# Appendix D

Odor Management Plan

# Diamond Pet Foods – Ripon

# 942 South Stockton Ave. Ripon, CA 95366

# July 2020

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Prepared for:

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# List of Acronyms and Abbreviations

| | |
|---|---|
| AA | Administrative Assistant |
| CO | Carbon Monoxide |
| $CO_2$ | Carbon Dioxide |
| DPF-Ripon | Diamond Pet Foods – Ripon |
| °F | Degrees Fahrenheit |
| FM | Facility Manager |
| $H_2O$ | Water |
| HAP | Hazardous Air Pollutant |
| HEPA | High efficiency particulate air |
| Hz | Hertz |
| MAMS | Manufacturer Automatic Maintenance Sequence (equivalent to bakeout or bakeoff) |
| MDAQMD | Mojave Desert Air Quality Management District |
| MS | Maintenance Supervisor |
| OMP | Odor Management Plan |
| PM | Project Manager |
| PTO | Permit to Operate |
| QCM | Quality Control Manager |
| RTO | Regenerative Thermal Oxidizer |
| SJVAPCD | San Joaquin Valley Air Pollution Control District |
| SS | Shift Supervisor |
| VOC | Volatile Organic Compound |

# Odor Management Plan

## 1.0 EXECUTIVE SUMMARY

The purpose of this OMP is to detail the specific activities, best practices, and response measures that will be implemented to prevent exposure of the public to potential odor impacts resulting from the addition of a fourth pet food production line at Diamond Pet Foods-Ripon (DPF-Ripon).

Since mid-2012, DPF-Ripon has produced dry pet food for various clients and markets at their facility located at 942 South Stockton Avenue. Since that time, the local area communities have noticed and complained to the San Joaquin Valley Air Pollution Control District (SJVAPCD) and the City of Ripon about pet food odors in the air.

Diamond has actively sought to remedy the odors, first by installing a Cold Plasma Injection System in 2014, and ultimately, in 2018, by replacing the Cold Plasma Injection System with a Regenerative Thermal Oxidizer (RTO) System consisting of three Durr Systems RL-60 natural gas-fired RTOs. The Durr RL-60 RTO was chosen because the system has the highest odor abatement level, is highly energy efficient, and simple, with only a single moving part (a rotating shaft/valve assembly).

The RTO System was specifically designed to treat 100% of the pet food production odors from all sources of production exhaust which may be associated with anywhere from 1 to 4 simultaneously operating lines. Prior to the installation of odor abatement equipment, the exhausting of odorous pet food production air was incidental to the action of transferring the pet food kibble product through the various manufacturing stages until the product was packaged, sealed, and loaded onto pallets for storage or shipment. Additionally, the RTO System was designed to be, and is now, an integral part of the Plant's operation, as the RTO System was installed with an interlocking operating process logic control function that will not allow pet food production to occur unless the RTO System has sufficient capacity available and is on-line to abate the odorous exhaust.

Since its installation in late 2018, the RTO System has demonstrated, via source testing in January 2019, removal of over 95% of the volatile organic compounds (VOC), believed to be the source of the odors, at an RTO chamber temperature of 1500 degrees Fahrenheit (degrees F). In spite of this, the RTO is operated at a minimum temperature of 1,650 F to maximize effectiveness of odor abatement. The above-mentioned source testing was conducted according to pre-approved sampling and analysis protocols listed in Table 1.

**Table 1-1: DPF-Ripon RTO Volatile Organic Compound Sampling/Analysis Protocols**

| Reference Method | Sample Location | Description of Parameter |
|---|---|---|
| CARB-1, 2, 3, 4 | Exhaust Stack only | Volumetric Exhaust Stack Flow Rate |
| EPA Method 3C | RTO Inlet Header, RTO Stack | Concentrations of $O_2$, $CO_2$ |
| EPA Modified Method 18 | RTO Inlet Header, RTO Stack | C1 – C14 Organic Compounds, $(CH_3)_2CO$ (Acetone) |

The above sampling and testing methods resulted in the identification of 136 carbon-based compounds (hydrocarbon/organic compounds) based on the element carbon. As stated previously, it is believed that the odorous compounds are organic compounds, and the odor abatement efficiency is tied directly to the abatement of the organic compounds.

In addition to installing and operating the RTO System, DPF-Ripon developed this site-specific Odor Management Plan (OMP), with procedures to monitor and maintain, on a daily basis, the active and passive systems designed to contain and control any and all identifiable odors from the pet food production activities.

This OMP includes a progressive response system (Tier 1, Tier 2 and Tier 3) to ensure that any persistent odor issues are appropriately dealt with. To assist the community, Figure 1 presents the steps that local citizens can follow to ensure that DPF-Ripon resources are quickly deployed to inspect and address any odors that may occur.

The instructions to guide citizens in filing an odor complaint is provided in Section 5.6.

## 2.0 FACILITY INFORMATION

Diamond Pet Foods, Inc. (Diamond) operates a pet food production facility (DPF-Ripon) located at 942 South Stockton Avenue in Ripon, CA. The primary contact for DPF-Ripon is as follows:

DPF-Ripon Plant Manager: Mark Ferguson
Phone: (209) 662-0569
Email: mferguson@diamondpet.com
Address: 942 South Stockton Ave, Ripon, CA 95366

DPF-Ripon produces pet food by measuring and loading the meat, grain, water, and other ingredients into steam conditioner units (one per line) where mixing and pasteurization occurs, followed by forming (extruding) the pet food into kibbles, which are then conveyed from the steam conditioners to the dryers and other systems for further processing. At each stage of the production line, the kibble is collected and transported through vacuum tubes to the next part of the process using a blower/cyclone system. Each production line requires four blowers (operating with three exhaust stacks) to allow the vacuum system to move the kibble through the plant. All exhaust from the pet food production processes is collected into an 80-inch diameter exhaust header and routed to an RTO system for abatement.

DPF-Ripon operates 24 hours per day, 7 days per week, and 363 days per year, with two planned holidays per year, Christmas and Easter.

## 3.0 ODOR EMITTING ACTIVITIES

### 3.1 Pet Food Production Emissions

Each pet food processing line is capable of manufacturing various pet food kibble based on the production needs and given recipes. The process begins with a specific pet food kibble recipe. Depending on the recipe, an appropriate amount of each material is dispensed from metering bins, mixed, and transferred into steam conditioners. Each recipe may use a protein, such as beef, chicken, lamb, fish, turkey, bison, pork, venison, duck, quail, or pheasant, added to the steam conditioners and thoroughly pasteurized/steam conditioned to release starches, which act as binding agents for the material. The material is then extruded to form pet food kibble. The freshly extruded moist kibble is transferred via food-grade vacuum takeaway tubing to the stainless-steel conveyor belt that dries the kibble by moving the product through the dryer/dryer-cooler which is part of each processing line.

In the natural gas-fired dryer the kibble is dried as it passes through the drier and ultimately cooled in the drier-cooler. The dried kibble is then transferred to the coating process where the product is coated with either chicken fat or canola oil which acts to bind other nutrients, such as dry digest and probiotics. The coated kibble is cooled further in vertical coolers, then transported to the packaging line bins for feeding the packaging equipment. Each of the pet food processing lines has three production exhausts, one each for the extruder (wet) cyclone, dryer cyclone, and vertical cooler cyclone. These exhausts are responsible for the majority of the pet food odors that have been noticed in the Ripon community.

## 3.2 Indirect Emission Sources

### *3.2.1 Raw Material Odors*

DPF-Ripon receives and stores the raw materials used for the manufacture of the pet food in appropriate silos/bins equipped with baghouses, which are essentially high-powered vacuum cleaner systems appropriately positioned to collect dust particles (particulate) which may be present as the materials are transferred into storage.

A small portion of the raw materials are processed through the pre-grind mill, which consists of a hammermill and screen. All material is transferred from the storage and pre-grinding areas by bucket elevators, which feed into the mill tower. All material transfer occurs via enclosed conveyors. All of these materials are received in a dry form, which is readily controlled by the baghouses.

Regarding odors associated with the raw materials ingredients, it is noted that the particulate material from the dry raw materials has a slight odor, although these odors are generally not considered offensive. Since the particulate material has an odor, any control of particulate emissions by the use of baghouses will have the effect of containing the odors, however slight they may be. Since baghouses are installed throughout the facility, the particulate emissions from these materials are minimized, which has the side effect of containing odors as noted above.

This odor control effect of the baghouse particulate control occurs throughout the facility, wherever baghouses for PM control are installed and operating.

The meat products are received refrigerated and stored in the refrigerator until used, and thus are an unlikely source for odors. The totes that contain the refrigerated meat are lined with plastic, and once the meat has been transferred into the process, the plastic liners are rinsed and disposed of in the facility dumpsters. As with all garbage dumpsters, there is a possibility of minor garbage-like odors emanating from the dumpsters. However, the dumpsters are located near the RTO units where DPF-Ripon personnel frequent the area, and if an odor is noted from the dumpster, DPF-Ripon will contact the waste collector to pick up and exchange the dumpster. The standard practice is to replace the dumpsters on a weekly basis.

Prior to being mixed and cooked in the steam conditioning units, the raw ingredients are received and stored appropriately either in above-ground silos or bins, or in refrigerated enclosures as in the case of fresh meats which are perishable. Materials stored in the silos include beans, peas, meat meal (various), dried vegetables, grains, etc.

Some of these materials have a slight odor and could contribute indirectly to the odors in the community. However, the storage protocols require vessels to be closed up and for the transport of the raw materials to be abated by particulate-removal systems.

### *3.2.2 In-Plant Personnel Areas*

The vast majority of odorous emissions are from the pet food production exhausts, as noted in §3.1 above. Although these systems are largely enclosed, the various areas inside the production and storage building of the plant are noted to have pet food production odors, although not nearly as strong as the odors from the direct production exhausts. Generally

speaking, the in-plant personnel areas have a pet food odor that is volumetrically much less than what is produced by the production operations.

# 4.0 ODOR CONTROL PRACTICES

## 4.1 Durr (Manufacturer) RTO Automatic Maintenance Sequence

The manufacturer automatic maintenance sequence (MAMS), also known as a bakeout is a sequenced procedure which decreases the rotation frequency of the RTO valve thereby allowing the hot RTO exhaust to increase the temperature of the refractory material up to a programmed maximum outlet temperature to "bake-off" any particulate or condensed material that may be on the "coldface" (outlet) of the refractory, which could make the RTO less efficient.

Manufacturer Recommended MAMS Frequency: Durr Systems does not recommend a MAMS frequency, noting that every RTO application is different, and a recommended frequency cannot be predicted.

DPF-Ripon Frequency: As part of the daily RTO inspection, DPF-Ripon notes if any process indicators such as an excessive temperature differences between the RTO inlet and outlet are noted or if odors are prevalent in the RTO area, a MAMS will be conducted.

In order to ensure a MAMS is necessary, DPF may evaluate the RTO exhaust by performing an onsite personal odor inspection (as outlined in Appendix C). If any combination of RTOs is deemed to be more odorous than another, or if the temperature readings indicate reduced efficiency, DPF will initiate a MAMS, which takes the unit offline, and activates the cleanout sequence as desired.

There is no limit to the number of MAMS that can be performed as long as the manufacturer automated sequence is followed according to the PLC programmed actions. If needed a MAMS could be performed every day although this would be considered wasteful.

The typical frequency that DPF routinely follows is to perform at least one MAMS every calendar week.

## 4.2 Administrative Controls: Procedures

### *4.2.1 Procedural Activities*

#### *4.2.1.1 Odor Inspection Procedures – Off-Site:* ***Daily Frequency***

On a weekly (Monday through Friday) basis, daily off-site inspections are conducted according to the following protocol. Inspections are conducted on an increased frequency during times when more odors have typically been reported (i.e., winter). The Facility Manager (FM), Maintenance Supervisor (MS), and/or Quality Control Manager (QCM) or designated qualified alternate staff conducts off-site inspections at the following locations, as needed. (Alternate staff are qualified if they have been trained according to the staff training procedures described below.) If an odor is noted, it will be recorded on the off-site inspection record form and addressed by DPF-Ripon management and staff. Blank inspection forms are provided in Appendix B.

Following are the locations where the daily and as-needed inspections will occur:

- Laurelwood neighborhood;

- Downtown Ripon;
- Highway 99 Corridor (Jack Tone Road to Hammett Road);
- Schools (Ripon Elementary, Ripon High, Ripon Christian Schools, and Ripona Elementary);
- Weather Station: Weather data is reviewed to determine on a real-time basis, the general wind direction and speed at the time of the odor complaint;
- Other areas around the plant on an as-needed basis.

*4.2.1.2 Odor Inspection Procedures – On-Site: **Daily Frequency***

Daily on-site inspections of plant operations are conducted according to the following protocol.

Facility Review: The Project Manager (PM) or designated qualified alternate staff conducts the following facility inspections at the frequency noted below. If any anomalous parameters are observed, they will be recorded on the on-site inspection record form or stored electronically. The PM inspects and takes actions as needed on the following:

- Process exhaust lines: The exhaust lines from the extrusion, drying and vertical cooling processes are all inspected for any leaks. If any odors are noted, further inspections are conducted to determine the source.
- Facility Walk-Through (M - F): Walk-around inspection of main production building doors (as listed on on-site inspection form) to ensure there are no open doors or potential odor escape sources and make general visual observations of the facility operations; and

RTO Inspection: The PM or designated qualified alternate staff conducts the following inspections at the frequency noted below. If any anomalous parameters are observed, they will be recorded on the on-site inspection record form or stored electronically. The PM or designated qualified alternate staff inspects and takes actions as needed on the following:

- Control Room (***Daily***, in person or via mobile app): Overview of plant operations, observing the following:
  - Product being produced on each line and production rate (recorded in shift logs);
  - RTO average operating temperature (approximately 1,650°F [1] per DPF-Ripon setpoint): If RTO operating temperature is significantly less than 1,650°F (20°F or more), the following actions should be taken:
    - Evaluate gas usage data (ensure reasonable readings are being recorded);
    - Inspect rotary valve (ensure rotation); and

[1] The minimum RTO combustion chamber temperature is 1,650°F, as recommended to SJVAPCD in Project N-1191493.

- Check RTO inlet temperature, which should be approximately 145°F. If <100°F, confirm that fans are on or check dryer burner settings;

- RTO Inlet and Outlet Temperatures: Target temperature difference between inlet and outlet temperature is 80 to 100°F. If the temperature difference is higher than 100°F, management will review options to correct, including initiating a MAMS[2]; and
- RTO blower frequency (Hz): Normal is 42 Hz with a range of 40 to 45 Hz (three RTOs) or >50 Hz (two or fewer RTOs);

- RTO Operating Parameters (Recorded in DAHS, reviewed ***daily*** in person or via mobile application):
  - RTO temperature;
  - RTO pressure;
  - RTO fan speed (Hz) versus RTO inlet static pressure set point; and
  - Natural gas consumption.

Airflow Switches (***Weekly*** Frequency): Check airflow switches behind the RTO control room for possible moisture buildup. Initiate moisture removal as applicable.

### *4.2.2 Staff Training Procedures*

All inspection and training procedures will be maintained in the Qualtrax compliance software. The software will manage compliance schedules, personnel training, and document control.

#### *4.2.2.1 Off-Site Odor Inspection Training*

At a minimum, the FM, MS, QCM, and one designated alternate staff will be trained to conduct off-site odor inspections. Training will include consistent location identification and instructions for completion of the off-site inspection record form. Odor identification will be evaluated using the odor category checklist provided in Appendix B. Off-site odor inspection training will occur once prior to staff member's initial inspection.

#### *4.2.2.2 On-Site Odor Inspection*

- Facility Inspection training for the PM and designated alternate staff will occur during normal onboarding training or when new personnel are designated to this role. Training will consist of instructions regarding the items that need to be observed and completion of the on-site inspection record form.

[2] During the RTO Manufacturer Automatic Maintenance Sequence (MAMS), the RTO Unit that is the subject of the MAMS is isolated from the rest of the RTO units (taken out of production), and the plant production emissions abated by the remaining RTOs. It should be reiterated that the plant will automatically shut down certain production units to reduce production exhaust ("called "load shedding") in the event that there is insufficient RTO capacity to abate the odors. This ensures the plant will never operate pet foods without the appropriate level of RTO System odor abatement capacity.

- RTO Inspection training for the PM and designated alternate staff will occur during normal onboarding training or when new personnel are designated to this role. Training will consist of instructions regarding the correct RTO operating parameter ranges, potential resolutions for parameters out of range, chain of command if corrective actions need to be taken, and completion of the on-site inspection record form.
- In-Stack RTO Personal Odor Inspection for the PM, MS, QCM, and designated alternate staff will occur annually and prior to staff member's initial sampling. Training will consist of operation of the odor cup sampler, identification and categorization of odors, and completion of the odor checklist. Odor identification will be evaluated using the RTO odor terms and intensity scale on the checklist.

*4.2.2.3 Maintenance Activities*

Training for maintenance activities will continue to be conducted and tracked through the Qualtrax compliance software. The training will include a requirement to be cognizant of minimizing potential odor-causing activities.

*4.2.2.4 Odor Complaint Response*

Odor complaint response training for the FM, PM, QCM, SS, and designated alternate staff will be encompassed in the on-site odor inspection training. In addition, this training will focus on quick assessment of potential odors with the goal of determining application of corrective measures in a timely manner. (See description under Odor Complaint Tracking and Response below for additional details related to the odor complaint response system.)

*4.2.2.5 SJVAPCD Orientation*

It is recommended that new SJVAPCD inspectors tour the DPF-Ripon facility to familiarize themselves with the process and potential odor sources. SJVAPCD inspectors should contact the FM or the PM to arrange the orientation.

### 4.3 Maintenance Frequency: *Annual* (Per Manufacturer Recommendation)

The following annual Manufacturer-recommended maintenance is performed when the manufacturer visits the site and conducts both on-line and off-line inspections of the RTO systems:

- Perform annual visual inspection of entire RL-60 RTO system;
- Check diverter valve: stator/rotor surfaces;
- Inspect castable refractory;
- Check vertical valve movement
- Check all relays and contactors for wear
- Check burner mounting plate and tile assembly for cracks. Replace;
- Inspect/re-lubricate the thrust bearing carrier and housing
- Check all 460V terminal connectors/circuit breakers for tightness;
- Clean operating level block internals;
- Replace air cylinders with new cylinders and rebuild the removed cylinders;

- Exhaust fan coupling;
- Valve gear teeth lubrication/tooth wear;
- Inspect seal rings/spline housing;
- Burner throttle valve micro-ratio valve cam;

## 4.4 Engineering Controls

### *4.4.1 Description of Best Available Control Technology (BACT)*

As noted in Section 3.0 of the Referenced Odor History Report for Pet Food Manufacturing Facility (dated May 2020), studies of odor emissions from pet food indicates that the chemicals contributing to the odors are organic compounds capable of being volatilized (i.e. emitted into the air). These odorous volatile organic compounds (VOC) are likely released during the cooking and drying stages of pet food production.

Air districts throughout California routinely require emission controls on sources of VOC emissions from a wide variety of processes. Within the context of the air permitting for new or modified sources of air emissions, the air agencies may require the installation of "Best Available Control Technology" (BACT) in order to satisfy New Source Review (NSR) requirements for new or modified sources of emissions. BACT determinations are periodically published so that the regulated community has visibility to the requirements.

Yorke reviewed the BACT determinations from four major air districts in California (San Joaquin Valley Air Pollution Control District [SJVAPCD], South Coast Air Quality Management District [SCAQMD], Bay Area Air Quality Management District [BAAQMD], and San Diego Air Pollution Control District [SDAPCD]). The findings are shown in Table 2. We also reviewed the California Air Resources Board (CARB), U.S. EPA, and Texas Commission on Environmental Quality (TCEQ) databases; no additional BACT determinations were identified.

No BACT determinations specific to pet food manufacturing were identified.

To summarize, Yorke's analysis indicates that the most applicable BACT for the pet food production process would be an afterburner with a minimum residence time of 0.3 seconds and a minimum combustion chamber temperature of 1,400°F. The DPF-Ripon facility operates the RTOs at 1,650 F with a minimum residence time that exceeds the recommended 0.3 seconds, hereby resulting a level of performance that exceeds BACT.

### *4.4.2 Components of Engineering Controls*

In late 2019, DPF-Ripon installed an RTO system consisting of three thermal oxidizer units, which operate in parallel to abate all odors from the existing 3-production line exhaust (nine exhaust stacks combined into a common header). In addition to the current 3-line operation, the RTO System is also designed to abate the odors from 4-production line operation as well.

The exhaust from the production lines are vented to a common ducting header that vents the process exhaust to the RTO system. Currently, based on 3-line production, the estimated residence time in the RTO combustion chamber is 2.33 seconds, which is over seven times the BACT-specified retention (residence) time of 0.3 seconds. With the

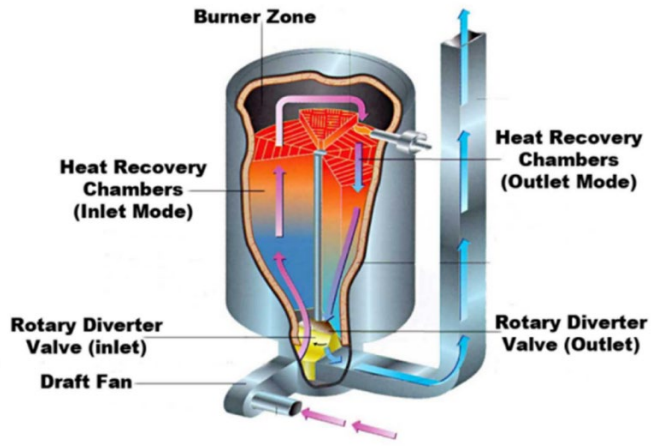
installation of the fourth production line, the residence time in the combustion chamber will be 1.75 seconds, which is more than five times the BACT-specified minimum residence time.

Additionally, although the BACT-recommended oxidation temperature ranges from 1,200 F to 1,400 F, DPF-Ripon operates the RTO units at a minimum temperature of 1,650 F. Additional details on the design and operating parameters are provided in the Odor History Report noted in the list of References.

The Durr RL-60 RTO System for DPF-Ripon is designed for efficient odor abatement and fuel use. Each RTO includes 12 separate ceramic heat-exchange beds arranged radially over a proprietary rotating diverter valve. After the exhaust gases from all production lines are thoroughly mixed in the RTO feed header, the incoming odorous air is introduced into the respective RTO through the bottom of the unit. The inlet air from the RTO feed header is drawn upwards through five of the 12 beds, which have been previously preheated. Heat is transferred into the odorous air as it passes through the preheated ceramic bed and is further heated to the temperature setpoint in the combustion chamber near the top of the RTO, where a natural gas-fired burner is operated to complete the oxidation process.

Hot, clean exhaust is drawn downward through five adjacent ceramic beds to transfer the thermal energy, preheating the media, before being exhausted to the atmosphere through a stack. The two "spare" ceramic beds serve to prevent cross-contamination between the inlet and outlet sections and to ensure the high destruction efficiency of the RTO. A schematic of the RTO Flow is shown in Figure 5-1, below:

**Figure 4-1: Durr Regenerative Thermal Oxidizer (RTO) Flow Schematic**




The rotary diverter valve slowly turns which allows ceramic beds that have been cooled by transferring heat to the incoming air to then be heated back up to become a preheating bed by the outgoing exhaust. Since the rotating valve is the only moving part, there is very little wear to the bearing surfaces, and the reliability/longevity of the beds and the rotating valve are extremely high.

To ensure ongoing reliability and appropriate operation, the temperature difference between the incoming air and the outgoing exhaust is monitored and expected to be between 80 - 100 degrees F, which indicates that good heat transfer is occurring. In the

event the temperature difference is above 100 degrees F, staff conducts odor testing to verify that the RTO is operating properly, then if the temperature difference remains high, will initiate a manufacturer automatic maintenance sequence (MAMS) which returns the ceramic bed to clean condition and full heat transfer and odor abatement capability.

If the temperature difference is less than 80°F, staff will conduct odor testing of the RTO exhaust to develop a baseline reading. If the exhaust from the RTO is determined to be more odorous than normal, the RTO is isolated from the system, visually inspected and possibly shutdown for internal inspections.

The three Durr model RL-60 RTOs operate in parallel, with the plant production exhaust entering the units from a common header. Each of the Durr model RL-60 RTOs is a unique single vessel that is designed to destroy more than 95% of the volatile organic compounds (VOCs) and hazardous air pollutants (HAPs) potentially found in industrial process exhaust streams. With the installation of the RTO System, the plant/RTO process control logic requires the RTOs to be online with sufficient capacity to treat the exhaust from the plant, before allowing the production processes to be started up and operated to produce pet food.

The air permit issued to DPF-Ripon by the SJVAPCD requires the RTOs to operate at a temperature sufficient to achieve 95% VOC abatement. Based on the SJVAPCD-approved source testing conducted in January of 2019, DPF-Ripon determined that RTO operation at 1,500 degrees Fahrenheit (°F) will easily meet the 95% VOC destruction efficiency. However, in order to achieve a higher level of VOC abatement, DPF-Ripon operates the units at a setpoint of 1,650°F, which is sufficient to abate over 99% of the VOCs as demonstrated in the January 2019 source tests. As required by the SJVAPCD Permit to Operate (PTO), annual source testing is required to demonstrate ongoing compliance with the VOC emission limits and percent abatement requirements. As of this writing of the OMP, RTO source testing has been conducted in January of 2019 and again in January of 2020 (results pending).

Additionally, the RTOs were designed and constructed with a supplemental 8 feet of vertical combustion chamber volume, thereby providing additional air abatement residence time at the RTO internal temperature. This has the effect of both further oxidizing carbon monoxide (CO) into carbon dioxide ($CO_2$) and increasing the abatement (oxidation) of the odorous air contaminants/VOCs.

### *4.4.3 Pet Food Production Lines/RTO Process Logic*

The RTO System was designed to be an integral part of the entire facility operation. As such, the pet food production lines cannot be operated unless the RTO Units are operating at the temperature setpoint with sufficient flow capacity to abate the production line exhaust gases.

Therefore, control of the RTO is digitally integrated into the overall operation process logic ensuring that the RTOs operate as a unit, with the volumetric intake flow to each RTO controlled by a variable speed intake process air fan that maintains a pressure setpoint in the common 80 inch exhaust header.

If the process air flow from the plant is reduced due to one or more lines being shut down, then the three RTO intake blowers will ramp down to maintain the pressure setpoint in the

header. In the event that the supply volume of gas from the plant decreases further, the RTO is designed to isolate one or more RTO unit(s) from the system to maintain the proper flow rates, pressures and abatement efficiency. The RTO system is designed to operate as needed to abate the odors from anywhere from one to four production lines, with design allowances for any combination in between.

This operation occurs due to the algorithms built into the process logic controllers (PLCs) of the RTO system and the production facility which review the overall RTO volumetric abatement capacity in light of what is being requested for production at the plant. If the PLC determines that sufficient RTO capacity is available, the PLC will allow the additional production to occur. Only if the additional RTO capacity is operating or is available will the PLC allow the plant to increase production.

# 5.0 DPF COMPLAINT TRACKING AND RESPONSE

## 5.1 General Reporting: Facility Overview

The main principles underlying every odor complaint (whether confirmed or not) is 1) that the odor complaint be communicated concurrently between the SJVAPCD, DPF-Ripon (Operator) and City of Ripon, and 2) every odor complaint, if verified as pet-food odor, be investigated, remediated, recorded and reported according to an established criteria. The odor complainant should provide the agent taking the complaint with the date, time and general neighborhood (location) of the odor event. The operator shall respond according to the Tier 1, 2, or 3 methodologies, depending on the specifics of the event.

The operator will submit to the City of Ripon a summary log of all odor complaints occurring during the most recent calendar month.

In addition to the measures described below, in response to odor and other nuisance impacts, the City shall retain all rights and remedies available under the Ripon Municipal Code, including, but not limited to, Chapters 1.10 and 1.12.

## 5.2 Tier 1 Odor Response

If an odor complaint is received that is confirmed to have originated from the DPF facility, the Operator shall initiate a system check within 2 hours of receipt of the complaint confirmation to identify any potential cause of odor. (Note that DPF-Diamond may also initiate systems checks on unconfirmed complaints, as determined by DPF-Diamond on a case-by-case basis.) If an issue with normal operation is identified that could be the cause of potential odors, the necessary cleaning, mechanical adjustments, repairs, or other routine modifications shall be made to resolve the issue. The Operator shall contact the City, SJVAPCD, as well as the complainant (with the complainant's permission) to provide the findings of the systems check, including whether an odor issue was identified, and, if so, the steps taken to remedy the issue. These findings will also be entered into the complaint log. If no issue with the system is identified, this will also be logged and reported to the City and SJVAPCD.

a. Tier 1 Specific Actions to be taken by Operator:

- Conduct on-site walk-through (checking doors/openings, etc.) noting any unexpected odors or other findings.
- Review of RTO operating Parameters, including:

1. RTO combustion zone temperature (compare temperature vs setpoint);
2. Inlet temperature (from inlet header) & Outlet temperature difference. The temperature difference should be in the range of 80-100 F. If outside this range, review with DPF-Ripon Project Manager (PM), then take appropriate actions, which may include Manufacturer Automated Maintenance Sequence (MAMS);
3. Check wind speed and direction at the time of the odor complaint. Determine if consistent with location of community odor event; and
4. Conduct RTO exhaust Personal Odor Inspection (POI) procedure (using DPF-Ripon odor inspection procedure OMP-1[3] and equipment to sample/compare RTO odors).

- Conduct MAMS on most odorous RTO exhaust then conduct new POI odor test of RTO exhaust after MAMS.

b. Record findings/steps taken in Odor Complaint Log File.

c. Report findings/steps taken to SJVAPCD and City via email.

### 5.3 Tier 2 Odor Response

If, after a systems check and any necessary remedies have been implemented according to the Tier 1 protocol, in the event that an additional (verified) odor complaint is received from the same or new complainants that could suggest that an odor issue remains unresolved (as determined on a case-by-case basis by consultation between the City and DPF), the Operator will implement the following Tier 2 Odor Response actions.

a. Tier 2 Specific Actions to be taken by Operator:

- Conduct Level 1 Response Steps (if not already performed).
- Conduct examination of all exhaust lines including fresh air dampers to ensure there is no leakage of untreated production exhaust.
- Conduct MAMS on all RTO units.
- Perform post MAMS POI on all RTO units. Record results.
- If any RTO has stronger odor than the others, operator to take appropriate measures to improve odor abatement**,** including increasing the RTO combustion temperature in 50 degree F increments (above the minimum 1,650 F minimum temperature setpoint), and retesting the odor using the POI procedure.
- Review pre-MAMS and post-MAMS inlet and outlet exhaust temperatures.
- As soon as practical, contact the RTO manufacturer (Durr Systems) to review any anomalous findings/further recommendations via conference call.

b. Record findings/steps taken in Odor Complaint Log File.

c. Report findings/steps taken to SJVAPCD and City via email

### 5.4 Tier 3 Odor Response

If, after implementing all measures above, additional verified odor complaints are received from the same or new complainants that suggest the same odor issue remains unresolved, the operator

[3] OMP-1 Personal Odor Inspection (POI) procedure is provided in Appendix C

shall coordinate with the City and SJVAPCD (as applicable) to determine appropriate additional measures. Such measures include, but are not limited to, a full diagnostic of the RTO by the manufacturer (and/or other qualified equipment diagnostician), or upgrades or expansions of the odor abatement system.

Until such time as the odor is appropriately abated to the performance levels that were demonstrated by the RTO system during the period from January 2019 through March 2020, the City and Diamond Pet Foods will meet and confer and the City will determine, depending on the severity of the odor issue, if a decrease in the actual throughput of the DPF facility by (up to) the equivalent of the capacity of one production line would be helpful in reducing odors. The following Tier 3 Response actions will be initiated, as apropos, in the event that both Tier 1 and 2 Response actions have been completed and there are still additional confirmed odor complaints:

a. Tier 3 Specific Actions to be taken by the Operator:

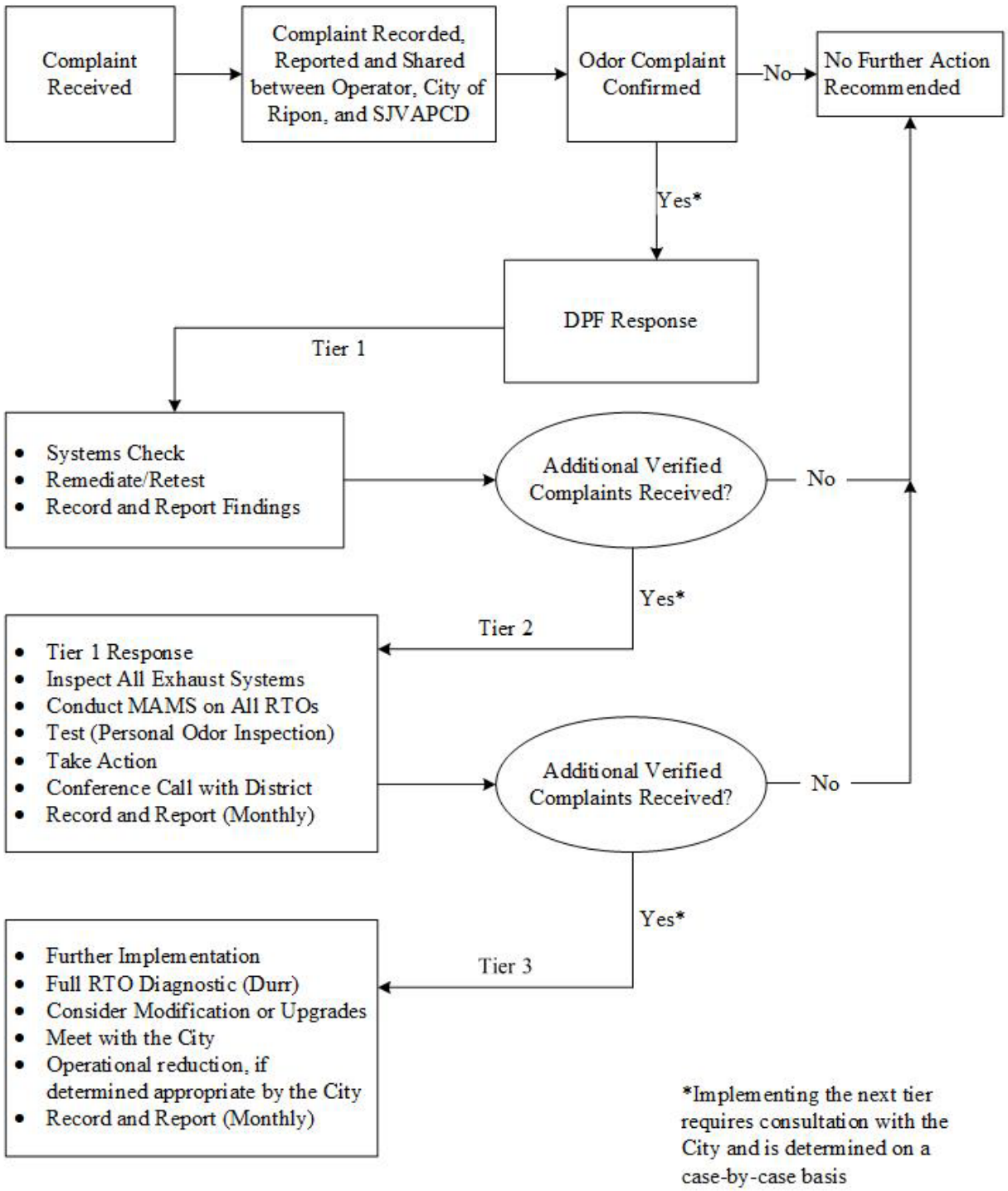
   - Operator to meet & confer with RTO manufacturer to determine if on-site inspection is needed, or if modifications to the current technology are available.
   - Operator to review the maintenance history of the RTO System to identify if one or more RTO units (including visual and/or smoke test of ceramic heat transfer media) needs to be serviced. Components to be evaluated include:
     1. RTO ceramic (inspect for integrity, possible contamination or blockages, etc.);
     2. RTO rotating valve sealing performance;
     3. RTO metal thermal cycles/metal structure;
     4. RTO burner turbulence/mixing/thermal uniformity;
     5. RTO inlet blower variable frequency drives. Compare VFD/blower performance/flow uniformity on all RTO Units; and
     6. Conduct design review.
   - Review RTO setpoints to ensure that appropriate capacity according to best design practices exists.
   - Review facility blower & product movement through plant with DPF Corporate design group to identify feasibility of revised blower exhaust rates.
   - Determine which kinetic parameter (RTO temperature, residence time, mixing efficiency) needs to be improved/increased.
   - Review process control logic to determine if improved RTO odor abatement could be accomplished by software modifications.
   - Prepare timeline to implement necessary design/hardware changes.
   - Reduce production: Depending on the severity of the additional and ongoing confirmed odor complaints, the operator will meet with the City Code Compliance Division (CCD) and the City will determine if decreasing production will be beneficial. This could include a temporary reduction in production up to a maximum equivalent of 25% of the actual four-line production capacity.

b. Record findings/steps taken in Odor Complaint Log File.
c. Report findings/steps taken to SJVAPCD and City via written report.

## 5.5 DPF Compliance Tracking Flowchart & Contacts

The following flowchart and associated contact table provides a graphical approach to the Tiered responses detailed in §5.1-5.4.

**Figure 5-1: Progressive Tier Response Flowchart**



## 5.6 Methods for Filing Odor Complaints

Members of the community who encounter pet food odors are encouraged to file complaints with SJVAPCD using one of the following methods.

- File a Complaint Online with SJVAPCD: http://www.valleyair.org/busind/comply/complaint.htm, Click on: SUBMIT AIR POLLUTION COMPLAINT
- File a Complaint by Phone with SJVAPCD: (800) 281-7003

It is recommended that complaints be filed with the SJVAPCD; however, complaints can also be filed with the City of Ripon (Planning Department: 209-599-2108) and/or with DPF-Ripon via the following numbers: DPF Project Manager (Joe Garcia) at 209-765-4741 or Shift Supervisor at 209-602-9379. Note that the SJVAPCD, the City, and DPF-Ripon will notify one another when any complaint is received.

# 6.0 OMP PREPARERS AND AGENCY CONTACTS

This document was prepared under the direction of the City of Ripon by Yorke Engineering, in coordination with Ascent Environmental, and in consultation with Diamond Pet Foods-Ripon. Following is a detailed list of those who participated in the preparation and review of the document.

## 6.1 OMP Preparers

**Yorke Engineering, LLC**

| | |
|---|---|
| Randy Frazier, PE, CAPP | Principal Engineer |
| Julie Mitchell | Senior Air Quality Scientist |
| Michael Dudasko, CPEA, QISP | Principal Engineer |
| Jessica Mohatt, MS, CAPP | Engineer |

**Ascent Environmental, Inc**

| | |
|---|---|
| Michael Parker, AICP | Principal |

**Diamond Pet Foods – Ripon**

| | |
|---|---|
| Mark Ferguson | Plant Manager |
| Joe Garcia | Project Manager |

**Environmental General Counsel**

| | |
|---|---|
| Jodi Smith, ESQ (Diamond Pet Foods – Ripon Counsel) | Partner, EGC |

## 6.2 OMP Reviewing Agency (CEQA Lead Agency)

**City of Ripon**

| | |
|---|---|
| Ken Zuidervaart | Director of Planning & Economic Development |

# 7.0 REFERENCES

Ontario. 2017. Example Odour Control Report for a Pet Food Manufacturing Facility that Cooks and Dries Animal Products. May 2017.

San Joaquin Valley Air Pollution Control District (SJVAPCD), 2007. Complaint Response Guidelines. COM 1140, February 8, 2007.

Yorke Engineering, 2013. *draft* Odor Abatement Study for Diamond Pet Food of Ripon. March 2013.

Yorke Engineering, 2020. Odor History Report for Pet Food Manufacturing Facility; 5-19-2020

# APPENDIX A – RIPON AREA CITIZEN ODOR REPORTING OPTIONS

**The following three options are provided for persons who wish to file an odor complaint in the town or Ripon.**

**1) San Joaquin Valley Air Pollution Control District (SJVAPCD)**

Members of the community who encounter pet food odors are encouraged to file complaints with SJVAPCD using one of the following methods.

- File a Complaint Online with SJVAPCD: http://www.valleyair.org/busind/comply/complaint.htm,

Once on the page, click on: SUBMIT AIR POLLUTION COMPLAINT

- File a Complaint by Phone with SJVAPCD: (800) 281-7003

It is recommended that complaints be filed with the SJVAPCD; however, complaints can also be filed with the City of Ripon and/or DPF-Ripon as follows:

**2) City of Ripon**

Members of the community may also contact the City of Ripon at:

- Planning Department: (209) 599-2108

**3) Diamond Pet Foods – Ripon (DPF-Ripon)**

Members of the community should also feel free to file an odor complaint directly with DPF-Ripon, who will respond with an investigation into the cause of the odor and the remedy.

- DPF Project Manager (Joe Garcia): (209) 765-4741, or
- Shift Supervisor: (209) 602-9379.

# APPENDIX B –
# ODOR INSPECTION FORMS

# OFF-SITE ODOR INSPECTION RECORD

## Diamond Pet Foods of Ripon (DPF-Ripon) DAILY

| Inspection Date | Inspection Time | Inspection Conducted By |
|---|---|---|
| | | |

| Location (Circle One) |
|---|
| Highway 99 / Main St. Exit and Overpass / Hammett Rd / Salida / Jack Tone Rd / Laurelwood/ Other |

**Offsite Odor Category Checklist**

| Scent | None | Weak | Average | Strong |
|---|---|---|---|---|
| Pet food | | | | |
| Vehicle exhaust | | | | |
| Gasoline | | | | |
| Cigarette | | | | |
| Fishy | | | | |
| Meaty | | | | |
| Potato | | | | |
| Rancid | | | | |
| Camp fire | | | | |
| Musty, mildew | | | | |
| Compost, organic decay | | | | |
| Nutty | | | | |
| Silage (grass, animal feed) | | | | |
| Livestock | | | | |
| Citrus | | | | |
| Petrichor (smell after rain) | | | | |
| Garbage | | | | |
| Floral | | | | |
| Other - describe | | | | |
| **Overall odor intensity** | | | | |

Note: Rate all terms.

# ON-SITE ODOR INSPECTION RECORD

## Diamond Pet Foods of Ripon (DPF-Ripon)

**DAILY**

| | | | | | |
|---|---|---|---|---|---|
| Inspection Date: | | Inspection Type (check box) : | | daily | complaint |
| Inspection Time: | | | | recheck | other |

| | |
|---|---|
| Inspection Conducted By: | |
| Inspection Assisted By (if applicable) | |

**COMPLAINT INFORMATION (IF APPLICABLE)**

| | |
|---|---|
| Complaint Date: | |
| Complaint Time: | |
| Approximate Location: | |
| SJVAPCD Inspector Contact: | |
| Complaint Status: (circle one) | Confirmed / Not Confirmed |

**METEOROLOGICAL DATA**

| | |
|---|---|
| Wind Direction (from): | |
| Wind Speed: | |

www.weatherlink.com
User ID: bipulsaraf
PW: Yorke123

Also: for wind direction (from) see ***Windcompass*** App

**PRODUCTION RECORDS**

| | OPERATING | PRODUCT |
|---|---|---|
| Line 1 | Y/N | |
| Line 2 | Y/N | |
| Line 3 | Y/N | |

**RTO/SOUTH AREA INSPECTIONS**

| | MODE* | FAN HZ | INLET TEMP | OUTLET TEMP | COMB TEMP | GAS SCFH | EXHAUST STACK ODOR INSPECTION (comment) | COMMENTS |
|---|---|---|---|---|---|---|---|---|
| RTO-1 | | | | | | | | |
| RTO-2 | | | | | | | | |
| RTO-3 | | | | | | | | |
| FAT TKS | COMMENTS: | | | | | | | |

*MODE 0: Burner Off (shutdown)
*MODE 2: Warming Up
*MODE 1: Steady State
*MODE 3: Set Back
*MODE 4: Warming Up
*MODE 5: Bakeout (MAMS)

**PRODUCTION BUILDING DOORS**

| | "AS-FOUND" CONDITION | | | | COMMENTS/ACTIONS TAKEN |
|---|---|---|---|---|---|
| Rooftop (Personnel) | | open | | closed | |
| UPS-Roll-up | | open | | closed | |
| UPS Personnel (west wall) | | open | | closed | |
| South Wall-1, far west (personnel) | | open | | closed | |
| South Wall-2, west of fat tanks (personnel) | | open | | closed | |
| South Wall-3, nr fat tanks (personnel) | | open | | closed | |
| South Wall-4, near controll rm (personnel) | | open | | closed | |
| South Wall Roll Up (nr control rm) | | open | | closed | |
| South Wall-Refrig Meat Roll Up | | open | | closed | |
| South Wall-Refrig Meat (personnel) | | open | | closed | |
| East Wall Roll-Ups (Hammer Mill) | | open | | closed | |
| Rooftop Personnel (above extruders) | | open | | closed | |

**GENERAL VISUAL INSPECTIONS**

| | COMMENTS |
|---|---|
| Rooftop-Extruder Area | |
| South Area: Near Fat Tanks | |
| South Area: Near RTOs | |
| East Area Roadway (west of Cogen) | |

**RECOMMENDATIONS**

# RTO ODOR INSPECTION RECORD

## Diamond Pet Foods of Ripon (DPF-Ripon)

**AS NEEEDED**

| Inspection Date | Inspection Time | Inspection Conducted By |
|---|---|---|
| | | |

| RTO 1 | | | | |
|---|---|---|---|---|
| **Scent** | **None** | **Weak** | **Average** | **Strong** |
| Overall odor intensity | | | | |
| Pet food | | | | |
| Burnt Oven | | | | |
| Natural Gas | | | | |
| Other - describe | | | | |

| RTO 2 | | | | |
|---|---|---|---|---|
| **Scent** | **None** | **Weak** | **Average** | **Strong** |
| Overall odor intensity | | | | |
| Pet food | | | | |
| Burnt Oven | | | | |
| Natural Gas | | | | |
| Other - describe | | | | |

| RTO 3 | | | | |
|---|---|---|---|---|
| **Scent** | **None** | **Weak** | **Average** | **Strong** |
| Overall odor intensity | | | | |
| Pet food | | | | |
| Burnt Oven | | | | |
| Natural Gas | | | | |
| Other - describe | | | | |

Note: Rate all terms.

| GENERAL COMMENTS, IF APPLICABLE |
|---|
| **(Maintenance Plans/Activities/Planned Shutdowns/Equipment Replacements, etc)** |
| |

# APPENDIX C – RTO ODOR SAMPLING/TESTING PROCEDURE

Odor Comparison Test Procedure **OMP-1**

# RTO EXHAUST

# PERSONAL ODOR INSPECTION (POI)

**REF: Permit Units N-8234-4-10, N-8234-5-10, N-8234-6-10**

## 1. APPLICABILITY

1.1. This method is used to determine the maintenance priority for the Diamond Pet Foods-Ripon (DPF-Ripon) regenerative thermal oxidizers (RTOs).

## 2. PRINCIPLE

2.1. A sample of exhaust is continuously extracted from the RTO exhaust line, cooled and sampled by a trained DPF-Ripon Sample Technician (DRST). The RTO that is determined to have the strongest odor will be assessed to determine if the Manufacturer Automatic Maintenance Sequence (MAMS) is needed.

## 3. RANGE AND SENSITIVITY

3.1. The minimum and maximum measurable concentrations of odorous sample depends on the specific detection level of the DRST.

3.2. If any DRST is unable to establish a baseline of detection, an alternate trained DRST technician is chosen to conduct the review.

## 4. INTERFERENCES

4.1. In the event the DRST is unable to smell either via cold or allergies, an alternate trained DRST is chosen.

4.2. DRST should not be exposed to any highly odorous area such as the interior of the anhydrous ammonia SCR (boiler) injection ports or the anhydrous ammonia storage tank within 30 minutes of RTO exhaust sampling.

## 5. APPARATUS

5.1. PPE: Hard Hat, Safety Glasses, Leather or Thermal-Protective Gloves.

5.2. Sample Shunt Tubing Wand (see ½" curved stainless steel tubing).

5.3. Sample Collection/Testing Detection Housing (see Figure OMP-1B).

5.4. Sample conditioning (cooling/sampling): The assembly of this system is shown in Figure OMP-1B. The sample conditioning and capture system (wand) consists of approximately 3 feet of ½" diameter stainless steel tubing, curved for sample capture, with a funnel-shaped detection housing where the cooled sample exhaust may be analyzed by the DRST. Except as specified, all materials which come in contact with either the sampled exhaust or the heated exhaust housing (exhaust duct) must be constructed of stainless steel.

5.5. Sample Detection Requirements: Two DPF-Ripon Sample Technicians (two DRSTs). **NOTE: RTO odor testing according to OMP-1 should not be performed during MAMS or when the exhaust duct temperature exceeds 230°F.**

**Figure OMP-1A**

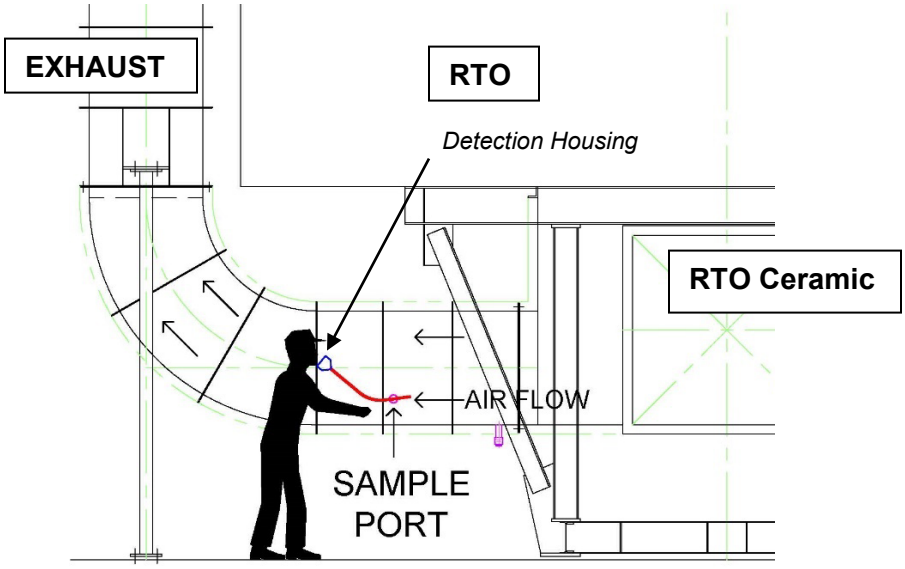
**RTO Odor Sample Port Location**

RTO Exhaust Odor Sampling Port

RTO Exhaust Odor Sampling Port
Close-Up View


**Figure OMP-1B**

**RTO Odor Sample Image**



## 6. PRE-TEST PROCEDURES

6.1. Review RTO operation: RTO odor sampling may be performed only when the RTO is operating during stead state operating conditions. The RTO exhaust temperature will be variable and will range from 210°F to 230°F. **NOTE: RTO odor testing according to OMP-1 should not be performed during MAMS or when the exhaust duct temperature exceeds 230°F.**

6.2. Insert the odor sampling wand as shown in Figure OMP-1B, with the curved sample wand directed upstream to capture sample using the flow momentum.

6.3. Ensure a suitable exhaust stream is established in the Detection Housing for the analysis.

6.4. Confirm the RTO is operating at steady state operation and that the exhaust temperature does not exceed 230°F.

## 7. SAMPLING

7.1. The DRST should conduct the odor analysis the exhaust stream by slowly drawing closer to the sample detection housing until a slight breeze from the cooled sample is felt coming from the wide end of the detection housing.

7.2. Gently draw the sample through the nose for approximately 15 seconds.

7.3. Clear the nose by breathing fresh air away from the exhaust for approximately 30 seconds and perform sampling per 7.2 again. Repeat this process until 4 tests are completed. Record a description of the odor detected.

7.4. Conduct this process on all three RTOs and compare the results.

7.5. Results should be discussed to determine if any maintenance is needed on any RTO and if so, the order of RTO maintenance.

## 8. REPORTING

The results from the testing should be recorded on the enclosed sample and analysis sheet (Figure OMP-1C).

**Figure OMP-1C**

| | | |
|---|---|---|
| **Test Date:** _____<br>**[blank]:** _____ | DIAMOND PET FOODS – RIPON<br>ODOR MANAGEMENT PLAN<br>**Summary of Odor Test Results** | **Test Times:**<br>**RTO-1:** _____<br>**RTO-2:** _____<br>**RTO-3:** _____ |

| **Source Information/Weather Conditions/Etc.** | **DRST Representatives** |
|---|---|
| **Weather Conditions (°F, Wind, etc.)** | **DPF-Ripon Sample Technicians**<br>DRST-1:<br>DRST-2: |

| | | |
|---|---|---|
| RTO-1 Product: | RTO-2 Product: | RTO-3 Product: |
| Applicable Regulations: | | |

## Source Test Results and Comments

| RTO 1 | | | | |
|---|---|---|---|---|
| **Scent** | **None** | **Weak** | **Average** | **Strong** |
| Overall Odor Intensity | | | | |
| Pet Food | | | | |
| Burnt Oven | | | | |
| Natural Gas | | | | |
| Other: _____ | | | | |

| RTO 2 | | | | |
|---|---|---|---|---|
| **Scent** | **None** | **Weak** | **Average** | **Strong** |
| Overall Odor Intensity | | | | |
| Pet Food | | | | |
| Burnt Oven | | | | |
| Natural Gas | | | | |
| Other: _____ | | | | |

| RTO 3 | | | | |
|---|---|---|---|---|
| **Scent** | **None** | **Weak** | **Average** | **Strong** |
| Overall Odor Intensity | | | | |
| Pet Food | | | | |
| Burnt Oven | | | | |
| Natural Gas | | | | |
| Other: _____ | | | | |

**Comments:**

| DPF-Ripon Team Leader | Reviewed by Date | Approved By Date |
|---|---|---|
| | | |