

**Alaska Department of Environmental Conservation
Air Permits Program**

TECHNICAL ANALYSIS REPORT

for

**Air Quality Control
Minor General Permit 9**

for

Rock Crushers

Prepared by: Jim Plosay, Adam Reed, and Dave Jones

Date: February 2, 2017 – Public Comment

INTRODUCTION

This permit is intended for rock crushers that are required to have a permit because they are classified as needing a minor permit under 18 AAC 50.502(b)(3), i.e. they have a rated capacity of at least five tons per hour.

Rock crushers sometimes break down the oversize material to be fed into the process for asphalt plants, or to recycle asphalt pavement. An applicant must apply for a Minor General Permit 3 (MG3) or a General Permit 3 (GP3) for Asphalt Plants to operate the asphalt plant. The MG9 Rev. 2 permit allows an authorizes asphalt plant to be located with the rock crusher only if the permittee has a separate minor source specific permit or minor general permit (MG3) for the asphalt production activities.

The Alaska Department of Environmental Conservation (Department) has restructured the conditions and this permit, the Minor General Permit 9, Revision 2 (MG9 Rev. 2), from the 2014 Minor General Permit 9 in order to improve user accessibility and reduce the compliance burden for Permittees. Conditions in this permit that are modified from the previous general permit are listed in Table 1.

Activities collocated with a major source of air pollution are not covered under this minor general permit because the underlying analysis to protect ambient air quality did not include impacts from nearby emitting activities not covered by this permit.

Activities collocated with a major source of air pollution are not covered by this minor general permit because the underlying analysis to protect ambient air quality did not include impacts from nearby emitting activities not covered by this permit.

The Department assumed an annual 3650 hours of operation in its potential to emit (PTE) calculations. This assumption was determined to be representative for the MG9 based on a review of currently active sources and the conservative operational assumptions detailed in the modeling memorandum for the 2003 General Permit 9.

The Department included a public comment period for the 2009 MG9 from February 17 through March 19, 2009 for the original MG9. No comments were received. The Department included a public comment period from April 3 through May 3, 2013 for MG9 Rev 1, as required by 18 AAC 50.542(d). The comment period was extended to May, 24 2013 after requests were received by the Department from Permittees. The Department received 17 comments from Colaska, Inc., three comments from Brad Quade at Anchorage Sand & Gravel Co., In., 14 comments from Shawn Crouse at Granite Construction Company, and 11 comments from other parties.

The Department conducted workgroup discussions with the Associated General Contractors (AGC) of Alaska from October 2016 through the Public Comment issuance of this revision to simplify conditions of the minor general permit and make compliance with the permit clearer for industry.

New conditions include Condition 4 which moves Condition 17 of the MG9 Rev. 2 incorporating additional requirements to address rental of emission units both to and from the permitted source, and clarification that source tests may be conducted during any point during the fifth year after the previous source test under Condition 7.1(b). The Department published this current revision 3 for the required public comment period February 2, 2017, ending March 3, 2017 as required by 18 ACC 50.542(d).

Table 1
Condition changes from MG9 Rev. 1 to MG9 Rev. 2

MG9 Permit Rev. 1 Condition No.	Description	MG9 Permit Rev. 2 Condition No.	Description of Change
1	Ambient Air Quality Protection	1	No Change
2	Relocation and Reporting of Site Selection	2	Revised Condition language and relocation sub-conditions
None	Preapproved Locations	2.1	Relocation allowed to pre-approved locations with 8-hr notification using Air Online Services (AOS). All other relocations now require five-day notification
None	New Locations	2.2	10 Day notice requirement relaxed to 48 hours for new locations using AOS and 5 days using other notification methods
None	Unexpected Breakdown and Repair	2.3	Condition added authorizing relocation for repair requiring notice within 24-hr after move for repair
3	General Recordkeeping	3	No Change
16	Equipment Changes	4	Permit language moved from condition 16 to Condition 4. Condition now requires reporting all equipment operated with each FOR.
None	Temporary Changes	4.1	Requirement to report equipment listed in the EU inventory which is leased, rented or provided to a third party for operation under a business agreement to the Department within seven days of business agreement.
4	General Reporting	5	Changes in sub-conditions
4.1	Submittals	5.1	Reporting methods added allowing reporting to Air Online Services and email to DEC Air Reports
4.2	Electronic Reporting	Removed	Incorporated into Condition 5.1
4.3	Certification	5.2	No Change
4.4	Operating Reports	5.3	No Change
4.5	Information Requests	5.4	No Change
5.1	Visible Emissions Standard Requirements for Rock Crushers	6.1	The PM opacity observation required once every 14-operating days and within two days of a shutdown exceeding five days. Modified to require Method 9 observations within two days of production during each calendar month of operations. Additional reporting added for colocation of rock crushers.

MG9 – Rock Crusher Technical Analysis Report – Public Comment for Revision 2

5.2 – 5.3	Visible Emissions Standard Requirements for Diesel Engines	6.2 – 6.3	No Change
6	Sulfur Compound Emission	7	Condition added to accommodate sources which use bulk fuel to fuel equipment tanks
7	Pollution Control Equipment Breakdown Reporting	8	No Change
8	Excess Emissions and Permit Deviation Reports	9	No Change
9	Air Pollution Prohibited	10	No Change
10	Nonroad Engines	11	No Change
None	Stored Equipment	12	Condition added to address stored emission units collocated at a permitted facility
11	Change of Ownership	13	No Change
12	Administrative Fees	14	No Change
13	Assessable Emissions & Fees	15	No Change
14	Good Air Pollution Control Practice	16	No Change
15	Reasonable Precautions to Prevent Fugitive Dust	17	No Change
16	Equipment Changes	4	Condition moved from condition 17 to Condition 4. Condition 4.1 adds requirements to address rented and leased equipment of emission units operated under this permit.
17	Terms to Make Permit Enforceable	18	No Change
18	Source Testing Requirements	20	No Change

EXCLUDED FACILITIES

A stationary source is excluded from using this minor general permit if the following applies.

1. The rock crusher plant has emission points with mechanically induced air flow, such as a fan forcing emission to a stack or control device, unless approved in writing by the Department.

The modeling characterized the rock crusher as a fugitive emission source. The emissions associated with a mechanically induced airflow design would be released from a stack, which could be of various heights, orientations, exit velocities, and downwash potential. With such a wide range of stack parameters, in addition to potential emissions controls such as cyclones or baghouses, the Department was unable to easily develop a general approach for assessment. Therefore, the MG9 must exclude rock crushers with mechanically induced air flow. However, the MG9 does allow rock crushers to be enclosed in a building or other structure.

2. The stationary source contains open burning.

Open burning has substantive particulate matter (PM) emissions and ambient impacts, which were not included in the modeling analysis for simplicity.

3. The stationary source has a PTE of more than 100 tpy of a regulated air pollutant or is collocated at a TV Major source, i.e. it is subject to the Title V permitting requirements.

Stationary¹ diesel engine emission units (EUs) operating at the source that have a cumulative rating above 1,100 horsepower may generate emissions of oxides of nitrogen (NO_x) in excess of 100 tpy. The Permittee may obtain a combination of permits, or an owner requested limit (ORL) under either 18 AAC 50.225 or 18 AAC 50.508(5) to limit the stationary source NO_x emissions, if stationary diesel engines in excess of this cumulative power rating will operate beyond the assumptions.

If there is a Title V Major Permit (commonly General Permit 3) for the activities listed above, the stationary source may operate under both permits.

If there is an asphalt plant permitted under Minor General Permit 3 (MG3) it may operate in conjunction with this MG3 permit.

¹ Non-road engines, as defined in 40 CFR 89.2 and adopted by reference in 18 AAC 50, are excluded from PTE calculations for permit applicability.

TECHNICAL ANALYSIS FOR THE PERMIT CONDITIONS

Condition 1 – Ambient Air Quality Protection

Legal Basis: This condition applies to all rock crushers unless a stricter condition exists in this permit, State Statutes, or Federal Guidelines. 18 AAC 50.010 establishes the ambient air quality standards in the State of Alaska. The Permittee is required to comply with these requirements.

Condition 1.3 only applies to plants located in the SO₂ Special Protection Areas (Unalaska and Saint Paul Island areas) established in 18 AAC 50.025(c).

Factual Basis: The Department incorporated the same setback distance requirements detailed in the 2014 MG9, which were carried over from the 2009 MG9. The Department established these distances based on a generic air quality modeling analysis (see Attachment 1).

The Department established the setback distance in Condition 1.1 in order to protect the 24 hour PM-10 ambient air quality standards.

The setback distances are based on the best information available to the Department as noted in the 2003 GP9. These requirements do not guarantee that an operation cannot violate the ambient air quality standards, or create a public air quality nuisance. Therefore, the Department previously included a note that all complaints attributed to an operation are subject to investigation. The following note lists some of the possible outcomes of an investigation:

Note: The setback distances in Condition 1 are minimum requirements. You should give adequate consideration to local siting issues which may exist within a given area. Poor siting can lead to public complaints regarding dust impacts and/or impacts from other air pollutants. The Department does investigate these types of public complaints. These investigations could result in:

- 1. Formal enforcement with punitive damages;*
- 2. A formal request under 18 AAC 50.201 that the Permittee demonstrate, by air quality dispersion modeling or other means, that the air quality impacts are not violating State air quality standards or increments; or creating a public nuisance (under 18 AAC 50.110);*
- 3. The requirement to reduce emissions or implement another control strategy to reduce the ambient impact of those emissions as necessary to ensure that the concentration of air pollutants does not exceed the State air quality standards; or the concerns listed in 18 AAC 50.110;*
- 4. A requirement to install and operate air quality monitoring equipment; or*
- 5. The requirement to obtain a site specific permit with which would contain requirements tailored to that exact operation.*

In Condition 1.3, the Department previously established the SO₂ Special Protection Areas due to past demonstrations that the ambient SO₂ air quality standards and increments are threatened. While developing the 2003 GP3, the Department conducted a modeling analysis to determine whether additional restrictions were needed to protect the standards and increments in these special protection areas. The analysis showed that the plant would need to operate on highline power rather than from its own diesel generator. It also showed that if diesel engines are used for another purpose other than electrical power generation then they could not burn fuel with sulfur content

greater than 0.075 percent, by weight. The Department incorporated these restrictions into the 2009 MG9 and 2009 MG9 application, and updated terms in the 2014 MG9 Rev. 1 to allow for more flexibility and simplicity. MG9 Rev. 1 removed exclusions on operation provided the Permittee certify that only Ultra Low Sulfur Diesel (ULSD) is used in all engines. If a Permittee would like less stringent restrictions when operating in an SO₂ Special Protection Area, they would need to obtain a source-specific permit. The application for a source-specific permit would need to include a case-specific ambient air quality modeling demonstration.

Condition 2 – Relocation Requirements

Legal Basis: This relocation condition applies to all Rock Crushers because Alaska Statute (AS) 46.14.211 authorizes the Department to issue a general minor permit that is valid for multiple locations in this state. The permit also contains siting requirements that limit the rock crusher from operating within specified distances to occupied structures, and has monitoring requirements based upon startups at new locations.

This site selection condition applies to all Rock Crushers because 18 AAC 50.110 prohibits pollution that is injurious to human health or welfare, animal or plant life or property, or which would unreasonably interfere with the enjoyment of life or property. This condition applies unless a stricter condition exists in this permit, State Statutes, or Federal Guidelines.

Factual Basis: Because of public complaints, the Department conducted air dispersion modeling to predict the impacts of Rock Crushers on ambient air. See Attachment 1 for a description of modeling performed. The new locations must comply with the distance requirements in Conditions 1.1 and 2, giving adequate consideration to the siting issues described in Condition 1.1 and provide a revised dust control plan per Condition 2 if within 2,000 feet of the nearest off-site occupied structure. The requirement for a dust control plan in Condition 2 for operations within 2,000 feet of the nearest off site occupied structure is based on predicted 24 hour impacts of the ambient standard for PM-10. An updated dust plan is requested to ensure everyone has an up to date dust control plan.

The Department revised this condition to allow Permittees more flexibility in relocating operations due to the often short timeframe in which new projects may become available. The 10 Day notification requirements of the 2014 MG9 Rev. 1 limited the ability of industry to comply with the Condition.

Permittees must provide notification to the Department 48 hours before startup at a new location using Air Online Services (AOS). If the new location is a preapproved location by the Department then notification is required 8 at least hours before startup using AOS. For relocations to a maintenance yard, due to repair or for maintenance, the Permittee is required to notify the Department within 24 hours after relocation. For new locations not reported using AOS, the Permittee must notify the Department at least five days before relocation using one of the methods of Condition 5.1(ii)-(iii). See attachment 1 for a description of modeling performed.

Condition 3 – General Recordkeeping

Legal Basis: The Permittee is required to keep records to demonstrate compliance with the terms and conditions of the permit and applicable regulations.

Factual Basis: The condition restates the regulatory requirements for recordkeeping and supplements the recordkeeping defined for specific conditions in the permit. The records being kept provide an evidence of compliance with this requirement.

Condition 4 – Equipment Operated

Legal Basis: This condition applies under 18 AAC 50.200 which allows the Department to request information from the Permittee to determine compliance. This condition also applies under 18 AAC 50.546 to revise a minor permit, either at the request of the permittee or on the Department’s own initiative. The request for updated equipment information also applies under AS 46.14 and 18 AAC 50 to determine permit applicability; modification is covered by definition under 18 AAC 50.990(59), provisions not requiring an application are covered under 18 AAC 50.508(6).

Factual Basis: In Condition 4 the Department moved the equipment changes reporting requirement from within the general conditions to the main section of the permit. The Permittee is authorized to operate equipment listed in Table A of the permit. Changes to equipment must be reported under Condition 4 within each semiannual operating report. Condition 4.1 requires the Permittee to include language in any business agreement in which equipment authorized under the permit is leased to a third party and that the agreement include language that the lessee will comply with Alaska Statutes and Regulations. The rental or lease of permitted equipment authorized under this permit must be reported to the Department within seven days of signature of the business agreement.

Information on equipment changes will be used to aid in compliance determination and permit applicability. If the new equipment has a different PTE, the Department may request a new MG9 Rev. 3 application to reflect the changes in potential emissions or a Title V permit if PTE is greater than 100 tpy for any one regulated pollutant.

Condition 4 reinforces the obligation of the Permittee to report changes in the emission unit inventory authorized under the permit to the Department when new equipment is rented for use at the facility or authorized units are leased to a third party. This ensures the facility does not operate above the Title V threshold and that unpermitted operators do not rent and operate equipment at unapproved locations without obtaining the appropriate authorization from the Department.

Condition 5 – General Reporting

Legal Basis: The Permittee, in accordance with Condition 5.1, is required to send reports to the Department in accordance with 18 AAC 50.346(b)(6).

Condition 5.2 requires the Permittee to comply with the certification requirement in 18 AAC 50.205 and applies to all Permittees. This standard condition is required in all operating permits under 18 AAC 50.345(j).

Condition 5.3 ensures compliance with the applicable requirement in 18 AAC 50.346(b)(6) and applies to all permits. The Department copied this condition from Standard Permit Condition VII.

Condition 5.4 requires the Permittee to submit information requested by the Department. This condition allows the Department to request any records that the Permittee is required to keep by

other permit conditions to be used for compliance determination or cause to modify, revoke and reissue, or terminate the permit. Monitoring consists of receipt of the requested information.

Factual Basis: Condition 5.1 lists the appropriate submission methods for report submittals and written notices. One original report, with certification in accordance with Condition 5.2, must be submitted by one of the methods listed to the Department. Under Condition 5.2(i), the approved electronic method must include an electronic signature to replace the requirement of mailing a paper copy of the report. The Permittee may submit a paper copy and an electronic copy if the electronic version is compatible with Department software (e.g., Adobe PDF). Receipt of the submittal at the correct Department office provides sufficient monitoring for this condition. This condition supplements the standard reporting and notification requirements for the permit.

Condition 5.2 requires the Permittee to certify all reports submitted to the Department. This condition supplements the reporting requirements of this permit.

Condition 5.3 restates the requirements for reports listed in the regulations. This condition also supplements the specific reporting requirements included elsewhere in the permit. The reports themselves provide monitoring for compliance with this condition. The semi-annual operating period of April 1 through October 31 and November 1 through April 30 was retained from the MG9 Rev. 1 without modification.

Condition 5.4 requires the Permittee to submit information requested by the Department. This condition allows the Department to request any records that the Permittee is required to keep by other permit conditions to be used for compliance determination or cause to modify, revoke and reissue, or terminate the permit. Monitoring consists of receipt of the requested information.

Condition 6 – Visible Emissions Requirements

Legal Basis: For a minor permit classified under 18 AAC 50.502(b), in accordance with 18 AAC 50.544(b), the Department will include terms and conditions as necessary to ensure the proposed stationary source will meet the requirements of AS 46.14 and 18 AAC 50. This includes terms and conditions for:

- Installation, use, and maintenance of monitoring equipment;
- Sampling emissions according to the methods prescribed by the Department, and at locations, intervals, and by procedures specified by the Department;
- Providing source test reports, monitoring data, emissions data, and information from analyses of any test samples;
- Keeping records; and
- Making periodic reports on process operations and emissions.

All industrial processes and fuel burning equipment may not reduce visibility through the exhaust effluent by more than 20 percent in accordance with 18 AAC 50.055(a)(1). Rock crushers are industrial processes and diesel engines are fuel-burning equipment.

Condition 6 requires the Permittee to comply with the visible emission (VE) standard for rock crushers and diesel engines including the fugitive emissions from rock crushers. Condition 6.1 and 6.2 address the VE monitoring, recordkeeping, and reporting (MR&R) for rock crushers and (liquid-fired) diesel engines, respectively.

Factual Basis: The VE MR&R requirements for rock crushers are different from those for diesel engines because rock crushers may produce VE without smoke, which is typically associated with incomplete combustion. In the case of rock crushers, VE may also be produced by loose particulate from aggregate handling and storage piles. Therefore, the MR&R requirements for diesel engines includes the U.S. Environmental Protection Agency (EPA) Reference Method 9 and the smoke/no smoke plans which are standard permit conditions required under 18 AAC 50.346(c). MR&R requirements for the rock crushers deviate from those under 18 AAC 50.346(c) by excluding the possibility to monitor VE using the smoke/no smoke plan because PM emissions from the aggregate are not considered "smoke."

In this MG9 Rev. 2 the Department modified the schedule of monitoring required for rock crushing emissions under Condition 6.1. Previous versions of the MG9 permit required Method 9 observations once every 30 operating days and within two days of restart after a shutdown of more than five days. In the MG9 Rev. 2 the Department simplified this to require Method 9 observations within the first two days of any calendar month the facility operates. This reduces the burden of tracking operating days, shutdown periods and when Method 9 observation requirements are triggered by Condition 6.1 while ensuring that periodic observations are included within each operating report.

The Department also incorporated provisions to allow multiple rock crushers to be collocated. The Permittee is required to calculate and record emissions of criteria pollutants from all rock crushing operations authorized under the MG9 Rev. 3 any time the facility is collocated with a separately permitted rock crusher monthly. When operating collocated sources the twelve month rolling total for all sources located at the facility are required to be reported in the semiannual operating report.

The VE standard applies to stationary diesel engines and does not apply to non-road engines. A non-road engine has the meaning given in 40 C.F.R. 89.2. An engine will not be considered a non-road engine if it remains, or will remain, at a location for more than 12 consecutive months, i.e. an engine used at a specific location for 12 months or longer ceased to be a non-road engine at the time it was placed. Although the VE standard does not apply to non-road engines, the engines must still be monitored as specified under Condition 6.2 to determine compliance if the engine remains in the same location for more than 12 months, or in case there are public complaints issued about the stationary source.

Condition 6.1 was adopted from Standard Permit Condition IX, *Visible Emissions and Particulate Matter Monitoring Plan for Liquid-Fired Sources*. The condition requires VE readings within two days each month of operation and within two days after relocating the crusher.

Condition 6.1 allows the Permittee to choose one emission point to monitor that is capable of producing fugitive emissions. Instead of monitoring every possible fugitive emission point, because there may be many depending on the process configuration, the Permittee should identify all possible fugitive emission points and select the one that appears to have the greatest continuous fugitive emissions based on initial observation. Example fugitive emissions points are found at aggregate handling areas, conveyor drop points, crushers, and screens. The Permittee should observe each point and determine which point continuously creates the most fugitive dust. This emission point should be monitored according to Condition 6.1. No change was made to Condition 6.2 from the previous regarding Method 9 monitoring in this revision.

Condition 6.2 MR&R conditions for diesel engines are standard conditions adopted into regulation in accordance with AS 46.14.010(e).

The Smoke/No Smoke requirement in Condition 6.2 was preserved from MG9 Rev. 1. This requires the Permittee to begin Method 9 observations, or take corrective action, to eliminate smoke when observed. Corrective actions remain unchanged from the MG9 and are listed under Condition 6.3.

Gas-Fired Fuel Burning Equipment: We anticipate there would be no gas-fired equipment, however if a source requiring an MG9 were to use pipeline quality natural gas, the following applies. The monitoring of gas fired sources for visible emissions through physical observation is waived. The Department has found that natural gas fired equipment from pipeline quality natural gas in Alaska inherently has negligible VE emissions. However, the schedule for source testing remains the same.

Condition 7 – Sulfur Compound Emissions Requirements

Legal Basis: For a minor permit classified under 18 AAC 502(b), in accordance with 18 AAC 50.544(b), the Department will include terms and conditions as necessary to ensure the proposed stationary source will meet the requirements of AS 46.14 and 18 AAC 50. This includes terms and conditions for:

- Installation, use, and maintenance of monitoring equipment;
- Sampling emissions according to the methods prescribed by the Department, and at locations, intervals, and by procedures specified by the Department;
- Providing source test reports, monitoring data, emissions data, and information from analyses of any test samples;
- Keeping records; and
- Making periodic reports on process operations and emissions.

All industrial processes and fuel burning equipment may not emit sulfur-compound emissions exceeding 500 parts per million (ppm) averaged over a period of three hours in accordance with 18 AAC 50.055(c). The diesel engines are fuel-burning equipment; the rock crushers are industrial processes, but do not produce any sulfur-compound emissions. Therefore, Condition 6 requires the Permittee to comply with this standard for diesel engines. Condition 6 also establishes MR&R requirements to demonstrate compliance with this standard for gas-fired engines.

Factual Basis: The sulfur-compound emissions standards apply to stationary diesel engines. Although sulfur-compound emissions standards do not apply to non-road engines, all non-road engines must be monitored to ensure the protection of ambient air quality standards in accordance with 18 AAC 50.010(2) and 18 AAC 50.110.

MR&R requirements were modified from the 2014 MG9 Rev. 1 to simplify and reduce the amount of information to be reported by the Permittee and reviewed by the Department. Instead of attaching all fuel receipts with each FOR or a statement from the fuel supplies, the Permittee is to keep these records for at least five years and only report the fuel grade used during the reporting period. The Permittee should submit a statement certified by the Responsible Official stating that only ULSD fuel was used. If a fuel type other than ULSD was used, the Permittee is to submit a list of fuel grades, including sulfur content for each fuel grade used. Industry requested a provision for bulk fuel tank deliveries be included in MG9 revision.

The Department modified MR&R requirements to provide flexibility when fuel used during the reporting period is from a bulk supply/tank. The Permittee must report this in the semiannual operating report and maintain fuel receipts for five years. The Department will review these records

during Full Compliance Evaluations or when requested per Condition 5.4.

For diesel-fired engines the MR&R conditions are Standard Operating Permit Conditions XI and XII under 18 AAC 50.346(c), adopted into regulation pursuant to AS 46.14.010(e).

Gas-Fired Fuel Burning Equipment: If a source permitted under an MG9 Rev. 2 uses pipeline quality natural gas, no monitoring terms are needed and reporting should consist of submitting a statement certified by the Responsible Official stating that only natural gas was used.

Highline Power: If a source permitted under an MG9 Rev. 2 uses highline power, no monitoring terms are needed and reporting should consist of submitting a statement certified by the Responsible Official stating that only highline power was used.

Condition 8 – Pollution Control Equipment Breakdown Reporting

Legal Basis: This condition is intended to ensure all emission units operating at the stationary source are in compliance with 18 AAC 50.544(b)(2) for a minor permit classified under 18 AAC 50.502(b). These requirements are carried forward from Condition 18 of the MG9.

Factual Basis: The Department included these reporting requirements to better ensure compliance with the permit conditions. Permittees can more effectively meet their compliance obligations by ensuring that all emission units are well maintained and that any pollution control equipment, if used, functions properly. These requirements are an extension of the Good Air Pollution Control Practices of Condition 16.

Condition 9 – Excess Emissions and Permit Deviations

Legal Basis: This condition requires the Permittee to comply with the applicable requirement in 18 AAC 50.235(a)(2) and 18 AAC 50.240(c). The Department adopted this condition from Standard Permit Condition III under 18 AAC 50.346(b)(2) pursuant to AS 46.14.010(e). The Department copied Form 2, *ADEC Notification Form* Standard Permit Condition IV under 18 AAC 50.346(b)(3).

Factual Basis: This condition satisfies two state regulations related to excess emissions – the technology-based emission standard regulation and the excess emission regulation. Although there are some differences between the regulations, the condition satisfies the requirements of each regulation.

The Department adopted this condition as Standard Permit Condition III under 18 AAC 50.346(c) pursuant to AS 46.14.010(e). The Department has determined that the standard condition adequately meets the requirements of 40 C.F.R. 71.6(a)(3). No additional emission unit or stationary source operational or compliance factors indicate the unit-specific or stationary-source-specific conditions would better meet the requirements. Therefore, the Department concludes that the standard conditions as modified meets the requirements of 40 C.F.R. 71.6(a)(3).

Condition 10 – Air Pollution Prohibited

Legal Basis: This condition ensures compliance with the applicable requirements in 18 AAC 50.110. The requirements prohibit the Permittee from causing any emission which is injurious to human health or welfare, animal or plant life, or property, or which would unreasonably interfere

with the enjoyment of life or property. Air Pollution Prohibited requirements apply to the stationary source because rock crushers produce emissions and because activities at or associated with the stationary source may result in complaints from the public. The Department adopted these requirements as Standard Permit Condition II under 18 AAC 50.346(a) pursuant to AS 46.14.010(e).

Factual Basis: Unforeseen emission impacts can cause violations of the requirements under 18 AAC 50.110. These violations can go undetected in the absence of public complaints. Public complaints are an indication that a violation of 18 AAC 50.110 has occurred. The Permittee is required to investigate and report any complaints and must keep records that detail the date, time, and nature of all complaints received. The Permittee must maintain a record of the investigation and any corrective actions undertaken and submit copies of these records upon request of the Department. Therefore, the Permittee must monitor and respond to complaints to ensure compliance with 18 AAC 50.110.

Condition 11 – Non-road Engine Requirements

Legal Basis: Non-road engines are not subject to the standards approved under the State Implementation Plan for the air pollution control for stationary sources. 18 AAC 50.100 states that the PTE from non-road engines does not count towards the classification of a newly constructed or modified stationary source in accordance with AS 46.14.130.

Factual Basis: This condition requires the Permittee to keep records detailing the location and specifications of non-road engines at any location where they operate. The date and location log requested in this condition should be submitted with each Facility Operating Report (FOR). This Condition remains unchanged from the 2014 MG9 Rev. 1.

The Department needs to know if an engine no longer qualifies as a non-road engine so that the proper monitoring, recordkeeping, and reporting for stationary engines are met.

A non-road engine has the meaning given in 40 C.F.R. 89.2, presented as follows, and is adopted by reference in 18 AAC 50. This condition and other conditions in this permit regarding non-road engines only apply to portable non-road engines, not self-propelled non-road engines.

Except as discussed in paragraph (2) of this definition, a nonroad engine is any internal combustion engine:

- *In or on a piece of equipment that is self-propelled or serves a dual purpose by both propelling itself and performing another function (such as garden tractors, off-highway mobile cranes and bulldozers); or*
- *In or on a piece of equipment that is intended to be propelled while performing its function (such as lawnmowers and string trimmers); or*
- *That, by itself or in or on a piece of equipment, is portable or transportable, meaning designed to be and capable of being carried or moved from one location to another. Indicia of transportability include, but are not limited to, wheels, skids, carrying handles, dolly, trailer, or platform.*

An internal combustion engine is not a nonroad engine if:

- *The engine is used to propel a motor vehicle or a vehicle used solely for competition, or is subject to standards promulgated under section 202 of the Act; or*
- *The engine is regulated by a federal New Source Performance Standard promulgated under section 111 of the Act; or*
- *The engine otherwise included in paragraph (1)(iii) of this definition remains or will remain at a location for more than 12 consecutive months or a shorter period of time for an engine located at a seasonal source. A location is any single site at a building, structure, facility, or installation. Any engine (or engines) that replaces an engine at a location and that is intended to perform the same or similar function as the engine replaced will be included in calculating the consecutive time period. An engine located at a seasonal source is an engine that remains at a seasonal source during the full annual operating period of the seasonal source. A seasonal source is a stationary source that remains in a single location on a permanent basis (i.e., at least two years) and that operates at that single location approximately three months (or more) each year. This paragraph does not apply to an engine after the engine is removed from the location.*

This condition provides supplemental information for non-road engines monitored under Conditions 6.2 and 7 and is intended to help ensure the protection of ambient air quality in accordance with 18 AAC 50.010(2) and 18 AAC 50.50.

Condition 12 – Stored Equipment

Legal Basis: This condition requires the permittee to record and report any equipment which is permitted with the Department under a separate permit but kept onsite with the asphalt plant operated under this permit solely for storage.

Factual Basis: If multiple sources are operated at the same site there is a potential that the aggregated emissions will exceed Title V permitting thresholds. This condition provides the Permittee the flexibility to store permitted asphalt plants, rock crushers and nonroad engines at an operating facility by reporting to the Department the collocated cold stacked equipment.

Condition 13 – Change of Ownership

Legal Basis: This condition requires new and previous owners of the permitted rock crusher plant to submit the transfer of ownership form and pay the administrative amendment fees in accordance with 18 AAC 50.400(f)(1)-(3) and 40 C.F.R. 71.7(d), adopted by reference in 18 AAC 50.040.

Factual Basis: If owner or operator of a stationary source transfers ownership of the stationary source, both new and previous owners must complete the transfer of ownership form. Once the form is received by the Department, the new owner will receive authorization to operate the stationary source.

Condition 14 – Administrative Fees

Legal Basis: This condition requires the Permittee, owner, or operator to pay administration fees as set out in regulation. Paying administration fees is required as part of obtaining and holding a permit with the Department or as a fee for a Department action.

Factual Basis: The owner or operator of a stationary source who is required to apply for a permit under AS 46.14.130 shall pay to the department all assessed permit administration fees. The regulations in 18 AAC 50.400-405 specify the amount, payment period, and the frequency of fees applicable to a permit action.

Condition 15 – Assessable Emissions & Emission Fees

Legal Basis: The regulations require all permits to include due dates for the payment of fees and any method the Permittee may use to re-compute assessable emissions. This is Standard Permit Condition I under 18 AAC 50.346(b)(1), adopted into regulation pursuant to AS 46.14.010(e).

Factual Basis: These standard conditions require the Permittee to pay fees in accordance with the Department's billing regulations. The billing regulations set the due dates for payment of fees based on the billing date.

The default assessable emissions are emissions of each air pollutant authorized by the permit (AS 46.14.250(h)(1)(A)). Air pollutant means any regulated air pollutant and any hazardous air pollutant. Therefore, assessable emissions under AS 46.14.250(h)(1)(A) means the potential to emit any air pollutant identified in the permit, including those not specifically limited by the permit. For example, hydrogen chloride (HCl) emissions from an incinerator are assessable emissions because they are a hazardous air pollutant, even if there is currently no emission limit on HCl for that class of incinerator.

The condition also describes how the Permittee may calculate actual annual assessable emissions based on previous actual annual emissions. According to AS 46.14.250(h)(1)(B), assessable emissions are based on each air pollutant. Therefore, fees based on actual emissions must also be paid on any pollutant emitted whether or not the permit contains any limitation of that pollutant.

This standard condition specifies that, unless otherwise approved by the department, calculations of assessable emission based on actual emissions use the most recent previous calendar year's emissions. Since each current year's assessable emission are based on the previous year, the Department will not give refunds or make additional billings at the end of the current year if the estimated emissions and current year actual emissions do not match. The Permittee will normally pay for actual emissions, just with a one-year time lag.

If the Permittee does not choose to annually calculate assessable emissions, emissions fees will be based on "potential to emit" (PTE).

The emission factors in the Rock Crusher Emission Calculation Guide are taken from US EPA publication AP-42 *Compilation of Air Pollutant Emission Factors, Volume I: Stationary Point and Area Sources, Fifth Edition* as adopted by reference in 18 AAC 50.035. The Permittee may use other emission factors as outlined in Rock Crusher Emission Calculation Guide and Standard Permit Condition I provided those emission factors have been approved by the Department.

Condition 16 – Good Air Pollution Control Practice

Legal Basis: This condition ensures compliance with the applicable requirements under 18 AAC 50.346(b)(5) *Standard Operating Permit Condition VI -Good Air Pollution Control Practices* and applies to all emission units, except those subject to federal emission standards. Also, under 18

AAC 50.544(b)(2), for a minor permit classified under 18 AAC 502(b), the Department will include a condition requiring the owner to

- Perform regular maintenance considering the manufacturer's or the operator's maintenance procedures;
- Keep records of any maintenance that would have a significant effect on emissions (the records may be kept in an electronic format); and
- Keep a copy of either the manufacturer's or the operator's maintenance procedures.

Factual basis: The condition requires the Permittee to comply with good air pollution control practices for all emission units. The permit contains the provision exactly as required by regulation. This is the same as 18 AAC 50.346(b)(5) and requires that all permits issued by the State of Alaska contain the provisions of Standard Operating Permit Condition VI -Good Air Pollution Control Practices unless more specific requirements adequately meet the requirements.

Condition 17 – Reasonable Precaution to Prevent Fugitive Dust

Legal Basis: This condition expands the requirements under 18 AAC 50.346(c) *Standard Operating Permit Condition X -Reasonable Precautions to Prevent Fugitive Dust* to provide a condition that more adequately meets these requirements given the significant sources of fugitive dust that may be generated by the Stationary Source. This condition applies to all Rock Crushers.

Factual Basis: The condition requires the Permittee to comply with 18 AAC 50.045(d), and take reasonable action to prevent PM from being emitted into the ambient air. 18 AAC 50.045(d) requires an operator to take reasonable precautions to prevent fugitive dust when handling bulk materials. The condition lists examples of reasonable precautions.

This condition requires the Permittee to use reasonable precautions when handling, storing or transporting bulk materials or engineering in an industrial activity in accordance with the applicable requirement in 18 AAC 50.045(d). Bulk material handling requirements apply to the Permittee because the Permittee will engage in bulk material handling, transporting, or storing; or will engage in industrial activity at the stationary source.

If the Rock Crusher is to be located within 2,000 feet of a business, residence or other inhabited structure, the Permittee under this minor general permit must implement the plan under Condition 16 or get the Department's approval to implement a different plan. The plan must be specific to any location named in the application and must be attached to the relocation notice required in Condition 2.

The "2,000 feet" distance requirement came from a circa-2003 dispersion modeling analysis conducted in support of the 2003 General Permit (GP9) for Rock Crushers. Modeling predicted that during dry conditions, if precautions are not taken to control emissions from fugitive sources, the 24-hour PM-10 ambient air quality standard could be violated up to 2,000 feet away.

A sample fugitive dust control plan is provided as Appendix B with the MG9 Rev. 2. This sample plan may be used as is or modified to fit the needs of the Permittee.

Dust Control Plans:

- If a location listed in an application or in an application addendum (see Form 1) is within 2,000 feet of the nearest inhabited off-site structure, the applicant or Permittee must attach a

fugitive dust control plan as part of that application or addendum. The Permittee must also submit a fugitive dust control plan, or revision to the plan if requested by the Department. The operator must comply with a dust control plan approved by the Department.

- The plan must be specific to any location named in a permit application or application addendum, and must specify the measures that will be taken and under what circumstances the Permittee will use them. If necessary, the plan will identify the frequency with which the measures will be applied. A plan does not fulfill this requirement if it simply mentions the measures that can be taken to control fugitive dust for a particular emission unit.

Condition 18 – Terms to Make the Permit Enforceable

Legal Basis: These are standard conditions required under 18 AAC 50.345(a)-(c)(2) and (d)-(h) for all minor permits.

Factual Basis: These are standard conditions for compliance required for all minor permits.

Condition 19 – Source Testing Requirements

Legal Basis: Condition 19.1-19.2 applies because this is a standard condition to be included in all permits under 18 AAC 50.345(k). Condition 19.3-19.6 ensures compliance with the applicable requirement in 18 AAC 50.345(l)-(o) and applies because the Permittee may be required to conduct source tests by this permit.

Factual Basis: Condition 19.1-19.2 ensure compliance with the applicable requirement in 18 AAC 50.220(a) and apply because this is a standard condition to be included in all operating permits under 18 AAC 50.345(k). Monitoring consists of conducting the requested source test.

Condition 19.1-19.2 supplements the specific monitoring requirements stated elsewhere in this permit. Compliance monitoring with Condition 19.1-19.2 consists of the test reports required by Condition 19.6.

Standard conditions 18 AAC 50.345(l)-(o) are incorporated through Condition 19.3-19.5. These standard conditions supplement specific monitoring requirements stated elsewhere in this permit. The source test itself monitors compliance with these conditions.

Reference Test Methods: You should use the following as reference test methods when conducting source testing for compliance with this permit.

- Source testing for compliance with requirements adopted by reference in 18 AAC 50.040(a) must be conducted in accordance with the methods and procedures specified in 40 C.F.R. 60.
- Source testing for the reduction in visibility through the exhaust effluent must be conducted in accordance with the procedures set out in Reference Method 9.
- Source testing for emissions of total PM, sulfur compounds, and nitrogen compounds must be conducted in accordance with the methods and procedures specified in 40 C.F.R. 60, Appendix A.
- Source testing for emissions of any pollutant may be determined using an alternative method approved by the Department in accordance with 40 C.F.R. 63, Appendix A, Method 301.

Attachment 1 – Rock Crusher Dispersion Modeling Summary

Alaska Department of Environmental Conservation
Dispersion Modeling Summary
For Rock Crushers

Prepared by Bill Walker April 24, 2003

This summary is to support the renewal of general air quality operating permits for rock crushers. The Department specifically requests comment on the assumptions used to characterize these facilities, and on how we should use the information produced by the modeling analysis.

Background

On April 14, 1998 the Department issued a general permit for transportable or stationary rock crushers. The first round permits were not supported by dispersion modeling.

During the life of that permit, the Department has received complaints about emissions from rock crushing operations. The complaints involve the potential for adverse impacts on human health and welfare².

The Department is issuing the renewal permits under the authority of AS 46.14.210, but not AS 46.14.215. However, because of public health concerns that arose during the life of the original permits, I have done dispersion modeling as provided by 18 AAC 50.201. This modeling serves as the basis for proposed permit conditions.

Model and Methods Used

For this modeling analysis I used ISCST3. This allowed sources to be distributed over a three dimensional space. Emissions are modeled as volume sources based on photographs of a rock crushing operation. I took emission rates from AP-42 for crushers, screens, conveyors and diesel engines.

Meteorological Data

The meteorological data set was a screening data set similar to the one used in SCREEN3. It was applied to ISCST3 by Pat Hanrahan of the State of Oregon Department of Environmental Quality. The model predicted one hour ambient concentrations. To get 24 hour concentrations, I multiplied the results by 0.4. This is consistent with EPA guidelines.

Background Concentrations

Background concentrations had to be applied statewide. I used highest concentrations measured at Healy. The location of the Healy monitoring site intended to gather background concentrations, not to measure impacts from the Healy power plants. The background concentration was:

- PM-10 24 hour – 31 $\mu\text{g}/\text{m}^3$

² It is important to note that most plants operating under the general permits did so without public complaints to the Department.

Receptors

Receptors were placed using a polar grid from a few meters from the center of the operation to a maximum of 2000 meters. Receptors were modeled assuming flat terrain, and terrain heights of 10, 15, and 20 meters.

Downwash

I used one downwash structure based on one of the crusher operation photographs. It approximates a crusher and screen mounted on a trailer bed. The dimensions are 40 feet long by 12 feet high by 8 feet wide.

PM-10

I modeled crushers, screens, and conveyors as one volume source 120 feet square, and 5 meters tall (estimated from crushing operation photographs).

Emission factors came from EPA's AP-42, Table 11.19.2-2 for crushed stone processing operations. Activity rates were based on 127 tons per hour (tph), as follows³:

- 127 tph in initial crusher
- 127 tph in initial screen
- ½ to second crusher and second screen
- ½ of that to tertiary crusher and recycle back to second screen

I used two other volume sources, one for unpaved road dust from loader operation, and the other from AP-42 13.2.4 for drop operations from the final processing to the storage piles.

Again from crusher operation photograph, I assumed the use of two 500 hp diesel engines (modeled as point sources). I selected 500 hp from the power requirement for a Pioneer cone crusher similar to the Spokane crusher in the photograph.

Emission factors were all based on 24 hours of operation per day, but I used a scaling factor to adjust results to 12 hours per day.

I did best and worst case modeling. The best case assumed that road dust is controlled well enough to be minimal. I used EPA's emission factors for controlled sources or factors calculated based on high moisture content. For the worst case option, I used emission factors for uncontrolled sources, or factors calculated assuming high road surface silt content and low moisture. Emission factors for diesel engines did not change.

With best case assumptions, modeling predicted compliance with the 24 hour PM-10 standard at 130 meters from the center of the operation and beyond [rounded to 400 feet from the edge of the operation], and with the increment at 350 meters and beyond [rounded to 1000 feet].

³ 127 tons per hour was the same activity rate used for modeling asphalt plant. It is based on 150 tons per hour of hot mix asphalt.

The worst case assumptions for fugitive emissions predicted that the ambient standard could be violated at a much greater distance from the crushing operation [700 meters – rounded to 2000 feet from the edge of the operation]. There is no set of limitations or practices to control fugitive dust that the permit could impose that would be both reasonable and effective in all cases. Therefore, the permit uses results from worst case modeling for requiring a dust control plan. If a crushing operation is within the 2000 feet of a residence or other occupied structure, the application must contain a site specific dust control plan, and the operator must comply with that plan.

Modeling at elevated terrain heights did not change any of these distances.

[Filenames: crushrco.bst, crushrun.bst]