



John R. Kasich, Governor
Mary Taylor, Lt. Governor
Scott J. Nally, Director

7/23/2013

Josh Morrissette
Baker Hughes Oilfield Operations, Inc.
17021 Aldine Westfield Road
Houston, TX 77073

RE: FINALAIR POLLUTION PERMIT-TO-INSTALL AND OPERATE

Facility ID: 1576135014
Permit Number: P0114759
Permit Type: OAC Chapter 3745-31 Modification
County: Stark

Certified Mail

No	TOXIC REVIEW
No	SYNTHETIC MINOR TO AVOID MAJOR NSR
No	CEMS
No	MACT/GACT
No	NSPS
No	NESHAPS
No	NETTING
No	MODELING SUBMITTED
No	SYNTHETIC MINOR TO AVOID TITLE V
No	FEDERALLY ENFORCABLE PTIO (FEPTIO)
No	SYNTHETIC MINOR TO AVOID MAJOR GHG

Dear Permit Holder:

Enclosed please find a final Ohio Environmental Protection Agency (EPA) Air Pollution Permit-to-Install and Operate (PTIO) which will allow you to install, modify, and/or operate the described emissions unit(s) in the manner indicated in the permit. Because this permit contains conditions and restrictions, please read it very carefully. In this letter you will find the information on the following topics:

- **How to appeal this permit**
- **How to save money, reduce pollution and reduce energy consumption**
- **How to give us feedback on your permitting experience**
- **How to get an electronic copy of your permit**

How to appeal this permit

The issuance of this PTIO is a final action of the Director and may be appealed to the Environmental Review Appeals Commission pursuant to Section 3745.04 of the Ohio Revised Code. The appeal must be in writing and set forth the action complained of and the grounds upon which the appeal is based. The appeal must be filed with the Commission within thirty (30) days after notice of the Director's action. The appeal must be accompanied by a filing fee of \$70.00, made payable to "Ohio Treasurer Josh Mandel," which the Commission, in its discretion, may reduce if by affidavit you demonstrate that payment of the full amount of the fee would cause extreme hardship. Notice of the filing of the appeal shall be filed with the Director within three (3) days of filing with the Commission. Ohio EPA requests that a copy of the appeal be served upon the Ohio Attorney General's Office, Environmental Enforcement Section. An appeal may be filed with the Environmental Review Appeals Commission at the following address:

Environmental Review Appeals Commission
77 South High Street, 17th Floor
Columbus, OH 43215

How to save money, reduce pollution and reduce energy consumption

The Ohio EPA is encouraging companies to investigate pollution prevention and energy conservation. Not only will this reduce pollution and energy consumption, but it can also save you money. If you would like to learn ways you can save money while protecting the environment, please contact our Office of Compliance Assistance and Pollution Prevention at (614) 644-3469. Additionally, all or a portion of the capital expenditures related to installing air pollution control equipment under this permit may be eligible for financing and State tax exemptions through the Ohio Air Quality Development Authority (OAQDA) under Ohio Revised Code Section 3706. For more information, see the OAQDA website: www.ohioairquality.org/clean_air

How to give us feedback on your permitting experience

Please complete a survey at www.epa.ohio.gov/dapc/permitsurvey.aspx and give us feedback on your permitting experience. We value your opinion.

How to get an electronic copy of your permit

This permit can be accessed electronically via the eBusiness Center: Air Services in Microsoft Word format or in Adobe PDF on the Division of Air Pollution Control (DAPC) Web page, www.epa.ohio.gov/dapc by clicking the "Search for Permits" link under the Permitting topic on the Programs tab.

If you have any questions, please contact Canton City Health Department at (330)489-3385 or the Office of Compliance Assistance and Pollution Prevention at (614) 644-3469.

Sincerely,



Michael W. Ahern, Manager

Permit Issuance and Data Management Section, DAPC

Cc: Canton



FINAL

**Division of Air Pollution Control
Permit-to-Install and Operate
for
Baker Hughes Oilfield Operations, Inc.**

Facility ID: 1576135014
Permit Number: P0114759
Permit Type: OAC Chapter 3745-31 Modification
Issued: 7/23/2013
Effective: 7/23/2013
Expiration: 6/15/2022



Division of Air Pollution Control
Permit-to-Install and Operate
for
Baker Hughes Oilfield Operations, Inc.

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Final Permit-to-Install and Operate
Baker Hughes Oilfield Operations, Inc.
Permit Number: P0114759
Facility ID: 1576135014
Effective Date: 7/23/2013

Authorization

Facility ID: 1576135014
Application Number(s): A0047903
Permit Number: P0114759
Permit Description: Chapter 31 modification for Baker Hughes Inc's Modular Dry Bulk Cement Plant (for which construction has not yet begun) to increase the number of storage tanks, reclaim tanks, blending tanks and associated baghouses. The modified layout is considered a dual plant configuration, where two trucks can be unloaded simultaneously, two batch blending systems can be operated simultaneously, and two finished product trucks can be loaded simultaneously. The modification increases the maximum production rate from 50 tons/hr to 100 tons/hr.
Permit Type: OAC Chapter 3745-31 Modification
Permit Fee: \$3,125.00
Issue Date: 7/23/2013
Effective Date: 7/23/2013
Expiration Date: 6/15/2022
Permit Evaluation Report (PER) Annual Date: Jan 1 - Dec 31, Due Feb 15

This document constitutes issuance to:

Baker Hughes Oilfield Operations, Inc.
Cincinnati Drive extension
Massillon, OH 44646

of a Permit-to-Install and Operate for the emissions unit(s) identified on the following page.

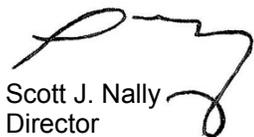
Ohio Environmental Protection Agency (EPA) District Office or local air agency responsible for processing and administering your permit:

Canton City Health Department
420 Market Avenue
Canton, OH 44702-1544
(330)489-3385

The above named entity is hereby granted this Permit-to-Install and Operate for the air contaminant source(s) (emissions unit(s)) listed in this section pursuant to Chapter 3745-31 of the Ohio Administrative Code. Issuance of this permit does not constitute expressed or implied approval or agreement that, if constructed or modified in accordance with the plans included in the application, the described emissions unit(s) will operate in compliance with applicable State and federal laws and regulations.

This permit is granted subject to the conditions attached hereto.

Ohio Environmental Protection Agency



Scott J. Nally
Director



Authorization (continued)

Permit Number: P0114759

Permit Description: Chapter 31 modification for Baker Hughes Inc's Modular Dry Bulk Cement Plant (for which construction has not yet begun) to increase the number of storage tanks, reclaim tanks, blending tanks and associated baghouses. The modified layout is considered a dual plant configuration, where two trucks can be unloaded simultaneously, two batch blending systems can be operated simultaneously, and two finished product trucks can be loaded simultaneously. The modification increases the maximum production rate from 50 tons/hr to 100 tons/hr.

Permits for the following Emissions Unit(s) or groups of Emissions Units are in this document as indicated below:

Group Name: Dry Material Transfer Processes:

Emissions Unit ID:	P001
Company Equipment ID:	Storage tanks loading
Superseded Permit Number:	P0109965
General Permit Category andType:	Not Applicable
Emissions Unit ID:	P002
Company Equipment ID:	Reclaim tanks loading
Superseded Permit Number:	P0109965
General Permit Category andType:	Not Applicable
Emissions Unit ID:	P003
Company Equipment ID:	Scale tanks loading
Superseded Permit Number:	P0109965
General Permit Category andType:	Not Applicable
Emissions Unit ID:	P004
Company Equipment ID:	Blend tanks (load and blend)
Superseded Permit Number:	P0109965
General Permit Category andType:	Not Applicable
Emissions Unit ID:	P005
Company Equipment ID:	Transport truck loading
Superseded Permit Number:	P0109965
General Permit Category andType:	Not Applicable



Final Permit-to-Install and Operate
Baker Hughes Oilfield Operations, Inc.
Permit Number: P0114759
Facility ID: 1576135014
Effective Date: 7/23/2013

A. Standard Terms and Conditions



1. What does this permit-to-install and operate ("PTIO") allow me to do?

This permit allows you to install and operate the emissions unit(s) identified in this PTIO. You must install and operate the unit(s) in accordance with the application you submitted and all the terms and conditions contained in this PTIO, including emission limits and those terms that ensure compliance with the emission limits (for example, operating, recordkeeping and monitoring requirements).

2. Who is responsible for complying with this permit?

The person identified on the "Authorization" page, above, is responsible for complying with this permit until the permit is revoked, terminated, or transferred. "Person" means a person, firm, corporation, association, or partnership. The words "you," "your," or "permittee" refer to the "person" identified on the "Authorization" page above.

The permit applies only to the emissions unit(s) identified in the permit. If you install or modify any other equipment that requires an air permit, you must apply for an additional PTIO(s) for these sources.

3. What records must I keep under this permit?

You must keep all records required by this permit, including monitoring data, test results, strip-chart recordings, calibration data, maintenance records, and any other record required by this permit for five years from the date the record was created. You can keep these records electronically, provided they can be made available to Ohio EPA during an inspection at the facility. Failure to make requested records available to Ohio EPA upon request is a violation of this permit requirement.

4. What are my permit fees and when do I pay them?

There are two fees associated with permitted air contaminant sources in Ohio:

PTIO fee. This one-time fee is based on a fee schedule in accordance with Ohio Revised Code (ORC) section 3745.11, or based on a time and materials charge for permit application review and permit processing if required by the Director.

You will be sent an invoice for this fee after you receive this PTIO and payment is due within 30 days of the invoice date. You are required to pay the fee for this PTIO even if you do not install or modify your operations as authorized by this permit.

Annual emissions fee. Ohio EPA will assess a separate fee based on the total annual emissions from your facility. You self-report your emissions in accordance with Ohio Administrative Code (OAC) Chapter 3745-78. This fee assessed is based on a fee schedule in ORC section 3745.11 and funds Ohio EPA's permit compliance oversight activities. Unless otherwise specified, facilities subject to one or more synthetic minor restrictions must use Ohio EPA's "Air Services" to submit annual emissions associated with this permit requirement. Ohio EPA will notify you when it is time to report your emissions and to pay your annual emission fees.

5. When does my PTIO expire, and when do I need to submit my renewal application?

This permit expires on the date identified at the beginning of this permit document (see "Authorization" page above) and you must submit a renewal application to renew the permit. Ohio EPA will send a renewal notice to you approximately six months prior to the expiration date of this permit. However, it is



very important that you submit a complete renewal permit application (postmarked prior to expiration of this permit) even if you do not receive the renewal notice.

If a complete renewal application is submitted before the expiration date, Ohio EPA considers this a timely application for purposes of ORC section 119.06, and you are authorized to continue operating the emissions unit(s) covered by this permit beyond the expiration date of this permit until final action is taken by Ohio EPA on the renewal application.

6. What happens to this permit if my project is delayed or I do not install or modify my source?

This PTIO expires 18 months after the issue date identified on the "Authorization" page above unless otherwise specified if you have not (1) started constructing the new or modified emission sources identified in this permit, or (2) entered into a binding contract to undertake such construction. This deadline can be extended by up to 12 months, provided you apply to Ohio EPA for this extension within a reasonable time before the 18-month period has ended and you can show good cause for any such extension.

7. What reports must I submit under this permit?

An annual permit evaluation report (PER) is required in addition to any malfunction reporting required by OAC rule 3745-15-06 or other specific rule-based reporting requirement identified in this permit. Your PER due date is identified in the Authorization section of this permit.

8. If I am required to obtain a Title V operating permit in the future, what happens to the operating provisions and PER obligations under this permit?

If you are required to obtain a Title V permit under OAC Chapter 3745-77 in the future, the permit-to-operate portion of this permit will be superseded by the issued Title V permit. From the effective date of the Title V permit forward, this PTIO will effectively become a PTI (permit-to-install) in accordance with OAC rule 3745-31-02(B). The following terms and conditions will no longer be applicable after issuance of the Title V permit: Section B, Term 1.b) and Section C, for each emissions unit, Term a)(2).

The PER requirements in this permit remain effective until the date the Title V permit is issued and is effective, and cease to apply after the effective date of the Title V permit. The final PER obligation will cover operations up to the effective date of the Title V permit and must be submitted on or before the submission deadline identified in this permit on the last day prior to the effective date of the Title V permit.

9. What are my obligations when I perform scheduled maintenance on air pollution control equipment?

You must perform scheduled maintenance of air pollution control equipment in accordance with OAC rule 3745-15-06(A). If scheduled maintenance requires shutting down or bypassing any air pollution control equipment, you must also shut down the emissions unit(s) served by the air pollution control equipment during maintenance, unless the conditions of OAC rule 3745-15-06(A)(3) are met. Any emissions that exceed permitted amount(s) under this permit (unless specifically exempted by rule) must be reported as deviations in the annual permit evaluation report (PER), including nonexempt excess emissions that occur during approved scheduled maintenance.



10. Do I have to report malfunctions of emissions units or air pollution control equipment? If so, how must I report?

If you have a reportable malfunction of any emissions unit(s) or any associated air pollution control system, you must report this to the Canton City Health Department in accordance with OAC rule 3745-15-06(B). Malfunctions that must be reported are those that result in emissions that exceed permitted emission levels. It is your responsibility to evaluate control equipment breakdowns and operational upsets to determine if a reportable malfunction has occurred.

If you have a malfunction, but determine that it is not a reportable malfunction under OAC rule 3745-15-06(B), it is recommended that you maintain records associated with control equipment breakdown or process upsets. Although it is not a requirement of this permit, Ohio EPA recommends that you maintain records for non-reportable malfunctions.

11. Can Ohio EPA or my local air agency inspect the facility where the emission unit(s) is/are located?

Yes. Under Ohio law, the Director or his authorized representative may inspect the facility, conduct tests, examine records or reports to determine compliance with air pollution laws and regulations and the terms and conditions of this permit. You must provide, within a reasonable time, any information Ohio EPA requests either verbally or in writing.

12. What happens if one or more emissions units operated under this permit is/are shut down permanently?

Ohio EPA can terminate the permit terms associated with any permanently shut down emissions unit. "Shut down" means the emissions unit has been physically removed from service or has been altered in such a way that it can no longer operate without a subsequent "modification" or "installation" as defined in OAC Chapter 3745-31.

You should notify Ohio EPA of any emissions unit that is permanently shut down by submitting¹ a certification that identifies the date on which the emissions unit was permanently shut down. The certification must be submitted by an authorized official from the facility. You cannot continue to operate an emissions unit once the certification has been submitted to Ohio EPA by the authorized official.

You must comply with all recordkeeping and reporting for any permanently shut down emissions unit in accordance with the provisions of the permit, regulations or laws that were enforceable during the period of operation, such as the requirement to submit a PER, air fee emission report, or malfunction report. You must also keep all records relating to any permanently shutdown emissions unit, generated while the emissions unit was in operation, for at least five years from the date the record was generated.

Again, you cannot resume operation of any emissions unit certified by the authorized official as being permanently shut down without first applying for and obtaining a permit pursuant to OAC Chapter 3745-31.

¹Permittees that use Ohio EPA's "Air Services" can mark the affected emissions unit(s) as "permanently shutdown" in the facility profile along with the date the emissions unit(s) was permanently removed and/or disabled. Submitting the facility profile update will constitute notifying of the permanent shutdown of the affected emissions unit(s).



13. Can I transfer this permit to a new owner or operator?

You can transfer this permit to a new owner or operator. If you transfer the permit, you must follow the procedures in OAC Chapter 3745-31, including notifying Ohio EPA or the local air agency of the change in ownership or operator. Any transferee of this permit must assume the responsibilities of the transferor permit holder.

14. Does compliance with this permit constitute compliance with OAC rule 3745-15-07, "air pollution nuisance"?

This permit and OAC rule 3745-15-07 prohibit operation of the air contaminant source(s) regulated under this permit in a manner that causes a nuisance. Ohio EPA can require additional controls or modification of the requirements of this permit through enforcement orders or judicial enforcement action if, upon investigation, Ohio EPA determines existing operations are causing a nuisance.

15. What happens if a portion of this permit is determined to be invalid?

If a portion of this permit is determined to be invalid, the remainder of the terms and conditions remain valid and enforceable. The exception is where the enforceability of terms and conditions are dependent on the term or condition that was declared invalid.



Final Permit-to-Install and Operate
Baker Hughes Oilfield Operations, Inc.
Permit Number: P0114759
Facility ID: 1576135014
Effective Date: 7/23/2013

B. Facility-Wide Terms and Conditions



1. This permit document constitutes a permit-to-install issued in accordance with ORC 3704.03(F) and a permit-to-operate issued in accordance with ORC 3704.03(G).
 - a) For the purpose of a permit-to-install document, the facility-wide terms and conditions identified below are federally enforceable with the exception of those listed below which are enforceable under state law only.
 - (1) None.
 - b) For the purpose of a permit-to-operate document, the facility-wide terms and conditions identified below are enforceable under state law only with the exception of those listed below which are federally enforceable.
 - (1) None.
2. This facility is exempt from the visible emissions limitations for fugitive dust specified in OAC rule 3745-17-07(B) because, pursuant to OAC rule 3745-17-08(B)(11)(e), the facility is not located in an area identified in "Appendix A" of OAC rule 3745-17-08.
3. This facility is exempt from the requirements to employ reasonably available control measures (RACM) as specified in OAC rule 3745-17-08(B) because, pursuant to OAC rule 3745-17-08(A)(1), the facility is not located in an area identified in "Appendix A" of OAC rule 3745-17-08.



Final Permit-to-Install and Operate
Baker Hughes Oilfield Operations, Inc.
Permit Number: P0114759
Facility ID: 1576135014
Effective Date: 7/23/2013

C. Emissions Unit Terms and Conditions



1. Emissions Unit Group - Dry Material Transfer Processes: P001, P002, P003, P004 and P005

EU ID	Operations, Property and/or Equipment Description
P001	Storage tanks loading: Dry cement and cement supplement raw materials are pneumatically transferred from a maximum of two delivery trucks simultaneously to storage tanks TK1-TK8 and TK25-TK28; 3000 ft ³ each, for storage prior to batch blending. Emissions are controlled by baghouses DC4 & DC8 (via venting thru reclaim tanks TK15 & TK23, respectively), each rated at < 0.01 gr/dscf PM ₁₀ outlet grain loading. Tanks TK1-TK8 are controlled by DC4, and tanks TK25-TK28 are controlled by DC8.
P002	Reclaim tanks loading: Reclaimed dry materials are pneumatically transferred from a maximum of two delivery trucks simultaneously to reclaim tanks TK15 and TK23, 3000 ft ³ each, for storage prior to removal by a contractor. Emissions are controlled by baghouse DC4 on TK15 and DC8 on TK23, each rated at < 0.01 gr/dscf PM ₁₀ outlet grain loading.
P003	Scale tanks loading: Dry cement and cement supplement raw materials are pneumatically transferred from the storage tanks and the admix hoppers to scale tanks TK13 & TK21, 700 ft ³ each, which can both be loaded simultaneously. Emissions are controlled by baghouse DC3 on TK13 and DC7 on TK21, each rated at < 0.01 gr/dscf PM ₁₀ outlet grain loading.
P004	Blend tanks (load and blend): Dry cement and cement supplement raw materials are pneumatically transferred from the scale tanks to be blended in one of two blend tank systems which can both be operated simultaneously (System 1: blend TK11 then blend TK9; System 2: blend TK19 then blend TK17; each tank 700 ft ³). Emissions are controlled by baghouse DC2 on TK11, DC1 on TK9, DC6 on TK19, and DC5 on TK17, each rated at < 0.01 gr/dscf PM ₁₀ outlet grain loading.
P005	Transport truck loading: Dry cement mixtures are pneumatically transferred from the blend tanks to transport trucks for delivery to the customer. A maximum of two transport trucks can be loaded simultaneously. Emissions are controlled by baghouses DC4 & DC8 (via venting thru reclaim tanks TK15 & TK23, respectively), each rated at < 0.01 gr/dscf PM ₁₀ outlet grain loading.

a) This permit document constitutes a permit-to-install issued in accordance with ORC 3704.03(F) and a permit-to-operate issued in accordance with ORC 3704.03(G).

(1) For the purpose of a permit-to-install document, the emissions unit terms and conditions identified below are federally enforceable with the exception of those listed below which are enforceable under state law only.

a. b)(2)c.ii. and b)(2)c.iii.

(2) For the purpose of a permit-to-operate document, the emissions unit terms and conditions identified below are enforceable under state law only with the exception of those listed below which are federally enforceable.

a. None.

b) Applicable Emissions Limitations and/or Control Requirements

(1) The specific operation(s), property, and/or equipment that constitute each emissions unit along with the applicable rules and/or requirements and with the applicable emissions



limitations and/or control measures are identified below. Emissions from each unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	OAC rule 3745-31-05(A)(3), as effective 11/30/2001 [Best Available Technology (BAT)]	For emissions units P001, P002, P003, P004 and P005 combined: 0.43 lb/hr and 1.88 tons per year of filterable ¹ particulate emissions (PE/PM ²) from the stacks serving these emissions units. Fabric filters (baghouses) serving any of the emissions units P001 – P005 shall achieve an outlet emission rate (outlet grain loading concentration) of not greater than 0.01 grains of PE/PM ₁₀ per dry standard cubic foot of exhaust gases, or there shall be no visible particulate emissions from the outlets. See b)(2)a. and b)(2)b.
b.	OAC rule 3745-31-05(A)(3)(b), as effective 12/01/2006 [Less than 10 ton/yr BAT exemption]	See b)(2)c.
c.	OAC rule 3745-17-07(A)	The visible emission limitation specified by this rule is less stringent than the visible emission limitation established pursuant to OAC rule 3745-31-05(A)(3) as effective 11/30/2001. The visible emission limitation specified by this rule is also less stringent than the visible emission limitation accepted by the permittee if the 12/01/2006 version of OAC rule 3745-31-05(A)(3) is in effect. See b)(2)c.iii.
d.	OAC rule 3745-17-07(B) [VE for fugitive dust in Appendix A areas]	See Facility-Wide term B.2.
e.	OAC rule 3745-17-08(B) [RACM for fugitive dust in Appendix A areas]	See Facility-Wide term B.3.



	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
f.	OAC rule 3745-17-11	The emission limitation specified by this rule for each of the emissions units in the group consisting of P001 – P005 is less stringent than the emission limitation established pursuant to OAC rule 3745-31-05(A)(3) as effective 11/30/2001. See b)(2)c.iv.

Note 1.

Due to the dry nature of the materials being transferred, the assumption is made that all particulate emissions in the subject emissions unit group are filterable particulate emissions

Note 2.

PE/PM emissions limits in b)(1)a. above are based on maximum potential-to-emit after controls, and because the specific fabric filter control devices used for this emissions units group are designed to capture all particulate matter larger than 10 microns in diameter, all particulate emissions (PE/PM) from this emissions units group are assumed to be particulate matter equal-to or less than 10 microns in diameter; i.e., PE/PM₁₀.

(2) Additional Terms and Conditions

- a. The permittee shall employ the following best available control measures for the emissions units in the group consisting of P001 – P005 for the purpose of ensuring compliance with the above-mentioned applicable requirements:
 - i. Cement and cement supplement shall be transferred pneumatically to the cement and cement supplement storage tanks, the reclaim tanks, the scale tanks, the blend tank systems and finally into transport trucks. The pneumatic system shall be adequately enclosed so as to eliminate at all times visible emissions of fugitive dust.
 - ii. Any visible emissions of cement and/or cement supplement dust emanating from the delivery vehicle during transfer shall be cause for the immediate halt of the unloading process and the refusal of the cement and/or cement supplement load until the situation is corrected.
 - iii. Each tank associated with the emissions units identified above shall be adequately enclosed and vented to a fabric filter (baghouse). The enclosure shall be sufficient so as to eliminate at all times visible emissions of fugitive dust at the point of capture.
- b. The permittee has satisfied the Best Available Technology (BAT) requirements pursuant to OAC rule 3745-31-05(A)(3), as effective November 30, 2001. On December 1, 2006, paragraph (A)(3) of OAC rule 3745-31-05 was revised to conform with ORC changes effective August 3, 2006 (S.B. 265 changes), such that BAT is no longer required by State regulations for sources having potential to emit, taking into account controls, less than ten tons per year of emissions of an NAAQS pollutant or precursor. However, that rule revision has not yet been approved by U.S. EPA as a revision to Ohio's State Implementation Plan (SIP).



Therefore, until the SIP revision occurs and the U.S. EPA approves the revisions to OAC rule 3745-31-05, the requirements to satisfy BAT still exist as part of the federally-approved SIP for Ohio. Once U.S. EPA approves the December 1, 2006 version of 3745-31-05, then the emission limits and other requirements listed above in b)(1)a. no longer apply. See next section, b)(2)c.

c. This rule only applies once U.S. EPA approves the December 1, 2006 version of OAC rule 3745-31-05 as part of the State Implementation Plan. In that case only, the following Terms and Conditions will apply:

i. The Best Available Technology (BAT) requirements under OAC rule 3745-31-05(A)(3) do not apply to the PE/PM³ emissions from any of the emissions units in the group consisting of P001 – P005 since the calculated annual emission rate for PE/PM³ is less than 10 tons per year taking into account the applicable air pollution control equipment.

Note 3.

As explained in Note 2 above, all PE/PM for this emissions units group is assumed to be PE/PM₁₀, so paragraph (A)(3)(b) of OAC rule 3745-31-05, as effective 12/1/2006 (< 10 ton/yr BAT exemption for NAAQS air contaminants plus precursors), can be applied to total PE/PM as if it were the NAAQS air contaminant PE/PM₁₀.

ii. The control measures listed above in b)(2)a. still apply, not as BAT requirements, but rather as voluntary measures identified and accepted by the permittee as part of the physical and operational design of the plant based upon the normal industry practice.

iii. The following requirements also still apply, not as BAT requirements, but rather as voluntary measures identified and accepted by the permittee as part of the physical and operational design of the plant based upon the normal industry practice: Fabric filters (baghouses) serving any of the emissions units P001 – P005 shall be rated by the manufacturer as capable of achieving an outlet emission rate (outlet grain loading concentration) of not greater than 0.01 grains of PE/PM₁₀ per dry standard cubic foot of exhaust gases. However, if this paragraph is in effect (because the < 10 ton/yr BAT exemption is in effect), performance testing of the outlet grain loading shall not be required to determine compliance. Rather, the following alternative requirement shall be in effect: there shall be no visible particulate emissions from the outlets of the baghouses.

iv. The allowable emission limitation specified in pounds of particulate matter per hour by OAC rule 3745-17-11 for each of the emissions units in the group consisting of P001 – P005 is less stringent than the maximum hourly potential-to-emit for each emissions unit taking into account the applicable air pollution control equipment and the voluntary restriction listed in term b)(2)c.iii. above.



c) Operational Restrictions

- (1) None.

d) Monitoring and/or Recordkeeping Requirements

- (1) The permittee shall maintain annual records of the total tons of product produced at this dry bulk cement blending facility.
- (2) The permittee shall perform daily checks, when any of the emissions units in the group consisting of P001 – P005 are in operation, and when the weather conditions allow, for any visible particulate emissions from the exhaust stack(s) of the baghouse(s) serving the relevant emissions unit(s). The presence or absence of any visible particulate emissions shall be recorded electronically or in an operations log. If visible particulate emissions are observed, the permittee shall also note the following in the operations log:
 - a. the total duration of any visible emissions incident; and
 - b. any corrective actions taken to eliminate the visible emissions.

The information above shall be kept separately for each baghouse serving this emissions unit group.

- (3) The permittee may, upon receipt of written approval from the Canton City Health Department, Air Pollution Control Division, modify the above-mentioned frequencies for performing the visible emissions checks if operating experience indicates that less frequent visible emissions checks would be sufficient to ensure compliance with the above-mentioned applicable requirements.
- (4) The permittee shall properly install, operate and maintain equipment to monitor the pressure drop, in inches of water, across each baghouse serving any of the emissions units in the group consisting of P001 – P005 while any of the emissions units in the group are in operation, including periods of startup and shutdown. The monitoring equipment shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manual(s), with any modifications deemed necessary by the permittee.

The permittee shall record the pressure drop across each baghouse on a daily basis based on operational status as described above. The acceptable pressure drop shall be based upon the manufacturer's specifications of 1 to 8 inches of water until such time as any required performance testing is conducted and the appropriate range is established to demonstrate compliance with the allowable particulate emission rate for the controlled emissions unit(s).

Whenever the monitored value for the pressure drop deviates from the range established in accordance with this permit, the permittee shall promptly investigate the cause of the deviation. The permittee shall maintain records of the following information for each investigation:



- a. the date and time the deviation began;
- b. the magnitude of the deviation at that time;
- c. the date the investigation was conducted;
- d. the name(s) of the personnel who conducted the investigation; and
- e. the findings and recommendations.

In response to each required investigation to determine the cause of a deviation, the permittee shall take prompt corrective action to bring the operation of the control equipment within the acceptable range established in accordance with this permit, unless the permittee determines that corrective action is not necessary and documents the reasons for that determination and the date and time the deviation ended. The permittee shall maintain records of the following information for each corrective action taken:

- f. a description of the corrective action;
- g. the date corrective action was completed;
- h. the date and time the deviation ended;
- i. the total period of time (in minutes) during which there was a deviation;
- j. the pressure drop readings immediately after the corrective action was implemented; and
- k. the name(s) of the personnel who performed the work.

Investigation and records required by this paragraph do not eliminate the need to comply with the requirements of OAC rule 3745-15-06 if it is determined that a malfunction has occurred (see A.10. above under Standard Terms and Conditions).

The acceptable pressure drop across each baghouse established in accordance with this permit is effective for the duration of this permit, unless revisions are requested by the permittee and approved in writing by the Canton City Health Department, Air Pollution Control Division. The permittee may request revisions to the permitted range for the pressure drop based upon information obtained during future testing that demonstrates compliance with the allowable particulate emission rate for the controlled emissions unit(s). In addition, approved revisions to the range or limit will not constitute a relaxation of the monitoring requirements of this permit and may be incorporated into this permit by means of an administrative modification.

e) Reporting Requirements

- (1) The permittee shall submit an annual Permit Evaluation Report (PER) by the due date identified in the Authorization section of this permit, either through the Ohio EPA's eBusiness Center: Air Services online web portal, or in hard copy form to the Canton City Health Department, Air Pollution Control Division via the U.S. postal service or by



hand-delivery. Annual PER forms will be mailed to the permittee at the end of the reporting period specified in the Authorization section of this permit. The permit evaluation report shall cover a reporting period of no more than twelve-months for each air contaminant source identified in this permit. The permittee shall also identify the following information in the annual permit evaluation report in accordance with the monitoring requirements in term numbers d)(2) and d)(4) above:

- a. all days during which any visible particulate emissions were observed from the exhaust stack(s) of the baghouse(s) serving any of the emissions units in the group consisting of P001 – P005. The relevant emission unit(s) and baghouse(s) shall also be identified;
- b. any corrective actions taken to eliminate the visible particulate emissions;
- c. each period of time (start time and date, and end time and date) when the pressure drop across the baghouse(s) serving any of the emissions units in the group consisting of P001 – P005 was outside of the range established as described in d)(4) above. The relevant emission unit(s) and baghouse(s) shall also be identified.
- d. any period of time (start time and date, and end time and date) when an emissions unit was in operation and the process emissions were not vented to the associated baghouse(s).
- e. each incident of deviation described in c. where a prompt investigation was not conducted;
- f. each incident of deviation described in c. where prompt corrective action that would bring the pressure drop into compliance with the acceptable range, was determined to be necessary and was not taken; and
- g. each incident of deviation described in c. where proper records were not maintained for the investigation and/or the corrective action(s), as identified in the monitoring and record keeping requirements of this permit.

f) Testing Requirements

(1) Compliance with the Emissions Limitations and/or Control Requirements specified in section b) of these terms and conditions shall be determined in accordance with the following methods:

a. Emission Limitations:

If term b)(1)a. above is applicable (BAT limitation), the following limitations apply:

0.43 lb/hr and 1.88 tons per year of filterable particulate emissions (PE/PM) for emissions units P001, P002, P003, P004 and P005 combined.



Applicable Compliance Method:

The hourly emissions limitation was established by calculating the maximum potential-to-emit (PTE), with controls, for the material transfer processes associated with each emissions unit in the group P001 – P005, then summing the results.

In the permit application, the permittee calculated controlled emissions for PE/PM₁₀ based on the fabric filter (baghouse) manufacturer's guarantee of an outlet grain loading concentration of not greater than 0.01 grains of PM₁₀ per dry standard cubic foot of exhaust gases, then multiplying by the maximum exhaust flow rate for each of eight baghouses (DC1 – DC8).

Because the specific fabric filter control devices used for this emissions units group are designed to capture all particulate matter larger than 10 microns in diameter, all particulate emissions (PE/PM) from this emissions units group are assumed to be particulate matter equal-to or less than 10 microns in diameter; i.e., PE/PM₁₀. Also, due to the dry nature of the materials being transferred, the assumption is made that all particulate emissions in the subject emissions unit group are filterable particulate emissions.

Calculations are shown below, grouped by pairs of baghouses (which can operate in parallel because of the dual plant configuration) and the emission unit(s) associated with each baghouse:

Baghouses DC4 & DC8: P001 (Storage tanks loading), P002 (Reclaim tanks loading) and P005 (Transport truck loading) are all served by baghouses DC4 & DC8, but by design, only *one* transfer operation associated with P001, P002 or P005 can operate at the same time on the same side of the dual configuration system, i.e., one transfer at a time per baghouse. The maximum exhaust flow rate for these baghouses is 40 dscf/min each.

$$(0.01 \text{ gr/dscf}) \times (40 \text{ dscf/min}) \times (60 \text{ min/hr}) \times (1.0 \text{ lb/7000 gr}) \times (1 \text{ transfer}) = 0.0034 \text{ lb}_{\text{PM}_{10}}/\text{hr} \text{ for DC4 \& DC8 each}$$

Baghouses DC3 & DC7: P003 (Scale tanks loading) consists of two identical scale tanks that can operate simultaneously based upon the dual plant configuration. The scale tanks are served by this pair of baghouses; specifically, DC3 serves TK13, and DC7 serves TK21. The maximum exhaust flow rate is 825 dscf/min each.

$$(0.01 \text{ gr/dscf}) \times (825 \text{ dscf/min}) \times (60 \text{ min/hr}) \times (1.0 \text{ lb/7000 gr}) = 0.071 \text{ lb}_{\text{PM}_{10}}/\text{hr} \text{ for DC3 \& DC7 each}$$

Baghouses DC2 & DC6: P004 (Blend tanks loading & blending) consists of two identical batch blend systems that can operate simultaneously based upon the dual plant configuration. Each of the two systems has two blend tanks in series. Baghouses DC2 & DC6 serve the first-stage blend tanks; specifically, DC2 serves TK11, and DC6 serves TK19. The maximum exhaust flow rate for these baghouses is 825 dscf/min each.



$$(0.01 \text{ gr/dscf}) \times (825 \text{ dscf/min}) \times (60 \text{ min/hr}) \times (1.0 \text{ lb/7000 gr}) = 0.071 \text{ lb}_{\text{PM}_{10}}/\text{hr} \text{ for DC2 \& DC6 each}$$

Baghouses DC1 & DC5: Baghouses DC1 & DC5 serve the second-stage blend tanks portion of P004; specifically, DC1 serves TK9, and DC5 serves TK17. The maximum exhaust flow rate for these baghouses is 825 dscf/min each.

$$(0.01 \text{ gr/dscf}) \times (825 \text{ dscf/min}) \times (60 \text{ min/hr}) \times (1.0 \text{ lb/7000 gr}) = 0.071 \text{ lb}_{\text{PM}_{10}}/\text{hr} \text{ for DC1 \& DC5 each}$$

Summing the maximum potential PM₁₀ emissions for baghouses DC1 – DC8:

$$(2 \times 0.0034)_{\text{DC4 \& DC8}} + (6 \times 0.071)_{\text{DC1, DC2, DC3, DC5, DC6 \& DC7}} = 0.433 \approx 0.43 \text{ lb}_{\text{PM}_{10}}/\text{hr}$$

As described above, all particulate emissions from this emissions units group are assumed to be particulate matter equal-to or less than 10 microns in diameter, so the maximum potential PE/PM₁₀ value calculated above was used to establish the emissions limitation for total PM, i.e., PE/PM.

If required, compliance with the hourly PE/PM emissions limitation for emissions units P001, P002, P003, P004 and P005 combined shall be demonstrated by emissions testing performed according to Method 5 in Appendix A of 40 CFR Part 60 and the procedures specified in OAC rule 3745-17-03(B)(10). Since all particulate emissions from this emissions units group are assumed to be filterable, only the filterable (front half) results from Method 5 shall be required to demonstrate compliance.

The emissions testing shall be conducted on the exhaust stack of each of the eight baghouses DC1 – DC8 while the transfer process served by each baghouse is operating at or near maximum capacity, then summing the results.

For baghouses DC4 & DC8, which serve P001 (Storage tanks loading), P002 (Reclaim tanks loading) and P005 (Transport truck loading), only *one* transfer operation on the same side of the dual configuration system must be operating at or near maximum capacity during testing.

The annual emissions limitation for PE/PM was developed by multiplying the hourly limitation by 8760 hr/yr, then dividing by 2000 lb/ton:

$$(0.43 \text{ lb}_{\text{PM}}/\text{hr}) \times (8760 \text{ hr/yr}) \div (2000 \text{ lb/ton}) = 1.88 \text{ ton}_{\text{PM}}/\text{yr}$$

If required, compliance with the annual emissions limitation shall be assumed based on a demonstration of compliance with the hourly limitation.

b. Emission Limitation:

If term b)(1)a. above is applicable (BAT limitation), the following limitation options apply:



Option 1: Each fabric filter (baghouse) shall achieve an outlet emission rate of not greater than 0.01 grains of PE/PM₁₀ per dry standard cubic foot of exhaust gases; or

Option 2: there shall be no visible emissions from the outlets of the fabric filters (baghouses).

If term b)(1)b. above (< 10 ton/yr BAT exemption) is applicable, then Option 1 or Option 2 above applies, but only Option 2 has a compliance method that applies below (see term b)(2)c.iii.).

Applicable Compliance Method:

If required, compliance with either Option 1 or Option 2 above shall be demonstrated by emissions testing conducted on the exhaust stack of each of the eight baghouses DC1 – DC8 while the transfer process served by each baghouse is operating at or near maximum capacity, then summing the results.

For baghouses DC4 & DC8, which serve P001 (Storage tanks loading), P002 (Reclaim tanks loading) and P005 (Transport truck loading), only *one* transfer operation on the same side of the dual configuration system must be operating at or near maximum capacity during testing.

For Option 1 (0.01 grains of PE/PM₁₀ emissions per dry standard cubic foot of exhaust gases), emissions testing for PE/PM₁₀ (again, if required) shall be performed according to Method 5 in Appendix A of 40 CFR Part 60 and the procedures specified in OAC rule 3745-17-03(B)(10) based on the assumption that all particulate emissions from this emissions units group are particulate matter equal-to or less than 10 microns in diameter; i.e., PE/PM₁₀ = PE/PM. Further, since all particulate emissions from this emissions units group are assumed to be filterable, only the filterable (front half) results from Method 5 shall be required to demonstrate compliance.

For Option 2 (no visible emissions from the outlets of the baghouses), visible emissions testing (again, if required) shall be performed according to Method 22 in Appendix A of 40 CFR Part 60.

c. Emission Limitations – for informational purposes only:

The following limitations would apply pursuant to OAC rule 3745-17-11 based upon uncontrolled potential-to-emit if the BAT limitations under b)(1)a. above no longer apply *and* if the fabric filters (baghouses) were to be installed primarily as control equipment rather than as part of the physical and operational design of the plant⁴:

P001 (Storage tanks loading): 9.23 lb_{PM}/hr

P002 (Reclaim tanks loading): 9.23 lb_{PM}/hr

P003 (Scale tanks loading): 9.23 lb_{PM}/hr



P004 (Blend tanks loading & blending): 50.0 lb_{PM}/hr

P005 (Transport truck loading): 9.23 lb_{PM}/hr

Applicable Compliance Method:

The above emissions limitations were established from Figure II, curve P-1 in the Appendix to OAC rule 3745-17-11 based upon the uncontrolled potential-to-emit in lb_{PM}/hr provided by the permittee in the permit application (explained below).

For each of the emissions units P001, P002, P003 and P005, the maximum material transfer rate was given as 50 tons/hr per transfer operation. The dual plant configuration, i.e., two separate, parallel systems, allows for two simultaneous transfer operations to occur for each emissions unit. The same emission factor applies to each transfer operation: 0.73 lb_{PM} per ton of material transferred (ref AP-42, Table 11.12-2, pneumatic transfer of dry cement). So the calculated uncontrolled mass rate of emissions (U) was the same for emissions units P001, P002, P003 and P005 each:

$$U = (50 \text{ tons/hr}) \times (0.73 \text{ lb}_{PM}/\text{ton}) \times (2 \text{ separate systems}) = 73.0 \text{ lb}_{PM}/\text{hr}$$

The formula for allowable, i.e., controlled emissions rate (A) from the applicable portion of curve P-1 on Figure II was used as follows (curve P-1 applies because the facility is located in Stark County, pursuant to paragraph (B)(1) of OAC rule 3745-17-11):

$$A = (0.5782)(U)^{0.6456} \text{ where both } U \text{ and } A \text{ are in units of } \text{lb}_{PM}/\text{hr}$$
$$= (0.5782)(73.0 \text{ lb}_{PM}/\text{hr})^{0.6456} = 9.23 \text{ lb}_{PM}/\text{hr}$$

for P001, P002, P003 and P005 each

For P004 (Blend tanks loading & blending), the internal pneumatic pumps inside the blend tanks are rated at 270 tons/hr, so this number was used as the effective throughput rate for the blending itself, which was counted as one “transfer” in the calculation below. 270 tons/hr was also used conservatively as the rate per transfer for each of the two actual transfers involved in the blend tanks process identified as P004. The two transfers are: scale tank to first blend tank, then first blend tank to second blend tank. The dust collectors on the blend tanks are sized to accommodate the higher 270 tons/hr. The emission factor used was the same as above: 0.73 lb_{PM} per ton of material transferred. So the uncontrolled mass rate of emissions (U) for P004 was calculated as follows:

$$U = (270 \text{ tons/hr}) \times (3 \text{ transfers}) \times (0.73 \text{ lb}_{PM}/\text{ton}) \times (2 \text{ separate systems})$$
$$= 1182.6 \text{ lb}_{PM}/\text{hr}$$

For an uncontrolled emissions rate of 1182.6 lb_{PM}/hr, the allowable, i.e., controlled emissions rate (A) from the applicable portion of curve P-1 on Figure II is 50 lb_{PM}/hr. (The formula for this region of curve P-1 is simply $A = 50 \text{ lb}_{PM}/\text{hr}$ because the curve is horizontal in this region.)



Note 4.

The allowable emission limits calculated above pursuant to OAC rule 3745-17-11 do not apply because they are less than the potential-to-emit for each respective emissions unit taking into account the baghouse controls and the voluntary restriction listed in term b)(2)c.iii. above. The permittee has made a convincing argument that the use of baghouses is part of the physical and operational design of the plant and the normal industry practice. The baghouses are an integral part of the pneumatic material transfer system, and operation without them would result in the loss of an enormous amount of product. Although the permittee does not intend to reuse the material captured by the baghouses at this facility due to the impermissible mixing of multiple materials and/or contamination, the material can potentially be used elsewhere. But regardless, even if the most economical practice is disposal of the captured material, the baghouses are still considered to be an inherent part of the manufacturing process.

- g) Miscellaneous Requirements
 - (1) None.