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DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL
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Secretary's Assessment of a Coastal Zone Act
Request for a Major Permit Modification

Applicant: FujiFilm Imaging Colorants, Inc.
Project: Project Maxwell (Plant U45) – Printer Ink Manufacturing
Location: 233 Cherry Lane, New Castle, DE 19720
Tracking #: CZA-441M-1
To modify: CZA-441P issued July 25, 2021

INTRODUCTION

The amendments to 7 DE Admin. Code 101 *Regulations Governing Delaware's Coastal Zone* ("Regulations"), effective September 11, 2019, include provisions for major modifications to existing coastal zone permits. Pursuant to subsection 8.6.3.2 of the Regulations, a permittee may submit to the Delaware Department of Natural Resources and Environmental Control (DNREC) Secretary ("Secretary") a written request for a major permit modification to change ownership, control, or any substantive term of a permit that would not constitute an administrative modification.

To establish consistency between the review of new permit applications and modifications to existing permits, this assessment is provided based on the specifications under subsection 8.5.3 of the Regulations to evaluate the project's likely impact on the criteria listed in subsection 8.1 and to make a preliminary determination of the sufficiency of the offset proposal required under Section 9.0. Subsection 8.6.3 of the Regulations stipulates that if the Secretary grants a request for modification, only the permit conditions subject to modification are reopened.

The completion of this assessment acknowledges the receipt of the major modification application submitted by FujiFilm Imaging Colorants, Inc. ("FujiFilm") for activities permitted under CZA-441P, issued July 25, 2021. The publication of this assessment does not constitute a decision by DNREC to approve or deny the modification request.

PROPOSED PROJECT OVERVIEW

FujiFilm is proposing to modify existing permit CZA-441P, which authorizes manufacturing of 110 tons per year (TPY) of high-performance aqueous pigment dispersions for ink jet printer ink (application materials may refer to the permitted activity as "Project Marconi" or "L44"). The proposed modification, CZA-441M-1, would introduce additional equipment and one new boiler building to the site and utilize the processes described and permitted under CZA-441P to create

the same end products, thereby increasing the capacity of production to 220 TPY (application materials may refer to this proposed activity as "Project Maxwell" or "Plant U45"). This qualifies as a change to a substantive term of the original permit.

The applicant's request for confidentiality for the purpose of financial security pursuant to 29 Del. C. § 10002(l)(2), which was reviewed and approved as part of CZA-441P, applies to the proposed modification as well because it is for the same activity.

This application was originally deemed administratively complete on November 16, 2022 and put on public notice on November 20, 2022. Upon notification from the consultant that the application contained an emission calculation error, the application was withdrawn, and the public hearing cancellation and comment period closure were noticed on December 4, 2022.

BACKGROUND

FujiFilm produces a range of aqueous colorants used in the manufacturing of ink jet printer inks. The original 2021 coastal zone permit application (CZA-441P) proposed to produce 110 TPY of raw materials onsite to allow the New Castle facility to increase manufacturing capacity for existing products and allow for the introduction of new products. CZA-441P included the installation of new manufacturing equipment inside an existing building (L44) and construction of a small boiler building on already paved ground. Negative environmental impacts were limited to air emissions from two new boilers and a new HVAC unit, with no emissions from the manufacturing process itself. The pollutants were collectively characterized as contributors to the formation of ozone, which have the potential to result in impacts to human health in exceedance of the National Ambient Air Quality Standards (NAAQS) set by the U.S. Environmental Protection Agency (EPA). However, the quantities at which they would be emitted for that project were well below those thresholds. After coordinating with DNREC, the applicant proposed to offset the new emissions by purchasing emission reduction credits (ERCs) from the Delaware Division of Small Business and by eliminating the use of five propane-operated forklifts on site to be replaced by electric equipment. These combined actions more than offset the negative impacts of the proposed activity.

No public comments were received during the 21-day public notice period prior to the public hearing, nor within the 15-day comment extension after the hearing for the CZA-441P application. One public comment in general support of the project was received during the public hearing. The decision to issue permit CZA-441P was made on July 25, 2021. An appeal was received during the 14-day appeal period following the notice of the decision (CZ-2021-01). The appeal focused on the allowance of pollutants other than nitrogen oxides (NO_x) and volatile organic compounds (VOCs) to be offset by NO_x and VOC ERCs. Pursuant to subsection 9.1.5 of the Regulations, DNREC reasoned that if it is not practicable to offset the same pollutant(s), substitutions are allowable if the effects to humans, wildlife, or the environment are similar. The decision to issue the permit was upheld by the Coastal Zone Industrial Control Board, an independent board who hears appeals of Coastal Zone Act decisions, and no further appeal was filed. The October 8, 2021, decision document is available at https://dnrec.alpha.delaware.gov/coastal-zone-act/industrial-control-board/.

PROCESS DESCRIPTION

FujiFilm, under CZA-441M-1 (Plant U45), proposes to increase the manufacturing of the aforementioned products utilizing an additional 110-TPY process within an existing building (L47), matching the process and technology previously approved in CZA-441P. The new proposal also includes the construction of an extension to the existing building and the addition of a small pre-engineered metal building for the boilers.

Operations would involve the dispersion of pigment into polymer, the use of bead mills to reduce the particle size of the pigment, stabilization of the particles with the addition of a crosslinking material, centrifugation of the stabilized material to remove oversized particles, purification of the material using membrane technology to remove impurities, and sterilization of the final product using heated water. The aqueous dispersion range can produce approximately 20 products for customers with varying mixtures of black, yellow, magenta, and cyan.

APPLICATION ASSESSMENT

An application must consider the potential effect on six criteria set forth in 7 Del. C. § 7004(b) and subsection 8.1 of the Regulations:

1. Direct and indirect environmental impacts
2. Economic effects
3. Aesthetic effects
4. Number and type of supporting facilities and their anticipated impacts
5. Effect on neighboring land uses
6. Compatibility with county and municipal comprehensive plans

1. DIRECT AND INDIRECT ENVIRONMENTAL IMPACTS

The following section describes relevant environmental impacts to the modification proposed. Impacts discussed in the original application for CZA-441P that are not expected to change are not included.

AIR EMISSIONS

The manufacturing process itself would not generate any air emissions. However, the two natural gas boilers used to power the operations (4.6 million metric British thermal units [MMBTU] per hour each) and an HVAC unit in building L47 would result in emissions of NO_x, carbon monoxide (CO), particulate matter (PM), sulfur dioxide (SO2), total organic compounds ((TOC) such as VOC, methane, ethane, chlorofluorocarbons, toxics and hazardous air pollutants, aldehydes, and semi-volatile compounds), nitrous oxide (N_2O), and carbon dioxide (CO_2). These values are shown below in Table 1.

Emissions for the boilers were calculated using EPA's AP-42 emissions factors, aside from NO_x and CO emissions, which were calculated according to the boiler manufacturer's specifications because of the proposed low NO_x burner technology to decrease NO_x

emissions typically associated with burning natural gas. Emissions from the new HVAC were calculated according to manufacturer specifications. Based on EPA's AP-42, Section 1.4.3 and WebFIRE (EPA's online emissions factor repository, retrieval, and development tool), lead (Pb) is not included as a potential pollutant resulting from burning natural gas; therefore, it has been excluded from Table 1 below compared to emissions listed in the CZA-441P application.

Burning natural gas produces fewer emissions than burning coal or petroleum products to produce an equal amount of energy. Because the electric power supply from the regional grid to the facility currently includes coal and petroleum sources in the mix, natural gas-fired boilers are less polluting than electric boilers at the regional scale. For context, the local emissions associated with each new boiler could be compared to the emissions of 46 household furnaces, assuming the average household has a furnace with a heat input rate of 100,000 BTU/hour.

Table 1. Proposed Air Emissions from CZA-441M-1

Pollutant	Proposed	
	Lbs/day	TPY
Nitrogen Oxides (NO_x)	5.613	0.991
Carbon Monoxide (CO)	12.452	2.244
Particulate Matter (PM)	1.669	0.302
Sulfur Dioxide (SO_2)	0.132	0.024
Total Organic Compounds (including VOCs)	2.416	0.437
Nitrous Oxide (N_2O)	0.145	0.026
Carbon Dioxide (CO_2)	26,133	4,769

FujiFilm also updated its inventory of air emission sources with DNREC Division of Air Quality (DAQ). The facility removed all sources subject to DAQ permitting according to NAAQS and the facility-wide potential to emit is below the major source threshold. The facility is going through the process of canceling their existing DAQ permit. Once it is canceled, the facility will have one remaining registration with DAQ.

WATER USE AND DISCHARGE

The operation would use approximately 40,000 gallons of water per day. The manufactured products are aqueous based, and no solvents are used in processing or cleaning operations. Additionally, operations and material storage would be indoors to the maximum extent practicable to prevent contact with the natural environment.

Wastewater effluent would increase slightly compared to the existing facility operations (see Table 2 below) but would still be in compliance with the flow rate and permissible effluent limits permitted by New Castle County. It would be collected and pumped through a new transfer line and conveyed to an effluent tank to be pretreated and discharged to the New Castle County sewer system.

The facility is permitted to discharge stormwater, noncontact cooling water, and treated groundwater through an outfall to Magazine Ditch, a tributary of the Delaware River

through WPCC 3032E/97 and NPDES DE 0051080, as well as through a General Industrial Stormwater Permit. No additional stormwater runoff is anticipated because of this proposed modification as new structures would be located on existing impervious surface. Additionally, roof drainage from buildings is to be collected and directed to the recharge basin onsite to beneficially increase the amount of stormwater infiltrated at the site. Stormwater would flow to a series of catch basins that collect runoff and convey it to two outfalls, which can be blocked to prevent pollutants from leaving the site in the event of an accidental release.

Table 2. Additional Water Discharges

Pollutant	Current Discharge Concentration (ppm)	New Discharge Concentration (ppm)	Current Discharge		Proposed Increase		Total	
			Lbs/day	TPY	Lbs/day	TPY	Lbs/day	TPY
Ammonia	6.60	9.60	0.90	0.16	0.55	0.1	1.45	0.26
Biochemical Oxygen Demand (BOD)	608	877	69.07	12.46	50.87	9.14	119.9	21.6
Total Suspended Solids (TSS)	200	274	42.47	7.75	16.73	3.05	59.2	10.8
Copper (Cu)	1.90	2.70	0.27	0.05	0.16	0.03	0.43	0.08

SOLID AND HAZARDOUS WASTE

Additional solid waste generation is expected to result from CZA-441M-1. Environmental considerations are considered when selecting waste disposal routes and companies and large portions of the total waste are mitigated through reuse and recycling initiatives. Approximately twelve cubic yard boxes and one empty/residual 55-gallon drum of denacol per month go to Waste-to-Energy disposal locations, which accept solid waste to produce electrical energy. Most of the waste collected in cubic yard boxes for Plant U45 would be sent to Waste-to-Energy disposal locations. Other waste would be disposed of in a landfill through Republic.

FujiFilm mitigates a large portion of its total waste through reuse and recycling initiatives. Waste is collected appropriately, and disposal occurs offsite.

The facility is currently registered as a Small Quantity Hazardous Waste Generator (ID DED984076265). However, the proposed project is not expected to generate waste that would be characterized as hazardous.

Releases are avoided through proper training for employees on chemical handling and spill response, regular inspections of containment and storage areas, safeguarding the transportation of chemical containers, and ensuring at least one spill kit is in each working area and several are at all loading docks. Additionally, raw materials are segregated to prevent incompatible material interactions in storage.

2. ECONOMIC EFFECTS

An estimated 85-125 workers would be hired for the construction component of this project, with 35-50 workers from Delaware. FujiFilm prefers to hire qualified local residents, but has a recruiting area that also includes New Jersey, Maryland, and Pennsylvania. An estimated 11 full-time positions would be available for ongoing plant operations. Table 3 below shows estimated tax revenue that would accrue to state and local government assuming the product is available in the fourth quarter of fiscal year (FY) 2023.

The cost of construction supplies to be purchased in Delaware would be approximately $7,000,000 to $9,000,000. Services would include engineering, general construction, electrical, plumbing, HVAC, and electrical interconnections.

Table 3. Estimated Tax Revenue

Tax Projections	FY23	FY24	FY25	FY26	FY27
State Corporate Income Tax	$358,030	$574,648	$681,256	$681,256	$681,256
County Tax	$32,603	$32,603	$32,603	$32,603	$32,603
School Tax	$93,083	$93,083	$93,083	$93,083	$93,083

3. AESTHETIC EFFECTS

Operations would mainly utilize pre-existing structures in an already industrialized area. No impacts are anticipated.

4. NUMBER AND TYPE OF SUPPORTING FACILITIES IMPACTS

One new pre-constructed metal boiler building would be added to the site on already paved ground. No impacts are anticipated.

5. EFFECT ON NEIGHBORING LAND USES

No impacts are anticipated. Additionally, FujiFilm developed a Public Engagement Plan to detail how the company would interact with the neighboring community and bring awareness about the proposed project and other site operations. The plan included a commitment to attending and/or presenting at Wilmington Area Planning Council (WILMAPCO) Route 9 Corridor Public Health Subcommittee meetings and an invitation for community members to tour the facility.

6. COMPATIBILITY WITH COUNTY AND MUNICIPAL COMPREHENSIVE PLANS

The proposed use is compatible with local planning and zoning.

OFFSET PROPOSAL

Subsection 9.1.1 of the Regulations states that offset proposals shall more than offset the negative environmental impacts associated with the proposed project or activity requiring a permit.

The offset requirements for permit CZA-441P were incorporated as conditions under section 4.0 of the coastal zone permit. This section of the permit would need to be revised to reflect the proposed modification CZA-441M-1, accounting for the additional air emissions resulting from the new boilers and HVAC unit.

FujiFilm's offset proposal includes retiring two smaller, older boilers that have uncontrolled NO_x emissions, eliminating the remaining three propane-operated forklifts to be replaced by electric-operated equipment, and purchasing one NO_x ERC. Additionally, all electric forklifts, including those from CZA-441P, would be powered by new solar panel installations onsite.

Table 4 breaks down the emission reductions to be achieved by each component of the offset proposal. All pollutants would meet the regulatory requirement of being more than offset. Based on the ruling of appeal CZ-2021-01, emissions with similar types of impacts may be utilized to satisfy offset requirements.

Table 4. Offsets Achieved per Proposal[1]

Pollutant	New Proposed (TPY)	2 Retired Boilers (TPY)	3 Replaced Forklifts (TPY)	1 NOx Credit (TPY)	Total Offset (TPY)	Offset Ratio
NO_x	0.991	0.106	0.560	1.000	**1.667**	1.682:1
CO	2.244	0.089	1.121	2.300	**3.510**	1.564:1
PM	0.302	0.008	-	0.310	**0.319**	1.056:1
SO_x	0.024	0.001	-	0.025	**0.025**	1.042:1
TOCs	0.437	0.012	0.280	0.225 (not including VOCs[2])	**0.517**	1.183:1
N_2O	0.026	0.002	-	0.090	**0.092**	3.538:1
CO_2	4,769.318	127.792	44.751	4,901.993	**5,074.535**	1.064:1

[1] Calculations were rounded to 3 decimal places. Any differences between individual values and the total are due to rounding. The offset ratio is based on the rounded values.
[2] Pursuant to 7 DE Admin. Code 1134 subsection 9.8.3, an ERC generated through emission reductions of NO_x cannot be used to allow emission increases of VOCs. VOCs are a subset of TOCs.

STATEMENT OF ADMINISTRATIVE COMPLETENESS

The major modification application by FujiFilm addresses the questions of the major modification application form as well as the criteria required to be reviewed under 7 Del. C. § 7004 and subsection 8.1 of the Regulations.

The approval of this assessment determines that the major modification application by FujiFilm is ready to commence to the public comment process. It does not constitute a decision by DNREC to approve or deny the modification request. Based on prior public interest, a public hearing date, in addition to at least a 20-business day public comment period, will be posted and made available to the public via The News Journal, Delaware State News, DNREC website, Delaware Public Meeting Calendar, and direct email notification for those who subscribe to the Coastal Zone Act Email List.

Approved: _____

Shawn M. Garvin
Secretary, DNREC

Date: 4/3/23