

NEIGHBORHOODS DEPARTMENT



TECHNICAL EVALUATION & PRELIMINARY DETERMINATION

APPLICANT

SAFT America Inc.
13575 Waterworks Street
Jacksonville, FL 32221-8118

FACILITY

SAFT America Inc.
Lithium Ion Battery Manufacturer
Facility ID No. 0310572

PROJECT

Project Number 0310572-003-AC
Application for Non-Title V Air Construction Permit

COUNTY

Duval, Florida

PERMITTING AUTHORITY

Neighborhoods Department
Environmental Quality Division
214 North Hogan Street, Suite 500
Jacksonville, FL 32202
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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, Neighborhoods Department, Environmental Quality Division has been delegated the Permitting Authority to process this determination on behalf of the DEP.

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., a lithium ion battery manufacturing facility, is categorized under Standard Industrial Classification Code No. 3691. The facility is located in Duval County at 13575 Waterworks Street in Jacksonville, Florida 32221-8118. The Universal Transverse Mercator coordinates for the facility are Zone 17, 421.05 km East, and 3350.83 km North. The latitude and longitude coordinates are 30° 16' 25" North and 81° 53' 22" West.

The facility is located in an area designated as; unclassifiable for the air pollutants particulate matter less than or equal to ten (10) micrometers (PM₁₀), sulfur dioxide (SO₂), and lead (Pb); an air quality maintenance area for ozone (O₃); 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 (F.A.C.), 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.
- The facility is a natural non-Title V source of air pollution.

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Project Description

The SAFT America Inc. facility is a lithium ion battery manufacturing plant. The facility plans to install one (1) new coating line that will perform both cathode and anode coating operations. All emissions associated with the coating line are processed through a condenser and a shared wet scrubber prior to release to the atmosphere. The installation of this coating line will not produce any increase in emissions from the wet scrubber.

There is one (1) existing process line composed of one (1) cathode coating line and one (1) anode coating line. All emissions associated with the coating lines are processed through condensers and a shared wet scrubber prior to release to the atmosphere.

The new coating line will include the installation of one (1) new, natural gas fired, 7.2 MMBtu per hour, drying oven which supplies heated air to the dryer in the coating line. Emissions from the oven are exhausted directly to the atmosphere.

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

There is one (1) unregulated emission unit;

Two (2) corona treatment modules (one existing, one new) will produce approximately 3.86 tons per year of ozone. Ozone is a regulated pollutant however there are no direct emission limitations for ozone.

There is one (1) unpermitted but regulated emission unit;

One (1) No. 2 fuel oil fired, 300KW, Cummins, Model 300DQDAC, diesel engine. This emission unit is classified as an emergency generator. It is subject to 40CFR63 Subparts A and ZZZZ and 40CFR60 Subparts A and IIII but is exempt from permitting in accordance with 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 64,000 gallons per year.

Processing Schedule

10/19/2012 Received the application for a minor source air pollution construction permit

2. PSD APPLICABILITY

General PSD Applicability

The facility is not a major stationary source of air pollution for PSD purposes because the potential emissions of PSD air pollutants are less than 250 tons per year pursuant to Rule 62-210.200(189), F.A.C., and Rule 2.301, JEPB.

This project is not subject to PSD preconstruction review requirements since the proposed project itself has potential emissions of PSD air pollutants that are less than 250 tons per year pursuant to Rule 62-210.200(189), F.A.C., and Rule 2.301, JEPB.

The facility is a natural non-Title V source of air pollution in that the potential emissions of regulated air pollutants are less than 100 tons per year and the potential emissions of Hazardous Air Pollutants (HAP) are less than 10 tons per year for a single HAP and less than 25 tons per year for total HAP pursuant to Rule 62-210.200(188), F.A.C., and Rule 2.301, JEPB.

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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). This emission of ozone is in addition to the existing corona treatment module which produces equivalent quantities of ozone. 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 substrate dryer. The dryer heat is provided by a natural gas fired, 7.2 MMBTU oven. The oven exhausts directly to atmosphere. This exhaust will be in addition to the existing ovens and will be included as part of Emission Unit (EU) 002. This will cause an increase in emissions for EU 002.

The volatile component of the coating mix, N-Methyl-2-Pyrrolidone (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 condenser. The condensate from the condenser drains to its own 10,000 gallon waste storage tank.

The condenser exhaust is 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) existing condensers and will receive the exhaust from the new condenser. The scrubber emits less than 10 parts per million volume (ppmv) [2.65×10^{-6} pounds per cubic foot (lb/ft^3) @ 50°F] NMP @ 2700 SCFM exhaust flow rate. 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 EU 001. The addition of the new coating line will not cause an increase in emissions for 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.

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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 solution 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 facility.

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)
PM/PM ₁₀	0.70/0.53	No	No
SO ₂	0.06	No	No
NO _x	8.72	No	No
CO	3.71	No	No
CO ₂	11,130	N/A	N/A
O ₃	3.86	N/A	N/A
VOC	2.40	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 - the main chemical of concern is NMP. Approximately 2.4 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 3.87 tons/year. Ozone is a regulated pollutant.

Drying Ovens (3) – Natural gas fired, 7.2 MMBTU each. The following pollutants will be released to the atmosphere:

- PM – 0.70 tons/year
- PM₁₀ – 0.53 tons/year
- SO₂ – 0.06 tons/year
- NO_x – 8.72 tons/year
- CO – 3.71 tons/year
- CO₂ – 11,130 tons/year
- VOC – 0.51 tons/year

Emergency Generator – No. 2 fuel oil fired, 300KW, Cummins, Model 300DQDAC, diesel engine. It is subject to 40CFR63 Subparts A and ZZZZ and 40CFR60 Subparts A and IIII but is exempt from permitting in accordance with 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 64,000 gallons per year.

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

1. The two existing coating lines and the new coating line with three (3) condensers that exhaust to the common wet scrubber which emits VOC. The emissions are permitted as EU 001.
2. PM, PM₁₀, SO₂, NO_x, CO, CO₂, and VOC are emitted from burning natural gas in the drying ovens. There are two existing ovens in the plant. This project will add one additional oven. The emissions are permitted as EU 002.

There are two units at the facility that do not require permitting:

1. The 300KW, Cummins, emergency diesel generator.
2. The corona treatment of the cathode substrate.

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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 III and Part Numbers X through XIV [Air Pollution Control], JEPB.

State Requirements

This facility is 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 0.15 millimeters.

Subparts A and IIII apply to this facility’s emergency diesel generator but it is exempt from permitting in accordance with 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.

Subparts A and ZZZZ apply to this facility’s emergency diesel generator but it is exempt from permitting in accordance with DARM-PER-44 guidance document and Rule 62-210.300(3)(a)35, F.A.C.

Other Draft Permit Requirements

This facility shall notify the Permitting Authority 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 at this facility are permitted to operate continuously.

The consumption of natural gas by the drying ovens shall not exceed 0.021 Million cubic feet per hour for all three (3) ovens.

The drying ovens 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 64,000 gallons per year.

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

4. PRELIMINARY DETERMINATION

The Permitting Authority makes the determination that this project does require an Air Construction Permit and that the proposed project will comply with all applicable local, state, and federal air pollution regulations. This determination is based on a technical review of the complete application, reasonable assurances provided by the applicant, and the conditions specified in the permit determination. C. Blane Johnson is the project engineer responsible for reviewing the application and performing the permit determination. He may be reached by telephone at (904) 255-7199 and by e-mail at chrisb@coj.net.