

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

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**STATEMENT OF BASIS
for the terms and conditions for
General Permit No 3 (GP3)**

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INTRODUCTION

This document sets forth the legal and factual basis for the terms and conditions of the General Permit 3 (GP3) for hot mix asphalt plants and associated rock crushing equipment.

STATIONARY SOURCE IDENTIFICATION

The GP3 regulates emissions from hot mix asphalt plants (asphalt plants), including those with associated engine generators and associated rock crushing operations that belong to a single major industrial grouping, as long as the crushing operations are located on a contiguous or adjacent property to the hot mix asphalt plant and are under common control of the same person (or persons under common control), that have requested a limit to avoid classification as Prevention of Significant Deterioration (PSD) major under 18 AAC 50.306.

The operations of Asphalt Plants are described under Standard Industrial Classification (SIC) codes 1611 for Highway and Street Construction, Except elevated Highways and 2951 for Asphalt Paving Mixtures and Blocks. This includes the production of asphalt concrete for the manufacturing of paving products. Although rock crushing activities on their own may be classified under SIC Industry Group 14, under this permit, these rock crushing activities are assumed to be support activities to the Asphalt Plant covered under this general permit.

QUALIFYING CRITERIA

1. Described by SIC codes 1611 or 2951 and NAICS code 237310 – defines the type of stationary source.
2. The stationary source is classified under 18 AAC 50.326 – restricts the permit to those stationary sources that have the potential to emit at least 100 TPY.
3. Will not produce more than 3,830,000 tons of asphalt per consecutive 12-month period for a drum mix asphalt plant – ensures that emissions of CO remain less than 250 TPY to avoid PSD permitting requirements.
4. Will not produce more than 1,245,000 tons of asphalt per consecutive 12-month period for a batch mix asphalt plant – ensures that emissions of CO remain less than 250 TPY to avoid PSD permitting requirements.
5. Not subject to an existing stationary source-specific requirement not contained in the GP3 permit – ensures that stationary sources subject to BACT or LAER limits cannot use the permit.
6. The GP3 does not contain the applicable federal requirements for numerous EUs not generally associated with asphalt production. Therefore, the following list of devices are prohibited from operating under the GP3:
 - a boiler subject to 40 C.F.R. 60, Subparts D, Da, Db, or Dc;
 - a spark ignition internal combustion engine subject to 40 C.F.R. Subpart JJJJ;

- a fuel storage tank subject to 40 C.F.R. 60, Subparts K, Ka, or Kb;
- a source other than an asphalt plant, crushing and grinding equipment, or internal combustion engine that is subject to 40 C.F.R. 60, 61, or 63;
- a gas turbine;
- an incinerator;
- an emission unit subject to any standard in 18 AAC 50.055(a) – (f) other than standards for fuel burning equipment in (a)(1), (a)(4), (b)(1), (b)(5) and (c); or
- for rock crushers, the non-metallic mineral processing plant has emission points with mechanically induced air flow, such as a fan forcing emissions to a stack or control device.

EMISSIONS

A summary of the potential to emit (PTE)¹ and assessable PTE as indicated in the application as calculated by the Department is shown in the table below.

Table A - Emissions Summary, in Tons Per Year (TPY)

Emissions ¹	NO _x	CO	PM ₁₀	SO ₂	VOC	HAPs	CO _{2e} ²	Total ³
PTE	105.3	249.0	86.2	21.1	61.3	10.1	63,770	522.9
Assessable PTE	105	249	86	21	61	0	N/A	522

Notes:

1. The Department assumed worst-case emissions from a drum mix plant with a wet scrubber and no stationary diesel engines operating at the 3,830,000 ton per year asphalt production limit contained in Condition 23.1a. All emissions factors are from AP-42 Table’s 11.1-3, 11.1-7, 11.1-8, and 11.1-10.
2. CO_{2e} emissions are defined as the sum of the mass emissions of each individual GHG adjusted for its global warming potential.
3. Total PTE and total assessable PTE shown in the table do not include CO_{2e} and HAPs.
4. 10.1 is the total HAPs and the largest individual HAP is formaldehyde at 5.9 tons.

The assessable PTE listed under Condition 65.1 is the sum of the PTE of each individual air pollutant, other than greenhouse gases (GHGs), for which the stationary source has PTE of 10 TPY or greater. The emissions listed in Table A are estimates that are for informational use only. The Department assumed worst-case emissions from a drum mix asphalt plant with a wet scrubber operating at the 3,830,000 ton per year asphalt production limit contained in Condition 23.1a. This is a conservative estimate as a drum mix plant operating at the 3,830,000 ton per year asphalt production limit in Condition 23.1a has higher assessable emissions (522 tpy) than a batch mix plant operating at the 1,245,000 ton per year asphalt production limit in Condition 23.1b (466 tpy). The

¹ *Potential to Emit* or *PTE* means the maximum capacity of a stationary source to emit a pollutant under its physical or operational design. Any physical or operational limitation on the capacity of the source to emit a pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored, or processed, shall be treated as part of its design if the limitation or the effect it would have on emissions is federally enforceable. Secondary emissions do not count in determining the potential to emit of a stationary source, as defined in AS 46.14.990(22).

Department also assumed no stationary diesel engines or rock crushing equipment associated with the asphalt plant but notes that Condition 24 will ensure that emissions do not exceed PSD Major thresholds for NOx or CO if the stationary source does contain stationary diesel engines. All emissions factors are from AP-42 Table's 11.1-1, 11.3, 11.1-5, 11.1-6, 11.1-7, and 11.1-8, 11.1-9, and 11.1-10. The listing of the emissions does not create an enforceable limit for the stationary source.

BASIS FOR REQUIRING AN OPERATING PERMIT

In accordance with AS 46.14.130(b), an owner or operator of a Title V source² must obtain a Title V permit consistent with 40 C.F.R. Part 71, as adopted by reference in 18 AAC 50.040.

Except for sources exempted or deferred by AS 46.14.120(e) or (f), AS 46.14.130(b) lists the following categories of sources that require an operating permit:

- A major source;
- A stationary source, including an area source, subject to federal New Source Performance Standards (NSPS) under Section 111 of the Clean Air Act or National Emission Standards for Hazardous Air Pollutants (NESHAP) under Section 112 of the Clean Air Act;
- Another stationary source designated by the Federal Administrator by regulation.

Stationary sources operating under the GP3 require an operating permit as specified under 18 AAC 50.326(a) and 40 C.F.R. 71.3(a), because the stationary source is:

- A major source. This stationary source is a major source because
 - as defined in Section 302 of the Clean Air Act, it directly emits, or has the potential to emit, 100 TPY or more of any air pollutant subject to regulation.

² *Title V source* means a stationary source classified as needing a permit under AS 46.14.130(b) [ref. 18 AAC 50.990(111)].

STATEMENT OF BASIS FOR THE PERMIT CONDITIONS

The Department adopted regulations from 40 C.F.R. 71, as specified in 18 AAC 50.040(j), to establish operating permit regulations. The EPA fully approved the Alaska Operating Permit Program on November 30, 2001, as noted in Appendix A to 40 C.F.R. 70. This Statement of Basis, required under 40 C.F.R. 71.11(b), provides the legal and factual basis for each condition of the GP3 operating permit. Additionally, and as required by 40 C.F.R. 71.6(a)(1)(i), the state and federal regulations for each permit condition are cited in the permit.

This Statement of Basis provides the legal and factual basis for each term and condition as set forth in 40 C.F.R. 71.6(a)(1)(i).

Conditions 1 through 7 - Visible Emissions Standard & MR&R

Legal Basis: These conditions ensure compliance with the applicable requirements in 18 AAC 50.055(a).

- 18 AAC 50.055(a) applies to the operation of industrial processes and fuel-burning equipment. The asphalt drum/dryer and stationary diesel engines are fuel burning equipment subject to 18 AAC 50.055(a).

U.S. EPA approved the addition of these standards to the SIP, as noted in 40 C.F.R. 52.70. The Department included permit conditions for MR&R as required by 40 C.F.R. 71.6(a)(3) and 71.6(c)(1).

An asphalt plant³ constructed or modified after June 11, 1973, may not reduce visibility through the exhaust effluent by 20 percent or greater averaged over any six consecutive minutes, as specified in 18 AAC 50.055(a)(4). All other industrial processes and fuel burning equipment at this source may not reduce visibility through the exhaust effluent by more than 20 percent averaged over any six consecutive minutes, as specified in 18 AAC 50.055(a)(1). Asphalt plants are industrial processes while the asphalt drum/dryer and diesel engines are fuel-burning equipment. Therefore the same standard applies to the diesel engines used for power generation for an asphalt plant and to asphalt plants built on or before June 11, 1973.

Factual Basis: Condition 1 prohibits the Permittee from causing or allowing visible emissions in excess of the applicable standard in 18 AAC 50.055(a)(1) and (a)(4). MR&R requirements are listed in Conditions 2 through 4 (for asphalt plants) and 5 through 7 (for stationary diesel engines) of the permit. These conditions have been adopted into regulation as Standard Permit Condition (SPC) IX – Visible Emissions and Particulate Matter Monitoring Plan for Liquid Fuel-Burning Equipment and Flares. The Department has modified these conditions, as follows:

- Condition 2 (asphalt plant visible emissions monitoring) was modified to match the visible emissions schedule used for asphalt plants in the Minor General Permit 3 (MG3). SPC IX does not include a section specific to asphalt plants which require more frequent visible emissions monitoring than stationary liquid fuel burning engines due to operational parameters having a greater impact on

³ In this permit, “asphalt plant” means all asphalt plant equipment (including the aggregate dryer and drum mixer), except any diesel engines or vehicles.

emissions. Condition 2.1 requires visible emissions monitoring within two days of startup at the beginning of the operating season or after relocating the plant, within the first two days of production during each calendar month of operation, and during particulate matter source tests conducted under Condition 8.2.

- Condition 5.1 (stationary diesel engine visible emissions monitoring) was modified to match the visible emissions schedule used for stationary diesel engines in the Minor General Permit 3 (MG3). The Department made this schedule change to synchronize the two general permits (MG3 and GP3) for stationary diesel engines at asphalt plants to simplify the compliance requirements for Permittees with multiple permit types. This condition now requires visible emissions observations within two days of the beginning of the operating season or after relocating the plant, within three days after changing from Smoke/No Smoke Plan, and at least once every 30 operating days. The Department notes that this visible emissions schedule is more conservative than the schedule in SPC IX which allows diesel engines to perform visible emissions readings once per year once multiple passing readings have been conducted.

Beyond as noted above, the Department has determined that the standard conditions adequately meet the requirements of 40 C.F.R. 71.6(a)(3). No additional emissions unit or stationary source operational or compliance factors indicate that unit-specific or stationary-source-specific conditions would better meet the requirements. Therefore, the Department concludes that the standard conditions, as modified, meet the requirements of 40 C.F.R. 71.6(a)(3).

The visible emissions standard applies to stationary diesel engines and does not apply to nonroad engines. A nonroad engine has the meaning given in 40 C.F.R. 1068.30-Nonroad Engine-(1)(iii): “Except as discussed in paragraph (2) of this definition, a nonroad engine is an internal combustion engine: that by itself or in or on a piece of equipment, it 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.” Under 40 C.F.R. 1068.30-Nonroad Engine-(2)(iii); An engine that meets the definition of nonroad engine in 40 C.F.R. 1068.30-Nonroad Engine-(1)(iii) will not be considered a nonroad engine if it remains at or will remain at a location⁴ for more than 12 consecutive months. An engine used at a single specific location for 12 months or longer ceased to be a nonroad engine when it was placed in that location.

The Permittee must establish by visual observations, which may be supplemented by other means (e.g., a defined stationary source operation and maintenance program), that the stationary source is in continuous compliance with the state emission standards for visible emissions.

These conditions detail a stepwise process for monitoring to determine compliance with the state’s visible emissions standard for liquid fuel-burning equipment.

⁴ Definition of *location* in 40 C.F.R. 1068.30-Nonroad Engine-(2)(iii): A location is any single site at a building, structure, facility, or installation.

Equipment types covered by these conditions are stationary internal combustion engines, turbines, heaters, boilers, and flares. Initial monitoring frequency schedules are established along with subsequent reductions or increases in frequency depending on the results of the self-monitoring program.

Reasonable action thresholds are established in these conditions that require the Permittee to progressively address potential visible emission problems from emissions units either through maintenance programs and/or more rigorous tests that will quantify whether a specific emission standard has been exceeded.

Asphalt Plants:

Monitoring – The emissions units must be observed by the Method 9 Plans as detailed in Condition 2.

Recordkeeping - The Permittee is required to record the results of all observations and record any actions taken to reduce visible emissions.

Reporting - The Permittee is required to report emissions in excess of the state visible emissions standard and deviations from permit conditions. The Permittee is also required to include copies of the results of all visible emission observations in the operating report.

Stationary Diesel Engines:

Monitoring – The emissions units must be observed by either the Method 9 or the Smoke/No Smoke Plans as detailed in Condition 5. Corrective actions such as maintenance procedures or more frequent observations may be required depending on the results of the observations.

Recordkeeping - The Permittee is required to record the results of all observations and record any actions taken to reduce visible emissions.

Reporting - The Permittee is required to report emissions in excess of the state visible emissions standard and deviations from permit conditions. The Permittee is also required to include copies of the results of all visible emission observations in the operating report.

Conditions 8 through 12, Particulate Matter Standard and MR&R

Legal Basis: These conditions ensure compliance with the applicable requirement in 18 AAC 50.055(b).

- 18 AAC 50.055(b)(1) applies to the operation of fuel-burning equipment and industrial processes. Asphalt plants are both fuel-burning equipment and industrial processes, while stationary diesel engines are fuel-burning equipment.
- 18 AAC 50.055(b)(5) applies to the operation of asphalt plants built after June 11, 1973.

These PM standards apply because they are contained in the federally-approved SIP. The Department included permit conditions for MR&R as required by 40 C.F.R. 71.6(a)(3) and 71.6(c)(1).

Factual Basis: Condition 8 prohibits emissions in excess of the applicable state particulate matter standard for asphalt plants. Condition 8.1a applies to asphalt plants constructed, reconstructed or modified on or before June 11, 1973, and requires emissions not to exceed 0.05 grains per cubic foot of exhaust gas corrected to standard conditions (gr/dscf), which is a requirement of 18 AAC 50.055(b)(1). Condition 8.1b applies to asphalt plants constructed, reconstructed or modified after June 11, 1973, and requires emissions not to exceed 0.04 gr/dscf, which is a requirement of 18 AAC 50.055(b)(5). MR&R requirements for the asphalt plants are listed in Conditions 8.2 through 8.8 of the permit. These conditions have been adopted into regulation as SPC IX. The Department has modified these conditions as follows:

- Condition 8 (asphalt plant PM emissions standard & MR&R) was modified from SPC IX because the SPC does not include a section specific for asphalt plants. Condition 8.1b includes the applicable PM standard for asphalt plants constructed, reconstructed or modified after June 11, 1973, which is a requirement of 18 AAC 50.055(b)(5). Condition 8.2 requires the asphalt plant conduct PM source tests to demonstrate compliance with the applicable PM standard. Condition 8.3 requires EPA Method 9 readings be conducted during the source tests required by Condition 8.2. Condition 8.4 requires recordkeeping of operating parameters during source tests. Condition 8.5 requires that a daily production log be maintained to ensure compliance with maximum production level established in Condition 8.6. Conditions 8.7 and 8.8 require reporting to demonstrate compliance with the other Conditions found in Condition 8.

Condition 9 prohibits emissions from the stationary diesel engines in excess of the applicable state PM standard. MR&R requirements are listed in Conditions 9 through 12 of the permit. These conditions have been adopted into regulation as SPC IX.

Beyond as noted above, the Department has determined that the standard conditions adequately meet the requirements of 40 C.F.R. 71.6(a)(3). No additional emissions unit or stationary source operational or compliance factors indicate that unit-specific or stationary-source-specific conditions would better meet the requirements. Therefore, the Department concludes that the standard conditions, as modified, meet the requirements of 40 C.F.R. 71.6(a)(3).

Except for gas fuel-burning equipment, the Permittee must establish by visual observations, which may be supplemented by other means (e.g., a defined stationary source operation and maintenance program), that the stationary source is in continuous compliance with the state's emission standards for PM.

Asphalt Plants:

Under 18 AAC 50.990(12), an "Asphalt Plant" means a stationary source that manufactures asphalt concrete by heating and drying aggregate and mixing asphalt cements; "Asphalt Plant" includes any combination of dryers, systems for screening, handling, storing, and weighing dried aggregate, systems for loading, transferring,

and storing mineral filler, systems for mixing, transferring, and storing asphalt concrete, and emission control systems within the Stationary Source.

Under 18 AAC 50.055(b)(5), an asphalt plant constructed or modified after June 11, 1973 may not emit PM in excess of 0.04 grains per dry standard cubic foot of exhaust gas (gr/dscf). Under 18 AAC 50.055(b)(1), all other industrial processes and fuel burning equipment at the asphalt plant may not emit PM in excess of 0.05 gr/dscf. Asphalt plants are both industrial processes and fuel-burning equipment while diesel engines are fuel-burning equipment. Therefore the same standard applies to the diesel engines used for power generation for an asphalt plant and to asphalt plants built on or before June 11, 1973.

Asphalt plants are industrial processes while the asphalt drum/dryers are fuel-burning equipment. Conditions 8.1a and 8.1b establish the applicable PM standard for asphalt plants, depending on the date it was constructed, reconstructed, or modified. This permit does not include MR&R to demonstrate compliance with this particulate matter standard for fugitive emissions since Reference Method 5 of 40 C.F.R. 60, which is used to determine compliance with this standard, is not applicable to fugitive emissions.

Conditions 8.2 through 8.8 are the monitoring, recordkeeping and reporting requirements to demonstrate compliance with the applicable PM standard for the asphalt drum/dryer.

The main purpose of condition 8.2 is to provide adequate monitoring requirements to demonstrate compliance with the PM state standards in condition 8.1. Periodic monitoring in Title V Operating permits is required under 40 C.F.R. 71.6(a)(3)(i)(B), which is adopted by reference under 18 AAC 50.040(j)(4).

The Department added condition 8.2c(ii) to clarify that the one-year PM source test requirement is delayed one year for each calendar year that the Permittee did not operate. (For example, if a Permittee triggered the PM source test requirement on July 1, 2009, then the PM source test would be due by July 1, 2010. However, if the Permittee did not operate in calendar years 2010 and 2011, and operated in 2012, then the PM source test will be due by July 1, 2012.) Condition 8.2c(ii) does not add any extra years to the five-year trigger in condition 8.2c if the calendar year that the Permittee did not operate was before the due date. (For example, if the Permittee did not operate in the third and fourth calendar years after getting the permit, but does operate more than thirty days per year thereafter, then the PM source test requirement within five years is not changed. However, if the Permittee does not operate during the calendar year that the PM source test is due, then the source test due date is delayed one year.) This avoidance does not change the Department's authority to request a source test under condition 74 — e.g., in response to public complaints or high opacity readings from the asphalt plant.

Stationary Diesel Engines:

Monitoring – The Permittee is required to either take corrective action or conduct PM source testing, if opacity threshold values are exceeded. For liquid fuel-burning engines and turbines, the Department set opacity threshold values of 15 percent for

stack diameters less than 18 inches and 20 percent for stack diameters equal to or greater than 18 inches. These opacity thresholds are based on a study conducted by the Department in an effort to establish a correlation between opacity and PM. The data was collected from diesel engines of various stack sizes and the results are as follows:

- For stacks normalized to 21 inches – 0.05 gr/dscf corresponds to 27% opacity
- For stacks normalized to 18 inches – 0.05 gr/dscf corresponds to 23% opacity
- For stacks normalized to 12 inches – 0.05 corresponds to 16.8 % opacity
- For stacks normalized to 10 inches – 0.05 corresponds to 14.3 %

This means that the trend line for the complete data set predicts that 20% opacity corresponds to a little less than the PM limit for an 18-inch stack. There may be engines that exceed the thresholds but the intent of the standard condition is not to guarantee that each engine that might exceed the PM standard will be tested. The Department expects few, if any, engines to actually be tested under this condition. What the Department does expect is that with the adopted condition in place, operators that find an opacity above or near the testing threshold will take corrective action necessary to reduce PM emissions. This would achieve the desired environmental outcome without the added cost of testing. The Department expects this to be the case with both thresholds.

The method is premised on the fact that a five percent difference in opacity is distinguishable. The conditions mean that if opacity readings as measured using Method 9 – with all of its limitations – exceed the threshold, the Permittee must either take corrective action or conduct a PM source test. The compliance conditions for PM do not draw a legal conclusion about whether the method shows compliance with the visible emissions standard.

Recordkeeping - The Permittee is required to record the results of PM source tests and visible emissions observations conducted during the source tests.

Reporting - The Permittee is required to report incidents when emissions in excess of the opacity threshold are observed and the results of PM source tests. The Permittee is also required to include copies of the results of all visible emission observations taken during PM source testing in the operating report.

Gas-Fired Fuel Burning Equipment:

Although periodic PM monitoring of gas-fired units is waived, the Department has the discretion to request a source test for PM emissions from any fuel burning equipment under 18 AAC 50.220(a) and 18 AAC 50.345(k).

Conditions 13 – 17- Sulfur Compound Emissions Standard and MR&R

Legal Basis: These conditions require compliance with the sulfur compound emissions standard under 18 AAC 50.055(c).

- 18 AAC 50.055(c) applies to the operation of fuel-burning equipment and industrial processes. Asphalt plants are both fuel-burning equipment and industrial processes, while stationary diesel engines are fuel-burning equipment.

The sulfur compound standard applies because it is contained in the federally-approved SIP. The Department included permit conditions for MR&R as required by 40 C.F.R. 71.6(a)(3) and 71.6(c)(1).

Factual Basis: The Permittee may not cause or allow the affected equipment to violate the applicable sulfur compound standard. Sulfur dioxide comes from the sulfur in the fuel (e.g., coal, natural gas, fuel oils).

Liquid Fuels:

For the liquid fuel-burning equipment, the asphalt plant and stationary diesel engines, the MR&R conditions are SPCs XI and XII adopted into regulation pursuant to AS 46.14.010(e). Sulfur dioxide comes from the sulfur in the liquid, hydrocarbon fuel (e.g., diesel or No.2 fuel oil). Fuel sulfur testing will verify compliance. Fuel containing no more than 0.75 percent sulfur by weight will always comply with the emission standard. For fuels with a sulfur content higher than 0.75 percent, the condition requires the Permittee to use the equations in Section 12, or Method 19 of 40 C.F.R. 60, Appendix A-7, adopted by reference in 18 AAC 50.040(a)(3), to calculate the sulfur-dioxide concentration to show that the standard is not exceeded.

The Department has determined that the standard permit conditions adequately meet the requirements of 40 C.F.R. 71.6(a)(3). No additional emissions 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, meet the requirements of 40 C.F.R. 71.6(a)(3).

Gaseous Fuels:

Fuel sulfur testing will verify compliance with SO₂ emission standard. Mercaptans are a concentrated thiol molecule (e.g., ethanethiol) composed of hydrogen and sulfur used to detect the presence of natural gas by its strong odor as in t-butyl-mercaptan. Basically, it is the mercaptan that allows the presence of gas to be detected by its odor, so it is naturally used as a leak detectant. However, by that same token, it can raise the sulfur content of the natural gas and should be accounted for in determining compliance with the state sulfur compound emissions standard. The Department has therefore revised the basic MR&R requirements to monitor the total sulfur quantity, instead of H₂S concentration, in the natural gas fuel due to the presence of mercaptans in the gas supply which raise the sulfur concentration.

Condition 16.1b requires the Permittee to conduct a semiannual analysis for fuel gas sulfur content using either ASTM D4084, D5504, D4810, D4913, D6228 or GPA Standard 2377, or a listed method approved in 18 AAC 50.035(b)-(c) and 40 C.F.R. 60.17 incorporated by reference in 18 AAC 50.040(a)(1).

The Permittee is required to report excess emissions whenever the fuel combusted causes sulfur compound emissions to exceed the standards in this condition. The Permittee is required to include copies of the records of semiannual statement from the fuel supplier or the sulfur content analysis with the stationary source operating report.

Fuel sulfur testing will verify compliance with SO₂ emission standard. Fuel gas sulfur is measured as hydrogen sulfide (H₂S) concentration in parts per million by volume (ppmv). Calculations show that fuel gas containing no more than 4,000 ppmv H₂S will always comply with this emission standard. This is true for all fuel gases, even with no excess air. Equations to calculate the exhaust gas SO₂ concentrations resulting from the combustion of fuel gas were not included in this permit. Fuel gas with an H₂S concentration of even 10 percent of 4,000 ppmv is currently not available in Alaska and is not projected to be available during the life of this permit.

Condition 18 – Used Oil in Diesel Engines

Legal Basis: This condition requires the Permittee to comply with the sulfur compound emission standards for diesel engines and asphalt plants when burning used or recycled oil.

Factual Basis: Diesel engines and asphalt plants are fuel-burning equipment capable of burning used or recycled oil. These conditions set out the requirements for burning used oil in engines.

The Permittee is prohibited from burning used oil blends in the engines until the Department approves of a source test demonstrating that burning the used oil will comply with the particulate matter emission standards of Conditions 8.1a, 8.1b, and 9, and the visible emission standard of Condition 1. Because of various metal pollutants, used oil may have higher particulate emissions and sulfur emissions than virgin fuel oil. Staff experience indicates that burning used oil by itself may violate 18 AAC 50.055(b)(1) and (c).

The Permittee shall remember that used oil is fuel that is limited and monitored as set out by Condition 18. In addition, although this condition should ensure compliance with the applicable emission standards of 18 AAC 50, this permit does NOT ensure compliance with other applicable state or federal laws concerning management, use, or disposal of used oil

The permit lists blending, testing, recording, and reporting requirements. The Department added a requirement to blend at a ratio of no more than in the particulate matter source test unless Department approved to mix at a greater ratio. However, the Permittee must still test for sulfur and ensure that the ratio of used oil with comply with the sulfur limit.

Condition 19 – Insignificant Emissions Units

Legal Basis: The Permittee is required to meet the state emission standards in 18 AAC 50.055 for all industrial processes and fuel-burning equipment regardless of size. 18 AAC 50.055 is contained in the federally-approved SIP. The Department also added permit conditions for MR&R as required by 40 C.F.R. 71.6(a)(3) and 71.6(c)(1).

Factual Basis: The condition requires insignificant emissions units to comply with the state emission standards for visible emissions, particulate matter emissions, and sulfur-compound emissions. Insignificant emissions units are not generally listed in

operating permits unless specific monitoring, recordkeeping, and reporting are necessary to ensure compliance with the state emission standards. However, the Permittee may not cause or allow insignificant emissions units at the stationary source to violate these standards whether or not they are listed in the operating permit.

The Department finds that the insignificant emissions units at this stationary source do not require specific monitoring, recordkeeping and reporting to ensure compliance under these conditions.

Condition 19.4a requires certification that the insignificant emissions units did not exceed state emission standards during the previous year and did not emit any prohibited air pollution, based on reasonable inquiry.

The Department used the language in SPC V, adopted by reference under 18 AAC 50.346(b)(4), for the permit condition.

Condition 20 – Pollution Control Equipment Maintenance Plan

Legal Basis: 18 AAC 50.055(a)(1) & (4), (b)(1) or (5) requires the Permittee to comply with visible emissions standards. 18 AAC 50.110 prohibits any emission which is injurious to human health, welfare or property, or which would unreasonably interfere with the enjoyment of life or property.

Factual Basis: Pollution control equipment must be maintained and serviced periodically. It is a reasonable requirement that the owner or operator develops and implements an adequate pollution control equipment maintenance plan to minimize equipment failure.

Condition 21 – Pollution Control Equipment Breakdown Reporting

Legal Basis: Under 18 AAC 50.326(j)(3), the Department requires the Permittee to report all pollution control device breakdowns.

Factual Basis: Because of public complaints, the Department included this condition to better ensure compliance with the state standards and federal requirements. Permittees will minimize compliance issues by ensuring that the emissions units are well maintained and pollution control equipment, if used, functions properly. This is an extension of Good Air Pollution Control Practices, Condition 67.

Condition 22 – Relocation Reporting Requirements

Legal Basis: This relocation condition applies to all Asphalts Plants because Alaska Statute (AS) 46.14.210 authorizes the Department to issue a General Permit that is applicable to more than one Stationary Source similar in emission unit structure. The permit also contains siting requirements that limit the Asphalt Plant 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 Asphalts Plants 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 Asphalt Plants on ambient air. Sources modeled were the stack emissions and fugitive dust emissions modeled as volume sources. Sources modeled were the stack emissions (as horizontal or vertical point sources), and fugitive dust emissions, modeled as volume sources. See Attachment 2 for a description of modeling performed. The new locations must comply with the distance requirements in Conditions 25.1 through 25.2, give adequate consideration to the siting issues described in Condition 25.3, Conditions 54.1 and 54.2 (if applicable), and provide a dust control plan per condition 69.2 if within one mile of the nearest off site inhabited structure.

This location requirement is based on the best information available to the Department. It does not guarantee that an operation cannot violate ambient standards or cause violations against the prohibition of air pollution if the equipment is not properly run, or fugitive emissions are not controlled. Therefore, the condition also advises the Permittee that if the operation results in complaints, the complaints will be investigated. The condition lists some of the possible outcomes of the investigation.

The Department created three different reporting timelines in Conditions 22.1 through 22.3 that are based on the method of reporting and location of operations, which were originally introduced with the issuance of the MG3 Rev. 3 and MG9 Rev. 2 in 2017. Condition 22.1 requires at least 8 hours of advance notice before relocating the asphalt plant to a pre-approved location⁵ using Air Online Services (AOS), or at least 5 days by any other method. Condition 22.2 requires at least 48 hours of advance notice before relocating to a new location using AOS, or at least 5 days by any other method. Condition 22.3 allows for the asphalt plant to be relocated to its pre-approved storage location⁶ in the event of unexpected maintenance or repair and provide the Department with notice within 24 hours after relocating the plant.

Conditions 23 through 24 – PSD Avoidance Limits for NO_x and CO

Legal Basis: These conditions are owner requested limits (ORLs) to avoid being classified as a PSD Major source under 40 C.F.R.(b)(1)(i)(b) for NO_x and CO. This permit describes the ORLs, including specific testing, monitoring, recordkeeping, and reporting requirements; it lists all equipment covered by the ORL; and describes the classification that the limit allows the applicant to avoid.

Factual Basis: Condition 23 limits emissions of CO to no greater than 249 tons per consecutive 12-month period to avoid classification as PSD major. This is done by limiting the amount of asphalt produced in any consecutive 12-months to

⁵ For the purposes of this permit, a location is considered “pre-approved” if the stationary source has previously notified the Department of the location in the past five years and the Department has not objected to asphalt or crushing operations at the site.

⁶ For the purposes of this permit, the stationary source’s “pre-approved storage location” is the location where the asphalt plant, rock crusher, and/or diesel engines are stored and/or maintenance is performed. Relocating under Condition 22.3 does not allow for production.

3,830,000 tons for drum mix asphalt plants under Condition 23.1a, and 1,245,000 tons for batch mix asphalt plants under Condition 23.1b. If the stationary source were permitted to emit 250 TPY or more, it would be subject to PSD review which entails the imposition of best available control technology.

These asphalt production limits were calculated using the AP-42 emission factors for CO of 0.4 lb/ton of asphalt produced for batch mix plants from Table 11.1-5 and 0.13 lb/ton of asphalt produced for drum mix plants from Table 11.1-7. The Permittee shall ensure compliance with the limit by monitoring and recording the daily and monthly total asphalt production and reporting the monthly and 12 consecutive month totals under Condition 23.2.

Condition 24 limits CO and NO_x emissions at asphalt plants that include one or more stationary diesel-fired engines that does not qualify as a nonroad engine under 40 C.F.R. 1068.30, to no greater than 249 tons per consecutive 12-month period to avoid classification as PSD major. The condition requires the Permittee to monitor and record the daily and monthly total engine hours for each stationary diesel engine at the source. The Permittee then uses AP-42 emissions factors for NO_x and CO from Table 3.3-1 for diesel engines up to 600 hp and Table 3.4-1 for diesel engines larger than 600 hp to calculate engine emissions.

The Permittee then uses AP-42 emissions factors for NO_x and CO from Table 11.1-5 for batch mix asphalt plants and Table 11.1-7 for drum mix asphalt plants to calculate emissions from the asphalt plant. The Permittee sums the values of the stationary diesel engine emissions and the asphalt plant emissions to determine the total NO_x and CO emissions for the stationary source. The Permittee reports the monthly total stationary diesel-fired engine hours and the monthly and 12 consecutive month total NO_x and CO emissions for the stationary source.

Condition 25 - Ambient Air Quality Protection – General Requirements

Legal Basis: This condition applies to all asphalt plants 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.

Factual Basis: The Department incorporated the same setback distance requirements as previously established in the 2003 General Permit for Asphalt Plants (GP3). The Department established the distances based on a generic air quality modeling (see Attachment 2) analysis it conducted to address public complaints regarding alleged impacts.⁷ The Department used the U.S. Environmental Protection Agency's (EPA's) ISCST3 dispersion modeling software to conduct the air dispersion modeling in 2003. The Department also created a screening meteorological data set, in order to make the analysis applicable for the entire State.

The Department established the setback distance requirement in Condition 25.1 in order to protect the three-hour SO₂ ambient air quality standard. The Department established the setback distance restriction in Condition 25.2 to protect the PSD

⁷ It is important to note that most asphalt plants operating under the general permits did so without public complaints to the Department.

increment for PM-10. The requirement for a dust control plan in condition 69.2 for operations within one mile of the nearest off site inhabited structure is based on predicted 24 hour impacts of the ambient standard for PM-10.

As previously noted in the 2003 GP3, the setback distance requirements are based on the best information available to the Department. They do not guarantee that an operation cannot violate the ambient air quality standards or increments, or create a public air quality nuisance. Therefore, the Department included a note that if the operation results in complaints, the complaints are subject to investigation. The note lists some of the possible outcomes of the investigation.

Condition 26 – Ambient Air Quality Protection from SO₂ Emissions – Additional Restrictions for Special Protection Areas

Legal Basis: This condition only applies to asphalt 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 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 Asphalt Plant would need to operate with a fuel content not greater than 0.075 percent sulfur by weight and 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 a sulfur content greater than 0.075 percent, by weight. The Department incorporated these restrictions into the 2003 GP3, and is now incorporating them into this general permit. If a Permittee would like less stringent restrictions when operating in an SO₂ Special Protection Area, they will 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 27 - Ambient Air Quality Protection from SO₂ Emissions – Additional Restrictions for Bells Flats (Kodiak)

Legal Basis: 18 AAC 50.010 establishes the ambient air quality standards in the State of Alaska. This condition only applies to Asphalt Plants that operate at the Bells Flats area of Kodiak Island.

Factual Basis: In response to complaints received from the Bells Flat area of Kodiak in circa-2003, the Department conducted a modeling analysis under 18 AAC 50.201 of Asphalt Plant operations in this area. The analysis showed that Asphalt Plant emissions should not violate the State's air quality standards/increments as long as the sulfur content of the liquid fuel did not exceed 0.4 percent (by weight) and the plant operated no more than 13 hours per day. The Department incorporated these limits in the 2003 GP3 and is now incorporating these same limits into this general permit. MR&R requirements are established under this condition.

Conditions 28 through 31 – NSPS Subpart A Requirements

Legal Basis: The EPA approved Alaska’s Part 70 Program granted on November 30, 2001 (40 C.F.R. 70 Appendix A). The Department is the permitting authority for the Part 70 program. As the permitting authority, the Department requires compliance with all permit conditions. Although the EPA has not delegated to the Department the authority to administer the New Source Performance Standard (NSPS) program, NSPS requirements are included in the definition for “applicable requirement” under 40 C.F.R. 71.2, which has been adopted by the Department under 18 AAC 50.040(j)(1).

The NSPS provisions under Subparts I, OOO, and, IIII have the potential to apply to sources operating under the GP3. Therefore, the Department requires compliance with those standards in a Part 70 permit issued under the approved program. However, the Department is unable to change the actual wording of the relevant standard to substitute “the Department” for “the Administrator” in those standards. Since the Department expects access to any permit-related information provided by the Permittee to the EPA, the Department will act on its responsibility as the permitting authority to determine compliance with the standard. To reflect this relationship and for the purposes of this permit, the Department has defined “the Administrator” to mean the “EPA and the Department” for conditions implementing the federal emission standards under this section.

Most affected facilities (with the exception of some storage tanks) subject to an NSPS are subject to Subpart A. Under the GP3, the asphalt plant may be subject to NSPS Subpart I, the associated rock crushers may be subject to NSPS Subpart OOO, and the diesel engine generators may be subject to NSPS Subpart IIII, which would therefore make these EUs subject to Subpart A.

Conditions 28.1 through 28.3- The current GP3 permit holders have already complied with the notification requirements in 40 C.F.R. 60.7 (a)(1) - (4) for NSPS affected EUs. However, the Permittee’s are still subject to these requirements in the event of a new NSPS affected facility⁸ or in the event of a modification or reconstruction of an existing facility⁹ into an affected facility. Additionally, the Department may issue the GP3 to a new source which may have to demonstrate compliance.

Condition 28.4 - The requirements to notify the EPA and the Department of the date of conducting opacity observations required by 40 C.F.R. 60.11(e)(1), no less than 30 days before demonstration commences (40 C.F.R. 60.7(a)(6)).

Condition 28.5 - The requirements to notify the EPA and the Department of any proposed replacement of components of an existing facility (40 C.F.R. 60.15) apply in the event that the fixed capital cost of the new components exceeds 50 percent of the fixed capital cost that would be required to construct a comparable entirely new facility.

⁸ *Affected facility* means, with reference to a stationary source, any apparatus to which a standard applies, as defined in 40 C.F.R. 60.2.

⁹ *Existing facility* means, with reference to a stationary source, any apparatus of the type for which a standard is promulgated in this part, and the construction or modification of which was commenced before the date of proposal of that standard; or any apparatus which could be altered in such a way as to be of that type, as defined in 40 C.F.R. 60.2.

Condition 29– The requirements in 40 C.F.R. 60.7(b) to maintain start-up, shutdown, or malfunction records are applicable to all NSPS affected facilities subject to Subpart A.

Condition 30 - The current GP3 permit holders have already complied with the initial performance test requirements in 40 C.F.R. 60.8 for their NSPS affected EUs. However, the Permittee's are still subject to these requirements in the event of a new NSPS affected facility, in the event of a modification or reconstruction of an existing facility into an affected facility or at such other times as may be required by EPA. Additionally, the Department may issue the GP3 to a new source which may have to demonstrate compliance.

Condition 31 - Good air pollution control practices in 40 C.F.R. 60.11 are applicable to most NSPS affected facilities subject to Subpart A, including NSPS Subpart I and OOO.

Condition 32 - Concealment of emissions prohibitions in 40 C.F.R. 60.12 are applicable to NSPS Subpart I, OOO, and IIII affected EUs.

Factual Basis: Subpart A contains general requirements applicable to all affected facilities (emissions units) subject to NSPS. In general, the intent of NSPS is to provide technology-based emission control standards for new, modified, and reconstructed affected facilities.

Conditions 33 through 35 – NSPS Subpart I Requirements

Legal Basis: As stated in Condition 33 and in accordance with 40 C.F.R. 60.092(a) and (b), the subpart applies to each hot mix asphalt facility the commences construction or modification after June 11, 1973.

Factual Basis: Conditions 34 and 35 incorporate the Subpart I PM standards and performance testing requirements from 40 C.F.R. 60.092 and 60.093. The Permittee must not cause or allow applicable asphalt plants to violate these standards.

Condition 34 contains the standards for asphalt plants subject to the subpart; PM limits of 90 mg/dscm (0.04 gr/dscf) and 20 percent opacity. Condition 35 requires the Permittee to conduct a performance test in accordance with the requirements in 40 C.F.R. 60.8 and Condition 30 if one has not already been performed. New Asphalt Plants are required to do an initial performance test within 60 days after achieving maximum production rate but not later than 180 days after initial startup. Condition 35.3 contains gap filling reporting requirements to ensure compliance with the Subpart.

Conditions 36 through 40 – NSPS Subpart IIII Requirements

Legal Basis: NSPS Subpart IIII applies to stationary compression ignition internal combustion engines (CI ICE) that commence construction, modification, or reconstruction after July 11, 2005 where the stationary CI ICE are manufactured after April 1, 2006 for non-fire pump engines and after July 1, 2006 for certified fire pump engines, as specified in in 40 C.F.R. 60.4200(a).

Factual Basis: These conditions incorporate the Subpart IIII emissions standards that may be applicable to the stationary diesel engines associated with the GP3. The

Permittee may not cause or allow any applicable EU to violate these standards. These conditions also provide MR&R specifically called out for within the Subpart. The Permittee is required to operate and maintain the stationary CI ICE according to the manufacturer's written instructions or procedures developed by the Permittee that are approved by the engine manufacturer. The Permittee is required to monitor and record the monthly engine hours of operation and the rolling 12-month hours of operation on each affected CI ICE. Each affected pre-2007 model year stationary CI ICE must comply with the emission standards in Table 2 to Subpart III. Upon initial startup the Permittee shall provide a copy of the Manufacturer's Engine Certification in the next operating report required by Condition 89. The requirements in Condition 40 is added to gap fill the reporting requirement under this Subpart to ensure compliance.

Conditions 41 through 49 – NESHAP Subpart ZZZZ Requirements

Legal Basis: The Department has incorporated by reference the NESHAP requirements for specific industrial activities, as listed in 18 AAC 50.040(c). NESHAP Subpart ZZZZ applies to owners and operators of any existing, new, or reconstructed stationary reciprocating internal combustion engines (RICE), whose construction commenced before June 12, 2006, located at major and area sources of HAP emissions, excluding stationary RICE units being tested at a stationary RICE test cell/stand. The affected facility is an area source that owns and operates RICE units subject to NESHAP Subpart ZZZZ.

Factual Basis: NESHAP Subpart ZZZZ applies to any existing, new, or reconstructed stationary RICE located at a major or area source of HAP emissions, excluding stationary RICE units being tested at a stationary RICE test cell/stand. As indicated in Table A, the GP3 allows for up to 4.7 tons per year of HAP emissions and is therefore subject to the requirements for area sources of HAPs. Applicable stationary EUs are subject to NESHAP Subpart ZZZZ based on their construction, manufacturer, or reconstruction date. Per 40 C.F.R.63.6590(c), affected new or reconstructed stationary reciprocating internal combustion engines (RICE) located at an area source must meet the requirements of Subpart ZZZZ by meeting the requirements of NSPS Subpart III and no further requirements apply for such engines under 40 C.F.R. 63.

For affected existing RICE located at an area source, the Permittee is required to perform inspections and maintenance at intervals specified by the subpart and operate and maintain any affected source, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. If the applicable asphalt plant is located in an area of Alaska that is either not accessible by the Federal Aid Highway System (FAHS), or meets all of the requirements under 40 C.F.R. 63.6603(b)(2), there are reduced requirements under the subpart. For example, an existing RICE greater than 300 hp located at such a location does not have to comply with the numerical CO limits specified in Table 2d, according to 40 C.F.R. 63.6603(b). Also, existing RICE located off the FAHS or meeting all of the requirements under 40 C.F.R. 63.6603(b)(2), are exempt from the fuel requirements of 40 C.F.R. 63.6604, under 40 C.F.R. 63.6604(d).

Additionally, existing RICE are exempt from the notification requirements of 40 C.F.R. 63.6645(a) under 40 C.F.R. 63.6645(a)(5) since none of the emission units are subject to numerical emission standards. The requirements in Condition 49 is added to gap fill the reporting requirement under this Subpart to ensure compliance.

Conditions 50 – Asbestos NESHAP

Legal Basis: The requirements of 40 C.F.R. 61 are applicable requirements for Title V permitting purposes, as stated in item 4 of the “applicable requirement” definition under 40 C.F.R. 71.2. The condition requires the Permittee to comply with asbestos demolition or renovation requirements in 40 C.F.R. 61, Subpart M and associated general provisions under Subpart A, as adopted by reference under 18 AAC 50.040(b)(1) and (2)(F). The asbestos demolition and renovation requirements apply if the Permittee engages in asbestos demolition or renovation. The Department received delegation for §61.145 and §61.154 of Subpart M (Asbestos), along with other sections and appendices which are referenced in §61.145, as §61.145 applies to sources required to obtain an operating permit under Alaska's regulations. The Department has not received delegation for Subpart M for sources not required to obtain an operating permit under Alaska's regulations.

Factual Basis: Because these regulations include adequate monitoring and reporting requirements and because the Permittee is not currently engaged in such activity, simply citing the regulatory requirements is sufficient to ensure compliance with these federal regulations.

Condition 51, Protection of Stratospheric Ozone, 40 C.F.R. 82

Legal Basis: The requirements of 40 C.F.R. 82 are applicable requirements for Title V permitting purposes, as stated in item 12 of the “applicable requirement” definition under 40 C.F.R. 71.2.

Condition 51 requires compliance with the applicable requirements in 40 C.F.R. 82, as adopted by reference under 18 AAC 50.040(d). The requirements apply if the Permittee engages in the recycling or disposal of certain refrigerants. The condition requires the Permittee to comply with the standards for recycling and emission reduction of refrigerants in 40 C.F.R. 82, Subpart F.

Factual Basis: These conditions incorporate applicable 40 C.F.R. 82 requirements. Because these regulations include adequate monitoring and reporting requirements and because the Permittee is not currently engaged in such activity, simply citing the regulatory requirements is sufficient to require compliance with this federal regulation.

Conditions 52 through 55 – Operation of Rock Crushers and Ancillary Equipment

Legal Basis: These conditions apply to a stationary source that operates a rock crusher and included it in the application or application addenda for the GP3. These conditions apply to all rock crushers including those subject to NSPS Subpart OOO.

Rock crushers are industrial equipment and are subject to State regulations governing emissions, fugitive dust, siting considerations and general operations.

Factual Basis: The emission standard for rock crushing equipment including rock crushers, grinding mills, screening operations, bucket elevators, bagging operations

and storage bins is applicable because the Department considers these types of equipment as part of an industrial process not specifically excluded by regulation.

The fugitive dust standard applies because it is required to be in all permits by regulation. Standard Permit Condition X (Reasonable Precautions to Prevent Fugitive Dust) is applicable to this facility but additional restrictions were determined to be necessary to protect the public.

The monitoring, recordkeeping and reporting requirements for the visible emissions and particulate matter standards match in large those in the Minor General Permit for Rock Crushers (MG 9) Rev. 2 issued on April 1, 20017.

Condition 55 is applicable to prevent public access to external air not meeting the Alaska Ambient Air Quality Standards. U.S. EPA guidance typically refers to a fence or physical boundary. Barring physical boundaries, the Department requires posting public access points with warning signs.

Conditions 56 through 60 – Subpart OOO Requirements

Legal Basis: Under 40 C.F.R. 60.670(e) and Condition 56.1, an affected facility as defined under 40 C.F.R. 60.670(a)(1) that commences construction, modification, or reconstruction after August 31, 1983, is subject to the requirements NSPS Subpart OOO.

Factual Basis: 40 C.F.R. 60 Subpart OOO provides the standards of performance for nonmetallic mineral processing plants. The GP3 allows the operation of rock crushers and ancillary equipment that is subject to NSPS Subpart OOO.

Periodic monitoring and reporting requirements were also incorporated to comply with 40 C.F.R. 71.6(a)(3) to demonstrate compliance with the permit terms and conditions.

Conditions 61 through 63 – Standard Terms and Conditions

Legal Basis: These are standard conditions required for all operating permits under 18 AAC 50.345(a) and (e)-(g). As stated in 18 AAC 50.326(j)(3), the standard permit conditions of 18 AAC 50.345 replace the provisions of 40 C.F.R. 71.6(a)(5) – (7).

Factual Basis: These are standard conditions that apply to all permits.

Conditions 64 - Administration Fees

Legal Basis: This condition requires compliance with the applicable fee requirements in 18 AAC 50.400-403. As stated in 18 AAC 50.326(j)(1), the provisions of 18 AAC 50.400 through 50.430 are applicable and 40 C.F.R. 71.9 is not applicable.

Factual Basis: Paying administration fees is required as part of obtaining and holding a permit with the Department or as a fee for a Department action. The regulations in 18 AAC 50.400-403 specify the amount, payment period, and the frequency of fees applicable to a permit action.

Conditions 65 and 66 - Emission Fees

Legal Basis: These conditions require compliance with the applicable fee requirements in 18 AAC 50.410-420. The regulations specify the time period for the assessable emissions and the methods the Permittee may use to calculate assessable emissions. As stated in 18 AAC 50.326(j)(1), the provisions of 18 AAC 50.400 through 50.430 are applicable and 40 C.F.R. 71.9 is not applicable.

Factual Basis: The Department used the language in SPC I, adopted by reference under 18 AAC 50.346(b), for the permit. The only modification to SPC I language in the GP3 is in Condition 65.2b which references the Department's Asphalt Plant Emission Fee Calculation Guide in Section 17 and the GP3 Assessable Emissions spreadsheet on the Department's website which can both be used to calculate emissions. SPC I requires 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 assessable emissions are the lesser of the stationary source's potential or projected emissions of each air pollutant at 10 tons per year or greater (AS 46.14.250(h)(1)).

SPC I also allows the Permittee to recalculate the stationary source's assessable emissions based on previous actual annual emissions. According to AS 46.14.250(h)(1), assessable emissions are based on each air pollutant. Therefore, fees shall be paid on any pollutant emitted whether or not the permit contains any limitation for that pollutant.

This standard condition specifies that, unless otherwise approved by the Department, calculations of assessable emissions must be based on actual emissions for the previous calendar year. Since each current year's assessable emissions 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.

Condition 67 - Good Air Pollution Control Practices

Legal Basis: This condition requires compliance with the requirements in 18 AAC 50.346(b)(5) and applies to all emissions units, **except** those subject to NSPS Subparts OOO and IIII, and NESHAP Subpart ZZZZ.

Factual Basis: The condition requires the Permittee to comply with good air pollution control practices for all applicable units.

The Department adopted this condition under 18 AAC 50.346(b) as SPC VI pursuant to AS 46.14.010(e). Records kept in accordance with Condition 67.1b for units subject to GAPCP need to be maintained for 5 years in accordance with Condition 84 even if a unit is no longer subject to this condition.

Maintaining and operating equipment in good working order is fundamental to preventing unnecessary or excess emissions. Standard conditions for monitoring compliance with emission standards are based on the assumption that good maintenance is performed. Without appropriate maintenance, equipment can deteriorate more quickly than with appropriate maintenance. If appropriate maintenance is not applied to the equipment, the Department may have to apply more

frequent periodic monitoring requirements (unless the monitoring is already continuous) to ensure that the monitoring results are representative of actual emissions.

The Permittee is required to keep maintenance records to show that proper maintenance procedures were followed, and to make the records available to the Department. The Department may use these records as a trigger for requesting source testing if the records show that an adequate maintenance schedule is not maintained.

The Department modified SPC VI for the GP3 to be applicable to asphalt plants as specified below. The Department notes that SPC VI is normally not applicable to EUs subject to a federal NSPS or NESHAP requirement. However, the Department modified this condition to include asphalt plants applicable to NSPS Subpart I because there are no similar requirements contained in the subpart to ensure the asphalt plant is operating properly after the initial performance test.

Condition 67.2 - Facilities with a Baghouse:

This condition expands the requirements under SPC VI to provide a condition that more adequately meets the requirements under 18 AAC 50.346(b)(5) when the control device is a baghouse.

The permit requires the Permittee to demonstrate compliance with the visible emissions and particulate matter standards in 18 AAC 50.055. Some Asphalt Plants may choose to control PM emission using a baghouse. This condition states the minimum frequencies for baghouse inspections, requires that the Permittee monitor the pressure drop across the baghouse, and baghouse outlet temperature, and maintain these parameters within limits recommended by the manufacturer.

After a run is completed, the baghouse temperature will drop through the range where acid gasses will condense. Corrosion will be minimized if the temperature passes through this range as quickly as possible. Therefore this requirement is to maintain fan operation per the manufacturer's recommendation until the baghouse has been purged. Reducing corrosion will lengthen the life of the baghouse and maintain the integrity of the fabric filter clamps and fasteners.

Ongoing monitoring of the parameters mentioned in this condition such as the pressure drop across the baghouse enables the operators to determine how the baghouse is functioning. For example, a baghouse differential pressure (DP) higher than the manufacturer's maximum recommended values may indicate that the cleaning system is not functioning adequately or may indicate a blocked hopper. A DP significantly lower than the manufacturer's specifications could indicate holes in the bags.

Condition 67.3 - Facilities with a Wet Scrubber:

This condition expands the requirements under SPC VI to provide a condition that more adequately meets the requirements under 18 AAC 50.346(b)(5) when the control device used is a wet scrubber.

The permit requires the Permittee to demonstrate compliance with the visible emissions and particulate matter standards in 18 AAC 50.055. Some Asphalt Plants may choose to control PM emission using a wet scrubber. This condition states the

inspection requirements at the beginning of the operating season if the particulate matter control device is a scrubber.

The Permittee must maintain and operate the scrubber in accordance with the manufacturer's recommendations to include pressure drop, inlet and outlet water temperatures, water flow rate, and water pressure. This condition is intended to support compliance with opacity and particulate standards by encouraging proper scrubber maintenance and operation. Scrubber efficiency is related to proper operation.

Condition 68 – Dilution

Legal Basis: This condition reiterates 18 AAC 50.045(a), which prohibits the Permittee from using dilution as an emission control strategy. 18 AAC 50.045 is included in the SIP approved by EPA and, therefore, is an applicable requirement, per 40 C.F.R. 71.2.

Factual Basis: The condition prohibits the Permittee from diluting emissions as a means of compliance with any standard in 18 AAC 50.

Condition 69 – Reasonable Precautions to Prevent Fugitive Dust

Legal Basis: This condition reiterates 18 AAC 50.045(d), which requires a person to use reasonable precautions when handling, storing or transporting bulk materials or engaging in an industrial activity. 18 AAC 50.045 is included in the SIP approved by EPA and, therefore, is an applicable requirement, per 40 C.F.R. 71.2.

This condition expands the requirements under 18 AAC 50.346(c) for SPC 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 sources operating under the GP3. This condition applies to stationary sources operating asphalt plants and/or rock crushers.

Factual Basis: The condition requires the Permittee to comply with 18 AAC 50.045(d) and take reasonable action to prevent particulate matter (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. This 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.

Asphalt Plants have a considerable potential for generating fugitive dust. 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.

If the Asphalt Plant is to be located within one mile of a business, residence or other inhabited structure, the Permittee under this general permit must implement the plan

under condition 69.2 or get the Department's approval to implement a different plan. The plan must be specific to any location named in the application.

The "one mile" distance requirement came from a circa-2003 dispersion modeling analysis conducted in support of the 2003 previous General Permit (GP3) for Asphalt Plants. 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 a mile away.

The "2,000 feet" distance requirement was derived from air dispersion modeling analysis performed by the Department on April 24, 2003. 2,000 feet between ambient air and crushing operations corresponded to a worst-case scenario where 24-hour ambient air standard for particulate matter less than 10 microns could potentially be violated.

Condition 70 – Stack Injection

Legal Basis: This condition reiterates 18 AAC 50.055(g), which prohibits the Permittee from releasing materials other than process emissions, products of combustion, or materials introduced to control pollutant emissions from a stack (i.e., disposing of material by injecting it into a stack). 18 AAC 50.055 is included in the SIP approved by EPA and, therefore, is an applicable requirement, per 40 C.F.R. 71.2.

Stack injection requirements apply to stacks of emissions units at a stationary source constructed or modified after November 1, 1982.

Factual Basis: No specific monitoring for this condition is practical. Compliance is ensured by inspections, because the source or stack would need to be modified to accommodate stack injection.

Conditions 71 – Air Pollution Prohibited

Legal Basis: This condition requires compliance with 18 AAC 50.110. 18 AAC 50.110 is included in the SIP approved by EPA and, therefore, is an applicable requirement, per 40 C.F.R. 71.2. The condition prohibits 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. The Department also included permit conditions for MR&R as required by 40 C.F.R. 71.6(a)(3) and 71.6(c)(1).

Factual Basis: The Department used the language in SPC II for the permit. This condition spells out how to monitor, record, and report prohibited air pollution. While the other permit conditions and emissions limitations should ensure compliance with this condition, unforeseen emission impacts can cause violations of this standard. These violations would go undetected except for complaints from affected persons. Therefore, to monitor compliance, the Permittee must monitor and respond to complaints.

The Permittee is required to report any complaints and injurious emissions. The Permittee must keep records of the date, time, and nature of all complaints received and summary of the investigation and corrective actions undertaken for these complaints and must submit copies of these records upon request of the Department.

Condition 72 – Technology Based Emission Standard

Legal Basis: The Permittee is required to take reasonable steps to minimize emissions if unavoidable emergency, malfunction, or non-routine repair activities cause an exceedance of any technology-based emission standard in this permit. This condition requires compliance with the requirement in 18 AAC 50.235. Technology-Based Emission Standard requirements apply because the stationary source contains equipment subject to a technology-based emission standard, such as BACT, MACT, LAER, NSPS or any other similar standard for which the stringency of the standard is based on determinations of what is technologically feasible, considering relevant factors.

Factual Basis: The conditions of this permit list applicable technology-based emission standards and require excess emission reporting for each standard in accordance with Condition 88. Excess emission reporting under Condition 88 requires information on the steps taken to minimize emissions. Monitoring of compliance for this condition consists of the report required under Condition 88.

Condition 73 – Open Burning

Legal Basis: This condition requires the Permittee to comply with the regulatory requirements in 18 AAC 50.065 when conducting open burning at the stationary source. 18 AAC 50.065 is included in the SIP approved by EPA and, therefore, is an applicable requirement, per 40 C.F.R. 71.2. The state open burning regulation in 18 AAC 50.065 applies to the Permittee if the Permittee conducts open burning at the stationary source.

Factual Basis: The Permittee may conduct open burning by following the provisions of 18 AAC 50.065 and by following the Department guidelines posted at the website <http://dec.alaska.gov/air/air-permit/open-burn-info>. Condition 73.1 requires the Permittee to keep records to demonstrate compliance with the standards for conducting open burning.

Condition 74 - Requested Source Tests

Legal Basis: The Permittee is required to conduct source tests as requested by the Department. This requirement is under 18 AAC 50.220(a) and 50.345(k), which are included in the SIP approved by EPA.

Factual Basis: This condition applies because this is a standard condition to be included in all operating permits, as specified in 18 AAC 50.345(a). Compliance is demonstrated through the submission of the required source test plan and report.

Conditions 75 through 77 – Operating Conditions, Reference Test Methods, Excess Air Requirements

Legal Basis: Conditions 75 and 77 require compliance with the applicable requirements in 18 AAC 50.220(b) and (c)(3), which are included in the SIP approved by EPA. Condition 76 specifies source test methods, as required by 40 C.F.R. 71.6(a)(3)(i) and 71.6(c)(1). These requirements apply because the Permittee is required by the permit to conduct source tests or a source test may be requested by the

Department. The Permittee is required to conduct source tests in the manner set out in Conditions 75 through 77.

Factual Basis: These conditions supplement the specific monitoring requirements stated elsewhere in this permit.

Condition 78 – Test Exemption

Legal Basis: This condition incorporates the source test exemption in 18 AAC 50.345(a) regarding visible emissions observations. 18 AAC 50.345(a) is included in the SIP approved by EPA.

Factual Basis: As provided in 18 AAC 50.345(a), the requirements for test plans, notifications and reports do not apply to visible emissions observations by smoke readers, except in connection with required particulate matter testing.

Conditions 79 through 82 – Test Deadline Extension, Test Plans, Notifications, and Reports

Legal Basis: Conditions 80 through 82 require compliance with the applicable requirements in 18 AAC 50.345(m) through (o), which are included in the SIP approved by EPA. Condition 79 contains the requirement in 18 AAC 50.345(l). The requirements in 18 AAC 50.345(l) through (o) constitute standard conditions that must be included in each operating permit, as specified in 18 AAC 50.345(a). These requirements apply because the Permittee is required to conduct source tests as set out by this permit or as requested by the Department.

Factual Basis: These standard conditions supplement specific monitoring requirements stated elsewhere in this permit.

Condition 83 – Particulate Matter Calculations

Legal Basis: This condition requires the Permittee to reduce particulate matter data in accordance with 18 AAC 50.220(f), which is included in the SIP approved by EPA. It applies when the Permittee tests for compliance with the particulate matter standards in 18 AAC 50.050 or 50.055.

Factual Basis: The condition incorporates a regulatory requirement for particulate matter source tests. This condition supplements specific monitoring requirements stated elsewhere in this permit.

Condition 84 – Recordkeeping Requirements

Legal Basis: This condition requires the Permittee to keep records in accordance with 40 C.F.R. 71.6(a)(3)(ii), which the Department adopted by reference under 18 AAC 50.040(j)(4). It also incorporates the general NSPS recordkeeping requirement under 40 C. F. R. 60.7(f), which the Department adopted by reference under 18 AAC 50.040(a)(1).

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 evidence of compliance with this requirement.

40 C.F.R. 60.7(f) requires records retention for at least two years of the measurements required to be maintained by this Part while 40 C.F.R. 71.6(a)(3)(ii) requires at least five years of records retention. The five-year records retention requirement in Condition 84 satisfies both 40 C.F.R. 60.7(f) and 40 C.F.R. 71.6(a)(3)(ii).

Condition 85 – Certification

Legal Basis: All operating permits must contain a requirement to certify permit applications, reports, affirmations, or compliance certification, per 18 AAC 50.345(j). The requirement is a part of the SIP approved by EPA.

Factual Basis: The Department used the language in SPC XVII, adopted by reference under 18 AAC 50.346(b)(10), for the permit condition. The requirement in 18 AAC 50.345(j) is a standard condition that must be included in each operating permit, as specified in 18 AAC 50.345(a). 18 AAC 50.345(j) allows the excess emissions reports to be certified with the operating report. However, the Department reminds the Permittee that excess emissions reports must be submitted according to the applicable deadline given in Condition 88 and must not be withheld from the Department until the deadline for submittal of an operating report. This condition supplements the reporting requirements of this permit. The certification statement through electronic signature and options for submittal provide paperless options for reporting without compelling Permittees to any specific means of submission.

Condition 86 – Submittals

Legal Basis: This condition applies because the Permittee is required to send reports to the Department and supplements the standard reporting and notification requirements of this permit.

Factual Basis: The Department used the language in SPC XVII, adopted by reference under 18 AAC 50.346(b)(10), for the permit condition. This condition lists the Department's appropriate address for reports and written notices. This condition states that the Department requires one certified copy of submitted reports (except as otherwise required by the Department or other conditions of the permit) and provides an allowance for either electronic or hard copy document submittals. The condition also directs the Permittee to refer to the submission instructions on the Department's Standard Permit Conditions webpage for additional information regarding document submittals (e.g., the appropriate Department address).

Condition 87 – Information Requests

Legal Basis: All operating permits must include a condition that requires the Permittee to furnish certain information upon request, per 18 AAC 50.345(i). The requirement is part of the SIP approved by EPA.

Factual Basis: The requirement in 18 AAC 50.345(i) is a standard condition that must be included in each operating permit, as specified in 18 AAC 345(a). This condition requires the Permittee to submit information requested by the Department.

Condition 88 – Excess Emission and Permit Deviation Reports

Legal Basis: This condition requires the Permittee to comply with the requirements in 18 AAC 50.235(a)(2) and 18 AAC 50.240(c). Also, the Permittee is

required to notify the Department when emissions or operations deviate from the requirements of the permit.

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 used the language in SPC III, adopted by reference under 18 AAC 50.346(b)(2), for the permit condition. The Department used the notification form in SPC IV adopted by reference under 18 AAC 50.346(b)(3), for the notification requirements (see Section 13) for the notification requirements.

Condition 89 - Operating Reports

Legal Basis: This condition ensures compliance with the applicable requirement in 18 AAC 50.346(b)(6) and applies to all permits.

Factual Basis: The condition specifies reporting requirements as required by 40 C.F.R. 71.6(a)(3)(iii)(A) which the Department has adopted by reference under 18 AAC 50.040(j)(4).

Factual Basis: The Department used the language in SPC VII, adopted by reference under 18 AAC 50.346(b)(6), for the permit condition with slight modifications. The condition restates the requirements for reports listed in regulation. The condition supplements the specific reporting requirements identified elsewhere in the permit.

The Department modified the condition to match the reporting periods used in the MG3 and MG9 permits for asphalt plants and rock crushers. This extends the reporting period to seven months during the warmer portion of the year when asphalt plants typically operate in Alaska from April 1 to October 31 and contains a shorter five-month operating season from November 1 through March 31 when most asphalt plants are not in operation. Additionally, the Department included a Semiannual Operating Report Form in Section 15 of the GP3 to simplify reporting for the Permittee. If the Permittee chooses to use their own report format, the Department requires all information be included that is specified in the Department's provided form.

The condition specifies that for the transition periods between an expiring permit and a renewal permit, the Permittee shall ensure that there is date-to-date continuity between the expired permit and the renewal permit such that the Permittee reports against the permit terms and conditions of the permit that was in effect during those partial date periods of the transition. No format is specified. The Permittee may provide one report accounting for each permit term or condition and the effective permit at that time. Alternatively, the Permittee may choose to provide two reports: one accounting for reporting elements of permit terms and conditions from the end date of the previous operating report until the date of expiration of the old permit, and a second operating report accounting for reporting elements of terms and conditions in effect from the effective date of the renewal permit until the end of the reporting period.

Condition 90 – Annual Compliance Certification

Legal Basis: This condition requires compliance with the requirements in 40 C.F.R. 71.6(c)(5), which the Department adopted by reference under 18 AAC 50.040(j).

Factual Basis: This condition specifies the periodic compliance certification requirements and specifies a due date for the annual compliance certification (ACC).

Condition 90.2 provides clarification of transition periods between an expiring permit and a renewal permit to ensure that the Permittee certifies compliance with the permit terms and conditions of the permit that was in effect during those partial date periods involved in the transition. No format is specified. The Permittee may provide one report certifying compliance with each permit term or condition for each of the effective permits during the certification period, or may choose to provide two reports: one certifying compliance with permit terms and conditions from January 1 until the date of expiration of the old permit, and a second report certifying compliance with terms and conditions in effect from the effective date of the renewal permit until December 31.

The Permittee is required to submit to the Department an annual compliance certification report. The Permittee may submit the required report electronically at their discretion.

An ACC reporting form was provided for the Permittee in Section 16 as a guide in completing and submitting the Annual Compliance Certification. While every effort was made to ensure that the ACC reporting form incorporates all the conditions in the permit, it does not alleviate the Permittee from certifying compliance with all the required permit conditions as required by the permit.

Condition 91 – Emission Inventory Reporting

Legal Basis: This condition requires the Permittee to submit emissions data to the state so the state is able to satisfy the federal requirement to submit emission inventory data from point sources to the EPA as required under 40 C.F.R. 51.15 and 51.321. The emission inventory requirement applies to sources defined as point sources in 40 C.F.R. 51.50. The state must report emissions data as described in 40 C.F.R. 51.15 and the data elements in Tables 2a and 2b to Appendix A of 40 C.F.R. 51 Subpart A to EPA.

Factual Basis: The Department used the language in SPC XV, as adopted by reference under 18 AAC 50.346(b)(8), for the permit condition.

The emission inventory data is due to EPA 12 months after the end of the reporting year (40 C.F.R. 51.30(a)(1) and (b)(1)). Permittees have until April 30th to compile and submit the data to the Department. To expedite the Department's process of transferring data into EPA's electronic reporting system, the Department encourages Permittees to submit the emission inventory through the Department's electronic emission inventory submission system in the Permittee Portal on the Department's Air Online Services webpage <http://dec.alaska.gov/Applications/Air/airtoolsweb/>. A myAlaska account and profile are needed to gain access to the Permittee Portal. Other options are to submit the emission inventory via mail, email, or fax.

Detailed instructions on completing and submitting the emission inventory and the report form are available at the Point Source Emission Inventory page <http://dec.alaska.gov/Applications/Air/airtoolsweb/PointSourceEmissionInventory> by clicking the Emission Inventory Instructions button. The emission inventory instructions and report form may also be obtained by contacting the Department.

To ensure that the Department's electronic system reports complete information to the National Emissions Inventory, Title V stationary sources are required to submit with each report emissions data described in 40 C.F.R. 51.15 and the data elements in Tables 2a and 2b to Appendix A of 40 C.F.R. 51 Subpart A, as applicable. Title V stationary sources with potential annual emissions greater than or equal to any of the emission thresholds shown in Condition 91.1 for Type A (large) sources, as listed in Table 1 to Appendix A of 40 C.F.R. 51 Subpart A, are required to report emission inventory data every year for the previous calendar year (also known as the inventory year). For triennial inventory years, Type A sources only need to submit one report, not both an annual report and a separate triennial report.

Title V stationary sources with potential annual emissions greater than or equal to any of the emission thresholds for Type B (small) sources shown in Condition 91.2a (for attainment and unclassifiable areas) and Condition 91.2b (for nonattainment areas), as listed in Table 1 to Appendix A of 40 C.F.R. 51 Subpart A, are required to report emission inventory data every third year (i.e., triennially) for the previous inventory year. The emission thresholds for nonattainment areas listed in Condition 91.2b vary depending on the nonattainment status of the area. As of June 9, 2017, Fairbanks and North Pole urban area have been designated by the federal administrator as "serious nonattainment" for PM_{2.5}. Therefore, a stationary source located in Fairbanks and North Pole urban area is subject to the triennial reporting requirement if its potential to emit is greater than or equal to any of the threshold values in Conditions 91.2b(i), 91.2b(ii), 91.2b(iii) (PM₁₀ only), and 91.2b(iv).

As of the issue date of this permit, stationary source's operating under the GP3 are considered Type B stationary sources.

Condition 92 – NSPS and NESHAP Reports

Legal Basis: The Permittee is required to provide the Department a copy of each report submitted to EPA as required for emissions units subject to NSPS or NESHAP federal regulations under 18 AAC 50.326(j)(4). Appendix A to 40 C.F.R. 70 documents that EPA fully approved the Alaska operating permit program effective November 30, 2001.

Factual Basis: The condition supplements the specific reporting requirements in 40 C.F.R. 60, 40 C.F.R. 61, and 40 C.F.R. 63. The reports themselves provide monitoring for compliance with this condition.

Condition 93 – Nonroad Engines

Legal Basis: Nonroad engines are not subject to the standards approved under the State Implementation Plan for the air pollution control for Stationary Sources. Furthermore, 18 AAC 50.100, states that the potential to emit from nonroad engines

do not count towards classification of a Stationary Source or modification under AS 46.14.130.

Factual Basis: This condition requires the Permittee to keep records of location and specifications of engines that meet the definition of nonroad engine under 40 C.F.R. 1068.30-Nonroad Engine-(1)(iii)¹⁰ at any location where they operate. An engine specified above will not be considered a nonroad engine if it remains or will remain at a location for more than 12 consecutive months. 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 used at a single specific location for 12 months or longer ceased to be a nonroad engine when it was placed in that location.

Condition 94 – Permit Applications and Submittals

Legal Basis: 40 C.F.R. 71.10(d)(1), adopted by reference by the Department under 18 AAC 50.040(j)(7), requires submission of a copy of each permit application to EPA.

Factual Basis: The Department used the language in SPC XIV, adopted by reference under 18 AAC 50.346(b)(7), for the permit condition. The condition directs the applicant to send a copy of each application for modification or renewal of this permit to the EPA. The information may be submitted in electronic format, if practicable. This condition shifts the burden of compliance with 40 C.F.R. 71.10(d)(1) from the Department to the Permittee as allowed under 40 C.F.R. 71.10(d)(1).

Conditions 95 through 97, Permit Changes and Revisions Requirements

Legal Basis: The Permittee is obligated to notify the Department of certain off-permit source changes and operational changes under 18 AAC 50.326(j)(4). 40 C.F.R. 71.6(a)(8), (12), and (13), incorporated by reference under 18 AAC 50.040(j), require that these provisions be included in operating permits.

Factual Basis: 40 C.F.R. 71.6(a)(12) and (13), as reflected in Conditions 96 and 97, respectively, specify changes that may be made without a permit revision, and 40 C.F.R. 71.6(a)(8) (Condition 95) states permit revisions are not required for some emissions trading and similar programs.

The Permittee did not request trading of emission increases and decreases as described in 40 C.F.R. 71.6(a)(13)(iii); therefore, language addressing these provisions has not been included in this permit as part of Condition 95.

Condition 98 - Permit Renewal

Legal Basis: The Permittee must submit a timely and complete operating permit renewal application if the Permittee intends to continue source operations in accord

¹⁰ Definition for *Nonroad Engine* in 40 C.F.R. 1068.30-Nonroad Engine-(1)(iii): Except as discussed in paragraph (2) of this definition, a nonroad engine is an internal combustion engine: that by itself or in or on a piece of equipment, it 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.

with the operating permit program under 18 AAC 50.326(j)(3). The obligations for a timely and complete operating permit application are set out in 40 C.F.R. 71.5 incorporated by reference in 18 AAC 50.040(j)(3). 40 C.F.R. 70 Appendix A documents that EPA fully approved the Alaska operating permit program effective November 30, 2001.

Factual Basis: In accordance with AS 46.14.230(a), this operating permit is issued for a fixed term of five years after the date of issuance, unless a shorter term is requested by the permit applicant. The Permittee is required to submit an application for permit renewal by the specific dates applicable as listed in this condition. As stated in 40 C.F.R. 71.5(a)(1)(iii), submission for a permit renewal application is considered timely if it is submitted at least six months but no more than eighteen months prior to expiration of the operating permit. According to 71.5(a)(2), a complete renewal application is one that provides all information required pursuant to 40 C.F.R. 71.5(c) and must remit payment of fees owed under the fee schedule established pursuant to 18 AAC 50.400. 40 C.F.R. 71.7(b) states that if a source submits a timely and complete application for permit issuance (including renewal), the source's failure to have a permit is not a violation until the permitting authority takes final action on the permit application.

Therefore, for as long as an application has been submitted within the timeframe allowed under 40 C.F.R. 71.5(a)(1)(iii), and is complete before the expiration date of the existing permit, then the expiration of the existing permit is extended and the Permittee has the right to operate under that permit until the effective date of the new permit. However, this protection shall cease to apply if, subsequent to the completeness determination, the applicant fails to submit by the deadline specified in writing by the Department any additional information needed to process the application. Monitoring, recordkeeping and reporting for this condition consist of the application submittal.

Conditions 99 through 106 – General Compliance Requirements and Schedule

Legal Basis: These conditions require compliance with the applicable requirements in 18 AAC 50.345(b) through (d) and (h) and 40 C.F.R. 71.6(c)(3). As stated in 18 AAC 50.345(a), the requirements in 18 AAC 50.345(b) through (d) and (h) are standard conditions that must be included in all operating permits issued by the Department.

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

Attachment 1: Emission Reporting and Emission Fee Estimate

Submit the following information to the Department no later than March 31st of each year in accordance with the submission instructions on the Department's Standard Permit Conditions web page at <http://dec.alaska.gov/air/air-permit/standard-conditions/standard-condition-i-submission-instructions/>.

The Permittee shall include with the assessable emissions report all of the assumptions and calculations used to estimate the assessable emissions in sufficient detail so the Department can verify the estimates. Material to assist in calculating emissions can be found in the Department's Asphalt Plant Emission Fee Calculation Guide in Section 17, or the GP3 Assessable Emissions Spreadsheet on the Department's website; <https://dec.alaska.gov/air/air-permit/general-permits/>.

Stationary Source Name; _____

Permit Number: _____ Date: _____

Emission Fee Estimate for _____
(State fiscal year)

Table 2 Total Emissions & Assessable Emission Fee Estimate

Pollutant	Asphalt Plant	Diesel Engine(s)	Rock Crusher (if Applicable)	Assessable Emissions
NO _x				
CO				
SO ₂				
PM-10				
VOC				

Based on information and belief formed after reasonable inquiry, I certify that the statements and information in and attached to this document are true, accurate, and complete.

Signature

Printed Name

Title

Attachment 2: Asphalt Plant Dispersion Modeling Summary

Alaska Department of Environmental Conservation Dispersion Modeling Summary For Asphalt Plants

Prepared by
Bill Walker
April 23, 2003

This summary is to support the renewal of general air quality operating permits for Asphalt Plants. 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 May 1, 1998, the Department issued permits for transportable or stationary Asphalt Plants. The first round permits were issued under the authority of AS 46.14.215 which requires a demonstration that operations do not cause violations of ambient air quality standards or applicable increments. In support of that permit, the Department did air quality dispersion modeling using SCREEN3¹¹.

During the life of that permit, the Department has received a substantial number of complaints about emissions from some of the Asphalt Plants using the General Permit. The complaints involve the potential for adverse impacts on human health and welfare.¹² The complaints were about dust and odors, and specifically questioned whether the Department has evaluated the effects of neighbors being on elevated terrain, and the operation of more than one industrial facility at the same location.

The modeling for the 1998 permits did not look at either elevated terrain or multiple industrial operations at one location. At that time, the Department also did not have a way to estimate emissions from any sources other than the stack emissions from aggregate dryers, drum mixers, or diesel engines used to provide electrical power. Therefore, several important sources of particulate matter were not part of the analysis.

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 additional dispersion modeling as provided by 18 AAC 50.201. This modeling serves as the basis for proposed permit conditions.

¹¹ SCREEN3 AND ISCST3 are EPA computer models for predicting concentrations of pollutants in the air to which the public has access. They use data on weather and on the emission sources to make the calculations.

¹² It is important to note that most plants operating under the general permits did so without public complaints to the department.

Model and Methods Used

For this modeling analysis I used ISCST3¹. This allowed sources to be distributed over a three dimensional space. [SCREEN3 does not.] The modeling is intended to represent Asphalt Plants operating anywhere in the state. To make the modeling as representative as possible, I used emission rates and stack parameters from 28 Asphalt Plant source test reports. I estimated stack heights from photographs or visible emission inspection [Method 9] reports. Source test reports show operation at rates both above and below the standard of 0.04 gr/dscf. Emission rates for all stacks modeled were based on operation at that standard.

Fugitive particulate matter emissions were modeled as volume sources as this best approximates how they are released.

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, and for three hour concentrations multiplied by 0.9. This is consistent with EPA guidelines.

Background Concentrations

The background concentrations selected must be applied statewide. It would be far too unwieldy to develop separate conditions for each area of the state based on different background concentrations. I used the 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 concentrations were:

- SO₂ 24 hour – 26 µg/m³;
- SO₂ three hour – 44 µg/m³;
- PM-10 24 hour – 31 µg/m³.

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

Asphalt Plants have several structures that can cause downwash under some circumstances. The modeling used two structures common to any plant. The dryer or drum mixer was represented as a building 30 feet long and 12 feet high. Drum mix plants have a storage silo. Batch plants have a pug mill, and may also have a storage silo. To represent a silo or pug mill, I used a cylindrical structure 40 feet high and 14 feet in diameter.

Earlier modeling done before the public workshops held in January, 2003 relied on only one downwash structure – the drum mixer or dryer. A photograph the Department

received of one Asphalt Plant in operation shows apparent downwash from larger structures. Based on that information adding the silo was more realistic and produced changes in the modeling results.

PM-10

A recent EPA publication¹³ provided estimates of fugitive emissions for:

- Dust from vehicle traffic, including dump trucks and loaders;
- Receiving new aggregate;
- RAP crushing;
- Screening;
- Load out; and
- For drum mix plants, silo filling.

I combined all modeled sources in three scenarios – high and low moisture for fugitive emissions, and assuming fugitive emissions from mobile sources was controlled well enough that emissions are negligible. Asphalt plant stack emissions were modeled at the NSPS emission limit of 0.04 gr/dscf for each scenario.

The estimated emissions from vehicle traffic, RAP crushing, and screening depend on whether there are emission controls, such as water sprays, and for vehicle traffic, whether the ground is wet or dry and dusty and the soil silt content. Emissions from these sources also depend on the production rates and other source specific factors. I used the emission factors and assumptions in the following table.

¹³ Hot Mix Asphalt Plant Emission Assessment Report, EPA-454/R-00-019, December, 2000.

Table 1 Fugitive Particulate Matter Emission Factors and Assumptions			
Emission Source	PM-10 Emission Factor	Source of Emission Factor	Assumptions
All Sources			12 hours of operation per day 150 tons of HMA per hour
Loaders	$E = 2.6 (s/12)^{0.8} \times (W/3)^{0.4} \times 1/(M/0.2)^{0.3}$ where s is ground silt content W is vehicle weight M is soil moisture E is pounds of PM-10 /vehicle mile traveled	AP-42 Table 13.2.2	Caterpillar 928g Loader 12 ¼ tons 3 yard bucket capacity 20 feet from aggregate pile to inlet hopper Soil Moisture - uncontrolled operation 0.7% ⁴ - controlled operation 20% 10% road silt ¹⁴
Trucks	Same as loaders	Same as Loaders	10 ½ tons empty 12 ton capacity 200 meters from gravel source to dryer 50 meters to property boundary Soil Moisture - for uncontrolled operation - 0.7% ⁴ - no emissions when wet 10% road silt ⁴
Screening	Controlled - 0.00084 Uncontrolled – 0.015 lb/ton	AP-42 11.19.2	
RAP Crushing	Controlled – 0.00059 Uncontrolled – 0.0024	AP-42 11.19.2	Factor for tertiary crushing ⁴

Results

The model predicted ambient air quality standards violations for each terrain height. For each model run I found the distance from the center of the operation to the nearest receptor with predicted compliance with the ambient standards. For conclusions based on particulate matter emissions, I subtracted 50 meters, which was the distance from the center to the outer edge of the volume sources representing fugitive emissions.

¹⁴ Hot Mix Asphalt Plant Emission Assessment Report, EPA-454/R-00-019, December, 2000, page 15

The distances to compliance were much greater for the model runs with fugitive emission sources uncontrolled. Distances were 1400 - 1600 meters – about one mile.

[Modeling filenames: dwas00su, dwas30su]

For controlled fugitive sources, the model predicts ambient standards violations only at smaller distances from the operation (see Table 2 below). With the same assumptions, the model also predicts violations of PSD increments at distances closer than 800 feet for flat terrain, and 1100 feet for terrain that is elevated 15 meters above the ground level of the stationary equipment.

[Modeling filenames: dwas00mc, dwas20mc]

Table 2 PM-10	
	Distance to Compliance with ambient standard– all asphalt plants modeled comply at rated capacity [distance in meters, measured between an offsite inhabited structure and a Stationary Source or material piles or borrow source that is being actively worked.
Worst Case All sources – Fugitives uncontrolled, dry conditions 0 meters terrain height	1550 meters
Best Case Fugitive emissions negligible except for RAP crushing and load out emissions 0 meter terrain ht. 10 meter 15 meter 20 meter	26 49 64 84

SO₂

All sulfur emissions are assumed for this modeling to originate from sulfur in the fuel. I used the actual fuel combustion rate during the source test from which I obtained the stack parameters, and assumed the sulfur content of the fuel was 0.5% sulfur (the ASTM specification for number 2 diesel or fuel oil.) I assumed the simultaneous use of a stationary 500 hp diesel engine.

SO₂ standards were predicted to violate the three hour ambient standard close to the facility. The greatest distance for any plant modeled (flat terrain) to a location where compliance with the standard was always predicted was 100 meters, or 110 yards from the combustion sources. [Combustion sources were modeled as point sources emitted at a single location.] Modeling for most other plants predicted distances to compliance between 50 and 100 yards.

[Modeling filename: soadas00]

Multiple Industrial Facilities at One Location

I modeled the combined impacts of an asphalt plant and a crusher located 100 meters apart. I modeled all crusher sources using AP-42 emission factors for controlled sources, and an asphalt plant assuming that all fugitive emission sources except RAP crushing and load out emissions were controlled well enough to be negligible. Impacts did not exceed those when the same sources were modeled separately. Therefore no permit conditions are included in the proposed permit to address emissions from combined sources.

Conclusions and Recommendations

Because the modeling that was performed relies on estimates of what is a “typical” facility, the conditions in the permit based on this modeling of the results are not as rigorous as would be done for modeling which more accurately represents an individual facility. A General Permit is necessary because of the nature of asphalt production operations in Alaska. Asphalt Plants may have to frequently relocate to be near enough to road or runway paving jobs. By the time a contract is awarded and a location identified, there is typically not enough time to obtain a facility specific permit and still be able to satisfy the contract.

Based on results for SO₂ the permit prohibits locating fuel burning equipment at an asphalt plant within 110 yards of a residence.

The worst case modeling for uncontrolled particulate matter sources predicts violations of the 24 hour ambient PM-10 standard up to a mile away. The permit condition to address this possibility relies on a fugitive dust control plan. It would not be possible to write conditions that adequately restrict emissions from all sources without being overly stringent in many cases.

Based on results for PSD increments, the permit allows up to two years of operation at a location that is closer than 800 feet to a residence or other occupied structure, or 1100 feet if the structure is on terrain higher than 10 meters above the ground level of the stationary equipment. Construction activities that are in one location for less than two years are considered temporary, and not subject to PSD increments.

Uncertainties

Each of the assumptions described contributes uncertainty to the results of this analysis. Since there is no one set of assumptions that will fit all operations, the intent was to describe a reasonable worst case—assumptions that would not unreasonably prevent the operation under this permit of asphalt plants that have been operating under the previous permit without problems or complaints.

Since the General Permits can be used anywhere in the state, there is no one set of meteorological data that would be appropriate for all operations. This is why I chose a “screening” data set that presents a wide variety of conditions to find the reasonable worst case one hour concentration. The predictions would be appropriate to the extent that these screening conditions fit any actual location for an extended number of hours, the wind direction is toward nearby structures such as businesses or residences, and operation occurs during these conditions for about 12 hours per day.

These uncertainties must be considered when applying the modeling results to any applicability criteria or permit conditions for the General Permit.

Odor

The odor from asphalt plants is a common source of concern to nearby residents, especially those with special health problems. However, odor cannot be modeled, so it could not be included in this analysis.

Attachment 3: 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 welfare.¹⁵

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.

¹⁵ It is important to note that most plants operating under the general permits did so without public complaints to the Department.

Background Concentrations

Background concentrations had to be applied statewide. I used the 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 micrograms/m³.

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 follows:¹⁶

- 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

¹⁶ 127 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.

from the edge of the operation], and with the increment at 350 meters and beyond [rounded to 1000 feet].

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.

[Filesnames: crushrco.bst, crushrun.bst]