TECHNICAL EVALUATION

APPLICANT

IFF Chemical Holdings Inc.
2051 North Lane Avenue
Jacksonville, Florida 32254
Facility ID No. 0310071

PROJECT

Project No. 0310071-016-AC
Title V Air Construction Permit

COUNTY

Duval, Florida

PERMITTING AUTHORITY

Florida Department of Environmental Protection
Waste & Air Resource Management
Northeast District Office
8800 Baymeadows Way West, Suite 100
Jacksonville, Florida 32256

February 6, 2015

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 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 adopts these federal regulations on a quarterly basis 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

IFF Chemical Holdings Inc.'s Jacksonville Site is categorized under Standard Industrial Classification Code No. 2869 (Industrial Organic Chemicals). The facility is located in Duval County at 2051 North Lane Avenue, Jacksonville, Florida. The UTM coordinates of the existing facility are Zone 17, 427.7 km East, and 3357.6 km North. This site is in an area that is in attainment (or designated as unclassifiable) for all air pollutants subject to state and federal Ambient Air Quality Standards (AAQS).

REGULATED EMISSIONS UNITS DESCRIPTION

The facility consists of the following regulated emissions units.

Emissions Unit ID	Description
003	Boiler No.2
014	Boiler No.1
037	Boiler No.3
039	Crude Sulfate Turpentine (CST) Processing Facilities

Steam Boilers: No.2 & No.3 Boilers are two nearly identical 77.5 million BTU per hour steam generation boilers constructed in 1974 and 1978, respectively. These boilers are used to generate steam for use throughout the plant and also incinerate total reduced sulfur gases obtained from the vapor collection system, as required under local air requirements. Boilers #2 and #3 primarily burn natural gas and process-derived fuels, but are also allowed to burn #2-#4 Distillate Fuel Oils, and on-specification used oil. Boiler #1 is a 51 million BTU per hour steam generation boiler with Peabody low NOx burner, constructed in September 1998, which is equipped with a packed scrubber to control HCl emissions. This boiler is also used to generate steam for use throughout the plant and is designed to burn natural gas, process-derived fuels, #2-#4 Distillate Fuel Oils, and Residual Process Derived Fuel (RPDF). The No.1 boiler also consists of a pH continuous monitor system (CMS) that is used so that the pH of the scrubbing medium can be kept at or above 7.3 to assure HCl compliance. These boilers are regulated by Rule 62-296.702 or 406, F.A.C. – for Fossil Fuel Fired Steam Generators.

Crude Sulfate Turpentine (CST) Processing Facility

The crude sulfate turpentine processing facility is a stationary source which processes crude sulfate turpentine. Crude sulfate turpentine (CST) is a volatile amber liquid that is generated from Kraft pulp mill. It is a mixture of α- and ß- pinene (30 and 60% respectively) and other monoterpenes of the general formula C10H16 and various impurities such as small quantities of unpleasant-smelling sulphurous compounds (e.g. methyl mercaptan and dimethyl sulphide) and inorganics. The facility uses the CST as a feedstock to produce variety of products which might include pinenes, polymer additives, flavorings, fragrances, pine oil, and oil of turpentine.

The facility consists of a Vapor Collection System (VCS) collecting the vapors from the process equipments listed below. The collected vapors are incinerated in #2 Boiler and/or #3 Boiler:

For information purpose only, the vapor collection system equipment list is as shown below.

Distillation Columns		**Reactors**	**Storage Tanks**			**Process Vessels**	
A-10	A-70	M-200	3	427	665	3D	M-531A
A-20	A-80	M-550	Old 3	505	669	4D	M-531B
A-30	A-90	M-580	4	506	701	55	M-532A
A-40	A-95	M-590	10	518AS	702	89B	M-582
A-50	A-210	M-650	11	554	703	89C	M-652
A-55	A-220	A-510 wet geraniol stripper	12	565	704	423	607B
A-60	A-610	A-610 wet geraniol stripper	13	607A	706	425	607C
			16	653	707	426	
			17	654	1020	431	
			93	657		432	
			97	662		531	

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 a Title V major source of air pollution in accordance with Chapter 213, F.A.C.
- The facility is 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

This project authorizes the firing of on spec used oil in the No. 1 Boiler.

Processing Schedule

November 5, 2014	Application received for concurrent Air Construction Permit and Title V Air Operation Permit Renewal.
November 13, 2014	Application deemed complete.
November 25, 2014	Draft Permit issued
January 2, 2015	Public Notice published
February 6, 2015	Proof of Publication received by the Department
February 6, 2015	Final Construction Permit issued

2. APPLICATION REVIEW

The BACT determination issued for this permit on June 17, 2002, does not include on-specification used oil in its list of authorized fuels for this unit. This is simply due to the policy of the Department at that time that the standard BACT for small boilers would limit fuel usage to natural gas and No. 2 fuel oil not to exceed 0.05% sulfur by weight, and that any additional fuels would have to be requested by the applicant. The applicant requested the addition of DPDF and RPDF as authorized fuels at that time but has not requested the use of on-specification used oil as an authorized fuel until the application received November 5, 2014. As such, the Department must now review whether or not the addition of on-specification used oil as an authorized fuel for this unit would constitute a relaxation of standards and/or an increase in emissions. The Department's review is as follows:

The #2 and #3 Boilers are currently permitted to fire on-spec used oil. However, these boilers do not have control devices, while the #1 Boiler has a packed scrubber as a control device. Additionally, the #2 and #3 Boilers are each larger than the #1 Boiler (77.5 MMBtu/hr, compared against 51 MMBtu/hr for the #1 Boiler). Since the currently permitted limitation on the amount of on-spec used oil that can be fired is shared between the #2 and #3 Boilers, the Department has reasonable assurance that the facility's actual emissions would not increase by allowing the #1 Boiler to share in this limit, and may in fact decrease. Therefore, since emissions would not increase and the facility-wide limit would not change, it is the Department's decision to update the BACT determination to allow the firing of on-spec used oil in the #1 Boiler. DARM concurrence with this decision was received from Jon Holtom on November 20, 2014.

<u>Potential Emissions</u>

Pollutant	Boiler No.2 & 3 combined	Basis	Boiler No.1	Basis
PM	68 tons/year	Based on PM limit of 0.1 lb/MMBtu	11.4 tons/12 consecutive months	Established in Permit No.0310071-008-AC to avoid PSD review.
CO	57 tons/year	Worst case based on natural gas firing. 84 lbs CO/million ft^3 from AP-42.	13.63 tons/year	Worst case based on natural gas firing. Vendor quoted emissions factor of 61 lb CO/million ft^3.
NOx	102 tons/year	Based on processed derived fuels. 20 lbs NOx/million gallons	38.86 tons/year	Based on processed derived fuels. Vendor's data of 0.174 lb NOx/million BTU
SO2	Subject to Facility wide emissions cap of 1549 tons/year	_	33 tons/12 consecutive months. Also Subject to Facility wide emissions cap of 1549 tons/year	Established in Permit No.0310071-008-AC to avoid PSD review.

State Regulatory Requirements

Boiler No.2 & 3 are subject to Rule 62-296.702, F.A.C. - Fossil Fuel Generators. The boilers are also used as the control for the TRS emissions from the vapor recovery system, therefore subject to TRS & VOCs limit of Jacksonville Environmental Protection Board (JEPB) Rule 5 - Control of TRS and VOC Emissions from Crude Sulfate Turpentine Processing Facilities.

Boiler No.1 is subject to Rule 62-296.406, F.A.C., Fossil Fuel Steam Generators with Less Than 250 Million Btu Per Hour Heat Input, New and Existing Emissions Units. This unit is not subject to Rule 62-296.702, F.A.C., pursuant to Rule 62-296.700(1)(a), F.A.C., as this unit has previously received a permit in connection with Rule 62-212.400, F.A.C.

Federal NSPS Provisions

No.1 Boiler is subject to NSPS – 40 CFR 60.43c(c), Subpart Dc- Standards of Performance for Small Industrial-Commercial- Institutional Steam Generating Units

The No.2 & 3 boiler are not subject to any NSPS, Subpart Dc because they are constructed prior to the rule applicability date.

Federal NESHAP Provisions

The boilers are subject to 40 CFR 63, Subpart JJJJJJ- National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources.

The emergency engines are subject to 40 CFR 63, ZZZZ- National Emissions Standards for Hazardous Air pollutants for Stationary Reciprocating Internal Combustion Engines.