



PERMIT CONDITIONS
VULCAN ASPHALT, MARICOPA PLANT
PERMIT NUMBER P00000##

DATE ISSUED: ###/###/2026
REVISION No.: 0.0.0.0
REVISION DATE: 00/00/0000
EXPIRATION DATE: 01/20/2027

ORIGINAL PERMIT ISSUED: 01/20/2017

The owner/operator (Permittee) shall comply with the provisions of Gila River Indian Community (GRIC) Code: Title 17 Chapter 9; the Code of Federal Regulations (CFR) Title 40, Part 60, as applicable; and any other applicable Federal requirements not specifically stated herein. It is the responsibility of the Permittee to identify and comply with all local and Federal requirements that apply to the operation and maintenance of the permitted facility. Compliance with the provisions of this Permit shall not relieve any person subject to the requirements of GRIC Code Title 17 Chapter 9 from complying with any other standards including 40 C.F.R., Part 60 and Part 63. In such case, the more stringent standard shall apply.

GRIC Code: Title 17 Chapter 9; CFR Title 40, Part 60, as applicable; and any other applicable Federal requirements not specifically stated herein are hereinafter referred to as the "Rules." In addition, the terms "Part" and "Section" refer to GRIC Code: Title 17 Chapter 9. In the event that these Rules are revised to change the content and numerical references during the term of this Permit, the revised Rules and numbering system will apply to this Permit.

The term "Director" shall refer to the Director of the GRIC Department of Environmental Quality (DEQ). The term "Administrator" shall refer to the Director or Administrator of the United States Environmental Protection Agency (EPA).

Where required in this Permit, correspondence shall be submitted to the following agencies:

EPA or Administrator Notifications:

Environmental Protection Agency
Region IX
Director, Air Division
75 Hawthorne Street
San Francisco, CA 94105

GRIC DEQ or Director Notifications:

Gila River Indian Community
Department of Environmental Quality
Director
P.O. Box 2139
Sacaton, AZ 85147
air@gric.nsn.us

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GENERAL CONDITIONS:

1. Affirmative Defense:

- a. Affirmative defenses are established for certain emissions in excess of an emission standard or limitation and apply to all emission standards or limitations **except** for standards or limitations:
 - i. Promulgated pursuant to Sections 111 or 112 of the Act;
 - ii. Promulgated pursuant to Titles IV or VI of the Act;
 - iii. Included in the Permit to meet the requirements of GRIC Code: Title 17 Chapter 9, Part I, Section 4.0.
- b. Affirmative Defense for Malfunctions.
 - i. Emissions in excess of an applicable emission limitation due to malfunction shall constitute a violation. The Permittee with emissions in excess of an applicable emission limitation due to malfunction has an affirmative defense to a civil or administrative enforcement proceeding based on that violation, other than a judicial action seeking injunctive relief, if the Permittee has complied with the reporting requirements of Condition 21(c) of this Permit and has demonstrated all of the following:
 - 1) The excess emissions resulted from a sudden and unavoidable breakdown of process equipment or air pollution control equipment beyond the reasonable control of the Permittee;
 - 2) The air pollution control equipment, process equipment, or processes were at all times maintained and operated in a manner consistent with good practice for minimizing emissions;
 - 3) If repairs were required, the repairs were made in an expeditious fashion when the applicable emission limitations were being exceeded. Off-shift labor and overtime were utilized where practicable to ensure that the repairs were made as expeditiously as possible. If off-shift labor and overtime were not utilized, the Permittee satisfactorily demonstrated that the measures were impracticable;
 - 4) The amount and duration of the excess emissions (including any bypass) were minimized to the maximum extent practicable during periods of such emissions;
 - 5) All reasonable steps were taken to minimize the impact of the excess

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emissions on ambient air quality;

- 6) The excess emissions were not part of a recurring pattern indicative of inadequate design, operation, or maintenance;
- 7) During the period of excess emissions there were no exceedances of the relevant ambient air quality standards that could be attributed to the emitting source;
- 8) The excess emissions did not stem from any activity or event that could have been foreseen and avoided, and could not have been avoided by improved operations and maintenance practices;
- 9) All emissions monitoring systems were kept in operation, if practicable; and
- 10) The Permittee's actions in response to the excess emissions were documented by contemporaneous records.

c. Affirmative Defense for Startup and Shutdown.

- i. Except as provided in Section [c.ii] of this Permit Condition, and unless otherwise provided for in this Permit, emissions in excess of an applicable emission limitation due to startup and shutdown shall constitute a violation. The Permittee with emissions in excess of an applicable emission limitation due to startup and shutdown has an affirmative defense to a civil or administrative enforcement proceeding based on that violation, other than a judicial action seeking injunctive relief, if the Permittee has complied with the reporting requirements of Condition 21(c) and has demonstrated all of the following:
 - 1) The excess emissions could not have been prevented through careful and prudent planning and design;
 - 2) If the excess emissions were the result of a bypass of control equipment, the bypass was unavoidable to prevent loss of life, personal injury, or severe damage to air pollution control equipment, production equipment, or other property;
 - 3) The air pollution control equipment, process equipment, or processes were at all times maintained and operated in a manner consistent with good practice for minimizing emissions;
 - 4) The amount and duration of the excess emissions (including any bypass operation) were minimized to the maximum extent practicable during periods of such emissions;

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- 5) All reasonable steps were taken to minimize the impact of the excess emissions on ambient air quality;
 - 6) During the period of excess emissions there were no exceedances of the relevant ambient air quality standards that could be attributed to the emitting source;
 - 7) All emissions monitoring systems were kept in operation if at all practicable; and
 - 8) The Permittee's actions in response to the excess emissions were documented by contemporaneous records.
- ii. If excess emissions occur due to a malfunction during routine startup and shutdown, then those instances shall be treated as other malfunctions subject to Section [b] of this Permit Condition.
- d. **Affirmative Defense for Malfunction During Scheduled Maintenance.**
- If excess emissions occur due to a malfunction during scheduled maintenance, then those instances will be treated as other malfunctions subject to Section [b] of this Permit Condition.
- e. **Demonstration of Reasonable and Practicable Measures.**
- For an affirmative defense under Sections [b] and [c] of this Permit Condition, the Permittee shall demonstrate, through submission of the data and information required by this condition and Condition 21(c), that all reasonable and practicable measures within the Permittee's control were implemented to prevent the occurrence of the excess emissions.
- [Part II, Section 5.8]
- f. It shall not be a defense for the Permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this Permit.

[Part II, Section 4.4(A)(9)]

2. Certification of Truth and Accuracy:

Any document submitted pursuant to this Permit or the Rules shall contain certification by a responsible official of truth, accuracy, and completeness. This certification and any other certification required under this Permit or the Rules shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

[Part II, Section 3.4]

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3. Compliance Plan

If requested by the Director in writing, the Permittee shall submit to the Director a compliance plan containing a description of the compliance status of the source with respect to all applicable requirements. If the compliance plan declares that the source is not in compliance with an applicable requirement, a narrative of how the source will achieve compliance and a schedule of compliance including an enforceable sequence of actions with milestones shall also be submitted.

[Part II, Sections 4.3(F) and 4.4(A)]

4. Confidentiality Claims:

- a. Any records, reports or information obtained from the Permittee pursuant to this Permit or the Rules, including reports or information obtained or prepared by the Department, shall be available to the public, except that the information or any part of the information shall be considered confidential upon the showing of either of the following:
 - i. A showing, satisfactory to the Director, by the Permittee that the information or a part of the information if made public would divulge the trade secrets of the Permittee.
 - ii. A determination by the GRIC attorney that the disclosure of the information or a particular part of the information would be detrimental to an ongoing criminal investigation or to an ongoing or contemplated civil enforcement action under the Rules in Tribal Court.
- b. A notice of confidentiality submitted pursuant to Section [a.i] of this Permit Condition shall:
 - i. Precisely identify the information in the documents submitted which is considered confidential.
 - ii. Contain sufficient supporting information to allow the Director to evaluate whether such information satisfies the requirements related to trade secrets or, if applicable, how the information, if disclosed, is likely to cause substantial harm to the person's competitive position.
- c. Notwithstanding Sections [a.i] and [a.ii] of this Permit Condition, the following information shall be available to the public:
 - i. The name and address of the Permittee.
 - ii. The chemical constituents, concentrations and amounts of any emission of any air contaminant.

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- iii. The existence or level of concentration of an air pollutant in the environment.
- d. Notwithstanding Sections [a.i] and [a.ii] of this Permit Condition, the Director may disclose, with an accompanying confidentiality notice, any records, reports or information obtained by the Director or the Department to:
 - i. Other Community employees concerned with administering this Permit, or if the records, reports or information are requested for any administrative or judicial proceeding under this Permit or the Rules.
 - ii. Employees of the EPA if the information is necessary or required to administer and implement or comply with Federal statutes or regulations.

[Part II, Section 10.1(A)]

5. Controls:

Except as provided by this Permit or the applicable Rules, the Permittee shall not operate any equipment or process unless air pollution controls, as required by this Permit or the Rules, are in place, are operating without bypass, and are operating within their design parameters, as identified in an approved O&M Plan, and in accordance with any other conditions specified in this Permit. The Permittee shall properly operate and maintain the emission control devices at all times.

[Part II, Section 4.4(A)(2)]

6. Duty to Comply:

- a. The Permittee shall comply with all conditions of this Permit including all applicable requirements of the Rules.
- b. Any Permit noncompliance constitutes a violation of the Rules and is grounds for enforcement action under Part III (Enforcement Ordinances); permit termination or revision; or denial of a permit renewal application. In addition, noncompliance with any Federally enforceable requirement constitutes a violation of the Act.

[Part II, Section 4.4(A)(9)]

7. Duty To Provide Information

The Permittee shall furnish to the Director, within a reasonable time, any information that the Director may request in writing to determine whether cause exists for revising, revoking and reissuing, or terminating the permit, or to determine compliance with the permit. Upon request, the Permittee shall also furnish to the Director copies of records required to be kept by the permit. For information claimed to be confidential, the Permittee shall furnish an additional copy of such records

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directly to the Administrator along with a claim of confidentiality.

[Part II, Section 4.4(A)(3)]

8. Duty to Supplement or Correct Application:

Any applicant who fails to submit any relevant facts or who has submitted incorrect information in a permit application shall, upon becoming aware of such failure or incorrect submittal, promptly submit such supplementary facts or corrected information. In addition, an applicant shall provide additional information as necessary to address any requirements that become applicable to the source after the date it filed a complete application but prior to issuance of a draft permit.

[Part II, Section 4.3(D)]

9. Fees:

The Permittee shall pay the applicable fees required, as set forth in Part II, Section 11.0.

[Part II, Sections 4.5 and 11.0]

10. Fugitive Dust:

- a. The Permittee shall take all reasonable precautions to prevent fugitive dust and fugitive particulate matter emissions and shall maintain and operate the source to minimize fugitive dust and fugitive particulate matter emissions in accordance with Part V, Section 2.0, Subsection 3.0 and any dust control plan required under this Permit.

[Part V, Section 2.0, Subsection 3.0]

- b. Under no circumstances shall the Permittee allow any source of fugitive dust or fugitive particulate matter visible emissions to exceed twenty (20) percent opacity.

[Part V, Section 2.0, Subsection 3.1(A)]

11. Leased/Rented/Borrowed Equipment:

If the Permittee leases, rents or lends any equipment covered by this Permit to a second party, the Permittee shall provide the second party with a copy of this Permit. It is the responsibility of the person using the equipment to make sure that the equipment is properly permitted and operated. If the Permittee does not provide the second party with a copy of this Permit, both the Permittee and the second party shall be responsible for operating the source in compliance with the Permit and for any violation thereof.

[Part II, Section 4.4(A)]



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12. Maintenance:

The Permittee shall keep all equipment under this Permit in good working order through an active maintenance program established in accordance with the approved O&M Plan or, in its absence, with manufacturers' recommendations.

[Part II, Section 4.4(A)(3)]

13. Nuisance:

- a. The Permittee shall not cause, permit, or allow the emission of particles or any contaminants in sufficient amounts or of such duration from any process as to be injurious to humans, animals, plants, or property, or to be a public nuisance, or create a condition of air pollution.
- b. The Permittee shall not cause or permit the handling or transporting or storage of any material in a manner which allows or may allow unnecessary amounts of particulate matter to become airborne.
- c. When dust, fumes, gases, mist, odorous matter, vapors, or any combination thereof escape from a building or equipment in such a manner and amount as to cause a nuisance to property other than that from which it originated or to violate any other provision of this Permit, the Director may order such corrected in a way that all air and gases or air and gasborne material leaving the building or equipment are controlled or removed prior to discharge to open air.

[Part II, Section 4.4(A)(2)]

14. Performance Testing:

- a. If a performance test or such other method of confirming compliance with applicable requirements as specified by the Director or Administrator is required by the Permit or other Federal standard (e.g., New Source Performance Standard - NSPS, National Emission Standard for Hazardous Air Pollutants – NESHAP, etc.), the Permittee shall conduct the performance test or other compliance methodology and submit the written results of such tests to the Administrator and/or Director as required. Unless otherwise specified in this Permit or by more stringent Federal requirements, the performance test shall be conducted within sixty (60) days after a source has achieved the capability to operate at its maximum production rate on a sustained basis, but no later than one hundred eighty (180) days after initial startup or the date of permit issuance for an existing source.
- b. Performance tests or other compliance confirmation methodology shall be conducted under such conditions as specified in this Permit or as specified by the Director or Administrator. A performance test shall consist of three separate runs using the applicable test method. The Permittee shall provide

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the following for the performance test:

- i. Sampling ports adequate for the test methods applicable to the source;
 - ii. Safe sampling platforms and safe access to such platforms;
 - iii. Utilities for sampling and testing equipment.
- c. The Permittee shall provide written notice to the Department at least two (2) weeks prior to scheduled performance testing.

[Part II, Section 4.4(A)(10)]

15. Permit Term:

- a. This Permit shall remain in effect for a period up to five (5) years based on the date of the original permit.

[Part II, Sections 4.4(A)(1) & 4.5(B)]

- b. The Permittee shall submit an application for renewal of this permit at least 12 months, but not more than 18 months, prior to the date of permit expiration.

[Part II, Section 4.3(H)]

16. Permit Revisions:

The Permittee shall comply with the following provisions:

- a. Changes Requiring a Permit Revision

- i. The following changes shall require a permit revision:

- 1) A change that triggers a new applicable requirement or would violate an existing applicable requirement;
- 2) Establishment of, or change in, a voluntarily accepted emission limitation;
- 3) A change that will require a case-by-case determination of an emission limitation or other standard, such as BRDT, or a source-specific determination of ambient impacts, or a visibility or increment analysis;
- 4) A change that results in emissions that are subject to monitoring, recordkeeping or reporting under the permit if the emissions cannot be measured or otherwise adequately quantified by monitoring, recordkeeping, or reporting requirements already in this Permit;

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- 5) A change that will authorize the burning of used oil, used oil fuel, hazardous waste, or hazardous waste fuel, or any other fuel not currently authorized by this Permit;
- 6) A change that results in an increase of the potential to emit equal to or greater than twenty-five (25) tons per year of any single criteria air pollutant but which does not make the source a major source of that pollutant;
- 7) A change that results in either the potential emissions of any new HAP of three (3) tons per year or in an increase of the potential to emit equal to or greater than three (3) tons per year of any individual HAP or five (5) tons per year of any combination of HAPs already emitted by the facility;
- 8) Changes that result in the potential emissions of any new ultrahazardous air pollutant equal to or greater than three hundred (300) pounds per year or result in an increase in the source's potential to emit equal to or greater than three hundred (300) pounds per year of any ultrahazardous air pollutant or combination of ultrahazardous air pollutants;
- 9) Replacement of an item of air pollution control equipment listed in this Permit with one that does not have the same or better pollutant control efficiency;
- 10) Increasing operating hours or rates of production above the permitted level; and
- 11) A change that relaxes monitoring, recordkeeping, or reporting requirements, except when the change results:
 - (a) From removing equipment that results in a permanent decrease in actual emissions if the Permittee keeps on-site records of the change in a log that is in a form acceptable to the Department and if the requirements that are relaxed are present in the permit solely for the equipment that was removed; or
 - (b) From a change in an applicable requirement.

[Part II, Section 5.1(A)]

- ii. The Permittee may make any physical change or change in the method of operation without revising this Permit unless the change is specifically prohibited in this Permit or is a change specifically described in Section [a.i] of this Permit Condition as requiring a permit revision. A change that does not require a permit revision may still be subject to the other

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requirements in Section [b] of this Permit Condition.

[Part II, Section 5.1(B)]

- iii. A significant permit revision shall be subject to the public participation requirements of Part II, Section 4.6.

[Part II, Section 5.1(C)]

- iv. If this source becomes subject to a standard promulgated by the Administrator pursuant to Section 112.d of the Act, then the Permittee shall, within twelve months of the date on which the standard is promulgated, submit an application for a permit revision demonstrating how the source will comply with the standard.

[Part II, Section 4.4(A)(2)(d)]

b. Changes Not Requiring a Permit Revision:

- i. Except for a physical change or change in the method of operation requiring a permit revision under Section [a.i] of this Permit Condition, or a change subject to logging or notice requirements under this Section, a change shall not be subject to revision, notice or logging requirements under Part II.
- ii. Except as otherwise provided in the conditions applicable to a voluntary accepted emission limit created under Part II Section 4.2(C), the following changes may be made if the Permittee keeps on-site written records of the date the change occurred and a description of the change:
- 1) Implementing an alternative operating scenario, including raw materials changes;
 - 2) Changing process equipment, operating procedures, or making any other physical change if the permit requires the change to be logged;
 - 3) Engaging in any new insignificant activity; and
 - 4) Replacing an item of air pollution control equipment listed in this Permit with an identical (same model, different serial number) item. The Director may require verification of the control efficiency of the new equipment by performance tests.
 - 5) A change that results in a decrease in actual emissions if the source wants to claim credit for the decrease in determining whether the source has a net emissions increase for any purpose. The logged information shall include a description of the change that will produce the decrease in actual emissions. A decrease that has not been

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logged is creditable only if the decrease is quantifiable, enforceable, and otherwise qualifies as a creditable decrease.

- iii. Except as provided in the conditions applicable to a voluntarily accepted emission limitation created under Part II Section 4.2(C), the following changes may be made if the Permittee provides written notice to the Department in advance of the change as provided below:
- 1) Replacing an item of air pollution control equipment listed in this Permit with one that is not identical but that is substantially similar and has the same or better pollutant removal efficiency: seven (7) days. The Director may require verification of the control efficiency of the new equipment by performance tests;
 - 2) A physical change or change in the method of operation that increases actual emissions more than ten (10) tons per year or ten (10) percent of the major source threshold for any criteria pollutant, whichever is less, but does not require a permit revision: seven (7) days;
 - 3) Replacing an item of air pollution control equipment listed in this Permit with one that is not substantially similar but that has the same or better control efficiency: thirty (30) days. The Director may require verification of the control efficiency of the new equipment by performance tests;
 - 4) A change that would trigger an applicable requirement that already exists in this Permit: thirty (30) days unless a different notice period is otherwise required by the applicable requirement.
- iv. For each change under Section [b.iii] of this Permit Condition, the written notice shall be by certified mail or hand delivery and shall be received by the Director within the minimum amount of time in advance of the change. Notifications of changes associated with emergency conditions, such as malfunctions necessitating the replacement of equipment, may be provided with less than required notice, but must be provided as far in advance of the change, or if advance notification is not practicable, as soon after the change as possible. The written notification shall include:
- 1) When the proposed change will occur;
 - 2) A description of the change;
 - 3) Any change in emissions of regulated air pollutants; and
 - 4) Any permit term or condition that is no longer applicable as a result

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of the change.

- v. The Permittee may implement any change in Section [b.iii] of this Permit Condition without the required notice by applying for a minor permit revision and complying with application requirements for a minor permit revision.
- vi. Notwithstanding any other provision of Section [b] of this Permit Condition, the Director may require this Permit to be revised for any change that, when considered together with any other changes submitted by the Permittee under this subsection over the term of this Permit, constitute a change requiring a permit revision under Section [a.i] of this Permit Condition.
- vii. If a change is described under both Sections [b.ii] and [b.iii] of this Permit Condition, the Permittee shall comply with Section [b.iii]. If a change is described under both Sections [b.iii] and [a.ii] of this Permit Condition, the Permittee shall comply with Condition [a.ii].
- viii. A copy of all logs required under Section [b.ii] of this Permit Condition shall be filed with the Director within thirty (30) days after each anniversary of this Permit issue date. If no changes were made that require logging, a statement to that effect shall be filed instead.

[Part II, Section 5.2]

c. Minor Permit Revisions

- i. The Permittee shall submit a minor permit revision for the following changes:
 - 1) A change that triggers a new applicable requirement if all of the following apply:
 - (a) The increase in the potential to emit is less than the smaller of twenty-five (25) tons per year or the significant level defined in Part II Section 1.0;
 - (b) A case-by-case determination of an emission limitation or other standard is not required; and
 - (c) The change does not require the Permittee to obtain a Title V permit.
 - 2) Increasing operating hours or rates of production above the permitted level unless the increase otherwise creates a condition that requires a significant permit revision under Part II Section 5.5;

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- 3) A change in fuel from fuel oil or coal, to natural gas or propane, if not authorized in this Permit;
 - 4) A change that results in emissions subject to monitoring, recordkeeping, or reporting and that cannot be measured or otherwise adequately quantified by monitoring, recordkeeping, or reporting requirements already in this Permit if the revision requires monitoring, recordkeeping and/or reporting that provides the required quantification; or
 - 5) Replacement of an item of air pollution control equipment listed in this Permit with one that has the same or better control efficiency. The Director may require performance testing to verify the control efficiency of the new control equipment.
- ii. An application for minor permit revision shall be on an application form prescribed by the Department and shall include the following:
 - 1) A description of the change, the emissions resulting from the change, and any new applicable requirements that will apply if the change occurs; and
 - 2) Certification by a responsible official, consistent with standard permit application requirements, that the proposed revision meets the criteria for use of minor permit revision procedures.
 - iii. The Permittee may make the change proposed in its minor permit revision application immediately after it files the complete application. After the Permittee makes the change allowed by the preceding sentence, and until the Director takes any of the actions specified in Part II Section 5.4(C), the Permittee shall comply with both the applicable requirements governing the change and the proposed revised permit terms and conditions. During this time period, the Permittee need not comply with the existing permit terms and conditions it seeks to modify. However, if the Permittee fails to comply with its proposed permit terms and conditions during this time period, the existing permit terms and conditions it seeks to revise may be enforced against it.
 - iv. Notwithstanding any other provision of this Permit Condition, the Director may require the Permit to be revised as a significant permit revision for any change that, when considered together with any other changes submitted over the life of this Permit, do not satisfy Section [c.i] of this Permit Condition.

[Part II, Section 5.4]

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d. Significant Permit Revisions

- i. The Permittee shall make the following changes only after this permit is significantly revised in accordance with the requirements of Part II, Section 5.5 sections B through D:
 - 1) Establishing or revising a voluntarily accepted emission limitation or standard in accordance with Part II Section 4.2(C);
 - 2) Making any change in fuel not authorized by this Permit, except when changing from fuel oil or coal to natural gas or propane;
 - 3) A change to or addition of an emissions unit that will result in an increase in the potential to emit of a regulated pollutant equal to or greater than either twenty-five (25) tons per year or the significance level defined in Part II Section 1.0, whichever is less;
 - 4) A change that relaxes monitoring, recordkeeping, or reporting requirements, except when the change results from:
 - (a) Removing equipment that results in a permanent decrease in actual emissions. If the Permittee keeps on-site records of the change in a log that satisfies the requirements in Section [b] of this Permit Condition and if the requirements that are relaxed are present in this Permit solely for the equipment that was removed; or
 - (b) A change in an applicable requirement.
 - 5) A change that will cause the Permittee to violate an existing applicable requirement;
 - 6) A change that will require any of the following:
 - (a) A case-by-case determination of an emissions limitation or other standard, including a determination of BRDT;
 - (b) A source-specific determination of ambient impacts; or
 - (c) A case-by-case determination of monitoring, recordkeeping, and reporting requirements.
 - 7) A change that requires the Permittee to obtain a Title V permit.
- ii. A request for a significant permit revision shall be submitted on an application form prescribed by the Department.

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[Part II, Section 5.5]

e. Administrative Amendments

An administrative permit amendment is required for any of the following changes:

- i. To correct typographical errors;
- ii. To identify a change in the name, address, or phone number of any person identified in the permit, or provide a similar minor administrative change at the source;
- iii. To require more frequent monitoring or reporting by the Permittee; and
- iv. To allow for a change in ownership or operational control of a source with a non-Title V permit, provided that a written agreement containing a specific date for the transfer of permit responsibility and liability between the current and new Permittee has been submitted to the Director and the requirements of Condition 18 of this Permit are met. The written agreement shall contain the information required and be subject to the review process contained in Condition 18 of this Permit.

[Part II, Section 4.5(C)]

17. Permit Re-openings: Revocation and Re-issuance; Termination:

- a. This Permit shall be reopened and revised under any of the following circumstances:
 - i. The Director or the Administrator determines that this Permit contains a material mistake or that inaccurate statements were made in establishing the emissions standards or other terms or conditions of this Permit.
 - ii. The Director or the Administrator determines that this Permit needs to be revised or revoked to assure compliance with the applicable requirements.
- b. Proceedings to reopen and reissue a permit, including appeal of any final action relating to a permit reopening, shall follow the same procedures as apply to initial permit issuance and shall affect only those parts of the permit for which cause to reopen exists. Such re-openings shall be made as expeditiously as practicable. Permit re-openings shall not result in a resetting of the five year permit term.
- c. The Director may issue a notice of termination of this Permit when either:

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- i. The Director has reasonable cause to believe that this Permit was obtained by fraud or misrepresentation;
 - ii. The Permittee failed to disclose a material act required by the permit application form or the regulation applicable to this Permit, of which the Permittee had or should have had knowledge at the time the application was submitted; or
 - iii. The terms and conditions of this Permit have been or are being violated.
- [Part II, Section 5.7]

18. Permit Transfers

- a. For purposes of this section, a transfer includes a sale or conveyance to a new corporation or entity or other change in ownership of the current permit holder.
- b. This Permit may be transferred to another person if the Permittee gives notice to the Department in writing at least sixty (60) days before the proposed transfer. The permit transfer notice shall contain the following:
 - i. The permit number and expiration date.
 - ii. The name, address and telephone number of the current permit holder.
 - iii. The name, address and telephone number of the person to receive the permit.
 - iv. The name and title of the individual within the organization who is accepting responsibility for the permit along with a signed statement by that person indicating such acceptance.
 - v. A description of the equipment to be transferred.
 - vi. A written agreement containing a specific date for transfer of permit responsibility, coverage, and liability between the current and new Permittee.
 - vii. Provisions for the payment of any fees pursuant to Part II, Section 11.0 that will be due and payable before the effective date of transfer.
 - viii. Sufficient information about the proposed permit holder's technical and financial capabilities of operating the source to allow the Department to make the decision to either grant or deny the permit transfer during the 60-day review period, including:
 - 1) The qualifications of each person principally responsible for the

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operation of the source.

- 2) A statement by the chief financial officer of the new Permittee that it is financially capable of operating the source in compliance with the law, and the information that provides the basis for that statement.
 - 3) A brief description of any action taken against the proposed permit holder for the enforcement of any Federal or state law, rule or regulation, or any county, city or local government ordinance or Tribal law relating to the protection of the environment for five (5) years preceding the date of application.
- c. The Director may deny a permit transfer if it is determined that the new owner or operator's compliance record or financial resources are such that it lacks the capability to comply with the permit.

[Part II, Section 4.7]

19. Posting of Permit:

- a. The Permittee shall post this Permit or certificate of permit issuance (i.e., signed Permit cover page) at a location on the site where it will be clearly visible to the public.
- b. A copy of this Permit shall be kept on the site and available for inspection by a representative of the Department or any person.

[Part II, Section 4.8]

20. Record Keeping:

- a. The Permittee shall maintain accurate records as required by this Permit and by all applicable Rules. These records shall be kept in a form, which allows easy verification of compliance with this Permit and any applicable Rules.
- b. All records shall be kept for the time as specified. All records required to demonstrate that each required air pollution control device is being operated properly shall be retained for a minimum of five years.
- c. All records required by this Permit shall be made available for inspection upon request by a representative of the Director.
- d. Upon request, the Permittee shall furnish to the Director copies of records required to be kept by this Permit within 48 hours.

[Part II, Section 4.4(A)(3)]

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21. Reporting

a. Certification of Compliance

- i. The Permittee shall submit to the Director, no later than March 15 of each year, annual written certification that the permitted source is in operation and was in compliance with this Permit during the previous calendar year.

[Part II, Section 4.4(A)(6)]

- ii. The compliance certifications shall include the following:

- 1) Identification of each term or condition of this Permit that is the basis of the certification;
- 2) Identification of the methods or other means used by the Permittee for determining the compliance status with each condition of this Permit during the certification period, and whether the methods or other means provide continuous or intermittent data;
- 3) The status of compliance with the terms and conditions of this Permit for the period covered by the certification;
- 4) All instances of deviations from permit requirements and a description of those deviations including their cause and actions taken in response to the deviation;
- 5) Other facts the Director may require to determine the compliance status of the source.

- iii. A progress report on all outstanding compliance schedules shall be submitted every six months beginning with six months after permit issuance.

[Part II, Section 4.4(A)(3)]

b. Emissions Inventory

A responsible official for the Permittee shall complete and submit to the Department an annual emissions inventory on a form prescribed by the Director. The emissions inventory is due on March 31 of each year and shall cover emissions from the previous calendar year. The emissions inventory shall be determined using the actual emissions and shall be based on the measured data or emissions factors specified on the emissions inventory form.

[Part II, Section 4.4(A)(7)]

c. Excess Emissions Report

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The Permittee shall report to the Director any emissions in excess of the limits established by this Permit or the Rules to the Director.

- i. The report shall be in two parts as specified below:
 - 1) Notification by telephone or facsimile within twenty-four (24) hours of the time the Permittee first learned of the occurrence of excess emissions that includes all available information from Section [c.ii] of this Permit Condition.
 - 2) Detailed written notification by submission of an excess emissions report within seventy-two (72) hours of the notification under Section [c.i.1] of this Permit Condition.
- ii. The excess emissions report shall contain the following information:
 - 1) The identity of each stack or other emission point where the excess emissions occurred;
 - 2) The magnitude of the excess emissions expressed in the units of the applicable emission limitation and the operating data and calculations used in determining the magnitude of the excess emissions;
 - 3) The time and duration or expected duration of the excess emissions;
 - 4) The identity of the equipment from which the excess emissions emanated;
 - 5) The nature and cause of the emissions;
 - 6) The steps taken, if the excess emissions were the result of a malfunction, to remedy the malfunction and the steps taken or planned to prevent the recurrence of the malfunctions;
 - 7) The steps that were or are being taken to limit the excess emissions; and
 - 8) If this Permit contains procedures governing source operation during periods of startup or malfunction and the excess emissions resulted from startup or malfunction, a list of the steps taken to comply with the permit procedures.
- iii. In the case of continuous or recurring excess emissions, the notification requirements of this Permit Condition shall be satisfied if the Permittee provides the required notification after excess emissions are first detected

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and includes in the notification an estimate of the time the excess emissions will continue. Excess emissions occurring after the estimated time period or changes in the emissions as originally reported shall require additional notification pursuant to Sections [c.i] and [c.ii] of this Permit Condition.

[Part II, Section 5.9]

d. Compliance Schedule

For any excess emission or permit deviation that cannot be corrected with 72 hours, the Permittee is required to submit a compliance schedule to the Director within 21 days of such occurrence. The compliance schedule shall include a schedule of remedial measures, including an enforceable sequence of actions with milestones, leading to compliance with terms or conditions of this Permit that have been violated.

[Part II, Section 4.4(A)(3)]

22. Rights and Privileges:

This Permit does not convey any property rights or any exclusive privileges to the Permittee.

[Part II, Section 4.4(A)(9)(c)]

23. Right to Entry

The Permittee shall, upon presentation of credentials and other documents as may be required by law, allow the Director or his or her designee or the U.S. EPA to perform the following at a reasonable time of day and in accordance with reasonable safety standards:

- a. Enter the premises where a permitted source is located or emissions-related activity is conducted, or where records required by this Permit are kept;
- b. Have access to and copies made of any records that are required to be maintained by the Rules or this Permit;
- c. Inspect any operations, processes, emissions units (including monitoring and air pollution control equipment), or practices regulated or required under this Permit; and
- d. Sample or monitor substances, parameters or emissions for the purpose of determining compliance with this Permit and applicable requirements.

[Part II, Section 4.4(A)(5)]

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24. Severability

The provisions of this Permit are severable, and, if any provision of this Permit is held invalid, the remainder of this Permit shall not be affected by the invalid provision.

[Part II, Section 4.4(A)(8)]

25. Visible Emissions

- a. The Permittee shall not discharge into the ambient air from any single source of emissions, any air contaminant, other than uncombined water, in excess of twenty (20) percent opacity.

[Part VI, Section 1.0, Subsection 3.1]

- b. Opacity shall be determined by observations of visible emissions conducted in accordance with EPA Test Method 9, 40 C.F.R. Part 60, Appendix A, except as provided in Section [c] of this Permit Condition.

- c. Opacity of visible emissions from intermittent sources shall be determined by observations of visible emissions conducted in accordance with EPA Test Method 9, 40 C.F.R. Part 60, Appendix A, except that at least twelve (12) rather than twenty-four (24) consecutive readings shall be required at 15-second intervals for the averaging time.

[Part VI, Section 1.0, Subsection 4.0]

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SPECIFIC CONDITIONS:

26. Allowable Emissions

- a. The Permittee shall not allow the facility's cumulative point source emissions to be discharged into the atmosphere in excess of any of the following Federally-enforceable quantities:

Table 1. Emission Limits (pounds)

Pollutant	Twelve Month Rolling Total
Nitrogen Oxides (NO _x)	59,900
Volatile Organic Compounds (VOC)	40,200
Carbon Monoxide (CO)	116,800
Sulfur Oxides (SO _x)	47,900
Particulate Matter <2.5 Micron Diameter (PM _{2.5})	37,100
Particulate Matter <10 Micron Diameter (PM ₁₀)	37,100
Particulate Matter (PM)	37,400
Total Hazardous Air Pollutants (HAPs)	8,700

- b. The 12-month rolling total emissions shall be calculated monthly within 15 days following the end of each calendar month by summing the emissions over the most recent 12 calendar months. Monthly emissions shall be calculated using the daily throughput and the results of the most recent performance test approved by the Department, and shall not exceed the values presented in Table 1. If performance test results are not available, the monthly emissions shall be calculated using the calculation methods in the Technical Support Document for this permit as follows:
- i. **Hot Mix Asphalt Plant:** Emissions from the hot mix asphalt plant shall be calculated using the emission factors from the appropriate tables in EPA AP-42, Chapter 11.1: *Hot Mix Asphalt Plants* and the grain loading requirements in Condition 28(a) of this Permit.
- c. For the purposes of calculating emissions required by Section [b] of this Permit Condition, only emissions from point sources shall be counted.
- d. The VOC emissions from the use of solvent-VOC as allowed in Condition 30(b) of this Permit shall not be counted when calculating emissions required by Section [b] of this Permit Condition.

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[Part II, Section 4.4(A)(2)]

27. Allowable Production Rate

- a. The Permittee shall not produce more than **6,400** tons of asphaltic concrete per day and **825,000** tons of asphaltic concrete (regular and rubberized combined) per any 12 consecutive-month period.
- b. The Permittee shall not produce more than 75,000 tons of rubberized asphaltic concrete per any 12 consecutive month period.
- c. The Permittee shall not process, through the crushing and screening plant, more than **4,800** tons of nonmetallic minerals per day and **300,000** tons of nonmetallic minerals per any 12 consecutive-month period.
- d. The Permittee shall not process more than **1,600** tons of reclaimed asphalt pavement per day and **336,600** tons of reclaimed asphalt pavement per any 12 consecutive-month period.

[Part II, Section 4.4(A)(2)]

28. Process Emission Limitations

- a. Visible Emissions
 - i. The Permittee shall not cause, permit or allow to be discharged into the ambient air visible emissions exceeding:
 - 1) Seven (7) percent opacity for conveying transfer points.
 - 2) Fifteen (15) percent opacity for any crusher installed, modified, or reconstructed **before April 22, 2008**.
 - 3) Twelve (12) percent opacity for any crusher installed, modified, or reconstructed **on or after April 22, 2008**.
 - 4) Twenty (20) percent opacity for any truck dumping directly into a screening operation, feed hopper, or crusher.
 - 5) Ten (10) percent opacity for any other affected operation or process, including screening operations, installed or reconstructed **before April 22, 2008**.
 - 6) Seven (7) percent opacity for any other affected operation or process, including screening operations, installed or reconstructed **on or after April 22, 2008**.

[Part VII, Section 3.0, Subsection 3.1] [40 CFR 60.672(b)]

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- 7) Twenty (20) percent opacity for the hot mix asphalt plant dryer baghouse stack.

[Part VII, Section 3.0, Subsections 3.2]

b. Grain Loading Emissions

- i. The Permittee shall not cause, permit or allow to be discharged into the ambient air PM emissions from the hot mix asphalt plant dryer baghouse stack exceeding 0.04 gr/dscf (0.09 g/dscm).
- ii. The Permittee shall not cause, permit or allow to be discharged into the ambient air PM emissions from the cement, cement supplement, or lime storage silo dust collector stacks exceeding 0.02 gr/dscf (0.05 g/dscm).

[Part VII, Section 3.0, Subsections 3.2]

c. Compliance Determination:

- i. Except as provided in Condition 32 of this Permit for the Initial Performance Test, compliance with the opacity limitations in Section [a] of this Permit Condition is determined as follows:
 - 1) At least once per month, the Permittee shall provide for a certified opacity observer to conduct visible emissions readings in accordance with EPA Method 9 at the locations prescribed below while the equipment is in operation:
 - (a) All material transfer points for the following equipment:
 - (i) Conveyor belts
 - (ii) Crushers
 - (iii) Screens
 - (iv) Stackers
 - (v) Truck dumping
 - (b) Exhaust stack of all air pollution control equipment (e.g., baghouse stack and dust collectors on storage silos etc.)
 - 2) The Permittee shall log visible emission readings on standard visible emission reporting forms and keep the logs onsite and available for review at all times.
 - 3) Compliance with opacity limitations in Section (a) of this Permit

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Condition shall be determined using Method 9, 40 C.F.R. Part 60, Appendix A, except the opacity observations for intermittent visible emissions shall require twelve (12) rather than twenty-four (24) consecutive readings at fifteen (15) second intervals. Alternatively, Method 22 may be used if approved by the Department, in writing, pursuant to a complete source monitoring/test protocol.

[Part VII, Section 3.0, Subsection 7.2]

- ii. Compliance with the grain loading emission limitations in Section (b) of this Permit Condition shall be determined by performance testing in accordance with performance testing requirements in Condition 32 of this Permit.

[Part VII, Section 3.0, Subsection 7.1]

29. Controls

- a. If the material processed or handled in the aggregate equipment does not contain sufficient moisture to prevent visible emissions in excess of the limits in Condition 28(a) of this Permit, then the Permittee shall implement process controls described in Sections (a)(i), (a)(ii), and (a)(iii) of this Permit Condition or shall implement process controls described in Sections (a)(i) and (a)(iv) of this Permit Condition;
 - i. Enclose sides of all shaker screens.
 - ii. Permanently mount watering systems (e.g., spray bars or an equivalent control) on the points listed below.
 - 1) Inlet and outlet of all crushers;
 - 2) Outlet of all shaker screens; and
 - 3) Outlet of all material transfer points, excluding wet plants.
 - iii. Operate watering systems (e.g., spray bars or an equivalent control) on the points listed in Section (a)(ii) of this Permit Condition to minimize fugitive dust emissions.
 - 1) The watering systems shall be maintained in good operating condition, as verified by daily inspections.
 - 2) The Permittee shall investigate and correct any problems before continuing and/or resuming operations.
 - iv. Enclose and exhaust the regulated process to a properly sized fabric filter baghouse. Implementation of this control device will require a permit

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revision.

[Part VII, Section 3.0, Subsection 4.0]

- b. The Permittee shall implement the following process controls:
- i. On all cement, cement supplement (e.g., fly-ash), and lime storage silo(s), install an operational overflow warning system/device. The system/device shall be designed to alert operator(s) to stop the loading operation when the cement, cement supplement, and lime storage silo(s) are reaching a capacity that could adversely impact pollution abatement equipment.
 - ii. On all cement, cement supplement (e.g., fly-ash), and lime storage silo(s), install a properly sized fabric filter baghouse or equivalent device designed to meet a maximum outlet grain loading of 0.02 gr/dscf.
 - iii. On cement, cement supplement, and lime silo filling processing/loading operations controls, install a pressure control system designed to shut-off cement silo filling processes/loading operations, if pressure from delivery truck is excessive, as defined in the O&M Plan.
[Part II, Section 4.4(A)(2)] [Part VII, Section 3.0, Subsection 3.0]
 - iv. The Permittee shall control and vent the exhaust from the drum dryer to a properly sized fabric filter baghouse, designed to meet a maximum outlet grain loading of 0.04 gr/dscf.

[Part VII, Section 3.0, Subsection 3.2]

30. Operational Restrictions

- a. The use of a solvent cleaning machine is prohibited by this Permit.
- b. The Permittee shall not sell, offer for sale, use or apply the following materials for paving, construction, or maintenance of highways, streets, driveways, parking lots or for any other use:
 - i. Rapid cure cutback asphalt.
 - ii. Any cutback asphalt material, road oils, or tar which contains more than 0.5 percent by volume VOCs which evaporate at 500 degrees Fahrenheit (260 degrees Celsius) or less using ASTM Test Method D 402-02.
 - iii. Any emulsified asphalt or emulsified tar containing more than 3.0 percent by volume VOCs which evaporate at 500 degrees Fahrenheit (260 degrees Celsius) or less as determined by ASTM Method D 244-00.
- c. If a request is made to and approved by the Director, the Permittee may use up to three (3) percent solvent-VOC by volume, but not exceeding 1,100 lbs

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(500 kg) of solvent-VOC usage per calendar year, for batches of asphalt rubber which cannot meet paving specifications by adding heat alone. The Director shall not approve such requests unless complete records are kept and full information is supplied including savings realized by using discarded tires.

- d. The restrictions of this permit condition shall not apply to:
- i. Asphalt that is used solely as a penetrating prime coat and which is not a rapid cure cutback asphalt. Penetrating prime coats do not include dust palliatives or tack coats.
 - ii. Any asphalt/bituminous material sold for shipment and use outside GRIC if the Permittee clearly labels each container of materials entitled to this exemption or upon request (during normal business hours) immediately provides the Director with shipping records demonstrating the asphalt material is not for use within GRIC.

[Part VII, Section 3.0, Subsection 1.0]

e. Hot Mix Asphalt Plant

- i. The Permittee shall not allow the asphalt binder to reach a temperature greater than or equal to 325 °F or greater than the asphalt smoke point where emission opacity exceeds 20 percent.
- ii. The Permittee shall not allow the rubberized asphalt binder to reach a temperature where opacity emissions exceed 20 percent.

[Part II, Section 4.4(A)(2)] [Part VI, Section 1.0, Subsection 3.1]

- iii. The Permittee shall use only Diesel, Natural Gas, LPG or On Specification (On-Spec) Used Oil as a burner fuel. The use of “non-specification used oil” for burner fuel, as defined in Part VII, Section 3.0, Subsection 2.0, is prohibited.
- iv. The Permittee shall ensure that any used oil fuel used as a burner fuel meets the following requirements:
 - 1) Is certified as “On-Spec Used Oil” through contemporaneous records from the fuel supplier. The certifications shall be kept on-site and made available to the Department upon request.

- 2) Has an ash content not exceeding 0.15 percent by weight.

[Part II, Section 4.4(A)(2)] [Part VII, Section 3.0, Subsection 1.0]

- v. The Permittee shall only process clean, virgin aggregate and reclaimed asphalt pavement in the drum dryer. The use of aggregate contaminated

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with petroleum products or solvents in the drum dryer is prohibited.

- vi. The Permittee shall conduct good combustion practices (GCP) for the dryer burner in accordance with the manufacturer recommendations and the O&M Plan. The GCP events shall be recorded in accordance with Condition 31 of the Permit. At a minimum, GCP shall include the following:
- 1) Tune the burner at least once per year;
 - 2) Clean the burner nozzle at least once every six months;
 - 3) Continuously monitor the burner thermocouple and calibrate the burner thermocouple at least once per year;
 - 4) Evaluate fuel combustion and burner operation using a flame analyzer at least once every six months; and
 - 5) Conduct daily visual inspections of the burner equipment.

[Part II, Section 4.4(A)(2) & (3)]

31. Recordkeeping, Notification, and Reporting Requirements:

In addition to records and reporting required in other Conditions in this Permit, the Permittee shall comply with the following recordkeeping and reporting requirements:

a. Recordkeeping

- i. Keep the emission report showing monthly rolling total emissions, as required in Condition 26 of this Permit, on-site for inspection or submittal upon request.
- ii. Maintain records on-site of any measurements observed outside the operating parameter range specified in the O&M Plan(s). At a minimum, the records shall contain the following information:
 - 1) When the observation was made;
 - 2) When the investigation was started;
 - 3) When the corrective action(s) was applied; and
 - 4) What corrective actions were applied and the resulting measurement of the operating parameter.

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- iii. Record the results of the GCP events including the date the event was conducted, a description of the event, and the pre- and post-burner tuning and fuel combustion metrics as required by this Permit, the manufacturer recommendations, and the O&M Plan.

[Part II, Section 4.4(A)(2)]

- iv. Maintain records of visible emission readings on standard visible emission reporting forms onsite for review at all times.

[Part VII, Section 3.0, Subsection 7.2]

- v. A daily record of plant operational data shall be kept for each day that a plant is actively operating. Records shall include the following:

- 1) Production Data:

- (a) Hours of operation for each plant (e.g., asphalt and aggregate).
- (b) Type of batch operation(s).
- (c) Throughput per day of all basic raw materials, including sand, aggregate, lime, cement, fly ash, etc. (tons/day).
- (d) Volume and/or weight of final and intermediate products (sand, aggregate, asphalt, etc.) produced per day and 12-month rolling totals.
- (e) Type and amount of fuel consumed in any and all combustion sources (cu. ft./day or gals./day – may be calculated as an average using fuel delivery receipts) and fuel sulfur content (for liquid and solid fuel - may be vendor supplied).

- 2) Control and Monitoring Device Data:

- (a) Baghouse records shall include dates of inspection, dates and designation of bag replacement, dates of service or maintenance, related activities, static pressure gauge (manometer) readings once per eight-hour shift.
- (b) The devices used to conduct measurements required by Section (a)(v)(2)(a) of this Condition shall be properly maintained and calibrated prior to use.
- (c) Records of time, date and cause of all control device failures and down time shall also be maintained.

- 3) Emission Control System (ECS) O&M Plan Records:

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Maintain a record of the periods of time that an approved ECS is utilized to comply with these Conditions. Key system parameters, such as flow rates, pressure drops, and other conditions necessary to determine if the control equipment is functioning properly, shall be recorded in accordance with an approved O&M Plan. The records shall account for any periods when the control system was not operating. The Permittee shall also maintain results of the visual inspection and, if necessary, shall record any corrective action taken.

[Part VII, Section 3.0, Subsection 6.1]

vi. For permitted aggregate processing equipment constructed, modified, or reconstructed on or after April 22, 2008:

1) If wet suppression is used to control emissions, the Permittee shall perform monthly periodic inspections to check that water is flowing to discharge spray nozzles in the wet suppression system. The Permittee shall initiate corrective action within 24 hours and complete corrective action as expediently as practical if it is found that water is not flowing properly during an inspection of the water spray nozzles. The Permittee shall record each inspection of the water spray nozzles, including the date of each inspection and any corrective actions taken, in the logbook required under Section (a)(v)(2) of this Condition.

(a) If the permitted equipment relies on water carryover from upstream water sprays to control fugitive emissions, then that equipment is exempt from the 5-year repeat testing requirement specified in Condition 32(a)(iii) of this Permit provided that the equipment meets the following criteria:

(i) The Permittee conducts periodic inspections of the upstream water spray(s) that are responsible for controlling fugitive emissions from the equipment. These inspections shall be conducted according to Sections (a)(vi)(1) and (a)(vi)(2) of this Condition; and

(ii) The Permittee shall designate which upstream water spray(s) will be periodically inspected at the time of the initial performance test required by 40 CFR 60.11 and Condition 32(a)(i).

(b) If the permitted equipment that routinely uses wet suppression water sprays ceases operation of the water sprays or is using a control mechanism to reduce fugitive emissions other than water sprays during the monthly inspection (for example, water



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from recent rainfall), the logbook entry required under Section (a)(vi)(2) of this Condition shall specify the control mechanism being used instead of the water sprays.

[Part II, Section 4.4(A)(3)] [40 CFR 60.674(b)]

- 2) Record each periodic inspection required under Section (a)(vi)(1) of this Condition, including dates and any corrective actions taken, in a logbook (in written or electronic format). The Permittee shall keep the logbook onsite and make hard or electronic copies (whichever is requested) of the logbook available to the Department upon request.

[Part II, Section 4.4(A)(3)] [40 CFR 60.676(b)(1)]

vii. Gasoline Usage, Storage and Handling

- 1) Maintain a document that shows the gasoline VOC content in pounds per gallon or grams per liter.
- 2) Maintain monthly records of the amount of gasoline used.
- 3) Maintain accurate records of the liquids stored in the gasoline tank(s) including either the true or Reid vapor pressure ranges of each stored liquid. The Director may approve an alternative recordkeeping requirement if appropriate for the operational characteristics of an individual tank.
- 4) Maintain records of the results of inspections required by this Permit, including a record of any leaks found at the facility and the corrective action taken.

[Part VI, Section 2.0, Subsection 5.3(B)]

- 5) If disposal/recovery of gasoline is conducted, records of the disposal/recovery of gasoline shall be kept. Records of hazardous waste disposal shall be kept in accordance with the applicable hazardous waste disposal statutes and regulations

[Part VI, Section 2.0, Subsection 3.5(C)]

viii. Dust Control

The Permittee shall keep a daily written log recording the actual application or implementation of the control measures delineated in the approved Dust Control Plan. Upon verbal or written request by the Department, the log or the records and supporting documentation shall be provided within 48 hours, excluding weekends. If the Director or his/her designee is at the site where requested records are kept, the Permittee shall provide the records without delay.

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[Part V, Section 2.0, Subsection 13.0]

- ix. Operational information required by Section (a) of this Permit Condition shall be kept in a complete and consistent manner on site and be made available without delay to the Department upon request.
- x. Records shall be retained for five (5) years and shall be made available to the Department upon request.

[Part II, Section 4.4(A)(3)] [Part VII, Section 3.0, Subsection 6.1]

b. Notifications and Reporting

i. Equipment Subject to New Source Performance Standards, Including Hot Mix Asphalt and Aggregate Processing Equipment:

- 1) The Permittee shall submit to the Director a notification of the actual date of initial startup of each individual piece of permitted equipment postmarked within 15 days after such date.

[Part II, Section 4.4(A)(3)] [40 CFR 60.7(a)(3)]

- (a) For a combination of permitted aggregate processing equipment in a production line that begin actual initial startup on the same day, a single notification of startup may be submitted by the Permittee to the Director. The notification shall be postmarked within 15 days after such date and shall include a description of each affected facility, equipment manufacturer, and serial number of the equipment, if available.

[Part II, Section 4.4(A)(3)] [40 CFR 60.676(i)(1)]

- 2) The Permittee shall submit to the Director a notification of any physical or operational change to permitted equipment which may increase the emission rate of any air pollutant to which a standard applies, unless that change is specifically exempted under an applicable subpart or in 40 CFR 60.14(e). This notice shall be postmarked 60 days or as soon as practicable before the change is commenced and shall include information describing the precise nature of the change, present and proposed emission control systems, productive capacity of the facility before and after the change, and the expected completion date of the change. The Director may request additional relevant information subsequent to this notice.

[Part II, Section 4.4(A)(3)] [40 CFR 60.7(a)(4)]

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32. Performance Testing:

a. Initial Performance Test Requirements for Aggregate Processing Equipment:

- i. Within 60 days after achieving the maximum production rate at which the permitted source will operate the affected emissions unit(s), but not later than 180 days after the first day of operation after the initial startup, the permittee shall perform an initial performance test on the following equipment to verify compliance with the applicable opacity limitations in Condition 28(a)(i) of this Permit:

- 1) Crushers;
- 2) Grinding mills;
- 3) Screening operations; and
- 4) Transfer points on belt conveyors.

- ii. If the initial performance test date falls during a seasonal shut down (as defined in 40 CFR 60.671), then with approval from the Director, the Permittee may postpone the initial performance test until no later than 60 calendar days after resuming operation.

- iii. The Permittee shall conduct a repeat performance test within 5 years of the previous test on equipment constructed, modified, or reconstructed on or after April 22, 2008 that are not controlled by water sprays or water carryover from upstream water sprays.

[Part II, Section 4.4(A)(3)]

[40 CFR §60.8(a), §60.675, Subpart OOO Table 3]

- iv. The Permittee is exempt from the requirements of the initial performance test in this Section if an existing piece of equipment is replaced with a unit of equal or smaller size having the same function as the existing equipment and if all of the following conditions are met:

- 1) There is an initial performance test for the existing equipment;
- 2) All equipment in the production line is not being replaced;
- 3) There is no increase in the amount of emissions; and

- 4) The Permittee submits the following information to the Director prior to replacing the equipment:

- (a) For a crusher, grinding mill, bucket elevator, bagging operation,



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or enclosed truck or railcar loading station:

- (i) The rated capacity in megagrams or tons per hour of the existing facility being replaced and
- (ii) The rated capacity in tons per hour of the replacement equipment.

(b) For a screening operation:

- (i) The total surface area of the top screen of the existing screening operation being replaced and
- (ii) The total surface area of the top screen of the replacement screening operation.

(c) For a conveyor belt:

- (i) The width of the existing belt being replaced and
- (ii) The width of the replacement conveyor belt.

(d) For a storage bin:

- (i) The rated capacity in megagrams or tons of the existing storage bin being replaced and
- (ii) The rated capacity in megagrams or tons of replacement storage bins.

[Part II, Section 4.4(A)(3)] [40 CFR §60.670(d) and 676(a)(1)]

b. Testing Requirements for Hot Mix Asphalt Plant:

- i. The Permittee shall conduct a performance test on the following control devices within 60 days after the permit issuance date or within 60 days after the new applicable equipment has achieved the capability to operate at its maximum production rate on a sustained basis, whichever occurs last. The testing deadline may be extended by the Director for good cause, but in no case shall the testing deadline, including test report submittal, extend beyond 180 days after the permit issuance date.

1) Drum dryer baghouse.

- ii. The Permittee shall conduct a separate performance test on the drum dryer baghouse under each of the following two operating scenarios:

1) Representative operating conditions while manufacturing asphalt

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containing 100% virgin material.

- 2) Representative operating conditions while manufacturing rubberized asphalt. The asphalt material composition shall include a maximum rubber or rubber-like material content of 17.5 percent.
 - iii. If requested by the Department in writing, the Permittee shall conduct a performance test on the following control devices within 60 days after the date of the Department's request or within 60 days after the applicable equipment has achieved the capability to operate at its maximum production rate on a sustained basis, whichever occurs last. The testing deadline may be extended by the Director for good cause, but in no case shall the testing deadline, including test report submittal, extend beyond 180 days after the date of the Department's request.
 - 1) Cement/lime silo dust collector.
 - iv. The Permittee shall measure the PM concentration in the control device exhaust stream to demonstrate compliance with all applicable grain loading and/or emission rate requirements of this Permit.
 - v. The Permittee shall measure the concentrations of PM₁₀, VOC, SO_x, NO_x, and CO in the control device exhaust stream to demonstrate compliance with all applicable emission limits of these permit conditions.
 - vi. If testing demonstrates that actual emissions of any pollutant exceeds the emission factors specified in Condition 26(b) of this Permit, the Permittee shall submit an application for permit modification to the Department within 30 days of receiving the test results to revise the emission factors to represent actual emissions.
 - vii. A visible emissions evaluation shall demonstrate compliance with the opacity requirements.
 - viii. Following the initial performance test for this permit, the Permittee shall conduct a performance test every 60 months from the initial test date.

[Part II, Section 4.4(A)(3) & (10)] [40 CFR §60.8]
- c. Test Methods for Aggregate Processing Equipment:
- i. The visible emissions evaluation shall be conducted in accordance with EPA Test Method 9 from 40 CFR Part 60, Appendix A with the following modifications:
 - 1) The observer shall stand at least 15 feet from the emissions source;

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- 2) The observer shall, when possible, select a position that minimizes interference from other fugitive emissions sources;
 - 3) Water used for wet suppression shall not be confused with particulate matter emissions and is not to be considered a visible emission. When a water mist of this nature is present, the observation of emissions is to be made at a point in the plume where the mist is no longer visible; and
- ii. The duration of the Method 9 observations must be 30 minutes (five 6-minute averages).
[Part II, Section 4.4(A)(3)] [40 CFR §60.11; §60.675(c)(1) and (c)(3)]
 - iii. The Permittee may use the following as alternatives to the reference methods and procedures specified in Section (c)(i) of this Permit Condition, for aggregate processing equipment only:
 - 1) If emissions from two or more facilities continuously interfere so that the opacity of fugitive emissions from an individual affected facility cannot be read, either of the following procedures may be used:
 - (a) Use, for the combined emission stream, the highest fugitive opacity standard applicable to any of the individual affected facilities contributing to the emissions stream.
 - (b) Separate the emissions so that the opacity of emissions from each affected facility can be read.
 - 2) A single visible emission observer may conduct visible emission observations for up to three fugitive, stack, or vent emission points within a 15-second interval if the following conditions are met:
 - (a) No more than three emission points may be read concurrently.
 - (b) All three emission points must be within a 70 degree viewing sector or angle in front of the observer such that the proper sun position can be maintained for all three points.
 - (c) If an opacity reading for any one of the three emission points equals or exceeds the applicable standard, then the observer must stop taking readings for the other two points and continue reading just that single point.
- [Part II, Section 4.4(A)(3)] [40 CFR 60.675(e)]
- d. Test Methods for the Hot Mix Asphalt Plant:



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- i. Sampling sites and velocity traverse points shall be selected in accordance with EPA Test Method 1 or 1A.
 - ii. The gas volumetric flow rate shall be measured in accordance with EPA Test Method 2, 2A, 2C, 2D, 2F, or 2G.
 - iii. The dry molecular weight shall be determined in accordance with EPA Test Method 3, 3A or 3B.
 - iv. The stack gas moisture shall be determined in accordance with EPA Test Method 4.
 - v. The visible emissions evaluation shall be conducted in accordance with EPA Test Method 9, except the opacity observations for intermittent visible emissions shall require twelve (12) rather than twenty-four (24) consecutive readings at fifteen (15) second intervals. Alternatively, Method 22 may be used if approved by the Department pursuant to a complete source monitoring/test protocol.
 - vi. PM₁₀ testing shall be conducted in accordance with EPA Test Methods 201A and 202. EPA Test Method 5 will be accepted in lieu of EPA Test Method 201A if the Permittee agrees to assume that all particulates are PM₁₀.
 - vii. PM testing shall be conducted in accordance with EPA Test Method 5. Alternatively, Method 17 may be used if approved by the Department pursuant to a complete source monitoring/test protocol.
 - viii. VOC testing shall be conducted in accordance with EPA Test Method 25 or 25A. Testing to quantify exempt compounds, such as methane, shall be conducted in accordance with EPA Test Method 18.
 - ix. SO_x testing shall be conducted in accordance with EPA Test Method 6C.
 - x. NO_x testing shall be conducted in accordance with EPA Test Method 7E.
 - xi. CO testing shall be conducted in accordance with EPA Test Method 10.
[Part II, Section 4.4(A)(3)] [Part VII, Section 3.0, Subsections 7.1 & 7.2]
[40 CFR §60.93(a)]
- e. Test Protocol Submittal for Hot Mix Asphalt Plant:
- The Permittee shall submit a separate test protocol for each performance test on the hot mix asphalt plant to the Department for review and approval at least 30 days prior to each performance test.

[Part II, Section 4.4(A)(3)]

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f. Minimum Testing Requirements for Hot Mix Asphalt Plant:

Each performance test shall consist of three separate test runs with each test run being at least one hour in duration unless otherwise specified in the applicable standard or in this permit. The same test methods shall be conducted for both the inlet and outlet measurements, if applicable, which must be conducted simultaneously. Emissions rates, concentrations, grain loadings, and/or efficiencies shall be determined as the arithmetic average of the values determined for each individual test run. Performance tests may only be stopped for good cause, which includes forced shutdown, failure of an irreplaceable portion of the sample train, extreme meteorological conditions, or other circumstances beyond the Permittee's control. Termination of a performance test without good cause after the first test run has commenced shall constitute a failure of the performance test.

[Part II, Section 4.4(A)(10)] [40 CFR §60.8(f)]

g. Testing Criteria:

Performance tests shall be conducted and data reduced in accordance with the test methods and procedures specified unless the Director or Administrator: (1) specifies or approves minor changes in methodology to a reference method; (2) approves the use of an equivalent test method; (3) approves the use of an alternative method that has been determined to be acceptable for demonstrating compliance; (4) waives the requirement for performance tests because the Permittee has demonstrated by other means that the source is in compliance with the standard; or (5) approves shorter sampling times and smaller sample volumes when necessitated by process variables or other factors. For NSPS facilities, only EPA has the authority to waive initial testing requirements.

[Part II, Section 4.4(A)(3), (A)(10), & 4.4(B)] [40 CFR §60.8(b)]

h. Operating Conditions:

Performance tests shall be conducted under representative operating conditions and all equipment shall be operated during testing in accordance with the most recently approved O&M Plan or according to its operations manual if no O&M Plan is required. The Permittee shall make available to the Director any records necessary to determine appropriate conditions for performance tests. Operations during periods of startup, shutdown, and equipment malfunction shall not constitute representative conditions for performance tests unless otherwise specified in the applicable standard or permit conditions.

[Part II, Section 4.4(A)(3)] [40 CFR 60.8(c)]

i. Compliance with Emission Limits:

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- i. When determining compliance with the visible emissions standards in Condition 28(a)(i) of this Permit, the duration of the Method 9 observations must be 30 minutes (five 6-minute averages). Compliance with allowable visible emission limits shall be determined by the average of the five 6-minute averages.
- [Part II, Section 4.4(A)(3)] [40 CFR 60.675(c)(3)]
- ii. Compliance with allowable emission limits and standards shall be determined by the performance tests specified in this Permit. If test results do not demonstrate compliance with the requirements of this Permit, the Permittee shall make the necessary repairs and/or adjustments to the equipment and demonstrate compliance through retesting. This will not nullify the fact that test results did not demonstrate compliance with the requirements of the permit conditions or nullify any violations that may result from this noncompliance. In addition to compliance demonstrations, test results shall be used for annual emissions inventory purposes, if applicable.
- [Part II, Section 4.4(A)(2) and (3)]
- j. Monitoring Requirements:
- The Permittee shall record all process and control equipment information that is necessary to document operating conditions during the test (e.g. production rate, temperatures, pressure drops, etc.) and explain why the conditions represent normal operation. Operational parameters shall be monitored and recorded at least once every 30 minutes during each of the required test runs and documented in the test report. The operational parameters monitored shall be capable of indicating that the equipment is operating within the permitted limits, both during and after the performance tests. Operational parameters shall be identified in the test protocol and recorded during testing.
- [Part II, Sections 4.4(A)(3) & (10)]
- k. Notice of Testing:
- The Permittee shall notify the Director in writing at least two (2) weeks in advance of the actual date and time of each performance test so that the Director may have a representative attend. If there is a delay in conducting the scheduled performance test and the 2-week notification has already been submitted to the Director, the Permittee shall notify the Director as soon as possible of any delay in the original test date, either by providing at least 2-weeks prior notice of the rescheduled date of the performance test, or by arranging a rescheduled date with the Director by mutual agreement.
- [Part II, Section 4.4(A)(10)] [40 CFR 60.8(d), 60.675(g)]
- l. Testing Facilities Required:

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The Permittee shall install any and all sample ports or platforms necessary to conduct the performance tests, provide safe access to any platforms, and provide the necessary utilities for testing equipment.

[Part II, Section 4.4(A)(10)] [40 CFR 60.8(e)]

m. **Test Report Submittal:**

The Permittee shall complete and submit a separate test report for each performance test to the Department within 30 days after the completion of testing.

[Part II, Section 4.4(A)(3) & (10)]

n. All test extension requests, test protocols, test date notifications, and test reports required by this permit shall be submitted to the Department and addressed to the attention of the Air Program Manager.

[Part II, Section 4.4(A)(3) & (10)]

33. Operation and Maintenance (O&M) Plan:

a. The Permittee shall provide an O&M Plan to the Department for approval at the time the initial permit application is submitted to the Department for an operating permit. The Permittee shall maintain a copy of the O&M Plan on-site at all times. The O&M Plan shall contain the following:

- i. A description of the control devices, including temperatures, pressure drops if applicable, rates of flow, and other operating conditions necessary to determine if the air pollution control equipment is functioning properly and is properly maintained;
- ii. A description of the procedures, including maintenance frequencies, to properly install and maintain these devices in calibration, in good working order and in operation.
- iii. A description of the investigative and corrective action process to be conducted, including shutdown procedures, if operating parameters are observed outside the range specified in [i] above.

b. The Permittee shall install, maintain, and calibrate monitoring devices described in the O&M Plan(s). The monitoring devices shall measure pressures, rates of flow, and/or other operating conditions necessary to determine if the control devices are functioning properly.

c. The Permittee shall fully comply with the most recent version of each O&M Plan that has been approved by the Department, including all actions, schedules and equipment operating ranges identified therein, unless otherwise notified in

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writing by the Department. If the O&M Plan(s) has been submitted to the Department, but has not yet been approved by the Department, then the Permittee shall fully comply with the most recent version of the O&M Plan(s) that has been submitted to the Department for approval.

[Part VII, Section 3.0, Subsection 5.1]

- d. If a measurement outside the operating parameter range specified in the O&M Plan(s) is observed, the Permittee shall immediately (i.e., within 30 minutes) investigate the process and control equipment performance and implement appropriate corrective action. The Permittee shall document the corrective actions applied, including date and time and the resulting measurement of the operating parameter.
- e. If the Permittee or the Director determines that a control device operating parameter limit or range specified in the O&M Plan is not representative of normal and usual operation, the Permittee shall submit a revised O&M Plan to the Department for approval. The O&M Plan revision shall include a demonstration (e.g., engineering calculations with the basis of such calculations, approved performance test data, other testing/sampling data, etc.) that the control device can be properly operated and that the associated emission limit(s) and/or control efficiency can be met at the proposed operating range.

[Part II, Section 4.4(A)(2)]

34. Open Burning

- a. The Permittee shall not conduct open burning until written authorization has been received from the Department. The written authorization may include the following requirements:
 - 1) Burn only between the hours of 9:00 am and 3:00 pm from November through February, and during daylight hours from March through October;
 - 2) Burn only dry materials;
 - 3) Notify any neighbors within one-quarter of a mile of the area where the burn will occur or any other persons that may be affected by burning operations at least twenty-four (24) hours prior to burning;
 - 4) Have a signed copy of the burn authorization available at the site of the burn while burning is ongoing;
 - 5) Cease burning operations during High Winds;
 - 6) Notify the GRIC Fire Department before burning;

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- 7) Provide fire control equipment to prevent the fire from spreading (e.g., water truck etc.); and
 - 8) Provide the methods that will be followed to ignite, maintain and control the burning.
- b. Written authorization to burn shall not be issued by the Department if the Department determines that:
- 1) A practical alternative to burning exists;
 - 2) The Governor of the Gila River Indian Community determines that there is an extreme fire hazard;
 - 3) An air quality emergency exists as described in Part I (General Provisions), Section 2.2 of Title 17, Chapter 9; or
 - 4) The application contains a material or operation that does not meet the criteria described in this ordinance or the GRIC Fire Department uniform fire code.
- c. The Permittee shall only conduct opening burning for the disposal of vegetative waste resulting from the process of land clearing, commercial development or other large scale permitted fires.
- d. The Permittee shall provide the following information to the Department in writing at least 48 hours prior to conducting open burning:
- 1) Permittee's name, address and telephone number;
 - 2) Location where the burning is to be conducted;
 - 3) Type and quantity of material to be burned;
 - 4) Date(s) when the burning is to be conducted; and
 - 5) Permittee's signature.
- e. The Permittee shall extinguish all burns when the Department of Environmental Quality, the GRIC Fire Department or the GRIC Department of Public Health makes a determination that inadequate smoke dispersion may cause a potential health problem, an adverse environmental impact, a nuisance or may be detrimental to public safety.
- f. Open burning of the following materials is forbidden:
- i. Garbage resulting from the processing, storage, service or consumption

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of food;

- ii. Asphalt shingles, tar paper; plastic and rubber products;
- iii. Petroleum products (such as waste crankcase oil, transmission oil and oil filters);
- iv. Transformer oils;
- v. Hazardous material containers including those that contained inorganic pesticides, lead, cadmium, mercury, or arsenic compounds;
- vi. Tires, shredded or chopped tires;
- vii. Construction debris;
- viii. Debris from demolished homes and trailer homes; and
- ix. Asbestos containing materials.

[Part V, Section 1, Subsections 3.0 & 4.0]

35. Fugitive Dust Generating Operations

- a. The Permittee shall take all reasonable precautions to prevent fugitive dust and fugitive particulate matter emissions and shall maintain and operate the source to minimize fugitive dust and fugitive particulate matter emissions. Compliance with this section is based on documented compliance with the applicable performance standards, the work practice requirements, the applicable requirements listed in Table 2 of this Permit and the reasonable precautions listed below.
 - i. Reasonable precautions include, but are not limited to, the following:
 - 1) Use of water or chemicals for control of dust in the demolition of buildings or structures, construction operations, grading of roads, or clearing of land.
 - 2) Application of asphalt, water, or other suitable chemicals on unpaved roads, materials stockpiles, and other surfaces which can create airborne dust.
 - 3) Full or partial enclosure of materials stockpiles in cases where application of water or chemicals is not sufficient or appropriate to prevent particulate matter from becoming airborne. Implementation of good housekeeping practices to avoid or minimize the accumulation of dusty materials which have the potential to become

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airborne. This includes, but is not limited to, manual sweeping and the use of industrial vacuum cleaners.

- 4) Installation and use of hoods, fans, and fabric filters to enclose and vent the handling of dusty materials.
- 5) Adequate containment during sandblasting or other similar operations.
- 6) Covering, at all times when in motion, open bodied trucks transporting materials likely to become airborne.
- 7) The prompt removal of earth or other material, which does or may become airborne, from paved streets.

[Part V, Section 2.0, Subsection 3.1]

b. 20% Opacity Limitation

For emissions that are not already regulated by an opacity limit in this Permit, the Permittee shall not discharge or cause or allow to be discharged into the ambient air fugitive dust emissions exceeding 20% opacity.

[Part V, Section 2.0, Subsection 3.1]

c. Unpaved Parking Lots

For any unpaved parking lot at the permitted facility with traffic exceeding twenty (20) vehicle trips per day, the Permittee shall:

- i. Not allow visible fugitive dust emissions to exceed twenty (20) percent opacity.
- ii. Employ one of the following control measures:
 - 1) Apply a dust palliative approved by the Department;
 - 2) Apply gravel at quantities sufficient to ensure that particulate emissions do not exceed twenty (20) percent opacity;
 - 3) Paving; or
 - 4) Employ an alternate dust control measure approved by the Department. At a minimum, an alternative dust control measure shall not allow silt loading equal to or greater than 0.33 ounces per square foot (oz/ft²), or allow silt content to exceed eight (8) percent as determined by applicable test methods in Section [g.ii] of this Permit Condition.

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- iii. Maintain a silt content less than or equal to 8%.

[Part II, Section 4.4(A)(2)] [Part V, Section 2.0, Subsection 4.0]

d. Unpaved Haul/Access Road

For any unpaved haul/access road at the permitted facility, the Permittee shall:

- i. Not allow visible fugitive dust emissions to exceed twenty (20) percent opacity, and shall:
- 1) Apply a dust palliative, including water, approved by the Department;
 - 2) Apply water in sufficient quantities to ensure that particulate matter emissions do not exceed twenty (20) percent opacity (at a minimum, application of water must be confirmed utilizing log books on water trucks); or
 - 3) Apply gravel at quantities sufficient to ensure that particulate matter emissions do not exceed twenty (20) percent opacity; or
 - 4) Employ an alternate dust control measure approved by the Department. At a minimum, an alternative dust control measure shall not allow silt loading equal to or greater than 0.33 ounces per square foot (oz/ft²), or allow silt content to exceed six (6) percent as determined by applicable test methods in Section [g.ii] of this Permit Condition.
- ii. As an alternative to meeting the stabilization requirements in Section [d.i] of this Permit Condition, limit vehicle trips to no more than twenty (20) per day and limit vehicle speeds to no more than fifteen (15) miles per hour. If complying with this subsection, the Permittee must include, in a Dust Control Plan, a list of the number of vehicles traveled on the unpaved haul/access roads (i.e., number of employee vehicles, earthmoving equipment, haul trucks, and water trucks). At no time shall the Permittee allow particulate emissions to exceed twenty (20) percent opacity.

[Part V, Section 3.0, Subsection 5.0]

e. Control Measures

The Permittee shall implement control measures before, after, and while conducting any dust generating operation, including during weekends, after work hours, and on holidays in accordance with the Dust Control Plan and Table 2 of this Permit. Failure to comply with the provisions of Section [f] of this Permit Condition, as applicable, and/or of an approved Dust Control Plan, is deemed a violation of this Permit. Regardless of whether an approved Dust Control Plan is in place or not, the Permittee is still subject to all requirements

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of this Permit at all times. In addition, the Permittee is still subject to all of the requirements of this Permit, even if the Permittee is complying with the approved Dust Control Plan.

[Part V, Section 2.0, Subsection 9.0]

f. Work Practices

When engaged in the following specific activities, the Permittee shall comply with the following work practices in addition to implementing, as applicable, the control measures described in Table 2 of this Permit. Such work practices shall be implemented to meet the twenty (20) percent opacity standard of this Section and the stabilization requirements in Table 2, as determined by the applicable test method in Section [g.ii] of this Permit Condition.

i. Bulk Material Hauling Off-Site Onto Paved Public Roadways.

- 1) Load all haul trucks such that the freeboard is not less than three inches;
- 2) Prevent spillage or loss of bulk material from holes or other openings in the cargo compartment's floor, sides, and/or tailgate(s);
- 3) Cover all haul trucks with a tarp or other suitable closure; and
- 4) Before the empty haul truck leaves the site, clean the interior of the cargo compartment or cover the cargo compartment.

ii. Bulk Material Hauling On-Site Within the Boundaries of the Work Site.

When crossing a public roadway upon which the public is allowed to travel:

- 1) Load all haul trucks such that the freeboard is not less than three inches;
- 2) Prevent spillage or loss of bulk material from holes or other openings in the cargo compartment's floor, sides, and/or tailgate(s); and
- 3) Install a suitable trackout control device that controls and prevents trackout and/or removes particulate matter from tires and the exterior surfaces of haul trucks and/or motor vehicles that traverse such work site. Examples of trackout control devices are described in Table 2: Trackout-1J, 2J, 3J.

iii. Spillage, Carry-Out, Erosion, and/or Trackout.

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- 1) Install a suitable trackout control device (Examples of trackout control devices are described in Table 2: Trackout-1J, 2J, 3J) that controls and prevents trackout and/or removes particulate matter from tires and the exterior surfaces of haul trucks and/or motor vehicles that traverse such work site at all exits onto a paved public roadway:
 - (a) From all work sites with a disturbed surface area of five acres or larger.
 - (b) From all work sites where one hundred (100) cubic yards of bulk materials are hauled on-site and/or off-site per day.
- 2) Cleanup spillage, carry-out, erosion, and/or trackout on the following time-schedule:
 - (a) Immediately, when spillage, carry-out, and/or trackout extends a cumulative distance of fifty (50) linear feet or more; or
 - (b) At the end of the work day, when spillage, carry-out, erosion, and/or trackout are other than the spillage, carryout, erosion, and/or trackout described above, in Section [f.iii.2.a] of this Permit Condition.

iv. Unpaved Haul/Access Roads

Implement 1 or more control measure(s) described in Table 2: Unpaved Haul/Access Roads-1C through 5C, before engaging in the use of or in the maintenance of unpaved haul/access roads.

v. Open Storage Piles

For the purpose of this Section, an open storage pile is any accumulation of bulk material with a five (5) percent or greater silt content which in any one point attains a height of three feet and covers a total surface area of one hundred fifty (150) square feet or more. Silt content shall be assumed to be five (5) percent or greater unless the Permittee can show, by testing in accordance with ASTM Method C136-96A or other equivalent method approved in writing by the Department and the Administrator of EPA, that the silt content is less than five (5) percent.

- 1) During stacking, loading, and unloading operations, apply water, other dust palliatives or other Department-approved dust control technologies, as necessary, to maintain compliance with Sections [a] and [b] of this Permit Condition; and

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- 2) When not conducting stacking, loading, and unloading operations, comply with one of the following work practices:
 - (a) Cover open storage piles with tarps, plastic, or other material to prevent wind from removing the coverings; or
 - (b) Apply water to maintain a soil moisture content at a minimum of twelve (12) percent, as determined by ASTM Method D2216-98, or other equivalent method as approved by the Department and the Administrator of EPA. For areas which have an optimum moisture content for compaction of less than twelve (12) percent, as determined by ASTM Method D1557-91 (1998) or other equivalent method approved by the Department or the Administrator of EPA, maintain at least seventy (70) percent of the optimum soil moisture content or maintain a visible crust that complies with the test method in Section [g.ii] of this Permit Condition; or
 - (c) Meet one of the stabilization requirements described in Section [a.i] of this Permit Condition; or
 - (d) Construct and maintain wind barriers, storage silos, or a three-sided enclosure with walls, whose length is no less than equal to the length of the pile, whose distance from the pile is no more than twice the height of the pile, whose height is equal to the pile height, and whose porosity is no more than fifty (50) percent. If implementing this Section, either Sections [f.v.2.b] or [f.v.2.c] of this Permit Condition also must be implemented; or
 - (e) Maintain a visible crust that complies with the test method in Section [g.ii] of this Permit Condition.

[Part V, Section 2.0, Subsection 10.0]

g. Compliance Determination

To determine compliance with this Permit Condition, the following test methods shall be followed:

i. Stabilization Observations.

1) Unpaved Parking Lots in an Industrial/Commercial Area.

Stabilization observations for unpaved parking lots in industrial/commercial areas shall be conducted in accordance with Maricopa County Appendix C (Fugitive Dust Test Methods), Section

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2.1 (Test Methods For Stabilization-For Unpaved Roads And Unpaved Parking Lots). When more than one (1) test method is permitted for a determination, an exceedance of the limits established in this Permit determined by any of the applicable test methods constitutes a violation of this Permit.

2) Unpaved Haul/Access Road.

Stabilization observations for unpaved haul/access roads shall be conducted in accordance with Maricopa County Appendix C (Fugitive Dust Test Methods), Section 2.1 (Test Methods For Stabilization-For Unpaved Roads And Unpaved Parking Lots). When more than one (1) test method is permitted for a determination, an exceedance of the limits established in this Permit determined by any of the applicable test methods constitutes a violation of this Permit.

ii. Test Methods Adopted By Reference:

The test methods listed in this Section are adopted by reference as of July 1, 2006. These adoptions by reference include no future editions or amendments. Copies of the test methods listed in this section are available for review at the Gila River Indian Community Department of Environmental Quality, 35 Pima Street, Sacaton, Arizona 85247.

- 1) Maricopa County Appendix C (Fugitive Dust Test Methods), Section 2.1 (Test Methods For Stabilization – For Unpaved Roads And Unpaved Parking Lots).
- 2) Maricopa County Appendix C (Fugitive Dust Test Methods), Section 2.3 (Test Methods For Stabilization – Visible Crust Determination).
- 3) ASTM Method C136-96A (“Standard Test Method For Sieve Analysis Of Fine And Coarse Aggregates”), 1996 edition.
- 4) ASTM Method D2216-98 (“Standard Test Method For Laboratory Determination Of Water (Moisture) Content Of Soil And Rock By Mass”), 1998 edition.
- 5) ASTM Method D1557-91(1998) (“Test Method For Laboratory Compaction Characteristics Of Soil Using Modified Effort (56,000 ft-lbf/ft³ (2,700 kN-m/m³))”, 1998 edition.
- 6) An alternative test method approved in writing by the Director and the Administrator of the EPA.

[Part V, Section 2.0, Subsection 12.0]

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h. Dust Control Plan

The Permittee shall submit a Dust Control Plan to the Department before commencing any routine dust generating operation. Failure to submit and obtain an approved Dust Control Plan prior to commencing any routine dust generating operation shall be a violation of this Permit. Compliance with this Section does not affect the Permittee's responsibility to comply with any other applicable requirements. The Dust Control Plan shall describe all control measures to be implemented before, after, and while conducting any dust generating operation, including during weekends, after work hours, and on holidays.

- i. A Dust Control Plan shall, at a minimum, contain all the information described in Section [h.iii] of this Permit Condition. The Department shall approve, disapprove, or conditionally approve the Dust Control Plan, in accordance with the criteria used to approve, disapprove or conditionally approve a permit. Failure to comply with the provisions of an approved Dust Control Plan is deemed to be a violation of this Permit. Regardless of whether an approved Dust Control Plan is in place or not, the Permittee is still subject to all requirements of this Section at all times. In addition, the Permittee is still subject to all of the requirements of this Permit, even if the Permittee is complying with the approved Dust Control Plan.
- ii. At least one primary control measure and one contingency control measure shall be identified in the Dust Control Plan for all fugitive dust sources. Should any primary control measure(s) prove ineffective, the Permittee shall immediately implement the contingency control measure(s), which may obviate the requirement of submitting a revised Dust Control Plan.

[Part V, Section 2.0, Subsection 6.0]

iii. Elements of a Dust Control Plan

A Dust Control Plan shall contain, at a minimum, all of the following information:

- 1) Names, address(es), and phone numbers of person(s) responsible for the submittal and implementation of the Dust Control Plan and responsible for the dust generating operations.
- 2) A drawing, on at least 8½" x 11" paper, which shows:
 - (a) Entire project site boundaries;
 - (b) Acres to be disturbed with linear dimensions;

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- (c) Nearest public roads;
 - (d) North arrow;
 - (e) Planned exit locations onto paved public roadways; and
 - (f) The expected duration of the project.
- 3) Control measures or combination thereof to be applied to all actual and potential fugitive dust sources, before, after, and while conducting any dust generating operations, including during weekends, after work hours, and on holidays.
- (a) At least one primary control measure and one contingency control measure must be identified, from Table 2 of this Permit, for all fugitive dust sources. Should any primary control measure(s) prove ineffective, the Permittee shall immediately implement the contingency control measure(s), which may obviate the requirement of submitting a revised Dust Control Plan.
 - (b) Alternatively, a control measure(s) that is not in Table 2 may be chosen, provided that the control measure is approved in writing by the Department and implemented by the Permittee, in accordance with the appropriate test method in Section [g.ii] of this Permit Condition.
 - (c) If complying with Section [d] of this Permit Condition (Unpaved Haul/Access Roads), the plan must include the number of vehicles traveled on the unpaved haul/access roads (i.e., number of employee vehicles, earthmoving equipment, haul trucks, and water trucks).
- 4) Identification of the dust suppressants to be applied, including:
- (a) Product specifications or label instructions for approved usage;
 - (b) Method, frequency, and intensity of application;
 - (c) Type, number, and capacity of application equipment; and
 - (d) Information on environmental impacts and approvals or certifications related to appropriate and safe use for ground application.
- 5) Specific surface treatment(s) and/or control measures utilized to

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control material trackout and sedimentation where unpaved and/or access points join paved public roadways.

[Part V, Section 2.0, Subsection 7.0]

iv. Dust Control Plan Revisions

If the Director determines that an approved Dust Control Plan has been followed, yet fugitive dust emissions from any given fugitive dust source under the control of the Permittee still exceed the twenty (20) percent opacity standard contained in this Permit Condition, then the Director shall issue a notice to the Permittee explaining such determination. The Permittee shall make written revisions to the Dust Control Plan as necessary to meet the twenty (20) percent opacity standard and shall submit such revised Dust Control Plan to the Director within three working days of receipt of the Director's notice, unless such time period is extended by the Director or his/her representative, for good cause. During the time that the Permittee is preparing revisions to the approved Dust Control Plan, the Permittee shall comply with all requirements of this Permit Condition.

[Part V, Section 2.0, Subsection 8.0]

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TABLE 2. SOURCE TYPE AND CONTROL MEASURES

<u>Vehicle Use In Open Areas And Vacant Lots:</u>	
1A	Restrict trespass by installing signs.
2A	Install physical barriers such as curbs, fences, gates, posts, signs, shrubs, and/or trees to prevent access to the area.
<u>Unpaved Parking Lots:</u>	
1B	Pave.
2B	Apply and maintain gravel, recycled asphalt, or other suitable material, in compliance with Part V, Section 2, Subsection 4.0.
3B	Apply a suitable dust suppressant, in compliance with Part V, Section 2, Subsection 4.0.
<u>Unpaved Haul/Access Roads:</u>	
1C	Limit vehicle speed to 15 miles per hour or less and limit vehicular trips to no more than 20 per day.
2C	Apply water, so that the surface is visibly moist and Part V, Section 2.0, Subsection 5.0 is met.
3C	Pave.
4C	Apply and maintain gravel, recycled asphalt, or other suitable material, in compliance with Part V, Section 2.0, Subsection 5.0.
5C	Apply a suitable dust suppressant, in compliance with Part V, Section 2.0, Subsection 5.0.
<u>Disturbed Surface Areas:</u>	
Pre-Activity:	
1D	Pre-water site to the depth of cuts.
2D	Phase work to reduce the amount of disturbed surface areas at any one time.
During Dust Generating Operations:	
3D	Apply water or other suitable dust suppressant, in compliance with Part V, Section 2.0, Subsection 3.0.
4D	Construct fences or 3 foot - 5 foot high wind barriers with 50% or less porosity adjacent to roadways or urban areas that reduce the amount of wind blown material leaving a site. If constructing fences or wind barriers, 3D must also be implemented.
Temporary Stabilization During Weekends, After Work Hours, And On Holidays:	
5D	Apply a suitable dust suppressant, in compliance with Part V, Section 2.0, Subsection 9.0.
6D	Restrict vehicular access to the area, in addition to the control measure described in 5D above.
Permanent Stabilization	
7D	Restore area such that the vegetative ground cover and soil characteristics are similar to adjacent or nearby undisturbed native conditions.
8D	Pave, apply gravel, or apply a suitable dust suppressant.
9D	Establish vegetative ground cover in sufficient quantity.



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TABLE 2. SOURCE TYPE AND CONTROL MEASURES

<u>Bulk Material Handling Operations And Open Storage Piles:</u> During Stacking, Loading, And Unloading Operations: 1F Apply water as necessary, to maintain compliance with Part V, Section 2.0, Subsection 3.0; and When Not Conducting Stacking, Loading, And Unloading Operations: 2F Cover open storage piles with tarps, plastic, or other material to prevent wind from removing the coverings; or 3F Apply water to maintain a soil moisture content sufficient to maintain opacity below 20%; or 4F Meet the stabilization requirements described in Part V, Section 2.0, Subsection 10.5; or 5F Construct and maintain wind barriers, storage silos, or a three-sided enclosure with walls, whose length is no less than equal to the length of the pile, whose distance from the pile is no more than twice the height of the pile, whose height is equal to the pile height, and whose porosity is no more than 50%. If implementing 5F, the Permittee shall also implement 3F or 4F above. 6F Maintain a visible crust that complies with the test method in Part V, Section 2.0, Subsection 12.2(B).	
<u>Bulk Material Hauling/Transporting:</u> When On-Site Hauling/Transporting Within The Boundaries Of The Work Site That Involves Crossing A Public Roadway Upon Which The Public Is Allowed To Travel While Construction Is Underway: 1G Load all haul trucks such that the freeboard is not less than 3 inches when crossing a public roadway upon which the public is allowed to travel while construction is underway; and 2G Prevent spillage or loss of bulk material from holes or other openings in the cargo compartment's floor, sides, and/or tailgate(s); and 3G Install a suitable trackout control device that controls and prevents trackout and/or removes particulate matter from tires and the exterior surfaces of haul trucks and/or motor vehicles that traverse such work site. Examples of trackout control devices are described in Table 2 (Trackout 1J, 2J, 3J) of this Section; and When On-Site Hauling/Transporting Within The Boundaries Of The Work Site But Not Crossing A Public Roadway Upon Which The Public Is Allowed To Travel While Construction Is Underway: 4G Limit vehicular speeds to 15 miles per hour or less while traveling on the work site; or 5G Apply water to the top of the load such that the 20% opacity standard, as described in Part V, Section 2.0, Subsection 3.0, is not exceeded, or cover haul trucks with a tarp or other suitable closure. Off-Site Hauling/Transporting Onto Paved Public Roadways: 6G Cover haul trucks with a tarp or other suitable closure; and 7G Load all haul trucks such that the freeboard is not less than 3 inches; and 8G Prevent spillage or loss of bulk material from holes or other openings in the cargo compartment's floor, sides, and/or tailgate(s); and 9G Before the empty haul truck leaves the site, clean the interior of the cargo compartment or cover the cargo compartment.	

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TABLE 2. SOURCE TYPE AND CONTROL MEASURES

Cleanup Of Spillage, Carry Out, Erosion, And/Or Trackout:	
1H	Operate a street sweeper or wet broom with sufficient water, if applicable, at the speed recommended by the manufacturer and at the frequency(ies) described in the Permittee's dust control plan; or
2H	Manually sweep-up deposits.
<u>Trackout:</u>	
1J	Install a grizzly or wheel wash system at all access points.
2J	At all access points, install a gravel pad at least 30 feet wide, 50 feet long, and 6 inches deep.
3J	Pave starting from the point of intersection with a paved public roadway and extending for a centerline distance of at least 100 feet and a width of at least 20 feet.
<i>Easements, Rights-Of-Way, And Access Roads For Utilities (Electricity, Natural Gas, Oil, Water, And Gas Transmission) Associated With Sources That Have A Non-Title V Permit, A Title V Permit, And/Or A General Permit Under Part II :</i>	
<u>Earthmoving Operations On Disturbed Surface Areas Larger Than 1 Acre:</u>	
1M	If water is the chosen control measure, operate water application system (e.g., water truck), while conducting earthmoving operations on disturbed surface areas larger than one (1) acre.
<u>Demolition Activities</u>	
The Permittee shall implement all of the following control measures:	
1O	Stabilize demolition debris. Apply water to debris immediately following demolition activity; and
2O	Stabilize surrounding area immediately following demolition activity. Water all disturbed soil surfaces to establish a crust and prevent wind erosion of soil.

EQUIPMENT LIST
VULCAN ASPHALT, MARICOPA PLANT
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Table 3. Permitted Equipment

Equipment Description	Rated Capacity (ea.)	Quantity	Construction/ Reconstruction Date	Equipment #
Hot Mix Asphalt Plant				
Caterpillar Model DF30P Drum Dryer	400 tons/hr	1	Pre-2008	1082718
Drag Slat Conveyor	600 tons/hr	2	Pre-2008	1082716 1561576
Drag Slat Conveyor	300 tons/hr	1	Pre-2008	1561577
Aggregate Conveyors	300 tons/hr	5	Pre-2008	1101710 1101711 1101712 1101713 1101714
RAP Conveyors	99 tons/hr	2	Pre-2008	1101716 1101717
Feed Bins	300 tons/hr	6	Pre-2008	1082719 1082720 1082721 1082722 1082723 1082724
RAP Feed Bins	99 tons/hr	1	Pre-2008	1101718
Scalping Screen	400 tons/hr	1	Pre-2008	1082801
RAP Screen	99 tons/hr	1	Pre-2008	1082802
CMI Model APM900 Baghouse	66,000 cfm	1	Pre-2008	401186
Asphalt Silos	200 tons	2	Pre-2008	1082601 1082602
Lime Silo	50 tons	1	Pre-2008	L550
Lime Silo Dust Collector	2,340 cfm	1	Pre-2008	DB234
Pug Mill	500 tons/hr	1	Pre-2008	1082717
Hy-Way HYFGO 100 Cement Heater	1 MMBtu/hr	1	9/2020	301920
Aggregate Processing Equipment				
Feed Hopper	300 tons/hr	1	Pre-2008	1350570
Stackers/Conveyors	300 tons/hr	3	Pre-2008	1350571 1350572 1350573

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Table 3. Permitted Equipment

Equipment Description	Rated Capacity (ea.)	Quantity	Construction/ Reconstruction Date	Equipment #
Stackers/Conveyors	100 tons/hr	6	Pre-2008	1350574 1350575 1350576 1350577 1350578 1350579
Shaker Screen	300 tons/hr	1	Pre-2008	1350565
Pioneer VSI Crusher	300 tons/hr	1	Pre-2008	1332563

Table 4. Insignificant Activities

Equipment Description	Rated Capacity (ea.)	Quantity
Asphalt Cement Storage Tank	20,000 gal.	1
Asphalt Cement Storage Tank	30,000 gal.	1
Diesel Tank	3,000 gal.	1



NON-TITLE V AIR PERMIT EVALUATION SHEET (Technical Support Document – TSD)

PERMIT NO.: P#####

MINOR MOD. ☐

NON-MINOR MOD. ☒

RENEWAL ☒

PERMIT ENGINEER: Ryan Eberle

DATE PREPARED: 06/18/26

BUSINESS NAME: Vulcan Asphalt, LLC – Maricopa Plant

BUSINESS TYPE: Hot Mix Asphalt Plant

SOURCE TYPE:		Yes	No
NSPS	☒	☐	
BACT	☐	☒	
MACT	☐	☒	
NESHAP	☐	☒	
BRDT	☒	☐	
Synthetic Minor	☒	☐	

DESCRIPTION OF SOURCE

Non-Title V permit significant modification and renewal for an existing facility. The facility includes one hot mix asphalt plant and aggregate processing equipment. Based on the information presented in the permit application, the SIC codes for the facility are 3295 and 2591, and the facility will operate 7 days per week, 52 weeks per year, and an average of 16 hours per day. Based on information provided in the permit application revision request, dated January 29, 2021, the facility will decrease the annual hot mix asphalt (HMA) production from 1,140,000 tons per year (tpy) of standard mix HMA to 825,000 tpy of HMA (750,000 tpy of standard mix and 75,000 tpy of rubberized mix).

The Maricopa facility is classified as a synthetic minor source, as defined in Part II, Section 4.2(C), and has accepted production limits for the HMA Plant, which were incorporated into the permit. On January 29, 2021, Gila River DEQ received a permit modification application to include rubberized asphalt production and revise the emission factors, based on the



performance testing for rubberized asphalt conducted at Vulcan's San Tan plant on October 18, 2020. A subsequent performance test for rubberized asphalt production was conducted in 2022 and the results of that test were incorporated into the permit revision. Since the facility is defined as a synthetic minor source and is requesting to revise a voluntarily accepted emission limitation, by increasing emission factors, the modification is considered a significant permit revision, as defined in Part II, Section 5.5(A)(1).

Hot Mix Asphalt Plant

The hot mix asphalt (HMA) process is a continuous mixing type process, using proportioning cold feed controls for the process materials. The dryer is used not only to dry the material but also to mix the heated and dried aggregates and reclaimed asphalt pavement (RAP) with the liquid asphalt cement. Aggregate, which has been proportioned by size gradations, is introduced to the drum at the burner end. As the drum rotates, the aggregates, as well as the combustion products, move toward the other end of the drum in parallel.

The HMA process begins with front-end loaders used to feed various sized aggregate materials into the aggregate feed bins. The aggregate is then conveyed to a screen and blended. From the screen the aggregate is conveyed to a pug mill and mixed with mineral supplement (lime, cement or other minerals) transferred from a storage silo. The mineral supplement silo and guppy are controlled by a dust collector. The mixed aggregate feed is then conveyed to a drum dryer. The drum dryer may use on-spec used oil or diesel to fuel the dryer. The drum dryer is controlled by a baghouse. The facility will manufacture rubberized asphalt and RAP may also be mixed into the process ranging from 0% to 50% of the asphalt blend. RAP is conveyed from a feed bin through a screen to remove oversized materials and into the drum dryer where it mixes in with the aggregate feed. Liquid asphaltic cement is then mixed in with the dried aggregate and/or RAP mixture to create the hot mix asphalt product.

The liquid asphaltic cement is stored in a storage tank equipped with a diesel burner rated at 1.00 MMBtu/hr. Liquid asphalt cement flow is controlled by a variable flow pump electronically linked to the new (virgin) aggregate and crumb rubber weigh scales. The asphalt cement is introduced in the mixing zone midway down the drum in a lower temperature zone, along with any crumb rubber and particulate matter (PM) from the baghouse.

The mixture is discharged at the end of the drum and is conveyed to HMA storage silos, where it is loaded into transport trucks. The exhaust gases also exit the end of the drum and pass on to the baghouse.

Aggregate Processing

The processing of sand and gravel involves the use of different combinations of screens, and classifiers to segregate particle sizes; crushers to reduce oversized material; and storage and loading facilities. After being transported to the processing plant, the sand and gravel raw feed is stockpiled or emptied directly into a hopper. From the hopper, the material is transported via

belt conveyors to a crusher for size reduction. Following crushing, the material is transferred via belt conveyors to a vibrating screen for sizing. Screening separates the sand and gravel into different size ranges. The screened material is transferred to stockpiles, and the oversize material from the screen is returned to the crusher.

Emissions from sand and gravel operations are primarily in the form of fugitive dust, and are emitted by operations such as conveying, screening, crushing, and storing operations.

Permitted Equipment

A list of permitted equipment is included in Table 1.

Table 1. Permitted Equipment

Equipment Description	Rated Capacity (ea.)	Quantity	Construction/ Reconstruction Date	Equipment #
Hot Mix Asphalt Plant				
Caterpillar Model DF30P Drum Dryer	400 tons/hr	1	Pre-2008	1082718
Drag Slat Conveyor	600 tons/hr	2	Pre-2008	1082716 1561576
Drag Slat Conveyor	300 tons/hr	1	Pre-2008	1561577
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RAP Feed Bins	99 tons/hr	1	Pre-2008	1101718
Scalping Screen	400 tons/hr	1	Pre-2008	1082801
RAP Screen	99 tons/hr	1	Pre-2008	1082802
CMI Model APM900 Baghouse	66,000 cfm	1	Pre-2008	401186
Asphalt Silos	200 tons	2	Pre-2008	1082601 1082602
Lime Silo	50 tons	1	Pre-2008	L550
Lime Silo Dust Collector	2,340 cfm	1	Pre-2008	DB234
Pug Mill	500 tons/hr	1	Pre-2008	1082717
Hy-Way HYFGO 100 Cement Heater	1 MMBtu/hr	1	9/2020	301920



Table 1. Permitted Equipment

Equipment Description	Rated Capacity (ea.)	Quantity	Construction/ Reconstruction Date	Equipment #
Aggregate Processing Equipment				
Feed Hopper	300 tons/hr	1	Pre-2008	1350570
Stackers/Conveyors	300 tons/hr	3	Pre-2008	1350571 1350572 1350573
Stackers/Conveyors	100 tons/hr	6	Pre-2008	1350574 1350575 1350576 1350577 1350578 1350579
Shaker Screen	300 tons/hr	1	Pre-2008	1350565
Pioneer VSI Crusher	300 tons/hr	1	Pre-2008	1332563

A list of insignificant activities is included in Table 2. Insignificant activities are defined in the Gila River Indian Community (GRIC) Code: Title 17 Chapter 9, Part II, Section 1.0 and emissions from insignificant activities are excluded from allowable emission limits.

Table 2. Insignificant Activities

Equipment Description	Rated Capacity (ea.)	Quantity
Asphalt Cement Storage Tank	20,000 gal.	1
Asphalt Cement Storage Tank	30,000 gal.	1
Diesel Tank	3,000 gal.	1

ALLOWABLE EMISSIONS

The Federally-enforceable emission limits for the facility are presented in Table 3.

Table 3. 12-Month Rolling Total Emission Limits (pounds)

Pollutant	Original	Mod/Renewal	Increase / (Decrease)
Nitrogen Oxides (NO _x)	62,800	59,900	(2,900)
Volatile Organic Compounds (VOC)	36,500	40,200	3,700
Carbon Monoxide (CO)	148,300	116,800	(31,500)
Sulfur Oxides (SO _x)	66,200	47,900	(18,300)
Particulate Matter <2.5 Micron Diameter (PM _{2.5})	N/A	37,100	N/A
Particulate Matter <10 Micron Diameter (PM ₁₀)	26,300	37,100	10,800
Particulate Matter (PM)	78,400	37,400	(42,300)
Total Hazardous Air Pollutants (HAPs)	12,000	8,700	(3,300)



APPLICABLE GRIC REGULATIONS

Part II

- Section 1: Definitions
- Section 2: Applicability of Permit Requirements
- Section 4: Non-Title V Permit Requirements
- Section 5: Permit Revisions at a Non-Title V Source
- Section 7: Standards of Performance for New Stationary Sources
- Section 10: Confidentiality of Information
- Section 11: Fees

Part V

- Section 1: Open Burning
- Section 2: General Requirements for Fugitive Dust-Producing Activities

Part VI

- Section 1: Visible Emissions

Part VII

- Section 3: Non-Metallic Mineral Mining and Processing

FEDERAL REGULATORY APPLICABILITY

APPLICABLE REGULATIONS: 40 CFR § 60 Appendix A: Test Methods
40 CFR §60 Subparts I, OOO

NSPS – Based on the information provided in the permit application, this source processes non-metallic minerals and produces HMA. Therefore, the source is subject to the New Source Performance Standards (NSPS) for non-metallic mineral processing (40 CFR 60 Subpart OOO) and HMA production (40 CRF 60 Subpart I). Within Subpart OOO, there are separate requirements for equipment constructed before 4/22/08 and equipment constructed on or after 4/22/08. For example, the opacity limit for crushers constructed before 4/22/08 is 15% and the opacity limit for crushers constructed on or after 4/22/08 is 12%.

NESHAP/MACT - Based on the information provided in the permit application, this source emits Hazardous Air Pollutants (HAPs) from the HMA plant. However, the facility (aggregate processing and HMA plant) is not a specifically listed Federal National Emission Standards for Hazardous Air Pollutants (NESHAP) Source Category and is not a major source. Therefore, the source is not subject to the NESHAP or Maximum Achievable Control Technology (MACT) standards. The federal HAPs list is fully incorporated into Part II, Section 1.0, and a GRIC HAP is defined as any Federally-listed HAP.

ALLOWABLE EMISSION CALCULATIONS

Most of the emissions from HMA production are from a single point source – the rotary drum dryer. Emissions from the drum consist of water (as steam evaporated from the aggregate); PM; NO_x; SO₂; CO; and small amounts of organic compounds of various species (including VOC, CH₄, and HAP). The organic compound and CO emissions result from incomplete combustion of the fuel and from heating and mixing of the liquid asphalt cement inside the drum. Other point source emissions include PM emissions from the cement/lime/supplement silo(s) and criteria pollutant (VOC, NO_x, PM, SO₂, and CO) emissions from the asphalt cement heater.

Fugitive sources of PM emissions include the processing (e.g, transfer, screening crushing, etc.) and handling of sand and aggregate, vehicle traffic, and wind erosion from sand and aggregate storage piles. The amount of fugitive PM emissions generated depends primarily on the surface moisture content of these materials. Fugitive sources of VOCs, CO, PM, and HAPs emissions include filling the HMA storage silos and loadout of HMA into haul trucks.

The emission calculations for the facility were based on AP-42 emission factors, previous stack test results, and material throughputs provided in the permit application. Non-fugitive emissions will be generated from the following sources:

- Silo dust collector (1);
- Asphalt cement (hot oil) heater (1); and
- Drum dryer baghouse (1).

Fugitive emissions, for the purposes of major source determination (see below), will be generated from the following sources associated with HMA production:

- Aggregate processing;
- HMA loadout into haul trucks;
- HMA transfer to storage silos;
- Aggregate handling;
- Storage piles; and
- Unpaved roads.

Only point source (non-fugitive) emissions are included in the permitted emission limits. Fugitive emissions are not included in the permitted emission limits. The calculations for the emission limits are included as an attachment to this TSD.

Major Source/Synthetic Minor Determination

Based on the maximum hourly throughput of the HMA Plant (400 tph), the facility's potential-to-emit (PTE) would exceed the major source threshold of 100 tpy for NO_x, VOC, CO, SO_x, PM₁₀, and PM at a maximum annual operating time of 8,760 hours. To avoid major source classification, the facility has accepted production limits for the HMA Plant and Federally-



enforceable emission limits, which have been incorporated in the permit. The HMA production limits are 825,000 tpy, including a maximum of 75,000 tpy of rubberized HMA.

According to the definition of “major source” in Part II, Section 1.0 and 40 CFR 70.2, the fugitive emissions of a stationary source shall not be considered in determining whether it is a major stationary source unless the source is listed or is being regulated by NSPS or NESHAP as of August 7, 1980. The facility is subject to NSPS for the HMA plant (Subpart I), the C&S plant (Subpart OOO); however, only Subpart I was in effect prior to August 7, 1980. Therefore, in addition to the non-fugitive emissions, the fugitive emissions from the HMA plant need to be evaluated to determine if the source will be considered a major source with the proposed production limits.

Fugitive emissions from the HMA plant loadout and silo filling, aggregate processing, loader dumping, unpaved haul roads, and storage piles were quantified using AP-42 emission factors and formulas and the proposed (synthetic minor) production limits for the HMA plant. Based on the calculations using the proposed limits for the HMA plant, the facility does not exceed the major source thresholds for criteria pollutants or HAPs. The annual facility emissions, including fugitive emissions, are shown in Table 4.

Table 4. Total Emissions

Pollutant	Point Source Emissions			Fugitive Emissions			Facility Total Emissions		
	(lb/day)	(lbs/yr)	(TPY)	(lb/day)	(lbs/yr)	(TPY)	(lb/day)	(lbs/yr)	(TPY)
NO_x	601.90	59,854	29.93	0.00	0	0.00	601.90	59,854	29.93
VOC	311.23	40,117	20.06	103.02	13,279	6.64	414.24	53,396	26.70
CO	1,620.08	116,795	58.40	16.19	2,087	1.04	1,636.26	118,881	59.44
SO_x	371.24	47,864	23.93	0.00	0	0.00	371.24	47,864	23.93
PM_{2.5}	296.22	37,027	18.51	40.12	6,694	3.35	336.35	43,721	21.86
PM₁₀	296.22	37,027	18.51	168.14	37,173	18.59	464.36	74,200	37.10
PM	296.48	37,329	18.66	522.97	126,697	63.35	819.45	164,026	82.01
HAPs	67.09	8,650	4.32	1.73	223	0.11	68.82	8,872	4.44

BEST REASONABLE AND DEMONSTRATED TECHNOLOGY (BRDT) ANALYSIS

Based on the information provided in the permit application and the attached emissions calculations, the facility will emit approximately 2,558 pounds per year of formaldehyde. Formaldehyde is an Ultra HAP (as defined in Part II, Section 1.0), and has a BRDT threshold of 300 pounds per year. Therefore, the facility’s formaldehyde emissions exceed the BRDT thresholds and a BRDT analysis is required. Table 5 shows the permitted facility emissions and the BRDT thresholds.

Table 5. BRDT Applicability

Pollutant	Annual Emissions (tons)	BRDT Threshold (tons)	BRDT Applicable?	Trigger Compound
NOx	29.93	>75 but <100	No	---
VOC	20.06	>75 but <100	No	---
CO	58.40	>75 but <100	No	---
SOx	23.93	>75 but <100	No	---
PM2.5	18.51	>75 but <100	No	---
PM10	18.51	>75 but <100	No	---
PM	18.66	>75 but <100	No	---
Lead	0.0011	>75 but <100	No	---
Single HAP	1.28	3	No	---
Total HAPs	4.32	5	No	---
Ultra HAPs	2,558*	300*	Yes	Formaldehyde

* = pounds per year

Formaldehyde is a HAP and a VOC, so the BRDT analysis on file for Formaldehyde emissions from HMA plants includes a review of control technologies for VOC emissions. The BRDT analysis for Formaldehyde indicates that BRDT is satisfied by good combustion practices (GCP) as outlined in O&M Plan requirements for the drum dryer baghouse maintenance inspections.

MODELING ANALYSIS

Formaldehyde was modeled using AERSCREEN model because its annual emission rate (~2,558 lbs/yr) exceeded the BRDT threshold (300 lbs/yr). The AERSCREEN model is a widely accepted method used to estimate the distance at which a contaminant's maximum concentration would be expected under "worst case" meteorological conditions. Generally, if AERSCREEN -modeled concentrations are below applicable regulatory limits, then no further modeling analyses are required.

Per Part II, Section 9(B)(5)(a), the dimensions of the largest nearby solid fixed structure (baghouse) were included in the AERSCREEN model to assess the potential building downwash and cavity effects caused by the structure. "Nearby" is defined as that distance up to five (5) times the lesser of the height or the width dimension of a structure. The asphalt storage silos were also reviewed for inclusion in the model. The asphalt storage silos are located next to each other and were conservatively assumed to be one structure. The storage silos are located approximately 29 meters from the stack, which is less than the 5L distance (e.g., L = 15 meters and 5L = 75 meters). Therefore, the storage silos were included in the model analysis. The input values used in the AERSCREEN model are shown in Table 6:

Table 6. AERSCREEN Input Values

Input Parameter	Value	Units	Reference
Stack Height	12.34	m	2
Stack Inside Diameter	1.23	m	
Stack Exit Velocity	17.65	m/s	1
Stack Gas Exit Temperature	397.35	K	1
Baghouse Height	4.27	m	2
Baghouse Length	3.35	m	2
Baghouse Width	12.19	m	2
HMA Silo Height	17.98	m	2
HMA Silo Length	14.93	m	2
HMA Silo Width	4.88	m	2
Emission Rate (24-hour)	19.84	lb/day	3
Emission Rate (Annual)	2,558	lb/yr	3

1. Temperature from 4/20/22 Vulcan San Tan plant stack test for rubberized HMA production. Velocity calculated using formula $v_2 = \text{SQRT}(T_2/T_1)$ assuming mass flow from the Maricopa plant 2023 stack test is constant (T_1 is from the 1/26/23 stack test). The 4/20/22 test had lower stack temperatures than 2023 stack test, which yields higher concentrations at fence line (more conservative).
2. Field measurements conducted on 8/27/09
3. The formaldehyde emissions from the HMA baghouse stack are ~97% of the total formaldehyde emissions for the facility, but 100% of the non-fugitive emissions. Only the non-fugitive emissions were modeled.

A unitized emission rate of 1 gram per second (g/s) was used as input in the model, and the model output concentration was multiplied by the 24-hour and annual formaldehyde emission rates to determine the maximum formaldehyde concentrations. A comparison of the maximum 24-hour and annual modeled formaldehyde emission rates with the Agency of Toxic Substances and Disease Registry (ATSDR) Minimal Risk Levels (MRLs) is presented in Table 7.

Table 7. Modeling Results for Formaldehyde

Source Description	Maximum Concentration			
	24-hr (Acute)		Annual (Chronic)	
	(ug/m ³)	(ppm)	(ug/m ³)	(ppm)
SCREEN3 Result ⁽¹⁾	165	0.132	27.49	0.0220
Formaldehyde Result (Calculated) ⁽²⁾	17.187	0.0138	1.011	0.000810
ATSDR MRL ⁽³⁾	49.9	0.04	10.0	0.008

1. Concentrations in [(ug/m³) / (g/s)] or [ppm / (g/s)]. AERSCREEN results using a generic emission rate of 1 g/s.
2. Formaldehyde Result (ug/m³) = Formaldehyde emission rate (g/s) x AERSCREEN Result (ug/m³ / g/s)
3. Department of Health and Human Services, Agency for Toxic Substances and Disease Registry (ATSDR), Minimal Risk Levels (MRLs) for Hazardous Substances, July 2025 - acute exposure MRL (1-14 days) is assumed for daily concentration and chronic exposure MRL (>365 days) is assumed for annual concentration.



ANALYSIS OF IMPORTANT PERMIT CONDITIONS

Condition 26: Sets the emission limits for the facility, which were established based on information provided by the Permittee in the permit application. Describes the methods used to calculate the actual emissions from the facility,

Conditions 27 through 32: Set the production limitations, visible emission limitations, control requirements, operational restrictions, recordkeeping and reporting requirements, and performance test requirements for the hot mix asphalt plant and the aggregate processing plant at the facility. The production limits for the hot mix asphalt plant were based on the hourly and annual production rates provided in the application and subsequent correspondence. The visible emission limitations, operational restrictions and control requirements reflect the policies contained in Part VII, Section 3.0 and 40 CFR 60 Subparts I and OOO. The performance test conditions establish the required testing frequency, test methods, notification and reporting requirements.

Condition 33: Sets the requirements for Operation and Maintenance (O&M) Plans for the air pollution control equipment at the facility. These conditions reflect policies contained in Part VII, Section 3.0, Subsection 5.1.

Condition 34: Sets the limitations and requirements for open burning, including a list of materials that cannot be burned. These conditions reflect policies contained in Part V, Section 1.0.

Condition 35: Sets the limitations and requirements for fugitive dust generating operations, including, but not limited to, storage piles, track out, and haul roads. These conditions include requirements for dust control plans, emission control systems, compliance determination, monitoring and recordkeeping, control measures, and visible emission limitations, which reflect the policies contained in Part V, Section 2.0.

SUMMARY OF SIGNIFICANT CHANGES FOR PERMIT RENEWAL/MODIFICATION

- Added information on where to submit correspondence to EPA and GRIC (first page of permit)
- Clarified the permit term (Condition 15)
- Added requirements for how to determine opacity (Condition 25)
- Added emission limit for PM_{2.5} and revised emission limits (Condition 26)
- Reduced allowable total production rate for the HMA plant and added an allowable production rate for rubberized asphalt (Condition 27)
- Revised visible emission limits for equipment constructed before and after April 22, 2008, in accordance with 40 CFR 60 Subpart OOO (Condition 28)
- Added additional recordkeeping requirements to Condition 31 for:



- Aggregate processing equipment constructed, modified, or reconstructed after April 22, 2008
 - Emission control system operation and maintenance parameters
 - Gasoline usage, storage, and handling
- Moved Dust Control recordkeeping and reporting requirements from Condition 36 to Condition 31.
- Added general notification and reporting requirements for equipment subject to 40 CFR 60 (Condition 31)
- Added performance test requirements for the aggregate processing equipment in accordance with 40 CFR 60 Subpart OOO (Condition 32)
- Added performance test requirements for the cement/lime silo dust collector (Condition 32)

Vulcan Asphalt, LLC - Maricopa Plant**DRAFT**

GRIC Air Quality Permit No.: #####

Facility Operating Parameters

Note, yellow highlighted values were provided in the application or by applicant**Hot Mix Asphalt Plant Operating Parameters**

	hr/day	day/wk	wk/yr	hr/yr
Operating Schedule	16.0	7	52	5,840

	Production Limits		
	Hourly (TPH)	Daily (TPD) ^(1a)	Annual (TPY) ^(1b)
Hot Mix Asphalt Plant - Standard Mix	400	6,400	750,000
Hot Mix Asphalt Plant - Rubberized Mix	400	6,400	75,000

Notes:

1a. Calculated daily throughput based on hourly rating and operating hours. For example, 400 tons/hour x 16 hrs/day = 6400 tons/day

1b. Total Production shall equal 825,000 TPY, with up to a max portion of 75,000 TPY rubberized.

HMAP Composition	Hourly (TPH)	Daily (TPD)	Annual (TPY) ^(2a)
HMAP Aggregate	297	4,752	474,800
Processed Aggregate	300	4,800	300,000
Delivered Aggregate (not processed) ^(2b)			174,800
Reclaimed Asphalt Pavement (RAP)	99	1,584	336,600
Cement/Lime Silo	2	32	6,800
Mineral Supplement Silo	2	32	6,800

Notes:

2a. Annual virgin aggregate usage = Annual HMAP Production - Annual RAP - Annual Mineral Supplement

2b. Delivered aggregate = HMAP Virgin Aggregate - aggregate processed in crushing & screening equipment

Vulcan Asphalt, LLC - Maricopa Plant**DRAFT****GRIC Air Quality Permit No.: #####****Facility Operating Parameters**

Control Equipment	Maximum Design Flowrate (cfm)	Maximum Design Flowrate (dscfm) ^(2a)
Dryer Baghouse	66,000	38,000
Cement/Lime Silo Dust Collector	2,340	

Notes:

2a. The average flowrate in dscfm during the 1/26/23 stack test was 28,428 and the highest flowrate in dscfm was 29,031. The average and maximum flowrates in acfm during the test were 50,201 and 50,496, respectively. The published maximum design flowrate in acfm is approximately 30% higher than the acfm flowrates achieved during the test. Therefore, the maximum dscfm flowrate during the 1/26/23 test was increased by approximately 30% to represent maximum design flowrate in dscfm

Vehicle Type	Mean Vehicle Weight (tons)	Unpaved Roads		
		VMT per day ⁽³⁾	Unpaved VMT per year	Unpaved Road Control Efficiency ⁽⁴⁾
Asphalt Haul Trucks	31.5	34.3	12,500	80%
Aggregate Haul Trucks (769D) ⁽⁷⁾	55	18.7	6,800	80%
RAP Delivery Trucks (semi)	31.5	21.4	7,800	80%
HMAP Loaders (966M)	30	30.8	11,200	80%
Aggregate Loaders (980H)	41	49.7	18,100	80%

Notes:

3. $VMT \text{ (miles/day)} = VMT \text{ (miles/year)} / (\text{Operating Weeks Per Year} \times \text{Operating Days Per Week})$

4. Control efficiency based on AP-42, Chapter 13.2.2.3 (controls for unpaved roads); Maricopa County Air Quality Department, Emissions Inventory Help Sheet for Vehicle Travel on Unpaved Roads, 2020; San Diego Air Pollution Control District, Haul Road Emissions, April 2025; and facility road speed limit of 15 mph.

Vulcan Asphalt, LLC - Maricopa Plant

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Facility Operating Parameters

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Storage Piles

	Size (Acres)	Control Eff (%)
Storage Piles - Aggregate (acres)	2	70%
Storage Piles - Sand (acres)	2.3	70%

Aggregate Processing

	Production Limits		
	tons/hr	tons/day	tons/yr
Aggregate Processing	300	4,800	300,000
Reclaimed Asphalt Pavement (RAP) Processing	99	1,584	336,600
	TOTAL		636,600

Solvent Usage

	lbs/yr
Solvent-VOC for Asphalt Rubber Production ⁽⁵⁾	1,100

Notes:

5. As allowed per Part VII, Section 3.0, Subsection 1.0 of the GRIC AQMP

Vulcan Asphalt, LLC - Maricopa Plant
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DRAFT**Point Source Emissions**

Pollutant	Hot Mix Asphalt Plant		
	(lb/day)	(lbs/yr)	(tons/yr)
NOx	601.90	59,854	29.93
VOC	311.23	40,117	20.06
CO	1,620.08	116,795	58.40
SOx	371.24	47,864	23.93
PM2.5	296.22	37,027	18.51
PM10	296.22	37,027	18.51
PM	296.48	37,329	18.66
HAPs	67.09	8,650	4.32

Fugitive Emissions

Pollutant	Hot Mix Asphalt Plant														
	Aggregate Processing			Loadout & Asphalt Silo Filling			Aggregate Handling			Unpaved Roads			Storage Piles		
	(lb/day)	(lbs/yr)	(tons/yr)	(lb/day)	(lbs/yr)	(tons/yr)	(lb/day)	(lbs/yr)	(tons/yr)	(lb/day)	(lbs/yr)	(tons/yr)	(lb/day)	(lbs/yr)	(tons/yr)
NOx	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
VOC	---	---	---	103.02	13,279	6.64	---	---	---	---	---	---	---	---	---
CO	---	---	---	16.19	2,087	1.04	---	---	---	---	---	---	---	---	---
SOx	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
PM2.5	25.17	3,157	1.58	7.09	914	0.46	1.03	134	0.07	6.28	2,288	1.14	0.55	201	0.10
PM10	87.75	11,182	5.59	7.09	914	0.46	6.86	889	0.44	62.84	22,875	11.44	3.60	1,313	0.66
PM	247.59	31,521	15.76	7.09	914	0.46	14.52	1,882	0.94	246.58	89,755	44.88	7.19	2,626	1.31
HAPs	---	---	---	1.73	223	0.11	---	---	---	---	---	---	---	---	---

Total Emissions

Pollutant	Point Source Emissions			Fugitive Emissions			Facility Total Emissions		
	(lb/day)	(lbs/yr)	(tons/yr)	(lb/day)	(lbs/yr)	(tons/yr)	(lb/day)	(lbs/yr)	(tons/yr)
NOx	601.90	59,854	29.93	0.00	0	0.00	601.90	59,854	29.93
VOC	311.23	40,117	20.06	103.02	13,279	6.64	414.24	53,396	26.70
CO	1,620.08	116,795	58.40	16.19	2,087	1.04	1,636.26	118,881	59.44
SOx	371.24	47,864	23.93	0.00	0	0.00	371.24	47,864	23.93
PM2.5	296.22	37,027	18.51	40.12	6,694	3.35	336.35	43,721	21.86
PM10	296.22	37,027	18.51	168.14	37,173	18.59	464.36	74,200	37.10
PM	296.48	37,329	18.66	522.97	126,697	63.35	819.45	164,026	82.01
HAPs	67.09	8,650	4.32	1.73	223	0.11	68.82	8,872	4.44

Emission Limits

Pollutant	Point Sources	
	(lbs/yr)	(tons/yr)
NOx	59,900	30.0
VOC	40,200	20.1
CO	116,800	58.4
SOx	47,900	24.0
PM2.5	37,100	18.6
PM10	37,100	18.6
PM	37,400	18.7
HAPs	8,700	4.4

Vulcan Asphalt, LLC - Maricopa Plant**DRAFT****GRIC Air Quality Permit No.: #####****Major Source Determination****Potential-To-Emit (PTE) for Point Sources**

Pollutant	HMA Plant			Fugitive Emissions (HMAP)			Total			Major Source Threshold	Determination
	(lb/day) ⁽¹⁾	(lbs/yr) ⁽²⁾	(tons/yr)	(lb/day)	(lbs/yr)	(tons/yr)	(lb/day) ⁽¹⁾	(lbs/yr) ⁽²⁾	(tons/yr)	(tons/yr)	
NOx	902.85	329,542	164.77	0.00	0	0.00	902.85	329,542	164.77	100	Major
VOC	466.84	170,397	85.20	154.52	56,401	28.20	621.36	226,798	113.40	100	Major
CO	2,430.11	886,991	443.50	24.28	8,862	4.43	2,454.39	895,854	447.93	100	Major
SOx	556.86	203,252	101.63	0.00	0	0.00	556.86	203,252	101.63	100	Major
PM2.5	444.33	162,181	81.09	77.38	28,243	14.12	521.71	190,424	95.21	100	Minor
PM10	444.33	162,181	81.09	424.13	154,807	77.40	868.46	316,989	158.49	100	Major
PM	444.72	162,321	81.16	1,459.01	532,539	266.27	1,903.73	694,860	347.43	100	Major
HAPs	100.64	36,733	18.37	2.59	946	0.47	103.23	37,679	18.84	25	Minor

Notes:

1. Daily PTE = (daily emissions @ proposed operating hours) * (24 hrs / proposed operating hours)
2. Annual PTE = Daily PTE * 365 days

Fugitive Emissions (HMAP)

Pollutant	Hot Mix Asphalt Plant														
	Aggregate Processing			Loadout & Silo Filling			Aggregate Handling			Unpaved Roads			Storage Piles		
	(lb/day) ⁽¹⁾	(lbs/yr) ⁽²⁾	(tons/yr)	(lb/day) ⁽¹⁾	(lbs/yr) ⁽²⁾	(tons/yr)	(lb/day) ⁽¹⁾	(lbs/yr) ⁽²⁾	(tons/yr)	(lb/day) ⁽³⁾	(lbs/yr) ⁽⁴⁾	(tons/yr)	(lb/day) ⁽¹⁾	(lbs/yr) ⁽²⁾	(tons/yr)
NOx	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
VOC	---	---	---	154.52	56,401	28.20	---	---	---	---	---	---	---	---	---
CO	---	---	---	24.28	8,862	4.43	---	---	---	---	---	---	---	---	---
SOx	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
PM2.5	37.76	13,781	6.89	10.64	3,882	1.94	1.55	564	0.28	26.62	9,716	4.86	0.83	301	0.15
PM10	131.63	48,043	24.02	10.64	3,882	1.94	10.29	3,756	1.88	266.18	97,157	48.58	5.40	1,969	0.98
PM	371.39	135,556	67.78	10.64	3,882	1.94	21.78	7,950	3.97	1,044.42	381,213	190.61	10.79	3,939	1.97
HAPs	---	---	---	2.59	946	0.47	---	---	---	---	---	---	---	---	---

Notes:

1. Daily PTE = (daily emissions @ proposed operating hours) * (24 hrs / proposed operating hours)
2. Annual PTE = Daily PTE * 365 days
3. Daily PTE = Annual PTE / 365 days
4. Annual PTE for unpaved roads = (annual emissions @ proposed limit) * (max annual production / proposed production limit)

Vulcan Asphalt, LLC - Maricopa Plant**DRAFT**

GRIC Air Quality Permit No.: #####

Best Reasonable and Demonstrated Technology (BRDT) Analysis Applicability

Pollutant	Total Emissions	BRDT Threshold	Exceeds BRDT Threshold?	Trigger Compound
	(tons/yr)	(tons/yr)		
NOx	29.93	>75 but <100	No	---
VOC	20.06	>75 but <100	No	---
CO	58.40	>75 but <100	No	---
SOx	23.93	>75 but <100	No	---
PM2.5	18.51	>75 but <100	No	---
PM10	18.51	>75 but <100	No	---
PM	18.66	>75 but <100	No	---
Lead	0.0011	>75 but <100	No	---
Single HAP	1.28	3	No	---
Total HAPs	4.32	5	No	---
Ultra HAPs	2,579.13*	300*	Yes	Formaldehyde

Notes:

* Pounds per year

AERSCREEN Analysis for Vulcan Asphalt Maricopa Facility

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Formaldehyde Emission Rate (24-hour)	19.84 lb/day =	0.104 g/s
Formaldehyde Emission Rate (Annual)	2,557.68 lb/yr =	0.037 g/s
Equivalent Stack Diameter	55.46 in. =	1.23 m
Stack Temperature ⁽¹⁾	126.00 °F =	325.22 °K
Stack Velocity ⁽¹⁾	42.70 ft/s =	13.01 m/s
Stack Height	40.5 ft. =	12.34 m
Baghouse Height	14 ft. =	4.27 m
Baghouse Length	11 ft. =	3.35 m
Baghouse Width	40 ft. =	12.19 m
HMA Silo Height	59 ft. =	17.98 m
HMA Silo Length	49 ft. =	14.93 m
HMA Silo Width	16 ft. =	4.88 m

Source Description	Maximum Concentration			
	24-hour		Annual	
	(ug/m ³)	(ppm)	(ug/m ³)	(ppm)
AERSCREEN Result ⁽²⁾	165	0.132	27.49	0.0220
Formaldehyde Result (Calculated) ⁽³⁾	17.187	0.0138	1.011	0.000810
ATSDR MRL ⁽⁴⁾	49.9	0.04	10.0	0.008

Notes:

1. Temperature from 4/20/22 Vulcan San Tan plant stack test for rubberized HMA production. Velocity calculated using formula $v_2 = \sqrt{T_2/T_1}$ assuming mass flow from the Maricopa plant 2023 stack test is constant (T1 is from the 1/26/23 stack test). The 4/20/22 test had lower stack temperatures than the 2023 stack test, which will yield higher concentrations at the fence line (more conservative).
2. Concentrations in [(ug/m³) / (g/s)] or [ppm / (g/s)]. AERSCREEN results using a generic emission rate of 1 g/s.
3. Formaldehyde Result (ug/m³) = Formaldehyde emission rate (g/s) x AERSCREEN Result (ug/m³ / g/s)
4. Department of Health and Human Services, Agency for Toxic Substances and Disease Registry (ATSDR), Minimal Risk Levels (MRLs) for Hazardous Substances, July 2025 - acute exposure MRL (1-14 days) is assumed for 24-hour concentration and chronic exposure MRL (>365 days) is assumed for annual concentration.

$$\text{Concentration} \left(\frac{\mu\text{g}}{\text{m}^3} \right) = \text{Concentration (ppm)} \times \frac{30.03 \text{ g}}{\text{mol}} \times \frac{1 \text{ mol}}{24.05 \text{ L}} \times \frac{1000 \text{ L}}{\text{m}^3}$$

Vulcan Asphalt, LLC - Maricopa Plant

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GRIC Air Quality Permit No.: #####

Facility HAPs Summary

HAP Name	CAS Number	HMAP Emissions		Total Non-Fugitive Emissions			Ultra HAP
		Point Source		lbs/day	lbs/yr	tons/yr	
		lbs/day	lbs/yr				
1,1,1-Trichloroethane (methyl chloroform)	00071-55-6	3.07E-01	3.96E+01	3.07E-01	3.96E+01	1.98E-02	
2-Butanone (Methyl ethyl ketone)	00078-93-3	1.28E-01	1.65E+01	1.28E-01	1.65E+01	8.25E-03	
2-Methylnaphthalene	00056-49-5	1.09E+00	1.40E+02	1.09E+00	1.40E+02	7.01E-02	
Acenaphthene	00083-32-9	9.04E-03	1.18E+00	9.04E-03	1.18E+00	5.91E-04	
Acenaphthylene	00208-96-8	1.41E-01	1.82E+01	1.41E-01	1.82E+01	9.08E-03	
Acetaldehyde	00075-07-0	8.32E+00	1.07E+03	8.32E+00	1.07E+03	5.36E-01	
Acrolein	00107-02-8	1.66E-01	2.15E+01	1.66E-01	2.15E+01	1.07E-02	X
Anthracene	00120-12-7	1.99E-02	2.57E+00	1.99E-02	2.57E+00	1.28E-03	
Antimony	07440-36-0	1.15E-03	1.49E-01	1.15E-03	1.49E-01	7.43E-05	
Arsenic	07440-38-2	3.62E-03	4.69E-01	3.62E-03	4.69E-01	2.34E-04	
Benz(a)anthracene	00056-55-3	1.34E-03	1.73E-01	1.34E-03	1.73E-01	8.66E-05	
Benzene	00071-43-2	2.50E+00	3.22E+02	2.50E+00	3.22E+02	1.61E-01	
Benzo(a)pyrene	00050-32-8	6.27E-05	8.09E-03	6.27E-05	8.09E-03	4.04E-06	
Benzo(b)fluoranthene	00205-99-2	6.54E-04	8.77E-02	6.54E-04	8.77E-02	4.39E-05	
Benzo(e)pyrene	00192-97-2	7.04E-04	9.08E-02	7.04E-04	9.08E-02	4.54E-05	
Benzo(g,h,i)perylene	00191-24-2	2.56E-04	3.30E-02	2.56E-04	3.30E-02	1.65E-05	
Benzo(k)fluoranthene	00205-82-3	2.62E-04	3.38E-02	2.62E-04	3.38E-02	1.69E-05	
Beryllium	07440-41-7	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Cadmium	07440-43-9	2.62E-03	3.38E-01	2.62E-03	3.38E-01	1.69E-04	
Chromium	07440-47-3	3.54E-02	4.57E+00	3.54E-02	4.57E+00	2.29E-03	
Chrysene	00218-01-9	1.15E-03	1.49E-01	1.15E-03	1.49E-01	7.43E-05	
Cobalt	07440-48-4	1.66E-04	2.15E-02	1.66E-04	2.15E-02	1.07E-05	
Ethylbenzene	00100-41-4	1.54E+00	1.98E+02	1.54E+00	1.98E+02	9.90E-02	
Fluoranthene	00206-44-0	3.91E-03	5.06E-01	3.91E-03	5.06E-01	2.53E-04	
Fluorene	00086-73-7	7.04E-02	9.08E+00	7.04E-02	9.08E+00	4.54E-03	
Formaldehyde	00050-00-0	1.98E+01	2.56E+03	1.98E+01	2.56E+03	1.28E+00	X
Hexane	00110-54-3	5.89E+00	7.59E+02	5.89E+00	7.59E+02	3.80E-01	
Hex-Chromium	18540-29-9	2.88E-03	3.71E-01	2.88E-03	3.71E-01	1.86E-04	
Indeno(1,2,3-cd)pyrene	00193-39-5	4.48E-05	5.78E-03	4.48E-05	5.78E-03	2.89E-06	
Isooctane (2,2,4-Trimethylpentane)	00540-84-1	2.56E-01	3.30E+01	2.56E-01	3.30E+01	1.65E-02	
Lead	07439-92-1	9.60E-02	1.24E+01	9.60E-02	1.24E+01	6.19E-03	
Manganese	07439-96-5	4.93E-02	6.35E+00	4.93E-02	6.35E+00	3.18E-03	
Mercury	07439-97-6	1.66E-02	2.15E+00	1.66E-02	2.15E+00	1.07E-03	
Naphthalene	00091-20-3	4.16E+00	5.37E+02	4.16E+00	5.37E+02	2.69E-01	
Nickel	07440-02-0	4.03E-01	5.20E+01	4.03E-01	5.20E+01	2.60E-02	
Perylene	00198-55-0	5.63E-05	7.26E-03	5.63E-05	7.26E-03	3.63E-06	
Phenanthrene	00085-01-8	1.48E-01	1.92E+01	1.48E-01	1.92E+01	9.62E-03	
Propionaldehyde	00123-38-6	8.32E-01	1.07E+02	8.32E-01	1.07E+02	5.36E-02	
Pyrene	00129-00-0	1.92E-02	2.48E+00	1.92E-02	2.48E+00	1.24E-03	
Quinone	00106-51-4	1.02E+00	1.32E+02	1.02E+00	1.32E+02	6.60E-02	
Selenium	07782-49-2	2.24E-03	2.89E-01	2.24E-03	2.89E-01	1.44E-04	
Toluene	00108-88-3	1.86E+01	2.39E+03	1.86E+01	2.39E+03	1.20E+00	
Total PCDD/PCDF	*Dioxin/Furan*	8.01E-07	1.11E-04	8.01E-07	1.11E-04	5.55E-08	
Total Phosphorus	07723-14-0	1.79E-01	2.31E+01	1.79E-01	2.31E+01	1.16E-02	
Xylenes (Total)	01330-20-7	1.28E+00	1.65E+02	1.28E+00	1.65E+02	8.25E-02	

TOTAL	6.71E+01	8.65E+03	4.32E+00
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Vulcan Asphalt, LLC - Maricopa Plant

GRIC Air Quality Permit No.: #####

Hot Mix Asphalt Plant Criteria Pollutant Emission Calculations

DRAFT

Operating Parameters

	hr/day	day/wk	wk/yr	hr/yr
Operating Schedule	16.0	7	52	5,840

	Production Limits		
	Hourly (TPH)	Daily (TPD) ⁽¹⁾	Annual (TPY)
Hot Mix Asphalt Plant - Standard Mix	400	6,400	750,000
Hot Mix Asphalt Plant - Rubberized Mix	400	6,400	75,000
Cement/Lime Silo	2	32	6,800
Mineral Supplement Silo	2	32	6,800

Control Equipment	Maximum Design Flowrate (cfm)	Maximum Design Flowrate (dscfm)
Dryer Baghouse	66,000	38,000
Cement/Lime Silo Dust Collector	2,340	

Criteria Pollutant	Dryer Baghouse Emissions (HM1) Standard Mix			Dryer Baghouse Emissions (HM2) Rubberized Mix			Cement/Lime/Supplement Silo Loading Emissions (LS1)			Asphalt Heater Emissions (EP-11)				Total Emissions		
	EF ^(2a)		Emissions	EF ^(2b)		Emissions	EF ⁽³⁾		Emissions	EF ⁽⁶⁾		EF ⁽⁷⁾	Emissions			
	(lb/ton HMA)	(lb/day) ⁽⁴⁾	(lbs/yr) ⁽⁵⁾	(lb/ton HMA)	(lb/day) ⁽⁴⁾	(lbs/yr) ⁽⁵⁾	(lb/ton)	(lb/day) ⁽⁴⁾	(lbs/yr) ⁽⁵⁾	(lb/1000 gal.)	(lb/hr)	(lb/day) ⁽⁸⁾	(lbs/yr) ⁽⁹⁾	(lb/day) ⁽¹¹⁾	(lbs/yr)	(tons/yr)
NOx	0.069	440.00	51,563	0.094	598.40	7,013	---	---	---	2.00E+01	0.15	3.50	1278.55	601.9	59,854	29.93
VOC	0.049	311.17	36,465	0.048	309.76	3,630	---	---	---	3.40E-01	0.00	0.06	21.74	311.2	40,117	20.06
CO	0.13	832.00	97,500	0.253	1619.20	18,975	---	---	---	5.00E+00	0.04	0.88	319.64	1,620.1	116,795	58.40
SO ₂	0.058	371.20	43,500	0.058	371.20	4,350	---	---	---	2.13E-01	0.00	0.04	13.62	371.2	47,864	23.93
PM _{2.5}	0.046	295.68	34,650	0.030	190.08	2,228	0.0049	0.31	66.6	1.30E+00	0.01	0.23	83.11	296.2	37,027	18.51
PM ₁₀	0.046	295.68	34,650	0.030	190.08	2,228	0.0049	0.31	66.6	1.30E+00	0.01	0.23	83.11	296.2	37,027	18.51
PM ⁽¹⁰⁾	0.046	295.68	34,650	0.033	211.20	2,475	0.0089	0.57	121.0	1.30E+00	0.01	0.23	83.11	296.5	37,329	18.66

Notes:

1. Calculated daily throughput based on hourly rating and operating hours. For example, 400 tons/hour x 16 hrs/day = 6400 tons/day

2a. Emission factors were obtained from AP-42 5th Ed. Final Section 11.1, updated March 2004, Tables 11.1-3 (PM10 w/ fabric filter), 11.1-7 (CO, NOx & SO2 for waste oil-fired dryers), 11.1-8 (VOC for waste oil-fired dryers) **OR** the highest value from the 2023 standard stack test results multiplied by a 10% contingency factor, whichever is more. See Note 10.

2b. Emission factors were obtained from AP-42 5th Ed. Final Section 11.1, updated March 2004, Tables 11.1-3 (PM10 w/ fabric filter), 11.1-7 (CO, NOx & SO2 for waste oil-fired dryers), 11.1-8 (VOC for waste oil-fired dryers) **OR** the highest value from the 2022 rubberized stack test results for the Vulcan Santan plant multiplied by a 10% contingency factor, whichever is more. See Note 10.

3. Emission factors were obtained from AP-42 5th Ed. Final Section 11.12 updated June 2006, Table 11.12-2 (PM from cement/lime - emissions are controlled by baghouse/dust collector). Assumes all PM10 is PM2.5

4. Daily emissions, except PM (lbs/day) = emission factor (lb/ton HMA) x daily production limit (tons/day).

Daily emissions of PM (lbs/day) = {EF (lb/ton HMA) x daily production limit (tons/day)} - See Note 10.

5. Annual emissions = emission factor (lb/ton HMA) x annual production limit (tons/year).

6. Emission factors obtained from AP-42 5th Ed. Final Section 1.3, updated May 2010, Tables 1.3-1, 1.3-2, and 1.3-3.

Where: diesel sulfur content = 0.0015 %

Vulcan Asphalt, LLC - Maricopa Plant

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Hot Mix Asphalt Plant Criteria Pollutant Emission Calculations

7. Emission factors for the hot oil heater were converted from lb/1000 gal. to lbs/hr according to the following equation:

lb/hr = [emission factor (lb/1000 gal.)] / [diesel heat content (MMBtu/gal)] * [Burner rating (MMBtu/hr)]

Where: diesel heat content = 137.03 MMBtu/1000 gal.

burner rating = 1.00 MMBtu/hr

8. Daily emissions = emission factor (lb/hr) x 24 hours

9. Annual emissions = daily emissions (lb/day) x 365 days

10. AP-42 and stack test results

Criteria Pollutant	AP-42	2023 Stack Test High Value (Standard Mix)		2022 Vulcan Santan Plant Stack Test High Value (Rubberized Mix)	
	(lb/ton)	(lb/ton) ⁽¹²⁾	+10% (lb/ton)	(lb/ton) ⁽¹²⁾	+10% (lb/ton)
NOx	0.055	0.0625	0.069	0.085	0.094
VOC	0.032	0.0442	0.049	0.044	0.048
CO	0.13	0.0658	0.072	0.23	0.253
SO2	0.058	0.0155	0.017	0.0120	0.013
PM2.5	0.0223	0.042	0.046	0.027	0.030
PM10	0.023	0.042	0.046	0.027	0.030
PM	0.033	0.042	0.046	0.027	0.030

11. Daily maximum assumes either all standard or rubberized asphalt is produced, whichever is greater

12. Highest value of 3 runs from stack test

Vulcan Asphalt, LLC - Maricopa Plant

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Hot Mix Asphalt Plant Hazardous Air Pollutant Emission Calculations

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Operating Parameters

	hr/day	day/wk	wk/yr
Operating Schedule	16.0	7	52

Production Limits	Hourly (TPH)	Daily (TPD) ⁽¹⁾	Annual (TPY)
HMAP Standard and Rubber	400	6,400	825,000

ORGANICS

	Dryer Burner/Baghouse Emissions (HM1)			Asphalt Heater Emissions (EP-11)				Total Emissions		
	EF ⁽¹⁾	Emissions		EF ⁽²⁾	Emissions			Emissions		
	(lb/ton HMA)	(lb/day)	(lbs/yr)	(lb/gal)	(lb/hr) ⁽³⁾	(lb/day) ⁽⁴⁾	(lbs/yr) ⁽⁵⁾	(lb/day)	(lbs/yr)	(tons/yr)
Individual HAPs										
Acetaldehyde	1.30E-03	8.32E+00	1.07E+03					8.32E+00	1.07E+03	5.36E-01
Acrolein	2.60E-05	1.66E-01	2.15E+01					1.66E-01	2.15E+01	1.07E-02
Benzene	3.90E-04	2.50E+00	3.22E+02					2.50E+00	3.22E+02	1.61E-01
2-Butanone (Methyl ethyl ketone)	2.00E-05	1.28E-01	1.65E+01					1.28E-01	1.65E+01	8.25E-03
Ethylbenzene	2.40E-04	1.54E+00	1.98E+02					1.54E+00	1.98E+02	9.90E-02
Formaldehyde	3.10E-03	1.98E+01	2.56E+03	3.50E-06	2.09E-05	5.03E-04	1.83E-01	1.98E+01	2.56E+03	1.28E+00
n-Hexane	9.20E-04	5.89E+00	7.59E+02					5.89E+00	7.59E+02	3.80E-01
Isooctane (2,2,4-Trimethylpentane)	4.00E-05	2.56E-01	3.30E+01					2.56E-01	3.30E+01	1.65E-02
Propionaldehyde	1.30E-04	8.32E-01	1.07E+02					8.32E-01	1.07E+02	5.36E-02
Quinone	1.60E-04	1.02E+00	1.32E+02					1.02E+00	1.32E+02	6.60E-02
Toluene	2.90E-03	1.86E+01	2.39E+03					1.86E+01	2.39E+03	1.20E+00
1,1,1-Trichloroethane (methyl chloroform)	4.80E-05	3.07E-01	3.96E+01					3.07E-01	3.96E+01	1.98E-02
Xylenes (Total)	2.00E-04	1.28E+00	1.65E+02					1.28E+00	1.65E+02	8.25E-02
POM HAPs										
Acenaphthene	1.40E-06	8.96E-03	1.16E+00	5.30E-07	3.17E-06	7.61E-05	2.78E-02	9.04E-03	1.18E+00	5.91E-04
Acenaphthylene	2.20E-05	1.41E-01	1.82E+01	2.00E-07	1.20E-06	2.87E-05	1.05E-02	1.41E-01	1.82E+01	9.08E-03
Anthracene	3.10E-06	1.98E-02	2.56E+00	1.80E-07	1.08E-06	2.59E-05	9.44E-03	1.99E-02	2.57E+00	1.28E-03
Benzo(a)anthracene	2.10E-07	1.34E-03	1.73E-01					1.34E-03	1.73E-01	8.66E-05
Benzo(b)fluoranthene	1.00E-07	6.40E-04	8.25E-02	1.00E-07	5.98E-07	1.44E-05	5.24E-03	6.54E-04	8.77E-02	4.39E-05
Benzo(k)fluoranthene	4.10E-08	2.62E-04	3.38E-02					2.62E-04	3.38E-02	1.69E-05
Benzo(g,h,i)perylene	4.00E-08	2.56E-04	3.30E-02					2.56E-04	3.30E-02	1.65E-05
Benzo(a)pyrene	9.80E-09	6.27E-05	8.09E-03					6.27E-05	8.09E-03	4.04E-06
Benzo(e)pyrene	1.10E-07	7.04E-04	9.08E-02					7.04E-04	9.08E-02	4.54E-05
Chrysene	1.80E-07	1.15E-03	1.49E-01					1.15E-03	1.49E-01	7.43E-05
Fluoranthene	6.10E-07	3.90E-03	5.03E-01	4.40E-08	2.63E-07	6.32E-06	2.31E-03	3.91E-03	5.06E-01	2.53E-04
Fluorene	1.10E-05	7.04E-02	9.08E+00	3.20E-08	1.91E-07	4.60E-06	1.68E-03	7.04E-02	9.08E+00	4.54E-03
Indeno(1,2,3-cd)pyrene	7.00E-09	4.48E-05	5.78E-03					4.48E-05	5.78E-03	2.89E-06
2-Methylnaphthalene	1.70E-04	1.09E+00	1.40E+02					1.09E+00	1.40E+02	7.01E-02
Naphthalene	6.50E-04	4.16E+00	5.36E+02	1.70E-05	1.02E-04	2.44E-03	8.91E-01	4.16E+00	5.37E+02	2.69E-01
Perylene	8.80E-09	5.63E-05	7.26E-03					5.63E-05	7.26E-03	3.63E-06
Phenanthrene	2.30E-05	1.47E-01	1.90E+01	4.90E-06	2.93E-05	7.04E-04	2.57E-01	1.48E-01	1.92E+01	9.62E-03
Pyrene	3.00E-06	1.92E-02	2.48E+00	3.20E-08	1.91E-07	4.60E-06	1.68E-03	1.92E-02	2.48E+00	1.24E-03
TOTAL ORGANIC HAPs		66.30	8,546.02		0.00	0.00	1.39	66.30	8,547.41	4.27

Vulcan Asphalt, LLC - Maricopa Plant

GRIC Air Quality Permit No.: #####

Hot Mix Asphalt Plant Hazardous Air Pollutant Emission Calculations

DRAFT

Notes:

1. Emission factors for hot mix asphalt plant were obtained from AP-42 5th Ed. Final Section 11.1, updated March 2004, Table 11.1-10, controlled emission factors for waste oil-fired drum mix dryers.
2. HAP emission factor for HMA plant hot oil systems provided in AP-42 Final Section 11.1 updated March 2004, Table 11.1-13.
3. Emission factors for the hot oil heater were converted from lb/gal. to lbs/hr according to the following equation:

$$\text{lb/hr} = [\text{emission factor (lb/gal.)} * 1000] / [\text{diesel heat content (MMBtu/gal)}] * [\text{Burner rating (MMBtu/hr)}]$$

$$\text{Where: diesel heat content} = \frac{137.03}{1000} \text{ MMBtu/1000 gal.}$$

$$\text{burner rating} = 0.82 \text{ MMBtu/hr}$$

4. Daily emissions = emission factor (lb/hr) x 24 hours
5. Annual emissions = daily emissions (lb/day) x 365 days

METALS

DRUM MIX	Dryer Burner/Baghouse Emissions (HM1)				Mineral Supplement Filling (EP-07A)				Total Emissions		
Toxic Air Contaminant	EF ⁽⁶⁾	Emissions			EF ⁽⁴⁾	Emissions			Emissions		
	(lb/ton HMA)	(lb/day)	(lbs/yr)	(tons/yr)	(lb/ton mat'l)	(lb/day)	(lbs/yr)	(tons/yr)	(lb/day)	(lbs/yr)	(tons/yr)
Antimony	1.80E-07	1.15E-03	1.49E-01	7.43E-05					1.15E-03	1.49E-01	7.43E-05
Arsenic	5.60E-07	3.58E-03	4.62E-01	2.31E-04	1.00E-06	3.20E-05	6.80E-03	3.40E-06	3.62E-03	4.69E-01	2.34E-04
Beryllium	0.00E+00	0.00E+00	0.00E+00	0.00E+00					0.00E+00	0.00E+00	0.00E+00
Cadmium	4.10E-07	2.62E-03	3.38E-01	1.69E-04	1.98E-10	6.34E-09	1.35E-06	6.73E-10	2.62E-03	3.38E-01	1.69E-04
Hex-Chromium	4.50E-07	2.88E-03	3.71E-01	1.86E-04					2.88E-03	3.71E-01	1.86E-04
Chromium	5.50E-06	3.52E-02	4.54E+00	2.27E-03	5.50E-06	1.76E-04	3.74E-02	1.87E-05	3.54E-02	4.57E+00	2.29E-03
Cobalt	2.60E-08	1.66E-04	2.15E-02	1.07E-05					1.66E-04	2.15E-02	1.07E-05
Lead	1.50E-05	9.60E-02	1.24E+01	6.19E-03					9.60E-02	1.24E+01	6.19E-03
Manganese	7.70E-06	4.93E-02	6.35E+00	3.18E-03					4.93E-02	6.35E+00	3.18E-03
Mercury	2.60E-06	1.66E-02	2.15E+00	1.07E-03					1.66E-02	2.15E+00	1.07E-03
Nickel	6.30E-05	4.03E-01	5.20E+01	2.60E-02					4.03E-01	5.20E+01	2.60E-02
Selenium	3.50E-07	2.24E-03	2.89E-01	1.44E-04					2.24E-03	2.89E-01	1.44E-04
Phosphorous	2.80E-05	1.79E-01	2.31E+01	1.16E-02					1.79E-01	2.31E+01	1.16E-02
Total Metal HAPs		0.79	102.12	0.05		0.00	0.04	0.00	0.79	102.16	0.05

Notes:

6. Emission factors for hot mix asphalt plant were obtained from AP-42 5th Ed. Final Section 11.1, updated March 2004, Table 11.1-12, controlled emission factors for waste oil-fired drum mix dryers.

DIOXINS & FURANS

DRUM MIX	Dryer Burner/Baghouse Emissions (HM1)			Hot Oil Heater Emissions (HO1)				Total Emissions		
Toxic Air Contaminant	EF ⁽⁷⁾	Emissions		EF ⁽⁸⁾	Emissions			Emissions		
	(lb/ton HMA)	(lb/day)	(lbs/yr)	(lb/gal)	(lb/hr) ⁽³⁾	(lb/day) ⁽⁴⁾	(lbs/yr) ⁽⁵⁾	(lb/day)	(lbs/yr)	(tons/yr)
Total PCDD/PCDF	1.20E-10	7.68E-07	9.90E-05	2.30E-10	1.38E-09	3.30E-08	1.21E-05	8.01E-07	1.11E-04	5.55E-08

Notes:

7. Emission factors for hot mix asphalt plant were obtained from AP-42 5th Ed. Final Section 11.1, updated March 2004, Table 11.1-10, controlled emission factors for fuel oil fired drum mix dryers.
8. Emission factors for hot mix asphalt plant were obtained from AP-42 5th Ed. Final Section 11.1, updated March 2004, Table 11.1-13, hot oil system fired w/ no.2 fuel oil.

Vulcan Asphalt, LLC - Maricopa Plant
GRIC Air Quality Permit No.: #####
Hot Mix Asphalt Plant Aggregate Emissions

DRAFT

Operating Parameters

	Avg. hr/day	day/wk	wk/yr	hr/yr
Operating Schedule	16	7	52	5,840

	Production Limits		
	Hourly (TPH)	Daily (TPD)	Annual (TPY)
HMAP Standard and Rubber	400	6,400	825,000
Aggregate Delivery Rate for HMAP	297	4,752	474,800
RAP Delivery Rate	99	1,584	336,600
Mineral Supplement Delivery Rate	2	32	6,800
Cement/Lime Blimp Process Rate	2	32	6,800

Equipment Type	Equip ID	Feed Rate (TPD)	Feed Rate (TPY)	Emission Controls	Emission Factors			Notes	EMISSIONS								
					PM (lb/ton)	PM ₁₀ (lb/ton)	PM _{2.5} (lb/ton)		PM			PM ₁₀			PM _{2.5}		
									lb/day	lbs/yr	ton/yr	lb/day	lbs/yr	ton/yr	lb/day	lbs/yr	ton/yr
Transfer conveyors (combined)	EP-03, EP-04	4,752	474,800	None	0.003	0.0011	0.00033	1, 3	14.26	1,424	0.71	5.23	522	0.26	1.57	157	0.08
Transfer conveyor	EP-06	4,752	474,800	None	0.003	0.0011	0.00033	1, 3	14.26	1,424	0.71	5.23	522	0.26	1.57	157	0.08
Transfer conveyor	EP-07B	32	6,800	None	0.003	0.0011	0.00033	1, 3	0.10	20	0.01	0.04	7	0.00	0.01	2	0.00
Transfer conveyor	EP-08	4,784	481,600	None	0.003	0.0011	0.00033	1, 3	14.35	1,445	0.72	5.26	530	0.26	1.58	159	0.08
Transfer conveyor	EP-09	4,784	481,600	None	0.003	0.0011	0.00033	1, 3	14.35	1,445	0.72	5.26	530	0.26	1.58	159	0.08
Transfer conveyor	RAP EP-01	1,584	336,600	None	0.003	0.0011	0.00033	1, 3	4.75	1,010	0.50	1.74	370	0.19	0.52	111	0.06
Transfer conveyor	RAP EP-04	1,584	336,600	None	0.003	0.0011	0.00033	1, 3	4.75	1,010	0.50	1.74	370	0.19	0.52	111	0.06
Screen	EP-05	4,752	474,800	None	0.025	0.0087	0.00261	1, 2	118.80	11,870	5.94	41.34	4,131	2.07	12.40	1,239	0.62
Screen	RAP EP-03	1,584	336,600	None	0.025	0.0087	0.00261	1, 2	39.60	8,415	4.21	13.78	2,928	1.46	4.13	879	0.44
TOTAL									225.22	28,063	14.03	79.62	9,911	4.96	23.89	2,973	1.49

1. Based on controlled & uncontrolled emission factors (with wet suppression) for applicable activity provided in Table 11.19.2-2 (Crushed Stone Processing and Pulverized Mineral Processing), AP-42 5th Ed. Final Section 11.19.2 updated August 2004. Uncontrolled emission factors for PM_{2.5} are not provided in Table 11.19.2-2 and are therefore assumed to be 30% of PM₁₀ emissions.
2. Includes emissions from transfer of material from equipment to adjacent conveyor or equipment.
3. Equipment type and quantity based on diagram provided in application

Vulcan Asphalt, LLC - Maricopa Plant

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GRIC Air Quality Permit No.: #####

Hot Mix Asphalt Plant Crushing and Screening Aggregate Emissions

	Production Limits		
	Hourly (TPH)	Daily (TPD)	Annual (TPY)
Aggregate Processing	300	4,800	300,000
Reclaimed Asphalt Pavement (RAP) Processing	99	1,584	336,600
TOTAL	0	0	636,600

Equipment Type	Equip ID	Feed Rate (TPD)	Feed Rate (TPY)	Emission Controls	Emission Factors			Notes	EMISSIONS								
					PM	PM ₁₀	PM _{2.5}		PM			PM ₁₀			PM _{2.5}		
					(lb/ton)	(lb/ton)	(lb/ton)		lb/day	lbs/yr	ton/yr	lb/day	lbs/yr	ton/yr	lb/day	lbs/yr	ton/yr
Feed Bin	CS EP-01	4,800	636,600	N/A	0.00014	0.000046	0.000013	1, 3	0.67	89.12	0.04	0.22	29.28	0.01	0.06	8.28	0.00
Transfer conveyor	CS EP-02	4,800	636,600	moisture/wet suppression	0.00014	0.000046	0.000013	1, 3	0.67	89.12	0.04	0.22	29.28	0.01	0.06	8.28	0.00
Transfer conveyor	CS EP-03	4,800	827,580	moisture/wet suppression	0.00014	0.000046	0.000013	1, 3	0.67	115.86	0.06	0.22	38.07	0.02	0.06	10.76	0.01
VSI Primary Crusher	CS EP-04	4,800	827,580	moisture/wet suppression	0.0012	0.00054	0.00010	1, 3	5.76	993.10	0.50	2.59	446.89	0.22	0.48	82.76	0.04
Transfer conveyor	CS EP-05	4,800	827,580	moisture/wet suppression	0.00014	0.000046	0.000013	1, 3	0.67	115.86	0.06	0.22	38.07	0.02	0.06	10.76	0.01
Transfer conveyor	CS EP-06	4,800	827,580	moisture/wet suppression	0.00014	0.000046	0.000013	1, 3	0.67	115.86	0.06	0.22	38.07	0.019	0.06	10.76	0.005
Screen	CS EP-07	4,800	827,580	moisture/wet suppression	0.0022	0.00074	0.00005	1, 2, 0	10.56	1,820.68	0.91	3.55	612.41	0.31	0.24	41.38	0.02
Transfer conveyor	CS EP-08	4,800	210,078	moisture/wet suppression	0.00014	0.000046	0.000013	1, 3	0.67	29.41	0.01	0.22	9.66	0.005	0.06	2.73	0.001
Transfer conveyor	CS EP-09	4,800	210,078	moisture/wet suppression	0.00014	0.000046	0.000013	1, 3	0.67	29.41	0.01	0.22	9.66	0.005	0.06	2.73	0.001
Transfer conveyor	CS EP-010	4,800	210,078	moisture/wet suppression	0.00014	0.000046	0.000013	1, 3	0.67	29.41	0.01	0.22	9.66	0.005	0.06	2.73	0.001
Transfer conveyor	CS EP-011	4,800	210,078	moisture/wet suppression	0.00014	0.000046	0.000013	1, 3	0.67	29.41	0.01	0.22	9.66	0.005	0.06	2.73	0.001
TOTAL									22.37	3,457	1.73	8.13	1,271	0.64	1.28	184	0.09

1. Based on controlled & uncontrolled emission factors (with wet suppression) for applicable activity provided in Table 11.19.2-2 (Crushed Stone Processing and Pulverized Mineral Processing), AP-42 5th Ed. Final Section 11.19.2 updated August 2004.
2. Includes emissions from transfer of material from equipment to adjacent conveyor or equipment.
3. Equipment type and quantity based on diagram provided in application

Vulcan Asphalt, LLC - Maricopa Plant

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GRIC Air Quality Permit No.: #####

Hot Mix Asphalt Plant Fugitive Criteria Pollutant Emission Calculations

	Production Limits		
	Hourly (TPH)	Daily (TPD)	Annual (TPY)
HMAP Standard and Rubber	400	6,400	825,000

Criteria Pollutant	Plant Loadout Emissions (EP-16, EP-17)			Silo Filling Emissions (EP-13, EP-14, EP-15)			Total Emissions		
	EF ⁽¹⁾	Emissions		EF ⁽²⁾	Emissions				
	(lb/ton HMA)	(lb/day)	(lbs/yr)	(lb/ton HMA)	(lb/day)	(lbs/yr)	(lb/day)	(lbs/yr)	(tons/yr)
NOx									
VOC	3.909E-03	25.02	3225.26	1.22E-02	77.99	10054.02	103.02	13,279.28	6.64
CO	1.349E-03	8.64	1113.12	1.18E-03	7.55	973.48	16.19	2,086.61	1.04
SO ₂									
PM _{2.5} ⁽³⁾	5.219E-04	3.34	430.60	5.86E-04	3.75	483.36	7.09	913.96	0.46
PM ₁₀ ⁽³⁾	5.219E-04	3.34	430.60	5.86E-04	3.75	483.36	7.09	913.96	0.46
PM	5.219E-04	3.34	430.60	5.86E-04	3.75	483.36	7.09	913.96	0.46

Notes:

1. Emission Factor Source: AP-42 5th Ed., updated April 2004, Tables 11.1-14 and 11.1-16.

Emission Factor Equations:

Total PM EF⁵ Plant Loadout EF= 0.000181+ 0.00141 (-V) e[^]((0.0251)(T+460)-20.43)
 CO EF Plant Loadout EF= 0.00558 (-V) e[^]((0.0251)(T+460)-20.43)
 (TOC) EF Plant Loadout EF= 0.0172 (-V) e[^]((0.0251)(T+460)-20.43)

T = Mix Temp = 325 F Source: AP-42 Table 11.1-14
 V = Asphalt Volatility = -0.5 Source: AP-42 Table 11.1-14

VOC EF Plant Loadout EF = TOC EF x % VOC/Toxic per note "a" in table 11.1-16

Example Calculation:

Total PM EF5 (Plant Loadout) = 0.000181 + 0.00141 x (-(-0.5)) x e[^]((0.0251 x (325 + 460)) - 20.43) = 5.22E-04 lb/ton HMA

CO EF (Plant Loadout) = 0.00558 x (-(-0.5)) x e[^]((0.0251 x (325 + 460)) - 20.43) = 1.35E-03 lb/ton HMA

(TOC) EF (Plant Loadout) = 0.0172 x (-(-0.5)) x e[^]((0.0251 x (325 + 460)) - 20.43) = 4.16E-03 lb/ton HMA

% VOC of (TOC) EF = 94%

VOC EF (Plant Loadout) = 0.0042 x 94 % = 3.91E-03 lb VOC/ton HMA

VOC (Plant Loadout) = [EF(VOC) x HMA Produced(TPY)] = (0.0039 x 825000) = 3,225.26 lbs/yr

Technical Support Document

Emissions Calculations

2. Emission Factor Source: AP-42 5th Ed., updated April 2004, Tables 11.1-14 and 11.1-16.

Emission Factor Equations:

Total PM EF ⁵	Silo Filling	EF= 0.000332 + 0.00105 (-V) e [^] ((0.0251)(T+460)-20.43)
CO EF	Silo Filling	EF= 0.00488 (-V) e [^] ((0.0251)(T+460)-20.43)
TOC EF	Silo Filling	EF= 0.0504 (-V) e [^] ((0.0251)(T+460)-20.43)

T = Mix Temp = 325 F Source: AP-42 Table 11.1-14

V = Asphalt Volatility = -0.5 Source: AP-42 Table 11.1-14

VOC EF Silo Filling EF = TOC EF x % VOC/Toxic per note "a" in table 11.1-16

Example Calculation:

Total PM EF5 (Silo Filling) = 0.000332 + 0.00105 x (-(-0.5)) x e[^]((0.0251 x (325 + 460)) - 20.43) = 5.86E-04 lb/ton HMA

CO EF (Silo Filling) = 0.00488 x (-(-0.5)) x e[^]((0.0251 x (325 + 460)) - 20.43) = 1.18E-03 lb/ton HMA

TOC EF (Silo Filling) = 0.0504 x (-(-0.5)) x e[^]((0.0251 x (325 + 460)) - 20.43) = 1.22E-02 lb/ton HMA

% VOC of TOC EF = 100%

VOC EF (Silo Filling) = 0.0122 x 100 % = 1.22E-02 lb /ton HMA

VOC (Silo Filling) = [EF(VOC) x HMA Produced(TPY)] = (0.0122 x 825000) = 10,054.02 lbs/yr

3. For plant loadout and silo filling - assumed to be all PM2.5, and therefore also PM and PM10, based on AP-42 Table 11.1-4 Note "b"

Vulcan Asphalt, LLC - Maricopa Plant

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GRIC Air Quality Permit No.: #####

Hot Mix Asphalt Plant Fugitive Hazardous Air Pollutant Emission Calculations

	Production Limits		
	Hourly (TPH)	Daily (TPD)	Annual (TPY)
Hot Mix Asphalt Plant - Standard Mix	400	6,400	825,000

ORGANICS

Hazardous Air Pollutants	Plant Loadout Emissions (EP-16, EP-17)				Silo Filling Emissions (EP-13, EP-14, EP-15)				Total Emissions		
	% of TOC/PM	EF ⁽¹⁾	Emissions		% of TOC/PM	EF ⁽²⁾	Emissions				
	EF ⁽³⁾	(lb/ton HMA)	(lb/day)	(lbs/yr)	EF ⁽³⁾	(lb/ton HMA)	(lb/day)	(lbs/yr)	(lb/day)	(lbs/yr)	(tons/yr)
Individual HAPs											
Benzene	0.052%	2.16E-06	1.38E-02	1.78E+00	0.032%	3.90E-06	2.50E-02	3.22E+00	3.88E-02	5.00E+00	2.50E-03
Bromomethane (Methyl bromide)	0.0096%	3.99E-07	2.56E-03	3.29E-01	0.0049%	5.97E-07	3.82E-03	4.93E-01	6.38E-03	8.22E-01	4.11E-04
2-Butanone (Methyl ethyl ketone)	0.049%	2.04E-06	1.30E-02	1.68E+00	0.039%	4.75E-06	3.04E-02	3.92E+00	4.35E-02	5.60E+00	2.80E-03
Carbon Disulfide	0.013%	5.41E-07	3.46E-03	4.46E-01	0.016%	1.95E-06	1.25E-02	1.61E+00	1.59E-02	2.05E+00	1.03E-03
Chloroethane (Ethyl chloride)	0.00021%	8.73E-09	5.59E-05	7.21E-03	0.004%	4.87E-07	3.12E-03	4.02E-01	3.18E-03	4.09E-01	2.05E-04
Chloromethane (Methyl chloride)	0.015%	6.24E-07	3.99E-03	5.15E-01	0.023%	2.80E-06	1.79E-02	2.31E+00	2.19E-02	2.83E+00	1.41E-03
Cumene	0.11%	4.57E-06	2.93E-02	3.77E+00	0.00%	0.00E+00	0.00E+00	0.00E+00	2.93E-02	3.77E+00	1.89E-03
Ethylbenzene	0.28%	1.16E-05	7.45E-02	9.61E+00	0.038%	4.63E-06	2.96E-02	3.82E+00	1.04E-01	1.34E+01	6.71E-03
Formaldehyde	0.088%	3.66E-06	2.34E-02	3.02E+00	0.69%	8.41E-05	5.38E-01	6.94E+01	5.62E-01	7.24E+01	3.62E-02
n-Hexane	0.15%	6.24E-06	3.99E-02	5.15E+00	0.1%	1.22E-05	7.80E-02	1.01E+01	1.18E-01	1.52E+01	7.60E-03
Isooctane (2,2,4-Trimethylpentane)	0.0018%	7.49E-08	4.79E-04	6.18E-02	0.00031%	3.78E-08	2.42E-04	3.12E-02	7.21E-04	9.29E-02	4.65E-05
Methylene Chloride	0.00%	0.00E+00	0.00E+00	0.00E+00	0.00027%	3.29E-08	2.11E-04	2.71E-02	2.11E-04	2.71E-02	1.36E-05
MTBE	0.00%	0.00E+00	0.00E+00	0.00E+00	0.00%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Styrene	0.0073%	3.04E-07	1.94E-03	2.50E-01	0.0054%	6.58E-07	4.21E-03	5.43E-01	6.15E-03	7.93E-01	3.97E-04
Tetrachloroethene	0.0077%	3.20E-07	2.05E-03	2.64E-01	0.00%	0.00E+00	0.00E+00	0.00E+00	2.05E-03	2.64E-01	1.32E-04
Toluene	0.21%	8.73E-06	5.59E-02	7.21E+00	0.062%	7.56E-06	4.84E-02	6.23E+00	1.04E-01	1.34E+01	6.72E-03
1,1,1-Trichloroethane (methyl chloroform)	0.00%	0.00E+00	0.00E+00	0.00E+00	0.00%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Trichloroethene	0.00%	0.00E+00	0.00E+00	0.00E+00	0.00%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Trichlorofluoromethane	0.0013%	5.41E-08	3.46E-04	4.46E-02	0.00%	0.00E+00	0.00E+00	0.00E+00	3.46E-04	4.46E-02	2.23E-05
Xylenes (m-/p-)	0.41%	1.71E-05	1.09E-01	1.41E+01	0.2%	2.44E-05	1.56E-01	2.01E+01	2.65E-01	3.42E+01	1.71E-02
Xylenes (o-)	0.08%	3.33E-06	2.13E-02	2.74E+00	0.057%	6.95E-06	4.45E-02	5.73E+00	6.58E-02	8.48E+00	4.24E-03
POM HAPs											
Acenaphthene	0.26%	8.86E-07	5.67E-03	7.31E-01	0.47%	1.19E-06	7.64E-03	9.84E-01	1.33E-02	1.72E+00	8.58E-04
Acenaphthylene	0.028%	9.55E-08	6.11E-04	7.88E-02	0.014%	3.55E-08	2.27E-04	2.93E-02	8.38E-04	1.08E-01	5.40E-05
Anthracene	0.07%	2.39E-07	1.53E-03	1.97E-01	0.13%	3.30E-07	2.11E-03	2.72E-01	3.64E-03	4.69E-01	2.35E-04
Benzo(a)anthracene	0.019%	6.48E-08	4.15E-04	5.34E-02	0.056%	1.42E-07	9.10E-04	1.17E-01	1.32E-03	1.71E-01	8.54E-05
Benzo(b)fluoranthene	0.008%	2.59E-08	1.66E-04	2.14E-02	0.00%	0.00E+00	0.00E+00	0.00E+00	1.66E-04	2.14E-02	1.07E-05
Benzo(k)fluoranthene	0.0022%	7.50E-09	4.80E-05	6.19E-03	0.00%	0.00E+00	0.00E+00	0.00E+00	4.80E-05	6.19E-03	3.09E-06
Benzo(g,h,i)perylene	0.0019%	6.48E-09	4.15E-05	5.34E-03	0.00%	0.00E+00	0.00E+00	0.00E+00	4.15E-05	5.34E-03	2.67E-06
Benzo(a)pyrene	0.0023%	7.84E-09	5.02E-05	6.47E-03	0.00%	0.00E+00	0.00E+00	0.00E+00	5.02E-05	6.47E-03	3.23E-06
Benzo(e)pyrene	0.0078%	2.66E-08	1.70E-04	2.19E-02	0.0095%	2.41E-08	1.54E-04	1.99E-02	3.25E-04	4.18E-02	2.09E-05
Chrysene	0.103%	3.51E-07	2.25E-03	2.90E-01	0.21%	5.33E-07	3.41E-03	4.40E-01	5.66E-03	7.30E-01	3.65E-04
Dibenz(a,h)anthracene	0.00037%	1.26E-09	8.07E-06	1.04E-03	0.00%	0.00E+00	0.00E+00	0.00E+00	8.07E-06	1.04E-03	5.20E-07
Fluoranthene	0.05%	1.70E-07	1.09E-03	1.41E-01	0.15%	3.81E-07	2.44E-03	3.14E-01	3.53E-03	4.55E-01	2.27E-04
Fluorene	0.77%	2.63E-06	1.68E-02	2.17E+00	1.01%	2.56E-06	1.64E-02	2.12E+00	3.32E-02	4.28E+00	2.14E-03
Indeno(1,2,3-cd)pyrene	0.00047%	1.60E-09	1.03E-05	1.32E-03	0.00%	0.00E+00	0.00E+00	0.00E+00	1.03E-05	1.32E-03	6.61E-07
2-Methylnaphthalene	2.38%	8.11E-06	5.19E-02	6.69E+00	5.27%	1.34E-05	8.56E-02	1.10E+01	1.38E-01	1.77E+01	8.87E-03
Naphthalene	1.25%	4.26E-06	2.73E-02	3.52E+00	1.82%	4.62E-06	2.96E-02	3.81E+00	5.68E-02	7.33E+00	3.66E-03
Perylene	0.022%	7.50E-08	4.80E-04	6.19E-02	0.03%	7.62E-08	4.87E-04	6.28E-02	9.68E-04	1.25E-01	6.24E-05
Phenanthrene	0.81%	2.76E-06	1.77E-02	2.28E+00	1.8%	4.57E-06	2.92E-02	3.77E+00	4.69E-02	6.05E+00	3.02E-03
Pyrene	0.15%	5.11E-07	3.27E-03	4.22E-01	0.44%	1.12E-06	7.15E-03	9.22E-01	1.04E-02	1.34E+00	6.72E-04
Phenol	1.18%	4.02E-06	2.57E-02	3.32E+00	0.00%	0.00E+00	0.00E+00	0.00E+00	2.57E-02	3.32E+00	1.66E-03
Total Organic HAPs									1.73	222.73	0.11

Vulcan Asphalt, LLC - Maricopa Plant

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GRIC Air Quality Permit No.: #####

Hot Mix Asphalt Plant Fugitive Hazardous Air Pollutant Emission Calculations

Notes:

1. Emission Factor Source: AP-42 5th Ed., updated April 2004, Tables 11.1-14, 11.1-15, and 11.1-16.

Emission Factor Equations:

Organic PM EF	Plant Loadout	EF= 0.00141 (-V) e [^] ((0.0251)(T+460)-20.43)
Total Organic Compounds (TOC) EF	Plant Loadout	EF= 0.0172 (-V) e [^] ((0.0251)(T+460)-20.43)

T = Mix Temp =	325 F	Source: AP-42 Table 11.1-14
V = Asphalt Volatility =	-0.5	Source: AP-42 Table 11.1-14

PAH HAPs	Plant Loadout	EF = Organic PM EF x % Toxic
VOC HAPs	Plant Loadout	EF = TOC EF x % Toxic

Example Calculation:

Organic PM EF (Plant Loadout) = 0.00141 x (-(-0.5)) x e[^]((0.0251 x (325 + 460)) - 20.43) = 3.41E-04 lb/ton HMA
Total Organic Compounds (TOC) EF (Plant Loadout) = 0.0172 x (-(-0.5)) x e[^]((0.0251 x (325 + 460)) - 20.43) = 4.16E-03 lb/ton HMA
 % Acenaphthene of Organic PM EF = 0.26%
 PAH HAPs (Acenaphthene) = 0.000341 x 0.0026 % = 8.86E-07 lb Acenaphthene/ton HMA

Acenaphthene (Plant Loadout) = [EF(Acenaphthene) x HMA Produced(TPY)] = (0.000000886 x 825000) = 7.31E-01 lbs/yr

2. Emission Factor Source: AP-42 5th Ed., updated April 2004, Tables 11.1-14, 11.1-15, and 11.1-16.

Emission Factor Equations:

Organic PM	Silo Filling	EF= 0.00105 (-V) e [^] ((0.0251)(T+460)-20.43)
TOC	Silo Filling	EF= 0.0504 (-V) e [^] ((0.0251)(T+460)-20.43)

T = Mix Temp =	325 F	Source: AP-42 Table 11.1-14
V = Asphalt Volatility =	-0.5	Source: AP-42 Table 11.1-14

PAH HAPs	Silo Filling	EF = Organic PM EF x % Toxic
VOC HAPs	Silo Filling	EF = TOC EF x % Toxic

Example Calculation:

Organic PM (Silo Filling) = 0.00105 x (-(-0.5)) x e[^]((0.0251 x (325 + 460)) - 20.43) = 2.54E-04 lb/ton HMA
TOC (Silo Filling) = 0.0504 x (-(-0.5)) x e[^]((0.0251 x (325 + 460)) - 20.43) = 1.22E-02 lb/ton HMA
 % Acenaphthene of Organic PM = 0.47%
 PAH HAPs (Acenaphthene) = 0.000254 x 0.0047 % = 1.19E-06 lb Acenaphthene/ton HMA

Acenaphthene (Silo Filling) = [EF(Acenaphthene) x HMA Produced(TPY)] = (0.00000119 x 825000) = 9.84E-01 lbs/yr

3. Per note "c" in Table 11.1-15 and note "a" in Table 11.1-16

Vulcan Asphalt, LLC - Maricopa Plant
GRIC Air Quality Permit No.: #####

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Hot Mix Asphalt Plant Material Handling Fugitive Emission Calculations

	Avg. hr/day	day/wk	wk/yr
Operating Schedule	16	7	52

	Production Limits		
	Hourly (TPH)	Daily (TPD)	Annual (TPY)
HMAP Standard and Rubber	400	6,400	825,000
HMAP Aggregate Delivery	297	4,752	474,800
RAP Delivery	99	1,584	336,600
Aggregate/RAP Processing	300	4,800	636,600

PM2.5 Emissions

Source	Emission Factor ¹	PM10 Emissions		
	lb/ton	lb/day	lbs/yr	tons/yr
Aggregate/RAP Loadout to Storage Piles	0.000059	0.38	48.68	0.02
HMAP Aggregate Feed Bin Loading	0.000059	0.28	28.01	0.01
RAP Feed Bin Loading	0.000059	0.09	19.86	0.01
Aggregate Processing Feed Bin Loading	0.000059	0.28	37.56	0.02
	TOTAL:	1.03	134.11	0.07

PM10 Emissions

Source	Emission Factor ¹	PM10 Emissions		
	lb/ton	lb/day	lbs/yr	tons/yr
Aggregate/RAP Loadout to Storage Piles	0.000391	2.50	322.58	0.16
HMAP Aggregate Feed Bin Loading	0.000391	1.86	185.65	0.09
RAP Feed Bin Loading	0.000391	0.62	131.61	0.07
Aggregate Processing Feed Bin Loading	0.000391	1.88	248.91	0.12
	TOTAL:	6.86	888.74	0.44

PM Emissions

Source	Emission Factor ¹	PM Emissions		
	lb/ton	lb/day	lbs/yr	tons/yr
Aggregate/RAP Loadout to Storage Piles	0.000828	5.30	683.10	0.34
HMAP Aggregate Feed Bin Loading	0.000828	3.93	393.13	0.20
RAP Feed Bin Loading	0.000828	1.31	278.70	0.14
Aggregate Processing Feed Bin Loading	0.000828	3.97	527.10	0.26
	TOTAL:	14.52	1882.04	0.94

Notes:

1. Emission Factor Source: AP-42 5th Ed. Section 13.2.4.3 Equation 1 as follows:

$$EF = k * (0.0032) * (U/5)^{1.3} / (M/2)^{1.4} \text{ (lb/ton), where}$$

M (Moisture) =	2	%
U' (Wind speed) =	2.23	mph
k (for PM _{2.5}) =	0.053	(AP-42 5th Ed. Section 13.2.4.3)
k (for PM ₁₀) =	0.35	(AP-42 5th Ed. Section 13.2.4.3)
k (for PM) =	0.74	(AP-42 5th Ed. Section 13.2.4.3)

$$U' = U * (h_p/h_m)^{1.5}$$

Where: U' = wind speed at loader dump height

U = wind speed at meteorological tower height (6.3 mph - Western Regional Climate Center for Phoenix, AZ)

h_p = loader dump height (5 m)

h_m = meteorological tower height (10 m)

$$\text{PM}_{10} \text{ Emission Factor Calculations} = 0.35 \times (0.0032) \times (2.23/5)^{1.3} / (2/2)^{1.4} = \mathbf{0.000391 \text{ lb/ton}}$$

$$\text{PM Emission Factor Calculations} = 0.74 \times (0.0032) \times (2.23/5)^{1.3} / (2/2)^{1.4} = \mathbf{0.000828 \text{ lb/ton}}$$

Example Calculation: PM₁₀ for HMAP Aggregate Feed Bin Loading = 825000 TPY x 0.000391 lb/ton = 185.6468 lbs/yr

Vulcan Asphalt, LLC - Maricopa Plant
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Unpaved Road Fugitive Emission Calculations

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Vehicle Type	Vehicle Weight (tons)	VMТ per day	VMТ per year	Control Efficiency
Asphalt Haul Trucks	31.5	34.34	12,500	80%
Aggregate Haul Trucks (769D) (7)	55	18.68	6,800	80%
RAP Delivery Trucks (semi)	31.5	21.43	7,800	80%
HMAP Loaders (966M)	30	30.77	11,200	80%
Aggregate Loaders (980H)	41	49.73	18,100	80%

$$E = \left[k \left(\frac{s}{12} \right)^a \times \left(\frac{W}{3} \right)^b \right]$$

Source of Equation: See Table Notes (1)

Equation Parameter	PM2.5	PM10	PM
E , annual size-specific uncontrolled emission factor for unpaved industrial roads (lb/VMТ) ⁽²⁾	See Tables Below		
k , Particle size multiplier for particle size range, (lb/VMТ) (Source: AP-42 Table 13.2.2-2)	0.15	1.5	4.9
s , surface material silt content, (%) (Source: AP-42 Chapter 13.2.2)	4.8	4.8	4.8
W , mean weight (tons) of the vehicles traveling the road	See Table Above		
a , constant for PM ₁₀ / PM on industrial roads (Source: AP-42 Table 13.2.2-2)	0.9	0.9	0.7
b , constant for PM, PM ₁₀ and PM _{2.5} on industrial roads (Source: AP-42 Table 13.2.2-2)	0.45	0.45	0.45

PM2.5 Emissions

Pollutant	Emission Factor ² (lb/VMТ)	Uncontrolled PM10 Emissions ⁽⁴⁾			Controlled PM10 Emissions ⁽⁵⁾		
		lb/day	lbs/yr	tons/yr	lb/day	lbs/yr	tons/yr
Asphalt Haul Trucks	0.189	6.51	2,368	1.18	1.30	474	0.24
Aggregate Haul Trucks (769D) (7)	0.243	4.55	1,655	0.83	0.91	331	0.17
RAP Delivery Trucks (semi)	0.189	4.06	1,478	0.74	0.81	296	0.15
HMAP Loaders (966M)	0.185	5.70	2,076	1.04	1.14	415	0.21
Aggregate Loaders (980H)	0.213	10.61	3,861	1.93	2.12	772	0.39
TOTAL		31.42	11,438	5.72	6.28	2,288	1.14

PM10 Emissions

Pollutant	Emission Factor ² (lb/VMT)	Uncontrolled PM10 Emissions ⁽⁴⁾			Controlled PM10 Emissions ⁽⁵⁾		
		lb/day	lbs/yr	tons/yr	lb/day	lbs/yr	tons/yr
Asphalt Haul Trucks	1.894	65.06	23,680	11.84	13.01	4,736	2.37
Aggregate Haul Trucks (769D) (7)	2.434	45.48	16,554	8.28	9.10	3,311	1.66
RAP Delivery Trucks (semi)	1.894	40.60	14,777	7.39	8.12	2,955	1.48
HMAP Loaders (966M)	1.853	57.02	20,757	10.38	11.40	4,151	2.08
Aggregate Loaders (980H)	2.133	106.06	38,608	19.30	21.21	7,722	3.86
TOTAL		314.22	114,376	57.19	62.84	22,875	11.44

PM Emissions

Pollutant	Emission Factor ² (lb/VMT)	Uncontrolled PM10 Emissions ⁽⁴⁾			Controlled PM10 Emissions ⁽⁵⁾		
		lb/day	lbs/yr	tons/yr	lb/day	lbs/yr	tons/yr
Asphalt Haul Trucks	7.433	255.26	92,914	46.46	51.05	18,583	9.29
Aggregate Haul Trucks (769D) (7)	9.552	178.44	64,954	32.48	35.69	12,991	6.50
RAP Delivery Trucks (semi)	7.433	159.28	57,979	28.99	31.86	11,596	5.80
HMAP Loaders (966M)	7.272	223.75	81,443	40.72	44.75	16,289	8.14
Aggregate Loaders (980H)	8.369	416.16	151,483	75.74	83.23	30,297	15.15
TOTAL		1,233	448,774	224.39	247	89,755	44.88

Table Notes:

1. Emission Factor Source: AP-42 5th Ed., Section 13.2.2, Equations 1a and 2, Unpaved Roads, Rev.: November 2006
2. Emission factor calculated using Equation listed in Table Note (1),
Emission Factor for PM10 (Asphalt Haul Trucks) = $[1.5 \times (4.8/12)^{0.9} \times (31.5/3)^{0.45}] = 1.89 \text{ lb/VMT}$
3. Control efficiency based on AP-42, Chapter 13.2.2.3 (controls for unpaved roads) and Maricopa County Air Quality Department, Emissions Inventory Help Sheet for Vehicle Travel on Unpaved Roads, 2008.
4. Uncontrolled Emissions (lbs/yr) = Emission factor (lb/VMT) x (VMT/year)
Example Calculations For : Uncontrolled PM10 emissions (in lbs per year) from Asphalt Haul Trucks
Annual Uncontrolled Emissions of PM10 = $1.89 \text{ (lb/VMT)} \times 12500 \text{ (VMT/yr)} = 23,680.48 \text{ lbs/yr}$
5. Controlled Emissions (lbs/yr) = Uncontrol. Emiss. x (1 - Control Eff.) = $23680.48 \text{ lbs/yr} \times (1 - 0.8) = 4,736.10 \text{ lbs/yr}$

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Hot Mix Asphalt Plant Storage Pile Fugitive Emission Calculations

Storage Pile	Description	Silt (s) ¹ (%)	p ²	f ³ (%)	Area (Acres) ⁴	Emission Factor (lb/day/acre) ⁵			Control Efficiency (%)	PM Emissions			PM10 Emissions			PM2.5 Emissions		
						PM	PM ₁₀	PM _{2.5}		lb/day	lb/yr ⁶	tons/yr	lb/day	lb/yr ⁶	tons/yr	lb/day	lb/yr ⁶	tons/yr
Aggregates	Ground Storage Pile	1.6	40	25	2.0	4.180	2.090	0.320	70%	2.51	915	0.46	1.25	458	0.23	0.19	70	0.03
Sand	Ground Storage Pile	2.60	40	25	2.3	6.792	3.396	0.519	70%	4.69	1711	0.86	2.34	855	0.43	0.36	131	0.07
Totals										7.19	2,626	1.31	3.60	1,313	0.66	0.55	201	0.10

Notes:

1. Silt content obtained from EPA AP-42, Section 13.2.4, Table 13.2.4-1 - Storage Piles based on crushed limestone.
2. p is the number of days with greater than 0.01 in. of precipitation per year. The value of p is obtained from EPA AP-42, Section 13.2.2, Figure 13.2.2-1.
3. f is the % of time the unobstructed wind speed exceeds 12 mph at the mean pile height.
4. Surface area of piles based on RFI responses provided 02/25/25.
5. Emission factor for PM in lb/day/acre calculated using the following equation from EPA's Control of Open Fugitive Dust Sources, Chapter 4 (1988) and the Western Regional Air Partnership (WRAP) Fugitive Dust Handbook, Section 9.3 (2006):

$$E = 1.7 \left(\frac{s}{1.5} \right) \left(\frac{365 - p}{235} \right) \left(\frac{f}{15} \right) \left(\frac{1}{24} \right) \text{ (lbs / hr / acre)}$$

6. Emissions (lb/yr) = Emission Factor (lb/day/acre) * Acres * 365 days/yr * (1 - control efficiency).