

July 17, 1996

M E M O R A N D U M

TO: Martin Bauer, Chief  
Construction Permits Bureau

FROM: Bill Rogers, Air Quality Engineer *BR*  
Construction Permits Bureau

SUBJECT: **PERMIT TO CONSTRUCT TECHNICAL ANALYSIS**  
P-960085 Granite Construction Company, Portable  
(Hot-mix Asphalt Plant)

PURPOSE

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

PROJECT DESCRIPTION

On June 3, 1996, DEQ received a Permit to Construct (PTC) application from Granite Construction Company (GCC) for the construction of a portable hot-mix asphalt (HMA) plant to be used within the state of Idaho. The HMA plant has a maximum production capacity of 420 tons per hour (T/hr). It will be fueled using either liquid propane gas (LPG) or #6 fuel oil. A diesel fired generator will be used to supply electrical power to the HMA plant.

SUMMARY OF EVENTS

On June 3, 1996, GCC submitted a PTC application for the construction of an HMA plant to be used within the state of Idaho. The application was determined complete on July 2, 1996.

A. Discussion

1. Area Classification

This facility is portable and has the capability of locating anywhere within the boundaries of Idaho. To operate in any attainment or unclassifiable area, the facility must not exceed any applicable state or federal ambient air-quality standard (NAAQS). If the facility proposes to operate in a PM<sub>10</sub> nonattainment area, the facility cannot significantly contribute to the ambient air-quality (IDAPA 16.01.01.006.89).

2. Equipment Listing

This technical analysis included the following equipment:

- 2.1 Gencor 400 Drum - Mix Asphalt Plant  
Rated Capacity - 420 tons per hour (T/hr)  
Fuel Type - #6 Fuel Oil or Liquid Propane Gas (LPG)  
Stack Parameters - See application
- 2.2 Caterpillar Generator  
Model Number - 3512  
Rated Capacity - 1135 kW  
Fuel Consumption - 83.2 gallons per hour  
Fuel Type - #2 diesel  
Stack Parameters - See application

2.3 Associated aggregate process, handling, and transport equipment.

3. Control Equipment

3.1 Gencor Inertial Separator  
Model Number - PC 400  
Control Efficiency - 50%

3.2 Gencor Baghouse  
Model Number - N150A  
Control Efficiency - 99.96%

4. Emission Estimates

Point source emissions, fugitive emissions from applicable affected sources, ambient impacts, and hours of operation for the facility were calculated using a spreadsheet that incorporates current emissions factors from AP-42. Spreadsheets were developed by DEQ for operations in attainment and nonattainment areas using both fuel types. In both instances, generator operations were considered. The spreadsheets are presented as Appendix A of this technical analysis. The spreadsheet requires the user to input operating parameters such as throughput, fuel type, fuel usage, hours of operations, proposed area of operations (attainment or nonattainment), and generator information. Once this information is entered, the spreadsheet calculates the facility's potential to emit, ambient impact, allowable hours of operation which includes generator operations and facility classification. When residual or distillate fuel is entered as the fuel type, the spreadsheet automatically pulls up the sulfur content limit as defined in the (Rules) and uses it to calculate SO<sub>2</sub> emissions. To determine if the facility demonstrates compliance with the NAAQS in an attainment area or does not significantly contribute to the ambient air in a PM-10 nonattainment area, the spreadsheet requires the user to input the modeling output. (Ambient background concentrations are required for nonattainment area operations). The information calculated by the spreadsheet is the basis for the PTC.

4.1 LPG

Emission estimates for this facility assume 420 T/hr throughput to the drum-mix asphalt plant, 920 gallons per hour (0.1 MMcf/hr) of LPG for the plant's burner, 82.3 gallons per hour of diesel fuel for the 1,135 kW diesel fired generator, fugitive emissions from all applicable affected sources and a baghouse efficiency of 99.96%. Allowable emissions and hours of operation were calculated by the spreadsheet to ensure that all facility-wide potential controlled emission of criteria air pollutants are below 100 T/yr, and that all applicable ambient air-quality standards (NAAQS) will be met in attainment areas and that there would not be a significant contribution to the ambient air in nonattainment areas.

The results of the emission analysis indicate that all criteria pollutants had calculated controlled emissions below 100 T/yr. NO<sub>x</sub> emissions were highest with an emission rate of 62.86 T/yr. That is an equivalent emission rate of 14.35 pounds per hour (lb/hr) based on an 8,760 hour per year (hr/yr) operating schedule. PM and PM<sub>10</sub> emissions were 41.75 T/yr and 13.74 T/yr,

respectively. CO and SO<sub>2</sub> were 15.66 T/yr and 0.3 T/yr, respectively. CO and SO<sub>2</sub> will not be specifically limited in the permit because these pollutants are inherently limited by fuel usage. For future reference, they are quantified and noted in this document.

Asphalt plants constructed or modified after June 11, 1973 are federally regulated for particulate matter emissions in 40 CFR 60, Subpart I. Currently, Idaho has four areas that are designated nonattainment for PM<sub>10</sub> emissions. To allow this facility maximum operational flexibility that will allow for operation anywhere in Idaho under one permit (i.e. PM<sub>10</sub> attainment and nonattainment areas), PM<sub>10</sub> allowable emissions were increased above the calculated emission rate given in the spreadsheet up to the ambient standards set for PM<sub>10</sub> nonattainment areas. These standards are 5.0 ug/m<sup>3</sup>, 24 hour average and 1.0 ug/m<sup>3</sup>, annual average. Allowing for maximum operational flexibility reduces the amount of permit modifications submitted to DEQ while still protecting Idaho's air quality. The allowable PM and PM<sub>10</sub> emission rates are therefore 34 lb/hr and 99 T/yr, and 22.4 lb/hr and 99 T/yr, respectively. At these emission rates, the facility will not significantly contribute to an exceedance of the nonattainment area PM<sub>10</sub> standards.

#### 4.2 #6 Fuel Oil

Emissions resulting from the combustion of #6 fuel oil in the HMA plant were calculated in the same manner by the spreadsheet as emissions resulting from the combustion of LPG. Only, in this case, fuel oil is combusted at a rate of 680 gallons per hour instead of 910 gallons per hour (≈0.1 MMcf/hr gas). All other operating criteria is the same as mentioned above. The limiting pollutant calculated by the spreadsheet is SO<sub>2</sub> with an annual emission rate of 99 T/yr. This is equivalent to an emission rate of 140 lb/hr based on 1,413 hours of operation per year. The spreadsheet calculated 1,413 hours per year as the maximum operating schedule that limits any and all air pollutants to below 100 T/yr. All other criteria air pollutants are inherently limited by throughput, fuel usage and hours of operation in the permit. Therefore, these pollutants will not be specifically limited in the permit but are quantified and noted by the issuance of this document. PM, PM<sub>10</sub>, CO and NO<sub>x</sub> emissions have been calculated to be 6.73 T/yr, 2.22 T/yr, 2.46 T/yr and 26.67 T/yr, respectively.

The spreadsheet was also run for operations in PM<sub>10</sub> nonattainment areas to determine if any emission rates and/or hours of operation change. Again, SO<sub>2</sub> was the limiting pollutant. PM and PM<sub>10</sub> emission rates increased due to the addition of the background concentration in the analysis. Hours of operation did change for daily operations. This facility can only operate 12.5 hours per day in a PM<sub>10</sub> nonattainment. Annual hours of operation remained fixed at 1,413 hours per year as in attainment areas. All other criteria air pollutants are inherently limited by operating restrictions (i.e., throughput, fuel usage and hours of operation).

5. Facility Classification

The facility is a non-designated facility as defined in IDAPA 16.01.01.006.25. This facility is not a major facility as defined in IDAPA 16.01.01.006.54 and as defined in IDAPA 16.01.01.008.14. This facility is an affected facility and is subject to federal regulation according to 40 CFR 60, Subpart I, because the facility is a hot-mix asphalt plant that has commenced construction or modification after June 11, 1973.

6. Regulatory Review

The following rules and regulations were reviewed and apply to the applicant for this Permit to Construct project:

|                            |  |
|----------------------------|--|
| <u>IDAPA 16.01.01.201</u>  | Permit to Construct;   |
| <u>IDAPA 16.01.01.202</u>  | Application Procedures;                                      |
| <u>IDAPA 16.01.01.203</u>  | Permit Requirements for New and Modified Stationary Sources; |
| <u>IDAPA 16.01.01.209</u>  | Procedures for Issuing Permits;                              |
| <u>IDAPA 16.01.01.211</u>  | Conditions for Permits to Construct;                         |
| <u>IDAPA 16.01.01.212</u>  | Obligation to Comply;  |
| <u>IDAPA 16.01.01.577</u>  | Ambient Air-quality Standards;                               |
| <u>IDAPA 16.01.01.625</u>  | Visible Emissions;   |
| <u>IDAPA 16.01.01.650</u>  | Fugitive Emissions;  |
| <u>IDAPA 16.01.01.725</u>  | Rules for Sulfur Content of Fuels;                           |
| <u>IDAPA 16.01.01.805</u>  | Rules for the Control of Hot-mix Asphalt Plants; and         |
| <u>40 CFR 60 Subpart I</u> | Standards of Performance for Hot-mix Asphalt Plants.         |

7. Interbureau Coordination

7.1 Enforcement Bureau

Upon consultation with staff from the Enforcement Bureau, GCC does not have any pending enforcement actions.

7.2 Operating Permits Bureau

This facility is a new facility and does not currently possess a PTC or OP within the state of Idaho. Through the issuance of this PTC, the facility's potential to emit is limited. This facility is subject to federal regulation under NSPS requirements. For this reason, this source is applicable to

Title V Operating Permit requirements. This technical analysis and permit will be forwarded to the Operating Permits Bureau for review and applicability.

8. AIRS

The AIRS form for this facility is presented as Appendix B of this technical analysis. The facility has two point sources, the baghouse exhaust stack and the generator stack.

9. Modeling

Screening modeling was performed for the point sources associated with this facility. The EPA approved SCREEN2 model was used to predict the ambient impacts from the emissions units. The results of the modeling analyses were input to the spreadsheets that calculated the combined impact. The results of the model output are presented as Appendix C of this technical analysis.

10. FEES

This facility is not a major facility, as defined in IDAPA 16.01.01.008.14. Therefore, registration and registration fees, according to IDAPA 16.01.01.526, are not applicable.

RECOMMENDATION

Based on review of application materials and all applicable state and federal rules and regulations, staff recommend that Granite Construction Company be issued a Permit to Construct for their Gencor 400 Hot Mix Asphalt plant and associated equipment. No public comment period is recommended, no entity has requested a comment period, and the project does not involve PSD Permit to Construct requirements.

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cc: Tom Carter, Granite Construction Company  
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