



Air Quality Permitting Technical Analysis

January 15, 2003

Permit to Construct No. 029-00033
Silicon International Ore LLC, Soda Springs
P-020325

Prepared by:

Steve Ogle
Permit Implementation Analyst
Air Quality Division

FINAL PERMIT

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ACRONYMS and CHEMICAL NOMENCLATURE

AFS	AIRS Facility Subsystem
AP-42	Environmental Protection Agency's <i>Compilation of Air Pollutant Emission Factors, AP-42, 5th Edition</i>
AQCR	Air Quality Control Region
CFR	Code of Federal Regulations
CO	carbon monoxide
DEQ	Idaho Department of Environmental Quality
EPA	U.S. Environmental Protection Agency
HAPs	hazardous air pollutants
IDAPA	a numbering designation for all administrative rules in Idaho promulgated in accordance with the Idaho Administrative Procedures Act
MACT	Maximum Achievable Control Technology
NAAQS	National Ambient Air Quality Standards
NESHAPS	National Emission Standards for Hazardous Air Pollutants
NO _x	nitrogen oxides
NSPS	New Source Performance Standards
O&M	operations and maintenance
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
<i>Rules</i>	<i>Rules for the Control of Air Pollution in Idaho</i>
SIO	Silicon International Ore, LLC
SIP	State Implementation Plan
SM	synthetic minor
SO ₂	sulfur dioxide
TAPs	toxic air pollutants
VOC	volatile organic compound

1. PURPOSE

The purpose for this memorandum is to satisfy the requirements of IDAPA 58.01.01.200 for issuing PTCs.

2. SUMMARY OF EVENTS

Silicon International Ore LLC (SIO) is proposing to install and operate a roll crusher at its Soda Springs facility. The existing facility was originally permitted for operation by PTC No. 029-00033, dated October 24, 2000, with Washington Group International Inc. listed as the permittee.

On December 6, 2002, SIO representatives met with DEQ personnel to discuss the proposed project and permitting requirements. SIO representatives faxed in application information to DEQ after the meeting adjourned. SIO also requested a name change for existing PTC No. 029-00033, dated October 24, 2000 (i.e., SIO will be the permittee instead of Washington Group International Inc.). On January 2, 2003, DEQ determined the application complete. A public comment period was held from December 24, 2002, through January 23, 2003. No comments were received.

3. FACILITY DESCRIPTION

The existing facility operates several processes to screen and bag quartzite silica. Currently, the stock material is washed to remove clay and other unwanted material, dried, screened, and bagged. Material that is too large to pass through the screen (approximately 40% of the washed and dried material) is returned to the stockpile.

All process emissions points, with the exception of the dryer stack, are enclosed in buildings. The emissions from the dryer and all emissions from the building vents are controlled by a single baghouse.

4. TECHNICAL ANALYSIS

Process Description

The proposed project involves installation of a roll crusher prior to screening, which will reduce or eliminate material returned to the stockpile. Emissions from the crusher will be enclosed and controlled by the existing baghouse.

Equipment Listing

The roll crusher will be sized to handle up to 30 tons of quartzite per hour, with 30-inch wide by 18-inch diameter rollers. The existing baghouse is an AAF Optiflo baghouse, Model 4RC16, equipped with a 20-horsepower fan capable of moving 8,000 cubic feet of air per minute at a pressure drop of 10 inches of water.

Emission Estimates

Original Emissions Estimates for Existing Facility Configuration

The SIO facility was initially permitted for start-up in PTC No. 029-00033, dated October 24, 2000. The controlled, potential emissions estimates for the dryer, screening processes, and bagging processes was calculated to be 0.222 pounds of PM per hour. The original analysis assumed a generic control efficiency of 99.9% for the baghouse (SIO had not actually ordered the baghouse and no manufacturer specifications were available at the time). The PTC required that the baghouse be in operation whenever the dryer or screening/bagging processes were in operation; therefore, the emissions reduction associated with the baghouse were federally-enforceable

and could be considered in calculating the potential to emit. After issuance of the PTC, SIO installed a baghouse with a removal efficiency much greater than 99.9% (refer to discussion below); therefore, the true potential emissions rate of the facility is much less than calculated in the original PTC analysis (contained as the appendix to this memorandum).

Emissions Estimates for Proposed Project

All emissions from the roll crusher will be controlled by the existing baghouse. The PTC will require that SIO operate the baghouse whenever the crusher is in operation. Therefore, the emissions reduction associated with the baghouse is federally-enforceable and can be considered in calculating the potential to emit from the crusher (refer to IDAPA 58.01.01.006.74). SIO submitted manufacturer's specifications stating that the baghouse has a removal efficiency of 99.9999%; however, the manufacturer's website states that the baghouse is 99.999% efficient for 0.8-micron particulate (refer to http://www.aafintl.com/ep_prods/optibreak.htm). In order to assure protection of public health and the environment, the removal efficiency was assumed to be 99.999% for this project.

Chapter 11 of AP-42 gives an uncontrolled PM₁₀ emissions factor of 0.0024 pounds per ton of stone crushed for tertiary crushing activities. Based on feed material size (1/4-inch to 10 mesh), the roll crusher is best represented as tertiary crushing. The crusher has a potential throughput capacity of 30 tons per hour; therefore, the potential uncontrolled emissions rate is 0.072 pounds of PM₁₀ per hour. The baghouse reduces this potential rate to 0.000001 pounds per hour, and assuming 8760 hours of operation per year yields an annual emissions rate of 0.000003 tons of PM₁₀ per year.

In accordance with IDAPA 58.01.01.585, quartzite silica is a TAP with a screening level of 0.0067 pounds per hour. AP-42 states that total suspended particulate emissions can be estimated by multiplying the PM₁₀ emissions rate (discussed in the preceding paragraph) by a factor of 2.1. This yields an uncontrolled potential emissions rate of 0.1512 pounds of PM per hour, which is assumed to be the uncontrolled potential silica emissions rate.

Revised Facility-Wide Emissions Estimates after Proposed Project

The original emissions estimate for the facility was 0.222 pounds of PM per hour, assuming a baghouse control efficiency of 99.9%. As discussed above, the actual control efficiency of the baghouse is at least 99.999%. This yields a potential emissions rate of 0.00222 pounds of PM per hour. Accounting for the increased emissions from the roll crusher, the potential facility-wide emissions are 0.002222 pounds of PM per hour.

Modeling

Particulate Matter Emissions

The original analysis conducted for the facility used SCREEN3 to determine the ambient impact of potential PM₁₀ emissions from the baghouse (refer to the appendix for the original analysis). The analysis indicated that the ambient impact was well below applicable standards (9.4 micrograms per cubic meter on a 24-hour basis) based upon a potential emissions rate of 0.222 pounds of PM₁₀ per hour. All PM was assumed to be PM₁₀.

Based on the SCREEN3 analysis conducted for the original PTC, an emissions rate of 0.222 pounds per hour results in a 24-hour impact of 9.4 micrograms per cubic meter. This relationship yields a correlation factor of 42.34, which can be used to determine the ambient impact resulting from the potential PM₁₀ emissions increase associated with the proposed project. Multiplying the increased PM₁₀ emissions rate associated with the proposed project (0.000001 pounds per hour) by the correlation factor yields an ambient impact of 0.00004 micrograms per cubic meter, which easily demonstrates that the proposed project will not cause or significantly contribute to any violation of ambient air quality standards.

Silica Emissions

For purposes of the modeling analysis, it is assumed that all PM emissions are silica. Therefore, the uncontrolled silica emissions rate increase associated with this project is 0.1512 pounds per hour, and 0.000002 pounds per hour with control equipment. In accordance with IDAPA 58.01.01.210.04 and .08, preconstruction compliance for TAP emissions can be demonstrated if the controlled ambient impact is less than the applicable AAC.

Based on the SCREEN3 analysis conducted for the original PTC, an emissions rate of 0.222 pounds of PM per hour results in a 24-hour impact of 9.4 micrograms per cubic meter. This relationship yields a correlation factor of 42.34, which can be used to determine the ambient impact resulting from potential controlled emissions of silica. Multiplying the increased silica emission rate associated with the proposed project (0.000002 pounds per hour) by the correlation factor yields an ambient impact of 0.0001 micrograms per cubic meter, which is less than the AAC for silica (0.005 milligrams per cubic meter).

Although TAP emissions do not appear to have been evaluated in the original PTC analysis, the controlled facility-wide emission rate of silica (0.002222 pounds-per-hour (lbs/hr)) can be multiplied by the correlation factor to yield an impact of 0.094 micrograms per cubic meter, or 0.0001 milligrams per cubic meter. Therefore, as long as the baghouse is operated, preconstruction compliance for silica emissions is demonstrated.

Facility Classification

The facility is classified as a synthetic minor (SM) source. Uncontrolled emissions from the facility would exceed 100 tons of PM and PM₁₀ per year and 25 tons of silica per year. However, the facility is required to operate the baghouse when associated processes are in operation, so potential emissions rates for PM and PM₁₀ are below 100 tons per year and potential emissions rates for silica are below 25 tons per year.

Area Classification

The facility is located in Soda Springs, which is in Caribou County AQCR 61, and Zone 12. This area is unclassifiable for all criteria pollutants.

5. PERMIT REQUIREMENTS

Regulatory Review

The following permitting requirements were reviewed as part of this permitting analysis:

IDAPA 58.01.01.201 Permit to Construct Required

Installation of the roll crusher constitutes a modification to an existing facility, in accordance with IDAPA 58.01.01.006.58. IDAPA 58.01.01.201 requires that the proposed project obtain a PTC prior to commencement of the modification. Modified stationary sources are subject to the provisions of IDAPA 58.01.01.203.

IDAPA 58.01.01.210 Demonstration of Preconstruction Compliance with Toxic Standards

The proposed project results in increased emissions of quartzite silica, which is regulated as a TAP in Idaho. The controlled ambient impact of silica emissions is below the applicable AAC; therefore, the preconstruction compliance demonstration required by IDAPA 58.01.01.203.03 and 210.04-08 is satisfied.

IDAPA 58.01.01.577 Ambient Air Quality Standards for Specific Air Pollutants

The proposed project results in a slight increase of PM₁₀ emissions (i.e., less than significant). This increase does not cause or significantly contribute to a NAAQS violation; therefore, the requirements of IDAPA 58.01.01.203.02 and .577 are satisfied.

IDAPA 58.01.01.625 Visible Emissions Limitations

Emissions from the facility are subject to the requirements of IDAPA 58.01.01.625.

IDAPA 58.01.01.650 Control of Fugitive Dust

Fugitive emissions from the facility are subject to the requirements of IDAPA 58.01.01.651.

IDAPA 58.01.01.700 Process Weight Limitations

The emissions units in Emissions Unit No. 1 constitute process equipment with PM emissions and are subject to the requirements of IDAPA 58.01.01.701.

40 CFR 52 Prevention of Significant Deterioration

This is not a major facility and does not trigger prevention of significant deterioration requirements.

40 CFR 60 NSPS

The roll crusher will be a stationary source with a potential throughput of 30 tons per hour and will be used to process a nonmetallic mineral. Since this is a modification occurring after 1983, the facility becomes subject to 40 CFR 60.670, Subpart OOO. Prior to installation of the crusher, the facility was exempt from the requirements of Subpart OOO, in accordance with 40 CFR 60.670(a)(2).

40 CFR 61 and 63 National Emission Standards for Hazardous Air Pollutants (NESHAP) and Maximum Achievable Control Technology (MACT)

This source is not affected by any National Emission Standards for Hazardous Air Pollutants or Maximum Achievable Control Technology standards.

Facility-Wide Requirements

5.1 Opacity Limits – Permit Condition 2.2

IDAPA 58.01.01.625 requires that all visible emissions from any point of emission shall not exceed 20% opacity for a period or periods aggregating more than three minutes in any 60-minute period. This provision affects all point sources at the facility and is taken directly from PTC No. 029-00033, dated October 24, 2000.

In order to demonstrate compliance with this provision, Permit Condition 2.7 requires the permittee to conduct weekly visible emissions inspections of all potential point sources. If visible emissions are noted, the permittee is required to take corrective action or perform a Method 9 opacity observation to evaluate the opacity of the visible emissions. If the opacity exceeds the limit in Permit Condition 2.2, the permittee must take immediate corrective action and submit an excess emissions report to DEQ. The permittee is also required to maintain records of each inspection. This permit condition assures sufficient monitoring and recordkeeping to demonstrate compliance with Permit Condition 2.2.

5.2 Fugitive Emissions – Permit Condition 2.3

IDAPA 58.01.01.650 requires reasonable control of fugitive emissions. This provision is taken directly from PTC No. 029-00033, dated October 24, 2000.

In order to demonstrate compliance with this provision, Permit Condition 2.8 requires the permittee to record all fugitive dust complaints received and to take expeditious corrective action in response to receipt of any valid complaint. This permit condition is taken directly from the existing PTC and assures sufficient monitoring and recordkeeping to demonstrate compliance with Permit Condition 2.3.

The existing PTC, dated October 24, 2002, also contained a provision (Permit Condition A3) requiring that fugitive emissions were not to be observed leaving the property boundary; however, this condition has been determined to be extraneous and has been removed from the PTC. DEQ has determined that Permit Conditions 2.3 and 2.8 and the opacity standards of the NSPS provisions (refer to Section 5.8 of this memorandum) are sufficient to assure reasonable control of fugitive emissions.

5.3 Open Burning – Permit Condition 2.4

Permit Condition 2.4 requires the permittee to comply with the open burning provisions of IDAPA 58.01.01.600-616. This provision is taken directly from PTC No. 029-00033, dated October 24, 2000. This is a self-regulated provision of the *Rules*, and requires no monitoring or recordkeeping.

5.4 Air Pollution Emergency – Permit Condition 2.5

Permit Condition 2.5 requires the permittee to comply with the Air Pollution Emergency provisions of IDAPA 58.01.01.550-562. This is a self-regulated provision of the *Rules*, and requires no monitoring or recordkeeping.

5.5 Excess Emissions – Permit Condition 2.6

Permit Condition 2.6 requires the permittee to comply with the excess emissions provisions of IDAPA 58.01.01.130-136. This provision is taken directly from PTC No. 029-00033, dated October 24, 2000. This is a self-regulated provision of the *Rules*, and requires no monitoring or recordkeeping; however, Permit Condition 2.9 does specify the address to which excess emissions reports should be submitted.

Emissions Unit No. 1 Requirements

5.6 PM₁₀ Emissions Limits – Permit Condition 3.3

Potential PM₁₀ emissions from the baghouse (i.e., control equipment and emissions point for Emissions Unit No. 1) are 0.002 pounds per hour and 0.01 tons per year. In order to maintain the integrity of the PTC, these emissions rates have been included in the permit as emissions limits for Emissions Unit No. 1. So long as the baghouse is operated in accordance with manufacturer specifications (required by Permit Conditions 3.6 and 3.7), these emissions rates will not be exceeded and no further monitoring or recordkeeping is required.

5.7 Process Weight Rate – Permit Condition 3.4

The emissions units in Emissions Unit No. 1 constitute process equipment and are subject to the requirements of IDAPA 58.01.01.701. The existing PTC, dated October 24, 2000, applied IDAPA 58.01.01.710 to these units (Permit Conditions B1.1.1 and C1.1.1); however, the EPA has not approved Section 710 for inclusion in the *Rules*. Consequently, this provision cannot be applied to the facility. Therefore, Permit Conditions B1.1.1 and C1.1.1 have been removed from the PTC and replaced with Permit Condition 3.4.

The maximum throughput of Emissions Unit No. 1 is 30 tons of quartzite per hour. The equations in Permit Condition 3.4 yield a PM emissions rate limit of 17.22 pounds per hour. As long as the baghouse is operated in accordance with manufacturer specifications (required by Permit Conditions 3.6 and 3.7), the maximum potential emissions rate of Emissions Unit No 1 is 0.000002 pounds of PM per hour. Since Permit Conditions 3.6 and 3.7 assure that the PM emissions rate will be well below the process weight rate limit, no further monitoring or recordkeeping is required.

5.8 New Source Performance Standards – Permit Condition 3.5

In accordance with 40 CFR 60.670, installation of the roll crusher triggers the NSPS of 40 CFR 60.672. This provision establishes PM emissions standards and opacity standards for the facility. Since the affected facilities, as defined by 40 CFR 60.671, at this facility are enclosed, the permittee may choose to comply with the emission limits of 40 CFR 60.672(a), (b), and (c) (i.e., Permit Conditions 3.5.1, 3.5.2, 3.5.3 in the PTC), or the emission limits of 40 CFR 60.672(e) (i.e., Permit Condition 3.5.5). In order to maintain the integrity of the PTC, 40 CFR 60.672 is contained in the PTC, in its entirety, as Permit Condition 3.5.

Regardless of the set of emission limits with which the facility chooses to comply, 40 CFR 60.675 requires a one-time performance test to demonstrate compliance with the PM emissions standard of 40 CFR 60.672(a) (i.e., Permit Condition 3.5.1). The performance test methodology involves tests for PM emissions and opacity, as specified in 40 CFR 60.675, and has been incorporated by reference in the PTC as Permit Condition 3.10. Depending upon the set of emission limits with which the facility chooses to comply, additional opacity testing may be required, as specified in 40 CFR 60.675. Permit Condition 3.13 requires the permittee to submit a written report for the results of the performance test to the EPA and DEQ.

It should be noted that the performance test is a one-time test requirement of the NSPS. Should the facility successfully demonstrate compliance with applicable emissions standard(s) during the performance test, it will also demonstrate that the control equipment is sufficient to attain and maintain compliance with the applicable emissions standard(s). Permit Conditions 3.6 and 3.7 require the permittee to operate and maintain the control equipment within manufacturer specifications, which assures upkeep of the control equipment. Therefore, no additional monitoring or recordkeeping is required to demonstrate continual compliance with Permit Condition 3.5.

The NSPS provisions also require the permittee to notify EPA if the replacement equipment, subject to 40 CFR 60.670(d), is installed. This requirement appears as Permit Condition 3.14. This condition also requires the permittee to submit such notification to DEQ.

Finally, the NSPS provisions require the permittee to notify EPA of the actual start-up date of the roll crusher. The PTC contains this provision in Permit Condition 3.15. Permit Condition 3.15 also contains the requirement to notify DEQ of the start-up date, as required by IDAPA 58.01.01.211.03.

5.9 Baghouse Operation – Permit Conditions 3.6, 3.7, 3.8

Proper operation of the baghouse is required to demonstrate compliance with Permit Conditions 3.3, 3.4, and 3.5 (refer to Sections 5.6, 5.7, and 5.8 of this memorandum). Permit Conditions 3.6 through 3.8 regulate baghouse operation. These provisions are taken directly from PTC No. 029-00033, dated October 24, 2000.

Permit Condition 3.6 requires that the baghouse be in operation during the operation of any activity associated with quartzite silica production. Permit Condition 3.7 requires that the pressure drop across the baghouse be maintained within manufacturer or O&M manual specifications. Permit Condition 3.8 requires that the permittee install and continuously operate a device to measure the pressure drop across the baghouse.

Permit Condition 3.11 requires the permittee to record the pressure drop across the baghouse once per day whenever quartzite production is in operation. The provision will be used to demonstrate compliance with Permit Conditions 3.6 through 3.8. To further assure that the baghouse is operated properly, Permit Condition 3.12 requires the permittee to develop an O&M manual in accordance with manufacturer specifications. These permit conditions can be used to document that the baghouse will be in operation and that the baghouse is operated properly.

5.10 Fuel Restriction – Permit Condition 3.9

Permit Condition 3.9 limits the type of fuel combusted in the rotary dryer to propane. This provision is taken directly from PTC No. 029-00033, dated October 24, 2000. This condition is required in the PTC because the original analysis was based upon propane combustion, and the use of any other fuel has not been analyzed or approved for use by DEQ. This is a self-regulated provision and requires no monitoring or recordkeeping.

6. AIRS INFORMATION

Table 6.1 AIRS/AFS^a FACILITY-WIDE CLASSIFICATION^b DATA ENTRY FORM

AIR PROGRAM	SIP	PSD	NSPS (Part 60)	NESHAP (Part 61)	MACT (Part 63)	TITLE V	AREA CLASSIFICATION
POLLUTANT							A – Attainment U – Unclassifiable N – Nonattainment
SO ₂							U
NO _x							U
CO							U
PM ₁₀	SM		SM			SM	U
PT (Particulate)	SM		SM			SM	U
VOC							U
THAP (Total HAPs)							U
			APPLICABLE SUBPART				
			OOO				

^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 NESHAP only, class "A" is applied to each pollutant which is below the 10 T/yr threshold, but which contributes to a plant total in excess of 25 T/yr of all NESHAP pollutants.
- 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).

7. PERMIT COORDINATION

The original PTC for this facility, dated October 24, 2000, listed Washington Group International Inc. as the permittee. Upon submission of the PTC application, SIO requested that the permittee be changed to SIO, as Washington Group International Inc. is a subcontractor for SIO (i.e., SIO is the owner and operator of the facility). Accordingly, DEQ has changed the permittee to SIO.

The facility will become subject to NSPS provisions upon installation of the roll crusher; therefore, in accordance with IDAPA 58.01.01.006.104.b, the facility will be defined as a Tier I source. In accordance with IDAPA 58.01.01.301.01, all Tier I sources are required to obtain a Tier I permit. IDAPA 58.01.01.313.01.b requires new Tier I sources to submit a complete Tier I permit application within 12 months after becoming a Tier I source. However, IDAPA 58.01.01.301.02.b.iv allows this facility to defer the requirements of Section 301.01 until June 1, 2006, provided the facility submits registration, as required by IDAPA 58.01.01.313.01.e.ii.(2), within 12 months of becoming a Tier I source.

Preliminary discussions with SIO representatives indicates that the facility intends to register in accordance with Section 313.01.e.ii.(2). So long as the facility submits such registration within 12 months of installation of the roll crusher, a Tier I permit application is not required until June 1, 2005, unless DEQ provides written notification of an earlier date.

8. FEES

SIO paid the \$1,000 application fee required by IDAPA 58.01.01.224 on December 20, 2002. A PTC processing fee of \$250 was required in accordance with IDAPA 58.01.01.225 because no engineering analysis was required for the PTC. The processing fee was received December 20, 2002.

9. RECOMMENDATION

Based on review of application materials and all applicable state and federal rules and regulations, staff recommends that SIO be issued PTC No. 029-00033 for the installation and operation of the roll crusher. A public comment period was held. No entity submitted comments, and the project does not involve prevention of significant deterioration requirements.

SO/sd P-020325 G:\AIR QUALITY\STATIONARY SOURCE\SS LTD\PTC\SILICON INTERNATIONAL ORE\PTC P-020325 TECH MEMO.DOC

APPENDIX

Silicon International Ore LLC / P-020325

Original PTC No. 029-00033, dated October 24, 2000, and Technical Memorandum



STATE OF IDAHO
DEPARTMENT OF
ENVIRONMENTAL QUALITY

224 South Arthur • Pocatello, Idaho 83204-3202 • (208) 236-6160

Dirk Kempthorne, Governor
C. Stephen Allred, Director

October 24, 2000

CERTIFIED MAIL # Z 271 710 130

Mr. John Rosenbaum, Operations Manager
Washington Group International, Inc.
P.O. Box 755
Soda Springs, Idaho 83276

RE: P-000321, Washington Group International, Inc., Soda Springs
(Mining/Quarry - Crushed/Screening Quartzite Project, PTC No. 029-00033)

Dear Mr. Rosenbaum:

On July 31, 2000, the Idaho Department of Environmental Quality (DEQ) received a Permit to Construct (PTC) application from Washington Group International, Inc. for mining/quarry - crushed/screening quartzite project. On August 23, 2000, additional information was received concerning the material dryer. On September 19, 2000, the application was determined complete. Based on review of the application and all applicable state and federal rules and regulations, DEQ finds that this project meets the provisions of IDAPA 58.01.01.200 (*Rules for the Control of Air Pollution in Idaho*). Enclosed is PTC No. 029-00033.

This permit does not release the permittee from compliance with all other applicable federal, state, local, or tribal laws, regulations, or ordinances.

Please pay particular attention to the reporting requirements contained in Paragraph E of the General Provisions section of the permit. This information is needed to properly track the progress of the permit. Please refer to the appropriate permit number when submitting reports required in the Reporting Requirements section of the permit.

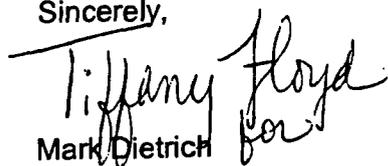
You are strongly encouraged to request a meeting with DEQ to discuss the permit terms and requirements with which your facility must comply. Mr. Rick Elkins of the Pocatello Regional Office will contact you regarding this meeting. DEQ strongly recommends that in addition to your facility's plant manager, your responsible official, environmental contact, and any operations staff responsible for day-to-day compliance with permit conditions also attend the meeting.

You, as well as any other entity, may have the right to appeal this final agency action pursuant to the Idaho Department of Health and Welfare Rules, Title 5, Chapter 3, "Rules Governing Contested Case Proceedings and Declaratory Rulings," by filing a petition with the Hearings Coordinator, Department of Environmental Quality, 1410 N. Hilton, Boise, ID 38706-1255, within thirty-five (35) days of the date of this decision. However, DEQ encourages you to contact the Air Quality Permit Program to address any concerns you may have with the enclosed permit prior to filing a petition for a contested case.

Washington Group International, Inc.
October 24, 2000
Page 2

If you have any questions regarding the terms or conditions of the enclosed permit, please contact Mr. Rick Elkins, at (208) 236-6160.

Sincerely,

Handwritten signature of Tiffany Floyd in cursive script.

Mark Dietrich
Regional Administrator
Pocatello Regional Office

RA/REB/bm J:\XFERVAIR_PERM\PRO\PTC\WASHGR-11P000321.PL

Enclosures

cc: DEQ State Office
Pocatello Regional Office
L. Kral, EPA - Region 10

State of Idaho
Department of Environmental Quality

**PERMIT TO CONSTRUCT
AN AIR POLLUTION
EMITTING SOURCE**

PERMIT NUMBER

0 2 9 - 0 0 0 3 3

AQCR

0 6 1

CLASS

S M

SIC

1 4 4 6

ZONE

1 2

UTM COORDINATE (km)

4 4 9 . 3 , 4 7 2 7 . 9

1. PERMITTEE

Washington Group International, Inc.

2. PROJECT

Mining/Quarry Crushed/Screened Quartzite

3. MAILING ADDRESS

P.O. Box 755

CITY

Soda Springs

STATE

Idaho

ZIP CODE

83276

4. SITE LOCATION COUNTY

Caribou

NO. OF FULL-TIME EMPLOYEES

6

PROPERTY AREA AT SITE (Acreage)

5. PERSON TO CONTACT

John Rosenbaum

TITLE

Operations Manager

TELEPHONE

(208) 547-3322

6. EXACT PLANT LOCATION

Legal T8S R41E Section 25 Approx. 3 miles North of Soda Springs on Government Dam Road

7. GENERAL NATURE OF BUSINESS & KINDS OF PRODUCTS

Cleaning, Drying, Screening, and Bagging of Quartzite

8. GENERAL CONDITIONS

This permit is issued according to the *Rules for the Control of Air Pollution in Idaho*, Section 58.01.01.200, and pertains only to emissions of air contaminants that are regulated by the state of Idaho and to the sources specifically allowed to be constructed by this permit.

This permit (a) does not affect the title of the premises upon which the equipment is to be located, (b) does not release the Permittee from any liability for any loss due to damage to person or property caused by, resulting from, or arising out of the design, installation, maintenance, or operation of the proposed equipment, (c) does not release the Permittee from compliance with other applicable federal, state, tribal, or local laws, regulations, or ordinances, (d) in no manner implies or suggests that the Idaho Department of Environmental Quality (DEQ) or its officers, agents, or employees, assumes any liability, directly or indirectly, for any loss due to damage to person or property caused by, resulting from, or arising out of design, installation, maintenance, or operation of the proposed equipment.

This permit is not transferable to another person, place, piece or set of equipment. This permit will expire if construction has not begun within two years of its issue date or if construction is suspended for one year.

This permit has been granted on the basis of design information presented with its application. Changes of design or equipment may require Department approval pursuant to the *Rules for the Control of Air Pollution in Idaho*, IDAPA 58.01.01.200, et.seq.

DISCLAIMER: This document may serve as a Preliminary Inspection Finding Form for use by Department personnel in communicating your compliance status upon inspection. It does not constitute a final determination of compliance status with the Idaho Code or any rules promulgated, permits issued, or consent or judicial orders entered into pursuant to the law. The Idaho Department of Environmental Quality reserves the right to supplement this document with additional compliance determinations, and amend, change, or otherwise modify any compliance determination stated in this document. This document in no way restricts the state of Idaho, Department of Environmental Quality from taking any action available under law to address past, present, or future violations of the laws administered by the agency.

Tiffany Floyd for MARK DIETRICH
ADMINISTRATOR, POCATELLO REGIONAL OFFICE
DEPARTMENT OF ENVIRONMENTAL QUALITY

DATE: October 24, 2000

Permittee: Washington Group International, Inc.
Project: Washing, Screening and Bagging of Quartzite
Location: Soda Springs, Idaho
Source: Facilitywide

PERMIT NUMBER

0 2 9 - 0 0 0 3 3

FOR DEQ USE ONLY

IN	OUT	PEND	UNK

A. FACILITYWIDE

A1. REASONABLE CONTROL OF FUGITIVE EMISSIONS

1.1 All reasonable precautions shall be taken to prevent particulate matter from becoming airborne in accordance with IDAPA 58.01.01.651 (*Rules for the Control of Air Pollution in Idaho*). In determining what is reasonable, considerations will be given to factors such as the proximity of dust emitting operations to human habitations, and/or activities and atmospheric conditions which might affect the movement of particulate matter. Some of the reasonable precautions include, but are not limited to, the following:

1.1.1 Use, where practical, of water or chemicals for control of dust in the demolition of existing buildings or structures, construction operations, the grading of roads, or the clearing of lands;

1.1.2 Application, where practical, of asphalt, water or suitable chemicals to, or covering of, dirt roads, material stockpiles, and other surfaces which can create dust;

1.1.3 Installation and use, where practical, of hoods, fans and fabric filters or equivalent systems to enclose and vent the handling of dusty materials. Adequate containment methods should be employed during sandblasting or other operations;

1.1.4 Covering, where practical, of open bodied trucks transporting materials likely to give rise to airborne dusts;

1.1.5 Paving of roadways and their maintenance in a clean condition, where practical; or

1.1.6 Prompt removal of earth or other stored material from streets, where practical.

1.2 The Permittee shall maintain a record of all fugitive dust complaints received. These records shall, at a minimum, include the date that each complaint was received and a description of the following: the complaint, the Permittee's assessment of the validity of the complaint, and any corrective action taken. If the complaint has merit, the Permittee shall take corrective action. The most recent two (2) years' compilation of data shall be on site and shall be made available to DEQ representatives upon request.

A2. OPACITY LIMIT

2.1 Visible emissions from any point of emission shall not exceed twenty percent (20%) opacity for a period or periods aggregating more than three (3) minutes in any sixty (60) minute period as required in IDAPA 58.01.01.625. Opacity shall be determined using IDAPA 58.01.01.625.

2.2 The Permittee shall conduct a weekly facility wide visible emission inspection of potential sources of visible emissions, during daylight hours and under normal operating conditions. If any visible emissions are present from any point of emission the Permittee shall take appropriate corrective action to remedy the cause of the visible emissions. If opacity is greater

Inspection Comments:

DATE: October 24, 2000

Permittee: Washington Group International, Inc.
 Project: Washing, Screening and Bagging of Quartzite
 Location: Soda Springs, Idaho
 Source: Rotary Dryer

PERMIT NUMBER

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B1. EMISSION LIMITS

1.1 Particulate Matter Limits

No person shall emit to the atmosphere from any point of emission particulate matter in excess of one-tenth (0.1) grains per dry standard cubic foot for process equipment from which construction or modification has commenced on or after July 1, 2000. [IDAPA 58.01.01.710]

1.2 Opacity Limit

Visible emissions from the rotary dryer baghouse stack shall not exceed twenty percent (20%) opacity for a period or periods aggregating more than three (3) minutes in any sixty (60) minute period as required by IDAPA 58.01.01.625 (Rules for the Control of Air Pollution in Idaho). Opacity shall be determined using procedures contained in IDAPA 58.01.01.625.

B2. OPERATING REQUIREMENTS

2.1 Control Equipment

The Permittee shall install, operate, and maintain a baghouse (within the manufacturer's operation and maintenance parameters or within the parameters of the Operation and Maintenance (O&M) Manual to be developed by the permittee within 60 days of operation and reviewed by DEQ) to control particulate matter emissions from the rotary dryer.

2.2 Type of Fuel

The Permittee shall only combust propane in the rotary dryer.

2.3 Baghouse Pressure Drop

The Permittee shall operate the dryer baghouse within the pressure drop limit as established by either the manufacturer's operation and maintenance parameters or the O&M Manual to be developed by the permittee within 60 days of operation and reviewed by DEQ.

2.4 Baghouse Operation

The Permittee shall always be operating the baghouse while the rotary dryer is in operation.

2.5 Pressure Drop

The Permittee shall install, operate, and maintain a continuous monitoring device to monitor continuously the pressure drop of the dryer baghouse.

Inspection Comments:

DATE: October 24, 2000

Permittee: Washington Group International, Inc.
Project: Washing, Screening and Bagging of Quartzite
Location: Soda Springs, Idaho
Source: Screening and Bagging Process

PERMIT NUMBER

0 2 9 - 0 0 0 3 3

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C1. EMISSION LIMITS

1.1 Particulate Matter Limits

✓ No person shall emit to the atmosphere from any point of emission particulate matter in excess of one-tenth (0.1) grains per dry standard cubic foot for process equipment from which construction or modification on or after July 1, 2000. [IDAPA 58.01.01.710]

1.2 Opacity Limit

✓ Visible emissions from the screening and bagging process baghouse stack shall not exceed twenty percent (20%) opacity for a period or periods aggregating more than three (3) minutes in any sixty (60) minute period as required by IDAPA 58.01.01.625 (Rules for the Control of Air Pollution in Idaho). Opacity shall be determined using procedures contained in IDAPA 58.01.01.625.

C2. OPERATING REQUIREMENTS

2.1 Baghouse Pressure Drop

✓ The Permittee shall operate the baghouse within the pressure drop limit as established by either the manufacturer's operation and maintenance parameters or established by the O&M Manual to be developed by the permittee within 60 days of operation and reviewed by DEQ.

2.2 Baghouse Operation

✓ The Permittee shall always be operating the baghouse while either the screening or bagging process is operating or while both screening and bagging processes are in operation.

2.3 Control Equipment

✓ The Permittee shall install, operate, and maintain the baghouse (within the manufacturer's operation and maintenance parameters or within the parameters of the Operation and Maintenance (O&M) Manual developed by the permittee within 60 days of operation and reviewed by DEQ) to control particulate matter emissions from the screening, or bagging process or both screening and bagging processes.

2.4 Pressure Drop

✓ The Permittee shall install, operate, and maintain a continuous monitoring device to monitor continuously the pressure drop of the screening and bagging process baghouse.

Inspection Comments:

DATE: October 24, 2000

PERMIT TO CONSTRUCT GENERAL PROVISIONS

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- A. All emissions authorized herein shall be consistent with the terms and conditions of this permit and the *Rules for the Control of Air Pollution in Idaho*. The emission of any pollutant in excess of the limitations specified herein, or noncompliance with any other condition or limitation contained in this permit, shall constitute a violation of this permit and the *Rules for the Control of Air Pollution in Idaho*, and the Environmental Protection and Health Act, Idaho Code 39-101, et.seq.

- B. The Permittee shall at all times (except as provided in the *Rules for the Control of Air Pollution in Idaho*) maintain in good working order and operate as efficiently as practicable, all treatment or control facilities or systems installed or used to achieve compliance with the terms and conditions of this permit and other applicable Idaho laws for the control of air pollution.

- C. The Permittee shall allow the Director, and/or the authorized representative(s), upon the presentation of credentials:
 - 1. To enter at reasonable times upon the premises where an emission source is located, or in which any records are required to be kept under the terms and conditions of this permit; and
 - 2. At reasonable times to have access to and copy any records required to be kept under the terms and conditions of this permit, to inspect any monitoring methods required in this permit, and require stack emission testing in conformance with IDAPA 58.01.01.157 when deemed appropriate by the Director.

- D. Nothing in this permit is intended to relieve or exempt the Permittee from compliance with any applicable federal, state, or local law or regulation, except as specifically provided herein.

- E. The Permittee shall notify DEQ, in writing, of the required information for the following events within five (5) working days after occurrence:
 - 1. Initiation of Construction - Date
 - 2. Completion/Cessation of Construction - Date
 - 3. Actual Production Startup - Date
 - 4. Initial Date of Achieving Maximum Production Rate - Production Rate and Date

- F. If emission testing is specified, the Permittee must schedule such testing within sixty (60) days after achieving the maximum production rate, but not later than one hundred and eighty (180) days after initial startup. Such testing must **strictly** adhere to the procedures outlined in IDAPA 58.01.01.157 and shall not be conducted on weekends or state holidays without prior written DEQ approval. Testing procedures and specific time limitations may be modified by DEQ by prior negotiation if conditions warrant adjustment. DEQ shall be notified at least fifteen (15) days prior to the scheduled compliance test. Any records or data generated as a result of such compliance test shall be made available to DEQ upon request.

Inspection Comments:

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- G. The maximum allowable operating rate shall be limited to 120% of the average operating rate attained during any performance test period, for which a test protocol has been granted prior approval by DEQ, unless (1) the test demonstrates noncompliance, (2) a more restrictive operating limit is specified elsewhere in this permit, or (3) at such an operating rate, emissions would exceed any emission limit(s) set forth in this permit.

- H. The provisions of this permit are severable, and if any provision of this permit to any circumstance is held invalid, the application of such provision to other circumstances, and the remainder of this permit shall not be affected thereby.

Inspection Comments:

DATE: October 24, 2000

October 23, 2000

MEMORANDUM

TO: Mark Dietrich, Regional Administrator
Pocatello Regional Office

FROM: Robert Baldwin *[Signature]*
Air Quality Engineer
State Technical Services Office

THROUGH: Daniel Salgado, Discipline Lead
Process Engineering Group
State Technical Services Office

SUBJECT: **PERMIT TO CONSTRUCT TECHNICAL ANALYSIS**
P-000321, Washington Group International, Incorporated, Soda Springs
Technical Analysis for a Permit to Construct (PTC) Permit No.#029-00033

PURPOSE

The purpose for this memorandum is to satisfy the requirements of IDAPA 58.01.01.200 (*Rules for the Control of Air Pollution in Idaho*) for issuing Permits to Construct (PTC).

PROJECT DESCRIPTION

Washington Group International, Inc. (WGI) is requesting the ability to build and operate a quartzite screening and bagging facility. The emission sources from the facility are two baghouse stacks. The purpose of issuing this PTC is to conduct the technical analysis to address the construction of the facility and the facility's operational flexibility.

SUMMARY OF EVENTS

On July 7, 2000, Staff for the State Technical Services Office met with Staff of the Pocatello Regional Office and members of the WGI for a preliminary discussion of the permitting process. On July 31, 2000 the State Technical Services Office received the application for the permit to construct. On August 23, 2000 additional information was received concerning the material dryer. The application was declared complete on September 19, 2000.

DISCUSSION

1. **Process Description**

The process involves bringing material to the facility to be washed to remove clay and other unwanted material. The retained material is dried and stored in large super sacks. These super sacks will be stockpiled until needed for the final phases. The material from the super sacks are sized through a separation process and the marketable quartzite is bagged and stacked on pallets for shipment. The unmarketable material is wetted and returned to the original off site stockpile. All emissions from the dryer, bagging operations and building fugitives are controlled by baghouses.

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2. Equipment Listing

Cedar Rapids, Rotary Dryer fired on propane

AAF 4RC16 Baghouse

Two Sweco Screen Separators, Model XS60L888

Two Chantland bagging machines, Model 4199

AAF Optiflo Baghouse, Model 4RC16

3. Emission Estimates

The two emission points for the facility are the two baghouse stacks. The initial washing of the material is a wet process with negligible emissions.

The emissions for the dryer baghouse were determined from the mesh analysis of the material. The mesh analysis of the size and weight percentage of particles also determines the quantity entering the baghouse. The application indicated the dryer has a maximum throughput of 60,000 pounds per hour. Of the 60,000 pounds only 0.3% is of the size 38 microns or less. This equates to a baghouse material loading of 180 pounds per hour maximum. The baghouse that controls the dryer emissions has a control efficiency of 99.9%. This would estimate the emissions at maximum operation to be 0.18 pounds per hour.

The application indicates the facility will be operating approximately 600 hours per year at a rate of 15,000 tons per year. This would be an average throughput rate of 50,000 pound per hour. The reduced rate of throughput would indicate the emissions to be less than 0.18 pounds per hour.

If AP-42 emission for asphalt dryer were used, AP-42 Fifth Edition section 11 indicates that a dryer produces 4.5 pounds of PM-10 per ton of material dried. Using this emission factor and the estimated 15,000 tons per year processed over 600 hours yields a average of 25 tons of material per hour going through the dryer. Thus $25 \times 4.5 = 112.5$ tons of uncontrolled potential emissions. These emissions are controlled by a baghouse with an efficiency of 99.9% at 0.8 microns. Multiplying the uncontrolled emissions by the baghouse efficiency yields 0.1125 pounds per hour from the Dryer.

Thus by approaching the dryer emission from either the application or by AP-42 emission factors yield a dryer emission of less than two-tenths of a pound (less than 0.2 #/hr) per hour of PM-10 emissions.

The emissions from the screen separators and bagging processes plus the fugitive emissions within the building are to be controlled by a second baghouse. The estimated maximum for the screening and bagging operation is 14 tons per hour. Analysis indicates that 0.3% by weight of material processed would be 54 microns or smaller. Assuming the 0.3% by weight of material processed is the material entering the baghouse, the material in to the baghouse would be 42 pounds per hour. The baghouse that controls the screening, bagging and building fugitives has a control efficiency of 99.9%. This would indicate the emissions from the bagging baghouse stack to be 0.042 pounds per hour.

The application indicates the screen and bagging processes of the facility will be operating approximately 1520 hours per year with a total amount of 5500 tons per year. This would be an average throughput rate of 7,237 pound per hour. For a conservative estimate of emissions a 10,000

pound per hour throughput will be evaluated. A 10,000 pounds per hour at 0.3% by weight of material entering the baghouse with 99.9% control efficiency, the emission for the baghouse stack would be 0.03 pound per hour.

If the maximum combined emission of the drying, the screening and the bagging were 0.2 #/hr and multiplied by 8760 hour per year, the yield would be less than one (1) ton per year.

Since the combined maximum emission rates (0.18 #/hr +0.042 #/hr) are far below the significant level for particulate matter and PM-10 and the indicated normal operation is below these maximum rates, the requirement of this permit is directed to the mandatory operation of the baghouses when the associated processes are in operation.

4. Modeling

Screen 3 modeling was conducted for each of the two baghouse stacks. The dryer baghouse emissions yields a one-hour (1) concentration of 21.96 ug/m³. The screening and bagging baghouse emission yields a one-hour concentration of 1.54 ug/m³. These yield a 24 hour concentration of 8.78 ug/m³ and 0.62 ug/m³ respectively. These concentration show an impact far below any significant level for PM-10. The modeling results and the summary of the comparison are located in Appendix B.

5. Facility Classification

The facility is classified as a synthetic minor facility. The uncontrolled PM and PM-10 emissions from the facility would have the potential of exceeding 100 tons. However the mandatory operation of the baghouses when the associated processes are in operation, reduces the emissions from the facility to far below 100 tons. Thus the facility is classified as a synthetic minor.

6. Area Classification

The area in which the facility is located is classified as attainment or unclassifiable

7. Regulatory Review

IDAPA 58.01.01.201 Permit to Construct Required

The facility is requesting the ability to build and operate process producing air emissions, which triggers the requirement to obtain a permit to construct.

IDAPA 58.01.01.676 Standards for Minor and Existing Sources

The facility's dryer will be fired on propane, there is no indication that these emission standards would be exceeded.

IDAPA 58.01.01.577 Ambient Air Quality Standards for Specific Air Pollutants

Appendix A details the PM-10 ambient impact. The source shows very little ambient impact.

IDAPA 58.01.01.600-616 Rules for Control of Open Burning

The rules for control of opening burning are applicable to the WGI facility.

IDAPA 58.01.01.625 Visible Emissions

The visible emissions rule was determined applicable to all permitted sources in this permit.

IDAPA 58.01.01.650-651 Rules for Control of Fugitive Dust

The rule for control of fugitive dust is applicable to the WGI facility.

IDAPA 58.01.01.710 Particulate Matter-Process Equipment Emission Limitations on or After July 1, 2000

The facility's emissions with the baghouse in operation indicate that it will be operating far below the 0.1 gr per dsct limit.

8. Permit Requirements

8.1 Emission Limits

The emission limits are set by the emission standards in IDAPA 58.01.01.710. The emission units are controlled by the two baghouses. The combined estimated emissions for these two baghouse stacks have indicated the emission rate as being approximately 0.20 pounds per hour or less. This combined conservative emission rate of 0.2 pound per hour for the two baghouse stacks is very significantly below the 10.3 pound per hour that the standard set in IDAPA 58.01.01.710 would allow for the same two baghouse stacks.

Both baghouse stacks and the facility are subject to the opacity standard of IDAPA 58.01.01.625.

8.2 Operating Requirements

Since the baghouses are the controlling devices for determining the amount of emissions from this facility, the emphasis of permit requirements will be on the baghouses. This permit requires that the baghouse be operating whenever the associated process equipment is operating.

These baghouses will be operated at a pressure drop as indicated by either the manufacturer's operation and maintenance parameters or established by the O&M Manual to be developed by the permittee within 60 days of operation.

9. Permit Coordination

With the requirements of the permit this source becomes a synthetic minor source. The operational requirement of the baghouse within the permit allows the emissions to be less than 100 tons.

10. AIRS Information

Information necessary to the AIRS database is included as Appendix A of this Technical Memorandum.

Technical Analysis/Washington Group International, Inc.
October 23, 2000
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FEES

The Washington Group International, Inc. facility is a synthetic minor facility as defined in IDAPA 58.01.01.400 and will not be subject to registration and registration fees in accordance with IDAPA 58.01.01.526.

RECOMMENDATION

Based on review of application materials and all applicable state and federal rules and regulations, staff recommend that Washington Group International, Inc. be issued a Permit to Construct for their Soda Springs Facility. No public comment period is recommended and no entity has requested a comment period.

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cc: R. Wilkosz, AQP
Pocatello RO
DEQ State Office

Appendix A

