

STATE OF MISSOURI

PERMIT BOOK



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: 102011-011

Project Number: 2011-06-015  
Installation ID: 187-0089

Parent Company: Central Stone Company

Parent Company Address: 1701 5th Avenue, Moline, IL 61265

Installation Name: Butler Hill Granite Quarry CS58

Installation Address: Highway DD, Farmington, MO 63640

Location Information: St. Francois County, S5, T34N, R6E

Application for Authority to Construct was made for:

The installation of a new generic stationary rock crushing plant. 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.

OCT 18 2011

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 Departments' Air Pollution Control Program of the anticipated date of start up of this (these) air contaminant source(s). 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 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.

**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."*

1. Generic Plant Designation and Maximum Combined Hourly Design Rate  
Butler Hill Granite Quarry CS58 has been designated to be a Generic Plant Operation. The combined Maximum Hourly Design Rate (MHDR) each of the following generic equipment types shall not exceed the rates and numbers listed in Table 1.

Table 1: Generic Equipment

Equipment Type	Maximum Combined Hourly Design Rate	Maximum Number of Units
Primary Unit(s) (Primary Crusher)	500 tons per hour	1
Feeder/Grizzly	850 tons per hour	1
Crusher(s) including primary crusher	1,250 tons per hour	3
Conveyor(s), Stacker(s)	15,125 tons per hour	60
Screen(s)	1500 tons per hour	4

2. Generic Plant Equipment Identification Requirement
  - A. Butler Hill Granite Quarry CS58 shall submit the following information to the Air Pollution Control Program's Permitting Section and the Southeast Regional Office within 15 days of actual startup.
    - 1) A master list of all equipment that will be permitted for use with the generic plant. This master list shall include at minimum the following information for each piece of equipment:
      - a) Manufacturer's name
      - b) Model number
      - c) Serial number
      - d) Actual MHDR
      - e) Date of manufacture
      - f) Any other additional information that is necessary to uniquely identify the equipment.
    - 2) A list of the core equipment that will always be utilized with the generic plant. The core equipment associated with the generic plant shall include at least one primary unit that controls the rate of the process flow (e.g., a primary crusher or primary screen).
    - 3) A determination of the applicability of 40 CFR Part 60, Subpart OOO, "Standards of Performance for Nonmetallic Mineral Processing Plants" for each piece of equipment indicating whether each piece of equipment is subject to Subpart OOO and justification for this determination.
    - 4) Butler Hill Granite Quarry CS58 Shall notify the Air Pollution Control

Page No.	4
Permit No.	
Project No.	2011-06-015

**SPECIAL CONDITIONS:**

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

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Program's Permitting Section and the Southeast Regional Office when new equipment is added to the master list and when core equipment is changed within 30 days of the change.

- B. Butler Hill Granite Quarry CS58 shall maintain a list of the specific equipment currently being utilized with the generic plant. Any arrangement of the generic plant's equipment must be such that the core equipment is not bypassed in the process flow.
3. **Equipment Identification Requirement**  
Butler Hill Granite Quarry CS58 shall maintain easily read permanent markings on each component of the plant. These markings shall be the equipment's serial number or a company assigned identification number that uniquely identifies the individual component.
4. **Best Management Practices Requirement**  
Butler Hill Granite Quarry CS58 shall control fugitive emissions from all of the haul roads and vehicular activity areas at this site by performing Best Management Practices as defined in Attachment AA.
5. **Ambient Air Impact Limitation**
  - A. Butler Hill Granite Quarry CS58 shall not cause an exceedance of the National Ambient Air Quality Standard (NAAQS) for particulate matter less than ten microns in aerodynamic diameter ( $PM_{10}$ ) of  $150.0 \mu\text{g}/\text{m}^3$  24-hour average in ambient air.
  - B. Butler Hill Granite Quarry CS58 shall demonstrate compliance with special condition 5.A using Attachment A and Attachment B or other equivalent forms that have been approved by the Air Pollution Control Program, including electronic forms. Butler Hill Granite Quarry CS58 shall account for the impacts from other sources of  $PM_{10}$  as instructed in the attachments.
6. **Annual Emission Limit**
  - A. Butler Hill Granite Quarry CS58 shall emit less than 15 tons of  $PM_{10}$  in any 12-month period from the entire installation.
  - B. Butler Hill Granite Quarry CS58 shall demonstrate compliance with special condition 6.A using Attachment C or another equivalent form that has been approved by the Air Pollution Control Program, including an electronic form.
7. **Wet Suppression Control System Requirement**
  - A. Butler Hill Granite Quarry CS58 shall install and operate wet spray devices on all crushers and screens.

Page No.	5
Permit No.	
Project No.	2011-06-015

**SPECIAL CONDITIONS:**

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

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- B. Watering may be suspended during periods of freezing condition, when use of the wet spray devices may damage the equipment. During these conditions, Butler Hill Granite Quarry CS58 shall adjust the production rate to control emissions from these units. Butler Hill Granite Quarry CS58 shall record a brief description of such events.
  
- 8. Minimum Distance to Property Boundary Requirement  
The primary emission point shall be located at least 400 feet from the nearest property boundary.
  
- 9. Primary Equipment Requirement  
Butler Hill Granite Quarry CS58 shall process all rock through the grizzly feeder /primary crusher (EU-2 and EU-3). Bypassing the grizzly feeder /primary crusher is prohibited.
  
- 10. Record Keeping Requirement  
Butler Hill Granite Quarry CS58 shall maintain all records required by this permit for not less than five years and make them available to any Missouri Department of Natural Resources personnel upon request.
  
- 11. Reporting Requirement  
Butler Hill Granite Quarry CS58 shall report to the Air Pollution Control Program Enforcement Section P.O. Box 176, Jefferson City, MO 65102, no later than ten days after any exceedances of the limitations imposed by this permit.

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

Project Number: 2011-06-015  
Installation ID Number: 187-0089  
Permit Number:

Butler Hill Granite Quarry CS58  
Highway DD  
Farmington, MO 63640

Complete: June 15, 2011

Parent Company:  
Central Stone Company  
1701 5th Avenue  
Moline, IL 61265

St. Francois County, S5, T34N, R6E

PROJECT DESCRIPTION

Central Stone Company is installing a new generic stationary granite rock crushing plant (187-0089) at Highway DD in Farmington, Missouri (S5, T34N, R6E). As stated above, the new rock crushing plant will be a generic plant with a maximum of one grizzly feeder, three crushers, four screens, and sixty conveyors/stackers. The grizzly feeder has a maximum hourly design rate (MHDR) of 850 tons of rock fed per hour. The primary crusher has a MHDR of 500 ton of rock crushed per hour. The grizzly feeder feeds the primary crusher as well drops out smaller rocks that bypass the primary crusher and goes to secondary crushing equipment. The grizzly feeder and primary crusher are considered the primary pieces of equipment and bypassing these pieces of equipment is prohibited. The maximum combined total MHDR of the crushers is 1,250 ton of rock crushed per hour. The maximum combined total MHDR of the screens is 1,500 tons of rock screened per hour. The maximum combined total MHDR of the conveyors is 15,125 tons of rock conveyed per hour. The rock crushing plant will be power by two large non-road diesel generators. The first diesel generator is an 1884 Horsepower Caterpillar 3512BDITA Model year 1999. The second diesel generator is a 1961 Horsepower Caterpillar 3512BDITA Model year 2007. The two large non-road diesel generators for this site are considered non-road engine because and they are considered portable and will not be located on the site at the same location for more than 12 months consecutively. In any case where either of the two large non-road diesel generators remains at a location within the site for 12 consecutive months they will no longer be considered non-road engines and a new application for authority to construct for the diesel engine will be required. Central Stone Company shall use wet spray devices on all their crushers and screens to control particulate matter emissions.

A basic operating permit will be necessary for the new generic stationary granite rock crushing plant (187-0089). Currently there are no other plants located at this site but

this permit will allow concurrent operation with other same owner and separate owner plants with a reduction in stationary rock crushing production.

The applicant is using one of the methods described in Attachment AA, “Best Management Practices,” to control emissions from haul roads and vehicular activity areas.

This installation is located in St. Francois 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.

No permits have been issued to Butler Hill Granite Quarry CS58 from the Air Pollution Control Program.

## TABLES

The table below summarizes the emissions of this project. The potential emissions of the process equipment, which excluded emissions from haul roads and wind erosion, are site specific should not vary from site to site. The existing actual emissions were taken from the previous years EIQ. The potential emissions of the application represent the emissions of all equipment and activities assuming continuous operation (8760 hours per year). The conditioned potential emissions include emissions from sources that will limit their production to ensure compliance with the annual emission limit and sources that operate continuously. The conditioned potential emissions are based on a voluntary limit to avoid dispersion modeling requirements found in 10 CSR 10-6.060 Section (6). The potential emissions for particulate matter (PM) are greater than de minimis levels. Although PM potential emissions are at minor source levels modeling is not required for PM.

Table 2: Emissions Summary (tons per year)

Air Pollutant	De Minimis Level	Existing Potential Emissions	Existing Actual Emissions	<sup>a</sup> Potential Emissions of the Application	<sup>b</sup> Conditioned Potential Emissions
PM	25.0	N/A	N/A	144.31	43.51
PM <sub>10</sub>	15.0	N/A	N/A	49.64	<15.0
PM <sub>2.5</sub>	10.0	N/A	N/A	28.69	8.71
SO <sub>x</sub>	40.0	N/A	N/A	N/A	N/A
NO <sub>x</sub>	40.0	N/A	N/A	N/A	N/A
VOC	40.0	N/A	N/A	N/A	N/A
CO	100.0	N/A	N/A	N/A	N/A
Total HAPs	25.0	N/A	N/A	N/A	N/A

N/A= Not Applicable. <sup>a</sup>Potential Emissions of the Application does not include the combustion emissions from the two diesel generators at the site. The diesel engines were considered non-road engines. <sup>b</sup>Conditioned potential emissions are based on a voluntary PM<sub>10</sub> 15.0 ton per year limit to avoid dispersion modeling requirements found in 10 CSR 10-6.060 Section (6). All other pollutants are proportionally reduced.

Table 3: Ambient Air Quality Impact Analysis

Pollutant	<sup>a</sup> NAAQS (µg/m <sup>3</sup> )	Averaging Time	<sup>b</sup> Maximum Modeled Impact (µg/m <sup>3</sup> )	Limited Impact (µg/m <sup>3</sup> )	Background (µg/m <sup>3</sup> )	<sup>c</sup> Daily Limit (tons/day)
<sup>d</sup> PM <sub>10</sub> (same)	150.0	24-hour	389.74	130	20.0	9,842
<sup>e</sup> PM <sub>10</sub> (separate)	150.0	24-hour	N/A	100.0	50.0	7,575

<sup>a</sup>National Ambient Air Quality Standards (NAAQS)

<sup>b</sup>Modeled impact at maximum capacity with controls

<sup>c</sup>Indirect limit based on compliance with NAAQS.

<sup>d</sup>Solitary operation or operation with other plants that are owned by Central Stone Company

<sup>e</sup>Operation with other plants that are not owned by Central Stone Company

## EMISSIONS CALCULATIONS

Emissions for the project were calculated using emission factors found in the United States Environmental Protection Agency (EPA) document AP-42 *Compilation of Air Pollutant Emission Factors, Volume 1: Stationary Point and Area Sources*, Fifth Edition (AP-42).

Emissions from the rock-crushing equipment were calculated using emission factors from AP-42 Section 11.19.2 “Crushed Stone Processing and Pulverized Mineral Processing,” August 2004. The controlled emission factors were used because the equipment is control by water spray devices. Emissions from the diesel engines/generators were calculated using emission factors from AP-42 Section 3.4 “Large Stationary Diesel and All Stationary Dual-fuel Engines,” October 1996. Emissions from haul roads and vehicular activity areas were calculated using the predictive equation from AP-42 Section 13.2.2 “Unpaved Roads,” November 2006. A 90% control efficiency is applied to the emission calculations for the use of BMPs. Emissions from load-in and load-out of storage piles were calculated using the predictive equation from AP-42 Section 13.2.4. The moisture content of the aggregate is 0.7% weight. Emissions from wind erosion of storage piles were calculated using an equation found in the Air Pollution Control Program’s Emissions Inventory Questionnaire Form 2.8 “Storage Pile Worksheet.”

## AMBIENT AIR QUALITY IMPACT ANALYSIS

An ambient air quality impact analysis (AAQIA) was performed to determine the impact of the pollutants listed in Table 3. The Air Pollution Control Program requires an AAQIA of PM<sub>10</sub> for all asphalt, concrete and rock-crushing plants regardless of the level of PM<sub>10</sub> emissions if a permit is required. An AAQIA is required for other pollutants if their emissions exceed their respective de minimis or screening model action level (SMAL). The AAQIA was performed using the Air Pollution Control Program’s generic nomographs and when appropriate the EPA modeling software SCREEN3. For each pollutant that was modeled, the maximum concentration that occurs at or beyond the site boundary was compared to the National Ambient Air Quality Standard (NAAQS) or Risk Assessment Level (RAL) for the pollutant. If during continuous operation the

modeled concentration of a pollutant is greater than the applicable NAAQS or RAL, the plant's production is limited to ensure compliance with the standard. In cases where the plant is providing material for a highway project, the ambient impact is evaluated in accordance with a memorandum issued by the Air Pollution Control Program titled "Permitting Asphalt/Concrete Plants for Temporary Highway Projects," dated April 10, 2000. This memorandum states that air quality should be analyzed at the nearest residence or location where the public could reasonably be expected to be found instead of all ambient air. This practice generally allows for a less restrictive daily production level while protecting the public.

This plant uses Best Management Practices (BMPs) to control emissions from haul roads and vehicular activity areas, so emissions from these sources were not included in the AAQIA. Instead they were addressed as a background concentration of  $20 \mu\text{g}/\text{m}^3$  of  $\text{PM}_{10}$  in accordance with the Air Pollution Control Program's BMPs interim policy.

### OPERATING SCENARIOS

The plant is permitted to operate with other plants located at the site as long as the NAAQS is not exceeded. The following scenarios explain how Butler Hill Granite Quarry CS58 shall demonstrate compliance with the NAAQS.

- When no other plants are located
- When plants that are owned by Central Stone Company, which are referred to as same owner plants, are located at the site, Central Stone Company must calculate the daily impact of each plant and limit the total impact of all plants below the NAAQS using Attachment A.
- When plants that are not owned by Central Stone Company, which are referred to as separate owner plants, are located at the site, Central Stone Company must account for the impacts of these plants as a background concentration and add it to the total impact of all plants owned by Central Stone Company that are operating at the site. This total is limited below the NAAQS. Central Stone Company will limit the total impact of all plants they own and operate at the site to  $100 \mu\text{g}/\text{m}^3$  when any plants they do not own are located at the site. Butler Hill Granite Quarry CS58 is not permitted to operate with any plant that is not owned by Central Stone Company that has a separate owner background greater than  $30.0 \mu\text{g}/\text{m}^3$ . During this scenario, Butler Hill Granite Quarry CS58 shall use Attachment B to demonstrate compliance with the NAAQS.

### 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  $\text{PM}_{10}$  are conditioned below de minimis levels.

## APPLICABLE REQUIREMENTS

Butler Hill Granite Quarry CS58 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.
- A Basic Operating Permit application is required for this installation within 30 days of equipment startup.
- *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
- None of the New Source Performance Standards apply to the installation. 40 CFR 60 Subpart OOO, "Standards of Performance for Nonmetallic Mineral Processing Plants" applies to the equipment. 40 CFR 60 Subpart IIII, "Standards of Performance for Stationary Compression Ignition Internal Combustion Engines" applies to the equipment.
- None of the National Emission Standards for Hazardous Air Pollutants or National Emission Standards for Hazardous Air Pollutants for Source Categories Maximum Achievable Control Technology apply to the proposed equipment.
- *Restriction of Emission of Sulfur Compounds*, 10 CSR 10-6.260

## 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  
Environmental Engineer

\_\_\_\_\_  
Date

## PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated May 25, 2011, received June 6, 2011, designating Central Stone Company as the owner and operator of the installation.
- U.S. EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition.
- Southeast Regional Office Site Survey, dated June 28, 2011.







## Attachment AA: Best Management Practices

Haul roads and vehicular activity areas shall be maintained in accordance with at least one of the following options when the portable plant is operating.

1. Pavement
  - A. The operator shall pave the area with materials such as asphalt, concrete or other materials approved by the Air Pollution Control Program. The pavement will be applied in accordance with industry standards to achieve control of fugitive emissions<sup>1</sup> while the plant is operating.
  - B. Maintenance and repair of the road surface will be conducted as necessary to ensure that the physical integrity of the pavement is adequate to achieve control of fugitive emissions from these areas while the plant is operating.
  - C. The operator shall periodically wash or otherwise clean all of the paved portions of the haul roads as necessary to achieve control of fugitive emissions from these areas while the plant is operating.
  
2. Application of Chemical Dust Suppressants
  - A. The operator shall apply a chemical dust suppressant (such as magnesium chloride, calcium chloride, lignosulfonates, etc.) to unpaved areas.
  - B. The quantities of the chemical dust suppressant shall be applied and maintained in accordance with the manufacture's recommendation (if available) and in sufficient quantities to achieve control of fugitive emissions from these areas while the plant is operating.
  - C. The operator shall record the time, date and the amount of material applied for each application of the chemical dust suppressant agent on the above areas. The operator shall keep these records with the plant for not less than five (5) years and make these records available to Department of Natural Resources personnel upon request.
  
3. Application of Water-Documented Daily
  - A. The operator shall apply water to unpaved areas. Water shall be applied at a rate of 100 gallons per day per 1,000 square feet of unpaved or untreated surface area while the plant is operating.
  - B. Precipitation may be substituted for watering if the precipitation is greater than one quarter of one inch and is sufficient to control fugitive emissions.
  - C. Watering may also be suspended when the ground is frozen, during periods of freezing conditions when watering would be inadvisable for traffic safety reasons, or when there will be no traffic on the roads.
  - D. The operator shall record the date, volume of water application and total surface area of active haul roads or the amount of precipitation that day. The operators shall also record the rationale for not watering (e.g. freezing conditions or not operating).
  - E. The operator shall keep these records with the plant for not less than five (5) years, and the operator shall make these records available to Department of Natural Resources personnel upon request

<sup>1</sup>For purposes of this document, Control of Fugitive Emissions means to control particulate matter that is not collected by a capture system and visible emissions to the extent necessary to prevent violations of the air pollution law or regulation. (Note: control of visible emission is not the only factor to consider in protection of ambient air quality.)

Mr. Tom Barnum  
Manager, Environmental Services  
Butler Hill Granite Quarry CS58  
1701 5th Avenue  
Moline, IL 61265

RE: New Source Review Permit - Project Number: 2011-06-015

Dear Mr. Barnum:

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 Gerad Fox, at the Department's 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

Kendall B. Hale  
Permits Section Chief

KBH:gfl

Enclosures

c: Southeast Regional Office  
PAMS File: 2011-06-015

Permit Number: