State of Idaho
Department of Environmental Quality
Air Quality Division

AIR QUALITY PERMIT
STATEMENT OF BASIS

Tier II Operating Permit No. T2-2008.0121

Final

Idaho Minerals, LLC

Malad City, Idaho

Facility ID No. 071-00008

August 28, 2008

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Permit Writer

The purpose of this Statement of Basis is to satisfy the requirements of IDAPA 58.01.01.et seq, Rules for the Control of Air Pollution in Idaho, for issuing air permits.

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Acronyms, Units, and Chemical Nomenclature

AFS	AIRS Facility Subsystem
AIRS	Aerometric Information Retrieval System
CAA	Clean Air Act
CFR	Code of Federal Regulations
CO	carbon monoxide
DEQ	Department of Environmental Quality
gr/dscf	grains (1 lb = 7,000 grains) per dry standard cubic feet
EPA	U.S. Environmental Protection Agency
HAP	Hazardous Air Pollutant
IDAPA	a numbering designation for all administrative rules in Idaho promulgated in accordance with the Idaho Administrative Procedures Act
IM	Idaho Minerals, LLC
lb/hr	pounds per hour
MACT	Maximum Achievable Control Technology
NESHAP	National Emission Standards for Hazardous Air Pollutants
NO_2	nitrogen dioxide
NO_x	nitrogen oxides
NSPS	New Source Performance Standards
PC	permit condition
PM	particulate matter
PM_{10}	particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers
PSD	Prevention of Significant Deterioration
PTC	permit to construct
Rules	Rules for the Control of Air Pollution in Idaho
SIC	Standard Industrial Classification
SIP	State Implementation Plan
SM	Synthetic Minor
SO_2	sulfur dioxide
SO_x	sulfur oxides
TAP	Toxic Air Pollutant
T/yr	tons per year
VOC	volatile organic compound

STATEMENT OF BASIS			
Permittee:	Idaho Minerals, LLC	**Permit No.**	T2-2008.0121
Location:	Malad City, Idaho	**Facility ID No.**	079-00008

1. FACILITY INFORMATION

1.1 Facility Description

Idaho Minerals located in Malad City, Idaho, is a perlite expanding plant manufacturing horticultural medium, insulating wall fill, cryogenic insulation, and other expanded perlite products. The plant consists of crude ore unloading equipment, ore storage silos, perlite expanding equipment, warehouse, and offices.

Perlite ore is delivered to the facility by covered trucks that unload the material into a concrete hopper (1). The ore flows from the hopper to the No. 1 unloading conveyor (2) then to the No. 2 unloading conveyor (3) which is a traveling belt so it can be moved on tracks to position the discharge over the proper silo. Crude ore is stored in six steel silos (4). The No. 5 reclaim conveyor (5) is fed by the silo discharge conveyor (25) and delivers ore to the No. 6 reclaim conveyor (6) which leads to the expander surge bin (7). The expander vibratory feeder (8) receives the ore from the surge bin and delivers it to the elevator (9). The elevator carries the ore to the ore distribution pipes at the top of the expander (10) which is fired with propane gas and maintains a temperature of approximately 1,700 °F. The flame softens the ore and the internal moisture expands the ore 10-20 times the original size. The expanded perlite is cooled by air and collected in the primary product collector (11) which is a cyclone that separates the expanded perlite from the cooler separator (13) which acts as a separator of the fines from the coarse aggregates. The coarse aggregates are collected in the coarse product packer (26). The fines are carried to the baghouse which separates the perlite fines from the air stream which is discharged to the atmosphere via the expander baghouse (17). Fine product passes through a 10" rotary valve (16) then to the fine product packer (26). Expander baghouse fines are collected in the baghouse fines packer via an 8" rotary airlock (19).

1.2 Permitting Action and Facility Permitting History

This Tier II operating permit is a revision of an existing Tier II operating permit. The following information was derived from a review of the permit files available to DEQ. Permit status is noted as active and in effect (A) or superseded (S).

February 20, 1996	Tier II Operating Permit No. 071-00008, initial permit for National Perlite Products Company, Permit status (S)
September 20, 1999	IM was named as the new owner of the National Perlite Products Company located in Malad City, Idaho.
August 25, 2003	Tier II Operating Permit No. T2-020312, renewed permit for IM (S)

2. APPLICATION SCOPE AND APPLICATION CHRONOLOGY

2.1 Application Scope

This application is to renew the Tier II operating permit with no changes.

2.2 Application Chronology

August 1, 2008 DEQ receives renewal application

August 21, 2008 DEQ issues application completeness letter

August 26, 2008 DEQ issues facility draft permit

August 28, 2008 DEQ receives response from facility re: draft permit (no changes requested)

3. TECHNICAL ANALYSIS

3.1 Emission Unit and Control Device

Table 3.1 EMISSION UNIT AND CONTROL DEVICE INFORMATION

Emissions Unit Description	Control Device Description
ORE UNLOADING SYSTEM Sized and dried perlite ore is delivered to the facility in covered trucks. The ore is discharged into a hopper where it is fed to an elevating belt conveyor. The elevating belt conveyor discharges the ore on a traveling belt which can be moved so the discharge is located over the proper silo. The different ore grades are stored in six identical silos.	PM emissions are controlled by the ore unloading baghouse with a control efficiency of 99.9%.
ORE RECLAIM AND EXPANDING SYSTEMS The ore is reclaimed from the silo using a belt conveyor from the bottom of the silo to a cross conveyor. The cross conveyor discharges on to a reclaim belt delivering the ore to the ore surge bin. The ore is fed to an elevator through a vibratory feeder. The elevator carries the ore to ore distribution pipes at the top of the expander. The expander is fired with propane and maintains a temperature of about 1,700 °F. The flame softens the ore and the internal moisture expands the ore 10-20 times the original size. The expanded perlite is air cooled and collected in the primary product collector, which is a cyclone that separates the expanded perlite from the cooler separator which acts as a separator of the fines from the coarse aggregates. The coarse aggregates are collected in the coarse product packer. The fines are carried to the baghouse which separates the perlite fines from the air stream which is discharged to the atmosphere via the expander baghouse. Fine product passes through a rotary valve then to the fine product packer. Expander baghouse fines are collected in the baghouse fines packer via a rotary airlock.	PM emissions are controlled by the expander baghouse with a control efficiency efficiency of 99.9%.

3.2 Emissions Inventory

Emissions were estimated in the previous permit analysis. PM and PM_{10} estimates were estimated based on engineering estimate. Source tests were performed as required for PM (Method 5 only) on November 3, 2004, which resulted in emissions of 0.37 lb/hr for the ore unloading system baghouse, as compared to the permitted limit of 1.65 lb/hr. The test for the ore reclaim and expanding system baghouse demonstrated PM emissions of 0.29 lb/hr, as compared to the permitted limit of 1.15 lb/hr.

Table 3.2 shows the emissions that were estimated in the previous permit analysis.

Table 3.2 ESTIMATED EMISSIONS

Source	PM/PM_{10}		NO_x		CO		VOC		SO_2		Perlite	
	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr
Ore unloading baghouse	1.65	1.2[a] 7.23[b]	---	---	Neg.	Neg.	Neg.	Neg.	Neg.	Neg.	1.65	1.2[a] 7.23[b]
Ore reclaim & expander baghouse	1.15	2.31[a] 5.04[b]	0.84	3.68	0.11	0.48	Neg.	Neg.	Neg.	Neg.	1.15	2.31[a] 5.04[b]
Ore unloading (process fugitives)	3.17	0.11	---	---	---	---	---	---	---	---	---	---
Ore reclaim (process fugitives)	1.83	0.12	---	---	---	---	---	---	---	---	---	---

[a] permitted limit
[b] potential to emit without permit limits
Neg. = negligible

The emissions of PM and PM_{10} are limited by the use of baghouses to less than 100 tons per year, using an engineering estimate of 99% effectiveness for baghouses, so the source classification was changed to SM for PM and PM_{10}.

3.3 Ambient Air Quality Impact Analysis

In the previous permit analysis, the facility demonstrated compliance to DEQ's satisfaction that emissions from this facility will not cause or significantly contribute to a violation of any ambient air quality standard.

4. REGULATORY REVIEW

4.1 Attainment Designation (40 CFR 81.313)

The facility is located in Oneida County which is designated as attainment or unclassifiable for PM_{10}, $PM_{2.5}$, CO, NO_2, SO_X, and Ozone. Reference 40 CFR 81.313.

4.2 Permit to Construct (IDAPA 58.01.01.201)

A permit to construct is not required because there are no modifications to the facility.

4.3 Tier II Operating Permit (IDAPA 58.01.01.401)

This permit action is a renewal of an existing Tier II operating permit that expired on August 18, 2008.

4.4 Title V Classification (IDAPA 58.01.01.300, 40 CFR Part 70)

This facility is not a Title V major source.

4.5 PSD Classification (40 CFR 52.21)

This facility is not a PSD source.

4.6 NSPS Applicability (40 CFR 60)

A review of 40 CFR 60, OOO, *Standards of Performance for Nonmetallic Mineral Processing Plants* indicates that the facility is not subject to this subpart. Perlite is considered a nonmetallic mineral as

defined in 40 CFR 60.671. However, 40 CFR 60.671 further defines the nonmetallic processing plant as "any combination of equipment that is used to crush or grind any nonmetallic mineral wherever located, including lime plants, power plants, steel cement plants, or any other facility processing nonmetallic minerals except as provided in 40 CFR 60.670 (b) and (c)." No crushers or grinders exist at the facility.

4.7 NESHAP Applicability (40 CFR 61)

No NESHAP applies to this facility.

4.8 MACT Applicability (40 CFR 63)

No MACT applies to this facility.

4.9 CAM Applicability (40 CFR 64)

This is not a Title V facility. CAM does not apply to non-Title V facilities.

4.10 Permit Conditions Review

This section describes the permit conditions for this permit or only those permit conditions that have been added, revised, modified or deleted as a result of this permitting action.

Revised PC 2.1

This facility-wide condition for fugitive dust emissions was changed to include the whole rule rather than just a reference to the rule in order to clarify in the permit the details of the requirements of the rule.

Previous PC 2.8

The permittee shall conduct a quarterly facility-wide inspection of potential sources of visible emissions, during daylight hours and under normal operating conditions. The visible emissions inspection shall consist of a see/no see evaluation for each potential source of visible emissions. If any visible emissions are present from any point of emission, the permittee shall either take appropriate corrective action as expeditiously as practicable, or perform a Method 9 opacity test in accordance with the procedures outlined in IDAPA 58.01.01.625. A minimum of 30 observations shall be recorded when conducting the opacity test. If opacity is greater than 20% for a period or periods aggregating more than 3 minutes in any 60-minute period, the permittee shall take all necessary corrective action and report the exceedance in its annual compliance certification and in accordance with IDAPA 58.01.01.130-136. The permittee shall maintain records of the results of each monthly visible emission inspection and each opacity test when conducted. The records shall include, at a minimum, the date and results of each inspection and test and a description of the following: the permittee's assessment of the conditions existing at the time visible emissions are present (if observed), any corrective action taken in response to the visible emissions, and the date corrective action was taken.

Revised PC 2.8

The permittee shall conduct a quarterly facility-wide inspection of potential sources of visible emissions, during daylight hours and under normal operating conditions. Sources that are monitored using a continuous opacity monitoring system (COMS) are not required to comply with this permit condition. The inspection shall consist of a see/no see evaluation for each potential source of visible emissions. If any visible emissions are present from any point of emission, the permittee shall either

a) take appropriate corrective action as expeditiously as practicable to eliminate the visible emissions. Within 24 hours of the initial see/no see evaluation and after the corrective action, the permittee shall conduct a see/no see evaluation of the emissions point in question. If the visible emissions are not eliminated, the permittee shall comply with b).

or

b) perform a Method 9 opacity test in accordance with the procedures outlined in IDAPA 58.01.01.625. A minimum of 30 observations shall be recorded when conducting the opacity test. If opacity is greater than 20%, as measured using Method 9, for a period or periods aggregating more than three minutes in any 60-minute period, the permittee shall take all necessary corrective action and report the exceedance in its annual compliance certification and in accordance with IDAPA 58.01.01.130-136.

The permittee shall maintain records of the results of each visible emission inspection and each opacity test when conducted. The records shall include, at a minimum, the date and results of each inspection and test and a description of the following: the permittee's assessment of the conditions existing at the time visible emissions are present (if observed), any corrective action taken in response to the visible emissions, and the date corrective action was taken.

This permit condition was rewritten to clarify the available options and requirements for visible emission inspections.

Revised PC 2.10

This permit condition regarding notification was renumbered to 2.11 and now includes notifications of intent to test as part of reporting required by this permit.

Deleted PC 2.13

This permit condition contained instruction regarding the source test requirement, which has been satisfied. Therefore, source testing instructions are no longer required as there are no more source tests required.

New PC 2.13

A permit condition was added as follows:

Receiving a Tier II operating permit shall not relieve any owner or operator of the responsibility to comply with all applicable local, state, and federal rules and regulations.

Revised PC 3.3

The emission limits for PM_{10} were clarified to specify that PM_{10} includes condensibles.

Revised PC 3.6

The permit condition requires the facility to install a pressure drop monitoring device, which has been done (DEQ inspection report dated April 16, 2007). The permit condition was reworded to eliminate the installation requirement because that has already been done.

Revised PC 3.7

This permit condition was revised to show that an O&M manual has already been created (DEQ inspection report dated April 16, 2007). The permit condition was revised to require maintenance of the O&M manual.

Deleted PC 3.9

This permit condition required PM testing and a retest schedule. The test was done (DEQ inspection report dated April 16, 2007), and the results were less than 75% of the standard. Therefore, according to the permit condition, "...no further testing shall be required for this section of the permit."

Within 12 months of issuance of this permit, the permittee shall conduct performance tests to measure the PM emissions from the ore unloading system baghouse exhaust stack to demonstrate compliance with the hourly PM emission limit in Permit Condition 3.3. The permittee shall measure the PM emissions using the United States Environmental Protection Agency (US EPA) test Method 5 (Determination of Particulate Matter Emissions From Stationary Sources), or Department-approved alternative method(s) in accordance with IDAPA 58.01.01.157. Tests shall be conducted in accordance with IDAPA 58.01.01.157, Permit Condition 2.13, and the following requirements:

- *Visible emissions shall be observed during the test using methods specified in IDAPA 58.01.01.625.*
- *The static pressure drop across the baghouse shall be monitored and recorded once during the test.*
- *The ore throughput to the ore unloading system shall be recorded in tons per hour during the test.*
- *If the PM measured results from the performance test is less than or equal to 75% of the permitted PM emission limits in this permit, no further testing shall be required for this section of the permit. If the PM measured during the performance test is greater than 75%, but less than or equal to 90% of the permitted PM emission limits in this permit, a second test shall be required in the third year of issuance of this permit. If the PM measured during the performance test is greater than 90% of the permitted PM emission limits in this permit, the permittee shall conduct a performance test annually.*

Revised PC 4.3

The emission limits for PM_{10} were clarified to specify that PM_{10} includes condensibles.

Revised PC 4.6

The permit condition requires the facility to install a pressure drop monitoring device, which has been done (DEQ inspection report dated April 16, 2007). The permit condition was reworded to eliminate the installation requirement because that has already been done.

Revised PC 4.7

This permit condition was revised to show that an O&M manual has already been created (DEQ inspection report dated April 16, 2007). The permit condition was revised to require maintenance of the O&M manual.

Deleted PC 4.9

This permit condition required PM testing and a retest schedule. The test was done (DEQ inspection report dated April 16, 2007), and the results were less than 75% of the standard. Therefore, according to the permit condition, "…no further testing shall be required for this section of the permit."

Within 12 months of issuance of this permit, the permittee shall conduct a performance test to measure the PM emissions from the ore reclaim system baghouse exhaust stack to demonstrate compliance with the hourly PM emission limit in Permit Condition 4.3. The permittee shall measure the PM emissions using US EPA test Method 5 (Determination of Particulate Matter Emissions From Stationary Sources), or Department-approved alternative method(s) in accordance with IDAPA 58.01.01.157, Permit Condition 2.13, and the following requirements:

- *Visible emissions shall be observed during the test using methods specified in IDAPA 58.01.01.625.*
- *The static pressure drop across the baghouse shall be monitored and recorded once during the test.*
- *The ore throughput to the ore reclaim system shall be recorded in tons per hour during the performance test.*
- *If the PM measured in the performance test is less than or equal to 75% of the permitted PM emission limits in this permit, no further testing shall be required for this section of the permit. If the PM measured during the performance test is greater than 75%, but less than or equal to 90% of the permitted PM emission limits in this permit, a second test shall be required in the third year of issuance of this permit. If the PM measured during the performance test is greater than 90% of the permitted PM emission limits in this permit, the permittee shall conduct a performance test annually.*

5. PERMIT FEES

Table 5.1 lists the processing fee associated with this permitting action. The facility is subject to a processing fee of $2,500 because its permitted emissions are 7.7 tons per year, which is between one ton and ten tons per year.

Table 5.1 PROCESSING FEE TABLE

Emissions Inventory	
Pollutant	**Annual Emissions (T/yr)**
NO_X	3.7
SO_2	0.0
CO	0.5
PM_{10}	3.5
VOC	0.0
HAPS	0.0
Total:	7.7
Fee Due	**$ 2,500.00**

6. PUBLIC COMMENT

An opportunity for public comment period on the Tier II operating permit application is not required in accordance with IDAPA 58.01.01.404.04 because this is a renewal with no increase in allowable emissions.

APPENDIX A – AIRS INFORMATION

AIRS/AFS[a] FACILITY-WIDE CLASSIFICATION[b] DATA ENTRY FORM

Permittee/Facility Name: Idaho Minerals, LLC
Facility Location: 456 West, 445 North, Malad City, Idaho
AIRS Number: 071-00008

AIR PROGRAM POLLUTANT	SIP	PSD	NSPS (Part 60)	NESHAP (Part 61)	MACT (Part 63)	SM80	TITLE V	AREA CLASSIFICATION A-Attainment U-Unclassified N- Nonattainment
SO_2	B							A/U
NO_x	B							A/U
CO	B							A/U
PM_{10}	SM						SM	A/U
PT (Particulate)	SM							
VOC	B							A/U
THAP (Total HAPs)	B							
			APPLICABLE SUBPART					

[a] Aerometric Information Retrieval System (AIRS) Facility Subsystem (AFS)

[b] AIRS/AFS Classification Codes:

A = Actual or potential emissions of a pollutant are above the applicable major source threshold. For HAPs only, class "A" is applied to each pollutant which is at or above the 10 T/yr threshold, **or** each pollutant that is below the 10 T/yr threshold, but contributes to a plant total in excess of 25 T/yr of all HAPs.

SM = Potential emissions fall below applicable major source thresholds if and only if the source complies with federally enforceable regulations or limitations.

B = Actual and potential emissions below all applicable major source thresholds.

C = Class is unknown.

ND = Major source thresholds are not defined (e.g., radionuclides).