Statement of Basis

AlphaPet Inc. Morgan County Decatur, Alabama 712-0097

AlphaPet, Inc. (AlphaPet) has applied for renewal of Major Source Operating Permit (MSOP) No. 712-0097. This proposed Title V MSOP renewal has been developed in accordance with the provisions of ADEM Admin. Code r. 335-3-16. The above-named applicant has requested authorization to perform the work or operate the facility shown on the application and drawings, plans, and other documents attached hereto or on file with the Air Division of the Alabama Department of Environmental Management, in accordance with the terms and conditions of the permit.

An Air Permit for original construction of the site was issued on April 21, 2008. The initial Title V MSOP was issued on March 21, 2013 and this is the second renewal. The current MSOP was issued on May 25, 2017 and expires on May 24, 2022. The renewal application was received on November 12, 2021.

The facility is located in Morgan County, which is currently listed as attainment/unclassifiable with all National Ambient Air Quality Standards (NAAQS) with the exception of sulfur dioxide (SO_2), which the county is currently listed as unclassifiable.

There are no current or ongoing enforcement actions against AlphaPet necessitating additional requirements to achieve compliance with the proposed permit conditions. The enforcement and compliance history for the facility can be found at <u>https://echo.epa.gov/</u> (Search using Facility ID AL0000000110300097).

This facility is a chemical production plant that produces polyethylene terephthalate (PET) resin. The facility includes raw material preparation and continuous polymerization operations. In addition to the production units, the facility operates three heat transfer medium (HTM) heaters which the facility is allowed to operate 8,760 hours per year unless otherwise specified. Based on the Title V permit application, this facility is a major source for both PSD and Title V standards for particulate matter (PM), nitrogen oxides (NOx), carbon monoxide (CO), and volatile organic compounds (VOC), and is major for Title V standards for hazardous air pollutants (HAP).

Changes from current MSOP:

- 1. In AlphaPet's most recent Title V renewal, the facility's operating permit was modified to remove three of the facility's emergency generators from the permit, which had been removed from the facility. On July 18, 2018, AlphaPet was issued Air Permit No. 712-0097-X007 for one 160 HP emergency generator which has also since been removed. The permit has been administratively modified to remove all emergency generators except for the facility's 175 HP emergency generators (Air Permit No. 712-0097-X007.X004, issued on March 11, 2015, incorporated into the Title V MSOP issued on May 25, 2017).
- 2. Revised emission calculations were submitted for the facility. The emissions from the adjacent facility, Indorama Ventures Xylenes and PTA, LLC (IVXP), were included in AlphaPet's plant wide emission totals.
- 3. Incorporated 40 CFR Part 63, Subpart DDDDD requirements for three natural gas fired steam generator boilers (4.1MMBtu/hr) (Emission Unit 002).

Continuous Polymerization Lines 1 & 2

The facility receives PTA and PIA as raw materials through a pneumatic conveying system from Indorama Ventures Xylenes & PTA, LLC (IVXP) and/or by rail car, which is stored in storage silos. From the storage vessels, the raw materials are sent to two identical continuous polymerization process lines. After the esterification step, the raw material mix is reacted in the polymerization reactor and sent to the finishing and chip production area. In chip production, the product is sent through cutting, granulation, and conditioning. The product is then sent to storage, bagging, and transport.

The emissions from the continuous polymerization process lines are routed to three HTM heaters via a closed vent system.

Emission Standards

Opacity

The state opacity requirement is applicable to the HTM heaters in this unit.

Particulate

The unit is subject to the state regulation for fuel burning equipment. Based on the equation for allowable particulate emissions for heat input values of 10 MMBtu/hr to 250 MMBtu/hr ($E=1.38H^{-0.44}$), the allowable particulate emissions from each HTM heater is 0.27 lb/MMBtu. The total cumulative potential emissions from the HTM heaters is

estimated to be 0.91 lb/hr (0.02 lb/MMBtu), which would be less than the state allowable particulate emission rate.

SO_2

The HTM heaters are subject to the state regulation for control of SO_2 from fuel burning equipment. The potential emissions of SO_2 from each HTM heater is estimated to be 0.10 lb/hr (0.002 lb/MMBtu). Since the HTM heaters are permitted to burn natural gas only, the heaters would meet this limit inherently.

VOC

AlphaPet has accepted an anti-PSD emission limit that will require the HTM heaters to maintain a 98% destruction removal efficiency or greater of VOC. These requirements were established in Air Permit No. 712-0097-X001, which was issued on April 21, 2008 and incorporated in the Title V MSOP on March 21, 2013.

HAPs

This unit is also subject to 40 CFR Part 60, Subpart Dc – Standards of Performance for Small Industrial – Commercial – Institutional Steam Generating Units and 40 CFR Part 63, Subpart JJJ – National Emission Standards for Hazardous Air Pollutant Emissions: Group IV Polymers and Resins. However, since the HTM heaters are permitted to fire natural gas only, the unit would be exempt from the emission requirements of Subpart Dc.

Subpart JJJ requires the facility to control the organic HAP emissions from the continuous process vents by routing the emissions to a combustion device (HTM heaters) to achieve 98% destruction removal efficiency by weight or achieve a concentration of 20 ppm by volume on a dry basis, whichever is less stringent.

Subpart JJJ requires the facility to implement a leak detection and repair (LDAR) program for components that are in organic HAP service at least 300 hours per year and contain a gas or liquid that is at least 5% by weight of total organic HAPs. Updated emission estimates that reflect current LDAR components have been provided with the application.

Periodic Monitoring

Opacity and PM

Since the heaters are only permitted to fire natural gas and the particulate emissions associated with the combustion of natural gas are minimal, the Department has determined that the natural gas records for the heaters and the visible emission monitoring that is performed by the facility daily during operation is sufficient to demonstrate ongoing compliance with both opacity and particulate standards for these units. If excess opacity were to become an issue, the Department retains the authority to require the

facility to test at any time and could modify the permit to require more stringent monitoring.

If visible emissions are observed at any time, the facility would not be able to certify compliance with the opacity standard or the particulate matter limit, unless another method is used to determine compliance. The facility is required to maintain records of the visible emission checks and any corrective action taken for a period of five years. The facility is also required to report any deviations in the semiannual monitoring report (SMR) and the annual compliance certification (ACC).

SO2

The heaters are permitted to only fire natural gas. The AP-42 SO₂ emission factor for natural gas combustion is $0.6 \text{ lb}/10^6 \text{ scf}$, which converts to 0.000588 lb/MMBtu. This emission rate is well below the state allowable emission rate of 1.8 lb/MMBtu for Category I Counties. Therefore, no additional monitoring is required.

VOC

Compliance with the applicable VOC emissions limits is also determined by monitoring the firebox temperature of the HTM heaters. The operating range for the heaters is established through performance testing.

HAPs

As an indicator of compliance with HAP, AlphaPet is required to continuously monitor the firebox temperature of the HTM heaters. The operating range for the heaters is established through performance testing. The monitoring, recordkeeping, and reporting requirements for the continuous polymerization lines are included in the permit provisos. These monitoring parameters are established in 40 CFR 63.1334 in order to show continuous compliance with the emissions requirements in 40 CFR Part 63, Subpart JJJ.

Cleaver Brooks Steam Boilers

The facility has constructed three steam boilers with a heat input of 4.1 MMBtu/hr each. The boilers are utilized to provide steam to the facility's production units.

The boilers are subject to the requirements of 40 CFR Part 63, Subpart DDDDD. Since boilers in units designed to burn gas 1 fuels (40 CFR 63.7500(e)) are not subject to the emission limits or operating limits specified in this subpart, no additional monitoring is required with respect to this rule. Since the boilers have a heat input capacity of <5 MMBtu/hr (4.1 MMBtu/hr each), the facility must perform a tune-up every 5 years per 40 CFR 63.7540. The facility shall submit 5-year compliance reports as specified in this subpart and maintain records of these reports, maintenance activities, and other records in a form suitable for inspection for a period of 5 years.

Emission Standards

Opacity

The state opacity requirement would be applicable to the boilers.

Particulate

The boilers are subject to the state regulation for fuel burning equipment. Based on the equation for allowable particulate emissions ($E=1.38H^{-0.44}$), the allowable particulate emissions from each boiler would be 0.5 lb/MMBtu. The potential emissions from each boiler are estimated to be 0.09 lb/hr (0.02 lb/MMBtu). Since the boilers are permitted to burn natural gas only, the boilers would meet this limit inherently.

SO_2

The boilers are subject to the state regulations for control of SO_2 from fuel burning equipment. The potential emissions of SO_2 from each boiler are estimated to be 0.01 lb/hr (0.002 lb/MMBtu). Since the boilers are permitted to burn natural gas only, the boilers would meet this limit inherently.

Periodic Monitoring

Opacity and PM

Since the boilers are only permitted to fire natural gas and the particulate emissions associated with the combustion of natural gas are minimal, the Department has determined that the natural gas records for the heaters and the visible emission monitoring that is performed by the facility daily during operation is sufficient to demonstrate ongoing compliance with both opacity and particulate standards for these units. If excess opacity were to become an issue, the Department retains the authority to require the facility to test at any time and could modify the permit to require more stringent monitoring.

If visible emissions are observed at any time, the facility would not be able to certify compliance with the opacity standard or the particulate matter limit, unless another method is used to determine compliance. The facility is required to maintain records of the visible emission checks and any corrective action taken for a period of five years. The facility is also required to report any deviations in the semiannual monitoring report (SMR) and the annual compliance certification (ACC).

SO2

The boilers are permitted to only fire natural gas. The AP-42 SO₂ emission factor for natural gas combustion is $0.6 \text{ lb}/10^6 \text{ scf}$, which converts to 0.000588 lb/MMBtu. This emission rate is well below the state allowable emission rate of 1.8 lb/MMBtu for Category I Counties. Therefore, no additional monitoring is required.

Storage Silos and Hoppers/Truck and Railcar Unloading Hoppers

The storage silos and hoppers/truck and railcar unloading hoppers include four chip evaluation silos, two bagging hoppers, six chip storage silos, two truck loading hoppers, two railcar loading hoppers, two chip conditioning silos, and two chip intermediate silos. The raw materials for the production lines are stored in the silos and transferred from IVXP or railcars by the loading hoppers.

The emissions from the four chip evaluation silos and two bagging hoppers are routed to a single bag filter for control. The six chip storage silos and two truck loading hoppers are routed to a single bag filter for control. The two railcar loading hoppers and the PTA and PIA silos each have an individual bag filter associated with each emission point for control.

Emission Standards

Opacity

The state opacity requirement is applicable to the bag filters associated with the storage silos and hoppers/truck and railcar unloading hoppers.

Particulate

The bag filters in this unit would be subject to the state regulation process weight curve. However, AlphaPet has proposed more stringent anti-PSD limits as listed in the table below for each emission point. The limits for the below units were established in Air Permit No. 712-0097-X001, which was issued April 21, 2008 and incorporated into the initial Title V MSOP on March 21, 2013.

Emission Point Description	Emission Point	Emission Factor	Production limit	Allowable (TPY)
		(lb PM/ton of product)	(tons per 12 month rolling	
			total)	
Chip Eval Silos	CD-CS2	0.004	620,000	1.24
Bagging Hoppers	CD-CS2	0.004	620,000	1.24
Chip Storage Silo	CD-CS1	0.004	620,000	1.24
Truck Loading	CD-CS2	0.004	620,000	1.24
Railcar Loading (1)	CD-CS3	0.004	620,000	1.24
Railcar Loading (2)	CD-CS4	0.004	620,000	1.24
PTA Storage Silo	HTM1-3	0.04	620,000	21.7
PIA Storage Silo	HTM1-3	0.04	620,000	21.7
	TOTAL			50.84

Table 1: Proposed PM limits for storage silos and hoppers/truck and railcar unloading hoppers.

NSPS/NESHAP/MACT

This unit is not subject to any NSPS, NESHAP, or MACT standards.

Periodic Monitoring

Opacity

As an indicator of compliance, AlphaPet is required to conduct weekly visual observations of the baghouses associated with this unit. If visible emissions are observed, the facility shall investigate and initiate any corrective actions within 4 hours and must conduct an additional observation to confirm that the emissions are reduced to normal operation. Records of the visual inspections shall be maintained along with any corrective action taken.

If excess opacity were to become an issue, the Department retains the authority to require the facility to test at any time and could modify the permit to require more stringent monitoring.

PM

As an indicator of compliance, AlphaPet is required to record the monthly throughput to each piece of equipment, as well as rolling 12 month total, and maintain records in a form readily available for inspection for a period of five years. The monitoring, recordkeeping, and reporting requirements for the storage silos and hoppers/truck and railcar unloading hopper bagfilters are included in the permit provisos.

PET Flakes Recycling Operation

The PET flake recycling operation includes a pneumatic chip transfer system, recycle extruder, and ethylene glycol tank. The facility was issued Air Permit 712-0097-X003 for the PET Flake Recycling Unit on July 11, 2011, which established the applicable limits discussed below. This permit was incorporated into the initial Title V MSOP on March 21, 2013.

This unit meets the definition of a thermoplastic product process unit (TPPU) as defined in 40 CFR 63.1312. Therefore, this unit is subject to 40 CFR Part 63, Subpart JJJ.

The emissions from the recycle extruder vent are routed to a scrubber and knock-out tank. The vent from the scrubber and knock-out tank is routed to the HTM heaters for control. The emissions from the pneumatic chip transfer system are routed to a baghouse for recovery of entrained dust from the chips.

Emission Standards

PM

AlphaPet stated in an application for the PET Flake Recycling Unit received on February 14, 2011 that the potential PM emissions from this source would be 0.25 tpy (0.06 lb/hr). The Department calculated the regulatory limit for PM emissions based on the process weight curve to be 50.7 tpy (11.59 lb/hr).

VOC

AlphaPet has accepted an anti-PSD emission limit that will require the facility to maintain a 98% destruction removal efficiency or greater of VOC emissions from this unit. Based on the proposed limit and the potential emissions from this source, actual emissions would be maintained below the threshold of the regulatory emission limits. These limits originate from the March 21, 2013 Title V permit.

HAP

Subpart JJJ requires the facility to control the organic HAP emissions from the continuous process vents by routing the emissions to a combustion device (HTM heaters) to achieve 98% destruction removal efficiency by weight or achieve a concentration of 20 ppm by volume on a dry basis, whichever is less stringent.

Periodic Monitoring

VOC

As an indicator of compliance, AlphaPet is required to continuously monitor the firebox temperature of the HTM heaters. The operating range for the heaters is established through performance testing. The monitoring, recordkeeping, and reporting requirements for the continuous polymerization lines are included in the permit provisos.

HAP

As an indicator of compliance, AlphaPet is required to continuously monitor the firebox temperature of the HTM heaters. The operating range for the heaters is established through performance testing. The monitoring, recordkeeping, and reporting requirements for the continuous polymerization lines are included in the permit provisos.

Subpart JJJ requires the facility to implement a leak detection and repair (LDAR) program for components that are in organic HAP service at least 300 hours per year and contain a gas or liquid that is at least 5% by weight of total organic HAPs.

Emergency Generators

The facility has removed from service the two 99 HP generators and the 1,490 HP generator that were implemented into the facility's previous Title V. As such, these generators will be removed from the permit during this renewal.

The facility maintains a 175 HP compression ignition 4-stroke lean diesel-fired stationary RICE manufactured in 1976. The engine is utilized as emergency use only. The emergency engine is subject to the requirements of 40 CFR Part 63, Subpart ZZZZ. Air Permit 712-0097-X004 was issued for this unit on March 11, 2015 and incorporated into the Title V MSOP issued on May 25, 2017.

Since the generator is permitted for emergency use only, the generator is required to operate less than 100 hours per year for maintenance checks and testing.

Emission Standards

Opacity

This emergency engine is subject to the state opacity requirement.

NSPS/NESHAPs

The Department reviewed the applicability of the 175 HP engine to 40 CFR 60, Subpart IIII. Since the generator was manufactured in 1976, this unit is not subject to this subpart or the requirements therein.

This unit is subject to 40 CFR Part 63, Subpart ZZZZ.

Periodic Monitoring

Opacity and PM

Since all of the engines are classified as emergency, no additional monitoring requirements for the opacity standard are required.

HAPs

According to 40 CFR 63.6602, operators of an existing stationary RICE with a site rating of equal to or less than 500 brake HP located at a major source of HAP emissions must comply with the emission limitations and other requirements in Table 2c of that subpart. Since the facility is considered a major source for HAP emissions, the facility is also required keep records of hours of operation and a log book explaining each use of the generator.

Compliance Assurance Monitoring (CAM)

This facility is subject to the provisions of 40 CFR Part 64, Compliance Assurance Monitoring (CAM). The baghouses associated with the facility's storage silos would be subject to CAM since monitoring is required for pollutant-specific emissions units that use a control device to comply with an applicable standard or emission limitation and are units with a PTE at or greater than 100 percent of the major source threshold for a given pollutant without taking into account emissions reductions achieved by air pollution control devices. AlphaPet has developed a CAM plan for the facility's storage silos. The CAM plan is outlined in Appendix A of this statement.

As stated in 64.2(b)(vi), units with emission limitations or standards for which a Part 70 or 71 permit specifies a continuous compliance determination method as defined in 64.1 are exempt from the requirements of CAM. The HTM heaters are required to continuously monitor the combustion zone temperature as an indicator of compliance; therefore, the HTM heaters would be exempt from the requirements of CAM.

Recordkeeping and Reporting

The facility is required to submit an annual compliance certification (ACC) and semiannual monitoring report (SMR) to indicate compliance with the facility's Title V requirements. Since the facility is subject to 40 CFR Part 63, Subpart JJJ (National Emission Standards for Hazardous Air Pollutant Emissions: Group IV Polymers and Resins), the facility is required to maintain records of the following information, and to submit reports that summarize this information semiannually:

- The amount of natural gas fuel fired in the facility's HTM heaters on a monthly basis.
- Any excursions on the minimum fire box temperature for the HTM heaters, established during the facility's most recent performance test.
- Leak Detection and Repair (LDAR) component monitoring per 40 CFR Part 63, Subpart H.

Environmental Justice

ADEM utilized EJSCREEN screening tool to help identify areas that may warrant additional consideration, analysis, or outreach (see Appendix B).

Recommendation

The renewal Major Source Operating Permit (712-0097) is proposed to be reissued with the requirements above pending resolution of any comments received during a 30-day public comment period and a 45-day EPA review.

Appendix A

CAM AlphaPet, Inc. Decatur

	Indicator	Opacity	Throughput			
I. Measurement Approach		Visual Inspection	Electronic logs			
II.	Indicator Range	The monitoring is based on any combination of the following to reasonably assure compliance with the applicable PM emission limit: vendor recommendations, equipment design properties, and visual inspections	The monitoring is based on the tons of product moved through the silo and the associated lb/ton PM emissions as derived from AP-42			
	Performance Criteria					
	Data Representativeness	Opacity is an acceptable indicator of PM emissions	Throughput is directly linked to the PTE of PM emissions			
	Verification of Operational Status	The silo will be determined to be operational when transfers are occurring to/from the silo.	The silo will be determined to be operational when transfers are occurring to/from the silo.			
III.	Quality Assurance and Control Practices	Calibrate, maintain, and operate the device in accordance with the manufacturer's specifications.	Calibrate, maintain, and operate the device in accordance with the manufacturer's specifications.			
	Monitoring Frequency	Weekly	Measured Continuously			
	Data Collection Procedures	Visual observation recorded in log book and backed up to an electronic file	Throughput totals are automatically recorded in electronic file format.			
	Averaging Period	N/A	12-month rolling total			
	Excursions	Visual checks are not performed	Monthly throughput is not recorded			

CAM plan for Storage Silos and Hoppers

Appendix B

Environmental Justice Screening AlphaPet, Inc. Decatur

EJ Screen Information for AlphaPet, Inc., Decatur, AL

Radius	Minority ¹	Low-Income ²	No. of Residents in Radius
1 mile	No (26%)	No (12%)	13
3 mile	Yes (54%)	No (42%)	1,295
5 mile	Yes (48%)	Yes (46%)	25,610

State percentage of minority residents- 34%; therefore 120% of 34%= 40.8% State percentage of low-income residents- 37%; therefore 120% of 37% = 44.4%

¹ Is the minority population within the radius greater than 20% more than the statewide percentage of minority residents?

² Is the low-income population within the radius greater than 20% more than the statewide percentage of low-income residents?