



STATE OF MAINE  
DEPARTMENT OF ENVIRONMENTAL PROTECTION

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MEMORANDUM

DATE: September 6, 2012  
TO: Board of Environmental Protection  
FROM: Marc A. R. Cone, P.E., Maine Department of Environmental Protection, Bureau of Air Quality  
SUBJECT: Offset Credits for a Major New Source Credit Generator: GNP West, Inc. and Great Northern Paper Company, LLC (air emission license A-406-70-E-O)  
Credit User: Thermogen I, LLC (air emission license A-1072-71-A-N)

Informational Purposes Only

SUMMARY

Thermogen I, LLC (Thermogen) has submitted a major new source air emission license application requiring volatile organic compound (VOC) offset credits; and GNP West, Inc. and Great Northern Paper Company, LLC (co-licensees of the existing "West Mill") have submitted an air emission license application to certify nitrogen oxide (NO<sub>x</sub>) emission credits resulting from the permanent shutdown of certain equipment at the West Mill facility. The Department's regulation 06-096 CMR 113 stipulates that 'all trades involving VOC offset credits or an increase in VOC emissions requiring offsets pursuant to this Chapter must be presented to the Board of Environmental Protection prior to Department approval.' (*Growth Offset Regulation*, 06-096 CMR 113, Section 2(F)). There is no action required by the Board.

Thermogen's air emission license application (A-1072-71-A-N) includes the construction and operation of a wood torrefaction processing line to produce torrefied wood pellets from woody biomass. As part of the licensing process, Thermogen is required to obtain offset credits for the proposed facility VOC emissions of 178.3 tons/year. These offset credits can be either certified VOC offsets or NO<sub>x</sub> offsets if the stipulated requirements and offset ratios are met.

The West Mill's air emission license application (A-406-70-E-O) includes the certification of NO<sub>x</sub> emission reductions resulting from the permanent shutdown of the Magnesium Oxide (MgO) Recovery Boiler. The NO<sub>x</sub> offset credits from the permanent MgO Recovery Boiler shutdown has been determined to be 533.9 tons.

Thermogen has an agreement to acquire 205.05 tons of NO<sub>x</sub> offset credits from the West Mill to offset the 178.3 ton/year proposed VOC emissions (at a 1.15 to 1 ratio). The draft air emission

licenses for each of the facilities began the 30 day comment period for public and Environmental Protection Agency (EPA) review on July 26, 2012 as published in the Bangor Daily News.

## **BACKGROUND**

### Thermogen:

Thermogen's proposed new major source to produce torrefied wood pellets consists of a biomass Rotary Dryer, back-up biomass fired suspension burner, Targeted Intelligent Energy System (TIES) Processor, Pellet Mill, and miscellaneous supporting equipment. The Thermogen facility will be located on leased property within the wood yard area of the West Mill site.

A Lowest Achievable Emission Rate (LAER) analysis was submitted as part of the air emission license application to address VOC emissions. LAER was determined to be the use of a Thermal Oxidizer Combustor on the TIES Processor exhaust, in conjunction with a cyclone and wet electrostatic precipitator on the Rotary Dryer exhaust. The LAER technology results in an overall facility control efficiency of 99.3% and emission limits of 40.7 lb/hr or 33.9 lb/hr depending on the operating scenario being used (heat for the rotary dryer derived exclusively from the TIES thermal oxidizer combustor exhaust or heat for the rotary dryer derived from the suspension burner).

### West Mill:

The existing West Mill continues to hold a current air emission license and operated as a sulfite pulp mill until the pulping operations ceased in 2003. The MgO Recovery Boiler, rated at 308 MMBtu/hr heat input, began operation in 1969 and ceased operation in 2003.

### Separate Legal Entities:

Thermogen and the West Mill will be operationally independent. The facilities are separate legal entities under separate control with no shared products or services.

## **VOC OFFSETS**

### Use of Offset Credits:

Per 06-096 CMR 113, major air emission sources located within the geographical bounds of an area which is designated as nonattainment under the former one-hour federal ozone standard or under the eight-hour federal ozone standard, whichever is in effect, or in the Ozone Transport Region must obtain offset credits. This includes new sources that would result in significant emissions of the nonattainment pollutant after the application of Lowest Achievable Emission Rate (LAER). The offset credits must be permanent, enforceable, surplus, real, and a quantifiable reduction.

For the Thermogen facility, offset credits must be obtained for the proposed VOC emissions of 178.3 tons/year, but not for increases in NO<sub>x</sub>. The facility is located within the Section 182(f) 'NO<sub>x</sub> waiver' area and is therefore exempt from obtaining offsets for NO<sub>x</sub> emissions. Since Thermogen is in the NO<sub>x</sub> waiver area, NO<sub>x</sub> credits may be used to offset VOC emissions to the extent allowed under the Clean Air Act and upon written notification of approval from the EPA. The same number of offset credits must be obtained whether NO<sub>x</sub> or VOC credits are used. The required offsets for Thermogen are shown in the following table:

Required Offsets

	New Source Proposed VOC Licensed Emissions (TPY)	Minimum Offset Ratio per 06-096 CMR 113	Required Offsets (Tons)
Torrefied Wood Processing Facility (suspension burner, rotary dryer, TIES processor, and thermal oxidizer combustor)	178.3	1.15	205.05

Thermogen has an agreement to acquire 205.05 tons of VOC offsets from the West Mill and will provide this documentation to the Department upon offset certification.

Generation of Offset Credits:

The West Mill has submitted an air emission license amendment to permanently retire the MgO Recovery Boiler and certify the NO<sub>x</sub> emission reductions.

Offset credits may be generated based on actual emission reductions for any consecutive 24-month period after May 31, 1994. MgO Recovery Boiler NO<sub>x</sub> credits were calculated based on 2001 and 2002 continuous emissions monitoring (CEMs) data, with a compliance assurance multiplier, as presented in the following table:

Available NO<sub>x</sub> Offsets from the West Mill MgO Recovery Boiler

Year	Air Emission Inventory (06-096 CMR 137) NO <sub>x</sub> Data, Tons	Measurement Method	Compliance Assurance Multiplier (06-096 CMR 113)	Total Available NO <sub>x</sub> Offsets, Tons
2001	552.2	CEMS	0.95	524.6
2002	571.7	CEMS	0.95	543.1
				Average: 533.9

Per 06-096 CMR 113, section 4(C), offset credits are not allowed for reductions in emissions that were required by any federally enforceable license conditions developed pursuant to 40 CFR Parts 51, 52, 70, and 71, or other requirements of the Clean Air Act or other applicable federal or state law or requirement, including without limitation in achieving attainment of National Ambient Air Quality Standards or Reasonable Further Progress. Although the MgO Recovery Boiler would have been subject to the Best Available Retrofit Technology (BART) requirements of Section 169A of the Clean Air Act, it is expected that no additional NO<sub>x</sub> controls on the MgO Recovery Boiler would have been required by BART, based on the boiler's controls and the BART findings of other units.

06-096 CMR 113, section 4(K) allows the use of offset credits from shutdowns provided that the source using the offset credits demonstrates to the Department that the use of these offset credits will result in a net air quality benefit in Maine, as compared with emissions prior to the shutdown. The NO<sub>x</sub> reductions from permanently shutting down the West Mill MgO Recovery Boiler have not been previously accounted for or used in netting calculations.

The draft air emission license includes certification that the NO<sub>x</sub> emissions from the permanent shutdown of the West Mill MgO Recovery Boiler can be used to offset the VOC emissions from the Thermogen facility.

Certification of Credits:

All trades involving VOC offset credits must be presented to the Board of Environmental Protection for informational purposes prior to Department approval and the offset credit reductions must be federally enforceable by the time the air emission license for the user is issued.

Issuance of the air emission licenses will certify both the generation of the credit offsets from the West Mill and the use of the credit offsets for Thermogen's proposed facility.