
Louisville Green Program Performance Report for 2022

Revision Date: 03-28-23



Revision Number: 001

Introduction

Louisville Green’s Management Team consists of Managers and Administrators throughout the Biosolids value chain from pretreatment to land application. This report summarizes performance and progress of the Louisville Green Management System in 2022.

NOTE: Due to the failure in April 2020, there was not any Louisville Green Production in 2021. An emergency dryer project was started to replace two of the dryer trains. Production began mid-year 2022.

Biosolids Summary Information and Marketer Performance

A Monthly Solids Summary spreadsheet is used to monitor the distribution of Louisville Green, the landfill of Dewatered Biosolids and Landfilled Product.

The following table summarizes the yearly distribution of Louisville Green.

Year	Total Tons Distributed	Landfilled Tons	% of Marketable Material Distributed
2015	20,410	6,609	87
2016	19,820	4,190	96
2017	19,828	3,352	90
2018	13,350	1,276	100
2019	7,522	804	100
2020	944	203	100
2021	0	0	0
2022	5383	1889	99

Table 1.0



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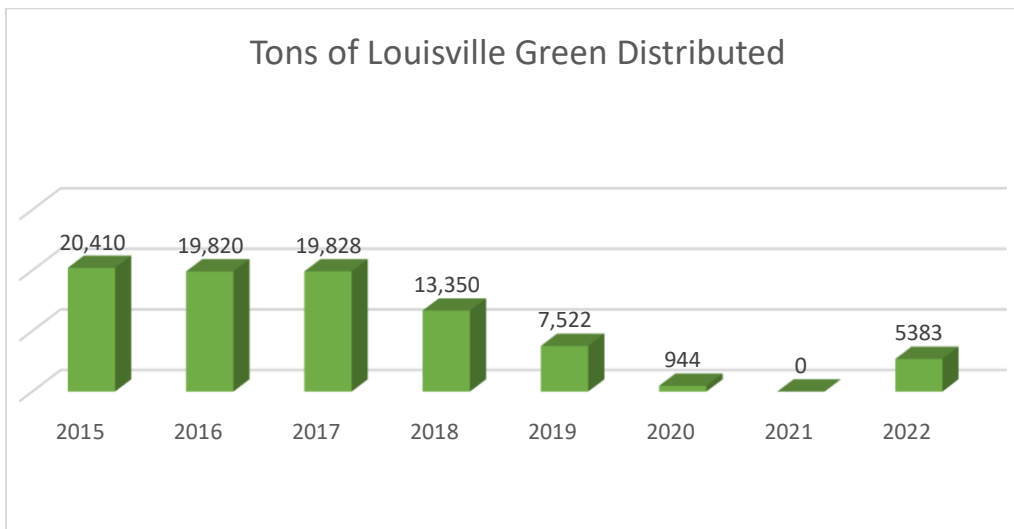


Figure 1.0

Of the 5383 tons distributed, 73% was used for agriculture in Kentucky, 27% was used for agriculture in other states. As a result, \$0.00 was generated from Louisville Green sales in 2022.

1% of Louisville Green produced in 2022 was sent to the landfill. Non-Marketable product was recycle bin material cleaned out of the process and off spec product. Beneficial Use of 99% saved MSD approximately \$467,565 in landfill fees. In addition, 307,000 cubic feet of landfill space was saved by beneficially using the wastewater solids and helping the environment.



Louisville Green Revenue

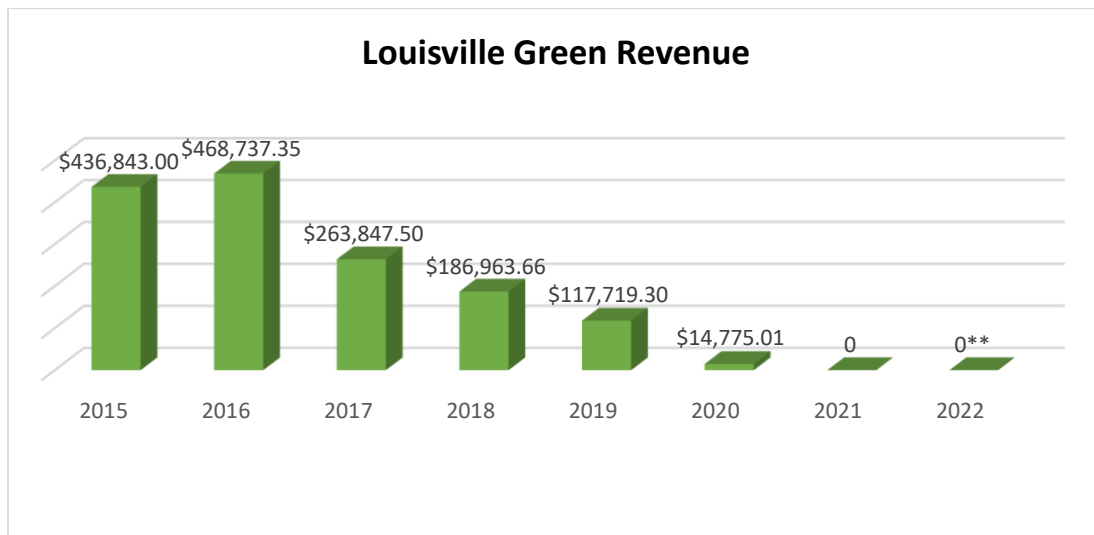


Figure 2.0

**No revenue from Louisville Green was generated in 2022. Louisville Green was given away to local farmers at no charge.

Hazardous Materials and Pretreatment Program

The pretreatment program issues an annual program performance report to state and federal authorities every year as part of their regulatory requirements. The report is due on March 1st of each year. Copies of the report will be available for 2022, and may be requested by contacting the Pretreatment Administrator.

Regulatory Compliance

All permit parameters for Louisville Green that was land applied were within State and Federal limits throughout 2022. Molybdenum did exceed the pasture limit for the state of Indiana. During this timeframe, the Process Support Supervisor allowed distribution in Indiana other than for pasture.



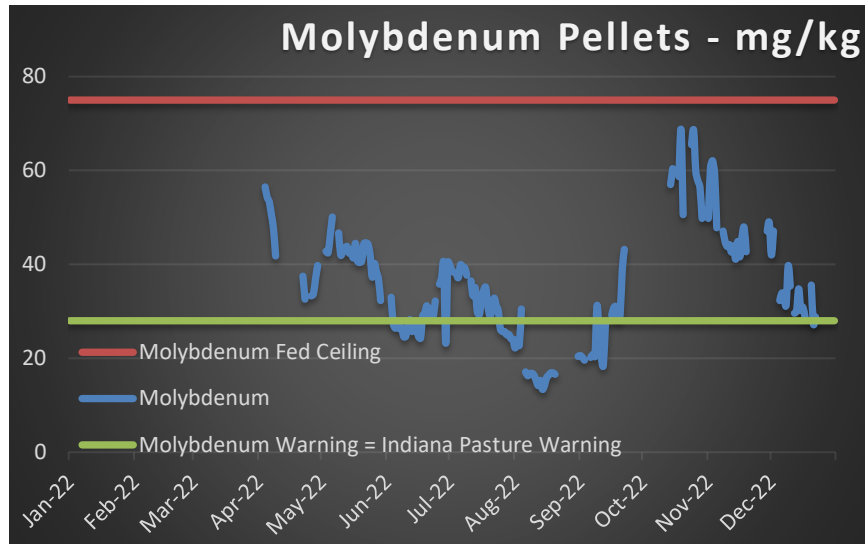


Figure 3.0

Morris Forman Laboratory

The Laboratory performs the analyses for Louisville Green and all regulatory required analytical services for the following programs: KPDES, Pretreatment and Compliance, and the MS4 Permit. In addition, the laboratory provides technical support and analyses for the Consent Decree Program.

In 2021 the Morris Forman laboratory maintained full certification for wastewater analysis from the Commonwealth of Kentucky Energy and Environment Cabinet.

Table 2 is the lab’s performance for the Wastewater Performance Results:

Year	Number of Acceptable Test Results	Number of Un-Acceptable Test Results	Percentage of Test Results Correctly Analyzed	Study Number
2022	377	13	96.7%	WP 328 and WP 333-338
2021	56	3	94.6%	WP 312-314
2020	57	1	98.2%	WP 302-305
2019	62	2	96.8%	WP-290
2018	55	3	94.8%	#279-279
2017	74	3	95.9%	#266-268
2016	56	0	100%	#36
2015	41	0	100%	#35
2014	51	2	96.2%	#34

Table 2.0



Progress Towards Goals and Objectives

Goals and Objectives for 2022 were;

Goal: Continually enhance the biosolids process to improve communication, efficiency, quality, and sustainability through 2022.

Objective 1: Implement an improved **Preventive Maintenance System for New Dryers**, creating Preventative Maintenance Work Orders by Jan 31st 2022 for new dryer trains, and having 80% of required Work Orders completed within their lifecycle for the first year of dryer operation ending December 31st, 2023.

There were substantial delays to completion of the dryer project; this goal was carried into 2023.

Objective 2: **Create a beneficial use benchmark**; begin sending new Louisville Green pellets out for beneficial use in the community to reduce the amount of solids wasted in landfills by increasing the amount sent for beneficial use to 50% of all pellets produced at Morris Forman Water Quality Treatment Center per week by Dec 31 2022.

Benchmark was hit successfully.

Objective 3: At the Morris Forman Water Quality Treatment Center, **help to improve process control by updating all outdated process SOPs by December 31, 2023.**

Progress was made; this goal was carried into 2023.

Objective 4: **Implement a new Biosolids Process**, at the Morris Forman Water Quality Treatment Facility, by December 21, 2025 to produce 70 dry tons per day of biosolids.

Goal for new process completion was delayed to 2027. Goal carried forward into 2023.

Actions Taken as a Result of Input from Interested Parties

Marketer, Farmers, Fertilizer Blenders, and the General Public

MSD Board

Board Training for the Louisville Green Management system was conducted on 09/26/2022.

Public Participation

Public participation continued at a low level in 2022. The new dryer system did not begin to run until April 2022 and MSD did not achieve complete ownership until 12/31/2022. One media release was made to advertise Louisville Green to farmers at no charge.



Training Program

During 2022, the MSD Training Department provided training to employees whose work is related to MSD wastewater operations. A sample of that training is listed in the table below.

Course	Number of Employee Hours
Fire Prevention & Controls Total	28.5
Forklift and other Equipment Total	34.5
General & Industrial Safety Total	254.5
Laboratory or Sampling Training Total	75.5
Leadership Training	190.5
Louisville Green	76.5
Master Electrician Training	66
Organizational Policy & Procedures	72.6
Plant SOP/Process Training	147.5
Process Equipment Training	593.5
Sewer Overflow Response Protocol (SORP) Related	366
Storm Water Permit Training	82
Technology Training	34.85

Several of these courses are accepted by the Kentucky Division of Water as credit hours for maintaining wastewater licenses in the state of Kentucky. All training is tracked in the Employee Training Records Database. By tracking the training progress of each operator at Morris Forman WQTC, an individual's achievements towards certification in particular, areas of the plant are effectively monitored and communicated.

In addition to training related specifically to wastewater treatment, managers and supervisors also participated in *leadership development* training that included *communication strategies* and overall *project management*.

In all, MSD employees attended over 8000 hours of training, with the bulk of that focusing on operations equipment, procedure and safety.

Accomplishments from the Training Department included:

- Expanded utilization of eLearning training modules
- Continued implementation of annual safety awareness trainings
- Rolled out, promoted, and monitored use of LinkedIn Learning
- Conducted quarterly meetings with critical MSD departments
- Designed and facilitated additional trainings approved for CEUs.

Community Outreach Participation included:

ROADEO

Red Cross Blood Drive

MSD Cares Fundraising Events and Activities



Toys for Tots Collection Drive

Apprenticeship Program

Tuition Assistance Guidance

Management Review

The Management Review of the Louisville Green Management System for 2022 was conducted in March of 2023. Reviewers continue to be pleased with the Louisville Green Management System.

Management asked that the recorded e-learning modules for dryer operation be added to the training requirements on a biyearly basis.

Internal and 3rd Party Audit Results

MSD Internal Audit department conducted an audit in December 2022. The audit identified zero major nonconformances, one minor nonconformance and one opportunity for Improvement.

The next audit in the cycle is an external NBPS re-verification audit by the third part auditor in 2023.

Nonconformances and Corrective Actions

Internal Audit

Minor Nonconformances:

Element 6 addresses the public participation requirements of the NBP BMP, including specific areas that must be included in the public participation approach, such as the commitment to the ten principles in the Code of Good Practice, as well as specific requirements for when public participation ought to happen, such as during the development of BMP goals and objectives.

The Process Support Supervisor did not send notice of the #15 Internal Audit to interested parties as outlined in Appendix 6B, point 2.

Corrective Action; Corrective Action 107 was developed to address this nonconformance. This was an oversight on part of the Biosolids and Odor Control Program Manager. The Process Support Supervisor is still learning the requirements of the management system and the audit notification was not sent out as part of the guidance provided by the Biosolids Manager.

To prevent further instances of this nonconformance the Process Support Supervisor has created an internal audit to-do checklist as attached and found at;

M:\Operations\Treatment\EMS\EMS Manual\5. Improvement and Communication\Audits

Opportunities for Improvement:

Element 11 addresses the Emergency Preparedness and Response requirements of the NBP BMP, including establishing and maintaining Emergency Preparedness and Response Plans and Procedures, reviewing and evaluating the effectiveness of emergency preparedness and response procedures, maintaining emergency response equipment on site as well as having it



readily available, and requiring contractors to establish and maintain Emergency Preparedness and Response Plans and Procedures.

While no nonconformances were noted, participating in regular tabletop exercises to simulate emergencies to improve emergency preparedness and response time offers an opportunity for improvement. The last tabletop exercise on Emergency Preparedness and Response was held in February 2020. Internal Audit recommends more frequent tabletop exercises on emergency preparedness occur.

Corrective Action; Corrective Action 108 was developed to address this opportunity. Meghan Brown was contacted to initiate conversations on future tabletop exercises.

