



DEPARTMENT OF NATURAL RESOURCES

MISSOURI AIR CONSERVATION COMMISSION

PERMIT TO CONSTRUCT

Under the authority of RSMo 643 and the Federal Clean Air Act the applicant is authorized to construct the air contaminant source(s) described below, in accordance with the laws, rules and conditions as set forth herein.

Permit Number: **042008-005** Project Number: 2006-11-066

Parent Company: Ray-Carroll County Grain Growers, Inc.

Parent Company Address: P.O. Box 158, Richmond, MO 64085

Installation Name: Ray-Carroll County Grain Growers, Inc.

Installation Address: 26274 Hwy 24, Carrollton, MO 64633

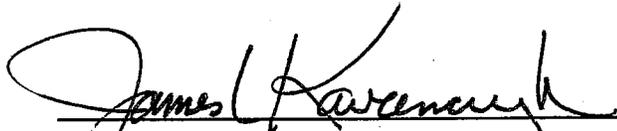
Location Information: Carroll County, S35, T53N, R23W

Application for Authority to Construct was made for:
Increase production by removing previous de minimis limit. This review was conducted in accordance with Section (6), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*.

-
- Standard Conditions (on reverse) are applicable to this permit.
- Standard Conditions (on reverse) and Special Conditions are applicable to this permit.

APR - 9 2008

EFFECTIVE DATE


DIRECTOR OR DESIGNEE
DEPARTMENT OF NATURAL RESOURCES

STANDARD CONDITIONS:

Permission to construct may be revoked if you fail to begin construction or modification within two years from the effective date of this permit. Permittee should notify the Air Pollution Control Program if construction or modification is not started within two years after the effective date of this permit, or if construction or modification is suspended for one year or more.

You will be in violation of 10 CSR 10-6.060 if you fail to adhere to the specifications and conditions listed in your application, this permit and the project review. In the event that there is a discrepancy between the permit application and this permit, the conditions of this permit shall take precedence. Specifically, all air contaminant control devices shall be operated and maintained as specified in the application, associated plans and specifications.

You must notify the department's Air Pollution Control Program of the anticipated date of start up of this (these) air contaminant source(s). The information must be made available not more than 60 days but at least 30 days in advance of this date. Also, you must notify the Department of Natural Resources Regional office responsible for the area within which you are located with 15 days after the actual start up of this (these) air contaminant source(s).

A copy of this permit and permit review shall be kept at the installation address and shall be made available to Department of Natural Resources' personnel upon request.

You may appeal this permit or any of the listed special conditions to the Administrative Hearing Commission (AHC), P.O. Box 1557, Jefferson City, MO 65102, as provided in RSMo 643.075.6 and 621.250.3. If you choose to appeal, you must file a petition with the AHC within 30 days after the date this decision was mailed or the date it was delivered, whichever date was earlier. If any such petition is sent by registered mail or certified mail, it will be deemed filed on the date it is mailed. If it is sent by any method other than registered mail or certified mail, it will be deemed filed on the date it is received by the AHC.

If you choose not to appeal, this certificate, the project review and your application and associated correspondence constitutes your permit to construct. The permit allows you to construct and operate your air contaminant source(s), but in no way relieves you of your obligation to comply with all applicable provisions of the Missouri Air Conservation Law, regulations of the Missouri Department of Natural Resources and other applicable federal, state and local laws and ordinances.

The Air Pollution Control Program invites your questions regarding this air pollution permit. Please contact the Construction Permit Unit at (573) 751-4817. If you prefer to write, please address your correspondence to the Missouri Department of Natural Resources, Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102-0176, attention: Construction Permit Unit.

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|-------------|-------------|
| Page No. | 3 |
| Permit No. | |
| Project No. | 2006-11-066 |

SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:

The special conditions listed in this permit were included based on the authority granted the Missouri Air Pollution Control Program by the Missouri Air Conservation Law (specifically 643.075) and by the Missouri Rules listed in Title 10, Division 10 of the Code of State Regulations (specifically 10 CSR 10-6.060). For specific details regarding conditions, see 10 CSR 10-6.060 paragraph (12)(A)10. "Conditions required by permitting authority."

Ray-Carroll County Grain Growers, Inc.
Carroll County, S35, T53N, R23W

1. **Superseding Condition**

The conditions of this permit supersede all special conditions found in the previously issued construction permits from the Air Pollution Control Program listed in Table 1.

Table 1: Superceded Construction Permits

| Permit Number |
|---------------|
| 1186-002 |
| 0790-005 |
| 0494-019 |
| 0596-014 |
| 012003-009 |

2. **Haul Road Control**

Ray-Carroll County Grain Growers, Inc. shall control fugitive emissions from all of the haul roads at this site by paving and washing/cleaning the haul roads.

A. Ray-Carroll County Grain Growers, Inc. shall finish paving the haul roads prior to the cessation of recordkeeping in accordance with Special Condition 8.

B. Ray-Carroll County Grain Growers, Inc. shall inform the Air Pollution Control Program in writing within fifteen (15) days of the date when operation as described in the application has commenced at this site and of the date when the paving has been completed.

C. Ray-Carroll County Grain Growers, Inc. shall pave the haul roads with materials such as asphalt, concrete, and/or other material(s). If materials other than asphalt or concrete are used, Ray-Carroll County Grain Growers, Inc. must receive approval from the Air Pollution Control Program. The pavement shall be applied in accordance with industry standards for such pavement so as to achieve control of fugitive emissions while the plant is operating.

D. Maintenance and/or repair of the road surface shall be conducted as

| | |
|-------------|-------------|
| Page No. | 4 |
| Permit No. | |
| Project No. | 2006-11-066 |

SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:

necessary to ensure that the physical integrity of the pavement is adequate to achieve control of fugitive emissions from these areas.

- E. Ray-Carroll County Grain Growers, Inc. shall periodically water, wash and/or otherwise clean all of the paved portions of the haul road as necessary to achieve control of fugitive emissions from these areas while the plant is operating.
3. Operational Limitations – Fertilizer Plant
- A. The following limitations apply during the months of March, April, May, September, October, and November:
 - 1) Ray-Carroll County Grain Growers, Inc. shall limit the daily amount of fertilizer received at the fertilizer plant to 500 tons per day.
 - 2) Ray-Carroll County Grain Growers, Inc. shall limit the daily amount of fertilizer loaded out of the fertilizer plant to 500 tons per day.
 - 3) Ray-Carroll County Grain Growers, Inc. shall operate the fertilizer plant during the hours of 7 am to 8 pm, exclusively (i.e. total 13 hours).
 - B. The following limitations apply during the months of January, February, June, July, August, and December:
 - 1) Ray-Carroll County Grain Growers, Inc. shall limit the daily amount of fertilizer received at the fertilizer plant to 50 tons per day.
 - 2) Ray-Carroll County Grain Growers, Inc. shall limit the daily amount of fertilizer loaded out of the fertilizer plant to 50 tons per day.
 - 3) Ray-Carroll County Grain Growers, Inc. shall operate the fertilizer plant during the hours of 7 am to 6 pm, exclusively (i.e. total 11 hours).
 - C. To show compliance with Special Conditions 3.A. and 3.B., Ray-Carroll County Grain Growers, Inc. shall keep a record of the daily amount of fertilizer received and loaded at the installation. Attachment A, or equivalent form(s), shall be used for daily record keeping.
 - D. Ray-Carroll County Grain Growers, Inc. shall not concurrently receive fertilizer at the receiving pits and load fertilizer for shipping.
4. Emissions Control – Fertilizer Plant
- A. Ray-Carroll County Grain Growers, Inc. shall install a drop sleeve on the fertilizer truck loadout (EP14) spout such that the end of the sleeve is located within the truck bed. The drop sleeve must be constructed of material appropriate for the handling of fertilizer.

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| Page No. | 5 |
| Permit No. | |
| Project No. | 2006-11-066 |

SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:

- B. Ray-Carroll County Grain Growers, Inc. shall completely enclose the fertilizer storage bays, with the exception of the bottom 3 feet of each bay for the removal of fertilizer.
 - C. Ray-Carroll County Grain Growers, Inc. shall complete the installation of the cloth drop sleeve and the construction of enclosed storage bays prior to the cessation of recordkeeping in accordance with Special Condition 8.
5. Operational Limitations – Grain Elevator Plant
- A. Ray-Carroll County Grain Growers, Inc. shall limit the amount of grain stored in the temporary storage pile to 1 million bushels per year.
 - B. Ray-Carroll County Grain Growers, Inc. shall fill the temporary storage pile only during the months of September and October.
 - C. Ray-Carroll County Grain Growers, Inc. shall operate the grain dryer (EP09) during the hours of 10 am to 3 pm, exclusively (i.e. total 5 hours). This limitation applies only during the months of December, January, February, March, April and May.
 - D. Ray-Carroll County Grain Growers, Inc. shall limit the daily amount of grain shipped by rail (EP07B) at the grain elevator to 110 railcars per day (11,220 tons per day).
 - E. To show compliance with Special Conditions 5.A. and 5.D., Ray-Carroll County Grain Growers, Inc. shall keep a record of the amount of grain stored in the temporary storage pile and the daily amount of grain shipped by rail at the installation. Attachment B, or equivalent form(s), shall be used for daily record keeping.
 - F. Ray-Carroll County Grain Growers, Inc. shall operate the truck loadout (EP07A) during the hours of 7 am to 6 pm, exclusively (i.e. total 11 hours).
 - G. Ray-Carroll County Grain Growers, Inc. shall not receive grain by rail without prior approval from the Air Pollution Control Program. Ray-Carroll County Grain Growers, Inc. shall submit a written request for approval to the Air Pollution Control Program at least 10 days prior to the receipt of grain by rail. The written request must contain, at the least, the date of receipt and the amount of receipt.
6. Emissions Control – Grain Elevator Plant

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|-------------|-------------|
| Page No. | 6 |
| Permit No. | |
| Project No. | 2006-11-066 |

SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:

- A. Ray-Carroll County Grain Growers, Inc. shall use a mineral oil suppression system at all times for truck loading (EP07A), shipping leg (EP06), and rail shipping (EP07B). The mineral oil shall be added at a location prior to the occurrence of emissions from these emission points in order to achieve a control efficiency of 80%. The mineral oil suppression system shall be operated and maintained in accordance with the manufacturer's specifications.
- B. Ray-Carroll County Grain Growers, Inc. shall install a drop sleeve on the grain truck loadout (EP07A) spout such that the end of the sleeve is located within the truck bed. The drop sleeve must be constructed of material appropriate for the handling of grain.
- C. Ray-Carroll County Grain Growers, Inc. shall complete installation of the mineral oil suppression system and the cloth drop sleeve prior to the cessation of recordkeeping in accordance with Special Condition 8.

7. Control Equipment – Cyclones

- A. The cyclone must be in use at all times when the following equipment are in operation:

Table 2: Equipment to be Controlled by Cyclones

| Emission Unit | Emission Unit Description | Type of Control |
|---------------|----------------------------|-----------------|
| EP01A | Truck Grain Receiving Pits | Cyclone |
| EP02 | Elevator Legs (2) | Cyclone |
| EP06 | Shipping Leg | Cyclone |

- B. The cyclone and any related instrumentation or equipment shall be operated and maintained in accordance with the manufacturer's specifications. The cyclones shall be equipped with gauges or meters, which indicate the pressure drop across the cyclone. These gauges or meters shall be located such that Department of Natural Resources' employees may easily observe them.
- C. Ray-Carroll County Grain Growers, Inc. shall monitor and record, in an operating and maintenance log, the operating pressure drop across the cyclones at least once every 24 hours. Either paper copy or electronic formats of the log are acceptable. The operating pressure drop shall be maintained within the design conditions specified by the manufacturer's performance warranty. If the pressure drop reading shall fall outside of this normal operating range, then the associated equipment shall be shut down as quickly as is feasible and corrective action taken to address the cause of the pressure drop problem. The problem shall be corrected and

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| Page No. | 7 |
| Permit No. | |
| Project No. | 2006-11-066 |

SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:

the cyclone shall be operational before restarting the equipment.

- D. Ray-Carroll County Grain Growers, Inc. shall maintain an operating and maintenance log for the cyclones which shall include the following:
 - 1.) Incidents of malfunction, with impact on emissions, duration of event, probable cause, and corrective actions
 - 2.) Maintenance activities, with inspection schedule, repair actions, and replacements, etc.
 - 3.) A record of regular inspection schedule, the date and results of all inspections, including any actions or maintenance activities that result from the inspections. Either paper copy or electronic formats are acceptable.

- 8. Emission Limitations – Particulate Matter Less than Ten Microns in Diameter (PM₁₀)
 - A. A de minimis limit for PM₁₀ shall remain effective until the construction of all emission control/reduction equipment required in this construction permit (see Table 2) is complete.
 - 1.) Ray-Carroll County Grain Growers, Inc. shall emit less than 15 tons of particulate matter less than ten (10) microns in diameter (PM₁₀) in any consecutive 12 month period from the entire installation
 - 2.) Ray-Carroll County Grain Growers, Inc. shall maintain an accurate record of PM₁₀ emitted into the atmosphere from the entire installation. Attachment C or an equivalent form shall be used for this purpose.

 - B. Ray-Carroll County Grain Growers, Inc. shall continue to demonstrate compliance with Special Condition 8.A. until the construction of all emission control/reduction equipment required in this construction permit (see Table 3) is complete.

Table 3: List of emission control/reduction equipment

| Special Condition | Control/Reduction Equipment |
|-------------------|---|
| 2 | Paving of haul roads |
| 4.A | Installation of a cloth drop sleeve on fertilizer truck loadout |
| 4.B | Enclosing the fertilizer storage bays |
| 6.A | Installation of a mineral oil suppression system |
| 6.B | Installation of a cloth drop sleeve on grain truck loadout |

- C. Ray-Carroll County Grain Growers, Inc. shall not discharge PM₁₀ into the atmosphere from the following stacks in excess of the listed amounts in Table 4.

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| Page No. | 8 |
| Permit No. | |
| Project No. | 2006-11-066 |

SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:

Table 4: Emission Rate Limits for PM₁₀

| Emission Points | Stack Description | Pounds per Hour (lbs/hr) |
|-----------------|-------------------|--------------------------|
| EP01A, 02, 06 | Grain Cyclone | 1.60 |

- D. The emission rates in Table 4 shall be verified through performance testing as detailed in Special Conditions 9 and 10.
9. Performance Testing
- A. Ray-Carroll County Grain Growers, Inc. shall conduct performance tests to verify the PM₁₀ emission rate at the cyclone when all the processes controlled by this device are in operation according to Special Condition 7.A. (i.e. EP01A, 02, and 06). This emission rate shall not exceed the amount listed in Special Condition 8.
 - B. These tests shall be performed within sixty (60) days after achieving the maximum production rate of the installation, but not later than 180 days after the effective date of this construction permit and shall be conducted in accordance with the stack test procedures outlined in Special Condition 10.
10. Proposed Test Plan and Final Test Report
- A. A completed Proposed Test Plan Form must be submitted to the Air Pollution Control Program 30 days prior to the proposed test date so that the Air Pollution Control Program may arrange a pretest meeting, if necessary, and assure that the test date is acceptable for an observer to be present. The Proposed Test Plan may serve the purpose of notification and must be approved by the Director prior to conducting the required emission testing.
 - B. Two (2) copies of a written report of the performance test results shall be submitted to the Director within 30 days of completion of any required testing. The report must include legible copies of the raw data sheets, analytical instrument laboratory data, and complete sample calculations from the required U.S. EPA Method for at least one (1) sample run.
 - C. The test report is to fully account for all operational and emission parameters addressed both in the permit conditions as well as in any other applicable state or federal rules or regulations.
 - D. If the performance testing required by Special Condition 9 of this permit indicates that any of the emission limits specified in Special Condition 8 are being exceeded, Ray-Carroll County Grain Growers, Inc. must

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| Page No. | 9 |
| Permit No. | |
| Project No. | 2006-11-066 |

SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:

propose a plan to the Air Pollution Control Program within thirty (30) days of submitting the performance test results. This plan must demonstrate how Ray-Carroll County Grain Growers, Inc. will reduce the emission rates below those stated in Special Condition 8. Ray-Carroll County Grain Growers, Inc. shall implement any such plan immediately upon its approval by the Director.

11. **Reporting Requirements**
Ray-Carroll County Grain Growers, Inc. shall report to the Air Pollution Control Program's Enforcement Section (P. O. Box 176, Jefferson City, MO 65102) no later than ten (10) days after the end of the month during which the records required by the special conditions of this permit show that the limitations of this permit have been exceeded.
12. **Record Keeping Requirements**
All records required by this permit shall be kept onsite for no less than five (5) years and shall be made available to any Department of Natural Resources' personnel upon request.

REVIEW OF APPLICATION FOR AUTHORITY TO CONSTRUCT AND OPERATE
SECTION (6) REVIEW

Project Number: 2006-11-066
Installation ID Number: 033-0023
Permit Number:

Ray-Carroll County Grain Growers, Inc.
Hwy 24 East
Carrollton, MO 64633

Complete: April 16, 2007
Reviewed: March 31, 2008

Parent Company:
Ray-Carroll County Grain Growers, Inc.
P.O. Box 158
Richmond, MO 64085

Carroll County, S35, T53N, R23W

REVIEW SUMMARY

- Ray-Carroll County Grain Growers, Inc. has applied for authority to increase production by removing the previous de minimis limit.
- Hazardous Air Pollutant (HAP) emissions are expected in insignificant amounts from combustion equipment.
- Subpart DD of the New Source Performance Standards (NSPS), *Standards of Performance for Grain Elevators*, applies to this installation since the storage capacity of the installation is greater than 2.5 million bushels of grain.
- None of the National Emission Standards for Hazardous Air Pollutants (NESHAPs) or currently promulgated Maximum Achievable Control Technology (MACT) regulations apply to the proposed equipment.
- A mineral oil suppression system, a cyclone, and enclosure of equipment are being used to control the particulate matter less than ten (10) microns in diameter (PM₁₀) emissions from the equipment in this permit.
- Ray -Carroll County Grain Growers, Inc. and Show Me Ethanol, LLC are considered one installation for purposes of construction permitting. Therefore, the emissions of both facilities were reviewed under one project.
- This review was conducted in accordance with Section (6) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of this project for PM₁₀, VOC, NO_x, SO_x and CO are above de minimis levels and below major source levels. However, only potential emissions of PM₁₀ are above de minimis levels for Ray-Carroll County Grain Growers, Inc.

- This installation is located in Carroll County, an attainment area for all criteria air pollutants.
- This installation is not on the List of Named Installations [10 CSR 10-6.020(3)(B), Table 2].
- Ambient air quality modeling was performed to determine the ambient impact of PM₁₀, NO_x, SO_x and CO.
- Emissions testing is required for the equipment in this permit.
- An Intermediate Operating Permit is required for this installation within 90 days of the effective date of this construction permit.
- Approval of this permit is recommended with special conditions.

INSTALLATION DESCRIPTION

Ray-Carroll County Grain Growers, Inc. operates a country grain elevator and a fertilizer plant in Carrollton, Missouri. The grain elevator currently receives grain by truck or rail, which is then dried, stored, cleaned, and loaded out by truck or rail. The fertilizer plant receives various types of fertilizer by truck and these fertilizers are mixed and shipped back out by trucks. This installation does not manufacture fertilizer.

Ray-Carroll County Grain Growers, Inc. was issued a Basic Operating Permit (Project Number 033-0023-020) on November 12, 1998. The following construction permits have been issued to this installation from the Air Pollution Control Program.

Table 5: Construction permits issued to Ray-Carroll County Grain Growers, Inc.

| Permit Number | Description |
|---------------|--|
| 1186-002 | Installation of a grain storage building with maximum capacity of 350,000 bushels |
| 0790-005 | Installation of a grain dryer, a wet holding tank, two (2) bucket elevators, two (2) drag conveyors, and associated spouting. |
| 0494-019 | Installation of new concrete grain elevator with storage capacity of 780,000 bushels. |
| 0596-014 | Installation of a bulk fertilizer mixing plant. |
| 012003-009 | Modification of the existing shipping leg and rail loadout system to achieve higher hourly throughput rates at the existing grain elevator and fertilizer plant in Carrollton, Missouri. Ray-Carroll requested a de minimis limitation on their PM ₁₀ emissions from the entire installation. |

The special conditions of all previously issued construction permits are being superseded by Special Condition 1 of this construction permit. Most of the superseded conditions will be rendered unnecessary with the issuance of this permit (e.g. 15 ton/year PM₁₀ limit). Some conditions are being re-instated in this permit for continuing compliance (e.g. cyclone requirements). All previous permit conditions have been subsumed into the conditions of this construction permit and are, therefore, unnecessary or repetitive in nature.

PROJECT DESCRIPTION

Show Me Ethanol, LLC (Show Me Ethanol) proposes to construct a new 60.5 million gallon per year denatured ethanol production facility adjacent to Ray-Carroll County Grain Growers, Inc. (Ray-Carroll), an existing grain elevator and fertilizer plant. Each company submitted an application to obtain a construction permit for their individual company: Show Me Ethanol for a new ethanol plant (Project #2006-10-057) and Ray-Carroll for an increase in production of grain (Project #2006-11-066). However, after evaluating both applications, it was determined that both companies should be considered a single installation for permitting purposes. Therefore, the emissions from both companies were reviewed together under project determination.

Installation is defined by 10 CSR 10-6.020 (2)(l)(7) as the following:

“All source operations including activities that result in fugitive emissions, that belong to the same industrial grouping ..., and any marine vessels while docked at the installation, located on one (1) or more contiguous or adjacent properties and under the control of the same person...”

However, the definition of “support facility” as clarified in the August 7, 1980, preamble to the Prevention of Significant Deterioration (PSD) regulations (45 FR 52695) states:

“Each source is to be classified according to its primary activity, which is determined by its principal product or group of products produced or distributed, or services rendered. Thus, one source classification encompasses both primary and support facilities, even when the latter includes units with a different two-digit SIC code. Support facilities are typically those which convey, store, or otherwise assist in the production of the principal product. Where a single unit is used to support two otherwise distinct sets of activities, the unit is to be included within the source which relies most heavily on its support...”

Therefore, in defining the source where a potential support relationship exists between two (2) facilities, the difference in SIC codes becomes irrelevant and the only factors remaining to be considered are whether the facilities are contiguous or adjacent and under the control of the same person.

In this case, Ray-Carroll and Show Me Ethanol are located on adjacent properties. In addition, there is a planned business relationship between the two facilities. Ray-Carroll will function as the primary receiving mechanism of the raw material (i.e. grain) used to manufacture the product for Show Me Ethanol (i.e. ethanol). According to the application, although Show Me Ethanol will be able to receive grain, they will only receive grain “during events when the Ray-Carroll grain elevator is down”. Therefore, Ray-Carroll is considered a support facility of Show Me Ethanol.

For permitting purposes, Ray-Carroll and Show Me Ethanol meet the requirements for being and are considered one (1) installation. As a result, the new ethanol plant and the

subsequent increase in grain production at Ray-Carroll were reviewed as one (1) project to determine permit applicability. However, for operational clarity at each of the respective plants, Ray-Carroll and Show Me Ethanol will each receive a separate permit. For a detailed description of the construction activities at the ethanol plant, please refer to Project #2006-10-057.

In Ray-Carroll's previous construction permit, Ray-Carroll voluntarily requested a de minimis limitation that restricted PM₁₀ emissions at the installation to less than 15 tons per year. For de minimis sources and de minimis projects, modeling analyses are not required prior to issuance of the construction permit. Therefore, no modeling was conducted at the time. Currently, Ray-Carroll proposes to increase production at the grain elevator to accommodate the production needs of the adjacent ethanol plant, which will require over 21.6 million bushels of corn per year. Since the increase in potential emissions from the project was greater than de minimis, modeling was required to demonstrate compliance including both Ray-Carroll and Show Me Ethanol.

In addition to the increase in grain receipt for the new ethanol plant, Ray-Carroll proposed to continue receiving grain similar to operations prior to the construction of the ethanol plant. That is, Ray-Carroll could receive all, part or none of the grain (i.e. corn) used in the production of ethanol in addition to all the grain (e.g. wheat, soybean, and corn) received in previous years. Therefore, the modeled emission rates considered potential emissions, and annual actual and worst-case actual emissions, based on data from 2005 and 2006 submitted by the installation. Since Ray-Carroll requested a high degree of flexibility in their operations, the emissions used in the modeling analysis reflected several operating scenarios on a short-term and long-term basis.

For the significance runs, the modeled emission rates must be based upon the increase in potential emissions. Since Ray-Carroll had an annual PM₁₀ limit in a previous construction permit, the modeled emission rates accounted for the increase in emissions only on a long-term basis. With no short-term limits, Ray-Carroll would not experience a short-term increase in their maximum hourly design rate. Therefore, no increase in emissions was considered on a short-term basis.

For the National Ambient Air Quality Standards analysis, the potential emissions of the project must be used. Therefore, the potential to emit was used as the modeled emission rates for both the long- and short-term standards.

For an increment analysis, the modeled emission rates are based on actual emissions for existing sources and potential emissions for new equipment. Since actual emissions are available for Ray-Carroll, actual emissions were used in this analysis. However, in order to allow the greatest amount of operational flexibility while still addressing the worst case impact, potential emissions were used for both the long- and short-term standards.

During the review of this project, the modeled emissions from both the existing grain elevator and the new ethanol plant showed exceedances of air quality standards. In an effort to reduce the impact of the existing grain elevator, Ray-Carroll County Grain Growers, Inc. agreed to limits that would more accurately reflect the actual operations of

the existing grain elevator. Those limits translated into special conditions for the existing grain elevator. Table 6 outlines the operations.

Table 6: List of emission points and their associated limitations

| Emission Point | Description | Limitation |
|----------------|---|--|
| EP01A | Truck Grain Receiving Pits (2) | Cyclone (95% control efficiency) |
| EP01B | Rail Receiving | Restricted to use only upon prior approval from the Air Pollution Control Program |
| EP02 | Elevator Legs (2) | Cyclone (95% control efficiency) |
| EP04A | Storage | |
| EP04B | Temporary Storage | 1 million bushels per year |
| EP05 | Front End Loader | |
| EP06 | Shipping Leg | Oil Suppression (80% control efficiency) and Cyclone (95% control efficiency) |
| EP07A | Truck Loading | Oil Suppression (80% control efficiency), and must install a drop sleeve |
| EP07B | Rail Shipping | Oil Suppression (80% control efficiency) and 11,220 ton/day limit |
| EP09A | 36 MMBtu LP Grain Dryer (Process Emissions) | 5 hours/day during Dec-May |
| EP11 | Dry Fertilizer Receiving | 500 ton/day and cannot concurrently receive and loadout |
| EP12 | Elevator Legs | Storage bays must be completely enclosed |
| EP14 | Fertilizer Loadout | 500 ton/day, cannot concurrently receive and loadout, and must install a drop sleeve |
| | Haul Road - Receiving segment | Paved and washed |

EMISSIONS/CONTROLS EVALUATION

Emissions from grain receiving, storage, and handling were calculated using PM₁₀ emission factors from EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition, Section 9.9.1 (5/03) and took into account the various capture and control efficiencies.

A mineral oil suppression system will be used during truck and rail shipping and at the shipping leg to control PM₁₀ emissions from the equipment in this permit (80 % control efficiency). According to the applicant, oil will be sprayed on the grain cups and grain at the bottom of the shipping leg before moving to the loadout bin prior to the rail loadout spout. For truck loading, the oil will be sprayed on the auger prior to reaching the truck loadout spout.

Emissions from the truck receiving (EP01A), elevator legs (EP02), and the shipping leg (EP06) are controlled by a cyclone to reduce PM₁₀ emissions (95% control efficiency). Due to the high efficiency assigned to this control device, testing is required to ensure that modeled emission rates are not exceeded.

Emissions from the loading of grain and fertilizer will be reduced by the addition of a cloth drop sleeve. The sleeve will act as a shield and direct the grain or fertilizer into the truck to minimize the drop distance of the material being shipped. Also, the fertilizer storage bays will be completely enclosed with the exception of the bottom 3 feet of each

bay where fertilizer will be loaded out.

With the issuance of this construction permit, all previous special conditions will be superseded, including the de minimis PM₁₀ limit. However, since the proposed emissions increase at Ray-Carroll does not require the construction of new equipment, the de minimis limit must remain in effect until the construction of emission control/reduction equipment required in this construction permit is complete. Special Condition 8.A. was set forth for this purpose. Upon completion of the construction of this equipment, Ray-Carroll will no longer be required to demonstrate compliance with the de minimis PM₁₀ limit.

Potential emissions of the application represent the potential of the equipment, assuming continuous operation (8760 hours per year). Conditioned potential emissions are based on restriction of operational hours and emissions control/reduction equipment. Existing potential emissions take into account the limits set in a previous construction permit (Permit #012003-009). Actual emissions were taken from the installation's 2007 Emissions Inventory Questionnaire (EIQ). The following table provides an emissions summary for this project.

Table 7: Emissions Summary (tons per year)

| Pollutant | Regulatory De Minimis Levels | Existing Potential Emissions | Existing Actual Emissions (2007 EIQ) | Potential Emissions of the Application | New Installation Conditioned Potential |
|------------------|------------------------------|------------------------------|--------------------------------------|--|--|
| PM ₁₀ | 15.0 | 15.0 | 4.72 | 345.1 | 34.3 |
| SO _x | 40.0 | N/D | 0.56 | 7.2 | 3.6 |
| NO _x | 40.0 | N/D | 0.10 | 31.6 | 15.9 |
| VOC | 40.0 | N/D | N/A | 0.8 | 0.4 |
| CO | 100.0 | N/D | 0.01 | 5.3 | 2.7 |
| HAPs | 10.0/25.0 | N/D | N/A | 0.3 | 0.1 |

*N/A = Not Applicable; N/D = Not Determined

PERMIT RULE APPLICABILITY

This review was conducted in accordance with Section (6) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of PM₁₀, VOC, NO_x, SO_x and CO are above de minimis levels and conditioned to below major source levels.

APPLICABLE REQUIREMENTS

Ray-Carroll County Grain Growers, Inc. shall comply with the following applicable requirements. The Missouri Air Conservation Laws and Regulations should be consulted for specific record keeping, monitoring, and reporting requirements. Compliance with these emission standards, based on information submitted in the application, has been verified at the time this application was approved. For a complete list of applicable requirements for your installation, please consult your operating permit.

GENERAL REQUIREMENTS

- *Submission of Emission Data, Emission Fees and Process Information*, 10 CSR 10-6.110
The emission fee is the amount established by the Missouri Air Conservation Commission annually under Missouri Air Law 643.079(1). Submission of an Emissions Inventory Questionnaire (EIQ) is required April 1 for the previous year's emissions.
- *Operating Permits*, 10 CSR 10-6.065
- *Restriction of Particulate Matter to the Ambient Air Beyond the Premises of Origin*, 10 CSR 10-6.170
- *Restriction of Emission of Visible Air Contaminants*, 10 CSR 10-6.220
- *Restriction of Emission of Odors*, 10 CSR 10-3.090

SPECIFIC REQUIREMENTS

- *Restriction of Emission of Particulate Matter From Industrial Processes*, 10 CSR 10-6.400
- *Restriction of Emission of Sulfur Compounds*, 10 CSR 10-6.260
- *New Source Performance Regulations*, 10 CSR 10-6.070 – *New Source Performance Standards (NSPS) for Grain Elevators*, 40 CFR Part 60, Subpart DD

AMBIENT AIR QUALITY IMPACT ANALYSIS

Ambient air quality modeling was performed to determine the ambient impact of PM₁₀, CO, NO_x, and SO_x. For further details on the modeling, please refer to the memo titled "Ambient Air Quality Impact Analysis (AAQIA) for Show Me Ethanol, LLC – May 25, 2007 Submittal".

STAFF RECOMMENDATION

On the basis of this review conducted in accordance with Section (6), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*, I recommend this permit be granted with special conditions.

Emily Wilbur
Environmental Engineer

Date

PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated November 9, 2006, received November 13, 2006, designating Ray-Carroll County Grain Growers, Inc. as the owner and operator of the installation.
- U.S. EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition.
- Northeast Regional Office Site Survey.

Mr. Mike Nordwald
General Manager
Ray-Carroll County Grain Growers, Inc.
Hwy 24 East
Carrollton, MO 64633

RE: New Source Review Permit - Project Number: 2006-11-066

Dear Mr. Nordwald:

Enclosed with this letter is your permit to construct. Please study it carefully. Also, note the special conditions, if any, on the accompanying pages. The document entitled, "Review of Application for Authority to Construct," is part of the permit and should be kept with this permit in your files.

Operation in accordance with these conditions, your new source review permit application and with your operating permit is necessary for continued compliance.

The reverse side of your permit certificate has important information concerning standard permit conditions and your rights and obligations under the laws and regulations of the State of Missouri.

If you have any questions regarding this permit, please do not hesitate to contact Em at the departments' Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102 or (573) 751-4817. Thank you for your attention to this matter.

Sincerely,

AIR POLLUTION CONTROL PROGRAM

Kendall B. Hale
New Source Review Unit Chief

KBH:Et first initial

Enclosures

c: Northeast Regional Office
PAMS File: 2006-11-066

Permit Number: