

**SECRETARY'S ENVIRONMENTAL ASSESSMENT REPORT  
FOR A COASTAL ZONE ACT PERMIT APPLICATION**

**Re: Croda, Inc.**

**December 2011**

**Introduction**

As required by the "Regulations Governing Delaware's Coastal Zone" (Section 8.3.4) dated May 11, 1999, and amended October 1, 2001, the Secretary is required to make an environmental assessment of the impact(s) of the project on the Coastal Zone of Delaware. This is done by evaluating the project's likely impact on the statutory and regulatory criteria and making a preliminary determination of the sufficiency of the Offset Proposal. The following is such an environmental assessment of the proposed project described in an application for a Coastal Zone Act (CZA) Permit, received from Croda, Inc. ("Croda").

The fact that DNREC considers an application to be preliminarily, administratively complete does not constitute the Department's position as to whether the application should be approved or denied. That decision will not be made until after the public hearing. The purpose of the Secretary's written assessment is to assist the applicant and the public to focus on issues presented in the application. It constitutes an administrative determination that the application is sufficient to proceed to a public hearing. In addition, should the Department eventually issue the CZA Permit, it does not automatically guarantee the applicant will receive other required permits.

**The Proposed Project**

Croda is seeking a permit to install and operate a combined heat and electric power (CHEP) system featuring two 1.1 MW lean-burn gas generator sets, a waste heat recovery system, and an absorption chiller. The CHEP will utilize two Cummins C1100 N6C reciprocating engine generators with a total capacity of 2.2 MW. The engines will use landfill gas from the nearby Cherry Island Landfill facility as fuel. The landfill gas will be delivered to the Croda site via pipeline following any necessary pretreatment conducted at the Cherry Island landfill site. The transportation and treatment systems for the landfill gas will be provided by others and are not part of this project. Environmental impacts to air quality are anticipated; however, there should be an overall net decrease in air emissions.

### **Sufficiency Statement**

This application for a CZA Permit, including supplemental information, has been reviewed by the Department to determine its completeness. After a thorough review of the company's application and file, the Department considers this application to be administratively complete and sufficient for proceeding to public hearing.

### **Environmental Assessment**

The proposed installation has the potential to emit the following criteria pollutants:

CO <sub>2</sub>	26950.0 tons/yr.
NOx	14.76 tons/yr.
SOx	5.17 tons/yr.
PM	0.44 tons/yr.
CO	44.3 tons/yr.

There will be no new water discharges and no changes to current levels. There will be no change in sanitary wastewater, which is discharged to the New Castle County sewer system. No increase in stormwater discharge is anticipated. There will be no new or increased solid and/or hazardous wastes. There will be no new impacts to wildlife habitat. No other noticeable environmental impacts are expected.

### **Offset Proposal**

The project will offset the new emissions from the generators by eliminating current emissions from flaring the landfill gas at the Cherry Island Landfill, reducing current boiler emissions by using generator exhaust heat to pre-heat boiler feed water, and reducing electric generation emissions by avoidance of the purchase of 2 megawatts of electricity per day on average.

The tables below illustrate a number of important points with respect to emissions, increases/decreases, and offsets. The only pollutant with an emissions increase from the project is NOx at the lowest landfill gas usage rate of 1425 scfm; all other pollutants will decrease. Croda, Inc. will be using between 1425 and 3900 scfm of landfill gas as a fuel. At the very lowest rate the offset ratio for NOx is only 1.2, less than the normally requested 1.3. However, as landfill gas usage increases the ratio also increases. At 1500 scfm landfill gas supply the ratio reaches 1.3. At higher usage rates the project results in a decrease in NOx emissions.

## Croda Inc. Landfill Gas Project

### Case 1 – 1,425 scfm Landfill Gas Supply

	Potential Emissions			Offsets	Total Net Emissions Decrease	Offset Ratio
	Before Change	After Change	Net Decrease [Increase]			
	TPY	TPY	TPY	TPY	TPY	
CO <sub>2</sub>	80,800	76,765	4,035	17,540	21,575	NA <sup>2</sup>
CO	167	66	101	1.4	102.4	NA <sup>2</sup>
NO <sub>x</sub>	23.5	30.4	[6.9] <sup>1</sup>	8.2	1.3	1.2 <sup>3</sup>
SO <sub>x</sub>	36.7	9.6	27.1	9.0	36.1	NA <sup>2</sup>
PM	5.7	3	2.7	0.1	2.8	NA <sup>2</sup>

### Case 2 – 3,900 scfm Landfill Gas Supply

	Potential Emissions			Offsets	Total Net Emissions Decrease	Offset Ratio
	Before Change	After Change	Net Decrease [Increase]			
	TPY	TPY	TPY	TPY	TPY	
CO <sub>2</sub>	153,900	119,250	34,650	17,540	52,190	NA <sup>2</sup>
CO	412	46.3	365.7	1.4	367.1	NA <sup>2</sup>
NO <sub>x</sub>	36.5	28.3	8.2 <sup>4</sup>	8.2	16.4	NA <sup>2</sup>
SO <sub>x</sub>	100.2	26.0	74.2	9.0	83.2	NA <sup>2</sup>
PM	11.2	3.8	7.4	0.1	7.5	NA <sup>2</sup>

Notes: 1 – The only pollutant with an emissions increase from the project is NO<sub>x</sub> at the lowest landfill gas usage rate of 1425 scfm.

2 – The project causes emissions of this pollutant to decrease. Thus a ratio of the offset to an emissions increase has no meaning.

3 – Croda will be using between 1425 and 3900 scfm of landfill gas as a fuel. At the very lowest rate the offset ratio for NO<sub>x</sub> is only 1.2, less than the normally requested 1.3.

However, as landfill gas usage increases the ratio also increases. At 1500 scfm landfill gas supply the ratio reaches 1.3.

4 – At higher usage rates the project results in a decrease in NO<sub>x</sub> emissions.

### Conclusion

The company's application is preliminarily administratively complete.

Approved:



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Collin P. O'Mara  
Secretary

Date:

12/2/11