TECHNICAL EVALUATION
&
PRELIMINARY DETERMINATION

APPLICANT

GE Energy Management Instrument Transformers, Inc.
1907 Calumet Street
Clearwater, FL 33765

Facility ID No. 1030528

PROJECT

Project No. 1030528-007-AC
Application for Minor Air Construction Permit
Project Name: Addition of new Superbute™ production line and new transformer-manufacturing building

COUNTY

Pinellas County, Florida

PERMITTING AUTHORITY

Florida Department of Environmental Protection
Air and Solid Waste Permitting
Southwest District Office
Temple Terrace, Florida 33637-0926

January 8, 2015

Prepared by Amanda Tucker

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.

I. Facility Description:

The facility manufactures dry type current transformers, voltage transformers, control power transformers, and miscellaneous variety of instrument and control switches for commercial distribution.

General Overview of Manufacturing Process

The raw materials for the manufacture of electric transformers consist of various grades of steel in several physical forms, including plate, sheet, and rolled-strip metal stock. The materials are delivered to the facility by truck. The steel is then stored in the stock room for pending use. The metal stock is subsequently cut, formed, punched, shaped, and welded into the various components utilized for transformer core production. The metal fabrication operations are primarily mechanical in nature. Once transformer cores have been fabricated they are annealed (heat-treated) in specially designed electric furnaces (ovens). The annealing chamber is blanketed with nitrogen gas to provide the requisite low-oxygen atmosphere for the heat-treating process. The annealing furnaces and cooling chamber are exhausted directly to the atmosphere via separate vents. Only heated nitrogen gas is exhausted from the cooling chamber. Upon exiting the furnace, the transformer cores are subsequently transferred to the assembly lines, where they are later combined with transformer coils that have undergone fabrication elsewhere in the facility.

A separate section of the facility is devoted to the manufacture of transformer coils. Metal strip stock, insulating paper, and copper wire are the primary raw materials. Alternating layers of aluminum strip and paper are assembled on special machines and the units are then wrapped with copper wire. After fabrication, the transformer coils may be cured in electric ovens. The metal coils are then conveyed to the production lines, where they are combined with transformer cores. Small quantities of adhesives, solvents, and cleaning agents are utilized. Prior to transformer assembly, residual moisture must be removed from the coil/core assemblies. This is performed through the use of electric drying ovens.

The facility also operates thermoset injection molding operation where a variety of plastic transformer cases are made onsite. The activity occurs in the Molding Department. Emissions of volatile organic compounds (VOC) and hazardous air pollutants (HAPs) result from both the closed molding process

itself, as well as from indirect emissions from the use of spray mold release compounds. Some of the molding compounds used contain styrene (a HAP). The plastic components made in the injection molding operation are used in the assembly of transformer components downstream.

The facility operates a robotic varnish surface coating system, a Black W/R (Egyptian Coating) operation and several smaller varnish application workstations used for the varnish coating of fabricated Control Power Transformers (CPT) and other affiliated products. After varnish coating transformers are either air dried or cured in an electric oven.

There are several different electronic assembly areas at the facility, organized by product line type. As part of the product assembly process, there is facility-wide usage of spray cleaners, adhesives, and epoxies. In addition, one of the assembly areas operates a wave solder machine. The assembly areas for the voltage transformer manufacturing also include the operation of urethane resin application/encapsulation stations that are used to encapsulate fabricated voltage transformers at various locations throughout the facility. Special resin mixing areas are also operated where resin recipes are mixed from bulk storage according to specific customer recipes. (Note – The encapsulation process is an insignificant emissions activity as the chemical reactants are generally bound in the matrix of the encapsulation process.)

The completed assemblies are then electrically tested. After testing, the transformers are packed for shipping.

II. Project Description:

A. Applicant:

Jim Koepsell
GE Energy Management Instrument Transformers, Inc.
1907 Calumet Street
Clearwater, FL 33765

B. Professional Engineer:

Everett Sorensen, PE
Streamline Environmental, Inc.
1821 Sahlman Drive, Suite B
Tampa, FL 33605

C. Project Location:

1907 Calumet Street
Clearwater, FL 33765

D. Project Summary:

This project is for the construction of an additional 187,866-square-foot manufacturing building (1925 Calumet) to house additional potential transformer, current transformer and capacitor manufacturing activities; the construction of additional infrastructure, and transfer and installation of additional regulated air pollutant-emitting equipment associated with the manufacture of transformers and capacitors at the Calumet site; minor configuration changes to the existing Calumet facility building layouts and infrastructure to accommodate the consolidation of transformer and capacitor fabrication activities to a single nearby off-site location; and to incorporate changes that were approved under Air Construction Permit No. 1030528-005-AC for the addition of a Power Transformer (Superbute^{TM}) manufacturing process to the existing Clearwater Facility and to update the description of EU No. 001 to accurately reflect current operations.

In the Superbute™ manufacturing process, the head shell and bushing casings are cast from butyl rubber in a batch casting process. The windings and casings are joined and the primary assembly is encapsulated in an epoxy media in a vacuum chamber. The encapsulated unit is trimmed and ground to tolerance in a manual grinding operation. The secondary coil assembly is integrated with the primary casting and the base pan assembly is then filled with polyurethane filler and cured in ambient air. The project is comprised of the following major elements:

1) construction and operation of a vapor degreasing operation;
2) construction and operation of a butyl rubber casting operation;
3) construction and operation of a primary assembly vacuum chamber epoxy encapsulation operation;
4) construction and operation of two touch-up paint booths;
5) construction and operation of an externally-discharged grinding booth and dust collection system;
6) installation of Superbute manufacturing operations (including rubber casting and testing) within the existing ITI building(s).

All of the above emission sources/activities are exempt from permitting except Item 1 (vapor degreasing) and Item 4 (two touch-up paint booths), in accordance with the provisions of Rule 62-4.040(1)(b), F.A.C. (insignificant impact) for Items 6, or Rule 62-62-210.300(3)(b)1., F.A.C. (Generic Emission Source Exemption) for Items 2, 3 and 5 (based on potential emissions prior to the baghouse emission control device).

E. Application Information:

Application Received on: October 10, 2014
Application Complete on: October 10, 2014

III. Applicable State and Federal Regulations

This project is subject to the preconstruction review requirements of Chapter 403, Florida Statutes and Chapters 62-204 through 62-297, Florida Administrative Code (F.A.C.), as indicated below.

Subject to:	**Y/N**	**Comments**
Rule 62-210.300, F.A.C. – Permits Required	Y	subject to general permitting requirements
Rule 62-212.400, F.A.C. - Prevention of Significant Deterioration	N	facility is not a PSD major source
Rule 62-296.320(4), F.A.C. - General Particulate Emission Limiting Standards	N	N/A
Rules 62-296.320(1) and (2), F.A.C. - General Pollutant Emission Limiting Standards (VOCs and Odor)	Y	Facility-wide operations are a source of VOC and odors
Rule 62-296.401-418, F.A.C. - Stationary Source Emission Standards	N	there is no applicable source category
Rule 62-296.500, F.A.C. - Reasonably Available Control Technology (VOC)	Y	Pinellas County is an air quality maintenance area for ozone
Rule 62-296.700, F.A.C. - Reasonably Available Control Technology (PM)	N	there is no applicable source category or this is a new source, therefore not subject to PM RACT rule

Subject to:	Y/N	Comments
Rule 62-204.800, F.A.C. - Standards of Performance for New Stationary Sources (NSPS)	N	there is no applicable source category
Rule 62-204.800, F.A.C. National Emission Standard for Hazardous Air Pollutants (NESHAPS – 40 CFR 61)	N	there is no applicable source category
Rule 62-204.800, F.A.C. National Emission Standard for Hazardous Air Pollutants for Source Categories a.k.a. MACT (NESHAPS – 40 CFR 63)	N	there is no applicable source category
Chapter 62-213, F.A.C. - Operation Permits for Major Sources of Air Pollution	Y	facility is a synthetic non-Title V source
Rule 62-297.310, F.A.C. - General Compliance Test Requirements, F.A.C.	N	Testing is not required. Compliance is demonstrated via recordkeeping.

IV. Summary of Emissions

Pollutant	EU No. and brief description	Potential Emissions TPY	Allowable Emissions TPY
VOC	EU No. 001 Transformer Cleaning and Surface Coating Systems (VOC-RACT)	11.1	
	EU No. 002 Miscellaneous Non-VOC RACT Activities	11.1	
	EU No. 003 Combined Power/Flag Non-RACT Activities	6.05	
	EU No. 004 PT Transformer Paint Booth	0.43	
	EU No. 005 Superbute Transformer Manufacturing	0.20	
	EU No. 006 Conveyorized Capacitor Line	11	
	Total	**39.6**	**50**
Total HAP	EU No. 001 Transformer Cleaning and Surface Coating Systems (VOC-RACT)	4.25	
	EU No. 002 Miscellaneous Non-VOC RACT Activities	4.25	
	EU No. 003 Combined Power/Flag Non-RACT Activities	2.26	
	EU No. 004 PT Transformer Paint Booth	0.1003	
	EU No. 005 Superbute Transformer Manufacturing	0.1336	

Pollutant	EU No. and brief description	Potential Emissions TPY	Allowable Emissions TPY
	EU No. 006 Conveyorized Capacitor Line	0.50	
	Total	**11.49**	**20**
VE Limitation			
VE	EU No. 001 Transformer Cleaning and Surface Coating Systems (VOC-RACT)		20% (General VE)
	EU No. 002 Miscellaneous Non-VOC RACT Activities		20% (General VE)
	EU No. 003 Combined Power/Flag Non-RACT Activities		20% (General VE)
	EU No. 004 PT Transformer Paint Booth		20% (General VE)
	EU No. 005 Superbute Transformer Manufacturing		20% (General VE)
	EU No. 006 Conveyorized Capacitor Line		20% (General VE)

V. Conclusions

The emission limits proposed by the applicant will meet all of the requirements of Chapters 62-204 through 297, F.A.C.

The General and Specific Conditions listed in the proposed permit (attached) will assure compliance with all the applicable requirements of Chapters 62-204 through 297, F.A.C.

VI. Preliminary Determination

The Department 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. Additional details of this analysis may be obtained by contacting the project engineer at the Florida Department of Environmental Protection Air Resource Management, Southwest District 13051 North Telecom Parkway, Temple Terrace, Florida 33637-7600.

Pursuant to Section 403.087, Florida Statutes and Section 62-4.070, Florida Administrative Code, the Department hereby gives notice of its intent to issue a permit to construct the aforementioned air pollution source in accordance with the draft permit and its conditions as stipulated (see attached).