

DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
ACTIVITY REPORT: Scheduled Inspection

P089851953

FACILITY: Prolime Agricultural, LLC		SRN / ID: P0898
LOCATION: 9542 Beard Road, LAINGSBURG		DISTRICT: Lansing
CITY: LAINGSBURG		COUNTY: SHIAWASSEE
CONTACT: Robert Rogers , CEO		ACTIVITY DATE: 12/10/2019
STAFF: Julie Brunner	COMPLIANCE STATUS:	SOURCE CLASS: Minor
SUBJECT: Compliance Inspection - PTI 41-18		
RESOLVED COMPLAINTS:		

Inspection Date: December 10, 2019

Arrived: 9:15 am

Departed: 11:15 am

Weather:

25°F, Wind WNW 10 mph, UV 0, snow showers

Visible Emissions (VE):

No VEs were identified upon arrival from the plant or roads.

Odors:

No odors were identified surrounding the facility or on-site.

Facility Contacts:

Mr. Robert Rogers, CEO, ProLime, 586-781-7070, email@prolime.net

Mr. Kirk Akin, Plant Manager, ProLime, 586-781-7070, email@prolime.net

Last AQD Inspection Date: New facility

Facility Description:

ProLime Agriculture, LLC (ProLime) was issued a Permit to Install (PTI) No. 41-18 for a new facility to manufacture pelletized soil amendment products for the agricultural industry. PTI No. 41-18 was issued on May 22, 2018.

ProLime is located east of the Rose Lake State Wildlife Research Area. The facility is in a mainly rural area with some residential housing to the east and I-69 to the south.

The facility is a true minor source of criteria pollutants. It appears the facility is not a major source of hazardous air pollutants (HAPs).

Commencement of Operations: Not officially started operation.

By September 15, 2019, the majority of the equipment was installed and the process development and shakedown phase started. ProLime staff are hoping to commence trial operation in the Spring of 2020 with final product development, customer approval, and final equipment changes completed.

Facility Capacity: Plant design is for 60,000 tons per year, they hope to achieve 25,000 to 30,000 tons for 2020.

Staff #: 8 (3 – 4 per shift) **Shifts/Day:** 1 **Days of Operation/Week:** Monday – Saturday

One shift is 4 days per week, 10 hours per day, and Saturday is typically clean-up.

Boilers? Yes

Two (2) natural gas-fired boilers for radiant heated plant floors. Both boilers are exempt from permitting per Rule 282(2)(b)(i).

Emergency Generators? No

Cold Cleaners? No

Facility Operations:

The process was not operating on the day of the inspection as it was down for repair of an auger.

The process uses pre-pulverized lime or gypsum as a substrate that is coated with a sodium, magnesium, or ammonia-based lignin sulfonate and pelletized for a soil amendment product. The lime is spent lime from a water treatment plant (Lansing BWL) and the synthetic gypsum is likely from Lafarge, based on the Safety Data Sheet (SDS) in the permit file. The lignin sulfonate is the by-product of a papermill in Tennessee and is produced from lignin in the sulfite chemical wood pulping process. The lime and gypsum are dried before being mixed/coated with the lignin sulfonate. The coated material is dried and granulated into fertilizer-sized moisture dissolvable granules. The pelletized lime product corrects soil pH and the pelletized gypsum product improves the physical structure of the soil.

Lime and gypsum are transported to the facility by truck. Lime has a moisture content of greater than 25% so it is unloaded outside where it air dries and is then moved to the indoor raw material storage area. Gypsum is unloaded in the indoor raw material storage area.

Using a front end loader, gypsum and lime are moved from the indoor raw material storage to the receiving hopper and then conveyed to a live bottom hopper that discharges to a natural gas-fired raw material dryer (EURAWDRY); the dryer is controlled by baghouse 1 (designed as A on the PTI). The dried material is pneumatically conveyed to either the lime or gypsum silo located outside the building; the silos are controlled by bin vent filters.

The pelletizing line feed auger receives lime or gypsum from the appropriate storage silo and transfers the material to the mixing auger. The mixing auger transfers the material (called substrate) to an elevator that transfers the substrate to a large, open, mixing pan where the lignin sulfonate from the mix tank is flow-coated onto the substrate. The substrate, with the lignin added, is transferred to a natural gas-fired dryer (EUPRODDRY) where the material is dried. Dried material is transferred by an elevator to the screen for sizing. Oversized material goes to the chain mill for size reduction and is returned to the mixing auger along with undersized material for additional processing. Properly sized material goes to the drum for possible addition of an organic dust suppressant and then is discharged to an elevator and conveyed to finished product storage. Emissions from the product dryer are controlled by baghouse 2 (designed as B on the PTI).

Pelletized lime or gypsum is unloaded via conveyor to an interior storage pile. The product is loaded into trucks in the building for shipment. Loading emissions are controlled by the dust suppressant and minimizing drop height.

Emission Units on PTI 41-18:

EUPELLETIZING	Pelletizing line consisting of raw material handling, a lime silo controlled by a bin vent filter, a gypsum silo controlled by a bin vent filter, pelletizing raw material using lignin sulfonate, product sizing, and product handling.	Installed – lime silo and gypsum silo located outside and silos inside for recycle material. All have bin vents.
EURAWDRY	18 MMBtu/hr natural gas-fired raw material dryer equipped with a baghouse dust collector.	Installed - Vented to baghouse 1 (A)
EUPRODDRY	16 MMBtu/hr natural gas-fired pelletized product dryer equipped with a baghouse dust collector.	Installed - Vented to baghouse 2 (B)
EUSTORAGETANK1	Storage tank for ammonium, magnesium, or sodium lignin sulfonate; lignin sulfonate is received by tanker truck into this tank.	Installed

EUMIXTANK1	Lignin sulfonate mixing tank #1; lignin sulfonate and water are mixed to produce the desired coating material.	Installed
EUMIXTANK2	Lignin sulfonate mixing tank #2; lignin sulfonate and water are mixed to produce the desired coating material.	Installed
EULOADOUT	Loading trucks with finished product.	Installed
EUROADS	Unpaved roads and parking areas.	built
EUSTORAGEPILES	Outdoor material storage piles.	yes

Flexible Groups on PTI 41-18:

Flexible Group ID	Flexible Group Description	Associated Emission Unit IDs
FGPELLETIZE	Pelletizing operation for producing soil amendment products. Emissions are controlled by bin vent filters, dust collectors, and enclosed transfer points.	EUPELLETIZING, EURAWDRY, EUPRODDRY, EUSTORAGETANK1, EUMIXTANK1, EUMIXTANK2
FGFUGITIVES	Fugitive emission sources including outdoor material storage piles, product loadout, roads and parking areas. Emissions are controlled by use of dust suppressant and vehicle speed limits.	EULOADOUT, EUROADS, EUSTORAGPILES

ProLime is still in the process shakedown phase and developing products for customer approval. Due to changes in material suppliers, process equipment changes include changes to dryer inlets, silos, conveying and mixing equipment. Also, they are expecting receipt of a dryer part that should allow commencement of trial operation on January 15, 2020.

Process/Operational Restrictions –

Special Condition (SC) III.1 required a malfunction abatement plan (MAP) be submitted within 60 days of permit issuance, and be implemented and maintained. The MAP was submitted on 1-3-2020. It appears approvable with the only things missing being maintenance and inspection of the bin vent filters on the silos, and monitoring of visible emissions from the baghouse common stack.

The following transfer points or their equivalent are enclosed as required by SC III.4:

- Point 2 – Feed conveyor to live bottom hopper
- Point 3 – Live bottom hopper to raw product dryer
- Point 4 – Silo to feed auger
- Point 5 – Feed auger to mixer
- Point 6 – Mixing auger to elevator
- Point 10 – Elevator to screen
- Point 12a – Screen to chain mill (oversize)
- Point 14 – Elevator to conveyor

Per SC III.3, all raw materials except for wet lime is to be stored inside. There were two covered piles of material outside a loading bay. One was gypsum, this pile needs to be moved into the building or a permit modification can be applied for if ProLime wants to make this a compliant practice.

In compliance with SC III.5, the permittee uses an organic certified material as a dust suppressant and lignin sulfonate to control dust in product handling.

Particulate Matter (PM) Control and Design/Equipment Parameters -

The raw material dryer is controlled by Baghouse 1 (A) and is limited to a PM emission rate of 0.01 grains/dscf and PM10/PM2.5 emissions of 2.13 pph per SC I.1, 2, & 3. Baghouse 1 also controls Silos 1, 2, & 3, the chain mill, vibrator mill, and coating drum/pan. Baghouse 1 is installed in a satisfactory manner as required by SC IV.1.

The pelletizing (vibratory) dryer is controlled by Baghouse 2 (B) and is limited to a PM emission rate of 0.01 grains/dscf and PM10/PM2.5 emissions of 2.13 pph per Special Conditions (SC) I.4, 5, & 6. Baghouse 2 also controls the recycle belt and screens. Baghouse 2 is installed in a satisfactory manner as required by SC IV.2.

The two (2) baghouses are identical, 30,000 cfm each, and vent to a common stack identified as SVBAGHOUSEAB.

Pressure drop will be monitored continuously to ensure proper operation and gauges are installed on the baghouses per the requirements of SC IV.3.

The lime and gypsum storage silos located outside are equipped with bin vent filters as required by SC IV.4 and are vented to Baghouse 1. The recycle silos inside also have bin vent filters.

Natural Gas Combustion and Design/Equipment Parameters -

Per SC IV.5, the design heat input for EURAWDRY shall not exceed 18 MMBtu/hr. The maximum heat input on the unit installed is ~13.8 MMBtu/hr.

Per SC IV.6, the design heat input for EUPRODDRY shall not exceed 16 MMBtu/hr. The maximum heat input on the unit installed is a little over 12 MMBtu/hr.

Testing -

Testing of VOC emissions rates from FGPELLETIZE and PM/PM10/PM2.5 for EURAWDRY and/or EUPRODDRY within 180 days of trial operation is required by SC V.1 and 2. Testing has not been completed yet.

Monitoring/Recordkeeping -

ProLime is required to continuously monitor the pressure drop of each baghouse, and record it on a daily basis per SC VI.2. A monitoring and recordkeeping worksheet has been developed in order to demonstrate compliance.

Visible emissions from each stack in FGPELLETIZE are required to be observed on a daily basis when operating per SC VI.3. Since the lime silo and gypsum silo have been vented to baghouse 1, only daily observations from the common stack for the baghouses will need to be observed. The worksheet for visible emissions from exhaust stacks has not been developed.

Records for hours of operation, lime and gypsum throughput, pelletized product output, lignin sulfonate throughput still need to be developed. This should be completed before trial operation ends at a minimum.

Reporting -

Within 30 days after completion of construction, a notification needs to be submitted per SC VII.1. This notice has not been received yet.

Stack/vent Restriction -

Confirmation was received on 1-8-2020 that construction of SVBAGHOUSEAB (vents Baghouses 1 & 2) had been completed and was at the permitted height of 55 ft (SC VIII.1).

The emissions from SVBINVENTA and SVBINVENTB have been ducted to Baghouse 1 and will vent out of SVBAGHOUSEAB. SVBAGHOUSEAB vents at 55 ft, and SVBINVENTA and SVBINVENTB are permitted to vent at 45 ft so this is acceptable.

FGFUGITIVES –

SC III.1 required a fugitive dust plan be submitted within 60 days of permit issuance, and be implemented and maintained. The plan was submitted on 1-3-2020. It appears acceptable including measures to minimize dust from roadways (dust suppressants), product loadout (minimize drop distances), and for outdoor loading in order to also meet the requirements in SC III.2 & 3.

Records for VE observations per SC VI. 2 and for water and dust suppressant application per SC VI. 3 have been developed. These records should start to be used no later than the start of trial operation.

Summary

The plant is almost ready to start trial operation. Once trial operation is initiated, the clock for completing testing for emissions of VOC and PM/PM10/PM2.5 starts. No significant compliance issues were identified, some development of plans and records is still needed, and some cleanup of product storage is needed.

The notification of construction completion, and test protocols submittal and completion of stack testing is still pending.

NAME *[Signature]* DATE 1/3/20 SUPERVISOR *B. M.*

