ENVIRONMENTAL AND COMPLIANCE DEPARTMENT

Jacksonville
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TECHNICAL EVALUATION
&
PRELIMINARY DETERMINATION

APPLICANT

SAFT America Inc.
13575 Waterworks Street
Jacksonville, FL 32221

FACILITY

SAFT America Inc.
Facility ID No. 0310572

PROJECT

Project No. 0310572-001-AC
Application for Minor Source Air Construction Permit
SAFT America Inc.

COUNTY

Duval, Florida

PERMITTING AUTHORITY

Environmental and Compliance Department
Environmental Quality Division
407 North Laura Street, Third Floor
Jacksonville, FL 32202
Telephone: (904) 255-7100
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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 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 Rules 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 of Environmental Protection adopts these federal regulations on a quarterly basis in Rule 62-204.800, F.A.C.

In accordance with the terms of its Specific Operating Agreement, the City of Jacksonville, Environmental and Compliance Department, Environmental Quality Division (Department) has been delegated the authority to process this application on behalf of the Department of Environmental Protection.

Glossary of Common Terms

Because of the technical nature of the project, the permit contains numerous acronyms and abbreviations, which will be defined in this permit.

Facility Description and Location

SAFT America Inc. proposes to construct a new lithium ion battery manufacturing facility, which is categorized under Standard Industrial Classification Code No. 3691. The facility will be located in Duval County at 13575 Waterworks Street in Jacksonville, Florida. The UTM coordinates of the new facility are Zone 17, 421.05 km East, and 3350.83 km North.

This facility is located in an area designated as; unclassifiable for the air pollutants particulate matter less than or equal to ten (10) micrometers (PM_{10}), sulfur dioxide (SO_2), and lead (Pb); an air quality maintenance area for ozone (O_3); and in the area of influence of an air quality maintenance area for particulate matter (PM); pursuant to state and federal Ambient Air Quality Standards (AAQS), Chapter 62-204, Florida Administrative Code (FAC), and Rule 2.201, Jacksonville Environmental Protection Board (JEPB).

Facility Regulatory Categories

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

Project Description

The SAFT America Inc. facility to be located at 13575 Waterworks Street at the Cecil Commerce Center in Duval County, Jacksonville, FL will be a lithium ion battery manufacturing plant. This facility is comprised of one (1) process line composed of one (1) cation coating line and one (1) anion coating line. All emissions associated with the coating lines are processed through condensers and a shared wet scrubber prior to release to the atmosphere.

There are two (2) natural gas fired, 7.2 MMBtu per hour, drying ovens which supply heated air to the dryers in each coating line. Emissions from each of the ovens are exhausted directly to the atmosphere.

There are two (2) unregulated emission units: one (1) No. 2 fuel oil fired, 300KW, Cummins, Model 300DQDAC, diesel engine. This EU is classified as an emergency generator. It is subject to 40CFR60 Subpart IIII but is exempt per DARM-PER-44 guidance document and Rule 62-210.300(3)(a)35, F.A.C., so long as the consumption of No. 2 fuel oil does not exceed 32,000 gallons per year; the corona treatment of the cathode substrate produces approximately 1.93 tons per year of ozone. Ozone is a regulated pollutant however there are no direct emission limitations for ozone.

Processing Schedule

10/22/2010 Received the application for a minor source air pollution construction permit

11/21/2010 Application complete

12/09/2010 Received updated electronic drawings and clarification of process description

2. PSD APPLICABILITY

General PSD Applicability

For areas currently in attainment with the state and federal AAQS or areas otherwise designated as unclassifiable, the Department regulates major stationary sources of air pollution in accordance with Florida's PSD preconstruction review program as defined in Rule 62-212.400, F.A.C. Under preconstruction review, the Department first must determine if a project is subject to the PSD requirements ("PSD applicability review") and, if so, must conduct a PSD preconstruction review. A PSD applicability review is required for projects at new and existing major stationary sources. In addition, proposed projects at existing minor sources are subject to a PSD applicability review to determine whether potential emissions *from the proposed project itself* will exceed the PSD major stationary source thresholds. A facility is considered a major stationary source with respect to PSD if it emits or has the potential to emit:

- 250 tons per year or more of any regulated air pollutant; or
- 100 tons per year or more of any regulated air pollutant and the facility belongs to one of the following 28 PSD-major facility categories: fossil fuel-fired steam electric plants of more than 250 million British thermal units per hour heat input, coal cleaning plants (with thermal dryers), Kraft pulp mills, portland cement plants, primary zinc smelters, iron and steel mill plants, primary aluminum ore reduction plants, primary copper smelters, municipal incinerators capable of charging more than 250 tons of refuse per day, hydrofluoric, sulfuric, and nitric acid plants, petroleum refineries, lime plants, phosphate rock processing plants, coke oven batteries, sulfur recovery plants, carbon black plants (furnace process), primary lead smelters, fuel conversion plants, sintering plants, secondary metal production plants, chemical process plants, fossil fuel boilers (or combinations thereof) totaling more than 250 million British thermal units per hour heat input, petroleum storage and transfer units with a total storage capacity exceeding 300,000 barrels, taconite ore processing plants, glass fiber processing plants and charcoal production plants.

Once it is determined that a project is subject to PSD preconstruction review, the project emissions are compared to the "significant emission rates" defined in Rule 62-210.200, F.A.C. for the following pollutants: carbon monoxide (CO); nitrogen oxides (NO_X); sulfur dioxide (SO_2); particulate matter (PM); particulate matter with a mean particle diameter of 10 microns or less (PM_{10}); volatile organic compounds (VOC); lead (Pb); fluorides (Fl); sulfuric acid mist (SAM); hydrogen sulfide (H_2S); total reduced sulfur (TRS), including H_2S; reduced sulfur compounds, including H_2S; municipal waste combustor organics measured as total tetra- through octa-chlorinated dibenzo-p-dioxins and dibenzofurans; municipal waste combustor metals measured as particulate matter; municipal waste combustor acid gases measured as SO_2 and hydrogen chloride (HCl); municipal solid waste landfills emissions measured as non-methane organic compounds (NMOC); and mercury (Hg). In addition, significant emissions rate also means any emissions rate or any net emissions increase associated with a major stationary source or major modification which would construct within 10 kilometers of a Class I area and have an impact on such area equal to or greater than 1 $\mu g/m^3$, 24-hour average.

If the potential emission exceeds the defined significant emissions rate of a PSD pollutant, the project is considered "significant" for the pollutant and the applicant must employ the Best Available Control Technology (BACT) to minimize the emissions and evaluate the air quality impacts. Although a facility or project may be *major* with respect to PSD for only one regulated pollutant, it may be required to install BACT controls for several "significant" regulated pollutants.

PSD and Title V Applicability for Project

The SAFT America Inc. facility process begins when raw materials enter the mixing area where they are combined in the mixers. Some Particulate Matter (PM) emissions are generated here. These are collected on a HEPA filter and the clean exhaust is directed back into the plant. The cathode and anode mixes travel through the mix transfer system which supplies them to the respective coating lines. There are no emissions related to this section of the process.

The cathode coating line uses corona treated aluminum as its substrate. The corona treatment is an electrostatic radiation source that produces ozone. The ozone is exhausted to the atmosphere (10.6 pounds per day, 1.93 tons per year). The anode coating line uses copper as its substrate. Ozone is a regulated pollutant but there is no emission limiting standard for this process.

Once the coating mix has been deposited on the substrate material, coated substrate enters the respective cathode or anode dryer. The dryer heat is provided by a natural gas fired, 7.2 MMBTU oven (one for each coating line). The ovens exhaust directly to atmosphere. These exhausts are the origins for Emission Unit (EU) 002. The volatile component of the coating mix, NMP for the cathode line and water (NMP under rare circumstances) for the anode line, is driven off in the dryer and recovered in the cathode condenser or the anode condenser. The condensate from each condenser drains to its own 10,000 gallon waste storage tank.

The condenser exhausts are directed to a shared wet scrubber (MEGTEC Model PS1005) where any remaining NMP is removed prior to the exhaust being released to the atmosphere. The scrubber receives the exhaust from the two (2) condensers and emits less than 10 parts per million volume (ppmv) [$2.53X10^{-6}$ pounds per cubic foot (lb/ft^3) @ 25°C] NMP @ 2000 SCFM (1000 SCFM from each condenser). The anode condenser exhaust contains a three-way valve that is computer interlocked such that if NMP is **not** being used in the process, it can be positioned to exhaust the anode condenser straight to the atmosphere. The scrubber drains to a 10,000 gallon scrubber blowdown waste tank. The VOC emissions to the atmosphere from the scrubber are the origin for Emission Unit (EU) 001.

The dried, coated foil moves down the line where it enters the slitting process. The foil is sliced from one (1) 800 millimeter (mm) strip to four (4) 200 mm strips. Some PM emissions are generated in this process. These are collected on a HEPA filter and the clean exhaust is directed back into the plant. There are no emissions related to this section of the process.

The foil then moves through a splicing station where any defects are removed. Some PM emissions are generated in this process. These are collected on a HEPA filter and the clean exhaust is directed back into the plant. There are no emissions related to this section of the process.

After splicing, the foil passes through a calender which presses it to the desired thickness. It then goes through a dryer to remove any moisture. There are no emissions related to this section of the process.

Both the cathode and anode foils now arrive at the winding operation where they are combined to form a cell. The cell proceeds to cell folding and assembly. Some PM emissions are generated in this process. These are collected on a HEPA filter and the clean exhaust is directed back into the plant. There are no emissions related to this section of the process.

There is another operation for cover assembly. Cover assembly consists of laser welding and etching operations. There are no emissions related to this section of the process.

Next, in the electrolyte filling operation, the cells are filled with organic electrolyte. There is one filling machine to each assembly line. Carbon scrubbers are installed on this line which exhaust back into the plant. There are no emissions related to this section of the process.

The feeding room is located in an outside building away from the main plant and feeds the filling lines. There are three feeding cabinets, each with its own carbon scrubber. Fugitive emissions of VOCs and organics are generated and are sent to the scrubber. The filling insulation is cooled to 60°F - below the flashpoint. The emissions from this portion of the process are insignificant.

Cells then go to the rivet section where a rivet is placed into each cell to close it. There are no emissions related to this section of the process.

The automated guided vehicle (AGV) transfers the filled and closed cells to the formation area which is located in a separate building. Electrical formation is performed within closures (cabinets). The closures have an argonite fire suppression system. The chamber will be flooded in case of fire or explosion. If a fire or explosion occurs, emissions will be directed to a wet scrubber. Under normal circumstances, there are no emissions related to this section of the process.

From formation, the cells go to electrical testing. The tested cells go to storage and then to module/battery assembly. There are no emissions from this process.

As provided in the application, the following table summarizes potential emissions, Title V, and PSD applicability for the project.

Table A. Potential Emissions (Tons/Year), Title V, and PSD Applicability

Pollutant	Project Potential Emissions (TPY)	Subject to Title V? (100 TPY)	Subject To PSD? (250 TPY)
CO	2.5	No	No
NO_X	5.8	No	No
PM/PM_{10}	0.47/0.35	No	No
SO_2	0.04	No	No
VOC	2.5	No	No

As shown in the above table, total project emissions will not exceed the Title V or PSD major source thresholds; therefore, the project is not subject to Title V permitting or PSD preconstruction review.

3. APPLICATION REVIEW

Discussion of Emissions

Tanks

Virgin NMP Tank	7,500 gallon	100% NMP
Cathode Condensate Tank	10,000 gallon	95% NMP, balance water
Anode Condensate Tank	10,000 gallon	5% NMP max., balance water
Wet Scrubber Blowdown Tank	10,000 gallon	2.7% NMP max., balance water
Deionized Water Tank	10,000 gallon	100% water

The 7500 gallon, Virgin NMP Tank, is covered with a nitrogen blanket. It and the other three tanks that have the potential to contain NMP are on a closed system vent that returns any vapors to the process line wet scrubber.

Process Lines

PM - produced as fugitive emissions by various portions of the process. All are captured by HEPA filters and returned to the plant ventilation system. None are exhausted to the atmosphere.

VOC - facility's main chemical of concern is N-Methyl-2-Pyrrolidone (NMP). Approximately 2.2 tons per year will be released to the atmosphere.

HAP – no HAP emissions are associated with this facility.

Ozone – corona treatment of the cathode substrate produces 1.93 tons/year. Ozone is a regulated pollutant.

Drying Ovens (2) – Natural gas fired, 7.2 MMBTU each. The following pollutants will be released to the atmosphere:

CO – 2.47 tons/year

NO_x – 5.81 tons/year

PM – 0.47 tons/year

PM_{10} – 0.35 tons/year

SO_2 – 0.04 tons/year

VOC – 0.34 tons/year

Emergency Generator – No. 2 fuel oil fired, 300KW, Cummins, Model 300DQDAC, diesel engine. Subject to 40CFR60 Subpart IIII but is exempt per DARM-PER-44 guidance document and Rule 62-210.300(3)(a)35, F.A.C.

There are only two operations in the plant that will require permitting:

1. The two process lines, cathode condenser and anode condenser to the wet scrubber, emit VOC from the common scrubber. The emissions will be permitted as EU-001.
2. CO, NO_x, PM, PM_{10}, SO_2 and VOC are emitted from burning natural gas in the drying ovens. There are two ovens in the plant. The emissions will be permitted as EU-002.

There are two units at the facility that will be included in the permit as unregulated emission units:

1. The 300KW, Cummins, emergency diesel generator will be unregulated EU 003.
2. The corona treatment of the cathode substrate will be unregulated EU 004.

Local Requirements

This facility is subject to Chapter 360 [Environmental Regulation], Chapter 362 [Air and Water Pollution], Chapter 365 [Hazardous Regulated Substance Program], Chapter 376 [Odor Control] of the Ordinance Code of the City of Jacksonville, Title X; and Rule 1 [Final Rules with Respect to Organization, Procedure, and Practice], and Rule 2, Part Numbers I through IV and Part Numbers X through XIV [Air Pollution Control], JEPB.

State Requirements

This facility will be subject to the applicable sections of Chapter 403, F.S. and Rules 62-4, 62-204, 62-210, 62-212, 62-296, and 62-297, F.A.C.

Federal NSPS Provisions

This facility is not an "affected facility" therefore 40CFR60 does not apply.

Subpart Kb does not apply as the tanks which store VOC's at this facility are all less than the minimum applicable volume of 75 cubic meters.

Subpart TT does not apply as the metal foils coated at this facility are all less than minimum applicable thickness of 0.15millimeters.

Subpart IIII would have applied to this facility's emergency diesel generator but it is exempt per DARM-PER-44 guidance document and Rule 62-210.300(3)(a)35, F.A.C.

Federal NESHAP Provisions

This facility is not subject to 40CFR63 as no HAP's are produced or emitted.

Other Draft Permit Requirements

This facility shall notify the Department prior to emissions compliance testing, of the results for emissions compliance testing, prior to any modifications which may affect plant emissions, and when plant operation permanently ends.

The Emission Units (EU's) at this facility are permitted to operate continuously.

The consumption of natural gas by the drying ovens shall not exceed 0.014 Million cubic feet per hour for both ovens.

The drying oven exhaust emission shall not exceed 5% opacity.

The wet scrubber exhaust emission of VOC's shall not exceed 10 parts per million by volume (ppmv).

The consumption of diesel fuel (No. 2 fuel oil) by the emergency generator shall not exceed 32,000 gallons per year.

This facility shall maintain all appropriate records as required by the Department.

4. PRELIMINARY DETERMINATION

The City of Jacksonville, Environmental and Compliance Department, makes a preliminary determination that the proposed project will comply with all applicable local, 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. C. Blane Johnson 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:

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