

**NORTH CAROLINA DIVISION OF
AIR QUALITY**

Air Permit Review

Permit Issue Date: DRAFT

Region: Asheville Regional Office
County: Burke
NC Facility ID: 1200076
Inspector's Name: Brendan Davey
Date of Last Inspection: 02/07/2007
Compliance Code: 4/In Compliance - Certification

Facility Data			Permit Applicability (this application only)
Applicant (Facility's Name): Saft America, Inc. Facility Address: Saft America, Inc. 313 Crescent Street Valdese, NC 28690 SIC: 3692 / Primary Batteries, Dry And Wet NAICS: 335912 / Primary Battery Manufacturing Facility Classification: Before: Title V After: Title V Fee Classification: Before: Title V After: Title V			SIP: NSPS: NESHAP: PSD: PSD Avoidance: NC Toxics: 112(r): Other:
Contact Data			Application Data
Facility Contact	Authorized Contact	Technical Contact	Application Number: 1200076.06A Date Received: 03/09/2006 Application Type: Renewal Application Schedule: TV-Renewal Existing Permit Data Existing Permit Number: 04595/T13 Existing Permit Issue Date: 09/24/2003 Existing Permit Expiration Date: 12/31/2006
Jesse Jones Facilities Manager (828) 879-5079 313 Crescent Street Valdese NC, 28690	Tom Alcide General Manager (828) 879-5034 313 Crescent Street Valdese NC, 28690	Jesse Jones Facilities Manager (828) 879-5079 313 Crescent Street Valdese NC, 28690	
Review Engineer: Mike Smithwick Review Engineer's Signature: _____ Date: _____		Comments / Recommendations: Issue 04595/T14 Permit Issue Date: DRAFT Permit Expiration Date: EXP	

I. Purpose of Application

This permitting action is a renewal of an existing Title V permit pursuant to 2Q .0513 and a minor modification to add a previously insignificant activity to the Permit. The existing Title V permit expired December 31, 2006. However, the application was submitted in a timely manner on March 9, 2006 at least nine months prior to the expiration date. Therefore, the existing permit shall not expire until the renewal permit has been issued or denied. All terms and conditions of the existing permit shall remain in effect until the renewal permit has been issued or denied.

The ARO was presented with a draft copy of the Permit and made the following comments which were included in the draft Permit:

1. Third paragraph of cover letter appears to start a left and right indentation different from the rest of the letter.
2. I-11 may actually be a part of the total MnO₂ line. I left a message with the company the company for verification.
3. Regional office address on page 5 is our old address.
4. The MnO₂ 2D.0521 condition (C.1.a.) references the wrong ID Nos.
5. The PSD avoidance condition could be changed to not totally mandate the WW sampling. Right now it indicates they have to take WWTP credit, when conducting a mass balance is fine. Remove text in red, add text in blue. (any ideas ???)

/Except for the isopropyl alcohol (IPA) emissions from the cathode paste manufacturing process (ES-01), VOC emissions shall be determined by multiplying the total amount of each type of VOC-containing material consumed during the month by the VOC content of the material. The IPA emissions from the cathode paste manufacturing operation (ES-01) ~~shall~~ may be determined using the following procedure:/*

II. Facility Description

The facility manufactures lithium batteries.

III. Application Chronology

July 16, 2003 – NOV/NRE issued for exceeding 250 tons/yr of SO₂ emissions.

September 24, 2003 – Permit issued allowing credit for IPA discharged in wastewater.

February 24, 2004 – SOC issued to address VOC emissions to avoid PSD.

March 16, 2006 – Permit application for renewal received.

May 15, 2006 – ARO Regional comments received.

November 8, 2006 – Applicability determination recommends that the MnO₂ battery production be permitted.

February 20, 2007 – Application received for a minor modification to add the MnO₂ battery production to the Permit.

March 21, 2007 – The minor modification is consolidated with the renewal.

September 17, 2007 – Asked ARO about their recommendation in the Regional comments to modify Condition 2.2 A.1.b of the Permit and proceeded with their advice on the best way to modify this Condition (see Permit modifications/changes discussion below).

September 19, 2007 – Contacted Jesse Jones at the facility and he confirmed that he was fine with ARO's recommended changes to Condition 2.2 A.1.b of the Permit (see Permit modifications/changes discussion below). I also asked him for documentation of potential SO₂ emissions to determine if CAM was necessary for the facility scrubbers. I asked that he get the Responsible Official (Tom Alcide) to verify this and contact me.

September 20, 2007 – Tom Alcide, the facility General Manager, approves of Jesse Jones' calculations.

September 21, 2007 - Permit submitted for review.

October , 2007 - Draft Permit goes to public notice

IV. Permit Modifications/Changes and ESM Discussion

This facility exceeded the PSD avoidance limit of 250 tons per year of VOC and was issued an NOV/NRE in 2004.

This facility has operated an MnO₂ battery production source as an insignificant activity. This source was not listed on the insignificant list, but was recommended to be added in the Regional comments along with four other insignificant activities (see table below). On November 8, 2006, an applicability determination recommended that this source be permitted because potential emissions of the HAP ethylene glycol dimethyl ether may exceed 1000 pounds per year making the source ineligible to be insignificant according to 2Q .0503(8). An application was submitted by the facility to add this source on February 20, 2007 and this application was consolidated with the renewal application. The application actually noted potential emissions of 1.7 tons/yr of ethylene glycol dimethyl ether from the source. The source is being added to this Permit and is subject to 2D .0521, 2D .1806, and 2D .0958. Problems with compliance with these Rules are not anticipated based on the facility's history of operation. No Part II of the Permit is needed for the source as it is already existing at the facility.

Permit Condition 2.2 A.1.b allows the facility to avoid PSD by documenting VOC emissions below the PSD limit of 250 tons/year. The facility calculates VOC emissions each month based on the Condition's equation. Part of the calculation involves allowing credit for isopropyl alcohol (IPA) being discharged in the wastewater and not being emitted as an air pollutant. The facility had the option of either using a constant value of 25% or establish a value each month of percent IPA in the discharge by taking a composite sample from the surge tanks prior to discharge into the wastewater. They could also test the wastewater and use a tested value of other than 25% in the first option.

In April 2005, this facility submitted a VOC Emissions Reduction Plan (ERP) because they had previously received an NOV/NRE and placed under an SOC for exceeding the PSD avoidance limit of 250 tons per year of VOC emissions. This plan was implemented in October 2005 and reduced IPA content in the cathode paste to reduce VOC emissions. However, by reducing IPA content in the cathode paste, the IPA content of the wastewater will also be reduced and the 25% assumption may not be valid any longer. After contacting Brendan Davey of the ARO, we agreed that the best course would be just to remove the 25% assumption from the Permit and require the facility to take composite samples if it wanted to use the wastewater IPA credit. The facility is not currently using the credit and has not been doing so for some time. They have been able to meet the PSD avoidance limit by the reduced cathode paste IPA content.

I talked with Jesse Jones of the facility who agreed to this course of action. Shown below are the changes to the Permit Condition. As an additional consideration the 2Q .0501(c)(2) statement is no longer needed. (Deleted material is struck through; added material is shaded.):

1. 15A NCAC 2D. 0530: PREVENTION OF SIGNIFICANT DETERIORATION 15A NCAC 2Q .0317: AVOIDANCE CONDITIONS

- a. *In order to avoid applicability of this regulation, the above emission sources shall discharge into the atmosphere less than 250 tons of VOCs per consecutive 12-month period. [15A NCAC 2D .0530]*

Monitoring/Recordkeeping [15A NCAC 2Q .0508(f)]

- b. Calculation of facility-wide monthly VOC emissions shall be made at the end of each month. Except for the isopropyl alcohol (IPA) emissions from the cathode paste manufacturing process (ES-01), VOC emissions shall be determined by multiplying the total amount of each type of VOC-containing material consumed during the month by the VOC content of the material. The IPA emissions from the cathode paste manufacturing operation (ES-01) shall be determined using the following procedure*:

$$\text{IPA}_{\text{emitted}} = [(\text{VIPA}_{\text{in}}) \times (6.58 \text{ lb IPA/Gallon IPA})] - [(\text{V}_{\text{discharged}}) \times (\text{Wt\%}_{\text{IPA}}/100) \times (\text{density})]$$

where: $\text{IPA}_{\text{emitted}}$ = monthly mass of IPA emitted to the atmosphere, in pounds,

VIPA_{in} = monthly volume, in gallons, of IPA used in the process,

density = density of the effluent, lb/gallon, (=8.014 lb/gallon for a 25% IPA/water solution by weight),

$\text{V}_{\text{discharged}}$ = total monthly volume, in gallons, of effluent (IPA water mixture) discharged from the surge tank to the sewer,

$\text{V}_{\text{discharged}}$ shall be determined using a flow meter/totalizer. The flow meter/totalizer shall be installed and operational by October 31, 2003. For the purposes of computing $\text{V}_{\text{discharged}}$ prior to the installation of the flow meter/totalizer, $\text{V}_{\text{discharged}}$ shall be determined using a daily discharge volume of 200 gallons per day of IPA water mixture. After the flow meter/totalizer becomes operational, the company shall determine and record the total volume discharged from the surge tank to the sewer each day during the month. The flow meter/totalizer shall be calibrated yearly as per the manufacturer's recommended procedures unless a more frequent calibration period is specified by the manufacturer. If the total volume discharged during a day cannot be determined due to failure of the flow meter/totalizer or other reasons, then the volume for that day shall be the lesser of: (1) the lowest daily volume discharged during the prior three calendar months, or (2) 200 gallons.

Wt\%_{IPA} = weight percent of IPA in the effluent discharged to the sewer,

The weight percent shall be ~~either (1) assumed to be a constant value of 25%, or (2) the average percent by weight for the calendar month.~~

~~If the company uses option (1), then it, may, at its discretion, replace the constant value of 25% with another constant value. In this situation, the company shall determine both the new constant value and the density of the IPA/water mixture based on the results of testing as approved by the DAQ Technical Services Division.~~

~~If the company desires to use option (2), the company shall collect equal volume aliquots from the surge tank prior to discharging the contents of the tank to the sewer. Each of these aliquots shall be composited to create a monthly composite, and the IPA concentration of the monthly composite determined on a percent by weight basis using SW-846-8015 or an equivalent method upon approval by the DAQ, and the density shall be determined based on the specific gravity of the mixture as determined by Method 2710-F (Standard Methods for the Examination of Water and Waste Water) or its equivalent.~~

~~***This procedure has been added as a significant permit modification as per 15A NCAC 2Q .0501(c)(2). The permit General Condition R does not apply.**~~

The Permittee shall be deemed in noncompliance with 15A NCAC 2D .0530 if the amounts of VOC containing materials or the VOC emissions are not monitored and recorded.

- c. *Calculations and the total amount of VOC emissions shall be recorded monthly in a logbook (written or electronic format). The daily volume of the IPA/water effluent discharged from the surge tank shall be recorded. The results of all analyses of the monthly composite effluent samples for the weight percent IPA and the density shall also be recorded. In addition, the Permittee must make available to officials of the DAQ, upon request, copies of the monthly emissions log. The Permittee must keep each entry in the monthly emissions log and all required records on file for a minimum of three years. The Permittee shall be deemed in noncompliance with 15A NCAC 2D .0530 if the VOC emissions exceed this limit.*

Reporting [15A NCAC 2Q .0508(f)]

- d. *The Permittee shall submit a summary report of monitoring and recordkeeping activities within 30 days after each calendar year quarter, due and postmarked on or before January 30 of each calendar year for the preceding three-month period between October and December, April 30 of each calendar year for the preceding three-month period between January and March, July 30 of each calendar year for the preceding three-month period between April and June, and October 30 for the calendar year for the preceding three-month period between July and September. The report shall contain the following:*
- i. *The monthly VOC emissions for the previous 14 months. The emissions shall be calculated for each of the 12-month periods over the previous 14 months. The report shall also contain the weight percent IPA, the density of the IPA/water mixture, the volume of IPA/water mixture discharged to the sewer, and copies of all analyses during the reporting period for the weight percent IPA and density of the IPA/water mixture discharged to the sewer.*

Note: The IPA is discharged directly from a closed pipe system into the sewer system and is not exposed to the atmosphere. Therefore, no IPA emissions are expected from the discharged wastewater. Thus, if a credit is taken for IPA in the wastewater, it is not necessary to consider any additional credited IPA emissions from that in the wastewater for which a credit was taken.

The following changes were made to the SAFT America, Inc Air Permit. New Permit No. 04595T14

Page(s)	Section	Description of Change(s)
Attachments	-	- Added attachment summarizing changes to the Permit. - Insignificant List equipment descriptions updated to add the following equipment: - Stepanfoam process (ID No. I-8) - Ink jet printing operation (ID No. I-9) - Li ion battery production controlled by an activated carbon adsorber (ID No. CD-6) (ID No. I-11) - Epoxy resin and catalyst application operation (ID No. I-12)
1	Cover Page	- Updated permit revision numbers and effective date. - Updated permit issuance date.
3 - 20	All, Header	- Updated permit revision number.
3	Part I, Section 1, equipment listing	- Changed the ID No. of the SO2 storage tank to SO2TANK and noted it is controlled by control device ID No. CD-03 - Added the MnO2 battery production (ID No. ES-05) to the equipment list
4-5	Part I, Section 2.1 A..1	- Updated 2D .0521 Condition
6	Part I, Section 2.1 A.4.a	- Added the sulfur dioxide storage tank (ID No. SO2TANK) to the list of equipment required to be controlled by the packed-bed caustic wet scrubber (ID No. CD-03)
7-9	Part I, Section 2.1 C	- Added the specific limitations and conditions for the MnO2 battery production (ID No. ES-05)
9	Part I, Section 2.2 A and A.1	- Updated the specific limitations and emissions to note that 2Q .0317 is the Rule now allowing for avoidance of PSD.
10	Part I, Section 2.2 A.1.b	-Updated the PSD avoidance condition to remove the option to use a constant 25% value when considering when considering credits for IPA discharged into wastewater
11	Part I, Section 2.2 A.1.b	- Removed the 2Q .0501(c)(2) statement
11	Part I, Section 2.2 B.1	- Noted the sulfur dioxide storage tank (ID No. SO2TANK, 5,000 gallon storage capacity; subject to 112r) was controlled by the packed-bed caustic wet scrubber (ID No. CD-03) in the list of equipment subject to the specific limitations and conditions
11 - 19	Part I, Section III	- Updated General Conditions

V. Regulatory Review

The facility is currently subject to the following regulations:

15A NCAC 2D .0516, Sulfur Dioxide Emissions from Combustion Sources

15A NCAC 2D .0521, Control of Visible Emissions

15A NCAC 2D .0958, Work Practices for Sources of Volatile Organic Compounds

15A NCAC 2D .1806, Control and Prohibition of Odorous Emissions

15A NCAC 2Q .0317, Avoidance Conditions (for 15A NCAC 2D .0530, Prevention of Significant Deterioration)

NC General Statute , 143-215.108, Control of sources of air pollution; permits required

No changes have occurred which would indicate non-compliance with these Rules. The last compliance inspection noted compliance with the Rules

VI. NSPS, NESHAPS/MACT, PSD, 112(r), CAM

NSPS – The facility is not currently subject to any New Source Performance Standards. The emergency generator is not subject to Subpart IIII because it was manufactured before 2006. This permit renewal does not affect this status.

NESHAPS/MACT – The facility is not currently subject to any NESHAP Standards. This facility is not a major source of HAPs. This permit renewal does not affect this status.

PSD – The facility is currently subject to a facility-wide volatile organic compound (VOC) emission limit of less than 250 tons per year. The language is included as Section 2.2 A.1 of the Permit. The language was modified as noted in the Permit modifications/changes section above.

112(r) – This facility is subject to 112(r) because it stores greater than 5000 pounds of anhydrous SO₂. The Company has the RMP on site. The last Regional compliance inspection noted an RMP with a 6/2004 update.

CAM – 40 CFR 64 requires that a continuous compliance assurance monitoring plan be developed for all equipment located at a major facility, that have pre-controlled emissions above the major source threshold, and use a control device to meet an applicable standard. The facility does not have a CAM at this time, but must be evaluated for CAM applicability at renewal.

The facility has two caustic scrubbers controlling SO₂ emissions from sources as indicated below:

Emission Source ID No.	Emission Source Description	Control Device ID No.	Control Device Description
ES-03	sulfur dioxide storage area, the electrolyte mixing area, and the battery filling line	CD-03	one packed-bed caustic wet scrubber (230 gallons per minute liquid injection rate)
ES-04	cell destruct room	CD-04	one packed-bed caustic wet scrubber (75 gallons per minute liquid injection rate)

SO2TANK	one sulfur dioxide storage tank (5,000 gallon storage capacity; subject to 112r)	CD-03	one packed-bed caustic wet scrubber (230 gallons per minute liquid injection rate)
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I contacted Jesse Jones of the facility on 7/19/2007 to determine if this facility needed to be subjected to CAM.

He provided the following documentation of potential emissions before control:

Sources venting to CD-04:

Production capabilities

75,000 cells per day

One electrolyte mix will fill 10,000 cells

7.5 electrolyte mixes per day

Average SO2 treated thru scrubber for one mix operation is 57lbs.

Average is taken from flash loss of four mixes.

7.5 mixes per day times 57 lbs loss = 427.5 lbs per day

427.5 lbs X 365 days = 156,037.5 lbs or 78 tons per year.

Sources venting to CD-03:

3000 cells vented at an average of 32 grams of electrolyte

3000 X 32 grams = 96000 grams

96Kg/.4536 = 211 lbs per year.

These calculations were reviewed and approved by the facility General Manager, Tom Alcide.

Since, potential uncontrolled emissions of SO2 are less than the major level of 100 tons per year for the sources controlled by each scrubber, the facility will not be subject to CAM. Also, since there are no applicable requirements for SO2 emissions, it is unlikely the control devices can be considered subject to CAM even if SO2 emissions had the potential to be emitted at major levels before control for the sources.

Note: Although VOC emissions can be emitted at major levels, and the scrubbers may remove some VOC, the facility considers no control of VOC from the scrubbers, does not use them for that purpose, nor take into account any control when calculating VOC emissions. Therefore, CAM will not apply for VOC emissions.

VII. Facility Wide Air Toxics

There are no documented emissions of State Toxics from the facility.

VIII. Public Notice/EPA and Affected State(s) Review

Pursuant to 15A NCAC 2Q .0521, a notice of the DRAFT Title V Permit shall be placed in a newspaper of general circulation in the area where the facility is located. The notice will provide for a 30-day comment period, with an opportunity for a public hearing. Copies of the public notice shall be sent to persons on the Title V mailing list and EPA. Pursuant to 15A NCAC 2Q .0522, a copy of each permit application, each proposed permit and each final permit shall be provided to EPA. Also pursuant to 2Q .0522, a notice of the DRAFT Title V Permit shall be provided to each affected State at or before the time notice provided to the public under 2Q .0521 above.

IX. Compliance History

This facility was inspected by Brendan Davey of the ARO on 2/7/2007 and appeared to be in compliance with Air Quality Regulations.

X. Emissions Summary

Actual Emissions are taken from the 2005 Emissions Inventory. Potential SO₂ emissions are before scrubber control and use the CAM evaluation calculations. Potential combustion emissions from the emergency generator are considered. Although no precise calculations of facility HAP emissions is available, the actual emissions of HAPs are far below major levels, and the facility operates at more than 70% of capacity. Therefore, it is a reasonable assumption that the facility has potential HAP emissions at minor levels. Potential VOC emissions are limited to less than 250 tons per year by the PSD avoidance Condition.

Pollutant	Potential Emission (tons/yr)	Actual emissions (tons/yr)
TSP	0.18	0.05
PM-10	0.18	0.04
SO ₂	79	0.16
NO _X	6.3	0.74
CO	1.5	0.6
VOC	<250	215
Largest single HAP (methanol)	<10	0.1
Total HAPs	<25	<0.5

XI. Conclusions, Comments, and Recommendations

ARO recommends issuance of the permit and was presented with a DRAFT permit prior to notice and issuance.

RCO concurs with ARO's recommendation to issue the renewed air permit.