

STATE OF MISSOURI



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: **012013-003**

Project Number: 2012-06-087
Installation Number: 033-0002

Parent Company: Ray Carroll County Grain Growers

Parent Company Address: 807 West Main, Richmond, MO 64085

Installation Name: Ray Carroll County Grain Growers

Installation Address: 1st and Cherry Street, Norborne, MO 64668

Location Information: Carroll County, S22, T52N, R25W

Application for Authority to Construct was made for:
The re-evaluation of the facilities potential emissions with updated equipment list. Also the removal of an existing production limitation, replacing it with an annual PM₁₀ emission 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.

JAN 07 2013

EFFECTIVE DATE

Wendy [Signature] for Kyle L. Moore

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 these air contaminant sources. The information must be made available within 30 days of actual startup. Also, you must notify the Department of Natural Resources Regional office responsible for the area within which you are located within 15 days after the actual start up of these air contaminant sources.

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 sources(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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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
Carroll County, S22, T52N, R25W

1. Superseding Condition
 - A. The conditions of this permit supersede all special conditions found in the previously issued construction permits 1186-003, 0494-014, 0897-001 and 0897-001A issued by the Air Pollution Control Program.

2. PM₁₀ Emission Limitation
 - A. Ray Carroll County Grain Growers shall emit less than 15.0 tons of PM₁₀ in any consecutive 12-month period from the entire installation (see table 1).

Table 1: Ray Carroll County Grain Growers

Emission Point	Description
EP-1A	Grain Receiving Pit #1
EP-1B	Grain Receiving Pit #2
EP-2	Truck Loadout
EP-3	Rail Loadout
EP-4	Column Grain Dryer (Natural Gas Fired)
EP-5	Truck Loadout from Flat Storage
EP-6	Corn Receiving
EP-7	Truck Loadout Corn
EP-8	Bean Receiving
EP-9	Truck Loadout Bean
EP-10	Internal Handling
EP-11	Storage Bin Vents and Open Storage Pile
EP-12	Dry Fertilizer Receiving (Directly to Storage Bays)
EP-13	Dry Fertilizer Weigh Hopper
EP-14	Dry Fertilizer Mixing
EP-15	Dry Fertilizer Loadout
HRS 1-11	Total Haul Road Emissions

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SPECIAL CONDITIONS:

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

- B. Attachment A or equivalent forms, such as electronic forms, approved by the Air Pollution Control Program shall be used to demonstrate compliance with Special Conditions 2.A.
3. Documented Haul Road Watering/ Chemical Surfactant
- A. Ray Carroll County Grain Growers shall control dust from all haul roads at this site using water or surfactant spray consistently and correctly at all times to prevent visible fugitive emissions from entering the ambient air beyond the property boundary. The following conditions apply to haul road control techniques:
 - 1) The water application rate shall be 100 gallons per 1000 square feet at least once every day.
 - 2) The chemical surfactant shall be applied per the manufacture specifications.
 - 3) A quarter inch or more rainfall during the preceding 24 hours shall substitute for one daily water application
 - 4) Water/surfactant application shall not be required when the ground is frozen or when there will be no traffic on the roads.
 - B. Ray Carroll County Grain Growers shall keep the following records on file and available for inspection:
 - 1) When haul road watering is being implemented: A daily log for water application initialed by the responsible facility operator of roads watered and quantity of water, or notation that there was a quarter inch or greater rainfall within the past 24 hours or that the facility was not in operation.
 - 2) When chemical surfactants are being implemented: An application log initialed by the responsible facility operator showing the application rate and frequency of the application rate as recommended by the manufacture or a notation that there was a quarter inch or greater rainfall within the past 24 hours or that the facility was not in operation.
 - 3) Water tank size, total area of roads to be watered, and the resultant number of fills necessary to accomplish the required application rate.
 - 4) Records of watering/chemical application equipment breakdowns and repairs.

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SPECIAL CONDITIONS:

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

4. Control Device Requirement - Cyclone
 - A. Ray Carroll County Grain Growers shall control emissions from Grain Receiving Pit One and Two (EP-1A and EP-1B) using a cyclone as specified in the permit application.
 - B. The cyclone shall be operated and maintained in accordance with the manufacturer's specifications.
 - C. The cyclone 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.
 - D. Ray-Carroll County Grain Growers, Inc. shall monitor and record, in an operating and maintenance log, the operating pressure drop across the cyclone 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 the cyclone shall be operational before restarting the equipment.
 - E. As an alternative to Special Conditions 4.C. and 4.D., visible emissions may be used as an indicator of the proper operation of the control device. During proper operation no visible emissions are expected from this emission unit. The existence of visible emissions will indicate a decrease in the efficiency of the control device and corrective actions will be implemented. Observations will be made using a USEPA Method 22 trained observer and USEPA Method 22 like procedures.
 - 1) Frequency:
 - a. The permittee shall conduct weekly observations for a minimum of eight consecutive weeks after startup. Should the permittee observe no excursion of this regulation during this period then,
 - b. The permittee may observe once every two weeks for a period of eight consecutive weeks. Should no excursion of this regulation be observed during this period then,
 - c. The permittee may observe once per month.

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SPECIAL CONDITIONS:

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

- d. If at any time an excursion is observed, observation frequency shall revert to the initial weekly frequency and shall progress in a manner identical to the initial weekly frequency.
 - 2) Duration:
The duration of the observation shall not be less than six minutes.
 - 3) Threshold:
 - a.) The observation of visible emissions from this emission unit will be considered an excursion and corrective actions shall be implemented within 48 hours. An excursion does not necessarily indicate a violation of the applicable requirement.
 - b.) When the number of excursions exceed three percent of the total number of observations in a six month period and corrective actions fail to return the emission unit to a no visible emission condition, then the permittee shall conduct performance testing within 90 days of the last excursion to demonstrate compliance with 10 CSR 10-6.400.
 - c.) If the test demonstrates noncompliance with 10 CSR 10-6.400 the permittee shall propose a schedule to implement further corrective actions to bring the source into compliance and demonstrate that compliance.
 - F. Ray Carroll County Grain Growers shall maintain an operating and maintenance log for the cyclone which shall include the following:
 - 1) Incidents of malfunction, with impact on emissions, duration of event, probable cause, and corrective actions; and
 - 2) Maintenance activities, with inspection schedule, repair actions, and replacements, etc.
5. Operational Requirement – Enclosures
All mass grain moving devices shall be totally enclosed, preventing the release of particulate matter into the air. That includes conveyors and the headhouse (legs).
6. Record Keeping and Reporting Requirements
 - A. Ray Carroll County Grain Growers shall maintain all records required by this permit for not less than five years and shall make them available immediately to any Missouri Department of Natural Resources' personnel upon request.

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SPECIAL CONDITIONS:

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

- B. Ray Carroll County Grain Growers shall report to the Air Pollution Control Program's Compliance/Enforcement Section, P.O. Box 176, Jefferson City, MO 65102, no later than ten days after the end of the month during which any record required by this permit show an exceedance of a limitation imposed by this permit.

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

Project Number: 2012-06-087
Installation ID Number: 033-0002
Permit Number:

Ray Carroll County Grain Growers
1st and Cherry Street
Norborne, MO 64668

Complete: 6/29/2012

Parent Company:
Ray Carroll County Grain Growers
807 West Main
Richmond, MO 64085

Carroll County, S22, T52N, R25W

REVIEW SUMMARY

- Ray Carroll County Grain Growers has applied for authority to re-evaluate the potential emissions of the facility with an updated equipment list and also has requested to remove the existing production limitation and replace it with an annual PM₁₀ emission limit.
- HAP emissions are expected from the natural gas fired grain dryer. None of the HAPs emitted are expected to go above their respective screening model action levels.
- None of the New Source Performance Standards (NSPS) apply to the installation.
- None of the NESHAPs apply to this installation. None of the currently promulgated MACT regulations apply to the proposed equipment.
- Cyclones are being used to control the PM, PM₁₀, PM_{2.5} emissions from Grain Receiving Pit One and Two (EP-1A and EP-1B) in this permit.
- 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 are conditioned below the de minimis level. Potential emissions of PM remain at minor source levels. Other pollutants are proportionately reduced to below de minimis levels.
- This installation is located in Carroll County, an attainment area for all criteria pollutants.
- This installation is not on the List of Named Installations found in 10 CSR 10-6.020(3)(B), Table 2. The installation's major source level is 250 tons per year and fugitive emissions are not counted toward major source applicability.

- Ambient air quality modeling for PM₁₀ and PM_{2.5} was not performed since potential emissions of the application for these pollutants are below de minimis levels. Modeling is not required for PM.
- Emissions testing are not required for the equipment.
- No Operating Permit is required for this installation.
- Approval of this permit is recommended with special conditions.

INSTALLATION DESCRIPTION

Ray Carroll County Grain Growers (Ray Carroll) is an existing installation in Norborne, Missouri. Ray Carroll processes both grain and dry fertilizer at this location. Ray Carroll has been issued a basic operating permit on April 2, 2012 from the Air Pollution Control Program. After this permit is issued a basic operating permit is no longer required for this facility.

The following New Source Review permits have been issued to Ray Carroll County Grain Growers from the Air Pollution Control Program.

Table 1: Permit History

Permit Number	Description
1186-003	Grain Storage Building
0494-014	Section 5 Permit issued
0897-001	Increase Throughput Limit
0897-001A	Correction

PROJECT DESCRIPTION

Ray Carroll has requested to reevaluate their installation wide potential emissions with an updated equipment list and requested an installation wide 15.0 ton per year PM₁₀ emissions limit. Ray Carroll provided an updated equipment list for their entire installation. The list of equipment can be found in the special conditions under Table 1. Ray Carroll previously took production limitations that limited their potential emissions of PM₁₀ to levels below 15.0 tons per year. In this project Ray Carroll requested an installation wide PM₁₀ limit up to 15.0 tons per year which increased their PM₁₀ potential emissions for previous construction permits therefore a new construction permit was required to account for the increase in potential emissions.

The Ray Carroll installation consists of four different facilities each handling its own activity. These activities include general grain handling, corn handling, bean handling and fertilizer handling.

The main elevator, which performs the general grain handling, consists of two receiving pits (EP-1A and EP-1B) both rated at 280 tons of grain per hour. The grain received is handled by a series of conveyors and bucket elevators (EP-10) and is sent to either

storage silos or ground storage (EP-11). The main elevator also has a natural gas fired dryer (EP-4) with a maximum fuel burning rate of 0.0353 million cubic feet of natural gas per hour. The dryer has a capacity of 82 tons of grain dried per hour. Grain being stored in the storage bins is shipped by either rail (EP-3) or by truck (EP-2) while the ground storage grain is only shipped by truck (EP-5).

Ray Carrol has two separate buildings which handle only corn and beans. The corn building has a maximum corn handling rate of 180 tons of corn per hour while the bean building has a maximum bean handling rate of 120 tons of beans per hour. Both buildings have separate grain receiving (EP-6 and EP-8), internal handling (EP10), storage bins (EP-11) and truck loadout areas (EP-7 and EP-9).

Ray Carroll also has a dry fertilizer facility with a maximum hourly production rate of 100 tons a fertilizer per hour. Fertilizer is received directly into their respective storage bays (EP-12). From the storage bays the fertilizer is transferred to a weigh hopper (EP-13) and then transferred to a fertilizer mixer (EP-14). The mixed fertilizer then shipped from the fertilizer loadout area (EP-15).

EMISSIONS/CONTROLS EVALUATION

The emission factors and control efficiencies used for the grain handling were obtained from the Environmental Protection Agency (EPA) document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition, Section 9.9.1, *Grain Elevators & Processes*, (May 2003). A cyclone is being used to control PM, PM₁₀ and PM_{2.5} emissions from Grain Receiving Pit One and Two (EP-1A and 1B). The cyclone inlet ductwork is located inside the receiving pit wall. The cyclone was given a 80% capture efficiency for PM, PM₁₀ and PM_{2.5} and a 85% control efficiency for PM and PM₁₀ emissions while a 50% control efficiency was given for the PM_{2.5} emissions

The haul emission emissions were calculated using the AP-42 Section 13.2.2, *Unpaved Roads*, (November 2006). Documented watering or chemical surfactant is being used to control emissions from the haul roads. A 90% control efficiency for PM and PM₁₀ and a 40% control efficiency for PM_{2.5} are applied to the emission calculations for the use of documented watering or chemical surfactant.

The filterable particulate matter emissions from the column grain dryer were calculated using the emission factors from AP-42 Section 9.9.1, *Grain Elevators & Processes*. The combustion emissions from the natural gas used to fuel the column grain dryer, which include condensable particulate matter, were calculated using AP-42 Section 1.4, *Natural Gas Combustion*, (July 1998).

Ray Carroll estimates that the percentage of straight trucks entering the facility does not exceed 10%. The emission factors for the haul roads and grain receiving emissions are higher when using straight trucks when compared to the use of hopper trucks. In order to verify that the straight truck traffic is below 10% Ray Carroll would need to keep records of how many straight trucks entered the facility. Ray Carroll proposed using a 50/50 split of straight to hopper trucks to avoid record keeping requirements.

The emission factors and control efficiencies used for the fertilizer handling were obtained from the AP-42, Section 8.3 *Ammonium Nitrate*, July 1993. Because no emission factors exist for the fertilizer industry, emission calculations were based on the emission factor, 0.02 pounds of PM and PM₁₀/ ton of fertilizer, for ammonium nitrate handling. An estimated 25% of the PM₁₀ emission was used to calculate the PM_{2.5} potential emission from the fertilizer handling. A 3.7% control efficiency has been applied to all enclosed processes.

The following table provides an emissions summary for this project. Existing potential emissions were taken from construction permit 0897-001. Existing actual emissions were taken from the installation's 2011 EIQ. Potential emissions of the application represent the potential of the installation, assuming continuous operation (8760 hours per year).

Table 2: Emissions Summary (tons per year)

Pollutant	Regulatory <i>De Minimis</i> Levels	Existing Potential Emissions ¹	Existing Actual Emissions (2011 EIQ)	Potential Emissions of the Application ²	New Installation Conditioned Potential
PM	25.0	N/D	N/D	975.03	39.77
PM ₁₀	15.0	723.77	0.80	367.73	<15.0
PM _{2.5}	10.0	N/D	N/D	74.43	3.04
SOx	40.0	0.09	N/A	0.093	0.093
NOx	40.0	22.92	N/A	15.46	15.46
VOC	40.0	0.44	N/A	0.85	0.85
CO	100.0	5.73	N/A	12.99	12.99
HAPs	10.0/25.0	0.00	N/A	0.29	0.29

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

¹ Existing Potential Emissions were taken from construction permit 0897-001. These represent the potential emissions calculated prior to the removal or shut down of certain pieces of equipment. This permit takes into account any pieces of equipment that are no longer in use or have been removed.

² Potential Emission of the Application represent the potential emissions of the entire installation as this permit is removing all the special conditions in previous permit as reestablishing an annual PM₁₀ emission limit.

³ New Installation Conditioned Potential are based on annual PM₁₀ 15.0 ton per year emission limit for the entire installation. The PM, PM₁₀ and PM_{2.5} were proportionally reduced. The PM₁₀ annual emission limit does not directly limit the grain dryer therefore the potential emissions left as if the grain dryer operated at 8760 hours.

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 are conditioned below the de minimis level. Potential emissions of PM remain at minor source levels. Other pollutants are proportionately reduced to de minimis levels.

APPLICABLE REQUIREMENTS

Ray Carroll County Grain Growers 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.

GENERAL REQUIREMENTS

- *Submission of Emission Data, Emission Fees and Process Information*, 10 CSR 10-6.110
- *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 10-6.165

SPECIFIC REQUIREMENTS

- *Restriction of Emission of Particulate Matter From Industrial Processes*, 10 CSR 10-6.400

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.

Gerad Fox
New Source Review Unit

Date

PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated June 22, 2012, received June 29, 2012, designating Ray Carroll County Grain Growers as the owner and operator of the installation.
- U.S. EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition.

APPENDIX A

Abbreviations and Acronyms

%	percent	m/s	meters per second
°F	degrees Fahrenheit	Mgal	1,000 gallons
acfm	actual cubic feet per minute	MW	megawatt
BACT	Best Available Control Technology	MHDR	maximum hourly design rate
BMPs	Best Management Practices	MMBtu	Million British thermal units
Btu	British thermal unit	MMCF	million cubic feet
CAM	Compliance Assurance Monitoring	MSDS	Material Safety Data Sheet
CAS	Chemical Abstracts Service	NAAQS ...	National Ambient Air Quality Standards
CEMS	Continuous Emission Monitor System	NESHAPs	
CFR	Code of Federal Regulations	National Emissions Standards for Hazardous Air Pollutants
CO	carbon monoxide	NO_x	nitrogen oxides
CO₂	carbon dioxide	NSPS	New Source Performance Standards
CO_{2e}	carbon dioxide equivalent	NSR	New Source Review
COMS	Continuous Opacity Monitoring System	PM	particulate matter
CSR	Code of State Regulations	PM_{2.5}	particulate matter less than 2.5 microns in aerodynamic diameter
dscf	dry standard cubic feet	PM₁₀	particulate matter less than 10 microns in aerodynamic diameter
EQ	Emission Inventory Questionnaire	ppm	parts per million
EP	Emission Point	PSD	Prevention of Significant Deterioration
EPA	Environmental Protection Agency	PTE	potential to emit
EU	Emission Unit	RACT	Reasonable Available Control Technology
fps	feet per second	RAL	Risk Assessment Level
ft	feet	SCC	Source Classification Code
GACT	Generally Available Control Technology	scfm	standard cubic feet per minute
GHG	Greenhouse Gas	SIC	Standard Industrial Classification
gpm	gallons per minute	SIP	State Implementation Plan
gr	grains	SMAL	Screening Model Action Levels
GWP	Global Warming Potential	SO_x	sulfur oxides
HAP	Hazardous Air Pollutant	SO₂	sulfur dioxide
hr	hour	tph	tons per hour
hp	horsepower	tpy	tons per year
lb	pound	VMT	vehicle miles traveled
lbs/hr	pounds per hour	VOC	Volatile Organic Compound
MACT	Maximum Achievable Control Technology		
µg/m³	micrograms per cubic meter		

Mr. Tim Phillips
Operations Manager
Ray Carroll County Grain Growers
807 West Main
Richmond, MO 64085

RE: New Source Review Permit - Project Number: 2012-06-087

Dear Mr. Phillips:

Enclosed with this letter is your permit to construct. Please study it carefully and refer to Appendix A for a list of common abbreviations and acronyms used in the permit. 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 and your new source review permit application 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 Gerad Fox, at the Department of Natural Resources' Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102 or at (573) 751-4817. Thank you for your attention to this matter.

Sincerely,

AIR POLLUTION CONTROL PROGRAM

Susan Heckenkamp
New Source Review Unit Chief

SH:gfl

Enclosures

c: Northeast Regional Office
PAMS File: 2012-06-087

Permit Number: