

PUBLIC NOTICE

The Gila River Indian Community (GRIC) Department of Environmental Quality (DEQ) is announcing the 30-day public comment period for a significant revision to the current air quality operating permit for the following facility:

Facility Name: **Vulcan Asphalt – San Tan Plant**

Facility Address: 2126 N. Tanner Rd., Sacaton, AZ 85147

(within the Gila River Sand & Gravel San Tan Plant in District 4)

Owner Name: Vulcan Asphalt, LLC

Owner Address: 2526 E. University Dr., Phoenix, AZ 85034

Permit No.: 1702

Summary of Changes: 1) Increase in allowable total daily asphalt production from 4,360 to 6,400 tons
2) Revisions to NOx emission calculations based on stack test data
3) Increase in allowable NOx and PM emissions as a result of 1 & 2 above

Public Notice Start Date: **October 5, 2018**

Public Notice End Date: **November 5, 2018**

Public comments will be accepted in writing until the public notice end date, after which staff will review and respond to all the comments received.

Any person may submit a written comment or a request to the DEQ to conduct a public hearing for the purpose of receiving oral or written comments on the proposed air quality operating permits. Such comments and requests shall be received by the DEQ within 30 days of the date of the first publication notice. A written comment shall state the name and mailing address of the person, shall be signed by the person, his agent or his attorney and shall clearly set forth reasons why the permit should or should not be issued. Grounds for comment are limited to whether the proposed permit meets the criteria for issuance prescribed in the GRIC Code: Title 17, Chapter 9 of the Air Quality Management Plan. Only persons who submit written comments may appeal a permit decision.

Copies of the permit application, the proposed permit, and relevant background material will be available for review at the DEQ Sacaton office (during normal business hours) and on the AQP website at:

<http://www.gricdeq.org/index.php/education--outreach/public-notices>.

Requests and written comments may be delivered or mailed to:

Gila River Indian Community
Department of Environmental Quality
Attn: Ryan Eberle
Mailing Address: P.O. Box 97, Sacaton, AZ 85147
Physical Address: 45 S. Church St., Sacaton, AZ 85147

For further information, please contact Ryan Eberle at (520) 796-3781 or visit our office located at 45 S. Church St., Sacaton, AZ 85147. Our office hours are Monday thru Friday from 8:00 a.m. to 5:00 p.m.

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DATE ISSUED: ##/##/####
REVISION No.: 0.0.0.0
REVISION DATE: 00/00/0000
EXPIRATION DATE: ##/##/####

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).

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.

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- 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 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;

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- 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;
- 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

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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]

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)]

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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.
 - 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

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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 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

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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)]

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)]

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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 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;

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- 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 five (5) years from the date of issuance.
- 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;
 - 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

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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 requirements in Section [b] of this Permit Condition.

[Part II, Section 5.1(B)]

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- 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

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has not been 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;

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- 3) Any change in emissions of regulated air pollutants; and
 - 4) Any permit term or condition that is no longer applicable as a result 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

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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;
 - 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.

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- 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]

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;

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- (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.

[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.

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- 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:
 - 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.

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- 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 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]

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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)]

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;

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- 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

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;

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- 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 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 within 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.

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[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)]

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

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]

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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)	92,200
Volatile Organic Compounds (VOC)	36,500
Carbon Monoxide (CO)	148,300
Sulfur Oxides (SO _x)	66,200
Particulate Matter <10 Micron Diameter (PM ₁₀)	26,300
Particulate Matter (PM)	104,100
Total Hazardous Air Pollutants (HAPs)	12,000

- 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.

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

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27. Allowable Production Rate

- a. The Permittee shall not produce more than **6,400** tons of asphaltic concrete per day and **1,140,000** tons of asphaltic concrete per any 12 consecutive-month period.
- b. 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.
- c. 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. The Permittee shall not cause, permit or allow to be discharged into the ambient air:
 - i. Visible emissions from any material handling system, conveyance system transfer point, storage silo, surge bin, screening operation, or nonmetallic mineral loading/unloading operation associated with a capture and collection system and vented through a stack exceeding seven (7) percent opacity.
 - ii. Visible emissions from any conveying transfer point exceeding seven (7) percent opacity.
 - iii. Fugitive emissions from any affected operation or process exceeding ten (10) percent opacity, except as provided in Section [a.iv] of this Permit Condition.
 - iv. Fugitive emissions from truck dumping of nonmetallic minerals into a screening operation, feed hopper, or crusher, exceeding twenty (20) percent opacity.
 - v. PM emissions from any material handling system, conveyance system transfer point, storage silo, surge bin, screening operation, or nonmetallic mineral loading/unloading operation associated with a capture and collection system and vented through a stack exceeding 0.02 grain per dry standard cubic foot (gr/dscf) or 0.05 gram per dry standard cubic meter (g/dscm).

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- vi. PM emissions from any dryer baghouse stack exceeding 0.04 gr/dscf (0.09 g/dscm).

[Part VII, Section 3.0, Subsections 3.1 & 3.2]

b. Compliance Determination:

i. Compliance with Opacity Limitations

- 1) Compliance with opacity limitations in Section [a] of this Permit 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.
- 2) 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) Exhaust stack of all air pollution control equipment (e.g., baghouse stack, passive baghouses on storage silos etc.)
 - (b) All material transfer points (conveyor belts, loading of mixer trucks)
- 3) 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.

[Part VII, Section 3.0, Subsection 7.2]

ii. Compliance with Grain Loading (PM emissions)

Compliance with PM emission limitations in Section [a] 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. The Permittee shall implement the following process controls:

- i. On all cement, cement supplement (e.g., fly-ash), and lime storage

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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]

- b. If the material processed 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 [b.i] and [b.ii] of this Permit Condition or shall implement process controls described in Sections [b.iii] of this Permit Condition;

- i. Permanently mount watering systems (e.g., spray bars or an equivalent control) at the outlet of all shaker screens, crushers, and material transfer points, excluding wet plants.
- ii. Operate watering systems (e.g., spray bars or an equivalent control) on the points listed in Section [b.i] of this Permit Condition for shaker screens and material transfer points to minimize fugitive dust emissions from any material handling system or conveyance system transfer point without a capture and collection system, and nonmetallic mineral loading/unloading operation.

- 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.

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- iii. Enclose and exhaust the regulated process to a properly sized fabric filter baghouse.

[Part VII, Section 3.0, Subsection 4.0]

30. Operational Restrictions

- a. 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.
- b. 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 1100 lbs (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.
- c. 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]

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d. 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 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 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

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analyzer at least once every six months; and

- 5) Conduct daily visual inspections of the burner equipment.

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

31. Recordkeeping and Reporting Requirements:

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

- a. 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.
- b. 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:
 - i. When the observation was made;
 - ii. When the investigation was started;
 - iii. When the corrective action(s) was applied; and
 - iv. What corrective actions were applied and the resulting measurement of the operating parameter.
- c. 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)]
- d. 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]
- e. A daily record of plant operational data shall be kept for each day that a plant is actively operating. Records shall include the following:

- i. Production Data:

- 1) Hours of operation for each plant (asphalt and aggregate).
- 2) Type of batch operation(s).

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- 3) Throughput per day of all basic raw materials including sand, aggregate, lime, cement, fly ash etc. (tons/day).
- 4) Volume or weight of final and intermediate products (aggregate, sand, and asphalt) produced per day and 12-month rolling totals.
- 5) 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).
- ii. Control and Monitoring Device Data:
 - 1) 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.
 - 2) Records of time, date and cause of all control device failures and down time shall also be maintained.
- f. 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.
- g. Records shall be retained for five (5) years and shall be made available to the Department upon request.

[Part VII, Section 3.0, Subsection 6.0]

32. Performance Testing:

- a. Testing Requirements:
 - 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

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dryer baghouse under each of the following two operating scenarios:

- 1) Representative operating conditions while manufacturing asphalt 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. 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.
 - iv. 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.
 - v. 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.
 - vi. A visible emissions evaluation shall demonstrate compliance with the opacity requirements.
 - vii. 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)(10)] [40 CFR §60.8]
- b. Testing Criteria:

Performance tests shall be conducted and data reduced in accordance with the test methods and procedures specified unless the Director and Administrator specifies or approves minor changes in methodology to a reference method, approves the use of an equivalent test method, approves the use of an alternative method that has been determined to be acceptable for demonstrating compliance, or waives the requirement for performance tests because the Permittee has demonstrated by other means that the source is in compliance with the standard. For NSPS facilities, only EPA has the authority to waive initial testing requirements.

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

- c. Test Methods:

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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. 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.
 - vi. 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.
[Part VII, Section 3.0, Subsections 7.1 & 7.2] [40 CFR §60.93(a)]
 - vii. 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.
 - 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. SOx testing shall be conducted in accordance with EPA Test Method 6C.
 - x. NOx 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)(10)]
- d. Operating Conditions:

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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)(10)] [40 CFR §60.8(c)]

e. Monitoring Requirements:

The Permittee shall record all process and control equipment information that is necessary to document operating conditions during the test 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. The Permittee shall record the production rate, temperature and baghouse pressure drop during the performance test. This and any additional operational parameters shall be identified in the test protocol and recorded during testing.

[Part II, Sections 4.4(A)(2) & (10)]

f. Test Protocol Submittal:

The Permittee shall submit a separate test protocol for each performance test to the Department for review and approval at least 30 days prior to each performance test.

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

g. Notice of Testing:

The Permittee shall notify the Department in writing at least 30 days in advance of the actual date and time of each performance test so that the Department may have a representative attend. If there is a delay in conducting the scheduled performance test and the 30-day notification has already been submitted to the Department, the Permittee shall notify the Department in writing at least two weeks in advance of the rescheduled performance test.

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

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h. Testing Facilities Required:

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)]

i. Minimum Testing Requirements:

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)]

j. 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)(10)]

k. Compliance with Emission Limits:

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)] [Part VII, Section 3.0, Subsections 7.1 & 7.2]

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- l. 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 Compliance and Enforcement Manager.

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

- m. Baghouses:

The Permittee shall record the production rate, temperature and baghouse pressure drop during the performance test. This and any additional operational parameters shall be identified in the test protocol and recorded during testing.

[Part II, Sections 4.4(A)(3) and (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 ECS monitoring devices, including temperatures, 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 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

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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:
 - i. Within 15 minutes of the observation, initiate investigating the process and control equipment performance;
 - ii. Within 30 minutes of the observation, implement appropriate corrective action to bring the device back into the specified operating range.
 - iii. If the device cannot be brought back into the specified operating range within 30 minutes of the observation, then the device and associated equipment vented to it shall be shutdown until the cause of the deviation is corrected.
- 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;

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- 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;
 - 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.

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- 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 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. VOC Usage, Storage and Handling

- a. VOC Containment and Disposal
 - i. The Permittee shall not store, discard, handle, or dispose of VOC or VOC-containing material, including gasoline, in a way intended to cause or to allow the evaporation of VOC to the atmosphere. Reasonable measures shall be taken to prevent such evaporation which include, but are not limited to, the following:
 - 1) All materials from which VOC can evaporate, including, but not limited to, gasoline, fresh solvent, waste solvent and solvent- or gasoline- soaked rags and residues, shall be stored in closed containers when not in use;

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- 2) Such containers one (1) gallon and larger shall be legibly labeled with their contents;
- 3) Records of the disposal/recovery of such materials shall be kept. Records of hazardous waste disposal shall be kept in accordance with the applicable hazardous waste disposal statutes and regulations; and
- 4) Any transfer of VOCs or VOC-containing material from one container to another (aggregation) shall be conducted in a manner that is consistent with good practice for minimizing VOC emissions.

[Part VI, Section 2.0, Subsection 3.5]

b. General Operating Requirements

- i. Control techniques and work practices shall be implemented at all times to reduce VOC emissions from fugitive sources. Control techniques and work practices include, but are not limited to:
 - 1) Containers with no detectable organic emissions shall be used for the storage of waste or fresh material containing VOC.
 - 2) Containers used for the storage or disposal of cloth, paper, filters, or other materials impregnated with VOC-containing materials shall be covered.
 - 3) Waste solvent shall be disposed or recycled in accordance with applicable EPA regulations.
 - 4) Any waste or fresh material containing VOC that escapes from a container, shall be cleaned up or otherwise removed immediately if in accessible areas. For areas where access is not feasible during normal production, any such VOC-containing material shall be removed as soon as reasonably possible, but not later than within twenty-four (24) hours.
- ii. Each container shall be clearly labeled with its contents.
- iii. No person shall use materials containing more than ten (10) percent VOC for the cleanup of spray equipment unless equipment is used to collect the cleaning compounds and to minimize their evaporation to the atmosphere.

[Part VI, Section 2.0, Subsection 4.1]

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- c. Specifications for Storage of VOCs
 - i. Each VOC storage vessel with a capacity greater than 250 gallons and up to 40,000 gallons shall be equipped with at least one of the following:
 - 1) A permanent submerged fill pipe that meets any one of the following requirements:
 - (a) The bottom of the discharge pipe or nozzle is below the surface of the liquid in the receiving vessel for at least ninety-five (95) percent of the volume filled.
 - (b) The bottom of the discharge pipe or nozzle is less than six (6) inches from the bottom of the receiving vessel.
 - (c) The bottom of the discharge pipe or nozzle is less than two (2) pipe or nozzle diameters from the bottom of the receiving vessel.
 - (d) For side-filling, the end of the discharge pipe or nozzle is totally submerged when the liquid level is eighteen (18) inches from the bottom of the tank.
 - 2) A pressure vessel capable of maintaining working pressures that prevent the loss of VOC to the atmosphere; or
 - 3) A vapor-recovery system that consists of a vapor-gathering system capable of collecting ninety-five (95) percent or more of the uncontrolled VOCs that would otherwise be emitted to the atmosphere and a vapor-disposal system capable of processing these VOCs to prevent their emission to the atmosphere.

[Part VI, Section 2.0, Subsection 4.2]

36. 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:

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- 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 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 from paved streets of earth or other material which does or may become airborne.

[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.

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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, or allow silt content to exceed eight (8) percent as determined by applicable test methods in Section [g.ii] of this Permit Condition.

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.

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- 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 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

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- 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.

- 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

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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 a person 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
- 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

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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 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.

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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]

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

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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 must 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;
 - (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

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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 to 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 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

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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]

v. Recordkeeping

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. If a Dust Control Plan is not required, the Permittee shall compile and retain records that provide evidence of control measure application, by indicating the type of treatment or control measure, extent of coverage, and date applied. 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. Records required by this Section must be kept for a period of two (2) years.

[Part V, Section 2.0, Subsection 13.0]

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TABLE 2. SOURCE TYPE AND CONTROL MEASURES

<p><u>Vehicle Use In Open Areas And Vacant Lots:</u></p> <p>1A Restrict trespass by installing signs.</p> <p>2A Install physical barriers such as curbs, fences, gates, posts, signs, shrubs, and/or trees to prevent access to the area.</p>
<p><u>Unpaved Parking Lots:</u></p> <p>1B Pave.</p> <p>2B Apply and maintain gravel, recycled asphalt, or other suitable material, in compliance with Part V, Section 2, Subsection 4.0.</p> <p>3B Apply a suitable dust suppressant, in compliance with Part V, Section 2, Subsection 4.0.</p>
<p><u>Unpaved Haul/Access Roads:</u></p> <p>1C Limit vehicle speed to 15 miles per hour or less and limit vehicular trips to no more than 20 per day.</p> <p>2C Apply water, so that the surface is visibly moist and Part V, Section 2.0, Subsection 5.0 is met.</p> <p>3C Pave.</p> <p>4C Apply and maintain gravel, recycled asphalt, or other suitable material, in compliance with Part V, Section 2.0, Subsection 5.0.</p> <p>5C Apply a suitable dust suppressant, in compliance with Part V, Section 2.0, Subsection 5.0.</p>
<p><u>Disturbed Surface Areas:</u></p> <p>Pre-Activity:</p> <p>1D Pre-water site to the depth of cuts.</p> <p>2D Phase work to reduce the amount of disturbed surface areas at any one time.</p> <p>During Dust Generating Operations:</p> <p>3D Apply water or other suitable dust suppressant, in compliance with Part V, Section 2.0, Subsection 3.0.</p> <p>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.</p>

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TABLE 2. SOURCE TYPE AND CONTROL MEASURES

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.

Bulk Material Handling Operations And Open Storage Piles:

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.

Bulk Material Hauling/Transporting:

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

PERMIT CONDITIONS
VULCAN ASPHALT, SAN TAN PLANT
PERMIT NUMBER 1702

TABLE 2. SOURCE TYPE AND CONTROL MEASURES

<p>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</p> <p>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</p> <p>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:</p> <p>4G Limit vehicular speeds to 15 miles per hour or less while traveling on the work site; or</p> <p>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.</p> <p>Off-Site Hauling/Transporting Onto Paved Public Roadways:</p> <p>6G Cover haul trucks with a tarp or other suitable closure; and</p> <p>7G Load all haul trucks such that the freeboard is not less than 3 inches; and</p> <p>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</p> <p>9G Before the empty haul truck leaves the site, clean the interior of the cargo compartment or cover the cargo compartment.</p> <p>Cleanup Of Spillage, Carry Out, Erosion, And/Or Trackout:</p> <p>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</p> <p>2H Manually sweep-up deposits.</p>
<p><u>Trackout:</u></p> <p>1J Install a grizzly or wheel wash system at all access points.</p> <p>2J At all access points, install a gravel pad at least 30 feet wide, 50 feet long, and 6 inches deep.</p> <p>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.</p>

PERMIT CONDITIONS
VULCAN ASPHALT, SAN TAN PLANT
PERMIT NUMBER 1702

TABLE 2. SOURCE TYPE AND CONTROL MEASURES

<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>	
An 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, SAN TAN PLANT
PERMIT NUMBER 1702

Table 3. Permitted Equipment

Equipment Description	Rated Capacity (ea.)	Quantity
Hot Mix Asphalt Plant		
Bituma 400	400 tons/hr	1
Aggregate Conveyors	300 tons/hr	5
RAP Conveyors	99 tons/hr	2
Feed Bins	400 tons/hr	6
RAP Feed Bins	99 tons/hr	1
Scalping Screen	300 tons/hr	1
RAP Screen	99 tons/hr	1
Gencor Bituma SN: BH75-1062-88-3A Baghouse	75,000 cfm	1
Cement/Lime Silo	50 tons	1
Asphalt Heater	820,000 Btu/hr	1
Aggregate Processing Equipment		
Feed Hopper	300 tons/hr	1
Stackers/Conveyors	300 tons/hr	8
ELJay 3-Deck Screen	300 tons/hr	1
REMCO Rock Max VSI Crusher	300 tons/hr	1

Table 4. Insignificant Activities

Equipment Description	Rated Capacity (ea.)	Quantity
Asphalt Cement Storage Tank	100 tons	1

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

PERMIT NO.: 1702

MINOR MOD. ☐

NON-MINOR MOD. ☒

RENEWAL ☐

PERMIT ENGINEER: Ryan Eberle

DATE PREPARED: 09/17/18

BUSINESS NAME: Vulcan Asphalt, LLC – San Tan Plant

BUSINESS TYPE: Hot Mix Asphalt Plant

	Yes	No
SOURCE TYPE: NSPS	<input checked="" type="checkbox"/>	<input type="checkbox"/>
BACT	<input type="checkbox"/>	<input checked="" type="checkbox"/>
MACT	<input type="checkbox"/>	<input checked="" type="checkbox"/>
NESHAP	<input type="checkbox"/>	<input checked="" type="checkbox"/>
BRDT	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Synthetic Minor	<input checked="" type="checkbox"/>	<input type="checkbox"/>

DESCRIPTION OF SOURCE

Non-Title V permit for an existing facility, with a change in ownership. The former CEMEX San Tan facility is now owned and operated by Vulcan Asphalt, LLC. The facility now includes one hot mix asphalt plant and aggregate processing equipment. Based on the information presented in the original permit application, the SIC codes for the facility are 3295 and 2591, and the facility will operate 6 days per week, 52 weeks per year, and an average of 10.9 hours per day. Based on information provided in the permit application revision request, dated August 21, 2018, the facility will increase operating hours to 16 hours per day, 7 days per week, and 52 weeks per year; however, the annual HMA production limit is unchanged.

The San Tan 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 June 14, 2018, Gila River DEQ received a permit modification application to revise the NOx emission factor, based on the performance testing of the HMA, performed on

May 19, 2017. Since the facility is defined as a synthetic minor source and is requesting to revise a voluntarily accepted emission limitation, by increasing the NOx emission factor, 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 with the liquid asphalt cement. Aggregate, which has been proportioned by size gradations, is introduced to the drum at the opposite end from the burner. As the drum rotates, the aggregates, as well as the combustion products, move toward the burner end of the drum (counterflow drum mix).

Liquid asphalt cement flow is controlled by a variable flow pump electronically linked to the new (virgin) aggregate and crumb rubber weigh scales, if equipped. 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 burner end of the drum and is conveyed to HMA storage silos, where it is loaded into transport trucks. The exhaust gases exit the end of the drum where the aggregate is added and pass on to the baghouse.

Aggregate Processing

The processing of sand and gravel involves the use of different combinations of screens 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 screen to separate the sand and gravel into different size ranges. Oversized material is transferred from the screen via belt conveyors to the crusher for size reduction. Following crushing, the material is transferred via belt conveyors back to the vibrating screen for sizing. The screened material is transferred to stockpiles.

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
Hot Mix Asphalt Plant		
Bituma 400	400 tons/hr	1
Aggregate Conveyors	300 tons/hr	5
RAP Conveyors	99 tons/hr	2
Feed Bins	400 tons/hr	6
RAP Feed Bins	99 tons/hr	1
Scalping Screen	300 tons/hr	1
RAP Screen	99 tons/hr	1
Gencor Bituma SN: BH75-1062-88-3A Baghouse	75,000 cfm	1
Cement/Lime Silo	50 tons	1
Asphalt Heater	820,000 Btu/hr	1
Aggregate Processing Equipment		
Feed Hopper	300 tons/hr	1
Stackers/Conveyors	300 tons/hr	8
ELJay 3-Deck Screen	300 tons/hr	1
REMCO Rock Max VSI Crusher	300 tons/hr	1

A list of insignificant/de minimis equipment is included in Table 2. Insignificant and de minimis equipment are defined in the Gila River Indian Community (GRIC) Code: Title 17 Chapter 9, Part II, Section 1.0 and are not subject to permitting requirements.

Table 2. Insignificant/De Minimis Equipment

Equipment Description	Rated Capacity (ea.)	Quantity
Asphalt Cement Storage Tank	100 tons.	1

ALLOWABLE EMISSIONS

The Federally-enforceable emission limits for the facility are presented in Table 3. Emissions will be based on HMAP production of 400 tph, 6,400 tpd, and 1,140,000 tpy.

Table 3. Emission Limits (pounds)

Pollutant	Twelve Month Rolling Total (Jan 2017)	Twelve Month Rolling Total (Sept 2018)	Permit Modification Increase
Nitrogen Oxides (NO _x)	62,800	92,200	29,400
Volatile Organic Compounds (VOC)	36,500	36,500	0
Carbon Monoxide (CO)	148,300	148,300	0
Sulfur Oxides (SO _x)	66,200	66,200	0
Particulate Matter <10 Micron Diameter (PM ₁₀)	26,300	26,300	0
Particulate Matter (PM)	87,600	104,100	16,500
Total Hazardous Air Pollutants (HAPs)	12,000	12,000	0

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 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
- Section 2: VOC Usage, Storage, and Handling

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 CFR 60 Subpart I).

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 and HAP 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 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 where mineral supplement (lime, cement or other minerals) is transferred from a storage silo and mixed in with the aggregate feed. The mineral supplement silo is controlled by the drum dryer baghouse. The aggregate feed is then conveyed to a drum dryer. The drum dryer may use on-spec used oil or natural gas to fuel the dryer. The drum dryer is controlled by a baghouse. The facility will manufacture rubberized asphalt, in which reclaimed asphalt pavement (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 0.82 MMBtu/hr. The hot mix asphalt product is transferred from the drum dryer outlet by drag slat conveyors to storage silos to be loaded into trucks.

The emission calculations for the facility were based on AP-42 emission factors, grain loading requirements for control devices, and material throughputs provided in the permit application. Non-fugitive emissions will be generated from the following sources:

- Drum dryer baghouse (1); and
- Asphalt cement (hot oil) heater (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
- Vehicle travel on unpaved roads.

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 CO, SO_x, 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. HMA production rates were revised in August 2018 to 6,400 tpd and 1,140,000 tpy.

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, only 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)	(tons/yr)	(lb/day)	(lbs/yr)	(tons/yr)	(lb/day)	(lbs/yr)	(tons/yr)
NOx	517.44	92,170.05	46.09	0.00	0.00	0.00	517.44	92,170.05	46.09
VOC	204.80	36,480.03	18.24	103.02	18,349.55	9.17	307.82	54,829.58	27.41
CO	832.00	148,200.06	74.10	16.19	2,883.31	1.44	848.19	151,083.37	75.54
SOx	371.20	66,120.01	33.06	0.00	0.00	0.00	371.20	66,120.01	33.06
PM10	147.51	26,286.74	13.14	134.08	29,513.83	14.76	281.60	55,800.58	27.90
PM	286.08	104,048.59	52.02	393.48	89,537.40	44.96	679.57	193,585.99	96.99
HAPs	67.09	11,951.55	5.98	1.73	307.78	0.15	68.82	12,259.32	6.13

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 3,534 pounds per year of formaldehyde and 5.98 tons per year (tpy) of HAPs. Formaldehyde is an Ultra HAP (as defined in Part II, Section 1.0), and has a BRDT threshold of 300 pounds per year. Total HAPs have a BRDT threshold of 5 tpy. Therefore, the facility's Total HAPs and 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	46.09	>75 but <100	No	---
VOC	18.24	>75 but <100	No	---
CO	74.10	>75 but <100	No	---
SOx	33.06	>75 but <100	No	---
PM10	13.14	>75 but <100	No	---
PM	52.02	>75 but <100	No	---
Lead	0.0086	>75 but <100	No	---
Single HAP	1.77	3	No	---
Total HAPs	6.13	5	Yes	---
Ultra HAPs	3,534.18*	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. Since Formaldehyde is the single largest HAP emitted and is a VOC, the Director has determined that GCP is also BRDT for Total HAPs.

MODELING ANALYSIS

Formaldehyde was modeled using EPA's SCREEN3 model because its annual emission rate (~3,534 lbs/yr) exceeded the BRDT threshold (300 lbs/yr). The SCREEN3 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 SCREEN3-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 SCREEN3 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 cement/lime storage silo was also reviewed for inclusion in the model. The storage silo is located approximately 14 meters from the stack, which is less than the 5L distance (e.g., L = 3.05 meters and 5L = 15.25 meters). Therefore, the cement/lime storage silo was included in the model analysis. The input values used in the SCREEN3 model are shown in Table 6.

Table 6. SCREEN3 Input Values

Input Parameter	Value	Units	Reference
Stack Height	7.16	m	1,2
Stack Inside Diameter	1.41	m	1
Stack Exit Velocity	17.13	m/s	1 (average for 3 runs)
Stack Gas Exit Temperature	355.35	K	1 (average for 3 runs)
Baghouse Height	4.27	m	2
Baghouse Length	13.41	m	2
Baghouse Width	4.27	m	2
Cement/Lime Silo Height	~13.7	m	2
Cement/Lime Silo Length	3.0	m	2
Cement/Lime Silo Width	3.0	m	2
Receptor Height	1.6	m	
Emission Rate (24-hour)	15.3	lb/day	3
Emission Rate (Annual)	1,599	lb/yr	3

1. EPA Compliance Testing for Particulate Emissions Conducted on United Metro's Bituma 400 Hot Mix Asphalt Plant, #148, Located Near Sacaton, Arizona, dated April 15, 2004.
2. Field measurements conducted on 8/27/09
3. The formaldehyde emissions from the HMA plant are ~97% of the total formaldehyde emissions for the facility. Therefore, to generate a worst case scenario, all of the formaldehyde emissions for the facility were assumed to originate from the HMA plant baghouse stack

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⁾	334.98	0.268	55.83	0.0447
Formaldehyde Result (Calculated) ⁽²⁾	34.892	0.0279	2.838	0.002273
ATSDR MRL ⁽³⁾	49.9	0.04	10.0	0.008

1. Concentrations in [(ug/m³) / (g/s)] or [ppm / (g/s)]. Actual SCREEN3 results are 7.792 (+/- 3.896) ug/m³ (24-hour) and 1.5584 (+/- 0.3896) ug/m³ (annual). According to Appendix D in EPA's *Workbook for Screening Techniques for Assessing Impacts of Toxic Air Pollutants (Revised)* [EPA-454/R-92-024, December 1992], the "+/-" values in parentheses are recommended limits to which one may diverge from the results representing the general case. Therefore, the "+" value was selected to evaluate the worst case maximum concentration.

2. Formaldehyde Result (ug/m³) = Formaldehyde emission rate (g/s) x SCREEN3 Result (ug/m³ / g/s).
 Daily formaldehyde emission rate = 0.071 g/s (13.52 lb/day)
 Annual formaldehyde emission rate = 0.051 g/s (3,534 lb/yr)

3. Department of Health and Human Services, Agency for Toxic Substances and Disease Registry (ATSDR), Minimal Risk Levels (MRLs) for Hazardous Substances, December 2008 - 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 and updated in August 2018. The visible emission limitations, operational restrictions and control requirements reflect the policies contained in Part VII, Section 3.0. 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 VOC usage, storage, and handling. These conditions reflect policies contained in Part VI, Section 2.0.

Condition 36: 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.

DRAFT

Vulcan Asphalt, LLC - San Tan Plant

GRIC Air Quality Permit No.: 1702

Facility Operating Parameters

DRAFT-Mod 8/2018

Note, yellow highlighted values were provided in the application

Hot Mix Asphalt Plant Operating Parameters

	Avg. 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 (HMAP)	400	6,400	1,140,000
Mineral Supplement Silo ⁽²⁾	4	64	13,600

Notes:

1. Calculated daily throughput based on hourly rating and operating hours. For example, 400 tons/hour x 16 hrs/day = 6400 tons/day
2. Hourly mineral supplement usage = Hourly HMAP Production * [(Annual supplement usage) / (Annual HMAP production)]

Control Equipment	Maximum Design Flowrate (cfm)
Dryer Baghouse (Gencor/Bituma)	75,000
Dryer Baghouse (2017 stack test - dscf)	52,047
Mineral Supplement Silo ⁽³⁾	N/A

Notes:

3. Mineral Supplement silo is vented through the dryer baghouse per O&M Plan.

Vulcan Asphalt, LLC - San Tan Plant

DRAFT-Mod 8/2018

GRIC Air Quality Permit No.: 1702

Facility Operating Parameters

Vehicle Type	Mean Vehicle Weight (tons)	Unpaved Roads		
		VMT per day ⁽⁴⁾	VMT per year	Unpaved Road Control Efficiency ⁽⁵⁾
Asphalt Haul Trucks	31.5	18.16	6,609	70%
Asphalt Loaders	12	34.35	12,502	70%
Aggregate Loaders	12	16.73	6,088	70%
Average of Vehicle Weights ⁽⁴⁾	17.11	69	25,199	

Notes:

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

5. 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.

Storage Piles

Storage Piles (acres)	3
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Aggregate Processing

	Production Limits	
	tons/hr	tons/yr
Aggregate Processing Equipment	300	300,000

Solvent Usage

	lbs/yr
Solvent-VOC for Asphalt Rubber Production ⁽⁶⁾	1,100

Notes:

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

Vulcan Asphalt, LLC - San Tan Plant
GRIC Air Quality Permit No.: 1702

DRAFT-Mod 8/2018

Point Source Emissions

Pollutant	Hot Mix Asphalt Plant		
	(lb/day)	(lbs/yr)	(tons/yr)
NOx	517.44	92,170.05	46.09
VOC	204.80	36,480.03	18.24
CO	832.00	148,200.06	74.10
SOx	371.20	66,120.01	33.06
PM10	147.51	26,286.74	13.14
PM	286.08	104,048.59	52.02
HAPs	67.09	11,951.55	5.98

Fugitive Emissions

Pollutant	Hot Mix Asphalt Plant														
	Aggregate Processing			Loadout & 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	18,349.55	9.17	---	---	---	---	---	---	---	---	---
CO	---	---	---	16.19	2,883.31	1.44	---	---	---	---	---	---	---	---	---
SOx	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
PM10	91.16	15,391.80	7.70	7.09	1,262.92	0.63	4.38	754.55	0.44	29.90	10,883.21	5.44	1.55	567.00	0.28
PM	256.56	43,414.80	21.71	7.09	1,262.92	0.63	12.52	2,157.52	1.27	117.31	42,702.16	21.35	---	---	---
HAPs	---	---	---	1.73	307.78	0.15	---	---	---	---	---	---	---	---	---

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	517.44	92,170.05	46.09	0.00	0.00	0.00	517.44	92,170.05	46.09
VOC	204.80	36,480.03	18.24	103.02	18,349.55	9.17	307.82	54,829.58	27.41
CO	832.00	148,200.06	74.10	16.19	2,883.31	1.44	848.19	151,083.37	75.54
SOx	371.20	66,120.01	33.06	0.00	0.00	0.00	371.20	66,120.01	33.06
PM10	147.51	26,286.74	13.14	134.08	28,859.48	14.50	281.60	55,146.23	27.64
PM	286.08	104,048.59	52.02	393.48	89,537.40	44.96	679.57	193,585.99	96.99
HAPs	67.09	11,951.55	5.98	1.73	307.78	0.15	68.82	12,259.32	6.13

Emission Limits (Aug 2018)

Pollutant	Point Sources	
	(lbs/yr)	(tons/yr)
NOx	92,200	46.1
VOC	36,500	18.3
CO	148,300	74.2
SOx	66,200	33.1
PM10	26,300	13.2
PM	104,100	52.1
HAPs	12,000	6.0

Previous NOx Total	62,701	31.4
NOx Increase	29,469	14.7

Vulcan Asphalt, LLC - San Tan Plant**DRAFT-Mod 8/2018****GRIC Air Quality Permit No.: 1702****Major Source Determination****Potential-To-Emit (PTE) for Point Sources**

Pollutant	HMA Plant			Total			Major Source Threshold	Determination
	(lb/day) ⁽¹⁾	(lbs/yr) ⁽²⁾	(tons/yr)	(lb/day)	(lbs/yr)	(tons/yr)	(tons/yr)	(tons/yr)
NOx	776.16	283,300	141.65	776.16	283,299.97	141.65	100	Synthetic Minor
VOC	307.20	112,128	56.06	307.20	112,128.04	56.06	100	
CO	1,248.00	455,520	227.76	1,248.00	455,520.09	227.76	100	Synthetic Minor
SOx	556.80	203,232	101.62	556.80	203,232.02	101.62	100	Synthetic Minor
PM10	221.27	80,764	40.38	221.27	80,763.85	40.38	100	
PM	429.13	156,631	78.32	429.13	156,631.46	78.32	100	Synthetic Minor
HAPs	100.64	36,733	18.37	100.64	36,733.09	18.37	25	

Notes:

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

Vulcan Asphalt, LLC - San Tan Plant
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Best Reasonable and Demonstrated Technology (BRDT) Analysis Applicability

Pollutant	Total Emissions	BRDT Threshold	Exceeds BRDT Threshold?	Trigger Compound
	(tons/yr)	(tons/yr)		
NOx	46.09	>75 but <100	No	---
VOC	18.24	>75 but <100	No	---
CO	74.10	>75 but <100	No	---
SOx	33.06	>75 but <100	No	---
PM10	13.14	>75 but <100	No	---
PM	52.02	>75 but <100	No	---
Lead	0.0086	>75 but <100	No	---
Single HAP	1.77	3	No	---
Total HAPs	6.13	5	Yes	---
Ultra HAPs	3,534.18*	300*	Yes	Formaldehyde

Notes:

* Pounds per year

SCREEN3 Analysis for Vulcan Asphalt San Tan / Sacaton Facility

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Formaldehyde Emission Rate (24-hour)	19.84 lb/day =	0.104 g/s
Formaldehyde Emission Rate (Annual)	3,534 lb/yr =	0.051 g/s
Stack Length	57.25 in. =	1.45 m
Stack Width	42.5 in. =	1.08 m
Equivalent Stack Diameter	55.66 in. =	1.41 m
Stack Temperature	180.23 °F =	355.35 °K
Test Run #1	199.16 °F =	365.87 °K
Test Run #2	174.32 °F =	352.07 °K
Test Run #3	167.20 °F =	348.11 °K
Stack Velocity	56.19 ft/s =	17.13 m/s
Test Run #1	59.00 ft/s =	17.98 m/s
Test Run #2	55.88 ft/s =	17.03 m/s
Test Run #3	53.69 ft/s =	16.36 m/s
Stack Height	23.5 ft. =	7.16 m
Baghouse Height	14 ft. =	4.27 m
Baghouse Length	44 ft. =	13.41 m
Baghouse Width	14 ft. =	4.27 m
Cement/Lime Silo Height	45 ft. =	13.72 m
Cement/Lime Silo Length	10 ft. =	3.05 m
Cement/Lime Silo Width	10 ft. =	3.05 m

HAPs Modeling

Source Description	Maximum Concentration			
	24-hour		Annual	
	(ug/m ³)	(ppm)	(ug/m ³)	(ppm)
SCREEN3 Result ⁽¹⁾	334.98	0.268	55.83	0.0447
Formaldehyde Result (Calculated) ⁽²⁾	34.892	0.0279	2.838	0.002273
ATSDR MRL ⁽³⁾	49.9	0.04	10.0	0.008

Notes:

1. Concentrations in $[(\text{ug}/\text{m}^3) / (\text{g}/\text{s})]$ or $[\text{ppm} / (\text{g}/\text{s})]$. Actual SCREEN3 results are $223.32 (+/- 111.66) \text{ ug}/\text{m}^3$ (24-hour) and $44.664 (+/- 11.166) \text{ ug}/\text{m}^3$ (annual). According to Appendix D in EPA's *Workbook for Screening Techniques for Assessing Impacts of Toxic Air Pollutants (Revised)* [EPA-454/R-92-024, dated December 1992], the "+/-" values in parentheses are recommended limits to which one may diverge from the results representing the general case. Therefore, the "+" value was selected to evaluate the worst case maximum concentration.
2. Formaldehyde Result $(\text{ug}/\text{m}^3) = \text{Formaldehyde emission rate } (\text{g}/\text{s}) \times \text{SCREEN3 Result } (\text{ug}/\text{m}^3 / \text{g}/\text{s})$
3. Department of Health and Human Services, Agency for Toxic Substances and Disease Registry (ATSDR), Minimal Risk Levels (MRLs) for Hazardous Substances, December 2008 - acute exposure MRL (1-14 days) is assumed for 24-hour concentration and chronic exposure MRL (>365 days) is assumed for annual concentration.

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

2b. Per the Aug 2018 permit mod, the daily production rate was increased, which increased the formaldehyde result from 23.771 ug/m3 to 34.892 ug/m3. The concentration is still below the ATSDR MRL of 49.9 ug/m3.

Vulcan Asphalt, LLC - San Tan Plant

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GRIC Air Quality Permit No.: 1702

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				
Total PCDD/PCDF	*Dioxin/Furan*	8.01E-07	1.49E-04	8.01E-07	1.49E-04	7.44E-08	
1,3-Butadiene	106-99-0			0.00E+00	0.00E+00	0.00E+00	
Formaldehyde	00050-00-0	1.98E+01	3.53E+03	1.98E+01	3.53E+03	1.77E+00	X
Benzo(a)pyrene	00050-32-8	6.27E-05	1.12E-02	6.27E-05	1.12E-02	5.59E-06	
Dibenzo(a,h)anthracene	00053-70-3			0.00E+00	0.00E+00	0.00E+00	
2-Methylnaphthalene	00056-49-5	1.09E+00	1.94E+02	1.09E+00	1.94E+02	9.69E-02	
Benz(a)anthracene	00056-55-3	1.34E-03	2.39E-01	1.34E-03	2.39E-01	1.20E-04	
Benzene	00071-43-2	2.50E+00	4.45E+02	2.50E+00	4.45E+02	2.22E-01	
1,1,1-Trichloroethane (methyl chloroform)	00071-55-6	3.07E-01	5.47E+01	3.07E-01	5.47E+01	2.74E-02	
Bromomethane (Methyl bromide)	00074-83-9			0.00E+00	0.00E+00	0.00E+00	
Chloromethane (Methyl chloride)	00074-87-3			0.00E+00	0.00E+00	0.00E+00	X
Chloroethane (Ethyl chloride)	00075-00-3			0.00E+00	0.00E+00	0.00E+00	X
Acetaldehyde	00075-07-0	8.32E+00	1.48E+03	8.32E+00	1.48E+03	7.41E-01	
Methylene Chloride	00075-09-2			0.00E+00	0.00E+00	0.00E+00	
Carbon Disulfide	00075-15-0			0.00E+00	0.00E+00	0.00E+00	X
Trichlorofluoromethane	00075-69-4			0.00E+00	0.00E+00	0.00E+00	
2-Butanone (Methyl ethyl ketone)	00078-93-3	1.28E-01	2.28E+01	1.28E-01	2.28E+01	1.14E-02	
Trichloroethene	00079-01-6			0.00E+00	0.00E+00	0.00E+00	
Acenaphthene	00083-32-9	9.04E-03	1.62E+00	9.04E-03	1.62E+00	8.12E-04	
Phenanathrene	00085-01-8	1.48E-01	2.65E+01	1.48E-01	2.65E+01	1.32E-02	
Fluorene	00086-73-7	7.04E-02	1.25E+01	7.04E-02	1.25E+01	6.27E-03	
Naphthalene	00091-20-3	4.16E+00	7.42E+02	4.16E+00	7.42E+02	3.71E-01	
Xylenes (o-)	00095-47-6			0.00E+00	0.00E+00	0.00E+00	
Cumene	00098-82-8			0.00E+00	0.00E+00	0.00E+00	
Ethylbenzene	00100-41-4	1.54E+00	2.74E+02	1.54E+00	2.74E+02	1.37E-01	
Styrene	00100-42-5			0.00E+00	0.00E+00	0.00E+00	
Quinone	00106-51-4	1.02E+00	1.82E+02	1.02E+00	1.82E+02	9.12E-02	
Acrolein	00107-02-8	1.66E-01	2.96E+01	1.66E-01	2.96E+01	1.48E-02	X
Xylenes (m-/p-)	00108-38-3			0.00E+00	0.00E+00	0.00E+00	
Toluene	00108-88-3	1.86E+01	3.31E+03	1.86E+01	3.31E+03	1.65E+00	
Phenol	00108-95-2			0.00E+00	0.00E+00	0.00E+00	

Vulcan Asphalt, LLC - San Tan Plant

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GRIC Air Quality Permit No.: 1702

Facility HAPs Summary

HAP Name	CAS Number	HMAP Emissions		Total Non-Fugitive Emissions			Ultra HAP
		Point Source					
		lbs/day	lbs/yr	lbs/day	lbs/yr	tons/yr	
Hexane	00110-54-3	5.89E+00	1.05E+03	5.89E+00	1.05E+03	5.24E-01	
Anthracene	00120-12-7	1.99E-02	3.54E+00	1.99E-02	3.54E+00	1.77E-03	
Propionaldehyde	00123-38-6	8.32E-01	1.48E+02	8.32E-01	1.48E+02	7.41E-02	
Tetrachloroethene	00127-18-4			0.00E+00	0.00E+00	0.00E+00	
Pyrene	00129-00-0	1.92E-02	3.42E+00	1.92E-02	3.42E+00	1.71E-03	
Benzo(g,h,i)perylene	00191-24-2	2.56E-04	4.56E-02	2.56E-04	4.56E-02	2.28E-05	
Benzo(e)pyrene	00192-97-2	7.04E-04	1.25E-01	7.04E-04	1.25E-01	6.27E-05	
Indeno(1,2,3-cd)pyrene	00193-39-5	4.48E-05	7.98E-03	4.48E-05	7.98E-03	3.99E-06	
Perylene	00198-55-0	5.63E-05	1.00E-02	5.63E-05	1.00E-02	5.02E-06	
Benzo(k)fluoranthene	00205-82-3	2.62E-04	4.67E-02	2.62E-04	4.67E-02	2.34E-05	
Benzo(b)fluoranthene	00205-99-2	6.54E-04	1.19E-01	6.54E-04	1.19E-01	5.96E-05	
Fluoranthene	00206-44-0	3.91E-03	6.98E-01	3.91E-03	6.98E-01	3.49E-04	
Acenaphthylene	00208-96-8	1.41E-01	2.51E+01	1.41E-01	2.51E+01	1.25E-02	
Chrysene	00218-01-9	1.15E-03	2.05E-01	1.15E-03	2.05E-01	1.03E-04	
Isooctane (2,2,4-Trimethylpentane)	00540-84-1	2.56E-01	4.56E+01	2.56E-01	4.56E+01	2.28E-02	
Xylenes (Total)	01330-20-7	1.28E+00	2.28E+02	1.28E+00	2.28E+02	1.14E-01	
MTBE	01634-04-4			0.00E+00	0.00E+00	0.00E+00	
Lead	07439-92-1	9.60E-02	1.71E+01	9.60E-02	1.71E+01	8.55E-03	
Manganese	07439-96-5	4.93E-02	8.78E+00	4.93E-02	8.78E+00	4.39E-03	
Mercury	07439-97-6	1.66E-02	2.96E+00	1.66E-02	2.96E+00	1.48E-03	
Nickel	07440-02-0	4.03E-01	7.18E+01	4.03E-01	7.18E+01	3.59E-02	
Antimony	07440-36-0	1.15E-03	2.05E-01	1.15E-03	2.05E-01	1.03E-04	
Arsenic	07440-38-2	3.65E-03	6.52E-01	3.65E-03	6.52E-01	3.26E-04	
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	4.67E-01	2.62E-03	4.67E-01	2.34E-04	
Chromium	07440-47-3	3.56E-02	6.34E+00	3.56E-02	6.34E+00	3.17E-03	
Cobalt	07440-48-4	1.66E-04	2.96E-02	1.66E-04	2.96E-02	1.48E-05	
Total Phosphorus	07723-14-0	1.79E-01	3.19E+01	1.79E-01	3.19E+01	1.60E-02	
Selenium	07782-49-2	2.24E-03	3.99E-01	2.24E-03	3.99E-01	2.00E-04	
Hex-Chromium	18540-29-9	2.88E-03	5.13E-01	2.88E-03	5.13E-01	2.57E-04	
				6.71E+01	1.20E+04	5.98E+00	

Vulcan Asphalt, LLC - San Tan Plant

GRIC Air Quality Permit No.: 1702

Hot Mix Asphalt Plant Criteria Pollutant Emission Calculations

DRAFT-Mod 8/2018

Operating Parameters

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

	Production Limits		
	Hourly (TPH)	Daily (TPD) ⁽¹⁾	Annual (TPY)
Hot Mix Asphalt Plant (HMAP)	400	6400	1,140,000
Lime Silo	4	64	13,600

Control Equipment	Maximum Design Flowrate (cfm)
Dryer Baghouse (Gencor/Bituma)	75,000
Dryer Baghouse (2017 stack test - dscf)	52,047
Mineral Supplement Silo (3)	N/A

Criteria Pollutant	Dryer Baghouse Emissions (HM1)			Cement/Lime Silo Loading Emissions (LS1)			Asphalt Heater Emissions (EP-11)				Total Emissions		
	EF ⁽²⁾	Emissions		EF ⁽²⁾	Emissions		EF ⁽⁶⁾	EF ⁽⁷⁾	Emissions		(lb/day)	(lbs/yr)	(tons/yr)
	(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⁾			
NO _x ¹¹	0.081	517.44	92,169	---	---	---	2.00E-02	0.00	0.00	1.05	517.44	92,170	46.09
VOC	0.032	204.80	36,480	---	---	---	5.56E-04	0.00	0.00	0.03	204.80	36,480	18.24
CO	0.13	832.00	148,200	---	---	---	1.20E-03	0.00	0.00	0.06	832.00	148,200	74.10
SO ₂	0.058	371.20	66,120	---	---	---	2.00E-04	0.00	0.00	0.01	371.20	66,120	33.06
PM ₁₀	0.023	147.20	26,220	0.0049	0.31	66.6	2.00E-03	0.00	0.00	0.10	147.51	26,287	13.14
PM ^(3,10)	0.04	285.51	103,927	0.0089	0.57	121.0	2.00E-03	0.00	0.00	0.10	286.08	104,049	52.02

Notes:

1. Calculated daily throughput based on hourly rating and operating hours. For example, 400 tons/hour x 16 hrs/day = 6400 tons/day
2. 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, NO_x & SO₂ for waste oil-fired dryers), 11.1-8 (VOC for waste oil-fired dryers) and Final Section 11.12 updated June 2006, Table 11.12-2 (PM from cement/lime - emissions are controlled by baghouse/dust collector).
3. Emission factor for PM obtained from GRIC AQMP - Part VII, Section 3.0, Subsection 3.2(B) - grain loading requirement for hot mix asphalt baghouse in grains per dry standard cubic feet (gr/dscf).
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 (gr/dscf) x Control Device Flowrate (cfm) / (7000 gr/lb) x Operating Time (hrs/day) x (60 min/hr)} **OR** {EF (lb/ton HMA) x daily production limit (tons/day)} - See Note 10.
5. Annual emissions, except PM (lbs/yr) = emission factor (lb/ton HMA) x annual production limit (tons/year).
Annual emissions of PM (lbs/yr) = {Daily Emissions (lb/day) x Operating Time (days/wk) x Operating Time (wk/yr)} **OR** {EF (lb/ton HMA) x annual production limit (tons/day)} - See Note 10.
6. Emission factors obtained from ADEQ Template 051715 emission factors workbook.

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

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

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

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

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

Vulcan Asphalt, LLC - San Tan Plant

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Hot Mix Asphalt Plant Criteria Pollutant Emission Calculations

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

10. Since the application was completed using AP-42 emission factors and there is a limit on the grain loading for the control device, the total PM emissions are the emissions calculated from AP-42 controlled emission factors or from grain loading requirements in the GRIC AQMP, whichever is more (see below). Since the cement/lime silo emissions are vented through the dryer baghouse, so it is assumed there are no additional PM emissions based on grain loading since the baghouse would already be operating. Controlled emission factor source: AP-42 5th Ed., Final Section 11.1, updated March 2004, Table 11.1-3 and Final Section 11.12 updated June 2006, Table 11.12-2. Grain loading requirement from GRIC AQMP - Part VII, Section 3.0, Subsection 3.1(C)(1). Emissions are controlled by a baghouse.

Criteria Pollutant	AP-42 Emission Factor			Grain Loading Requirement		
	EF ⁽²⁾	PM Emissions		EF ⁽³⁾	PM Emissions	
	(lb/ton)	(lb/day) ⁽⁴⁾	(lbs/yr) ⁽⁵⁾	(gr/dscf)	(lb/day) ⁽⁴⁾	(lbs/yr) ⁽⁵⁾
PM (Dryer/Burner Baghouse)	0.033	211.20	37,620.00	0.04	285.51	103,927.45
PM (Lime Silo)	0.0089	0.57	121.04			
Total		211.77	37,741.04		285.51	103,927.45

Vulcan Asphalt, LLC - San Tan Plant

GRIC Air Quality Permit No.: 1702

Hot Mix Asphalt Plant Hazardous Air Pollutant Emission Calculations

DRAFT-Mod 8/2018

Operating Parameters

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

	Production Limits		
	Hourly (TPH)	Daily (TPD) ⁽¹⁾	Annual (TPY)
Hot Mix Asphalt Plant (HMAP)	400	6400	1,140,000
Mineral Supplement Silo (2)	4	64	13,600

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	1.48E+03					8.32E+00	1.48E+03	7.41E-01
Acrolein	2.60E-05	1.66E-01	2.96E+01					1.66E-01	2.96E+01	1.48E-02
Benzene	3.90E-04	2.50E+00	4.45E+02					2.50E+00	4.45E+02	2.22E-01
2-Butanone (Methyl ethyl ketone)	2.00E-05	1.28E-01	2.28E+01					1.28E-01	2.28E+01	1.14E-02
Ethylbenzene	2.40E-04	1.54E+00	2.74E+02					1.54E+00	2.74E+02	1.37E-01
Formaldehyde	3.10E-03	1.98E+01	3.53E+03	3.50E-06	2.09E-05	5.03E-04	1.83E-01	1.98E+01	3.53E+03	1.77E+00
n-Hexane	9.20E-04	5.89E+00	1.05E+03					5.89E+00	1.05E+03	5.24E-01
Isooctane (2,2,4-Trimethylpentane)	4.00E-05	2.56E-01	4.56E+01					2.56E-01	4.56E+01	2.28E-02
Propionaldehyde	1.30E-04	8.32E-01	1.48E+02					8.32E-01	1.48E+02	7.41E-02
Quinone	1.60E-04	1.02E+00	1.82E+02					1.02E+00	1.82E+02	9.12E-02
Toluene	2.90E-03	1.86E+01	3.31E+03					1.86E+01	3.31E+03	1.65E+00
1,1,1-Trichloroethane (methyl chloroform)	4.80E-05	3.07E-01	5.47E+01					3.07E-01	5.47E+01	2.74E-02
Xylenes (Total)	2.00E-04	1.28E+00	2.28E+02					1.28E+00	2.28E+02	1.14E-01
POM HAPs										
Acenaphthene	1.40E-06	8.96E-03	1.60E+00	5.30E-07	3.17E-06	7.61E-05	2.78E-02	9.04E-03	1.62E+00	8.12E-04
Acenaphthylene	2.20E-05	1.41E-01	2.51E+01	2.00E-07	1.20E-06	2.87E-05	1.05E-02	1.41E-01	2.51E+01	1.25E-02
Anthracene	3.10E-06	1.98E-02	3.53E+00	1.80E-07	1.08E-06	2.59E-05	9.44E-03	1.99E-02	3.54E+00	1.77E-03
Benzo(a)anthracene	2.10E-07	1.34E-03	2.39E-01					1.34E-03	2.39E-01	1.20E-04
Benzo(b)fluoranthene	1.00E-07	6.40E-04	1.14E-01	1.00E-07	5.98E-07	1.44E-05	5.24E-03	6.54E-04	1.19E-01	5.96E-05
Benzo(k)fluoranthene	4.10E-08	2.62E-04	4.67E-02					2.62E-04	4.67E-02	2.34E-05
Benzo(g,h,i)perylene	4.00E-08	2.56E-04	4.56E-02					2.56E-04	4.56E-02	2.28E-05
Benzo(a)pyrene	9.80E-09	6.27E-05	1.12E-02					6.27E-05	1.12E-02	5.59E-06
Benzo(e)pyrene	1.10E-07	7.04E-04	1.25E-01					7.04E-04	1.25E-01	6.27E-05
Chrysene	1.80E-07	1.15E-03	2.05E-01					1.15E-03	2.05E-01	1.03E-04
Fluoranthene	6.10E-07	3.90E-03	6.95E-01	4.40E-08	2.63E-07	6.32E-06	2.31E-03	3.91E-03	6.98E-01	3.49E-04
Fluorene	1.10E-05	7.04E-02	1.25E+01	3.20E-08	1.91E-07	4.60E-06	1.68E-03	7.04E-02	1.25E+01	6.27E-03
Indeno(1,2,3-cd)pyrene	7.00E-09	4.48E-05	7.98E-03					4.48E-05	7.98E-03	3.99E-06
2-Methylnaphthalene	1.70E-04	1.09E+00	1.94E+02					1.09E+00	1.94E+02	9.69E-02
Naphthalene	6.50E-04	4.16E+00	7.41E+02	1.70E-05	1.02E-04	2.44E-03	8.91E-01	4.16E+00	7.42E+02	3.71E-01
Perylene	8.80E-09	5.63E-05	1.00E-02					5.63E-05	1.00E-02	5.02E-06
Phenanthrene	2.30E-05	1.47E-01	2.62E+01	4.90E-06	2.93E-05	7.04E-04	2.57E-01	1.48E-01	2.65E+01	1.32E-02
Pyrene	3.00E-06	1.92E-02	3.42E+00	3.20E-08	1.91E-07	4.60E-06	1.68E-03	1.92E-02	3.42E+00	1.71E-03
TOTAL ORGANIC HAPs		66.30	11,809.05		0.00	0.00	1.39	66.30	11,810.44	5.91

Vulcan Asphalt, LLC - San Tan Plant

GRIC Air Quality Permit No.: 1702

Hot Mix Asphalt Plant Hazardous Air Pollutant Emission Calculations

DRAFT-Mod 8/2018

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:

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

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

burner rating = 0.82 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 Toxic Air Contaminant	Dryer Burner/Baghouse Emissions (HM1)				Mineral Supplement Filling (EP-07A)				Total Emissions		
	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	2.05E-01	1.03E-04					1.15E-03	2.05E-01	1.03E-04
Arsenic	5.60E-07	3.58E-03	6.38E-01	3.19E-04	1.00E-06	6.40E-05	1.36E-02	6.80E-06	3.65E-03	6.52E-01	3.26E-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	4.67E-01	2.34E-04	1.98E-10	1.27E-08	2.69E-06	1.35E-09	2.62E-03	4.67E-01	2.34E-04
Hex-Chromium	4.50E-07	2.88E-03	5.13E-01	2.57E-04					2.88E-03	5.13E-01	2.57E-04
Chromium	5.50E-06	3.52E-02	6.27E+00	3.14E-03	5.50E-06	3.52E-04	7.48E-02	3.74E-05	3.56E-02	6.34E+00	3.17E-03
Cobalt	2.60E-08	1.66E-04	2.96E-02	1.48E-05					1.66E-04	2.96E-02	1.48E-05
Lead	1.50E-05	9.60E-02	1.71E+01	8.55E-03					9.60E-02	1.71E+01	8.55E-03
Manganese	7.70E-06	4.93E-02	8.78E+00	4.39E-03					4.93E-02	8.78E+00	4.39E-03
Mercury	2.60E-06	1.66E-02	2.96E+00	1.48E-03					1.66E-02	2.96E+00	1.48E-03
Nickel	6.30E-05	4.03E-01	7.18E+01	3.59E-02					4.03E-01	7.18E+01	3.59E-02
Selenium	3.50E-07	2.24E-03	3.99E-01	2.00E-04					2.24E-03	3.99E-01	2.00E-04
Phosphorous	2.80E-05	1.79E-01	3.19E+01	1.60E-02					1.79E-01	3.19E+01	1.60E-02
Total Metal HAPs		0.79	141.10	0.07		4.16E-04	8.84E-02	4.42E-05	0.79	141.19	0.07

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 Toxic Air Contaminant	Dryer Burner/Baghouse Emissions (HM1)			Hot Oil Heater Emissions (HO1)				Total Emissions		
	EF ⁽⁷⁾	Emissions		EF ⁽⁶⁾	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	1.37E-04	2.30E-10	1.38E-09	3.30E-08	1.21E-05	8.01E-07	1.49E-04	7.44E-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 - San Tan Plant
GRIC Air Quality Permit No.: 1702
Hot Mix Asphalt Plant Aggregate Emissions

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Operating Parameters

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

	Production Limits		
	Hourly (TPH)	Daily (TPD)	Annual (TPY)
Hot Mix Asphalt Plant (HMAP)	400	6,400	1,140,000
Mineral Supplement Silo (2)	4	64	13,600
Aggregate Delivery Rate	300	4,800	789,800
RAP Delivery Rate	100	1,600	336,600

Equipment Type	Equip ID	Feed Rate (TPD)	Feed Rate (TPY)	Emission Controls	PM EF (AP-42) (lb/ton)	PM ₁₀ EF (AP-42) (lb/ton)	Notes	EMISSIONS					
								PM			PM ₁₀		
								lb/day	lbs/yr	ton/yr	lb/day	lbs/yr	ton/yr
Transfer (feed bin to conveyor)	EP-03a / EP-04a	6,400	1,140,000	None	0.00300	0.001100	1, 3	19.20	3,420.00	1.71	7.04	1,254.00	0.63
Transfer (conveyor to screen)	EP-03 / EP-04	6,400	1,140,000	None	0.00300	0.001100	1, 3	19.20	3,420.00	1.71	7.04	1,254.00	0.63
Screen	EP-05	6,400	1,140,000	None	0.0250	0.00870	1, 2, 0	160.00	28,500.00	14.25	55.68	9,918.00	4.96
Transfer (conveyor to pug mill)	EP-06	6,400	1,140,000	None	0.00300	0.001100	1, 3	19.20	3,420.00	1.71	7.04	1,254.00	0.63
Transfer (conveyor to dryer)	EP-08	6,400	1,140,000	None	0.00300	0.001100	1, 3	19.20	3,420.00	1.71	7.04	1,254.00	0.63
TOTAL ⁽⁴⁾								236.80	42,180.00	21.09	83.84	14,934.00	7.47

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
4. The processes below are counted in the above emissions by assuming all HMA is produced without RAP/supplement. If RAP/supplement are used, then emissions will be reduced due to less drop points in RAP process line

Equipment Type	Equip ID	Feed Rate (TPD)	Feed Rate (TPY)	Emission Controls	PM EF (AP-42) (lb/ton)	PM ₁₀ EF (AP-42) (lb/ton)	Notes	PM Emissions			PM ₁₀ Emissions		
								lb/day	lbs/yr	ton/yr	lb/day	lbs/yr	ton/yr
Transfer (conveyor to pug mill)	EP-07B	64	13,600	None	0.00300	0.001100	1, 3	0.19	40.80	0.02	0.07	14.96	0.01
Transfer conveyor	RAP EP-01	1,600	336,600	None	0.00300	0.001100	1, 3	4.80	1,009.80	0.50	1.76	370.26	0.19
Transfer conveyor	RAP EP-04	1,600	336,600	None	0.00300	0.001100	1, 3	4.80	1,009.80	0.50	1.76	370.26	0.19
Screen	RAP EP-03	1,600	336,600	None	0.0250	0.00870	1, 2, 0	40.00	8,415.00	4.21	13.92	2,928.42	1.46

Vulcan Asphalt, LLC - San Tan Plant

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Hot Mix Asphalt Plant Crushing and Screening Aggregate Emissions

	Production Limits		
	Hourly (TPH)	Daily (TPD)	Annual (TPY)
Aggregate Delivery Rate	300	4,800	300,000

Equipment Type	Equip ID	Feed Rate (TPD)	Feed Rate (TPY)	Emission Controls	PM EF (AP-42) (lb/ton)	PM ₁₀ EF (AP-42) (lb/ton)	Notes	EMISSIONS					
								PM			PM ₁₀		
								lb/day	lbs/yr	ton/yr	lb/day	lbs/yr	ton/yr
Loader to C&S Plant	CS EP-01	4,800	300,000	N/A	1.60E-05	1.60E-05	1	0.08	4.80	0.00	0.08	4.80	0.00
Transfer conveyor	CS EP-02	4,800	300,000	moisture/wet suppression	0.00014	0.000046	1, 3	0.67	42.00	0.02	0.22	13.80	0.01
Transfer conveyor	CS EP-03	4,800	300,000	moisture/wet suppression	0.00014	0.000046	1, 3	0.67	42.00	0.02	0.22	13.80	0.01
Transfer conveyor	CS EP-05	4,800	300,000	moisture/wet suppression	0.00014	0.000046	1, 3	0.67	42.00	0.02	0.22	13.80	0.01
Transfer conveyor	CS EP-06	4,800	300,000	moisture/wet suppression	0.00014	0.000046	1, 3	0.67	42.00	0.02	0.22	13.80	0.01
Transfer conveyor	CS EP-08	1,200	75,000	moisture/wet suppression	0.00014	0.000046	1, 3	0.17	10.50	0.01	0.06	3.45	0.002
Transfer conveyor	CS EP-09	1,200	75,000	moisture/wet suppression	0.00014	0.000046	1, 3	0.17	10.50	0.01	0.06	3.45	0.002
Transfer conveyor	CS EP-010	1,200	75,000	moisture/wet suppression	0.00014	0.000046	1, 3	0.17	10.50	0.01	0.06	3.45	0.002
Transfer conveyor	CS EP-011	1,200	75,000	moisture/wet suppression	0.00014	0.000046	1, 3	0.17	10.50	0.01	0.06	3.45	0.002
VSI Primary Crusher	CS EP-04	4,800	300,000	moisture/wet suppression	0.0012	0.00054	1, 3	5.76	360.00	0.18	2.59	162.00	0.08
Screen	RAP EP-03	4,800	300,000	moisture/wet suppression	0.0022	0.00074	1, 2, 0	10.56	660.00	0.33	3.55	222.00	0.11
TOTAL								19.76	1234.80	0.62	7.32	457.80	0.23

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 - San Tan Plant

DRAFT-Mod 8/2018

GRIC Air Quality Permit No.: 1702

Hot Mix Asphalt Plant Fugitive Criteria Pollutant Emission Calculations

	Production Limits		
	Hourly (TPH)	Daily (TPD)	Annual (TPY)
Hot Mix Asphalt Plant (HMAP)	400	6400	1,140,000

Criteria Pollutant	Plant Loadout Emissions (HML1)			Silo Filling Emissions (HMS1)			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	4456.73	1.22E-02	77.99	13892.82	103.02	18,349.55	9.17
CO	1.349E-03	8.64	1538.13	1.18E-03	7.55	1345.18	16.19	2,883.31	1.44
SO ₂									
PM ₁₀ ⁽³⁾	5.219E-04	3.34	595.01	5.86E-04	3.75	667.91	7.09	1,262.92	0.63
PM	5.219E-04	3.34	595.01	5.86E-04	3.75	667.91	7.09	1,262.92	0.63

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 1140000) = 4,456.73 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 1140000) = 13,892.82 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 - San Tan Plant

GRIC Air Quality Permit No.: 1702

Hot Mix Asphalt Plant Fugitive Hazardous Air Pollutant Emission Calculations

DRAFT-Mod 8/2018

	Production Limits		
	Hourly (TPH)	Daily (TPD)	Annual (TPY)
Hot Mix Asphalt Plant (HMAP)	400	6400	1,140,000

ORGANICS

Hazardous Air Pollutants	Plant Loadout Emissions (HML1)				Silo Filling Emissions (HMS1)				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	2.47E+00	0.032%	3.90E-06	2.50E-02	4.45E+00	3.88E-02	6.91E+00	3.46E-03
Bromomethane (Methyl bromide)	0.0096%	3.99E-07	2.56E-03	4.55E-01	0.0049%	5.97E-07	3.82E-03	6.81E-01	6.38E-03	1.14E+00	5.68E-04
2-Butanone (Methyl ethyl ketone)	0.049%	2.04E-06	1.30E-02	2.32E+00	0.039%	4.75E-06	3.04E-02	5.42E+00	4.35E-02	7.74E+00	3.87E-03
Carbon Disulfide	0.013%	5.41E-07	3.46E-03	6.16E-01	0.016%	1.95E-06	1.25E-02	2.22E+00	1.59E-02	2.84E+00	1.42E-03
Chloroethane (Ethyl chloride)	0.00021%	8.73E-09	5.59E-05	9.96E-03	0.004%	4.87E-07	3.12E-03	5.56E-01	3.18E-03	5.66E-01	2.83E-04
Chloromethane (Methyl chloride)	0.015%	6.24E-07	3.99E-03	7.11E-01	0.023%	2.80E-06	1.79E-02	3.20E+00	2.19E-02	3.91E+00	1.95E-03
Cumene	0.11%	4.57E-06	2.93E-02	5.22E+00	0.00%	0.00E+00	0.00E+00	0.00E+00	2.93E-02	5.22E+00	2.61E-03
Ethylbenzene	0.28%	1.16E-05	7.45E-02	1.33E+01	0.038%	4.63E-06	2.96E-02	5.28E+00	1.04E-01	1.86E+01	9.28E-03
Formaldehyde	0.088%	3.66E-06	2.34E-02	4.17E+00	0.69%	8.41E-05	5.38E-01	9.59E+01	5.62E-01	1.00E+02	5.00E-02
n-Hexane	0.15%	6.24E-06	3.99E-02	7.11E+00	0.1%	1.22E-05	7.80E-02	1.39E+01	1.18E-01	2.10E+01	1.05E-02
Isooctane (2,2,4-Trimethylpentane)	0.0018%	7.49E-08	4.79E-04	8.53E-02	0.00031%	3.78E-08	2.42E-04	4.31E-02	7.21E-04	1.28E-01	6.42E-05
Methylene Chloride	0.00%	0.00E+00	0.00E+00	0.00E+00	0.00027%	3.29E-08	2.11E-04	3.75E-02	2.11E-04	3.75E-02	1.88E-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	3.46E-01	0.0054%	6.58E-07	4.21E-03	7.50E-01	6.15E-03	1.10E+00	5.48E-04
Tetrachloroethene	0.0077%	3.20E-07	2.05E-03	3.65E-01	0.00%	0.00E+00	0.00E+00	0.00E+00	2.05E-03	3.65E-01	1.83E-04
Toluene	0.21%	8.73E-06	5.59E-02	9.96E+00	0.062%	7.56E-06	4.84E-02	8.61E+00	1.04E-01	1.86E+01	9.29E-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	6.16E-02	0.00%	0.00E+00	0.00E+00	0.00E+00	3.46E-04	6.16E-02	3.08E-05
Xylenes (m-/p-)	0.41%	1.71E-05	1.09E-01	1.94E+01	0.2%	2.44E-05	1.56E-01	2.78E+01	2.65E-01	4.72E+01	2.36E-02
Xylenes (o-)	0.08%	3.33E-06	2.13E-02	3.79E+00	0.057%	6.95E-06	4.45E-02	7.92E+00	6.58E-02	1.17E+01	5.86E-03
POM HAPs											
Acenaphthene	0.26%	8.86E-07	5.67E-03	1.01E+00	0.47%	1.19E-06	7.64E-03	1.36E+00	1.33E-02	2.37E+00	1.19E-03
Acenaphthylene	0.028%	9.55E-08	6.11E-04	1.09E-01	0.014%	3.55E-08	2.27E-04	4.05E-02	8.38E-04	1.49E-01	7.47E-05
Anthracene	0.07%	2.39E-07	1.53E-03	2.72E-01	0.13%	3.30E-07	2.11E-03	3.76E-01	3.64E-03	6.48E-01	3.24E-04
Benzo(a)anthracene	0.019%	6.48E-08	4.15E-04	7.38E-02	0.056%	1.42E-07	9.10E-04	1.62E-01	1.32E-03	2.36E-01	1.18E-04
Benzo(b)fluoranthene	0.008%	2.59E-08	1.66E-04	2.95E-02	0.00%	0.00E+00	0.00E+00	0.00E+00	1.66E-04	2.95E-02	1.48E-05
Benzo(k)fluoranthene	0.0022%	7.50E-09	4.80E-05	8.55E-03	0.00%	0.00E+00	0.00E+00	0.00E+00	4.80E-05	8.55E-03	4.28E-06
Benzo(g,h,i)perylene	0.0019%	6.48E-09	4.15E-05	7.38E-03	0.00%	0.00E+00	0.00E+00	0.00E+00	4.15E-05	7.38E-03	3.69E-06
Benzo(a)pyrene	0.0023%	7.84E-09	5.02E-05	8.94E-03	0.00%	0.00E+00	0.00E+00	0.00E+00	5.02E-05	8.94E-03	4.47E-06
Benzo(e)pyrene	0.0078%	2.66E-08	1.70E-04	3.03E-02	0.0095%	2.41E-08	1.54E-04	2.75E-02	3.25E-04	5.78E-02	2.89E-05
Chrysene	0.103%	3.51E-07	2.25E-03	4.00E-01	0.21%	5.33E-07	3.41E-03	6.08E-01	5.66E-03	1.01E+00	5.04E-04
Dibenz(a,h)anthracene	0.00037%	1.26E-09	8.07E-06	1.44E-03	0.00%	0.00E+00	0.00E+00	0.00E+00	8.07E-06	1.44E-03	7.19E-07
Fluoranthene	0.05%	1.70E-07	1.09E-03	1.94E-01	0.15%	3.81E-07	2.44E-03	4.34E-01	3.53E-03	6.28E-01	3.14E-04
Fluorene	0.77%	2.63E-06	1.68E-02	2.99E+00	1.01%	2.56E-06	1.64E-02	2.92E+00	3.32E-02	5.92E+00	2.96E-03
Indeno(1,2,3-cd)pyrene	0.00047%	1.60E-09	1.03E-05	1.83E-03	0.00%	0.00E+00	0.00E+00	0.00E+00	1.03E-05	1.83E-03	9.13E-07

ORGANICS

Hazardous Air Pollutants	Plant Loadout Emissions (HML1)				Silo Filling Emissions (HMS1)				Total Emissions		
	% of TOC/PM EF ⁽³⁾	EF ⁽¹⁾	Emissions		% of TOC/PM EF ⁽³⁾	EF ⁽²⁾	Emissions				
		(lb/ton HMA)	(lb/day)	(lbs/yr)		(lb/ton HMA)	(lb/day)	(lbs/yr)	(lb/day)	(lbs/yr)	(tons/yr)
2-Methylnaphthalene	2.38%	8.11E-06	5.19E-02	9.25E+00	5.27%	1.34E-05	8.56E-02	1.53E+01	1.38E-01	2.45E+01	1.23E-02
Naphthalene	1.25%	4.26E-06	2.73E-02	4.86E+00	1.82%	4.62E-06	2.96E-02	5.27E+00	5.68E-02	1.01E+01	5.06E-03
Perylene	0.022%	7.50E-08	4.80E-04	8.55E-02	0.03%	7.62E-08	4.87E-04	8.68E-02	9.68E-04	1.72E-01	8.62E-05
Phenanthrene	0.81%	2.76E-06	1.77E-02	3.15E+00	1.8%	4.57E-06	2.92E-02	5.21E+00	4.69E-02	8.36E+00	4.18E-03
Pyrene	0.15%	5.11E-07	3.27E-03	5.83E-01	0.44%	1.12E-06	7.15E-03	1.27E+00	1.04E-02	1.86E+00	9.28E-04
Phenol	1.18%	4.02E-06	2.57E-02	4.59E+00	0.00%	0.00E+00	0.00E+00	0.00E+00	2.57E-02	4.59E+00	2.29E-03
Total Organic HAPs									1.73	307.78	0.15

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 1140000) = 1.01E+00 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 1140000) = 1.36E+00 lbs/yr

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

Vulcan Asphalt, LLC - San Tan Plant

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DRAFT-1

Hot Mix Asphalt Plant Material Handling Fugitive Emission Calculations

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

	Production Limits		
	Hourly (TPH)	Daily (TPD)	Annual (TPY)
Hot Mix Asphalt Plant (HMAP)	400	6,400	1,140,000
Aggregate Delivery	300	4,800	789,800
RAP Delivery	100	1,600	336,600

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	445.74	0.22
HMAP Aggregate Feed Bin Loading	0.000391	1.88	308.81	0.15
RAP Feed Bin Loading	0.000391	0.63	131.61	0.07
	TOTAL:	4.38	754.55	0.44

PM Emissions

Source	Emission Factor ¹	PM10 Emissions		
	lb/ton	lb/day	lbs/yr	tons/yr
Aggregate/RAP Loadout to Storage Piles	0.001118	7.16	1274.52	0.64
HMAP Aggregate Feed Bin Loading	0.001118	5.37	883.00	0.44
RAP Feed Bin Loading	0.001118	1.79	376.32	0.19
	TOTAL:	12.52	2157.52	1.27

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 ₁₀) =	0.35		(AP-42 5th Ed. Section 13.2.4.3)
k (for PM10) =	1		

Technical Support Document

Emissions Calculations

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

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)

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

$$\text{PM}_{10} \text{ Emission Factor Calculations} = 1 \times (0.0032) \times (2.23/5)^{1.3} / (2/2)^{1.4} = \mathbf{0.001118 \text{ lb/ton}}$$

Example Calculation: PM₁₀ for HMAP Aggregate Feed Bin Loading = 1140000 TPY x 0.000391 lb/ton = 308.8118 lbs/yr

Vulcan Asphalt, LLC - San Tan Plant

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Unpaved Road Fugitive Emission Calculations

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Vehicle Type	Vehicle Weight (tons)	VMT per day	VMT per year	Control Efficiency
Asphalt Haul Trucks	31.5	18.16	6,609	70%
Asphalt Loaders	12	34.35	12,502	70%
Aggregate Loaders	12	16.73	6,088	70%
Average of Vehicles	17.11	69.23	25,199	

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

Source of Equation: See Table Notes (1)

Equation Parameter	PM10	PM
E , annual size-specific uncontrolled emission factor for unpaved industrial roads (lb/VMT) ⁽²⁾	1.44	5.65
k , Particle size multiplier for particle size range, (lb/VMT) (Source: AP-42 Table 13.2.2-2)	1.5	4.9
s , surface material silt content, (%) (Source: AP-42 Chapter 13.2.2)	4.8	4.8
W , mean weight (tons) of the vehicles traveling the road	17.11	17.11
a , constant for PM ₁₀ / PM on industrial roads (Source: AP-42 Table 13.2.2-2)	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

Emissions

Pollutant	Assumed Control Efficiency ⁽³⁾	Uncontrolled PM10 Emissions ⁽⁴⁾			Controlled PM10 Emissions ⁽⁵⁾		
		lb/day	lbs/yr	tons/yr	lb/day	lbs/yr	tons/yr
PM10	70%	99.66	36,277.36	18.14	29.90	10,883.21	5.44
PM	70%	391.05	142,340.52	71.17	117.31	42,702.16	21.35

Table Notes:

1. Emission Factor Source: AP-42 5th Ed., Section 13.2.2, Equations 1a and 2, Unpaved Roads, Rev.: November 2006

2. Emissions (lbs/yr) = Emission factor (lb/VMT) x (VMT/year)

Example Calculations For : Uncontrolled PM10 emissions (in lbs per year) from PM10

Based on Equation listed in Table Note (2),

Emission Factor for PM10 (Asphalt Haul Trucks) = $[1.5 \times (4.8/12)^{0.9} \times (17.11/3)^{0.45}] = 1.44$ lb/VMT

Therefore, Annual Uncontrolled Emissions of PM10 from Asphalt Haul Trucks = 1.44 (lb/VMT) x 6609 (VMT/yr) = 9514.55 lbs/yr

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. Controlled Emissions (lbs/yr) = Uncontrolled Emissions (lbs/yr) x (1 - Control Efficiency) = 36277.36 lbs/yr x (1 - 0.7) = 10883.21 lbs/yr

5. Total VMT per year for loaders $12502 + 6088$ VMT/yr

Vulcan Asphalt, LLC - San Tan Plant

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Hot Mix Asphalt Plant Storage Pile Fugitive Emission Calculations

Source	PM ₁₀ EF ⁽¹⁾	Control Method	Control Efficiency ⁽²⁾	Pile Size	PM ₁₀ Emissions		
	lb/acre-yr			acres	lb/day	lbs/yr	tons/yr
Aggregate Material Stockpiles	630	Wet Supression	70%	3.00	1.55	567.00	0.28

Notes:

1. Emission Factor Source: Maricopa County Air Quality Department, *Emissions Inventory Help Sheet for Sand & Gravel Plants*, 2008
2. 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.