



John R. Kasich, Governor
 Mary Taylor, Lt. Governor
 Craig W. Butler, Director

3/8/2016

Certified Mail

Mr. Michael Shuler, Jr.
 Research Organics LLC dba SAFC Cleveland
 4353 East 49th Street
 Cleveland, OH 44125

RE: FINALAIR POLLUTION PERMIT-TO-INSTALL
 Facility ID: 1318172081
 Permit Number: P0120394
 Permit Type: Administrative Modification
 County: Cuyahoga

No	TOXIC REVIEW
No	PSD
No	SYNTHETIC MINOR TO AVOID MAJOR NSR
No	CEMS
Yes	MACT/GACT
Yes	NSPS
No	NESHAPS
No	NETTING
No	MAJOR NON-ATTAINMENT
No	MODELING SUBMITTED
No	MAJOR GHG
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 (PTI) which will allow you to install or modify the described emissions unit(s) in a manner indicated in the permit. Because this permit contains several conditions and restrictions, we urge you to read it carefully. 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**
- **What should you do if you notice a spill or environmental emergency?**

How to appeal this permit

The issuance of this PTI 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/survey.aspx and give us feedback on your permitting experience. We value your opinion.

How to get an electronic copy of your permit

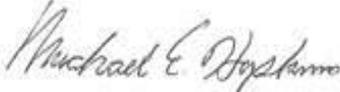
This permit can be accessed electronically via the eBusiness Center: Air Services in Microsoft Word format or in Adobe PDF on the Division of Air Pollution Control (DAPC) Web page, www.epa.ohio.gov/dapc by clicking the "Search for Permits" link under the Permitting topic on the Programs tab.

What should you do if you notice a spill or environmental emergency?

Any spill or environmental emergency which may endanger human health or the environment should be reported to the Emergency Response 24-HOUR EMERGENCY SPILL HOTLINE toll-free at (800) 282-9378. Report non-emergency complaints to the appropriate district office or local air agency.

If you have any questions regarding your permit, please contact Cleveland Division of Air Quality at (216)664-2297 or the Office of Compliance Assistance and Pollution Prevention at (614) 644-3469.

Sincerely,



Michael E. Hopkins, P.E.
Assistant Chief, Permitting Section, DAPC

Cc: U.S. EPA
CDAQ; Pennsylvania; Canada



FINAL

**Division of Air Pollution Control
Permit-to-Install
for
Research Organics LLC dba SAFC Cleveland**

Facility ID:	1318172081
Permit Number:	P0120394
Permit Type:	Administrative Modification
Issued:	3/8/2016
Effective:	3/8/2016



Division of Air Pollution Control
Permit-to-Install
for
Research Organics LLC dba SAFC Cleveland

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Final Permit-to-Install
Research Organics LLC dba SAFC Cleveland
Permit Number: P0120394
Facility ID: 1318172081
Effective Date: 3/8/2016

Authorization

Facility ID: 1318172081
Facility Description: Biochemical Product Manufacturing
Application Number(s): M0003848, M0003849
Permit Number: P0120394
Permit Description: Agency-initiated PTI administrative modification to address errors found in the permit as the result of a recent facility inspection (P033 has been added to the list of reactors found in the Emissions Units Section due to the fact it was erroneously left off the last modification; PE limits located in the facility-wide section were adjusted to address a rounding error and the facility-wide VOC emission limitation was updated to reflect the value in the table in b)(2j)).
Permit Type: Administrative Modification
Permit Fee: \$0.00
Issue Date: 3/8/2016
Effective Date: 3/8/2016

This document constitutes issuance to:

Research Organics LLC dba SAFC Cleveland
4353 East 49th Street
Cuyahoga Heights, OH 44125

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

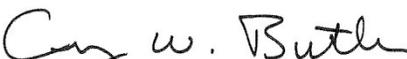
Ohio Environmental Protection Agency (EPA) District Office or local air agency responsible for processing and administering your permit:

Cleveland Division of Air Quality
2nd Floor
75 Erieview Plaza
Cleveland, OH 44114
(216)664-2297

The above named entity is hereby granted a Permit-to-Install for the 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 emissions unit(s) of environmental pollutants will operate in compliance with applicable State and Federal laws and regulations, and does not constitute expressed or implied assurance that if constructed or modified in accordance with those plans and specifications, the above described emissions unit(s) of pollutants will be granted the necessary permits to operate (air) or NPDES permits as applicable.

This permit is granted subject to the conditions attached hereto.

Ohio Environmental Protection Agency


Craig W. Butler
Director



Authorization (continued)

Permit Number: P0120394

Permit Description: Agency-initiated PTI administrative modification to address errors found in the permit as the result of a recent facility inspection (P033 has been added to the list of reactors found in the Emissions Units Section due to the fact it was erroneously left off the last modification; PE limits located in the facility-wide section were adjusted to address a rounding error and the facility-wide VOC emission limitation was updated to reflect the value in the table in b)(2j)).

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

Emissions Unit ID: P020
 Company Equipment ID: SMALL PRODUCTION
 Superseded Permit Number: P0118033
 General Permit Category and Type: Not Applicable

Emissions Unit ID: P044
 Company Equipment ID: Transfer rack
 Superseded Permit Number: P0118033
 General Permit Category and Type: Not Applicable

Group Name: Reactor Process Lines

Emissions Unit ID:	P006
Company Equipment ID:	REACTOR NO. 12 SYSTEM
Superseded Permit Number:	P0118033
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	P007
Company Equipment ID:	REACTOR NO. 13 SYSTEM
Superseded Permit Number:	P0118033
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	P011
Company Equipment ID:	REACTOR NO. 4 SYSTEM
Superseded Permit Number:	P0118033
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	P012
Company Equipment ID:	REACTOR NO.5 SYSTEM
Superseded Permit Number:	P0118033
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	P013
Company Equipment ID:	REACTOR NO. 8 SYSTEM
Superseded Permit Number:	P0118033
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	P014
Company Equipment ID:	REACTOR NO. 9 SYSTEM
Superseded Permit Number:	P0118033
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	P027
Company Equipment ID:	ADA REACTOR
Superseded Permit Number:	P0118033
General Permit Category and Type:	Not Applicable



Emissions Unit ID:	P028
Company Equipment ID:	REACTOR NO. 14 SYSTEM
Superseded Permit Number:	P0118033
General Permit Category andType:	Not Applicable
Emissions Unit ID:	P029
Company Equipment ID:	REACTOR NO. 15 SYSTEM
Superseded Permit Number:	P0118033
General Permit Category andType:	Not Applicable
Emissions Unit ID:	P030
Company Equipment ID:	REACTOR NO. 16 SYSTEM
Superseded Permit Number:	P0118033
General Permit Category andType:	Not Applicable
Emissions Unit ID:	P033
Company Equipment ID:	REACTOR NO. 19 SYSTEM
Superseded Permit Number:	P0117557
General Permit Category andType:	Not Applicable
Emissions Unit ID:	P040
Company Equipment ID:	BIS TRIS Process
Superseded Permit Number:	P0118033
General Permit Category andType:	Not Applicable
Emissions Unit ID:	P048
Company Equipment ID:	REACTOR NO. 23 SYSTEM
Superseded Permit Number:	P0118033
General Permit Category andType:	Not Applicable
Emissions Unit ID:	P055
Company Equipment ID:	RE-24
Superseded Permit Number:	P0118033
General Permit Category andType:	Not Applicable

Group Name: Tumblers

Emissions Unit ID:	P016
Company Equipment ID:	TUMBLER NO.2
Superseded Permit Number:	P0118033
General Permit Category andType:	Not Applicable
Emissions Unit ID:	P019
Company Equipment ID:	TUMBLER NO.4
Superseded Permit Number:	P0118033
General Permit Category andType:	Not Applicable
Emissions Unit ID:	P024
Company Equipment ID:	TUMBLER NO. 6
Superseded Permit Number:	P0118033
General Permit Category andType:	Not Applicable
Emissions Unit ID:	P039
Company Equipment ID:	TUMBLER NO. 9
Superseded Permit Number:	P0118033
General Permit Category andType:	Not Applicable
Emissions Unit ID:	P050
Company Equipment ID:	TUMBLER 8
Superseded Permit Number:	P0118033
General Permit Category andType:	Not Applicable



Final Permit-to-Install
Research Organics LLC dba SAFC Cleveland
Permit Number: P0120394
Facility ID: 1318172081
Effective Date:3/8/2016

A. Standard Terms and Conditions

1. Federally Enforceable Standard Terms and Conditions

- a) All Standard Terms and Conditions are federally enforceable, with the exception of those listed below which are enforceable under State law only:
 - (1) Standard Term and Condition A.2.a), Severability Clause
 - (2) Standard Term and Condition A.3.c) through A. 3.e)General Requirements
 - (3) Standard Term and Condition A.6.c) and A. 6.d), Compliance Requirements
 - (4) Standard Term and Condition A.9., Reporting Requirements
 - (5) Standard Term and Condition A.10., Applicability
 - (6) Standard Term and Condition A.11.b) through A.11.e), Construction of New Source(s) and Authorization to Install
 - (7) Standard Term and Condition A.14., Public Disclosure
 - (8) Standard Term and Condition A.15., Additional Reporting Requirements When There Are No Deviations of Federally Enforceable Emission Limitations, Operational Restrictions, or Control Device Operating Parameter Limitations
 - (9) Standard Term and Condition A.16., Fees
 - (10) Standard Term and Condition A.17., Permit Transfers

2. Severability Clause

- a) A determination that any term or condition of this permit is invalid shall not invalidate the force or effect of any other term or condition thereof, except to the extent that any other term or condition depends in whole or in part for its operation or implementation upon the term or condition declared invalid.
- b) All terms and conditions designated in parts B and C of this permit are federally enforceable as a practical matter, if they are required under the Act, or any of its applicable requirements, including relevant provisions designed to limit the potential to emit of a source, are enforceable by the Administrator of the U.S. EPA and the State and by citizens (to the extent allowed by section 304 of the Act) under the Act. Terms and conditions in parts B and C of this permit shall not be federally enforceable and shall be enforceable under State law only, only if specifically identified in this permit as such.

3. General Requirements

- a) Any noncompliance with the federally enforceable terms and conditions of this permit constitutes a violation of the Act, and is grounds for enforcement action or for permit revocation, revocation and re-issuance, or modification.
- b) 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 federally enforceable terms and conditions of this permit.

- c) This permit may be modified, revoked, or revoked and reissued, for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or revocation, or of a notification of planned changes or anticipated noncompliance does not stay any term and condition of this permit.
- d) This permit does not convey any property rights of any sort, or any exclusive privilege.
- e) The permittee shall furnish to the Director of the Ohio EPA, or an authorized representative of the Director, upon receipt of a written request and within a reasonable time, any information that may be requested to determine whether cause exists for modifying or revoking this permit or to determine compliance with this permit. Upon request, the permittee shall also furnish to the Director or an authorized representative of the Director, copies of records required to be kept by this permit. For information claimed to be confidential in the submittal to the Director, if the Administrator of the U.S. EPA requests such information, the permittee may furnish such records directly to the Administrator along with a claim of confidentiality.

4. Monitoring and Related Record Keeping and Reporting Requirements

- a) Except as may otherwise be provided in the terms and conditions for a specific emissions unit, the permittee shall maintain records that include the following, where applicable, for any required monitoring under this permit:
 - (1) The date, place (as defined in the permit), and time of sampling or measurements.
 - (2) The date(s) analyses were performed.
 - (3) The company or entity that performed the analyses.
 - (4) The analytical techniques or methods used.
 - (5) The results of such analyses.
 - (6) The operating conditions existing at the time of sampling or measurement.
- b) Each record of any monitoring data, testing data, and support information required pursuant to this permit shall be retained for a period of five years from the date the record was created. Support information shall include, but not be limited to all calibration and maintenance records and all original strip-chart recordings for continuous monitoring instrumentation, and copies of all reports required by this permit. Such records may be maintained in computerized form.
- c) Except as may otherwise be provided in the terms and conditions for a specific emissions unit, the permittee shall submit required reports in the following manner:
 - (1) Reports of any required monitoring and/or recordkeeping of federally enforceable information shall be submitted to the Cleveland Division of Air Quality.

- (2) Quarterly written reports of (i) any deviations from federally enforceable emission limitations, operational restrictions, and control device operating parameter limitations, excluding deviations resulting from malfunctions reported in accordance with OAC rule 3745-15-06, that have been detected by the testing, monitoring and recordkeeping requirements specified in this permit, (ii) the probable cause of such deviations, and (iii) any corrective actions or preventive measures taken, shall be made to the Cleveland Division of Air Quality. The written reports shall be submitted (i.e., postmarked) quarterly, by January 31, April 30, July 31, and October 31 of each year and shall cover the previous calendar quarters. See A.15. below if no deviations occurred during the quarter.
 - (3) Written reports, which identify any deviations from the federally enforceable monitoring, recordkeeping, and reporting requirements contained in this permit shall be submitted to the Cleveland Division of Air Quality every six months, by January 31 and July 31 of each year for the previous six calendar months. If no deviations occurred during a six-month period, the permittee shall submit a semi-annual report, which states that no deviations occurred during that period.
 - (4) This permit is for an emissions unit located at a Title V facility. Each written report shall be signed by a responsible official certifying that, based on information and belief formed after reasonable inquiry, the statements and information in the report are true, accurate, and complete.
- d) The permittee shall report actual emissions pursuant to OAC Chapter 3745-78 for the purpose of collecting Air Pollution Control Fees.

5. Scheduled Maintenance/Malfunction Reporting

Any scheduled maintenance of air pollution control equipment shall be performed in accordance with paragraph (A) of OAC rule 3745-15-06. The malfunction, i.e., upset, of any emissions units or any associated air pollution control system(s) shall be reported to the Cleveland Division of Air Quality in accordance with paragraph (B) of OAC rule 3745-15-06. (The definition of an upset condition shall be the same as that used in OAC rule 3745-15-06(B)(1) for a malfunction.) The verbal and written reports shall be submitted pursuant to OAC rule 3745-15-06.

Except as provided in that rule, any scheduled maintenance or malfunction necessitating the shutdown or bypassing of any air pollution control system(s) shall be accompanied by the shutdown of the emission unit(s) that is (are) served by such control system(s).

6. Compliance Requirements

- a) All applications, notifications or reports required by terms and conditions in this permit to be submitted or "reported in writing" are to be submitted to Ohio EPA through the Ohio EPA's eBusiness Center: Air Services web service ("Air Services"). Ohio EPA will accept hard copy submittals on an as-needed basis if the permittee cannot submit the required documents through the Ohio EPA eBusiness Center. In the event of an alternative hard copy submission in lieu of the eBusiness Center, the post-marked date or the date the document is delivered in person will be recognized as the date submitted. Electronic submission of applications, notifications or reports required to be submitted to Ohio EPA fulfills the requirement to submit the required information to the Director, the appropriate Ohio EPA District Office or contracted

local air agency, and/or any other individual or organization specifically identified as an additional recipient identified in this permit unless otherwise specified. Consistent with OAC rule 3745-15-03, the electronic signature date shall constitute the date that the required application, notification or report is considered to be "submitted". Any document requiring signature may be represented by entry of the personal identification number (PIN) by responsible official as part of the electronic submission process or by the scanned attestation document signed by the Authorized Representative that is attached to the electronically submitted written report.

Any document (including reports) required to be submitted and required by a federally applicable requirement in this permit shall include a certification by a Responsible Official that, based on information and belief formed after reasonable inquiry, the statements in the document are true, accurate, and complete.

- b) Upon presentation of credentials and other documents as may be required by law, the permittee shall allow the Director of the Ohio EPA or an authorized representative of the Director to:
- (1) At reasonable times, enter upon the permittee's premises where a source is located or the emissions-related activity is conducted, or where records must be kept under the conditions of this permit.
 - (2) Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit, subject to the protection from disclosure to the public of confidential information consistent with ORC section 3704.08.
 - (3) Inspect at reasonable times any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under this permit.
 - (4) As authorized by the Act, sample or monitor at reasonable times substances or parameters for the purpose of assuring compliance with the permit and applicable requirements.
- c) The permittee shall submit progress reports to the Cleveland Division of Air Quality concerning any schedule of compliance for meeting an applicable requirement. Progress reports shall be submitted semiannually or more frequently if specified in the applicable requirement or by the Director of the Ohio EPA. Progress reports shall contain the following:
- (1) Dates for achieving the activities, milestones, or compliance required in any schedule of compliance, and dates when such activities, milestones, or compliance were achieved.
 - (2) An explanation of why any dates in any schedule of compliance were not or will not be met, and any preventive or corrective measures adopted.

7. Best Available Technology

As specified in OAC Rule 3745-31-05, new sources that must employ Best Available Technology (BAT) shall comply with the Applicable Emission Limitations/Control Measures identified as BAT for each subject emissions unit.

8. Air Pollution Nuisance

The air contaminants emitted by the emissions units covered by this permit shall not cause a public nuisance, in violation of OAC rule 3745-15-07.

9. Reporting Requirements

The permittee shall submit required reports in the following manner:

- a) Reports of any required monitoring and/or recordkeeping of state-only enforceable information shall be submitted to the Cleveland Division of Air Quality.
- b) Except as otherwise may be provided in the terms and conditions for a specific emissions unit, quarterly written reports of (a) any deviations (excursions) from state-only required emission limitations, operational restrictions, and control device operating parameter limitations that have been detected by the testing, monitoring, and recordkeeping requirements specified in this permit, (b) the probable cause of such deviations, and (c) any corrective actions or preventive measures which have been or will be taken, shall be submitted to the Cleveland Division of Air Quality. If no deviations occurred during a calendar quarter, the permittee shall submit a quarterly report, which states that no deviations occurred during that quarter. The reports shall be submitted quarterly, by January 31, April 30, July 31, and October 31 of each year and shall cover the previous calendar quarters. (These quarterly reports shall exclude deviations resulting from malfunctions reported in accordance with OAC rule 3745-15-06.)

10. Applicability

This Permit-to-Install is applicable only to the emissions unit(s) identified in the Permit-to-Install. Separate application must be made to the Director for the installation or modification of any other emissions unit(s) not exempt from the requirement to obtain a Permit-to-Install.

11. Construction of New Sources(s) and Authorization to Install

- a) This permit does not constitute an assurance that the proposed source will operate in compliance with all Ohio laws and regulations. This permit does not constitute expressed or implied assurance that the proposed facility has been constructed in accordance with the application and terms and conditions of this permit. The action of beginning and/or completing construction prior to obtaining the Director's approval constitutes a violation of OAC rule 3745-31-02. Furthermore, issuance of this permit does not constitute an assurance that the proposed source will operate in compliance with all Ohio laws and regulations. Issuance of this permit is not to be construed as a waiver of any rights that the Ohio Environmental Protection Agency (or other persons) may have against the applicant for starting construction prior to the effective date of the permit. Additional facilities shall be installed upon orders of the Ohio Environmental Protection Agency if the proposed facilities cannot meet the requirements of this permit or cannot meet applicable standards.
- b) If applicable, authorization to install any new emissions unit included in this permit shall terminate within eighteen months of the effective date of the permit if the owner or operator has not undertaken a continuing program of installation or has not entered into a binding contractual obligation to undertake and complete within a reasonable time a continuing program of installation. This deadline may be extended by up to 12 months if application is made to the

Director within a reasonable time before the termination date and the permittee shows good cause for any such extension.

- c) The permittee may notify Ohio EPA of any emissions unit that is permanently shut down (i.e., 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) by submitting a certification from the authorized official that identifies the date on which the emissions unit was permanently shut down. Authorization to operate the affected emissions unit shall cease upon the date certified by the authorized official that the emissions unit was permanently shut down. At a minimum, notification of permanent shut down shall be made or confirmed by marking the affected emissions unit(s) as "permanently shut down" in "Air Services" along with the date the emissions unit(s) was permanently removed and/or disabled. Submitting the facility profile update electronically will constitute notifying the Director of the permanent shutdown of the affected emissions unit(s).
- d) The provisions of this permit shall cease to be enforceable for each affected emissions unit after the date on which an emissions unit is permanently shut down (i.e., 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). All records relating to any permanently shutdown emissions unit, generated while the emissions unit was in operation, must be maintained in accordance with law. All reports required by this permit must be submitted for any period an affected emissions unit operated prior to permanent shut down. At a minimum, the permit requirements must be evaluated as part of the reporting requirements identified in this permit covering the last period the emissions unit operated.

Unless otherwise exempted, no emissions unit certified by the responsible official as being permanently shut down may resume operation without first applying for and obtaining a permit pursuant to OAC Chapter 3745-31 and OAC Chapter 3745-77 if the restarted operation is subject to one or more applicable requirements.

- e) The permittee shall comply with any residual requirements related to this permit, such as the requirement to submit a deviation report, air fee emission report, or other any reporting required by this permit for the period the operating provisions of this permit were enforceable, or as required by regulation or law. All reports shall be submitted in a form and manner prescribed by the Director. All records relating to this permit must be maintained in accordance with law.

12. Permit-To-Operate Application

The permittee is required to apply for a Title V permit pursuant to OAC Chapter 3745-77. The permittee shall submit a complete Title V permit application or a complete Title V permit modification application within twelve (12) months after commencing operation of the emissions units covered by this permit. However, if operation of the proposed new or modified source(s) as authorized by this permit would be prohibited by the terms and conditions of an existing Title V permit, a Title V permit modification of such new or modified source(s) pursuant to OAC rule 3745-77-04(D) and OAC rule 3745-77-08(C)(3)(d) must be obtained before operating the source in a manner that would violate the existing Title V permit requirements.

13. Construction Compliance Certification

The applicant shall identify the following dates in the "Air Services" facility profile for each new emissions unit identified in this permit.

- a) Completion of initial installation date shall be entered upon completion of construction and prior to start-up.
- b) Commence operation after installation or latest modification date shall be entered within 90 days after commencing operation of the applicable emissions unit.

14. Public Disclosure

The facility is hereby notified that this permit, and all agency records concerning the operation of this permitted source, are subject to public disclosure in accordance with OAC rule 3745-49-03.

15. Additional Reporting Requirements When There Are No Deviations of Federally Enforceable Emission Limitations, Operational Restrictions, or Control Device Operating Parameter Limitations

If no deviations occurred during a calendar quarter, the permittee shall submit a quarterly report, which states that no deviations occurred during that quarter. The reports shall be submitted quarterly by January 31, April 30, July 31, and October 31 of each year and shall cover the previous calendar quarters.

16. Fees

The permittee shall pay fees to the Director of the Ohio EPA in accordance with ORC section 3745.11 and OAC Chapter 3745-78. The permittee shall pay all applicable permit-to-install fees within 30 days after the issuance of any permit-to-install. The permittee shall pay all applicable permit-to-operate fees within thirty days of the issuance of the invoice.

17. Permit Transfers

Any transferee of this permit shall assume the responsibilities of the prior permit holder. The new owner must update and submit the ownership information via the "Owner/Contact Change" functionality in "Air Services" once the transfer is legally completed. The change must be submitted through "Air Services" within thirty days of the ownership transfer date.

18. Risk Management Plans

If the permittee is required to develop and register a risk management plan pursuant to section 112(r) of the Clean Air Act, as amended, 42 U.S.C. 7401 et seq. ("Act"), the permittee shall comply with the requirement to register such a plan.

19. Title IV Provisions

If the permittee is subject to the requirements of 40 CFR Part 72 concerning acid rain, the permittee shall ensure that any affected emissions unit complies with those requirements. Emissions exceeding any allowances that are lawfully held under Title IV of the Act, or any regulations adopted thereunder, are prohibited.



Final Permit-to-Install
Research Organics LLC dba SAFC Cleveland
Permit Number: P0120394
Facility ID: 1318172081
Effective Date:3/8/2016

B. Facility-Wide Terms and Conditions

1. All the following facility-wide terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only:

- 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.	Particulate emissions (PE) from flare shall not exceed 0.078 lb/hr and 0.34 ton/yr. NOx emissions from flare shall not exceed 1.56 lbs/hr and 6.8 tons/yr. CO emissions from flare shall not exceed 2.08 lbs/hr and 9.1 tons/yr. See b)(2)a. below.
b.	OAC rule 3745-31-05(A)(3)(b), as effective 12/01/2006.	See b)(2)b. below.
c.	OAC rule 3745-31-05(F)	See b)(2)i. and b)(2)j. below.
d.	40 CFR Part 63, Subpart FFFF [In accordance with 40 CFR 63.2435 this facility is an existing miscellaneous organic chemical manufacturing facility subject to the emissions limitations/control measures specified in this section.]	See c)(10), d)(2), e)(2), and f)(2) below.
e.	40 CFR 63.1-16	Table 12 to 40 CFR, Part 63, Subpart FFFF – Applicability of General Provisions to Subpart FFFF shows which parts of the General Provisions in 40 CFR 63.1-16 apply. See b)(2)c. below.

f.	40 CFR Part 63, Subpart SS [In accordance with 40 CFR 63.980 this facility operates a control device and is subject to the emissions limitations/control measures specified in this section.]	See c)(10), d)(2), e)(2), and f)(2) below.
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(2) Additional Terms and Conditions

a. The permittee has satisfied the Best Available Technology (BAT) requirements pursuant to Ohio Administrative Code (OAC) paragraph 3745-31-05(A)(3), as effective November 30, 2001, in this permit. On December 1, 2006, paragraph (A)(3) of OAC rule 3745-31-05 was revised to conform to the Ohio Revised Code (ORC) changes effective August 3, 2006 (Senate Bill 265 changes), such that BAT is no longer required by State regulations for National Ambient Air Quality Standards (NAAQS) pollutant(s) less than ten tons per year. 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 requirement to satisfy BAT still exists as part of the federally-approved SIP for Ohio. Once U.S. EPA approves the December 1, 2006 version of OAC rule 3745-31-05, then these emission limitations/control measures no longer apply.

b. This rule paragraph applies once U.S. EPA approves the December 1, 2006 version of OAC rule 3745-31-05 as part of the State Implementation Plan.

The Best Available Technology (BAT) requirements under OAC rule 3745-31-05(A)(3) do not apply to the PE, NOx, and CO emissions from the flare since the uncontrolled potential to emit for PE, NOx, and CO from the flare is each less than 10 tons/year.

c. Pursuant to 40 CFR Part 63 Subpart FFFF §63.2550, miscellaneous organic chemical manufacturing process means all equipment which collectively function to produce a product or isolated intermediate that are materials described in §63.2435(b). For the purposes of this subpart, process includes any, all or a combination of reaction, recovery, separation, purification, or other activity, operation, manufacture, or treatment which are used to produce a product or isolated intermediate.

d. Pursuant to 40 CFR Part 63 Subpart FFFF §63.2435(b), a miscellaneous organic chemical manufacturing process unit (MCPU) includes equipment necessary to operate a miscellaneous organic chemical manufacturing process, as defined in §63.2550. An MCPU also includes any assigned storage tanks and transfer racks; equipment in open systems that is used to convey or store water having the same concentration and flow characteristics as wastewater; and components such as pumps, compressors, agitators, pressure relief devices, sampling connection systems, open-ended valves or lines, valves, connectors, and

instrumentation systems that are used to manufacture organic chemicals and organic solvents as specified at §63.2435(b).

e. Pursuant to 40 CFR Part 63 Subpart FFFF §63.2550, Group 1 batch process vent means each of the batch process vents in a process for which the collective uncontrolled organic hazardous air pollutant (HAP) emissions from all of the batch process vents are greater than or equal to 10,000 lbs/yr at an existing source. Group 2 batch process vent means each batch process vent that does not meet the criteria of Group 1 batch process vent.

f. Pursuant to 40 CFR Part 63 Subpart FFFF §63.2550, Group 1 transfer rack means a transfer rack that loads more than 0.65 million liters/year of liquids that contain organic HAP with a rack-weighted average partial pressure, as defined in §63.111, greater than or equal to 1.5 pound per square inch absolute. Group 2 transfer rack means a transfer rack that does not meet the definition of a Group 1 transfer rack.

The transfer rack (P044) at this facility is a Group 1 transfer rack and is assigned to MCPU1. The transfer rack, P044, is used for loading of tanker trucks.

g. Pursuant to 40 CFR Part 63 Subpart FFFF §63.2550, Group 1 storage tank means a storage tank with a capacity greater than or equal to 10,000 gallons storing material that has a maximum true vapor pressure of total HAP greater than or equal to 6.9 kilopascals at an existing source. Group 2 storage tanks are storage tanks that do not meet the definition of a Group 1 storage tank.

This facility has only Group 2 storage tanks and no Group 1 storage tanks. The storage tanks are assigned to MCPU1. The storage tanks also include totes and drums containing liquid HAP. Wastewater storage tanks are excluded from the definition of "storage tank" at §63.2550.

h. Pursuant to 40 CFR Part 63 Subpart FFFF §63.2550, Group 1 wastewater stream means a wastewater stream consisting of process wastewater at an existing or new source that meets the criteria for Group 1 status in § 63.2485(c) for compounds in Tables 8 and 9 to this subpart. Group 2 wastewater stream means any process wastewater stream that does not meet the definition of a Group 1 wastewater stream.

The liquid waste streams at this facility which have been determined to be Group 1 wastewater streams will be managed pursuant to 40 CFR 63 Subpart FFFF, Table 7.

i. Emissions from each product shall not exceed the short-term (lbs/batch) controlled potential to emit as established below:

Potential to Emit	Controlled EF, lbs/batch				
	MeOH	HCl	HAP	VOC	OC



Each Product (MCPU)	9.1	0.7	9.1	9.1	21.4
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j. Total facility-wide emissions shall not exceed the controlled potential to emit as established below:

Potential to Emit	Controlled Emissions, tons/yr				
	MeOH	HCl	HAP	VOC	OC
Large Production Subtotal*	14.8	0.2	14.8	14.8	33.8
Storage Tanks	0.2	0.0	0.2	0.2	0.2
Transfer Rack	0.15	0.0	0.15	0.15	0.15
Storage Tank Lines	1.7	0.0	1.7	2.5	2.5
Small Production	3.7	0.07	3.7	3.7	3.7
Facility PTE, tons/yr	20.6	0.3	20.6	21.4	40.4

* Potential to emit for Large Production is based on a maximum of 3,080 batches per year total for all products produced for both Group 1 and Group 2 products, and by combining with Intermediate Production potential to emit. The potential to emit for HCl is based on a maximum of 571 batches per year for products that contain HCl.

c) Operational Restrictions

- (1) MACT Subpart FFFF requires the control of emissions from Group 1 batch process vents and from MCPU with collective uncontrolled emissions of greater than or equal to 1,000 lbs/year of hydrochloric acid (HCl). Process vent emissions that do not meet these thresholds are not required to be controlled under Subpart FFFF. The permittee shall route reactor vent streams that contain HCl but not volatile organic compounds (VOC) to the scrubber, as noted below in c)(3), and other vent streams, as described herein, containing organics but not HCl to the flare regardless of whether control of these streams is required under Subpart FFFF.
- (2) The limited number of vent streams that contain both organics and HCl cannot be routed directly to the flare for control since the HCl would not be controlled and could damage the closed vent system and reduce its control effectiveness. The scrubber, and a reactor as noted below in 3.c), shall be operated as an acid gas control device for reactor vent streams containing HCl prior to routing these vent streams to the flare for control of VOC.

- (3) Emissions shall be controlled in the manner specified below:
- a. All organic emissions from Group 1 product batch process vents from Large Production shall be vented to the flare;
 - b. All organic emissions from Group 2 product batch process vents from Large Production shall be vented to the flare;
 - c. Reactor vents in Large Production containing HCl but no organic emissions - including MCPU with less than 1,000 lb/year of uncontrolled HCl emissions as well as MCPU with process vents containing 1,000 lb/yr or more of uncontrolled HCl emissions - shall be vented to Scrubber 5;
 - d. Reactor, crystallizer, and centrifuge vents containing both organic emissions and HCl shall be routed through a reactor filled with caustic solution and then vented to the flare (this includes Group 2 process vents or vents with less than 200 lb/yr HAP);
 - e. All organic emissions from both Group 1 and Group 2 products produced in P011, P012, P013, P014, P027, P028, P029, P030, P048, P055, and Crystallizer F shall be vented to the flare or Scrubber 5;
 - f. All HCl emissions from products produced in P006 and P007 shall be vented to Scrubber 5. Products using organic solvents or organic HAP shall not be produced in these reactors;
 - g. All emissions from both Group 1 and Group 2 products produced in P040 shall be vented to Scrubber 4;
 - h. All organic emissions from both Group 1 and Group 2 products produced in P016, P019, P024, P033, P039, and P050 shall be vented to the flare only;
 - i. Organic emissions from storage tanks T001 – T003, T005, T006, T010, T011, and T014 shall be vented to the flare;
 - j. Emissions from the transfer rack (P044) shall be vented to the flare; and
 - k. All emissions from vents from Small Production (P020) shall be vented to the atmosphere.
- (4) The primary VOC at this facility is an organic HAP; therefore, the permittee shall include all components in organic HAP liquid service in the Leak Detection and Repair (LDAR) program as required per c)(10) below.
- (5) The crystallizers are jacketed and cooled using either cooling tower water or a glycol cooling system; therefore, these systems are heat exchange systems that shall comply with the MACT Subpart FFFF requirements for heat exchangers per c)(10) below.
- (6) The following miscellaneous organic chemical manufacturing processing units (MCPUs) for Large Production Group 1 products are associated with the equipment listed below. Crystallizers and centrifuges are permitted as part of the reactor process trains.

- a. MCPU1 and MCPU5 involve the use of the following equipment:
- P006 (Reactor 12), P007 (Reactor 13), Crystallizer I, Crystallizer B, Crystallizer C2, Crystallizer D, Crystallizer E, Crystallizer F, Crystallizer G, Crystallizer H, Crystallizer J2, Centrifuge 1, Centrifuge 3, Centrifuge 5, Centrifuge 7, Centrifuge 8, P016 (Tumbler 2), P019 (Tumbler 4), P024 (Tumbler 6), P050 (Tumbler 8), and P039 (Tumbler 9).
- MCPU1 also includes P044 (load rack) as a Group 1 rack, as well as all storage tanks.
- b. MCPU2, MCPU3, MCPU4a, MCPU4b, MCPU4c, and MCPU6 involve the use of the following equipment:
- P011 (Reactor 4), P012 (Reactor 5), P013 (Reactor 8), P014 (Reactor 9B), P030 (Reactor 16B), P027 (Reactor 18), P028 (Reactor 14), P029 (Reactor 15), P048 (Reactor 23), P055 (Reactor 24), Crystallizer I, Crystallizer B, Crystallizer C2, Crystallizer D, Crystallizer E, Crystallizer F, Crystallizer G, Crystallizer H, Crystallizer J2, Centrifuge 1, Centrifuge 3, Centrifuge 5, Centrifuge 7, Centrifuge 8, P016 (Tumbler 2), P019 (Tumbler 4), P024 (Tumbler 6), P050 (Tumbler 8), and P039 (Tumbler 9).
- (7) The following miscellaneous organic chemical manufacturing processing units (MCPUs) or groups of MCPUs for Large Production Group 2 products are associated with the equipment listed below. Crystallizer and centrifuges are permitted as part of the reactor process trains.
- a. MCPU100 involves the use of the following equipment:
- P040 (Reactor 40), P033 (Reactor 19), Crystallizer I, Crystallizer B, Crystallizer C2, Crystallizer D, Crystallizer E, Crystallizer F, Crystallizer G, Crystallizer H, Crystallizer J2, Centrifuge 1, Centrifuge 3, Centrifuge 5, Centrifuge 7, Centrifuge 8, P016 (Tumbler 2), P019 (Tumbler 4), P024 (Tumbler 6), P050 (Tumbler 8), and P039 (Tumbler 9).
- b. Organic Group 2 products (which includes multiple different MCPUs) involves the use of the following equipment:
- P011 (Reactor 4), P012 (Reactor 5), P013 (Reactor 8), P014 (Reactor 9B), P030 (Reactor 16B), P027 (Reactor 18), P028 (Reactor 14), P029 (Reactor 15), P048 (Reactor 23), P055 (Reactor 24), Crystallizer I, Crystallizer B, Crystallizer C2, Crystallizer D, Crystallizer E, Crystallizer F, Crystallizer G, Crystallizer H, Crystallizer J2, Centrifuge 1, Centrifuge 3, Centrifuge 5, Centrifuge 7, Centrifuge 8, P016 (Tumbler 2), P019 (Tumbler 4), P024 (Tumbler 6), P050 (Tumbler 8), and P039 (Tumbler 9).
- c. Aqueous Group 2 products with no OC or HCl emissions involve the use of the same equipment as noted above in c)(7)b.

Vent streams from these products are not “batch process vents” as defined at 40 CFR 63.2550 because they are vents from unit operations from which total uncontrolled HAP emissions are less than 200 lbs/yr. No emission control is needed because there are no OC or HCl emissions from these products.

- (8) The transfer rack (P044) and the storage tanks T001 – T003, T005, T006, T010, T011, and T014 are not included as part of Large Production.
- (9) Small Production (P020) is not included as part of Large Production.
- (10) The permittee shall comply with the applicable operational restrictions and requirements under 40 CFR, Part 63, Subpart FFFF, and Subpart SS as referenced by Subpart FFFF, including the following sections:

63.11	Subpart A: General Provisions; Control device and work practice requirements.
63.982(a)(1)	Subpart SS general requirements for storage tanks.
63.982(a)(2)	Subpart SS general requirements for process vents.
63.982(a)(3)	Subpart SS general requirements for transfer racks.
63.982(a)(4)	Subpart SS general requirements for equipment leaks.
63.982(b)	Subpart SS closed vent system and flare.
63.982(c)	Subpart SS closed vent system and non-flare control.
63.982(f)	Subpart SS combined emissions requirements.
63.983	Subpart SS closed vent system requirements.
63.987	Subpart SS flare requirements.
63.994	Subpart SS Halogen scrubbers and other halogen reduction devices.
63.2450	General requirements; Tables 1-7 to Subpart FFFF.
63.2460	Batch process vents requirements; Table 2 to Subpart FFFF.
63.2470	Storage tanks requirements; Table 4 to Subpart FFFF.
63.2475	Transfer rack requirements; Table 5 to Subpart FFFF.
63.2480	Equipment leaks requirements; Table 6 to Subpart FFFF.
63.2485	Wastewater stream requirements; Table 7 to Subpart FFFF.

63.2490	Heat exchange systems requirements; Table 10 to Subpart FFFF.
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d) Monitoring and/or Recordkeeping Requirements

(1) The permittee shall maintain monthly records of the following information:

- a. the name and identification (including MCPU number) of each different product produced;
- b. the designation of whether the product (MCPU) is a Group 1 or a Group 2 MCPU;
- c. the number of batches of each product produced;
- d. the emission rate, in pounds per month, of methanol (MeOH), HCl, HAP, VOC, and OC determined using the emission factors in b)(2)i. (or the most current emission factor determined in accordance with Subpart FFFF) multiplied by the number of batches/month for each separate product produced;
- e. the type of material stored in each storage tank;
- f. the amount, in gallons, of throughput for each material stored in a storage tank;
- g. the emission rate, in pounds per month, of MeOH, HCl, HAP, VOC, and OC from the storage tanks and storage tank lines determined in accordance with f)(1)h. below;
- h. the amount, in gallons, of each material loaded out through the transfer rack (P044); and
- i. the emission rate, in pounds per month, of MeOH, HCl, HAP, VOC, and OC from the transfer rack determined in accordance with f)(1)h. below.

(2) The permittee shall comply with the applicable monitoring and recordkeeping requirements under 40 CFR, Part 63, Subpart FFFF, and Subpart SS including the following sections:

63.987(c)	Subpart SS flare flame monitoring.
63.994(c)	Subpart SS Halogen scrubbers and other halogen reduction devices monitoring requirements.
63.996	Subpart SS general monitoring requirements.
63.998	Subpart SS recordkeeping requirements.
63.2450(k)	Subpart FFFF continuous parameter monitoring.
63.2525	Subpart FFFF recordkeeping requirements.

e) Reporting Requirements

- (1) Unless other arrangements have been approved by the Director, all notifications and reports shall be submitted through the Ohio EPA's eBusiness Center: Air Services online web portal.
- (2) The permittee shall comply with the applicable reporting requirements under 40 CFR, Part 63, Subpart FFFF, and Subpart SS including the following sections:

63.999	Subpart SS Notifications and other reports.
63.2450(m)	Subpart FFFF reporting requirements.
63.2515	Subpart FFFF required notifications.
63.2520	Subpart FFFF required reports – Table 11.

f) Testing Requirements

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

- a. Emission Limitation:
 Particulate emissions (PE) from flare shall not exceed 0.078 lb/hr.

Applicable Compliance Method:

This limit was established using the AP-42 emission factor from Table 1.4-2 of 0.0075 lb/mmBtu. The short-term emissions limitation was determined by multiplying the emission factor (0.0075 lb/mmBtu) times the flare rating (10.4 mmBtu/hr).

If required, compliance with the PE emission limitation shall be determined in accordance with U.S. EPA Reference Methods 1-5 of 40 CFR Part 60, Appendix A.

- b. Emission Limitation:
 Particulate emissions (PE) from flare shall not exceed 0.34 ton/yr.

Applicable Compliance Method:

Compliance with the annual limitations shall be determined by multiplying the hourly emissions rate by the actual annual operating hours, and then dividing by 2,000 lbs/ton.

- c. Emission Limitation:
 NOx emissions from flare shall not exceed 1.56 lbs/hr.



Applicable Compliance Method:

This limit was established by using the emission factor of 0.15 lb/mmBtu of NOx provided by the manufacturer performance guarantee. The short-term emissions limitation was determined by multiplying the emission factor (0.15 lb/mmBtu) times the flare rating (10.4 mmBtu/hr).

If required, compliance with the NOx emission limitation shall be determined in accordance with U.S. EPA Reference Methods 1-4 and 7E of 40 CFR Part 60, Appendix A.

d. Emission Limitation:

NOx emissions from flare shall not exceed 6.8 tons/yr.

Applicable Compliance Method:

Compliance with the annual limitations shall be determined by multiplying the hourly emissions rate by the actual annual operating hours, and then dividing by 2,000 lbs/ton.

e. Emission Limitation:

CO emissions from flare shall not exceed 2.08 lbs/hr.

Applicable Compliance Method:

This limit was established by using the emission factor of 0.2 lb/mmBtu of CO provided by the manufacturer performance guarantee. The short-term emissions limitation was determined by multiplying the emission factor (0.2 lb/mmBtu) times the flare rating (10.4 mmBtu/hr).

If required, compliance with the CO emission limitation shall be determined in accordance with U.S. EPA Reference Methods 1-4 and 10 of 40 CFR Part 60, Appendix A.

f. Emission Limitation:

CO emissions from flare shall not exceed 9.1 tons/yr.

Applicable Compliance Method:

Compliance with the annual limitations shall be determined by multiplying the hourly emissions rate by the actual annual operating hours, and then dividing by 2,000 lbs/ton.

g. Emission Limitation:

Potential to Emit	Controlled EF, lbs/batch				
	MeOH	HCl	HAP	VOC	OC
Each Product (MCPU)	9.1	0.7	9.1	9.1	21.4

Applicable Compliance Method:

The permittee shall demonstrate compliance with the pound per batch emission limits by calculating the controlled emissions from all of the equipment associated with the production of each product according to the procedures described in 40 CFR Parts 63.2460(b), 63.1257(d)(2)(i) and (ii), and 63.1257(d)(3)(i) or (ii) including the following:

Displacement emissions shall be determined using Equation 11 of 40 CFR 63 Subpart GGG and multiplied by the control efficiency of the flare per 40 CFR Part 63.1257(d)(3)(i) or (ii).

Purging emissions shall be determined using Equation 12 of 40 CFR 63 Subpart GGG and multiplied by the control efficiency of the flare per 40 CFR Part 63.1257(d)(3)(i) or (ii).

Heating emissions shall be determined using either Equation 13 or 37 of 40 CFR 63 Subpart GGG and multiplied by the control efficiency of the flare per 40 CFR Part 63.1257(d)(3)(i) or (ii). Reactors are the only vessels that are heated, and all reactors except for Reactor 40 are controlled by a condenser or series of condensers.

h. Emission Limitation:

MeOH emissions shall not exceed 20.6 tons/yr.

HCl emissions shall not exceed 0.3 ton/yr.

HAP emissions shall not exceed 20.6 tons/yr.

VOC emissions shall not exceed 21.4 tons/yr.

OC emissions shall not exceed 40.4 tons/yr.

Applicable Compliance Method:

Compliance with the ton/year emission limitations shall be determined from the record keeping in d)(1) by summing the monthly emissions from all products produced, storage tanks, transfer rack, storage tank lines, and small production as follows. The monthly emissions shall be summed to determine the total annual emissions for each calendar year.

Annual emissions from each product (both Group 1 and Group 2 products) shall be determined by multiplying the total number of batches for each product produced per month by the corresponding emission factor for the product determined in accordance with f)(1)g. above and then summing total emissions.

Storage tank emissions shall be determined using the most current version of USEPA's TANKS or similar program based on the actual monthly throughput for each storage tank and multiplying by (1 - 0.95) to account for the 95% flare control efficiency.

Transfer rack emissions shall be determined using the appropriate emission factor (for splash or submerged loading), in pounds per 1,000 gallons, from AP-42 Section 5.2, Equation (1). The emission factor shall be multiplied by the actual monthly throughput, in gallons/month, and then multiplying by (1 - 0.95) to account for the 95% control efficiency of the flare.

Fugitive emissions from lines between storage tanks and manifold including valves, pump seals, agitators, compressor seals, pressure relief valves (PRVs), connectors, open-ended lines, and sampling connections, shall be determined using the SOCOMI average emission factors from Table 2-1 of USEPA's Protocol for Equipment Leak Emission Estimates (EPA-453/R-95-017, November 1995) to determine a pound per hour emission rate and then multiplying by the actual hours of operation and dividing by 2,000 lbs/ton. Alternatively, actual fugitive emission leak rate data collected from the Leak Detection and Repair program may be used with the correlation equations from Table 2-9 and the default zero leak rates from Table 2-11 of the EPA Protocol document to calculate emissions.

Emissions from Small Production (P020) were determined from engineering study measurements that resulted in the following:

	VOC (methanol)	HCl	Total HAPs
Total	0.855 lb/hr	0.016 lb/hr	0.871 lb/hr
PTE	3.74 tons/yr	0.07 tons/yr	3.81 tons/yr

The PTE for small production is based on 8,760 hours per year.

- (2) The permittee shall comply with the applicable testing requirements under 40 CFR, Part 63, Subpart FFFF, Subpart SS and Subpart GGG including the following sections:

63.982(b)	Subpart SS flare compliance assessment.
63.987(b)	Subpart SS flare compliance assessment.
63.994	Subpart SS Halogen scrubbers and other halogen reduction devices compliance assessment requirements.
63.997	Subpart SS Performance test and compliance assessment requirements for control devices.
63.1257	Subpart GGG Test methods and compliance procedures; initial compliance with process vent provisions.
63.2450(f)	Subpart FFFF flare compliance assessment.
63.2450(g)	Subpart FFFF performance tests.
63.2450(h)	Subpart FFFF design evaluation.
63.2460(c)(2)(v)	Subpart FFFF process condensers.
63.2465(c)(1)	Subpart FFFF scrubber performance test.

g) Miscellaneous Requirements

- (1) Although Research Organics produces approximately 75 different products, the following Group 1 Products are considered the worst-case products produced at this facility: MCPU1, MCPU2, MCPU3, MCPU4a, MCPU4b, MCPU4c, MCPU5, and MCPU6. An MCPU number shall be assigned to each separate product. A detailed list of the MCPU's shall be submitted in the Subpart FFFF Notification of Compliance Status, and shall be updated as necessary through the Subpart FFFF Periodic Reports.
- (2) The Small Laboratory-Scale Production operation (P020) of the facility includes research activities and small scale production required to meet small quantity orders. These activities are conducted in laboratory scale equipment in rooms equipped with fume hoods that exhaust to the atmosphere via stacks.
- (3) The Large Production operation of the facility includes 13 reactors, 9 crystallizer, 5 centrifuges, 4 vacuum ovens/shelf dryers, and 5 tumble dryers. These are used in a batch manufacturing process to produce product. Different reactors, crystallizer, and centrifuges are connected as needed according to production demands. Materials are transferred between equipment using fixed piping manifold and flexible hoses.

2. The existing emergency or limited use compression ignition (CI) reciprocating internal combustion engine(s) (RICE), less than or equal to 500 brake horse power and located at a major source of hazardous air pollutants (HAPs), are subject to the requirements of the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Stationary Reciprocating Internal Combustion Engines, Part 63, Subpart ZZZZ. The existing stationary CI RICE, P041, P042, and P043, installed before 6/12/06, shall meet the requirements of Part 63, Subpart ZZZZ no later than 5/3/13.

The permittee must comply with all applicable requirements of 40 CFR Part 63, Subpart ZZZZ. The permittee shall also comply with all applicable requirements of 40 CFR Part 63, Subpart A (General Provisions) as identified in Table 8 of 40 CFR Part 63, Subpart ZZZZ. Compliance with all applicable requirements shall be achieved by the dates set forth in 40 CFR Part 63, Subpart ZZZZ, and Subpart A.

3. The new emergency or limited use compression ignition (CI) reciprocating internal combustion engine(s) (RICE), less than or equal to 500 brake horse power, is subject to the requirements of the New Source Performance Standards (NSPS) for Stationary Reciprocating Internal Combustion Engines, Part 60, Subpart IIII. The stationary CI RICE, P045, installed in 2009, shall meet the requirements of Part 60, Subpart IIII.

The permittee must comply with all applicable requirements of 40 CFR Part 60, Subpart IIII. The permittee shall also comply with all applicable requirements of 40 CFR Part 60, Subpart A (General Provisions) as identified in Table 8 of 40 CFR Part 60, Subpart IIII. Compliance with all applicable requirements shall be achieved by the dates set forth in 40 CFR Part 60, Subpart IIII, and Subpart A.

4. The following emissions units are subject to 40 CFR Part 63, Subpart DDDDD, National Emissions Standards for Hazardous Air Pollutants (NESHAP) for Industrial, Commercial, and Institutional Boilers and Process Heaters: B001 and B002. The complete NESHAP requirements, including the Subpart A General Provisions, may be accessed via the internet from the Electronic Code of Federal Regulations (e-CFR) website at <http://www.ecfr.gov> or by contacting the Cleveland Division of Air Quality (CDAQ).



Final Permit-to-Install
Research Organics LLC dba SAFC Cleveland
Permit Number: P0120394
Facility ID: 1318172081
Effective Date:3/8/2016

The permittee must comply with all applicable requirements of 40 CFR Part 63, Subpart DDDDD. The permittee shall also comply with all applicable requirements of 40 CFR Part 63, Subpart A (General Provisions) as identified in Table 10 of 40 CFR Part 63, Subpart DDDDD. Compliance with all applicable requirements shall be achieved by the dates set forth in 40 CFR Part 63, Subpart DDDDD, and Subpart A.



Final Permit-to-Install
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C. Emissions Unit Terms and Conditions

1. P020, Small Production

Operations, Property and/or Equipment Description:

Small Production (P020) includes laboratory-scale production operations for research activities and small scale manufacturing required to meet small quantity orders. These activities are conducted in laboratory scale equipment in rooms equipped with fume hoods that exhaust to the atmosphere via stacks.

a) The following emissions unit terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only.

(1) 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)	Methanol emissions shall not exceed 0.855 pound per hour and 3.74 tons per year (TPY). Hydrochloric acid (HCl) emissions shall not exceed 0.016 pound per hour and 0.07 TPY. See b)(2)a. below.
b.	OAC Rule 3745-21-07(M)(3)(a)	The requirements of this rule do not apply to this emissions unit because the uncontrolled potential to emit organic compounds is less than 40 pounds/day in accordance with OAC rule 3745-21-07(M)(3)(c)(ii).
c.	40 CFR Part 63, Subpart FFFF [In accordance with 40 CFR 63.2435 this unit is an existing miscellaneous organic chemical manufacturing facility subject to the emissions limitations/control measures specified in this section.]	See Section B. Facility-Wide Terms and Conditions.



	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
d.	40 CFR Part 63, Subpart SS [In accordance with 40 CFR 63.980 this facility operates a control device which routes air emissions to a fuel gas system and is subject to the emissions limitations/control measures specified in this section.]	See Section B. Facility-Wide Terms and Conditions.

(2) Additional Terms and Conditions

a. The hourly methanol and HCl emissions limits were established to reflect the potential to emit for this emissions unit. Therefore, it is not necessary to develop record keeping and/or reporting requirements to ensure compliance with these short term emissions limitations in addition to those specified under Section B. of this permit.

c) Operational Restrictions

(1) See Section B. Facility-Wide Terms and Conditions.

d) Monitoring and/or Recordkeeping Requirements

(1) See Section B. Facility-Wide Terms and Conditions.

e) Reporting Requirements

(1) See Section B. Facility-Wide Terms and Conditions.

f) Testing Requirements

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

a. Emission Limitation:
Methanol emissions shall not exceed 0.855 pound per hour.

Applicable Compliance Method:
The hourly methanol emissions limitation was established through an engineering study conducted by Research Organics on 4/23/2015 where methanol emissions were determined through mass balance.

If required, compliance with the methanol emission limitation shall be determined through emission testing conducted in accordance with Method 25A of 40 CFR Part 60, Appendix A, or any approved alternative testing method.

- b. Emission Limitation:
Methanol emissions shall not exceed 3.74 TPY.

Compliance method:

The ton per year emission limitation was developed by multiplying the short-term allowable methanol emission limitation (0.885 lb/hr) by the maximum annual hours of operation (8,760 hours), and then dividing by 2,000 pounds per ton. Therefore, if compliance is shown with the short-term allowable emission limitation, compliance shall also be shown with the annual emission limitation.

- c. Emissions Limitation:
HCl emissions shall not exceed 0.016 pound per hour.

Compliance method:

The hourly HCl emissions limitation was established through an engineering study conducted by Research Organics on 4/23/2015 where HCl emissions were determined through mass balance.

If required, compliance with the HCl emission limitation shall be determined through emission testing conducted in accordance with Method 26 or 26A of 40 CFR Part 60, Appendix A.

- d. Emissions Limitation:
HCl emissions shall not exceed 0.07 TPY.

Compliance method:

The ton per year emission limitation was developed by multiplying the short-term allowable HCl emission limitation (0.016 lb/hr) by the maximum annual hours of operation (8,760 hours), and then dividing by 2,000 pounds per ton. Therefore, if compliance is shown with the short-term allowable emission limitation, compliance shall also be shown with the annual emission limitation.

g) Miscellaneous Requirements

- (1) This emissions unit was installed on 4/1/1993.

2. P044, Transfer rack

Operations, Property and/or Equipment Description:

Recoverable alcohol transfer rack used for loading of tanker trucks.

a) The following emissions unit terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only.

(1) 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	See Section B. Facility-Wide Terms and Conditions. See b)(2)a. below.
b.	OAC rule 3745-31-05(A)(3)(b), as effective 12/01/2006	See b)(2)b. below.
c.	OAC Rule 3745-31-05(F)	See Section B. Facility-Wide Terms and Conditions.
d.	OAC Rule 3745-21-07(M)	The requirements of this rule do not apply to this emissions unit because the amended rule does not apply to transfer racks.
e.	40 CFR Part 63, Subpart FFFF [In accordance with 40 CFR 63.2435 this unit is an existing miscellaneous organic chemical manufacturing facility subject to the emissions limitations/control measures specified in this section.]	See Section B. Facility-Wide Terms and Conditions.



	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
f.	40 CFR Part 63, Subpart SS [In accordance with 40 CFR 63.980 this facility operates a control device which routes air emissions to a fuel gas system and is subject to the emissions limitations/control measures specified in this section.]	See Section B. Facility-Wide Terms and Conditions.

(2) Additional Terms and Conditions

- a. The permittee has satisfied the Best Available Technology (BAT) requirements pursuant to Ohio Administrative Code (OAC) paragraph 3745-31-05(A)(3), as effective November 30, 2001, in this permit. On December 1, 2006, paragraph (A)(3) of OAC rule 3745-31-05 was revised to conform to the Ohio Revised Code (ORC) changes effective August 3, 2006 (Senate Bill 265 changes), such that BAT is no longer required by State regulations for National Ambient Air Quality Standards (NAAQS) pollutant(s) less than ten tons per year. 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 requirement to satisfy BAT still exists as part of the federally-approved SIP for Ohio. Once U.S. EPA approves the December 1, 2006 version of OAC rule 3745-31-05, then these emission limitations/control measures no longer apply.

- b. This rule paragraph applies once U.S. EPA approves the December 1, 2006 version of OAC rule 3745-31-05 as part of the State Implementation Plan.

Permit to Install P0118033 for this air contaminant source takes into account the following voluntary restrictions (including the use of any applicable air pollution control equipment) as proposed by the permittee for the purpose of avoiding Best Available Technology (BAT) requirements under OAC rule 3745-31-05(A)(3):

Use of flare to control organic compound emissions.

c) Operational Restrictions

- (1) See Section B. Facility-Wide Terms and Conditions.
- (2) This emissions unit (P044) shall be equipped with a vapor collection system whereby during the transfer of material to any delivery vessel:
 - a. all vapors displaced from the delivery vessel during loading are vented only to the vapor collection system;
 - b. all vapors collected by the vapor collection system shall be vented to the flare;

- c. a means shall be provided to prevent drainage of material from the loading device when it is not in use or to accomplish complete drainage before the loading device is disconnected; and
 - d. all material loading lines and vapor lines shall be equipped with fittings that are vapor tight.
- d) Monitoring and/or Recordkeeping Requirements
- (1) See Section B. Facility-Wide Terms and Conditions.
- e) Reporting Requirements
- (1) See Section B. Facility-Wide Terms and Conditions.
- f) Testing Requirements
- (1) Compliance with the Emissions Limitations and/or Control Requirements specified in b) of these terms and conditions shall be determined in accordance with the following methods:
 - a. See Section B. Facility-Wide Terms and Conditions.
- g) Miscellaneous Requirements
- (1) None.

3. Emissions Unit Group - Reactor Process Lines: P006, P007, P011, P012, P013, P014, P027, P028, P029, P030, P033, P040, P048, P055

EU ID	Operations, Property and/or Equipment Description
P006	Reactor 12: 200-gallon hot oil vessel and ancillary equipment including crystallizers, and centrifuges.
P007	Reactor 13: 200-gallon hot oil vessel and ancillary equipment including crystallizers, and centrifuges.
P011	Reactor 4: 200-gallon vessel and ancillary equipment including crystallizers and centrifuges.
P012	Reactor 5: 300-gallon vessel and ancillary equipment including crystallizers and centrifuges.
P013	Reactor 8: 300-gallon hot oil vessel and ancillary equipment including crystallizers, and centrifuges.
P014	Reactor 9: 300-gallon vessel, with ancillary equipment including crystallizers and centrifuges.
P027	Reactor 18: 500-gallon vessel and ancillary equipment including crystallizers and centrifuges.
P028	Reactor 14: 300-gallon vessel and ancillary equipment including crystallizers and centrifuges.
P029	Reactor 15: 300-gallon vessel and ancillary equipment including crystallizers and centrifuges.
P030	Reactor 16: 300-gallon vessel and ancillary equipment including crystallizers and centrifuges.
P033	Reactor 19: 300-gallon vessel and ancillary equipment including chiller and centrifuge.
P040	Reactor 40: 500-gallon vessel for BisTris Production.
P048	Reactor 23: 30-gallon vessel and ancillary equipment including crystallizers and centrifuges.
P055	Reactor 24: 500-gallon vessel and ancillary equipment including crystallizers and centrifuges.

a) The following emissions unit terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only:

(1) 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	See Section B. Facility-Wide Terms and Conditions. See b)(2)a. below.
b.	OAC rule 3745-31-05(A)(3)(b), as effective 12/01/2006	See b)(2)b. below.
c.	OAC Rule 3745-31-05(F)	See Section B. Facility-Wide Terms and Conditions.
d.	OAC Rule 3745-21-07(M)(3)(a)	The requirements of this rule do not apply to these emissions units because the uncontrolled potential to emit organic compounds for each emissions unit is less than 40 pounds/day in accordance with OAC rule 3745-21-07(M)(3)(c)(ii).
e.	40 CFR Part 63, Subpart FFFF [In accordance with 40 CFR 63.2435 this unit is an existing miscellaneous organic chemical manufacturing facility subject to the emissions limitations/control measures specified in this section.]	See Section B. Facility-Wide Terms and Conditions.
f.	40 CFR Part 63, Subpart SS [In accordance with 40 CFR 63.980 this facility operates a control device which routes air emissions to a fuel gas system and is subject to the emissions limitations/control measures specified in this section.]	See Section B. Facility-Wide Terms and Conditions.

(2) Additional Terms and Conditions

- a. The permittee has satisfied the Best Available Technology (BAT) requirements pursuant to Ohio Administrative Code (OAC) paragraph 3745-31-05(A)(3), as effective November 30, 2001, in this permit. On December 1, 2006, paragraph (A)(3) of OAC rule 3745-31-05 was revised to conform to the Ohio Revised Code (ORC) changes effective August 3, 2006 (Senate Bill 265 changes), such that BAT is no longer required by State regulations for National Ambient Air Quality Standards (NAAQS) pollutant(s) less than ten tons per year. 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 requirement to satisfy BAT still exists as part of the federally-approved SIP for Ohio. Once U.S. EPA approves the December 1, 2006 version of OAC rule 3745-31-05, then these emission limitations/control measures no longer apply.

- b. This rule paragraph applies once U.S. EPA approves the December 1, 2006 version of OAC rule 3745-31-05 as part of the State Implementation Plan.

Permit to Install P0118033 for this air contaminant source takes into account the following voluntary restrictions (including the use of any applicable air pollution control equipment) as proposed by the permittee for the purpose of avoiding Best Available Technology (BAT) requirements under OAC rule 3745-31-05(A)(3):

Use of flare to control organic compound emissions, and use of scrubbers to control HCl emissions.

- c) Operational Restrictions
 - (1) See Section B. Facility-Wide Terms and Conditions.
- d) Monitoring and/or Recordkeeping Requirements
 - (1) See Section B. Facility-Wide Terms and Conditions.
- e) Reporting Requirements
 - (1) See Section B. Facility-Wide Terms and Conditions.
- f) Testing Requirements
 - (1) Compliance with the Emissions Limitations and/or Control Requirements specified in b) of these terms and conditions shall be determined in accordance with the following methods:
 - a. See Section B. Facility-Wide Terms and Conditions.
- g) Miscellaneous Requirements
 - (1) None.

4. Emissions Unit Group - Tumblers: P016, P019, P024, P039, P050

EU ID	Operations, Property and/or Equipment Description
P016	Tumble Dryer 2: Rotating conical dryer with condensate recovery tank and vacuum pump, controlled by the flare.
P019	Tumble Dryer 4: Rotating conical dryer with condensate recovery tanks and vacuum pump, controlled by the flare.
P024	Tumble Dryer 6: Rotating conical dryer with condensate recovery tank and vacuum pump, controlled by the flare.
P039	Tumble Dryer 9: Rotating conical dryer with condensate recovery tank and vacuum pump, controlled by the flare.
P050	Tumbler Dryer 8: Rotating conical dryer with condensate recovery tank and vacuum pump, controlled by the flare.

- a) The following emissions unit terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only:
- (1) 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	See Section B. Facility-Wide Terms and Conditions. See b)(2)a. below.
b.	OAC rule 3745-31-05(A)(3)(b), as effective 12/01/2006	See b)(2)b. below.
c.	OAC Rule 3745-31-05(F)	See Section B. Facility-Wide Terms and Conditions.
d.	OAC Rule 3745-21-07(M)(3)(a)	The requirements of this rule do not apply to these emissions units because the uncontrolled potential to emit organic compounds for each emissions unit is less than 40 pounds/day in accordance



	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
		with OAC rule 3745-21-07(M)(3)(c)(ii).
e.	40 CFR Part 63, Subpart FFFF [In accordance with 40 CFR 63.2435 this unit is an existing miscellaneous organic chemical manufacturing facility subject to the emissions limitations/control measures specified in this section.]	See Section B. Facility-Wide Terms and Conditions.
f.	40 CFR Part 63, Subpart SS [In accordance with 40 CFR 63.980 this facility operates a control device which routes air emissions to a fuel gas system and is subject to the emissions limitations/control measures specified in this section.]	See Section B. Facility-Wide Terms and Conditions.

(2) Additional Terms and Conditions

- a. The permittee has satisfied the Best Available Technology (BAT) requirements pursuant to Ohio Administrative Code (OAC) paragraph 3745-31-05(A)(3), as effective November 30, 2001, in this permit. On December 1, 2006, paragraph (A)(3) of OAC rule 3745-31-05 was revised to conform to the Ohio Revised Code (ORC) changes effective August 3, 2006 (Senate Bill 265 changes), such that BAT is no longer required by State regulations for National Ambient Air Quality Standards (NAAQS) pollutant(s) less than ten tons per year. 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 requirement to satisfy BAT still exists as part of the federally-approved SIP for Ohio. Once U.S. EPA approves the December 1, 2006 version of OAC rule 3745-31-05, then these emission limitations/control measures no longer apply.
- b. This rule paragraph applies once U.S. EPA approves the December 1, 2006 version of OAC rule 3745-31-05 as part of the State Implementation Plan.

Permit to Install P0118033 for this air contaminant source takes into account the following voluntary restrictions (including the use of any applicable air pollution control equipment) as proposed by the permittee for the purpose of avoiding Best Available Technology (BAT) requirements under OAC rule 3745-31-05(A)(3):

Use of flare to control organic compound emissions, and use of a scrubber to control HCl emissions.

- c) Operational Restrictions
 - (1) See Section B. Facility-Wide Terms and Conditions.
- d) Monitoring and/or Recordkeeping Requirements
 - (1) See Section B. Facility-Wide Terms and Conditions.
- e) Reporting Requirements
 - (1) See Section B. Facility-Wide Terms and Conditions.
- f) Testing Requirements
 - (1) Compliance with the Emissions Limitations and/or Control Requirements specified in b) of these terms and conditions shall be determined in accordance with the following methods:
 - a. See Section B. Facility-Wide Terms and Conditions.
- g) Miscellaneous Requirements
 - (1) None.