Montana Department of
ENVIRONMENTAL QUALITY
Brian Schweitzer, Governor
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April 12, 2010

Mr. Robert Atwood
Iofina Natural Gas, Inc.
8480 E Orchard Road Suite 3600
Greenwood Village, CO 80111

Dear Mr. Atwood:

Montana Air Quality Permit #4523-00 is deemed final as of April 10, 2010, by the Department of Environmental Quality (Department). This permit is for a stationary natural gas fired generator engine. All conditions of the Department's Decision remain the same. Enclosed is a copy of your permit with the final date indicated.

For the Department,

Vickie Walsh
Air Permitting Program Supervisor
Air Resources Management Bureau
(406) 444-9741

Shawn Juers
Environmental Engineer
Air Resources Management Bureau
(406) 444-2049

VW:SJ
Enclosure

Montana Department of Environmental Quality
Permitting and Compliance Division

Montana Air Quality Permit #4523-00

Iofina Natural Gas, Inc.
8480 E Orchard Road Suite 3600
Greenwood Village, CO 80111

April 10, 2010

MONTANA AIR QUALITY PERMIT

Issued To: Iofina Natural Gas, Inc.
8480 E Orchard Rd. Suite 3600
Greenwood Village, CO 80111

MAQP: #4523-00
Application Complete: 02/08/2010
Preliminary Determination Issued: 03/9/2010
Department's Decision Issued: 03/25/2010
Permit Final: 04/10/2010
AFS #: 041-0011

A Montana Air Quality Permit (MAQP), with conditions, is hereby granted to Iofina Natural Gas, Inc. (Iofina), pursuant to Sections 75-2-204 and 211 of the Montana Code Annotated (MCA), as amended, and Administrative Rules of Montana (ARM) 17.8.740, *et seq*., as amended, for the following:

SECTION I: Permitted Facilities

A. Permitted Equipment

Iofina proposes to operate a 500 horsepower (hp) natural gas fired engine to power an electrical generator for on-site use. The engine is of a 4-stroke rich-burn engine class.

B. Plant Location

Iofina's engine/generator is to be located in the SW¼ of the SW¼ of Section 3, Township 35N, Range 11E in Hill County, Montana.

SECTION II: Conditions and Limitations

A. Emission Limitations

1. Iofina shall not operate more than one natural gas fired engine/generator and the maximum rated capacity shall be 500 horsepower (hp). The engine shall be of a four-stroke, rich-burn engine class (ARM 17.8.749).

2. Iofina shall properly operate and maintain the engine and associated emissions control equipment. The engine shall be equipped with a Non-Selective Catalytic Reduction (NSCR) unit and an air-to-fuel ratio controller (AFR) (ARM 178.752).

3. The engine shall be fired on pipeline-quality natural gas (ARM 17.8.752).

4. The pound per hour (lb/hr) emission limits shall be determined using the following equation and pollutant-specific grams per brake horsepower-hour (g/bhp-hr) emission factors (ARM 17.8.752):

Equation:

Emission Limit (lb/hr) = Emission Factor (g/bhp-hr) * maximum rated design capacity of engine (bhp) * 0.002205 lb/g

Emission Factors:

Oxides of Nitrogen (NO_x):	2.0 g/bhp-hr
Carbon Monoxide (CO):	2.0 g/bhp-hr
Volatile Organic Carbon (VOC):	1.0 g/bhp-hr

5. Iofina shall not cause or authorize emissions to be discharged into the outdoor atmosphere from any sources installed after November 23, 1968, that exhibit an opacity of 20% or greater averaged over 6 consecutive minutes (ARM 17.8.304).

6. Iofina shall not cause or authorize the use of any street, road, or parking lot without taking reasonable precautions to control emissions of airborne particulate matter (ARM 17.8.308).

7. Iofina shall treat all unpaved portions of the haul roads, access roads, parking lots, or general plant area with water and/or chemical dust suppressant as necessary to maintain compliance with the reasonable precautions limitation in Section II.A.6 (ARM 17.8.749).

8. Iofina shall comply with any applicable standards and limitations, reporting, recordkeeping and notification requirements contained in 40 CFR 63 Subpart ZZZZ, *National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines*, and 40 CFR 60, Subpart JJJJ, *Standards of Performance for Stationary Spark Ignition Internal Combustion Engines* (ARM 17.8.340, 40 CFR 63, Subpart ZZZZ and 40 CFR 60, Subpart JJJJ).

B. Testing Requirements

1. The engine shall be tested for NO_X and CO, concurrently, within 180 days of the initial start-up date of the engine (ARM 17.8.105 and ARM 17.8.749).

2. The engine shall be tested for NO_X and CO, concurrently, on an every 4-year basis, or according to another testing/monitoring schedule as may be approved by the Department of Environmental Quality (Department) (ARM 17.8.105 and ARM 17.8.749).

3. All compliance source tests shall conform to the requirements of the Montana Source Test Protocol and Procedures Manual (ARM 17.8.106).

4. The Department may require further testing (ARM 17.8.105).

C. Operational Reporting Requirements

1. Iofina shall supply the Department with annual production information for all emission points, as required by the Department in the annual emission inventory request. The request will include, but is not limited to, all sources of emissions identified in the emission inventory contained in the permit analysis.

   Production information shall be gathered on a calendar-year basis and submitted to the Department by the date required in the emission inventory request. Information shall be in the units required by the Department. This information may be used to calculate operating fees, based on actual emissions from the facility, and/or to verify compliance with permit limitations (ARM 17.8.505)

2. Iofina shall notify the Department of any construction or improvement project conducted, pursuant to ARM 17.8.745, that would include ***the addition of a new emissions unit***, change in control equipment, stack height, stack diameter, stack flow, stack gas temperature, source location, or fuel specifications, or would result in an

increase in source capacity above its permitted operation. The notice must be submitted to the Department, in writing, 10 days prior to startup or use of the proposed de minimis change, or as soon as reasonably practicable in the event of an unanticipated circumstance causing the de minimis change, and must include the information requested in ARM 17.8.745(l)(d) (ARM 17.8.745).

3. All records compiled in accordance with this permit must be maintained by Iofina as a permanent business record for at least 5 years following the date of the measurement, must be available at the plant site for inspection by the Department, and must be submitted to the Department upon request (ARM 17.8.749).

D. Notification

Iofina shall provide the Department with written notification of the actual startup date of the engine/generator postmarked within 15 days after the actual start-up date (ARM 17.8.749).

SECTION III: General Conditions

A. Inspection – Iofina shall allow the Department's representatives access to the source at all reasonable times for the purpose of making inspections or surveys, collecting samples, obtaining data, auditing any monitoring equipment (continuous emissions monitoring system (CEMS), continuous emissions rate monitoring system (CERMS)) or observing any monitoring or testing, and otherwise conducting all necessary functions related to this permit.

B. Waiver – The permit and the terms, conditions, and matters stated herein shall be deemed accepted if Iofina fails to appeal as indicated below.

C. Compliance with Statutes and Regulations – Nothing in this permit shall be construed as relieving Iofina of the responsibility for complying with any applicable federal or Montana statute, rule, or standard, except as specifically provided in ARM 17.8.740, *et seq*. (ARM 17.8.756).

D. Enforcement – Violations of limitations, conditions and requirements contained herein may constitute grounds for permit revocation, penalties, or other enforcement action as specified in Section 75-2-401, *et seq*., MCA.

E. Appeals – Any person or persons jointly or severally adversely affected by the Department's decision may request, within 15 days after the Department renders its decision, upon affidavit setting forth the grounds therefor, a hearing before the Board of Environmental Review (Board). A hearing shall be held under the provisions of the Montana Administrative Procedures Act. The filing of a request for a hearing does not stay the Department's decision, unless the Board issues a stay upon receipt of a petition and a finding that a stay is appropriate under Section 75-2-211(11)(b), MCA. The issuance of a stay on a permit by the Board postpones the effective date of the Department's decision until conclusion of the hearing and issuance of a final decision by the Board. If a stay is not issued by the Board, the Department's decision on the application is final 16 days after the Department's decision is made.

F. Permit Inspection – As required by ARM 17.8.755, Inspection of Permit, a copy of the air quality permit shall be made available for inspection by the Department at the location of the source.

G. Permit Fee – Pursuant to Section 75-2-220, MCA, failure to pay the annual operation fee by Iofina may be grounds for revocation of this permit, as required by that section and rules adopted thereunder by the Board.

H. Duration of Permit – Construction or installation must begin or contractual obligations entered into that would constitute substantial loss within 3 years of permit issuance and proceed with due diligence until the project is complete or the permit shall expire (ARM 17.8.762).

Montana Air Quality Permit Analysis
Iofina Natural Gas, Inc.
Montana Air Quality Permit (MAQP) #4523-00

I. Introduction/Process Description

Iofina Natural Gas, Inc (Iofina) owns and operates a 500 horsepower (hp) natural gas fired generator engine. The facility is located in the SW¼ of the SW¼ of Section 3, Township 35 North, Range 11 East in Hill County, Montana.

A. Permitted Equipment

Iofina proposes to operate a 500 hp natural gas fired engine driving a generator (currently a 1981 Caterpillar G398 NA-HCR). The engine is a four-stroke, rich-burn engine and is equipped with an air-to-fuel ratio controller (AFR) and a non-selective catalytic reduction (NSCR) unit.

B. Source Description

Iofina proposes to operate the natural gas fired engine/generator to produce electricity for on-site use.

II. Applicable Rules and Regulations

The following are partial explanations of some applicable rules and regulations that apply to the facility. The complete rules are stated in the Administrative Rules of Montana (ARM) and are available, upon request, from the Department of Environmental Quality (Department). Upon request, the Department will provide references for location of complete copies of all applicable rules and regulations or copies where appropriate.

A. ARM 17.8, Subchapter 1 – General Provisions, including but not limited to:

1. ARM 17.8.101 Definitions. This rule includes a list of applicable definitions used in this chapter, unless indicated otherwise in a specific subchapter.

2. ARM 17.8.105 Testing Requirements. Any person or persons responsible for the emission of any air contaminant into the outdoor atmosphere shall, upon written request of the Department, provide the facilities and necessary equipment (including instruments and sensing devices) and shall conduct tests, emission or ambient, for such periods of time as may be necessary using methods approved by the Department.

3. ARM 17.8.106 Source Testing Protocol. The requirements of this rule apply to any emission source testing conducted by the Department, any source or other entity as required by any rule in this chapter, or any permit or order issued pursuant to this chapter, or the provisions of the Clean Air Act of Montana, 75-2-101, *et seq*., Montana Code Annotated (MCA).

Iofina shall comply with the requirements contained in the Montana Source Test Protocol and Procedures Manual, including, but not limited to, using the proper test methods and supplying the required reports. A copy of the Montana Source Test Protocol and Procedures Manual is available from the Department upon request.

4. ARM 17.8.110 Malfunctions. (2) The Department must be notified promptly by telephone whenever a malfunction occurs that can be expected to create emissions in excess of any applicable emission limitation or to continue for a period greater than 4 hours.

5. ARM 17.8.111 Circumvention. (1) No person shall cause or permit the installation or use of any device or any means that, without resulting in reduction of the total amount of air contaminant emitted, conceals or dilutes an emission of air contaminant that would otherwise violate an air pollution control regulation. (2) No equipment that may produce emissions shall be operated or maintained in such a manner as to create a public nuisance.

B. ARM 17.8, Subchapter 2 – Ambient Air Quality, including, but not limited to the following:

1. ARM 17.8.204 Ambient Air Monitoring
2. ARM 17.8.210 Ambient Air Quality Standards for Sulfur Dioxide
3. ARM 17.8.211 Ambient Air Quality Standards for Nitrogen Dioxide
4. ARM 17.8.212 Ambient Air Quality Standards for Carbon Monoxide
5. ARM 17.8.213 Ambient Air Quality Standard for Ozone
6. ARM 17.8.214 Ambient Air Quality Standard for Hydrogen Sulfide
7. ARM 17.8.220 Ambient Air Quality Standard for Settled Particulate Matter
8. ARM 17.8.221 Ambient Air Quality Standard for Visibility
9. ARM 17.8.222 Ambient Air Quality Standard for Lead
10. ARM 17.8.223 Ambient Air Quality Standard for PM_{10}

Iofina must maintain compliance with the applicable ambient air quality standards.

C. ARM 17.8, Subchapter 3 – Emission Standards, including, but not limited to:

1. ARM 17.8.304 Visible Air Contaminants. This rule requires that no person may cause or authorize emissions to be discharged into the outdoor atmosphere from any source installed after November 23, 1968, that exhibit an opacity of 20% or greater averaged over 6 consecutive minutes.

2. ARM 17.8.308 Particulate Matter, Airborne. (1) This rule requires an opacity limitation of less than 20% for all fugitive emission sources and that reasonable precautions be taken to control emissions of airborne particulate matter. (2) Under this rule, Iofina shall not cause or authorize the use of any street, road, or parking lot without taking reasonable precautions to control emissions of airborne particulate matter.

3. ARM 17.8.309 Particulate Matter, Fuel Burning Equipment. This rule requires that no person shall cause, allow, or permit to be discharged into the atmosphere particulate matter caused by the combustion of fuel in excess of the amount determined by this rule.

4. ARM 17.8.310 Particulate Matter, Industrial Process. This rule requires that no person shall cause, allow, or permit to be discharged into the atmosphere particulate matter in excess of the amount set forth in this rule.

5. ARM 17.8.322 Sulfur Oxide Emissions--Sulfur in Fuel. This rule requires that no person shall burn liquid, solid, or gaseous fuel in excess of the amount set forth in this rule.

6. ARM 17.8.324 Hydrocarbon Emissions--Petroleum Products. (3) No person shall load or permit the loading of gasoline into any stationary tank with a capacity of 250 gallons or more from any tank truck or trailer, except through a permanent submerged fill pipe, unless such tank is equipped with a vapor loss control device as described in (1) of this rule.

7. ARM 17.8.340 Standard of Performance for New Stationary Sources and Emission Guidelines for Existing Sources. This rule incorporates, by reference, 40 CFR Part 60, Standards of Performance for New Stationary Sources (NSPS). This facility is not an NSPS affected source because it does not meet the definition of any NSPS subpart defined in 40 CFR Part 60.

   a. 40 CFR 60, Subpart A – General Provisions apply to all equipments or facilities subject to an NSPS subpart.

   b. 40 CFR 60, Subpart JJJJ – Standards of Performance for Stationary Spark Ignition Internal Combustion Engines. Owners and operators of stationary spark ignition internal combustion engines (SI ICE) that commence construction after June 12, 2006, where the stationary SI ICE are manufactured on or after July 1, 2007, for engines with a maximum engine power greater than or equal to 500 HP are subject to this Subpart. Iofina's generator engine permitted in MAQP #4523-00 was built in 1981.

      However, should Iofina modify or reconstruct this engine, or replace this engine with one manufactured after July 1, 2007, this subpart would apply.

8. ARM 17.8.342 Emission Standards for Hazardous Air Pollutants for Source Categories. The source, as defined and applied in 40 CFR Part 63, shall comply with the requirements of 40 CFR Part 63, as listed below:

   a. 40 CFR 63, Subpart A – General Provisions apply to all equipment or facilities subject to an NESHAP Subpart.

   b. Subpart ZZZZ—National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines. An owner or operator of a stationary reciprocating internal combustion engine (RICE) at a major or area source of HAP emissions is subject to this rule except if the stationary RICE is being tested at a stationary RICE test cell/stand. An area source of HAP emissions is a source that is not a major source. Therefore, Iofina is subject to this subpart.

D. ARM 17.8, Subchapter 5 – Air Quality Permit Application, Operation, and Open Burning Fees, including, but not limited to:

1. ARM 17.8.504 Air Quality Permit Application Fees. This rule requires that an applicant submit an air quality permit application fee concurrent with the submittal of a Montana Air Quality Permit application. A permit application is incomplete until the proper application fee is paid to the Department. Iofina submitted the appropriate permit application fee for the current permit action.

2. ARM 17.8.505 Air Quality Operation Fees. An annual air quality operation fee must, as a condition of continued operation, be submitted to the Department by each source of air contaminants holding a Montana Air Quality Permit (excluding an open burning permit) issued by the Department. The air quality operation fee is based on the actual or estimated actual amount of air pollutants emitted during the previous calendar year.

   An air quality operation fee is separate and distinct from an air quality permit application fee. The annual assessment and collection of the air quality operation fee, described above, shall take place on a calendar-year basis. The Department may insert into any final permit issued after the effective date of these rules, such conditions as may be necessary to require the payment of an air quality operation fee on a calendar-year basis, including provisions that prorate the required fee amount.

E. ARM 17.8, Subchapter 7 – Permit, Construction, and Operation of Air Contaminant Sources, including, but not limited to:

1. ARM 17.8.740 Definitions. This rule is a list of applicable definitions used in this chapter, unless indicated otherwise in a specific subchapter.

2. ARM 17.8.743 Montana Air Quality Permits--When Required. This rule requires a person to obtain a Montana Air Quality Permit or permit modification to construct, modify, or use any air contaminant sources that have the potential to emit (PTE) greater than 25 tons per year of any pollutant. Iofina has a PTE greater than 25 tons per year of oxides of nitrogen (NO_X) and carbon monoxide (CO); therefore, a Montana Air Quality Permit is required.

3. ARM 17.8.744 Montana Air Quality Permits--General Exclusions. This rule identifies the activities that are not subject to the Montana Air Quality Permit program.

4. ARM 17.8.745 Montana Air Quality Permits--Exclusion for De Minimis Changes. This rule identifies the de minimis changes at permitted facilities that do not require a permit under the Montana Air Quality Permit Program.

5. ARM 17.8.748 New or Modified Emitting Units--Permit Application Requirements. (1) This rule requires that a permit application be submitted prior to installation, modification, or use of a source. Iofina submitted the required permit application for the current permit action. (7) This rule requires that the applicant notify the public by means of legal publication in a newspaper of general circulation in the area affected by the application for a permit. Iofina submitted an affidavit of publication of public notice for the January 22, 2010, issue of the *Havre Daily News*, a newspaper of general circulation in the town of Havre in Hill County, as proof of compliance with the public notice requirements.

6. ARM 17.8.749 Conditions for Issuance or Denial of Permit. This rule requires that the permits issued by the Department must authorize the construction and operation of the facility or emitting unit subject to the conditions in the permit and the requirements of this subchapter. This rule also requires that the permit must contain any conditions necessary to assure compliance with the Federal Clean Air Act (FCAA), the Clean Air Act of Montana, and rules adopted under those acts.

7. ARM 17.8.752 Emission Control Requirements. This rule requires a source to install the maximum air pollution control capability that is technically practicable and economically feasible, except that BACT shall be utilized. The required BACT analysis is included in Section III of this permit analysis.

8. ARM 17.8.755 Inspection of Permit. This rule requires that air quality permits shall be made available for inspection by the Department at the location of the source.

9. ARM 17.8.756 Compliance with Other Requirements. This rule states that nothing in the permit shall be construed as relieving Iofina of the responsibility for complying with any applicable federal or Montana statute, rule, or standard, except as specifically provided in ARM 17.8.740, *et seq*.

10. ARM 17.8.759 Review of Permit Applications. This rule describes the Department's responsibilities for processing permit applications and making permit decisions on those permit applications that do not require the preparation of an environmental impact statement.

11. ARM 17.8.762 Duration of Permit. A Montana Air Quality Permit shall be valid until revoked or modified, as provided in this subchapter, except that a permit issued prior to construction of a new or modified source may contain a condition providing that the permit will expire unless construction is commenced within the time specified in the permit, which in no event may be less than 1 year after the permit is issued.

12. ARM 17.8.763 Revocation of Permit. A Montana Air Quality Permit may be revoked upon written request of the permittee, or for violations of any requirement of the Clean Air Act of Montana, rules adopted under the Clean Air Act of Montana, the FCAA, rules adopted under the FCAA, or any applicable requirement contained in the Montana State Implementation Plan (SIP).

13. ARM 17.8.764 Administrative Amendment to Permit. A Montana Air Quality Permit may be amended for changes in any applicable rules and standards adopted by the Board of Environmental Review (Board) or changed conditions of operation at a source or stack that do not result in an increase of emissions as a result of those changed conditions. The owner or operator of a facility may not increase the facility's emissions beyond permit limits unless the increase meets the criteria in ARM 17.8.745 for a de minimis change not requiring a permit, or unless the owner or operator applies for and receives another permit in accordance with ARM 17.8.748, ARM 17.8.749, ARM 17.8.752, ARM 17.8.755, and ARM 17.8.756, and with all applicable requirements in ARM Title 17, Chapter 8, Subchapters 8, 9, and 10.

14. ARM 17.8.765 Transfer of Permit. This rule states that a Montana Air Quality Permit may be transferred from one person to another if written notice of intent to transfer, including the names of the transferor and the transferee, is sent to the Department.

F. ARM 17.8, Subchapter 8 – Prevention of Significant Deterioration of Air Quality, including, but not limited to:

1. ARM 17.8.801 Definitions. This rule is a list of applicable definitions used in this subchapter.

2. ARM 17.8.818 Review of Major Stationary Sources and Major Modifications--Source Applicability and Exemptions. The requirements contained in ARM 17.8.819 through ARM 17.8.827 shall apply to any major stationary source and any major modification, with respect to each pollutant subject to regulation under the FCAA that it would emit, except as this subchapter would otherwise allow.

This facility is not a major stationary source because this facility is not a listed source and the facility's PTE is below 250 tons per year of any pollutant (excluding fugitive emissions).

III. BACT Determination

A BACT determination is required for each new or modified source. Iofina shall install on the new or modified source the maximum air pollution control capability which is technically practicable and economically feasible, except that BACT shall be utilized.

The primary criteria pollutants from natural gas-fired reciprocating engines are NO_X, CO, and volatile organic compounds (VOC). CO and VOC species are primarily the result of incomplete combustion. Particulate matter (PM) emissions include trace amounts of metals, non-combustible inorganic material, and condensable, semi-volatile organics which result from volatized lubricating oil, engine wear, or from products of incomplete combustion. Sulfur oxides (SO_X) are very low since sulfur compounds are removed from natural gas at processing plants. However, trace amounts of sulfur containing odorant are added to natural gas for the purpose of leak detection.

Three generic control techniques have been developed for reciprocating engines: parametric controls (timing and operating at a leaner air-to-fuel ratio); combustion modifications such as advanced engine design (clean-burn cylinder head designs and prestratified charge combustion for rich-burn engines); and post combustion catalytic controls installed on the engine exhaust system. Post-combustion catalytic technologies include selective catalytic reduction (SCR) for lean-burn engines, nonselective catalytic reduction (NSCR) for rich-burn engines, and CO oxidation catalysts for lean-burn engines.

The proposed compressor engine is of a 4-stroke rich-burn engine class. These engines may be either naturally aspirated, using the suction from the piston to entrain the air charge, or turbocharged, using an exhaust-driven turbine to pressurize the charge. Rich-burn engines operate near the stoichiometric air-to-fuel ratio with exhaust excess oxygen levels less than 4 percent (typically closer to 1 percent). Turbocharged units produce a higher power output for a given engine displacement, whereas naturally aspirated units have lower initial costs and require less maintenance. The proposed engine is naturally aspirated.

NO_X and CO BACT:

The only technically feasible option for control of NO_X and CO for the rich-burn 4-stroke compressor engine is NSCR with AFR Control. Selective catalytic reduction and oxidation catalysts require the stoichiometry of a lean-burn engine.

<u>NSCR with AFR</u>

This technique uses the residual hydrocarbons and CO in the rich-burn engine exhaust as a reducing agent for NO_X. In an NSCR, hydrocarbons and CO are oxidized by oxygen (O_2) and NO_X. The excess hydrocarbons, CO, and NO_X pass over a catalyst (usually a noble metal such as platinum, rhodium, or palladium) that oxidizes the excess hydrocarbons and CO to water (H_2O) and carbon dioxide (CO_2), while reducing NO_X to nitrogen (N_2) NO_X reduction efficiencies are usually greater than 90 percent, while CO reduction efficiencies are approximately 90 percent. The NSCR technique is effectively limited to engines with normal exhaust oxygen levels of 4 percent or less. This includes 4-stroke rich-burn naturally aspirated engines and some 4-stroke rich-burn turbocharged engines. Engines operating with NSCR require tight air-to-fuel ratio control to maintain high reduction effectiveness without high hydrocarbon emissions. To achieve effective NO_X reduction performance, engines may need to be run with a richer fuel adjustment than normal. Therefore, because NSCR requires tight air-to-fuel ratio control to maintain high reduction effectiveness, AFR control is usually required for optimized NSCR operation.

The applicant has stated that with the variable loads expected to occur with this engine, continuous compliance with a 90% reduction may not be achievable. An AFR controller is not expected to perform as well as required to consistently meet a 90% reduction with this engine as the AFR may not react fast enough to expected load changes. Therefore, although 90% control is likely achievable in steady state, a permit limit equal to 84% control has been proposed to provide for a factor in which the applicant believes this engine can continuously comply with.

The Department determined that properly operated and maintained NSCR, with AFR, constitutes BACT for NO_X and CO. As proposed by Iofina, the resulting BACT limit will be 2.0 g/bhp-hr (based on 84% control efficiency of the manufacturer's stated uncontrolled emissions) and 2.0 g/bhp-hr (based on prior BACT determinations) for NO_X and CO, respectively. These limits are comparable to other recently permitted sources. As shown by the emissions inventory calculated based on 8,760 hours of operation per year, this results in relatively small total emissions of both NO_X and CO.

VOC BACT:

The Department is not aware of any BACT determinations that have required controls for VOC emissions from compressor engines. The uncontrolled potential to emit of VOC emissions is relatively small and any add-on controls would be cost prohibitive. However, the control technology selected for NO_X and CO control also oxidizes hydrocarbon (VOC) emissions.

The Department determined that no additional controls and the proper operation and maintenance of the NSCR and AFR, as required for NO_X and CO control, constitutes as BACT for VOC emissions.

The BACT limit will be 1.0 g/bhp-hr for VOC. This limit is comparable to other recently permitted sources.

SO_X BACT:

The Department is not aware of any BACT determinations that have required add on controls for SO_X emissions from natural gas fired engines. The uncontrolled potential to emit of SO_X emissions from natural gas fired engines is relatively small due to the low amount of sulfur present in natural gas. Therefore, any add-on controls would be cost prohibitive.

The Department determined that the burning of pipeline quality natural gas constitutes BACT for SO_X.

PM BACT:

The Department is not aware of any BACT determinations that have required controls for PM emissions from natural gas fired engines. The uncontrolled potential to emit of PM emissions from natural gas fired engines is relatively small. Therefore, any add-on controls would be cost prohibitive.

The Department determined that no additional controls, the burning of natural gas, and the operation of the equipment as it was designed to be operated, including proper operation and maintenance, constitutes as BACT for this case.

All control options selected have controls and control costs comparable to other recently permitted similar sources and are capable of achieving the appropriate emission standards.

IV. Emission Inventory*

Iofina Natural Gas, Inc.						
MAQP #4523-00 - ton/year						
Source	NO_X	CO	VOC	PM_{10}	$PM_{2.5}$	SO_X
500 hp engine	9.66	9.66	4.83	0.46	0.46	0.01

*Emissions Inventory and Calculations Notes:

NO_X = oxides of nitrogen
CO = carbon monoxide
VOC = volatile organic compounds
PM_{10} = particulate matter with an aerodynamic diameter of 10 microns or less
$PM_{2.5}$ = particulate matter with an aerodynamic diameter of 2.5 microns or less
SO_2 = sulfur dioxide
SO_X = oxides of sulfur
g/bhp-hr = grams per brake horsepower-hour
lb = pound
g = gram
Btu = British thermal unit
MM denotes 10^6

CO and NO_X Emissions - controlled

Emissions Factor:	2.0	g/bhp-hr	BACT - MAQP #4523-00		
Calculations:	2 g/bhp-hr * 500 bhp * 8760 hr/yr * 0.002205 lb/g =			19315.80	lb/yr
				9.66	**ton/yr**

VOC Emissions - controlled

Emissions Factor:	1.0	g/bhp-hr	BACT - MAQP #4523-00		
Calculations:	1 g/bhp-hr * 500 bhp * 8760 hr/yr * 0.002205 lb/g =			9657.90	lb/yr
				4.83	**ton/yr**

PM_{10} Emissions

Emissions Factor:	0.01941	lb/MMBtu	AP-42 Table 3.2-3, 07/2000 (condensable + filterable)		
Calculations:	0.01941 lb/MMBtu * 5.42735 MMBtu/hr * 8760 hr/yr =			922.82	lb/yr
	922.82100426 lb/yr * 0.0005 ton/lb =			**0.46**	**ton/yr**

$PM_{2.5}$ Emissions

assume all PM emissions are $PM_{2.5}$ emissions	**0.46**	**ton/yr**

SO_X Emissions

Emissions Factor:	0.000588	lb/MMBtu	AP-42 Table 3.2-3, 07/2000		
Calculations:	0.000588 lb/MMBtu * 5.42735 MMBtu/hr * 8760 hr/yr =			27.96	lb/yr
	27.955628568 lb/yr * 0.0005 ton/lb =			**0.01**	**ton/yr**

V. Existing Air Quality

The air quality in the location to be permitted is currently designated as attainment/unclassifiable for the National Ambient Air Quality Standards for all criteria pollutants.

VI. Ambient Air Impact Analysis

The Department determined that the impacts from this permitting action will be minor. The Department believes it will not cause or contribute to a violation of any ambient air quality standard.

VII. Taking or Damaging Implication Analysis

As required by 2-10-105, MCA, the Department conducted the following private property taking and damaging assessment.

YES	NO	
XX		1. Does the action pertain to land or water management or environmental regulation affecting private real property or water rights?
	XX	2. Does the action result in either a permanent or indefinite physical occupation of private property?
	XX	3. Does the action deny a fundamental attribute of ownership? (ex.: right to exclude others, disposal of property)
	XX	4. Does the action deprive the owner of all economically viable uses of the property?
	XX	5. Does the action require a property owner to dedicate a portion of property or to grant an easement? [If no, go to (6)].
		5a. Is there a reasonable, specific connection between the government requirement and legitimate state interests?
		5b. Is the government requirement roughly proportional to the impact of the proposed use of the property?
	XX	6. Does the action have a severe impact on the value of the property? (consider economic impact, investment-backed expectations, character of government action)
	XX	7. Does the action damage the property by causing some physical disturbance with respect to the property in excess of that sustained by the public generally?
	XX	7a. Is the impact of government action direct, peculiar, and significant?
	XX	7b. Has government action resulted in the property becoming practically inaccessible, waterlogged or flooded?
	XX	7c. Has government action lowered property values by more than 30% and necessitated the physical taking of adjacent property or property across a public way from the property in question?
	XX	Takings or damaging implications? (Taking or damaging implications exist if YES is checked in response to question 1 and also to any one or more of the following questions: 2, 3, 4, 6, 7a, 7b, 7c; or if NO is checked in response to questions 5a or 5b; the shaded areas)

Based on this analysis, the Department determined there are no taking or damaging implications associated with this permit action.

VIII. Environmental Assessment

An environmental assessment, required by the Montana Environmental Policy Act, was completed for this project. A copy is attached.

DEPARTMENT OF ENVIRONMENTAL QUALITY
Permitting and Compliance Division
Air Resources Management Bureau
P.O. Box 200901, Helena, Montana 59620
(406) 444-3490

FINAL ENVIRONMENTAL ASSESSMENT (EA)

Issued To: Iofina Natural Gas, Inc.
8480 E Orchard Rd. Suite 3600
Greenwood Village, CO 80111

Montana Air Quality Permit Number: 4523-00
Preliminary Determination Issued: 03/09/2010
Department Decision Issued: 03/25/2010
Permit Final: 04/10/2010

1. *Legal Description of Site*: SW¼ of the SW¼ of Section 3, Township 35N, Range 11E in Hill County, Montana

2. *Description of Project*: Iofina proposes to operate a natural gas fired generator engine.

3. *Objectives of Project*: The engine is proposed to power a generator for the generation of electricity.

4. *Alternatives Considered*: In addition to the proposed action, the Department also considered the "no-action" alternative. The "no-action" alternative would deny issuance of the Montana Air Quality Permit to the proposed facility. However, the Department does not consider the "no-action" alternative to be appropriate because Iofina demonstrated compliance with all applicable rules and regulations as required for permit issuance. Therefore, the "no-action" alternative was eliminated from further consideration.

5. *A Listing of Mitigation, Stipulations, and Other Controls*: A list of enforceable conditions, including a BACT analysis, would be included in MAQP #4523-00.

6. *Regulatory Effects on Private Property*: The Department considered alternatives to the conditions imposed in this permit as part of the permit development. The Department determined that the permit conditions are reasonably necessary to ensure compliance with applicable requirements and demonstrate compliance with those requirements and do not unduly restrict private property rights.

7. The following table summarizes the potential physical and biological effects of the proposed project on the human environment. The "no-action" alternative was discussed previously.

		Major	Moderate	Minor	None	Unknown	Comments Included
A	Terrestrial and Aquatic Life and Habitats			XX			Yes
B	Water Quality, Quantity, and Distribution			XX			Yes
C	Geology and Soil Quality, Stability and Moisture			XX			Yes
D	Vegetation Cover, Quantity, and Quality			XX			Yes
E	Aesthetics			XX			Yes
F	Air Quality			XX			Yes
G	Unique Endangered, Fragile, or Limited Environmental Resources			XX			Yes
H	Demands on Environmental Resource of Water, Air and Energy			XX			Yes
I	Historical and Archaeological Sites			XX			Yes
J	Cumulative and Secondary Impacts			XX			Yes

SUMMARY OF COMMENTS ON POTENTIAL PHYSICAL AND BIOLOGICAL EFFECTS: The following comments have been prepared by the Department.

A. Terrestrial and Aquatic Life and Habitats

The project would result in emissions primarily consisting of NO_X, CO, and VOC. However, through the BACT process, MAQP #4523-00 would require the engine to be equipped with an AFR controller and NSCR technology. These controls would greatly reduce the potential NO_X and CO emissions from this source, as well as reduce VOC. As presented in the emissions inventory of the permit analysis, emissions would be small on an industrial scale. Furthermore, the emissions would be expected to be widely dispersed. Any impacts to terrestrial and aquatic life and habitats would be expected to be minor.

B. Water Quality, Quantity and Distribution

The proposed project would not result in water usage or wastewater discharge as a part of normal operations of the generator engine. However, water may be required for fugitive dust control of the access roads and the general facility property. Impacts to the water quality, quantity, and distribution in the area would be expected to be minor, and necessary for fugitive dust control.

C. Geology and Soil Quality, Stability and Moisture

Small amounts of water may be required for fugitive dust control of the access roads and the general facility property. Deposition of pollutants would be expected to be minor due to the small amount of emissions as a result of the control requirements that would be in MAQP #4523-00 and the dispersion of those emissions. Impacts to geology and soil quality, stability, and moisture would be expected to be minor.

D. Vegetation Cover, Quantity, and Quality

Deposition of pollutants would be expected to be very minor due to the small amount of emissions as a result of the control requirements that would be in MAQP #4523-00. Furthermore, fugitive dust control would be required of the access roads and the general facility property. Therefore, any impacts to vegetation cover, quantity, and quality would be expected to be minor.

E. Aesthetics

The proposed project is to install a generator engine at an already established site. Minor, if any, impacts to aesthetics would be expected.

F. Air Quality

MAQP #4523-00 would require AFR and NSCR controls. These controls would greatly reduce the potential NO_X and CO emissions from this source. Conditions and limitations that would be placed in MAQP #4523-00 would ensure that all emissions would be very small on an industrial scale. Furthermore, conditions and limitations are derived from rules designed to protect air quality. Therefore, impacts to the air quality would be expected to be minor.

G. Unique Endangered, Fragile, or Limited Environmental Resources

The Department, in an effort to identify any unique endangered, fragile, or limited environmental resources in the area, contacted the Montana Natural Heritage Program, Natural Resource Information System. File search results showed no species of concern within the proposed area.

As described in Section 7.F above, conditions and limitations that would be placed in MAQP #4523-00 would ensure all emissions are small on an industrial scale. The overall impacts to any endangered, fragile, or limited environmental resources would be expected to be minor.

H. Demands on Environmental Resource of Water, Air and Energy

The project is to install a natural gas fired generator engine. The natural gas consumption would be expected to be small on an industrial scale.

As described in Section 7.B above, the proposed project would not result in water usage or wastewater discharge as a part of normal operations of the engine. However, water may be required for fugitive dust control of the access roads and the general facility property.

As described in Section 7.F above, impacts to the air quality would be expected to be minor.

Overall, the demands on environmental resource of water, air and energy would be expected to be minor.

I. Historical and Archaeological Sites

The Department, in an effort to identify any historically significant sites within the project area, contacted the State Historic Preservation Office. A cultural resource file search showed no previously recorded sites within the designated search area. Therefore, with no known historically or archaeologically significant site within the area, any impacts to historical or archaeological sites would be expected to be minor.

J. Cumulative and Secondary Impacts

Potential physical and biological effects of any individual considerations above would be expected to be minor. Collectively, the potential cumulative and secondary impacts would be expected to be minor.

8. The following table summarizes the potential economic and social effects of the proposed project on the human environment. The "no-action" alternative was discussed previously.

		Major	Moderate	Minor	None	Unknown	Comments Included
A	Social Structures and Mores			XX			Yes
B	Cultural Uniqueness and Diversity			XX			Yes
C	Local and State Tax Base and Tax Revenue			XX			Yes
D	Agricultural or Industrial Production			XX			Yes
E	Human Health			XX			Yes
F	Access to and Quality of Recreational and Wilderness Activities			XX			Yes
G	Quantity and Distribution of Employment			XX			Yes
H	Distribution of Population			XX			Yes
I	Demands for Government Services			XX			Yes
J	Industrial and Commercial Activity			XX			Yes
K	Locally Adopted Environmental Plans and Goals					XX	Yes
L	Cumulative and Secondary Impacts			XX			Yes

SUMMARY OF COMMENTS ON POTENTIAL ECONOMIC AND SOCIAL EFFECTS: The following comments have been prepared by the Department.

A. Social Structures and Mores

The proposed project would not be expected to cause disruption to any social structures or mores in the area. This project alone would not be expected to change the predominant use of the land in the surrounding area. Impacts to social structures and mores, if any, would be expected to be minor.

B. Cultural Uniqueness and Diversity

The predominant use of the area would be expected to remain the same. No significant employment would be expected as a result of this project. The cultural uniqueness and diversity of the area would be expected to have minor, if any, affects imparted by the operation of this facility.

C. Local and State Tax Base and Tax Revenue

Any impacts to the local and state tax base and tax revenue from this permitting action would be expected to be minor.

D. Agricultural or Industrial Production

Deposition of pollutants would be expected as a result of this project. However, potential emissions would be small on an industrial scale. Furthermore, MAQP #4523-00 would require control of fugitive dust emissions from the general facility area. Agricultural impacts would be expected to be minor.

E. Human Health

MAQP #4523-00 would contain limitations and conditions derived from rules designed to protect human health. As illustrated in the emissions inventory of the permit analysis, allowable emissions would be small. Overall, any impacts to human health would be expected to be minor.

F. Access to and Quality of Recreational and Wilderness Activities

The Department is not aware of any direct access to recreational or wilderness activities which this project would affect. Furthermore, the generator engine would be installed at an existing industrial site. Therefore, any impacts to the access and quality of recreational and wilderness activities would be expected to be minor.

G. Quantity and Distribution of Employment
H. Distribution of Population

It is not expected that any more than two additional staff members would be employed as a result of this project. Impacts to quantity and distribution of employment and distribution of population would be expected to be minor.

I. Demands for Government Services

It would be expected that there would be demand for government services associated with compliance activities and acquiring the proper permits related to this project. Overall, demands for government services associated with the generator engine would be minor due to the current size/classification of this facility.

J. Industrial and Commercial Activity

The generator engine would be installed at an exiting industrial site. Therefore, a minor, if any, increase in industrial and commercial activity would be expected as a result of this project.

K. Locally Adopted Environmental Plans and Goals

The Department is not aware of any locally adopted environmental plans and goals affected by issuing MAQP #4523-00. The MAQP would contain limits for protecting air quality and keeping facility emissions in compliance with any applicable air quality standards.

L. Cumulative and Secondary Impacts

Potential economic and social effects of any individual considerations above would be expected to be minor. The Department has determined that collectively, the potential cumulative and secondary impacts would be expected to be minor.

Recommendation: No Environmental Impact Statement (EIS) is required.

If an EIS is not required, explain why the EA is an appropriate level of analysis: The current permitting action is for the construction and operation of a natural gas fired generator engine. MAQP #4523-00 includes conditions and limitations to ensure the facility will operate in compliance with all applicable rules and regulations. In addition, there are no significant impacts associated with this proposal.

Other groups or agencies contacted or which may have overlapping jurisdiction: Montana Historical Society – State Historic Preservation Office, Natural Resource Information System – Montana Natural Heritage Program

Individuals or groups contributing to this EA: Department of Environmental Quality – Air Resources Management Bureau, Montana Historical Society – State Historic Preservation Office, Natural Resource Information System – Montana Natural Heritage Program

EA prepared by: Shawn Juers
Date: 2/22/2010