

June 4, 2000

MEMORANDUM

TO: Jim Johnston
Administrator
Idaho Falls Regional Office

FROM: Daniel Heiser, P.E. *DH*
State Technical Services

SUBJECT: **PERMIT TO CONSTRUCT TECHNICAL ANALYSIS**
P-000506, American Industrial Minerals, Inc., Pahsimeroi Valley
(Silica Mining, PTC # 037-00007)

PURPOSE

The purpose for this memorandum is to satisfy the requirements of IDAPA 16.01.01.200 (*Rules for the Control of Air Pollution in Idaho*) for issuing Permits to Construct (PTC).

PROJECT DESCRIPTION

American Industrial Minerals (AIM) is requesting to modify the existing PTC # 037-00007. AIM requests to raise the production limit to 3,000 tons/day.

The AIM mining operation is located on Bureau of Land Management (BLM) land near Arco. This mine will be in support of a milling operation which will be constructed nearly 125 miles away.

SUMMARY OF EVENTS

On March 6, 2000, the Idaho Department of Health and Welfare, Division of Environmental Quality (DEQ) received a Permit to Construct (PTC) modification request from American Industrial Minerals, Inc. (AIM) for a non-metallic mineral mining operation. On April 5, 2000, the application was declared complete.

DISCUSSION

1. **Process Description**

The mining operations will be basic, open pit processes of drilling, blasting, and loading. The ore mined will not be processed at the mine site. Transport will be via dump trucks which will be loaded by a front end loader. The product will be hauled several miles to a milling operation for further processing.

2. **Equipment Listing**

Equipment will consist of a front end loader, a ten-wheel end-dump truck, and a blast hole drill.

3. **Emission Estimates**

Emissions from this facility are all fugitive in nature. The emissions of concern are PM-10 and silica. Emissions estimates were determined by the applicant utilizing AP-42 emission factors and equations. Drills used in the operation are equipped with a wet control system. The manufacturer guarantees zero visible emissions when the controls are used. Emission estimates are shown in Appendix A for a 500 ton/day production limit, which was the limit established in originally issued PTC # 037-00007.

4. **Modeling**

A modeling analysis was conducted using the SCREEN3 modeling program. The modeling results are provided in Appendix B.

5. Facility Classification

This facility is not a major facility as defined in IDAPA 16.01.01.006.54 and IDAPA 16.01.01.008.14. The facility is not a designated facility as defined in IDAPA 16.01.01.006.25. The facility classification is B, because potential emissions are less than one hundred tons per year (100 T/yr). The SIC code for this facility is 1429.

6. Area Classification

The proposed facility will be located in Custer County which is in Air Quality Control Region (AQCR) 63 and Zone 12. This area is designated as attainment or unclassifiable for all criteria air pollutants.

7. Regulatory Review

7.1 IDAPA 16.01.01.201 Permit to Construct Required

A PTC is required for this facility, because it has the potential to emit regulated air pollutants and does not qualify for a PTC exemption in accordance with IDAPA 16.01.01.220. The primary pollutant of concern is silica.

7.2 IDAPA 16.01.01.210 Demonstration of Preconstruction Compliance with Toxic Standards

The emission factors used, as well as the modeling software, are EPA approved as required by IDAPA 16.01.01.210. The estimated emission rate is greater than the screening emissions level, but the ambient impact is below the acceptable ambient concentration. The modeling output and the ambient impact calculation is provided in Appendix A.

7.3 IDAPA 16.01.01.577 Ambient Air Quality Standards for Specific Air Pollutants

Since the silica emissions standards are so stringent, it is assumed that if the mining operations are in compliance with the silica standards, they will also be in compliance with the PM standards. The particulate emissions from the vehicle traffic will be required to be controlled and to meet opacity requirements.

7.4 Prevention of Significant Deterioration

PSD requirements do not apply. The facility is not a major source (it does not have the potential to emit at major facility thresholds).

7.5 New Source Performance Standards (NSPS) 40 CFR 60

This is not an NSPS affected facility.

7.6 National Emission Standards for Hazardous Air Pollutants (NESHAP) 40 CFR 61

This facility is not a NESHAP affected facility.

7.7 Maximum Achievable Control Technology (MACT) Standards 40 CFR 63

MACT requirements do not apply to this facility.

8. Permit Requirements

8.1 Emission Limits

Emissions from this site are all fugitive. Limits will be in effect via opacity limits and control requirements.

8.2 Operating Requirements

The amount of product extracted from the mine site will be limited to 3,000 tons per day.

The Permittee will be required to operate the drilling dust control device in accordance with the Operation & Maintenance (O&M) manual and use water injection to control emissions.

Fugitive emissions will be required to be controlled in accordance with the Fugitive Dust Control Plan.

8.3 Monitoring and Recordkeeping Requirements

The Permittee will be required to monitor and maintain records of the product extracted from the mine site to assure compliance with the ambient standard for silica.

The Permittee will be required to develop an O&M manual for the drilling dust control device.

A Fugitive Dust Control Plan to minimize fugitive emissions will be required to be developed. Loads will be required to be covered.

8.4 Reporting Requirements

The Permittee will be required to certify all documents as truthful, accurate, and complete.

9. Permit Coordination

Title V requirements do not apply to this facility.

10. AIRS Information

The AIRS database does not change as a result of this PTC modification.

FEES

The facility is not a major facility as defined in IDAPA 16.01.01.008.10. Therefore, registration fees are not applicable in accordance with IDAPA 16.01.01.527.

RECOMMENDATIONS

Based on review of application materials and all applicable state and federal rules and regulations, staff recommend that AIM be issued a modified PTC for mining operations near Arco. No public comment period is recommended, no entity has requested a comment period, and the project does not involve PSD requirements.

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cc: State Technical Services
Idaho Falls Regional Office
EPA Region X

Appendix A

Emission Estimates

P-000506, AIM, North of Arco

At a production rate of 3000 TPD:

PM10 Emissions = 0.0384 lb/day Hauling/Loading Waste
0.0288 lb/day Hauling/Loading Ore
13 lb/day from unpaved road traffic
0.0015 lb/day Blasting
OR 13.07 lb/day PM10 = 0.545 lb/hr based on 24 hrs/day

SiO2 Emissions = 0.0384 lb/day Hauling/Loading Waste (assume all PM10 is SiO2)
0.0288 lb/day Hauling/Loading Ore (assume all PM10 is SiO2)
4.3 lb/day from unpaved road traffic (assume 1 mile/trip and 0.33 miles contain SiO2)
0.0015 lb/day Blasting (assume all PM10 is SiO2)
OR 4.36 lb/day SiO2 = 0.182 lb/hr based on 24 hrs/day

Therefore, predicted impacts based on previous screen analysis = 0.047 ug SiO2/m3 and 0.14 ug PM10/m3 for a 24 hr averaging period.

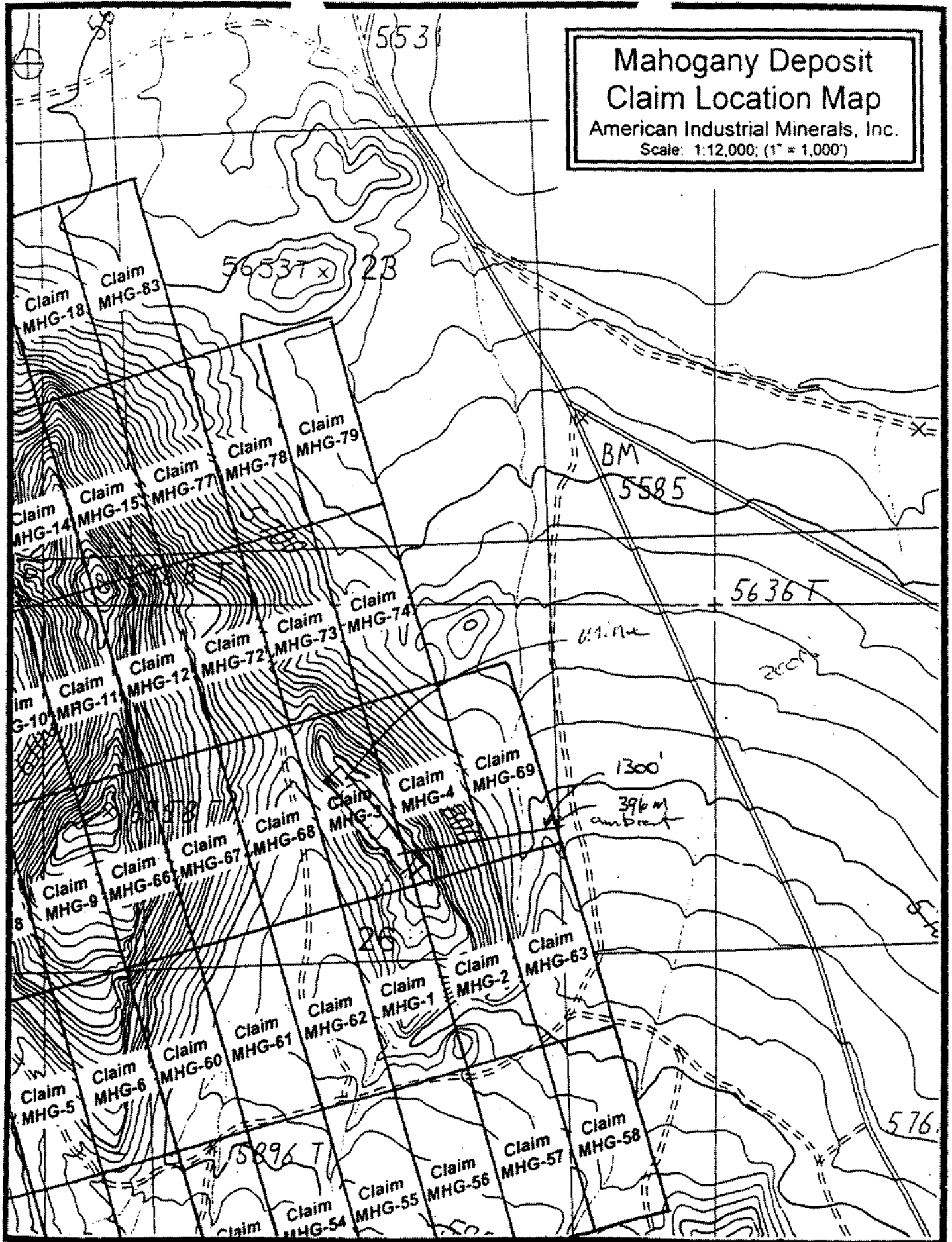


Figure 3. —Map showing the lode claim block covering the Mahogany Quartzite Deposit area.

Appendix B

Ambient Impact Analysis

P-000506, AIM, North of Arco

06/06/00
17:12:12

*** SCREEN3 MODEL RUN ***
*** VERSION DATED 96043 ***

AIM

SIMPLE TERRAIN INPUTS:

SOURCE TYPE = VOLUME
EMISSION RATE (G/S) = .220000E-01
SOURCE HEIGHT (M) = 91.4400
INIT. LATERAL DIMEN (M) = 243.8400
INIT. VERTICAL DIMEN (M) = 3.6576
RECEPTOR HEIGHT (M) = .0000
URBAN/RURAL OPTION = RURAL

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

BUOY. FLUX = .000 M**4/S**3; MOM. FLUX = .000 M**4/S**2.

*** FULL METEOROLOGY ***

*** SCREEN AUTOMATED DISTANCES ***

*** TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)	DWASH
1.	.0000	0	.0	.0	.0	.00	.00	.00	
100.	.0000	0	.0	.0	.0	.00	.00	.00	
200.	.0000	0	.0	.0	.0	.00	.00	.00	
300.	.0000	0	.0	.0	.0	.00	.00	.00	
400.	.0000	0	.0	.0	.0	.00	.00	.00	
500.	.0000	0	.0	.0	.0	.00	.00	.00	
600.	.1116	2	1.0	1.2	320.0	91.44	318.38	67.58	NO
700.	.1175	2	1.0	1.2	320.0	91.44	330.84	79.16	NO
800.	.1159	2	1.0	1.2	320.0	91.44	343.23	90.88	NO
900.	.1105	2	1.0	1.2	320.0	91.44	355.56	102.75	NO
1000.	.1035	2	1.0	1.2	320.0	91.44	367.82	114.73	NO

MAXIMUM 1-HR CONCENTRATION AT OR BEYOND 1. M:
720. .1177 2 1.0 1.2 320.0 91.44 333.45 81.61 NO

DWASH= MEANS NO CALC MADE (CONC = 0.0)
DWASH=NO MEANS NO BUILDING DOWNWASH USED
DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

*** SUMMARY OF SCREEN MODEL RESULTS ***

CALCULATION PROCEDURE	MAX CONC (UG/M**3)	DIST TO MAX (M)	TERRAIN HT (M)
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SIMPLE TERRAIN .1177 720. 0.

** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **

* $0.1177 \times 0.4 = 0.047$ ug/m3, for maximum production of 3000 tons/per day (requested PTC level).

* AAC for Silica is 0.005 mg/m3 or 5 ug/m3, so the AAC is not exceeded.

* PM-10 emissions are approximately 3 times greater than silica emissions, so the PM-10 24-hour average concentraton would be 0.141 ug/m3; no PM-10 standard is exceeded.

From: JAY WITT
To: DAN HEISER
Date: Tue, Jun 6, 2000 5:08 PM
Subject: AMI Emissions increases:

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