

STATEMENT OF BASIS

For the issuance of Draft Air Permit # 2058-AR-7 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, PE

4. PROCESS DESCRIPTION AND NAICS CODE:

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

5. SUBMITTALS:

4/9/2012 and 4/20/2012

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. Install two new wet Scrubbers (SN-12A and 12B) with 100,000 CFM fans;
2. Remove wet Scrubber SN-12C, which was never installed, from the permit;
3. Update Specific Condition (SC) #8 to confirm notification letter dated May 3, 2012 of SN-10 Boiler;
4. Update SC #26a to reflect requirement to conduct a tune-up of Boiler SN-06 to demonstrate initial compliance with Subpart JJJJJ, no later than the compliance date specified in §63.11223;
5. Temporarily suspend monthly negative facility pressure monitoring, SC #34 and #35; and
6. Temporarily require daily odor monitoring at the property boundary, SC #36 and #37.

Total permitted annual emission changes associated with this modification is: -0.5 tons per year (tpy) VOC.

7. COMPLIANCE STATUS:

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

CAO LIS 11-167 is active. The facility failed to complete recordkeeping of the scrubbers SN-03 and SN-08 ORP parameters.

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?

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

9. SOURCE AND POLLUTANT SPECIFIC REGULATORY APPLICABILITY:

| Source | Pollutant | Regulation (NSPS, NESHAP or PSD) |
|---------------------|----------------------------|-------------------------------------|
| 05, 06, 10, 11 & 14 | Natural gas fuel use only. | NSPS Subpart Dc |
| 06 | HAPs | NESHAP Subpart JJJJJ |
| 16 | HAPs | NESHAP Subpart CCCCC |

10. EMISSION CHANGES AND FEE CALCULATION:

See emission change and fee calculation spreadsheet in Appendix A.

11. MODELING:

Criteria Pollutants

Examination of the source type, location, plot plan, land use, emission parameters, and other available information indicate that modeling is not warranted at this time.

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? |
|----------------------|--------------------------------|--|-------------------|-------|
| Acetaldehyde | 45.04 | 4.9544 | 0.0237 | Yes |
| Acrolein | 0.2293 | 0.0252 | 0.114 | No |
| Arsenic | 0.2293 | 0.0252 | 0.00065112 | Yes |
| Benzene | 1.60 | 0.176 | 0.1200327 | Yes |
| Cadmium | 0.01 | 0.0011 | 0.00024969 | Yes |
| Chlorine | 1.45 | 0.1595 | 0.0225 | Yes |
| Chromium, Hexavalent | 0.05 | 0.0055 | 0.00026866 | Yes |
| Formaldehyde | 1.50 | 0.165 | 0.134049 | Yes |
| Hydrogen Chloride | 2.984 | 0.328 | 0.542 | No |
| Lead | 0.05 | 0.0055 | 0.00143029 | Yes |
| Manganese | 0.20 | 0.022 | 0.04564582 | No |
| POM/PAH | 52.43 | 5.7673 | 0.0008014075 | 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:

A.C.A. §8-3-103 requires hydrogen sulfide emissions to meet specific ambient standards. Many sources are exempt from this regulation, refer to the Arkansas Code for details.

Is the facility exempt from the H₂S Standards N
 If exempt, explain: _____

12. CALCULATIONS:

| SN | Emission Factor Source (AP-42, testing, etc.) | Emission Factor (lb/ton, lb/hr, etc.) | Control Equipment | Control Equipment Efficiency | Comments |
|--------------------------------|---|--|-------------------|------------------------------|---|
| 03, 08, 12A/B | Estimate by Pet Solution accepted by ADEQ in 12/ 2003 | 0.1 lb/hr VOC 0.4 tpy VOC | N/A | N/A | Wet Scrubbers – “Odor abatement only” @8760 hrs/yr |
| 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>lb/ton meal</u> PM = 0.0033 PM ₁₀ = 0.0008 | None | None | @8,760 hrs/yr SN-04 @ <u>63,948 tons</u> meal produced/yr & 7.3 tons/hr max SN-13 @ <u>70,080 tons/yr</u> & 8.0 tons/hr max 4 silos w/baghouse routed to SN-03 5 loadout silos all routed to RTO 6 meal silos equipped w/ baghouse re-routed back to silos. |

| SN | Emission Factor Source (AP-42, testing, etc.) | Emission Factor (lb/ton, lb/hr, etc.) | Control Equipment | Control Equipment Efficiency | Comments |
|-------------------|--|---|---|------------------------------|--|
| 07, 15 | AP-42 Table 9.9.1-1 (3/03) Grain Elevator – Headhouse and grain handling | <u>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 |
| 05, 10, 11, 14 | 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/specification/csi/2006/Section%20E/E-Emissions.pdf ^d | lb/MMscf PM/PM ₁₀ – 7.6 SO ₂ – 0.6 VOC – 5.5 *CO – 84 *NO _x – 100 SN-10 Ultra Low NO _x Burners CO – 50 ppm = 36.72 lb/MMscf NO _x – 30 ppm = 40.8 lb/MMscf | SN-10 has Ultra Low NO _x Burners SN-11 & 14 (RTO) are control devices for VOCs | N/A | Natural gas is <u>only</u> fuel used @ 8,760 hrs/yr SN-05 Boiler = 33.48 MMBtu/hr SN-10 Boiler ¹ = 73.6 MMBtu/hr SN-11 RTO = 5.0 MMBtu/hr SN-14 RTO = 10.9 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</u> <u>lb/MMscf</u> |
| 06 | AP-42 Table 1.6-1* (9/03) Table 1.6-2** (9/03) Tables 1.6- 3*** & -4 (HAPs) (9/03) | <u>lb/MMBtu/hr</u> *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 | Is included in EF | Wood-fired Boilers NAME Boiler = <u>28.5</u> <u>MMBtu/hr</u> EF – Emission factor Restricted Hours = 7,488 hrs/ rolling 12-months An IPT will be performed to confirm |
| 16 | TANKS 4.0.9d | 1 turnover/wk | N/A | N/A | Gasoline Storage Tank 290 gallon capacity |

13. TESTING REQUIREMENTS:

The permit requires testing of the following sources.

| SN | Pollutants | Test Method | Test Interval | Justification |
|----------|---|---|-------------------------------|---------------|
| 06 | PM PM ₁₀ CO NO _x | Method 5 Method 201A Method 10 Method 7E | Once with wood only | §19.702 |
| 06 | PM PM ₁₀ CO NO _x | Method 1- 5 Method 201 or 201A Method 10 Method 7E | Once with Balcones Fuel Cubes | §19.702 |
| 10 | CO NO _x | Method 10 - CO Method 7E - NO _x | Once | §19.702 |
| 3 | VOC | Method 25A | Once | §19.702 |
| 12A, 12B | VOC | Method 25A | One once | §19.702 |

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 inside Process Building) | Smoke test, anemometer, Differential Air Gauge or other approved method | Monthly | N |
| 03, 08 | Oxidation Reduction Potential | ORP Monitoring Equipment | Every 8 hours until Continuous monitor is installed | N |

| SN | Parameter or Pollutant to be Monitored | Method (CEM, Pressure Gauge, etc.) | Frequency | Report (Y/N) |
|----------------------|--|--|---|--------------|
| 03, 08, 12A/B | Oxidation Reduction Potential | ORP Monitoring Equipment | Suspended until 7/15/12 after that Continuous | N |
| 12A, 12B | Inlet Gas Temperature | Temperature Gauge | Suspended until 7/15/12 after that Continuously, sound alarm if temp exceeded | N |
| | pH Scrubbing Liquid | pH device | Suspended until 7/15/12 after that Continuously, sound alarm if pH out of range | N |
| At Property Boundary | Odor Detection | a handheld Scentometer or Olfactometer monitor | Daily until 7/15/12 | N |

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) |
|---------------------|----------------------------|---|---|---------------|
| 03 | Pressure Drop | 6.9 inches of H ₂ O | Suspended until 7/15/12 after that On-going | N |
| 03, 08 | ORP | Minimum 200 mV | | N |
| 12A-B Wet Scrubbers | Oxidant Solution Flow Rate | SN-03 = 787 gal/min SN-08 = 240 g/m SN-12A-B = 394 g/m ea | | N |
| | ORP | Minimum 200 mV | | N |

| SN | Recorded Item | Permit Limit | Frequency | Report* (Y/N) |
|----------------------|---|---|---|---------------|
| | pH Maintain MSDS or equivalent documentation of oxidizing agent | 8 to 9 | | N |
| | Failure/alarm on as-occurred basis and include scrubber, date, time, cause(s), method(s) of resolution and op name/initial. | N/A | As-occurs | N |
| Facility | Interior Pressure | Negative Interior Pressure required | Suspended until 7/15/12 after that Monthly | N |
| | | If positive pressure is detected, immediately take action to identify the cause, implement corrective action, and document corrective action | Suspended until 7/15/12 after that As-occurs | N |
| | Property Boundary Odor Monitoring | Record all observations, including date, time, observer and whether or not detection of an odor was found. | Daily until 7/15/12 | N |
| 06 Wood Boiler | Combustible Material Type & Throughput & Recordkeeping provisions of 60 Subpart Dc | Wood Waste = max of source <u>Max Tons per Day</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 | N |

| SN | Recorded Item | Permit Limit | Frequency | Report* (Y/N) |
|----|---|---|--|----------------------------|
| | <p>Work Practice or Management Practice Standard Biennial Tune-up</p> | <p>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</p> | <p>Initial Tune-up no later than 3/21/2012 & Once every 25 months thereafter</p> | <p>N, unless requested</p> |
| | <p>Energy Assessment performed by a qualified Energy Assessor</p> | <p>One-time only 1. Visual inspection of boiler; 2. Evaluation of facility operating characteristics, specs of energy using systems, operating and maintenance procedures, and unusual op constraints; 3. Inventory of major systems consuming energy from SN-06; 4. Review architectural and engineering plans, facility op and maintenance. procedures / logs, & fuel usage; 5. List of major energy conservation measures; 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.</p> | | <p>Y</p> |
| | <p>Notification of Compliance Status</p> | <p>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.</p> | <p>No later than 120 days after the applicable compliance dates</p> | <p>Y</p> |

| SN | Recorded Item | Permit Limit | Frequency | Report* (Y/N) |
|----------|---|--|-------------------------|---------------|
| | Compliance Certificate | Annually 1. Company name and address. 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 JJJJJ. 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. | | Y |
| | Recordkeeping provisions of 63 Subpart JJJJJ | 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. | | N |
| 05 & 10 | Quantity of natural gas consumed per boiler Recordkeeping provisions of 60 Subpart Dc | None | Monthly | N |
| 10 & 14 | Submit notification of the date of construction, anticipated startup, actual startup and designed heat input capacity of the fuel to be combusted | --- | Once Complete for SN-10 | Y |
| Facility | All Performance Tests | N/A | Keep for Life of Unit | Y |

| SN | Recorded Item | Permit Limit | Frequency | Report* (Y/N) |
|----|----------------|---|-----------|---------------|
| 16 | Gasoline usage | ≤10,000 gallons /mo and ≤15,000 gallons per rolling 12 months | Monthly | N |

16. OPACITY:

| SN | Opacity | Justification for limit | Compliance Mechanism |
|----------------|---------|-------------------------|------------------------|
| 05, 10, 11, 14 | 5% | §18.501 and A.C.A. | Annual ADEQ Inspection |
| 06 | 20% | §19.503 and A.C.A. | |
| 04, 07, 13, 15 | 5% | §18.501 and A.C.A. | |

17. DELETED CONDITIONS:

| Former SC | Justification for removal |
|-----------|--|
| 34 & 35 | Temporarily suspended until installation and startup of wet scrubbers SN-12A and 12B, but no later than July 15, 2012. |

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 | - | - | - | - |
| Ash bin/conveyor system on the wood-fired boiler | A-13 | 0.0002 | - | - | - | - | - | - |
| Wood chip/sawdust piles | A-13 | 0.1650 | - | - | - | - | - | - |

Permit #: 2058-AR-7

AFIN: 75-00051

Page 12 of 12

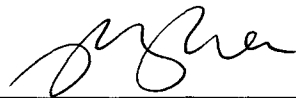
19. VOIDED, SUPERSEDED, OR SUBSUMED PERMITS:

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

| Permit # |
|-----------|
| 2058-AR-6 |

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 08-30-11

Facility Name: Pet Solutions, LLC

Permit Number: 2058-AR-7

AFIN: 75-00051

| | | | | |
|-----------------------------------|--------------------------|--|-------------------|-------------------|
| | | | Old Permit | New Permit |
| \$/ton factor | 22.65 | Permit Predominant Air Contaminant | 57.9 | 57.9 |
| Minimum Fee \$ | 400 | Net Predominant Air Contaminant Increase | 0 | |
| Minimum Initial Fee \$ | 500 | | | |
| Check if Administrative Amendment | <input type="checkbox"/> | Permit Fee \$ | <u>400</u> | |
| | | Annual Chargeable Emissions (tpy) | <u>57.9</u> | |

| Pollutant (tpy) | Old Permit | New Permit | Change |
|---------------------|------------|------------|--------|
| PM | 46.2 | 46.2 | 0 |
| PM ₁₀ | 40.9 | 40.9 | 0 |
| SO ₂ | 3.3 | 3.3 | 0 |
| VOC | 7.7 | 7.2 | -0.5 |
| CO | 93.8 | 93.8 | 0 |
| NO _x | 57.9 | 57.9 | 0 |
| Acetaldehyde | 0.09 | 0.09 | 0 |
| Acrolein | 0.043 | 0.043 | 0 |
| Arsenic | 0.05 | 0.05 | 0 |
| Benzene | 0.49 | 0.49 | 0 |
| Cadmium | 0.05 | 0.05 | 0 |
| Chlorine | 0.09 | 0.09 | 0 |
| Formaldehyde | 0.54 | 0.54 | 0 |
| Hexavalent Chromium | 0.05 | 0.05 | 0 |
| Hydrogen Chloride | 2.03 | 2.03 | 0 |
| Lead | 0.05 | 0.05 | 0 |
| Manganese | 0.22 | 0.22 | 0 |
| POM/PAH | 0.05 | 0.05 | 0 |
| Styrene | 0.21 | 0.21 | 0 |
| pc 5/16/2012 | 0 | 0 | 0 |