TECHNICAL EVALUATION

AND

FINAL DETERMINATION

FOR

Florikan ESA, LLC
Sarasota County

Permit Application Number

1150179-001-AO

Sarasota County Environmental Protection Division

Air & Water Quality

Sarasota, FL

August 4, 2014

Prepared by: Michael Storino

DRAFT

1. GENERAL PROJECT INFORMATION

Air Pollution Regulations

Projects at stationary sources with the potential to emit air pollution are subject to the applicable environmental laws specified in Section 403 of the Florida Statutes (F.S.). The statutes authorize the Department of Environmental Protection (Department) to establish regulations regarding air quality as part of the Florida Administrative Code (F.A.C.), which includes the following applicable chapters: 62-4 (Permits); 62-204 (Air Pollution Control – General Provisions); 62-210 (Stationary Sources – General Requirements); 62-212 (Stationary Sources – Preconstruction Review); 62-213 (Operation Permits for Major Sources of Air Pollution); 62-296 (Stationary Sources - Emission Standards); and 62-297 (Stationary Sources – Emissions Monitoring). Specifically, air construction permits are required pursuant to Chapters 62-4, 62-210 and 62-212, F.A.C.

In addition, the U. S. Environmental Protection Agency (EPA) establishes air quality regulations in Title 40 of the Code of Federal Regulations (CFR). Part 60 specifies New Source Performance Standards (NSPS) for numerous industrial categories. Part 61 specifies National Emission Standards for Hazardous Air Pollutants (NESHAP) based on specific pollutants. Part 63 specifies NESHAP based on the Maximum Achievable Control Technology (MACT) for numerous industrial categories. The Department adopts these federal regulations in Rule 62-204.800, F.A.C.

Glossary of Common Terms

Because of the technical nature of the project, the permit contains numerous acronyms and abbreviations, which are defined in Appendix A of this permit.

Facility Description and Location

Florikan ESA, LLC, is an existing fertilizer polymer coating operation, which is categorized under Standard Industrial Classification Code No. 28. The Florikan ESA, LLC facility is located in Sarasota County at 1579 Barber Rd., Sarasota, FL 34240. The UTM coordinates of the existing facility are Zone 17, 357.17 km East, and 3022.86 km North. This site is in an area that is in attainment (or designated as unclassifiable) for all air pollutants subject to Ambient Air Quality Standards (AAQS).

Facility Regulatory Categories

- The facility is not a major source of hazardous air pollutants (HAPs).
- The facility has no units subject to the acid rain provisions of the Clean Air Act (CAA).
- The facility is not a Title V major source of air pollution in accordance with Chapter 213, F.A.C.
- The facility is not a major stationary source in accordance with Rule 62-212.400(PSD), F.A.C.
- The facility is a naturally minor stationary source of air pollution.

Project Description

Florikan ESA, LLC is a fertilizer polymer coating facility with processes that include polymer coating, material handling/blending, bagging, and truck loadout activities.

Uncoated small beads of fertilizer (prills) of varying composition are bought from outside sources, transported and offloaded from trucks and stored on site. Batches of prills are dried by heating them to between 165 and 180 ° F in a fluidized bed preheater utilizing a 5 million British thermal units per hour (MMBtu/hour) indirect fire propane fueled burner. Agitation of the prills creates particulate matter (PM)

emissions, which are ducted to a Macprocess baghouse, model 144LST196, emission control system and exhausted to the atmosphere by stack.

The heated prills are transferred by an elevator and conveying system to one of three Continental Rollo-Mixer, Model Mark IX, enclosed drum mixing units. The fertilizer is then coated with Luprinate M20S Isocyanate and Pluracol GP430 Polyol, which react to form a polymer coating within the mixing units. If needed, a recirculating supplemental air heating system utilizing a 1.5 MMBtu/hour indirect fire propane fueled burner is used to maintain a minimum reaction temperature above 165 ° F within the enclosed drum mixers. The recirculated air is filtered of particulate matter using in-line metal filters. Alternatively, the heated prills may be transferred and deposited by forklift into an open drum mixer where the fertilizer is mixed and coated using a hand held wand. Potential HAP and VOC emissions from the coating process are fugitive in nature and well below permitting thresholds (See Table A) as demonstrated through testing by the facility completed on June 12, 2014 by Environmental Safety Consultants, Inc.

Once the coating process is completed, the prills are deposited onto a conveyor and transferred to a screener to ensure consistent sizing of the finished product. The coated and screened prills are blended and packaged to provide specific fertilizer concentrations and time release characteristics as requested by customers. Fugitive dust emissions from the material handling, transfer, and packaging are collected by a series of hoods within the facility, which are ducted to a Camfil-Farr baghouse, Model GS12SQ. The baghouse exhausts back into the facility and emissions are fugitive.

Processing Schedule

January 24, 2014	Received the application for a minor source air pollution operating permit.
January 26, 2014	Determined application fee insufficient, requested correct fee.
February 18, 2014	Received sufficient permit fee.
March 20, 2014	Request for Additional Information, PTE for HAP & VOC compounds.
Arpil 4, 2014	Received additional information, HAP & VOC minimal based on industrial hygiene testing.
April 29, 2014	Request for Additional Information, PTE for HAP & VOC not well represented by industrial hygiene, requested re-evaluate and suggested test of source.
May 9, 2014	Site inspection with S. District & Consultant, agreed to test the enclosed drum mixer for HAP & VOC.
May 29, 2014	Received additional information, confirmed testing plan for enclosed drum mixer.
June 5, 2014	Site inspection with FDEP DARM Program Director, agreed to previous test strategy for enclosed drum mixer for HAP & VOC.
July 15, 2014	Received additional information, test results indicate minimal HAP & VOC.

2. SUMMARY OF EMISSIONS

Table A. Summary of Emissions from the Project

Pollutant	Actual Emissions[2]		Potential Emissions[3]	
	lb/hr[4]	tpy	lb/hr[4]	tpy
Carbon Monoxide (CO)	0.532805	2.33	0.532805	2.33
Nitrogen Oxides (NO_X)	0.92352	4.045	0.92352	4.045

Particulate Matter (PM)[1]	0.276	1.21	13.54	59.34
PM ≤ 10 microns (PM_{10})				
PM ≤ 2.5 microns ($PM_{2.5}$)				
Sulfur Dioxide (SO_2)	0.106555	0.467	0.106555	0.467
Volatile Organic Compounds (VOC)	0.0000006328	0.00000277	0.0000006328	0.00000277
Hazardous Air Pollutant (HAP) Methylene diphenyl diisocyanate (MDI) CAS# 101-68-8	0.00000456	0.00002	0.00000456	0.00002

1. *All particulate matter emissions were conservatively assumed to be less than 2.5 microns in size.*
2. *Actual emissions ~= potential emissions after controls.*
3. *Potential emissions calculated from data provided in the application including emissions from material processing, AND uncontrolled propane combustion emissions.*
4. *Hours of operation are unrestricted (e.g. 8,760 hrs/yr*)

Potential to Emit (PTE) for Propane fueled burners:

5 MMBtu/hr + 1.5 MMBtu/hr = 6.5 MMBtu/hr.

Propane 91.5 MMBtu/10^3gal; assume 15 gr/scf.

Emissions Factors (AP-42):

- **PM**: 0.7 lb/10^3gal = 0.00765 lb/MMBtu x 6.5 MMBtu/hr = **0.049725 lb/hr** x ton/2000 lbs x 8760 hr/year = **0.218 tpy**.
- **SO^2**: (0.10S x 15gr/scf) = 1.5 lb/10^3gal = 0.016393 lb/MMBtu x 6.5 MMBtu/hr = **0.106555 lb/hr** x ton/2000 lbs x 8760 hr/year = **0.467 tpy**.
- **NOx**: 13 lb/10^3gal = 0.14208 lb/MMBtu x 6.5 MMBtu/hr = **0.92352 lb/hr** x ton/2000 lbs x 8760 hr/year = **4.045 tpy**.
- **CO**: 7.5 lb/10^3gal = 0.08197 lb/MMBtu x 6.5 MMBtu/hr = **0.532805 lb/hr** x ton/2000 lbs x 8760 hr/year = **2.33 tpy**.
- **CO^2**: 12,500 lb/10^3gal = 136.61 lb/MMBtu x 6.5 MMBtu/hr = **887.97 lb/hr** x ton/2000 lbs x 8760 hr/year = **3889.31 tpy**.

PTE from fluidized bed preheater (PM):

With controls based on manufacturer's specs on Macprocess baghouse, model 144LST19 (unadjusted for moisture):

(0.02 grains/scf x 15,994 scf/min) x (lb/7000 grains) x 60 min/hr = **2.74 lbs/hr** x ton/2000 lb x 8760 hr/year = **12 tpy.**

Consultant's calculations w/out controls based on actual measured dust after 4 days of normal production rate:

325 lbs/day x day/24 hrs = **13.54 lbs/hr** x ton/2000 lbs x 8760 hr/year = **59.31 tpy**

Actual emissions based on an assumed 98% capture efficiency of baghouses as provided by the consultant:

(59.31 tpy / 0.98) – 59.31 = **1.21 tpy** / 8760 hr/year x 2000 tons/lb = **0.276 lbs/hr**.

PTE MDI:

(1.5 mg/m3) x (3.68 m3/drum batch) x (lb/453592 mg) x 9 batches/day x day/24 hrs = **0.00000456 lb/hr** x (ton/2000 lbs x 8760 hr/year) = **0.00002 tpy**

PTE VOC:

0.059 ppm measured
86.2 g/mol (Hexane) x 0.059 ppm x mol/24.45 l = 0.208008 mg/m3
(0.208008 mg/m3) x (3.68 m3/drum batch) x (lb/453592 mg) x 9 batches/day x day/24 hrs = **0.0000006328 lb/hr** x (ton/2000 lbs x 8760 hr/year) = **0.00000277 tpy**

3. RULE APPLICABILITY & TECHNICAL REVIEW

Sarasota County is currently in attainment with the state and federal Ambient Air Quality Standards or is otherwise designated as unclassifiable. The facility ***is*** subject to the provisions of Chapter 403, F.S., and F.A.C. Chapters 62-204, 62-210, 62-212, 62-213, 62-296, 62-297, and Chapter 62-4.

Table B – Summary of rule evaluation

Subject to:	**Y/N**
Rule 62-212.300, F.A.C. Stationary Sources – Preconstruction Review, General Preconstruction Review Requirements[1]	N
Rule 62-212.400, F.A.C, Prevention of Significant Deterioration[2]	N
Rule 62-296.320, F.A.C, Stationary Sources – Emission Standards – General Pollutant Emission Limiting Standards[3]	**Y**
Rule 62-296.500, F.A.C, Reasonably Available Control Technology (RACT) – Volatile Organic Compounds (VOC) and Nitrogen Oxides (NOx) Emitting Facilities[4]	N
Rule 62-296.700, F.A.C, Reasonably Available Control Technology (RACT) Particulate Matter[5]	N
Rule 62-204.800(8), F.A.C, Stds. of Performance for New Stationary Sources[6] (NSPS)	N
Rule 62-204.800(9), F.A.C, Title 40 CFR Part 60, Emission Guidelines and Compliance Times[7]	N
Rule 62-204.800(10), F.A.C, Natl. Emission Stds. for Hazardous Air Pollutants[8] (NESHAPS)	N
Rule 62-204.800(11), F.A.C, National Emission Standards for Hazardous Air Pollutants for Source Categories[9] (NESHAPS for Source Categories)	N
Chapter 62-213, F.A.C, Operation Permits for Major Sources of Air Pollution[10]	N

1. This project ***is not*** subject to the general preconstruction review requirements in Rule 62-212.300, F.A.C. and is not subject to the preconstruction review requirements for major stationary sources in Rule 62-212.400, F.A.C. for the Prevention of Significant Deterioration (PSD) of Air Quality.

2. This project ***is not*** subject to PSD review requirements in Rule 62-212.400, F.A.C. Under preconstruction review, the Permitting Authority first must determine if a project is subject to PSD major stationary source preconstruction review as defined in Rule 62-212.400, F.A.C. Table A summarizes potential emissions from the project based on the best available estimates at the time of permitting. The PSD major source threshold for this project is 250 tons/year. As shown in table A, total facility potential emissions are well below this level; therefore, the project is not subject to PSD preconstruction review.

3. This project ***is*** subject to the requirements of Rule 62-296.320, Stationary Sources - Emission Standards - General Pollutant Emission Limiting Standards, F.A.C., since it may be source of fugitive particulate matter emissions, and it is a potential source of odors.

4. This project ***is not*** subject to Rule 62-296.500, Reasonably Available Control Technology (RACT) - VOC and NOx Emitting Facilities, F.A.C., since the facility is not located in a designated ozone nonattainment or air quality maintenance area; or a NOx emitting facility in a designated area.

5. This project ***is not*** subject to Rule 62-296.700, Reasonably Available Control Technology (RACT) Particulate Matter, F.A.C., since the facility is not in a particulate matter (PM) air quality maintenance area or in the area of influence of an air quality maintenance area.

6. This project ***is not*** subject to the requirements of Rule 62-204.800(8), Air Pollution Control - General Provisions - Federal Regulations Adopted by Reference - Chapter 40, Code of Federal Regulations, Part 60, Standards of Performance for New Stationary Sources, F.A.C., since the project is not an affected source category.

7. This project ***is not*** subject to the requirements of Rule 62-204.800(9), Air Pollution Control - General Provisions Federal Regulations Adopted by Reference - Title 40, Code of Federal Regulations, Part 60, Emission Guidelines and Compliance Times, F.A.C., since there is not a source category.

8. This project ***is not*** subject to the requirements of Rule 62-204.800(10), Air Pollution Control - General Provisions - Federal Regulations Adopted by Reference - Chapter 40, Code of Federal Regulations, Part 61, National Emission Standards for Hazardous Air Pollutants, F.A.C., since the facility is not an affected source category.

9. This project ***is not*** subject to the requirements of Rule 62-204.800(11), Air Pollution Control - General Provisions - Federal Regulations Adopted by Reference - Chapter 40, Code of Federal Regulations, Part 63, National Emission Standards for Hazardous Air Pollutants for Source Categories, F.A.C., since the project is not an affected source category.

10. This project ***is not*** subject to the Title V permitting requirements of Rule 62-213, Operation Permits for Major Sources of Air Pollution, F.A.C., since emissions are below the Title V permitting thresholds of Chapter 62-213, F.A.C.

Other Draft Permit Requirements

The draft permit authorizes operation of the processing equipment for the fertilizer coating operation. Authorized fuel for the 5 MMBtu/hr and 1.5 MMBtu/hr burners include propane and natural gas. A dust collector is required to control particulate matter from the fluidized bed dryer with a design dust outlet loading of 0.02 grains per actual cubic feet of exhaust. Replacement filters/bags must meet this specification. Monthly inspections of the dust collector will ensure proper operation. If visible emissions (> 5% opacity) are observed from the dust collector vent, the permittee is required to investigate and take corrective actions. Dust collector inspections must be logged. The draft permit also includes other general rule requirements.

Operational design of the facility will ensure that emissions of particulate matter (PM and PM-10), carbon monoxide (CO), nitrogen oxides (NOx), sulfur dioxide (SO2), VOC (Volatile Organic Compounds), and HAP(s) (Hazardous Air Pollutant(s) are below the Title V permitting thresholds of Chapter 62-213, F.A.C.

State Air Operating Permit

This project is considered in accordance with Rule 62-210.300(2)(b), F. A. C. Florikan's existing fertilizer processing facility is considered a naturally minor non-Title V source.

4. FINAL DETERMINATION

Sarasota County makes a preliminary determination that the proposed project will comply with all applicable state and federal air pollution regulations as conditioned by the draft permit. This determination is based on a technical review of the complete application, reasonable assurances provided by the applicant, and the conditions specified in the draft permit. Michael Storino is the project engineer responsible for reviewing the application and drafting the permit. Additional details of this analysis may be obtained by contacting the project engineer at 1001 Sarasota Center Blvd., Sarasota, FL 34240.