as it is calculated as the difference between past actual emissions and future potential emissions. As future emissions are based on “full utilization” of the new boiler, they are significantly higher than the expected levels of utilization of the new boiler. Incidentally, with respect to other pollutants, this means that the actual reductions in emissions with the new boiler will be significantly greater than the “minimum” reductions in emissions as presented above.

7. Will petroleum coke will be burned in the new boiler?

The proposed boiler would be designed to burn some petroleum coke, as a supplemental fuel along with coal. The fuel characteristics of petroleum coke are similar to those of high-sulfur coal.

8. The draft permit would allow the use of “biofuels” in the new boiler, but does not define this term. Instead the draft permit only gives examples, “such as corn kernels, cobs and cleanings, grain fibers or hulls, nut shells, and similar materials.” The permit should include a definition of biofuels.

In the issued permit, the term biofuels is defined: “For the purposes of this permit, biofuels are defined as materials that are derived from the corn wet milling process and other manufacturing operations at the source, that include materials such as corn cobs, corn cleanings, corn feed, corn germ, corn gluten, spent corn germ flake, and vegetable oil. Biofuels shall not include any hazardous waste.”

9. How will the addition of “biofuels” affect emissions from the proposed boiler?

Use of biofuels in the boiler should not significantly change its overall emissions. The emissions characteristics of biofuels are expected to be lower than or similar to those of coal. In addition, as the issued permit only addresses the use of biofuels generated at the facility, so that biofuels would only constitute a small fraction of the fuel supply to the new boiler.

10. Illinois EPA will allow Corn Products to add new types of biofuel merely by providing notice, without obtaining Illinois EPA approval or providing an opportunity for Illinois EPA review. Changing the type of fuel is a modification that should be subject to Illinois EPA review and approval in the form of a permit modification.

The addition of biofuel material(s) to the fuel supply to the proposed boiler will generally not constitute a modification as the boiler is designed for and also capable of handling such materials. The proposed use of a particular biofuel would only constitute a modification if the boiler had to be physically altered to accommodate such material and emissions would

increase. In such case, a new or modified permit would be required before Corn Products could include such material in the fuel supply to the new boiler.

11. How will the Illinois EPA know that emissions are actually reduced as a result of this project?

Corn Products is required to test the emissions of the new boiler to verify that it meets the emissions limits established in the permit. The new boiler will also have continuous emission monitors for nitrogen oxides, sulfur dioxide, carbon monoxide and opacity.

12. What action will the Illinois EPA take if the monitored levels of emissions turn out to actually exceed the permitted limits? Are the permitted limits correct?

Because the proposed boiler will have emission monitors in its stack for SO₂, NO_x and CO, it will be straightforward to determine whether the limits for these pollutants are met. Stack testing required by the construction permit will verify whether the new boiler meets the limitations within the permit for which emission monitoring is not required. If a limit is exceeded, then Corn Products will be subject to enforcement by the Attorney General's Office. The permitted limits are based on design data that Corn Products provided to the Illinois EPA in its application. Based on the Illinois EPA's analysis and experience, the limits reflect reasonable engineering judgment.

13. How will this project affect air quality in the surrounding communities?

The large decreases in emissions will generally improve ambient air quality in the area. Dispersion modeling was not performed for the emission reductions to attempt to quantify the specific level of benefit.

The project should not significantly affect air quality for pollutants for which emissions may increase. In particular, as part of the permit application Corn Products had to evaluate the impact of CO emissions on ambient air quality. This dispersion modeling indicated that the air quality impacts of CO emissions would not be significant. As a general matter, CO is only a health threat at relatively high concentrations that generally only occur indoors and in confined spaces.

14. I presume the Illinois EPA constantly monitors our air quality and considers the combined amount of pollutants in our area.

This is correct. The Illinois EPA does have ambient monitoring stations located throughout the Chicago area. These monitoring stations measure the overall levels of pollutants in the air considering all sources that affect the air quality in an area. The resulting data is used for tracking trends and improvements in air quality and to support air quality planning activities. It is not a substitute for the testing and monitoring of emissions, as is being required for the proposed boiler, to directly verify compliance with applicable limits.

Applicable Emission Limitations

15. What is Best Available Control Technology (BACT)? How is BACT determined for a project?

Pursuant to the federal Clean Air Act and Prevention of Significant Deterioration (PSD) rules, BACT is defined to mean an emissions limitation (including a visible emission standard) based on the maximum degree of reduction for each pollutant subject to regulation under Act which would be emitted from any proposed major stationary source or major modification which the Administrator, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such source or modification through application of production processes or available methods, systems, and techniques, including fuel cleaning or treatment or innovative fuel combustion techniques for control of such pollutant. If the technological or economic limitations on the application of measurement methodology to a particular emissions unit would make the imposition of an emissions standard infeasible, an equipment or work practice standard, or combination thereof, may be set instead to satisfy the requirement for the application of BACT.

For a particular project, BACT is determined during the processing of the construction permit application for the project. The source proposing the project will submit a BACT proposal in its application, including its review of the available control technologies that exist for the proposed emission unit(s) and their effectiveness in controlling emissions. If the source rejects the top technology it must conduct a “top-down analysis” of available control options, calculating the cost and other impacts of the different options for control compared to the emissions that would be controlled and justifying its rejection of the top control technology. This material is then reviewed and supplemented by the permitting authority, which makes the determination of BACT. A key reference for the determination of BACT is the USEPA’s *RACT/BACT/LAER Clearinghouse*, a national compendium of control technology determinations made by different states.

16. The carbon monoxide (CO) limit in the draft permit, 0.15 pound/million Btu is not BACT. There are several examples of BACT determinations under the PSD rules, including permits issued by Illinois EPA, for comparably sized, circulating fluidized bed boilers using coal as their primary fuel, with good combustion practice as their control strategy, that are more stringent.

Upon further review, the numerical BACT limit for CO has been set at 0.10 pound/million Btu, as requested by this comment. At the same time, it is important to recognize that BACT for a project does not have to correspond to the lowest emission limit found in the Clearinghouse or established for any similar unit. The BACT emission limits for CO from non-utility CFB boilers found on the *RACT/BACT/LAER Clearinghouse* range from a high of 0.27 pound/million Btu to a low of 0.10 pound/million Btu, with many boilers limited to 0.15 pound/million Btu as proposed in the draft permit. This is relevant as CO emissions from boilers are controlled by combustion practices and the only available action to lower CO emissions from the proposed boiler would be to raise the combustion temperature. This

action would potentially act to increase emissions of SO₂ if the bed temperature is shifted outside the optimum temperature range for bed capture of SO₂. Uncontrolled emissions of NO_x could also be affected. However, further review has concluded that this effect should be minor. In addition, Corn Products could compensate for lower bed effectiveness for SO₂ either by using more limestone in the bed or injecting more lime.

17. The permit should be consistent with USEPA guidance on excess emissions during malfunction periods.

Under state regulations, permits may provide for an emission unit to continue to operate during malfunction or breakdown with emissions in excess of an applicable state emission standard. Pursuant to 35 IAC 201.262, permission for such continued operation shall be granted upon proof that such operation is necessary to prevent injury to persons or severe damage to equipment or that it is required to provide essential services. Other related requirements governing continued operation during malfunctions or breakdowns, as well the occurrence of excess emissions during startup of an emission unit, are contained in 35 IAC Part 201, Subpart I, which has been approved by USEPA as part of Illinois' State Implementation Plan.

Illinois regulations regarding malfunctions and breakdowns are narrowly-drawn. They are not contrary to the principle, as expressed in certain USEPA policy, that it is inappropriate to provide automatic exemptions from applicable emission standards in the event of a malfunction or breakdown. This principle is also embodied in the provisions of the permit for the proposed boiler. As set forth in Condition 1.1.3(e), this permit only authorizes continued operation of the boiler with emissions in excess of an applicable state standard as is necessary to prevent risk of injury to personnel or severe damage to equipment. The permit also does not shield Corn Products from enforcement for excess emissions. Rather, it only provides a prima facie defense in an enforcement action, provided further, that Corn Products has complied with all terms and conditions imposed in the permit in connection with continued operation during malfunction and breakdown.

Because the permit recognizes that emissions in excess of applicable state standards may occur during malfunctions and breakdowns when the boiler continues to operate, a number of additional requirements are imposed on Corn Products with respect to the boiler to minimize any such excess emissions. These include requirements to utilize natural gas to minimize excess emissions and to operate and maintain the boiler in accordance with written procedures that are specifically developed to minimize excess emissions. These state-based provisions are reinforced by related requirements under the federal National Emission Standards for Hazardous Air Pollutants, 40 CFR Part 63. In particular, as the new boiler is a major source of hazardous air pollutants, Corn Products must generally operate the boiler in accordance with a Startup, Shutdown, and Malfunction Plan. As provided by 40 CFR 63.6(e), Corn Products must develop and maintain such a plan for the boiler to ensure that, at all times, the boiler is operated and maintained in a manner consistent with safety and good air pollution control practices for minimizing emissions. The original Startup, Shutdown, and Malfunction Plan must be developed before the initial

startup of the boiler and Corn Products must promptly revise the plan if it fails to address or inadequately addresses a malfunction event that occurs at the boiler.

Because the proposed boiler has yet to be constructed, much less operated, the permit also notes that the state-based provisions in the permit related to malfunctions and breakdowns of the boiler are subject to review and revision during the subsequent processing of operating permits for the boiler. This is appropriate as Corn Products will be under a specific obligation at such times to again demonstrate it is entitled to a permit that allows for continued operation with excess emissions during malfunctions and breakdowns. It will also be under an obligation to describe the measures that it would use to minimize any such excess emissions.

The approach under state rules to excess emissions during malfunctions and breakdowns, as discussed above and reflected in the permit for the proposed boiler, is different from the approach taken in the federal New Source Performance Standards (NSPS), which also are applicable to the boiler. The relevant provisions of those rules, which include their own definition of malfunction, govern how emissions during a malfunction of the boiler are to be handled relative to applicable NSPS emission standards. In addition, with respect to the BACT requirement for the proposed boiler under the PSD rules, the permit for the new boiler does not allow or provide for any exceedances of BACT for CO during malfunction or breakdown of the boiler.

18. Consistent with the permit application, the permit should strictly limit the duration of excess emissions during malfunction periods.

The duration of any periods of excess emissions during malfunctions of the boiler is appropriately addressed and restricted by the permit. The duration and extent of operation of the boiler with excess emissions are generally limited to that necessary to prevent injury to personnel or protect equipment. The permit further provides that upon occurrence of excess emissions, Corn Products must repair the boiler or remove it from service except where subsequent startup would result in greater overall emissions. This must occur as soon as practicable unless the boiler has been operated and maintained such that malfunctions are infrequent, sudden, and not caused by poor maintenance or careless operation, and in general are not preventable. In this case, Corn Products is provided with up to two hours within which it may evaluate the condition of the boiler and decide upon its plan of action. At the conclusion of this two hour period, Corn Products must either begin shutting down the boiler or commit to having the boiler repaired within another four hours (within six hours from the beginning of the particular incident).

These provisions with respect to duration of excess emissions are based on the experience and judgment of the Illinois EPA and are different from those initially requested by Corn Products. In its initial submittal, Corn Products simply requested that it be allowed to continue to operate the boiler if a malfunction is expected to be repaired within two hours. As explained above and provided by the permit, the Illinois EPA only considers this to be appropriate if malfunctions are not reasonably preventable. Otherwise, a malfunction triggers a requirement to take immediate action. At the same time, the shutdown of a

principal boiler at a corn wet milling plant, like the Corn Products facility, also requires changes in the operation of the various processes that the boiler has been supplying with steam. Protection of personnel and equipment necessitates adequate time for an orderly transition in overall operation of the facility. It appears unlikely that such a transition could always be accomplished within a few hours, particularly if the malfunction occurs during off-shift hours or extreme weather conditions or problems develop with particular processes. Six hours is a more appropriate deadline for repairs to the boiler to be accomplished, provided that the boiler has been properly operated and maintained. In its comments on the draft permit, Corn Products agreed that the approach being taken was sounder than the approach it had initially requested, given the complex and interrelated nature of the process operations at its facility, and it requested that the approach in the draft permit be retained.

It is also important to remember that these provisions on the duration of excess emissions during malfunctions are accompanied by independent requirements that the boiler be properly operated and maintained to minimize malfunctions and excess emissions. The provisions of the permit on timing would in no way mitigate excess emissions that occur due to chronic problems with the boiler, inadequate maintenance and repair, or poor operator training. They also would not allow Corn Products to take more time for repair or corrective action than is actually needed. They also do not allow Corn Products to unnecessarily prolong the turndown of process operations, to delay reducing the load on the boiler. Moreover, like other provisions for malfunctions these provisions on timing are subject to review and refinement based on actual operating experience.

19. Consistent with the permit application, the permit should not provide any authorization for excess emissions during startup.

The issued permit is consistent with the permit application. In its application, Corn Products requested permission, pursuant to 35 IAC Part 201, Subpart I, to start up the new boiler with emissions that could exceed applicable state emission standards. Corn Products also indicated that all reasonable efforts would be made to minimize startup emissions, duration of individual startups and frequency of startups. Accordingly, pursuant to 35 IAC 201.262, Corn Products is entitled to a permit that recognizes that violations of state emission standards may occur during startup of the boiler.

Because of the formal recognition that emissions in excess of applicable state standards may occur during startup of the new boiler, a number of additional requirements are again imposed on Corn Products with respect to the boiler to minimize any excess emissions during startups. These include requirements to begin startups of the boiler firing only on natural gas and to also have written startup procedures that are specifically developed to minimize excess emissions. Like the provisions of the permit for malfunctions and breakdowns, the state-based provisions of the permit related to startup of the boiler are reinforced by the related requirements under 40 CFR Part 63 that the boiler must be operated in accordance with a Startup, Shutdown, and Malfunction Plan, to ensure that, at all times, the boiler is operated and maintained in a manner consistent with safety and good air pollution control practices for minimizing emissions.

The permit also notes that state-based provisions in the permit for startup of the boiler are subject to review and revision during the subsequent processing of operating permits for the boiler. This is appropriate as Corn Products will be under a specific obligation at such times to again demonstrate that all reasonable measures are used to minimize excess emissions during startup. More generally, Corn Products is under a continuing affirmative obligation during startups of the boiler to minimize any excess emissions. In this regard, the recognition in a permit that excess emissions may occur during startup does not shield a source from enforcement for any such violations. It only provides a prima facie defense in an enforcement action, provided further that the source was in compliance with all associated terms and conditions that were imposed related to startups.

As with malfunctions, the approach under state rules to startups, as reflected in the permit for the proposed boiler, is different from the approach taken in the federal New Source Performance Standards (NSPS), which also apply to the boiler. The relevant provisions of the NSPS rules govern how emissions during startups of the boiler are to be handled relative to applicable NSPS emission standards. In addition, with respect to the BACT requirement for the boiler, the permit for the new boiler does not provide for any exceedances of BACT for CO during startup of the boiler.

Evaluation of the Changes in VOM Emissions

20. Are the emission reductions from existing Boilers 1 through 5 based on the actual or permitted emissions of these units? If based on actual emissions, what period of time was the basis of the emission data?

The emissions reductions being relied upon from the shutdown of the existing boilers are based on actual emissions. For Boilers 1, 2 and 3, the emission reduction reflects the average emissions for the period 2001 to 2002, e.g., 9.17 tons VOM/year. For Boilers 4 and 5, which are gas-fired, the reduction reflects the average emissions for the period 1999 to 2000, e.g., 1.9 tons VOM/year. Note that the reductions for Boilers 4 and 5 occur in two stages. Some reductions occur in conjunction with the startup of Boiler 7, Corn Product's new natural gas-fired boiler. The reductions from Boilers 4 and 5 are completed with the permanent shutdown of these boilers in conjunction with the startup of Boiler 10, the current project. Although the reductions of VOM and other pollutants in the first stage were based on emission levels in 1999 and 2000, outside the 5-year window for emission netting, this was done to be consistent with the emissions netting relied upon for the original permitting of Boiler 7. The emission reductions from Boilers 4 and 5 would actually be higher if Corn Products were allowed to use a later period of time to determine the actual reductions that will accompany the shutdown of these two boilers.

21. It is not clear if the VOM emission reductions from Boiler 7 are based on actual, permitted or projected VOM emissions. Corn Products received a construction permit to construct this new natural gas-fired boiler in 2002.

Reductions in VOM emissions will not actually be occurring at Boiler 7. Actual emissions

decreases were required of Boilers 4 and 5 as part of the Boiler 7 construction project. To make this clear, Table IV in the permit now presents both the permitted emissions of Boiler 7 and the emissions reductions at Boilers 4 and 5 that were required to accompany Boiler 7.

22. Depending on the status of Corn Products' 2002 Construction Permit and 2003 Construction Permit Revision, Corn Products may be under a pre-existing duty to decommission Boilers 1 through 5, and should not be able to claim these reductions to avoid NSR as part of the present application for Boiler 10. See Condition 9(b) of Construction Permit 02020023.

Corn Products is not under any obligation pursuant to these permits to shut down Boilers 1 through 5. Corn Products did not undertake the project authorized by the 2002 permit. It only undertook the construction of Boiler 7, as addressed by a revised permit issued in 2003. The revised permit for the Boiler 7 project relies only upon certain emission reductions to Boilers 4 and 5. The revised permit does not rely on any emission reductions from Boilers 1, 2 and 3.

23. Under 35 IAC 203.207(d), the increase in VOM emissions due to proposed Boiler 10 can only be considered de minimis when aggregated with all other net increases in emissions from this source over any period of five consecutive calendar years that includes the year in which such increase occurs.

While this is generally correct, a more conservative approach has been used in this permit, which assumes that new Boiler 10 will become operational in late 2005. Under nonattainment New Source Review (NA NSR), the sum of all increases due to all construction and modifications over the previous five years are required to be included in the netting analysis for this proposed project. Decreases can be included if they are creditable. Corn Products has demonstrated that it has included all necessary changes in VOM emissions at the source in the five-year contemporaneous time period due to construction, modifications and shutdowns made at the source. Corn Products used past decreases to net out of NA NSR. Note that under NA NSR, an increase in emissions at a unit solely by virtue of increased throughput not previously limited through a federally enforceable permit is not a modification and is not included in a netting analysis.

24. The draft permit is inadequate because Corn Products' assurance of VOM reductions from multiple units throughout the source are not practically enforceable. For units not being shutdown, the draft permit does not describe how the Illinois EPA will ensure that projected reductions in VOM emissions will, in fact, occur.

In fact, the permit relies on a decrease in VOM emissions from only one unit that will continue in operation, namely, the VOM reduction accompanying the acidulation process rebuild. This project is covered by Construction Permit 02040007, which contains necessary limits on emissions of VOM and appropriate provisions for recordkeeping and testing to verify compliance.

Other Questions and Comments

25. When the facility generates too much steam it currently blows off surplus steam with tremendous noise. Will this project lessen this source of noise pollution?

Corn Products indicates that the emergency steam vents in the new boiler house will be equipped with silencers. However, this project does not address the existing steam vents elsewhere in the facility that are used to vent excess steam during the infrequent upsets of certain process equipment.

26. What is hexane and how is it used at the Corn Products plant?

Hexane is a petroleum based solvent. It is used by Corn Products to extract corn oil from corn germ. Worldwide, hexane is the solvent most often used in vegetable oil extraction plants to extract oil from corn germ and other oil seeds. Corn Products utilizes a highly efficient solvent recovery system in which over 99 percent of the hexane is captured and recovered for reuse in the extraction process.

27. Hexane is a carcinogen that can cause reproductive problems, nervous system disorders, and many others health problems.

Hexane has not been determined to be either a carcinogen or suspected carcinogen by USEPA or the Occupational Safety Health Administration (OSHA). Depending on the level of exposure, hexane can have acute and chronic health effects other than cancer. To protect against such health effects, exposure to hexane in the workplace is regulated by OSHA. Hexane (n-hexane) is also regulated under the Clean Air Act as a hazardous air pollutant (HAP). As a HAP, emissions of hexane to the atmosphere must be controlled to comply with emission standards that represent use of Maximum Achievable Control Technology (MACT), as established by regulations adopted by USEPA.

28. What danger do hexane emissions pose to people living near Corn Products?

The Illinois EPA does not believe that the hexane emissions pose a significant health risk to the general public. Corn Products must meet OSHA standards for worker safety so that the health effect of hexane upon workers, the population of individuals with the greatest exposure to hexane, should be minimal. In the ambient air, hexane is further dispersed to extremely low concentration levels, so that public welfare should be safely maintained.

29. I am specifically asking for a review of Corn Product's hexane emissions and other related pollutants by the individuals that performed the Cumulative Risk Analysis for the Southwest Chicago area in 1993. Because these individuals have the familiar groundwork, they can work with whatever is available from that point forward to evaluate the health risks posed by the Corn Products facility.

The Illinois EPA has noted your request. Any such study would be more appropriately made in the context of permitting of the entire facility, rather than this project involving a

new boiler that will be accompanied by improvements in ambient air quality. Incidentally, the 1993 study was not performed by the Illinois EPA, but by a consultant hired by USEPA.

30. What does Corn Products have to do to reduce its hexane emissions?

The applicable MACT standards for hexane emissions from vegetable oil extraction plants became effective on April 12, 2004 and compliance with the new standard is required in 2005. Corn Products indicates that its current control measures for hexane will be able to comply with the MACT standard with at most minor enhancements and optimization to assure consistent compliance. Of particular importance are changes to valves and other fittings and improvements in work practices to minimize losses of hexane from leaks. Corn Products reports that its hexane emissions in 2002 were only slightly higher than the new MACT standard and in 2003 were at approximately the level of the new standard.

31. Corn Products' hexane emissions went up 61 percent from 1998 to 2001.

This comment misrepresents the facility's hexane emissions, which vary from year to year based on the amount of corn handled by the facility and the level of hexane control actually achieved in practice. Corn Products annual emissions of hexane (n-hexane) in recent years have ranged between about 200 and 400 tons. This is lower than its historical emissions in the early 1990s, which were in excess of 500 tons per year.

32. Why weren't hexane emissions addressed by the Illinois EPA in more depth at the public hearing?

The Illinois EPA held the public hearing to specifically address the application to construct the proposed new boiler. The Hearing Officer did allow questions concerning other aspects of the existing facility, such as hexane emissions, that were unrelated to the application for the new boiler. The Illinois EPA did not respond to these questions at the hearing because they did not relate to the subject of the hearing. This Responsiveness Summary is the appropriate forum for the Illinois EPA to respond to these other questions raised at the hearing and during the public comment period.

33. Why didn't Corn Products report its hexane emissions in 2002?

Corn Products did report its hexane emissions for 2002 to USEPA under the federal Toxic Release Inventory (TRI) program. Corn Products chose not to report its hexane emissions under Illinois' Annual Emission Report program because it was not required to do so. This was because MACT regulations for its hexane emissions had not yet been adopted. Because such regulations are now in place, Corn Products must report its hexane emissions in its future Annual Emission Reports.

34. Do the boilers cause the characteristic odor from the facility?

The feed dryers are the primary source of the characteristic odor at corn wet milling plants like Corn Products. This is another operation at the facility that is separate from both the boiler house and the oil extraction plant.

35. It is a violation of the Environmental Protection Act to cause nuisance odors. Is there anything that Corn Products can do to eliminate the odors?

At this time, total elimination of odors is not a realistic objective for a corn processing plant. However, Corn Products must take reasonable measures to minimize and abate odors. Corn Products has undertaken such projects. In particular, in the mid 1990's, Corn Products made a significant capital investment in the facility, part of which was installation of new feed dryers equipped with a thermal oxidizer. This action is believed to have had a dramatic effect in reducing odors. Corn Products must continue to take similar measures to reduce odors as they reasonably become available to it and to operate installed control measures effectively to minimize odors.

36. I think that a lot of the odors from Corn Products went away after the thermal oxidizer was installed.

Comment acknowledged.

37. Did Corn Products obtain a permit for the thermal oxidizer that controls emissions from its feed dryers? Why weren't Illinois EPA representatives able to immediately tell me what permit covered operations of the thermal oxidizer when I called in February?

Construction Permit 93010072, which was issued on December 21, 1994 for an expansion of the facility, addressed this thermal oxidizer. As the subject of that construction permit was a facility expansion, the permit addressed a number of items of new equipment. It was not readily apparent in the Illinois EPA's electronic information system that this new equipment included a thermal oxidizer associated with the new feed dryers. The operation of these feed dryers and the associated thermal oxidizer are now covered by Corn Products' CAAPP permit, CAAPP Permit 96010009.

For Additional Information

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

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