

STATEMENT OF BASIS

For the issuance of Draft Air Permit # 2058-AR-8 AFIN: 75-00051

1. PERMITTING AUTHORITY:

Arkansas Department of Environmental Quality
5301 Northshore Drive
North Little Rock, Arkansas 72118-5317

2. APPLICANT:

Pet Solutions, LLC
10511 Gauge Road
Danville, Arkansas 72833

3. PERMIT WRITER:

Patty Campbell, P.E.

4. NAICS DESCRIPTION AND CODE:

NAICS Description: Rendering and Meat Byproduct Processing
NAICS Code: 311613

5. SUBMITTALS:

9/30/2013 and 10/30/2013

6. REVIEWER'S NOTES:

Pet Solutions, LLC (Pet) is a protein conversion facility located at 10511 Gauge Road Danville, Yell County, Arkansas 72833, southwest of Centerville and north of Ola. This permitting modification is necessary to:

1. Remove 33.48 MMBtu/hr natural gas-fired Boiler SN-05 from service;
2. Install new 73.6 MMBtu/hr natural gas-fired Boiler SN-17, subject to 40 CFR 60 Subpart Dc, to generate steam for processes;
3. Remove RTO SN-14, which was never installed, from the permit;
4. Install 2.38 MMBtu/hr natural gas-fired Haarslev RTO SN-18 to replace SN-11;
5. Remove 5.0 MMBtu/hr natural gas-fired RTO SN-11 from service, *after* installation of RTO SN-18;
6. Limit Boiler SN-06 operating hours to not to exceed 4,000 hours per year, as recorded on a non-resettable hour meter;
7. Update 40 CFR 63 Subpart JJJJJ applicable provisions for Boiler SN-06 with the promulgation of the February 1, 2013 amendments;

8. Remove temporary property boundary odor monitoring conditions, prior SC #36 and #37, because wet scrubbers SN-12A/B installed;
9. Resume monthly interior facility pressure monitoring and recording;
10. State initial performance test of Scrubbers 03 and 12B for VOC completed;
11. State initial performance test of Boiler SN-10 for CO and NO_x completed;
12. State initial performance test of Boiler SN-06 for PM/PM₁₀, CO, and NO_x completed; and
13. Install new 1,000 gallon capacity, diesel storage tank (A-3) to Insignificant Activities List.

Total permitted annual emission changes associated with this modification are: -5.0 tpy (tons per year) PM, -3.5 tpy PM₁₀, 18.2 tpy SO₂, 3.4 tpy VOC, 2.5 tpy CO, 0.1 tpy NO_x, -0.09 tpy Acetaldehyde, -0.20 tpy Acrolein, -0.01 tpy Arsenic, -0.22 tpy Benzene, -0.01 tpy Cadmium, -0.04 tpy Chlorine, -0.21 tpy Formaldehyde, 1.16 tpy Hexane, -0.01 tpy Hexavalent Chromium, -0.94 tpy Hydrogen Chloride, -0.01 tpy Lead, -0.09 tpy Manganese, -0.01 tpy POM/PAH, and -0.10 tpy Styrene. The increases do not exceed the de minimis threshold levels.

7. COMPLIANCE STATUS:

The following summarizes the current compliance of the facility including active/pending enforcement actions and recent compliance activities and issues.

There is a current, air enforcement CAO No. LIS 13-0162. This permit modification does not address the issues in CAO No. LIS 13-0162.

8. PSD APPLICABILITY:

- a) Did the facility undergo PSD review in this permit (i.e., BACT, Modeling, etc.)? N
- b) Is the facility categorized as a major source for PSD? N
 - *Single pollutant ≥ 100 tpy and on the list of 28 or single pollutant ≥ 250 tpy and not on list, or*
 - *CO₂e potential to emit ≥ 100,000 tpy and ≥ 100 tpy/≥ 250 tpy of combined GHGs?*

If yes, explain why this permit modification is not PSD.

9. SOURCE AND POLLUTANT SPECIFIC REGULATORY APPLICABILITY:

Source	Pollutant	Regulation (NSPS, NESHAP or PSD)
06, 10, & 17 (Steam generating units)	Only recordkeeping applies	NSPS Subpart Dc
06 (biomass boiler)	HAPs	NESHAP Subpart JJJJJ
16 (gas tank)	HAPs	NESHAP Subpart CCCCC

10. EMISSION CHANGES AND FEE CALCULATION:

See emission change and fee calculation spreadsheet in Appendix A.

11. NAAQS EVALUATIONS AND NON-CRITERIA POLLUTANTS:

a) NAAQS:

Pursuant to Act 1302 of the Regular Session of the 89th General Assembly of the State of Arkansas, no dispersion modeling was performed by ADEQ because it was not voluntarily proposed and agreed to by the facility. No other information was submitted by the applicant. Criteria pollutants were not evaluated for impacts on the NAAQS.

b) Non-Criteria Pollutants:

1st Tier Screening (PAER)

Estimated hourly emissions from the following sources were compared to the Presumptively Acceptable Emission Rate (PAER) for each compound. The Department has deemed the PAER to be the product, in lb/hr, of 0.11 and the Threshold Limit Value (mg/m^3), as listed by the American Conference of Governmental Industrial Hygienists (ACGIH).

Pollutant	TLV (mg/m^3)	PAER (lb/hr) = $0.11 \times \text{TLV}$	Proposed lb/hr	Pass?
Acrolein	0.2293	0.0252	0.114	No
Arsenic	0.2293	0.0252	0.000656	Yes
Benzene	1.60	0.176	0.120	Yes
Cadmium	0.01	0.0011	0.000278	Yes
Chlorine	1.45	0.1595	0.0225	Yes
Chromium, Hexavalent	0.05	0.0055	0.000305	Yes
Formaldehyde	1.50	0.165	0.136	Yes
Hexane	176.23	19.385	0.264	Yes
Hydrogen Chloride	2.984	0.328	0.542	No
Lead	0.05	0.0055	0.00144	Yes
Manganese	0.20	0.022	0.0457	No
POM/PAH	52.43	5.7673	0.00081	Yes
Styrene	85.2	9.372	0.0542	Yes

2nd Tier Screening (PAIL)

AERMOD air dispersion modeling was performed on the estimated hourly emissions from the following sources, in order to predict ambient concentrations beyond the property boundary. The Presumptively Acceptable Impact Level (PAIL) for each compound has been deemed by the Department to be one one-hundredth of the Threshold Limit Value as listed by the ACGIH.

Pollutant	PAIL ($\mu\text{g}/\text{m}^3$) = 1/100 of Threshold Limit Value	Modeled Concentration ($\mu\text{g}/\text{m}^3$)	Pass?
Acrolein	2.293	0.338*	Yes
Hydrogen Chloride	29.9	1.6047*	Yes
Manganese	2.0	0.138*	Yes

* Modeling completed for Permit #2058-AR-6, issued on 11/10/2011.

Other Modeling: None.

Odor: None.

H₂S Modeling: None

12. CALCULATIONS:

SN	Em. Factor Source (AP-42, testing, etc.)	Emission Factor (lb/ton, lb/hr, etc.)	Control Equipment	Control Equipment Efficiency	Comments
03, 08, 12A & 12B Scrubbers	Estimate by Pet accepted by ADEQ 12/2003	<u>For each unit</u> 0.1 lb/hr VOC 0.4 tpy VOC	Odor abatement only	@8760 hrs/yr each	SN-03 initial performance test 05/10/12: VOC: 0.06 lb/hr vs 0.10 SN-12B initial performance test 09/18/12: VOC: 0.1 lb/hr vs 0.10

SN	Em. Factor Source (AP-42, testing, etc.)	Emission Factor (lb/ton, lb/hr, etc.)	Control Equipment	Control Equipment Efficiency	Comments
04 & 13 Silos Loadout Shipping	AP-42 Table 9.9.1-2 (3/03) Grain Processing Facility – <u>Animal Feed Mills</u> – Feed Shipping	<u>For each unit lb/ton meal</u> PM = 0.0033 PM ₁₀ = 0.0008	Baghouses & RTO	N/A	@8,760 hrs/yr SN-04 @ <u>63,948 tons</u> meal produced/yr & 7.3 tph max SN-13 @ <u>70,080 tpy</u> & 8.0 tph max 4 silos w/bh routed to SN-03 5 loadout silos routed to RTO 6 meal silos equipped w/ bh re-routed back to silos.
07 & 15	AP-42 Table 9.9.1-1 (3/03) Grain Elevator – Head house and grain handling	<u>For each unit lb/ton meal</u> PM = 0.061 PM ₁₀ = 0.034	None	None	Meal Handling – @8,760 hrs/yr SN-07 @ <u>63,948 tons</u> meal produced/yr & 7.3 tons/hr max SN-15 @ <u>70,080 tons</u> meal produced /yr & 8.0 tons/hr max
10, 17, 18	AP-42 Tables 1.4-1 & 1.4-2* (07/98) +HAPs <u>SN-10</u> Vendor Guarantee for NO _x & CO EF http://boilerspec.com/specifire_pdf/csi/2006/Section%20E/E-Emissions.pdf ¹	<u>For each unit lb/MMscf</u> PM/PM ₁₀ – 7.6 SO ₂ – 0.6 VOC – 5.5 *CO – 84 *NO _x – 100 <u>SN-10 & 17</u> Ultra Low NO _x Burners CO – 50 ppm = 36.72 lb/MMscf NO _x – 30 ppm = 40.8 lb/MMscf	SN-10 & 17 identical w/ Ultra Low NO _x Burners SN-18 RTO VOC control device	N/A	Natural gas is <u>only</u> fuel used @ 8,760 hrs/yr SN-10 & 17 Boilers ¹ = 73.6 MMBtu/hr SN-18 RTO = 2.3 MMBtu/hr ¹ from Cleaver-Brooks manual 50 ppm CO / 1370 ¹ = 0.036 lb/MMBtu * (MMBtu/1000000 btu) * 1020 BTU/scf) = 0.00003672 lb/scf * 1000000 scf/MMscf = <u>36.72 lb/MMscf</u> 30 ppm NO _x / 850 ¹ = 0.0176 lb/MMBtu (vendor doubled) 0.02 = 0.040 lb/MMBtu * (MMBtu/1000000 btu) * 1020 BTU/scf) = 0.000041 lb/scf * 1000000 scf/MMscf = <u>40.8 lb/MMscf</u>

SN	Em. Factor Source (AP-42, testing, etc.)	Emission Factor (lb/ton, lb/hr, etc.)	Control Equipment	Control Equipment Efficiency	Comments
06	AP-42 Table 1.6-1* (9/03) Table 1.6-2** (9/03) Tables 1.6-3*** & -4 (HAPs) (9/03)	lb/MMBtu/hr *PM – 0.35 *PM ₁₀ – 0.32 **SO ₂ – 0.025 ***VOC – 0.017 **CO – 0.60 **NO _x – 0.22	Mechanical Collector Fly Ash Re-injector	Included in Em. Factor	Wood-fired Boilers Boiler = 28.5 MMBtu/hr Restricted Hours = 4,000 hrs/ rolling 12-months initial performance test performed 05/09/13: PM: 0.9 lb/hr vs 10.0 PM ₁₀ : 0.04 lb/hr vs 9.2 CO: 2.2 lb/hr vs 17.1 NO _x : 3.9 lb/hr vs 6.3
16	TANKS 4.0.9d	1 turnover/wk	N/A	N/A	Gasoline Storage Tank 290 gallon capacity

13. TESTING REQUIREMENTS:

No further testing of sources is required at this time, unless or until a significant modification is made to a scrubber or boiler.

14. MONITORING OR CEMS:

The permittee must monitor the following parameters with CEMS or other monitoring equipment (temperature, pressure differential, etc.)

SN	Parameter or Pollutant to be Monitored	Method (CEM, Pressure Gauge, etc.)	Frequency	Report (Y/N)
Facility-wide	Differential Air Pressure (Maintain Negative Pressure <i>inside</i> Process Building)	Smoke test, anemometer, Differential Air Gauge or other approved method	Monthly	No
03, 08, 12A/B	ORP	ORP Monitor	Continuous	No
12A/B	Inlet Gas Temperature	Temperature Gauge	Continuous, alarm if temp. exceeded	No
	pH Scrubbing Liquid	pH device	Continuous, alarm if pH out of range	No

15. RECORDKEEPING REQUIREMENTS:

The following are items (such as throughput, fuel usage, VOC content, etc.) that must be tracked and recorded.

SN	Recorded Item	Permit Limit	Frequency	Report (Y/N)
06 & 10	Notification of NSPS Subpart Dc	None	As occurs	Yes, complete
17	Notification of NSPS Subpart Dc	Various Due within 30-days after per GC #3 & §60.48c	As occurs	Yes
10 & 17	Quantity of natural gas consumed per boiler	Use separate flow meter or calculations as a percent of operating hours	Monthly	No
10	Initial Performance Test for CO & NO _x , dated 09/18/2012	Maintain copy on site	Once	Yes, complete
06	Boiler Operating Hours	4,000 hours/rolling 12 months as recorded on non-resettable hour meter	Monthly	No
06	Initial Performance Test for PM, PM ₁₀ , CO, & NO _x , dated 05/09/2012 with wood products	Maintain copy on site for 5 years or until next test	One-time unless significant modifications to SN-06	Yes, complete
06	Combustible Material Type & Throughput & Recordkeeping provisions of 60 Subpart Dc	Wood Waste = max of source <u>Max Tons per Day (tpd)</u> Cardboard = 15.8 Poultry Fat = 1.9 Poultry Meal = 4.8 Sludge = 11.3 Balcones Fuel Cubes = 12.0	Record Daily, Summarize Monthly & rolling 12 month Totals	No
06	Initial Performance Test for VOC, CO, & NO _x for Balcones Fuel Cubes	Test required prior to use at 900 – 1,000 lbs/hr	One-time	Yes

SN	Recorded Item	Permit Limit	Frequency	Report (Y/N)
06	Work Practice or Management Practice Standard Biennial Tune-up per NESHAP 6J	1. Concentration of CO in the effluent stream in ppm, by v, and O in v percent, measured before and after the tune-up of the boiler; 2. Description of any corrective actions taken as a part of the tune-up; and 3. Type and amount of fuel used over 12 mo. prior to biennial tune-up	Initial Tune-up no later than 3/21/2014 & Once every 25 months thereafter	No, Keep per GC #5
06	Energy Assessment performed by a qualified Energy Assessor per NESHAP Subpart 6J	1. Visual inspection of boiler; 2. Evaluation of facility operating characteristics, specs of energy using systems, operating and maintenance procedures, and unusual operating constraints; 3. Inventory of major systems consuming energy from SN-06, within facility control; 4. Review architectural and engineering plans, facility operation and maintenance procedures / logs, & fuel usage; 5. List of energy conservation measures within facility control; 6. List of potential energy savings due to conservation measures identified; and 7. Comprehensive Report detailing ways to improve efficiency, cost specific improvements, benefits, and time frame to recoup investments.		Yes
06	Operating Limits Any add-on control device	Must maintain opacity nte 10% daily block average	Daily when operating	No
06		Multiple cyclone fly ash arrestor control device must use at all times boiler is operating		No
	Notification of Compliance Status	1. This facility complies with the requirements in §63.11214(b) to conduct an initial tune-up of the boiler (SN-06) 2. This facility has had an energy assessment performed according to §63.11214(c.)” 3. No secondary materials that are solid waste were combusted in any affected unit.	No later than 120 days after the applicable compliance dates	Yes

SN	Recorded Item	Permit Limit	Frequency	Report (Y/N)
	Compliance Certificate	Annually 1. Company name, address, and AFIN. 2. Statement by a Responsible Official, with the official's name, title, phone number, e-mail address, and original signature, certifying the truth, accuracy and completeness of the notification and a statement of whether the source has complied with all the relevant standards and other requirements of 40 CFR 63 Subpart JJJJJJ. 3. If SN-06 experiences any deviations from the applicable requirements during the reporting period, include a description of deviations, the time periods during which the deviations occurred, and the corrective actions taken.		Yes
	Recordkeeping provisions of 63 Subpart JJJJJJ	Annually 1. Records of the occurrence and duration of each malfunction of the boiler, or of the associated air pollution control and monitoring equipment. 2. Records of actions taken during periods of malfunction to minimize emissions in accordance with the general duty to minimize emissions in §63.11205(a), including corrective actions to restore the malfunctioning boiler, air pollution control, or monitoring equipment to its normal or usual manner of operation.		No
10, 17 & 18	Quantity of natural gas consumed per boiler Recordkeeping NSPS Subpart Dc	None	Monthly	No
17 & 18	Submit notification date of construction, anticipated startup, actual startup and designed heat input capacity combusted fuel	---	Once, complete for SN-10 only	Yes
Facility-wide	Performance Tests	N/A	Keep for 5-years or until next test	Yes
04 & 07	West Meal Handling/Loadout	63,948 tons meal produced per rolling 12 months	Monthly	No
13 & 15	East Meal Handling/Loadout	70,080 tons meal produced per rolling 12 months	Monthly	No

SN	Recorded Item	Permit Limit	Frequency	Report (Y/N)
Facility-wide	Whole Hogs	Only poultry by-products processed + Whole Hogs	Monthly	No
03, 08, 12A/B Wet Scrubbers	Oxidant Solution Flow Rate	SN-03 = 787 gal/min SN-08 = 240 g/m SN-12A/B = 394 g/m	Continuous	No
	ORP	Minimum 200 mV	Continuous	No
	Malfunction/failure of operating parameters (temp, pH range, etc) must emit alarm. Each failure/alarm must be recorded with scrubber SN, date, time, cause(s), method(s) of resolution, and op	General duty to perform corrective actions as soon as practicable to minimize emission exceedances and must record	As-occurs	No
12A/B	Inlet Gas Temp.	Maximum 100 °F	Continuous	No
	Maintain MSDS or equivalent documents of oxidizing agent(s)	pH Range 8 to 9	Continuous	No
Facility	Building Interior – Negative Air Pressure Required	If positive pressure detected, immediately take action to identify cause, implement corrective action, and document corrective action.	Monthly or as needed	No
16	Gasoline usage	≤10,000 gallons /mo and ≤15,000 gal/rolling 12 mos	Monthly	No

16. OPACITY:

SN	Opacity	Justification for limit	Compliance Mechanism
10, 17 & 18	5%	§18.501 and A.C.A. (natural gas only)	Annual ADEQ Inspection
06	20%	§18.501 and A.C.A.	
04, 07, 13 & 15	5%	§18.501 and A.C.A.	

17. DELETED CONDITIONS:

Former SC	Justification for removal
36 & 37	Temporary Property Boundary Odor Monitoring conditions removed after wet scrubbers SN-12A and SN-12B were installed.

18. GROUP A INSIGNIFICANT ACTIVITIES:

Source Name	A	Emissions (tpy)						
		PM/ PM ₁₀	SO ₂	VOC	CO	NO _x	HAPs	
							S	Tot
One 1,200 gallon diesel tank	A-3	-	-	0.0085	-	-	-	-
One 640 gallon diesel tank	A-3	-	-	0.00046	-	-	-	-
One 1,000 gallon diesel tank	A-3	-	-	0.00037	-	-	-	-
Ash bin/conveyor system on the wood-fired boiler	A-13	0.0002	-	-	-	-	-	-
Wood chip/sawdust piles	A-13	0.1650	-	-	-	-	-	-

19. VOIDED, SUPERSEDED, OR SUBSUMED PERMITS:

List all active permits voided/superseded/subsumed by the issuance of this permit.

Permit #
2058-AR-7

20. CONCURRENCE BY:

The following supervisor concurs with the permitting decision.

Paula Parker, P.E.

APPENDIX A – EMISSION CHANGES AND FEE CALCULATION

Fee Calculation for Minor Source

Revised 08-26-13

Facility Name: Pet Solutions, LLC
 Permit Number: 2058-AR-8
 AFIN: 75-00051

			Old Permit	New Permit
\$/ton factor	23.42	Permit Predominant Air Contaminant	57.9	58
Minimum Fee \$	400	Net Predominant Air Contaminant Increase	0.1	
Minimum Initial Fee \$	500			
		Permit Fee \$	400	
Check if Administrative Amendment	<input type="checkbox"/>	Annual Chargeable Emissions (tpy)	58	

Pollutant (tpy)	Old Permit	New Permit	Change
PM	46.2	41.2	-5
PM ₁₀	40.9	37.4	-3.5
SO ₂	3.3	21.5	18.2
VOC	7.2	10.6	3.4
CO	93.8	96.3	2.5
NO _x	57.9	58	0.1
Acetaldehyde	0.09	0	-0.09
Acrolein	0.43	0.23	-0.2
Arsenic	0.05	0.04	-0.01
Benzene	0.49	0.27	-0.22
Cadmium	0.05	0.04	-0.01
Chlorine	0.09	0.05	-0.04
Formaldehyde	0.54	0.33	-0.21
Hexane	0	1.16	1.16
Hex Chromium	0.05	0.04	-0.01
Hydrogen Chloride	2.03	1.09	-0.94
Lead	0.05	0.04	-0.01
Manganese	0.22	0.13	-0.09
POM/PAH	0.05	0.04	-0.01
Styrene	0.21	0.11	-0.1
pc 10/30/13	0	0	0