INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
We make Indiana a cleaner, healthier place to live.

Mitchell E. Daniels, Jr.
Governor

Thomas W. Easterly
Commissioner

100 North Senate Avenue
Indianapolis, Indiana 46204
(317) 232-8603
(800) 451-6027
www.IN.gov/idem

TO: Interested Parties / Applicant

DATE: August 10, 2005

RE: Parker By-Products LLC / 085-21572-00104
FROM: Paul Dubenetzky
Chief, Permits Branch
Office of Air Quality

Notice of Decision – Approval

Please be advised that on behalf of the Commissioner of the Department of Environmental Management, I have issued a decision regarding the enclosed matter. Pursuant to 326 IAC 2, this approval was effective immediately upon submittal of the application.

If you wish to challenge this decision, IC 4-21.5-3-7 requires that you file a petition for administrative review. This petition may include a request for stay of effectiveness and must be submitted to the Office of Environmental Adjudication, 100 North Senate Avenue, Government Center North, Room 1049, Indianapolis, IN 46204, **within eighteen (18) calendar days from the mailing of this notice**. The filing of a petition for administrative review is complete on the earliest of the following dates that apply to the filing:

(1) the date the document is delivered to the Office of Environmental Adjudication (OEA);
(2) the date of the postmark on the envelope containing the document, if the document is mailed to OEA by U.S. mail; or
(3) The date on which the document is deposited with a private carrier, as shown by receipt issued by the carrier, if the document is sent to the OEA by private carrier.

The petition must include facts demonstrating that you are either the applicant, a person aggrieved or adversely affected by the decision or otherwise entitled to review by law. Please identify the permit, decision, or other order for which you seek review by permit number, name of the applicant, location, date of this notice and all of the following:

(1) the name and address of the person making the request;
(2) the interest of the person making the request;
(3) identification of any persons represented by the person making the request;
(4) the reasons, with particularity, for the request;
(5) the issues, with particularity, proposed for considerations at any hearing; and
(6) identification of the terms and conditions which, in the judgment of the person making the request, would be appropriate in the case in question to satisfy the requirements of the law governing documents of the type issued by the Commissioner.

If you have technical questions regarding the enclosed documents, please contact the Office of Air Quality, Permits Branch at (317) 233-0178. Callers from within Indiana may call toll-free at 1-800-451-6027, ext. 3-0178.

Enclosures
FNPER-AM.dot 1/10/05

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August 10, 2005

Mr. Ted Parker
Parker By-Products LLC
10462 S. 450 W.
Silver Lake, IN 46982

Re: Exempt Construction and Operation Status,
085-21572-00104

Dear Mr. Parker:

The application from Parker By-Products LLC received on July 27, 2005, has been reviewed. Based on the data submitted and the provisions in 326 IAC 2-1.1-3, it has been determined that the following stationary mycelia processing and drying operation, to be located at 10462 S. 450 W., Silver Lake, IN 46982 is classified as exempt from air pollution permit requirements:

(a) One (1) mycelia processing and drying operation, constructed in 2004, including, but not limited to, receiving, handling, conveying, and transfer equipment, storage bins, and other process equipment, with a maximum capacity of 2490 pounds of dried mycelium cake per hour. The process units consist of the following:

(1) Receiving, handling, conveying, and transfer equipment for processing wet mycelia together with the wet saw dust substrate, with a maximum capacity of 13,220 pounds of wet material per hour;

(2) One (1) wood-fired dryer with heat input equal to or less than 1.0 MMBtu/hr;

(3) Equipment for separating the dry saw dust substrate from the dry mycelia;

(4) Conveying and transfer equipment, storage bins, and other process equipment for processing dry saw dust, with a maximum capacity of 1640 pounds of dry saw dust per hour;

(5) One (1) cyclone, designated as Mycelium Clarifier, for separation of dry saw dust fines from the dry mycelia, with particulate matter emissions controlled by one (1) baghouse with a maximum gas flow rate of thirty thousand (30,000) standard cubic feet per minute (scfm) and a particulate collection efficiency of 99%;

(6) Conveying and transfer equipment, storage bins, and other process equipment for processing dry mycelium cake, with a maximum capacity of 2490 pounds of dry mycelium cake per hour;

The following conditions shall be applicable:

(a) Pursuant to 326 IAC 5-1-2 (Opacity Limitations), except as provided in 326 IAC 5-1-3 (Temporary Alternative Opacity Limitations), opacity shall meet the following:

(1) Opacity shall not exceed an average of forty percent (40%) in any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.

(2) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings in a six (6) hour period as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor) in a six (6) hour period.

(b) Pursuant to 326 IAC 6-4 (Fugitive Dust Emissions Limitations), the source shall not allow fugitive dust to escape beyond the property line or boundaries of the property, right-of-way, or easement on which the source is located, in a manner that would violate 326 IAC 6-4.

(c) Pursuant to 326 IAC 6-3-2(e)(2) (Particulate Emission Limitations for Manufacturing Processes), particulate emissions from each of the mycelium and saw dust processing equipment shall be limited by the following equation:

Interpolation of the data in the table in 326 IAC 6-3-2(e)(2) for the process weight rates up to sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

$E = 4.10\ P^{0.67}$ where E = rate of emission in pounds per hour, and
P = process weight rate in tons per hour

When the process weight rate is less than one hundred (100) pounds per hour, the allowable rate of emission is five hundred fifty-one thousandths (0.551) pound per hour.

For the dry saw dust processing equipment with a maximum process weight rate of 0.82 tons of dry saw dust per hour, the 326 IAC 6-3-2 allowable particulate matter emission rate is 3.59 lb/hr. For the dry mycelium processing equipment with a maximum process weight rate of 1.25 tons of dry mycelium per hour, the 326 IAC 6-3-2 allowable particulate matter emission rate is 4.75 lb/hr. Based on the estimated emissions of particulate matter (see Emission Calculations), it is anticipated that the mycelium and saw dust processing equipment will each emit particulate emissions less than five hundred fifty-one thousandths (0.551) pound per hour. Therefore, compliance with 326 IAC 6-3 is expected.

This exemption is the first air approval issued to this source.

An application or notification shall be submitted in accordance with 326 IAC 2 to the Office of Air Quality (OAQ) if the source proposes to construct new emission units, modify existing emission units, or otherwise modify the source. If you have any questions on this matter, please contact Nathan C. Bell, OAQ, 100 North Senate Avenue, Indianapolis, Indiana, 46204, at 317-234-3350 or at 1-800-451-6027 (ext 43350).

Sincerely,

Original signed by

Nysa L. James, Section Chief
Permits Branch
Office of Air Quality

ncb

Attachment: Technical Support Document

cc: File - Kosciusko County
Kosciusko County Health Department
IDEM Northern Regional Office
Air Compliance Section Inspector - Doyle Houser
Permit Tracking
Compliance Data Section
Administrative and Development

Indiana Department of Environmental Management
Office of Air Quality

Technical Support Document (TSD) for an Exemption

Source Background and Description

Source Name:	**Parker By-Products LLC**
Source Location:	**10462 S. 450 W., Silver Lake, IN 46982**
County:	**Kosciusko**
SIC Code:	**2048 (Manufacturing of Prepared Feeds and Feed Ingredients for Animals and Fowls, Except Dogs and Cats)**
Operation Permit No.:	**085-21572-00104**
Permit Reviewer:	**Nathan C. Bell**

The Office of Air Quality (OAQ) has reviewed an application from Parker By-Products relating to the operation of a stationary mycelia processing and drying operation.

Unpermitted Emission Units and Pollution Control Equipment

The application includes information relating to the operation of the following unpermitted facilities:

(a) One (1) mycelia processing and drying operation, constructed in 2004, including, but not limited to, receiving, handling, conveying, and transfer equipment, storage bins, and other process equipment, with a maximum capacity of 2490 pounds of dried mycelium cake per hour. The process units consist of the following:

(1) Receiving, handling, conveying, and transfer equipment for processing wet mycelia together with the wet saw dust substrate, with a maximum capacity of 13,220 pounds of wet material per hour;

(2) One (1) wood-fired dryer with heat input equal to or less than 1.0 MMBtu/hr;

(3) Equipment for separating the dry saw dust substrate from the dry mycelia;

(4) Conveying and transfer equipment, storage bins, and other process equipment for processing dry saw dust, with a maximum capacity of 1640 pounds of dry saw dust per hour;

(5) One (1) cyclone, designated as Mycelium Clarifier, for separation of dry saw dust fines from the dry mycelia, with particulate matter emissions controlled by one (1) baghouse with a maximum gas flow rate of thirty thousand (30,000) standard cubic feet per minute (scfm) and a particulate collection efficiency of 99%;

(6) Conveying and transfer equipment, storage bins, and other process equipment for processing dry mycelium cake, with a maximum capacity of 2490 pounds of dry mycelium cake per hour;

Existing Approvals

No previous air approvals have been issued to this source.

Enforcement Issue

There are no enforcement actions pending.

Recommendation

The staff recommends to the Commissioner that the application be approved as an exemption. This recommendation is based on the following facts and conditions:

Unless otherwise stated, information used in this review was derived from the application and additional information submitted by the applicant.

An application for the purposes of this review was received on July 27, 2005.

Stack Summary

Stack ID	Operation	Height (ft)	Diameter (ft)	Flow Rate (scfm)	Temperature (^{o}F)
NA	Mycelium Clarifier with particulates controlled by one (1) baghouse	54	3.2	30,000	250

Emission Calculations

(a) Wood-Fired Dryer

The following calculations determine the unrestricted potential to emit based on dry wood combustion, AP-42 emission factors (Chapter 1.6), at a maximum capacity of 1.0 MMBtu/hr, and 8,760 hours of operation per year:

Wood Usage:

(1.0 MMBtu/hr)*(1E6 Btu/MMBtu)*(1/8000 lb wood/Btu)*(1 ton/2000 lb) = 0.0625 tons wood/hr

PTE of Criteria Pollutants and Hazardous Air Pollutants (HAPs):

PTE (tons/yr) = (0.0625 tons wood/hr)*(Ef lb/ton wood)*(8760 hr/yr)*(1 ton/2000 lb)

Criteria Pollutant	PM	PM10	SO2	NOx	VOC	CO
Emission Factor, Ef (lb/ton)	6.4	5.76	0.4	7.84	0.272	9.6
PTE (ton/yr)	**1.75**	**1.58**	**0.11**	**2.15**	**0.07**	**2.63**

Hazardous Air Pollutant (HAP)	Emission Factor, Ef (lb/ton)	PTE (tons/yr)
Acrolein	6.4 E-2	0.02
Formaldehyde	7.04 E-2	0.02
Benzene	6.72 E-2	0.02
Hydrogen Chloride	3.04 E-1	0.08
Styrene	3.04 E-2	0.01
	Total	**0.15**

(b) Saw Dust Processing

This source uses saw dust as a substrate for the growth of mushroom mycelium. During its use, the saw dust substrate is irrigated with water, and therefore, the majority of the fine saw dust particles (i.e., particulate matter with diameter less than 100 micrometer) have either conglomerate together or have been rinsed from the substrate. Consequently, when the wet saw dust substrate is processed through this operation, is not likely to emit significant amounts of particulate matter (PM/PM10). In addition, it is not anticipated that drying and processing of the saw dust will result in the generation of additional fine particles than can be emitted as PM/PM10.

To estimate the emission of PM/PM10 during the conveying, transferring, and storage of dry saw dust at a capacity of 1640 pounds of dry saw dust per hour, the following assumptions were made:

(1) The raw saw dust (prior to use) contains 1% (by weight) particles with diameter less than 100 micrometers. This is consistent with saw dust particle size distribution results obtained in a U.S. Department of Agriculture, Forest Service study entitled "Role of Construction Debris in Release of Copper, Chromium, and Arsenic From Treated Wood Structures".

(2) The saw dust substrate was irrigated with water such that 99% by weight of the PM/PM10 particles either conglomerated together or were rinsed from the substrate (i.e., 1% remain).

Based on 8760 hours of operation per year, the PTE of particulate matter (PM/PM10) from the conveying, transferring, and storage of the dry saw dust is estimated as follows:

Unrestricted PTE:

PTE (tons/yr) = (1640*0.01*0.01 lb/hr)*(8760 hr/yr)*(1 ton/2000 lb) = **0.72 tons/yr PM/PM10**

(c) Mycelium Clarifier

The separation of dry saw dust fines from the dry mycelia in the Mycelium Clarifier cyclone potentially generates 1.5 lbs/hr saw dust. To determine the worst case emission of PM/PM10, it is assumed that 1% of the saw dust (0.015 lbs/hr) processed could be potentially emitted as particulate matter (PM/PM10) air emissions, while the other 99% would be composed of particles with a diameter greater than 100 micrometers. The emissions are controlled by one (1) baghouse with a maximum gas flow rate of thirty thousand (30,000) standard cubic feet per minute (scfm) and a particulate collection efficiency of 99%. The following calculations determine the unrestricted potential emissions and the estimated emissions after baghouse controls.

PTE Before Baghouse = (0.015 lb/hr)*(8760 hr/yr)*(1 ton/2000 lb) = **0.066 tons/yr PM/PM10**

PTE After Baghouse = 0.066 tons/yr * (1 - 0.99) = **0.00066 tons/yr PM/PM10**

(d) Mycelium Processing

It is assumed that there are negligible PM/PM10 emissions (saw dust) during conveying, transferring, and storage of the dry mycelium following separation in the Mycelium Clarifier cyclone.

Potential to Emit Before Controls

Pursuant to 326 IAC 2-1.1-1(16), Potential to Emit (PTE) is defined as "the maximum capacity of a stationary source or emissions unit to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, inclulding air pollution control equipment and restrictions on hours of operation or type or amount of material combusted, stored, or processed shall be treated as part of its design if the limitation is enforceable by the U.S. EPA, the department, or the appropriate local air pollution control agency."

Pollutant	Potential to Emit (tons/yr)
PM	2.53
PM10	2.37
SO2	0.11
NOx	2.15
VOC	0.07
CO	2.63

HAPs	Potential To Emit (tons/year)
Acrolein	0.02
Formaldehyde	0.02
Benzene	0.02
Hydrogen Chloride	0.08
Styrene	0.01
TOTAL HAPs	0.15

(a) The PTE (as defined in 326 IAC 2-1.1-1(16)) of regulated criteria pollutants are less than the levels listed in 326 IAC 2-1.1-3(e)(1). Therefore, the source is subject to the provisions of 326 IAC 2-1.1-3.

(b) The PTE (as defined in 326 IAC 2-1.1-1(16)) of any single HAP is less than ten (10) tons per year and the PTE of a combination of HAPs is less than twenty-five (25) tons per year. Therefore, the source is subject to the provisions of 326 IAC 2-1.1-3.

County Attainment Status

The source is located in Kosciusko County.

Pollutant	Status
PM10	Attainment or Unclassifiable
PM2.5	Attainment or Unclassifiable
SO_2	Attainment
NO_2	Attainment or Unclassifiable
1-Hour Ozone	Attainment or Unclassifiable
8-Hour Ozone	Attainment or Unclassifiable
CO	Attainment or Unclassifiable
Lead	Attainment or Unclassifiable

(a) Volatile organic compounds (VOC) and Nitrogen Oxides (NOx) are regulated under the Clean Air Act (CAA) for the purposes of attaining and maintaining the National Ambient Air Quality Standards (NAAQS) for ozone. Therefore, VOC and NOx emissions are considered when evaluating the rule applicability relating to the ozone standard. Kosciusko County has been designated as attainment or unclassifiable for ozone. Therefore, VOC emissions and NOx were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2. See the State Rule Applicability for the source section.

(b) Kosciusko County has been classified as attainment or unclassifiable in Indiana for all the other criteria pollutants. Therefore, these emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2. See the State Rule Applicability for the source section.

(c) Kosciusko County has been classified as attainment or unclassifiable for PM2.5. U.S. EPA has not yet established the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 for PM 2.5 emissions. Therefore, until the U.S.EPA adopts specific provisions for PSD review for PM2.5 emissions, it has directed states to regulate PM10 emissions as surrogate for PM2.5 emissions. See the State Rule Applicability for the source section.

(d) Fugitive Emissions
Since this type of operation is not one of the 28 listed source categories under 326 IAC 2-2 or 2-3 and since there are no applicable New Source Performance Standards that were in effect on August 7, 1980, the fugitive particulate matter (PM) and volatile organic compound (VOC) emissions are not counted toward determination of PSD and Emission Offset applicability.

Source Status

New Source PSD Definition (emissions after controls, based on 8760 hours of operation per year at rated capacity and/or as otherwise limited):

Pollutant	Emissions (tons/yr)
PM	2.47
PM-10	2.30
SO_2	0.11
NO_x	2.15
VOC	0.07
CO	2.63
Worst Single HAP	0.08
Combination HAPs	0.15

(a) This new source is not a major PSD stationary source because no attainment regulated pollutant is emitted at a rate of 250 tons per year or greater and it is not in one of the 28 listed source categories. Therefore, pursuant to 326 IAC 2-2, the PSD requirements do not apply.

Part 70 Permit Determination

326 IAC 2-7 (Part 70 Permit Program)

This new source is not subject to the Part 70 Permit requirements because the PTE of:
(a) each criteria pollutant is less than 100 tons per year,
(b) a single hazardous air pollutant (HAP) is less than 10 tons per year, and
(c) any combination of HAPs is less than 25 tons/year.

This is the first air approval issued to this source.

Federal Rule Applicability

(a) There are no New Source Performance Standards (NSPS) (326 IAC 12 and 40 CFR Part 60) included in this exemption.

(b) This source is not subject to the requirements of 40 CFR 63, Subpart DDDDD, (63.7480 through 63.7575), NESHAPs for Industrial, Commercial, and Institutional Boilers and Process Heaters, because the source is not a major source of HAPs.

(c) There are no National Emission Standards for Hazardous Air Pollutants (NESHAP)(326 IAC 14, 20 and 40 CFR Part 61, 63) included in this exemption.

State Rule Applicability – Entire Source

326 IAC 2-2 (Prevention of Significant Deterioration)

This source was constructed after the applicability date of August 7, 1977, however, it is not one of the 28 listed source categories defined in 326 IAC 2-2-1(y)(1), no major modifications were done to this source, and the uncontrolled potential to emit of all attainment regulated pollutants is less than 250 tons per year. Therefore, the requirements of 326 IAC 2-2 (PSD) are not applicable.

326 IAC 2-4.1 (Major Sources of Hazardous Air Pollutants (HAP))

The requirements of 326 IAC 2-4.1 are not applicable to this source, since the potential to emit of any single HAP is less than ten (10) tons per year and the potential to emit of a combination of HAPs is less than twenty-five (25) tons per year.

326 IAC 2-6 (Emission Reporting)

This source is not subject to 326 IAC 2-6 (Emission Reporting), because it is located in Kosciusko County, it is not required to have an operating permit under 326 IAC 2-7, Part 70 Permit Program, and it does not emit lead into the ambient air at levels equal to or greater than five (5) tons per year.

326 IAC 5-1 (Opacity Limitations)

Pursuant to 326 IAC 5-1-2 (Opacity Limitations), except as provided in 326 IAC 5-1-3 (Temporary Alternative Opacity Limitations), opacity shall meet the following, unless otherwise stated in the permit:

(a) Opacity shall not exceed an average of forty percent (40%) in any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.

(b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor) in a six (6) hour period.

326 IAC 6-4 (Fugitive Dust Emissions Limitations)

Pursuant to 326 IAC 6-4 (Fugitive Dust Emissions Limitations), the source shall not allow fugitive dust to escape beyond the property line or boundaries of the property, right-of-way, or easement on which the source is located, in a manner that would violate 326 IAC 6-4.

State Rule Applicability – Individual Facilities

326 IAC 8-1-6 (VOC rules: General Reduction Requirements for New Facilities)

The requirements of 326 IAC 8-1-6 are not applicable, since each of the emission units at this source does not have the potential to emit greater than twenty-five (25) tons of VOCs per year.

State Rule Applicability – Wood-Fired Dryer

326 IAC 4-2-2 (Incinerators)

The wood-fired dryer is not an incinerator, as defined by 326 IAC 1-2-34, since it does not burn waste sustances. Therefore, the wood-fired dryer is not subject to 326 IAC 4-2-2.

326 IAC 6-2 (Particulate Emissions from Indirect Heating Units)

The wood-fired dryer is not subject to 326 IAC 6-2, since it is not a source of indirect heating.

326 IAC 6-3 (Particulate Emission Limitations for Manufacturing Processes)

Pursuant to 326 IAC 6-3-1(b)(14), the wood-fired dryer is exempt from the requirements of 326 IAC 6-3, since it has potential particulate emissions less than five hundred fifty-one thousandths (0.551) pound per hour.

326 IAC 7-1 (Sulfur dioxide emission limitations: applicability)

The wood-fired dryer is not subject to the requirements of 326 IAC 7-1, since it has potential and actual emissions of sulfur dioxide of less than twenty-five (25) tons per year and ten (10) pounds per hour, respectively.

State Rule Applicability – Mycelium and Saw Dust Processing Equipment

326 IAC 6-3 (Particulate Emission Limitations for Manufacturing Processes)

Pursuant to 326 IAC 6-3-2(e)(2), particulate emissions from each of the mycelium and saw dust processing equipment shall be limited by the following equation:

Interpolation of the data in the table in 326 IAC 6-3-2(e)(2) for the process weight rates up to sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

$E = 4.10\ P^{0.67}$ where E = rate of emission in pounds per hour, and
P = process weight rate in tons per hour

When the process weight rate is less than one hundred (100) pounds per hour, the allowable rate of emission is five hundred fifty-one thousandths (0.551) pound per hour.

For the dry saw dust processing equipment with a maximum process weight rate of 0.82 tons of dry saw dust per hour, the 326 IAC 6-3-2 allowable particulate matter emission rate is 3.59 lb/hr. For the dry mycelium processing equipment with a maximum process weight rate of 1.25 tons of dry mycelium per hour, the 326 IAC 6-3-2 allowable particulate matter emission rate is 4.75 lb/hr. Based on the estimated emissions of particulate matter (see Emission Calculations), it is anticipated that the mycelium and saw dust processing equipment will each emit particulate emissions less than five hundred fifty-one thousandths (0.551) pound per hour. Therefore, compliance with 326 IAC 6-3 is expected.

Conclusion

The operation of these facilities shall be subject to the conditions of the attached exemption, No 085-21572-00104.