



Quarterly Report 2022-Q1

MAY 2022

Odor Task Force



Executive Summary

Per City of Kalamazoo Commission action taken September 2020, the Odor Task Force presents this Quarterly Report for the first quarter, 2022. The members of the Odor Task Force continue to work collaboratively to develop solutions to community concerns with odors generated within the control of the members. Odor Task Force meetings have been scheduled for approximately every six weeks, or two per quarter. In quarter one of 2022 only one Odor Task Force meeting was held. The meetings are now scheduled on an adjusting basis to accommodate the dynamic schedules of the members.

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HISTORY

Formally originated in 2018, the Odor Task Force (OTF) is a technical workgroup of members from Graphic Packaging International, Inc., community committees, local and State agencies, elected officials, and the City of Kalamazoo. The primary goal of the OTF is to provide a collaborative forum to discuss the community's concerns with and potential mitigation efforts regarding industrial odors emitted from the City of Kalamazoo Water Reclamation Plant (KWRP) and Graphic Packaging International, Inc. (GPI) as both industrial facilities have the potential to emit odors of differing compounds and of differing concentrations. Odors emitted to or generated within a community falls under the regulatory jurisdiction of the Michigan Department of Environment, Great Lakes, and Environment (EGLE) Air Quality Division.

CITY OF KALAMAZOO PRIOR ACCOMPLISHMENTS

Investments have been made completing projects leading up to the origination of the OTF. Various investments in treatment processes operations of increased byproduct hauling offsite and point source chemical treatments have been piloted with some implemented as part of the current odor mitigation efforts. The City has continued its investment in capital improvement projects specifically targeted at odor emission mitigation. Currently under construction, is the construction of four carbon scrubbers to treat odors at the source of generation, one of which is currently operational. In addition, the KWRP implemented the EnviroSuite odor management with e-Nose monitoring technology for the real-time monitoring, historic investigation and forecasting of the fugitive odor transmission of those generated at the KWRP. In the pursuit of continuous odor source identification and mitigation opportunities, the KWRP commissioned J&H to conduct an initial study to identify additional point sources of odors within City owned infrastructure followed by a detailed odor analytical report also conducted by J&H. Pilot trials of various chemical treatments to mitigate emitted odors has also been conducted with varying degrees of success. These are only a few of the prior accomplishments and investment commissioned and completed by the City.

The first quarter of 2021 brought several milestone accomplishments in the mitigation of emitted odors from the KWRP. The KWRP expanded the Envirosuite sensor network with the addition of three community monitoring locations; The Northside Association; Krom / Prouty Park; and Rockwell Park. The three additional sensors came online January 20th 2021. The Rockwell Park sensor experienced early technical difficulties which were rectified February 13th 2021. At Envirosuite's recommendation, all deployed sensors were updated to the current model in January 2021. The City Manager's Office approved a 1-year Pilot with SmartCover for the deployment of their H2Scents real time sanitary sewer H2S monitoring. The community online odor complaint form has received additional refinement prior to deployment with the inclusion of sanitary sewer network on the form. With the end of the first quarter 2021, the Envirosuite system now has year over year datasets for comparison and evaluation. The focus of the first quarter of 2021 was on actionable data obtainment and data source diversification.

The KWRP has several investments underway, proposed, and in the planning phases to aid in the identification and mitigation of odors emitted from the KWRP and City owned sanitary sewer collections system. The remaining three KWRP process point source carbon scrubbers underwent startup and began beneficial use in Q2 2021, a quarter ahead of schedule. The biofilter treatment technology request for proposal was issued with procurement recommendation submitted to Commission for approval in early Q3 2021. Continued management and monitoring of hauling offsite of process byproducts along with the monitoring and source investigation utilizing the EnviroSuite system. The deployment of the SmartCover H2Scents Pilot has been completed. Staff is currently monitoring the deployment sites to gain confidence in the technology and data. Chemical treatment of the KWRP's dewatered solids and screenings continues. The KWRP continues scoping to determine if studies are necessary to determine if odors are being generated and emitted into the community from additional sanitary sewer interceptors owned by the City. The inclusion of an additional three community monitoring locations is also in the scoping phase to determine potential value added data set locations which fit into the goals of the program. The community online odor complaint form is in final draft stage. The web link has been shared with the

Environmental Concerns Committee as well as select community members to beta test form before full scale launch.

Michigan Department of Health and Human Services (MDHHS), in partnership with Michigan Department of Environment, Great Lakes, and Energy (EGLE) and Environment Protection Agency (EPA), performed air sampling within the community. The agencies utilized the Agency for Toxic Substances and Disease Registry (ATSDR) for technical assistance. A community townhall meeting, coordinated by the above partnership, was scheduled.

- The biofilter treatment technology procurement recommendation was approved by City Commission in early Q3 2021.
- The biofilter treatment technology construction bid has been publicly posted with a bid opening early Q3 2021 and an anticipated recommendation submittal to City Commission Q4 2021.
- The biofilter design team determined a previously scoped fan study wouldn't bring the anticipated value to the Project as previously believed. As the design continued to develop, the team determined the existing planned infrastructure design requirements achieve the goals of the Project without incurring the additional cost to nor resultant delay to the Project.
- The City is proceeding forward with the biofilter project under a Michigan Department of Environment, Great Lakes and Energy – Air Quality Division Permit to Install exemption as detailed in the Air Permit to Install Exemption Handbook, Michigan Air Pollution Control Rules, R336.1278-R336.1291 (Rules 278 – 291) February 2020, specifically R336.1285 Permit to install exemptions; Rule 285(2)(f).
- The City conducted a three week, 9/13/2021 – 10/1/2021, H2S Odor Logger air sampling data capture in the region near Krom Prouty Park. Results are anticipated to be provided in the next Quarterly Report.
- The City conducted a one week laboratory air sampling data capture which included grab samples every two hrs, 7am – 7pm on 9-20, 9-21, 9-22, and 9-23, The City also conducted 24 hour composites laboratory air sampling data capture on 9-20, 9-21, 9-22, and 9-23.

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- Continued management and monitoring of hauling offsite of process byproducts along with the monitoring and source investigation utilizing the EnviroSuite system.
 - The data from the SmartCover H2Scents Pilot has been reviewed with possible H2S level timings aligning with industrial discharges. Further investigation into possible connections is required prior to determining a source.
 - Chemical treatment of the KWRP’s dewatered solids and screenings continues.
 - The inclusion of an additional five EnviroSuite community monitoring locations has been determined to provide value added data set locations which fit into the goals of the program. The deployment locations are expected to be based on community input through various communication medium.
 - The community online odor reporting form has been finalized. Beta testing provided great feedback for implementation into the final product. A citizen is encouraged to report an observed odor via the website:
<https://observation.envirosuite.com/Kalamazoo/>

When we started pulling data from EnviroSuite, we pulled the H2S Raw data value to use in our data comparisons. In January 2021 three new monitors were ordered. When we added these monitors to the data pull, the H2S Raw value was also the value that was used for the data comparisons. In recent talks with EnviroSuite we have learned that the new monitors don’t function the same as the older ones. Due to “communication limitations” the value that is in the raw data is scaled to 0 – 250 which actually corresponds to a 0 – 1000 ppb value. Enclosed is all of the data that for January 2021 through August 2021 showing the multiplying by 4 of the raw value to get the ppb value. Values for Krom and Prouty are not considered reliable for 7/1/21 through 8/31/21 per EnviroSuite. Values for the Northside monitor are not considered reliable as of 3/25/21 per EnviroSuite.

Michigan Department of Health and Human Services (MDHHS), in partnership with Michigan Department of Environment, Great Lakes, and Energy (EGLE) and Environment Protection Agency (EPA), performed air sampling within the community. The agencies utilized the Agency for Toxic Substances and Disease Registry (ATSDR) for technical assistance. A community townhall meeting, coordinated by the above

partnership, is scheduled for October 5th, 2021. More information may be obtained from the website: https://www.michigan.gov/egle/0,9429,7-135-3310_70314_102145-00.html

- The KWRP continued the venture in fugitive odor reduction.
- The online odor complaint form, in conjunction with the existing H2Scents in sewer sensors along with the Envirosuite sensors, has been used to aid in developing future operational and investment needs to mitigate fugitive emissions from City infrastructure.
- Beta testing the Kalamazoo Community Odor Observation Collaboration website to publicly view 15 minute average sensor readings from the Envirosuite system.
- Obtained approval for an additional five (5) Envirosuite sensors to be deployed within the community.
- Received bids for the Biofilter construction. Received bids were over budget. City intends to rebid in next quarter after design refinement is complete.

CITY OF KALAMAZOO CURRENT QUARTER ACCOMPLISHMENTS

- Coordination with Envirosuite to ship, install, and activate requested additional community sensors.
- Re-bid Biofilter Construction
- Partner with Consultant to evaluate fugitive odors on two sanitary sewer interceptors, Spring Valley Interceptor & Davis Creek Interceptor

CITY OF KALAMAZOO UPCOMING ANTICIPATED ACCOMPLISHMENTS

- The City intends to deploy the Kalamazoo Community Odor Observation Collaboration website where individuals can view, in real time, the readings from the Envirosuite monitors. This website will also provide access to historical data since deployment.
- Deploy additional five (5) Envirosuite sensors within the community.

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- Yearly scheduled Envirosuite sensor replacement maintenance.
 - Bid opening for Biofilter construction rebid followed by a City Commission recommendation.
 - Obtain and review a professional services proposal for a pilot to create an odor model of the selected sanitary sewer interceptors to model effectiveness of proposed engineered fugitive odor emission mitigation infrastructure.
 - Tour a solids processing facility to evaluate the beneficial potential for technology implementation at the KWRP to, among other items, reduce the odors emitted from processing, storing, and hauling wastewater solids.



GRAPHIC PACKAGING INTERNATIONAL, INC UPDATE



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Date: March 9, 2022

RE: 2022 1st Quarter Odor Management Update

As required in Resolution No. 20-50, provision 3, Graphic Packaging International, LLCs ("Graphic Packaging") is providing our 1st quarter 2022 Odor Management Update to the Kalamazoo City Administration for submission to the City of Kalamazoo Commissioners. This report covers the period of December 2021 through February 2022.

Included in this update are the minutes (Graphic Packaging portion) of the recent Odor Task Force meeting, current status of the Nuisance Minimization Plan for Odors (NMP) submitted to the Michigan Department of Environment, Great Lakes, and Energy (EGLE) late December 2020, recent chemical treatments to optimize the clarifier and wastewater treatment plant, and the Envirosuite system update.

Odor Task Force Meeting & Minutes

Meeting held December 2, 2021:

Graphic Packaging International- Project Status Update- The recycle fiber plant construction is complete, and the plant is in continuous operation and is being fine-tuned and adjusted to optimize. The new paper machine, K2, construction continues. Water testing will begin in a couple weeks. There are currently about 800-900 contractors still on site, working to finish the project. Now on track for beginning to make new paper on or about December 27th. They will begin making uncoated paper at first, then transition to coated paper a bit after that, as completion of the equipment allows.

GPI Envirosuite System Update- The GPI Envirosuite system now consists of 16 sensors in their system. Ten of the monitors are over a year old (six of the units are new this year). They have had battery issues on a couple of the meters, and some have been replaced. They are working out accuracy/calibration issues on the meters. The low end accuracy is in question. Said that the calibration range is 0-1000 ppb, so being accurate on the low end is tough. They have been comparing readings with their Jerome Meter, and have been consistently getting lower readings on the Jerome Meter than on the Envirosuite meters.

GPI Odor Management Systems Update- Both the hydrogen peroxide and the oxygen injection systems are running and working well.

Aaron Wright asked about the odor readings and accuracy previously mentioned. Jim Cornell responded about the City's experiences with Envirosuite meters' issues and accuracy. The main change that we experienced was that we swapped out our Envirosuite sensors to new models, and all readings went down noticeably (about 50%) at that time (Feb 2021). Our readings are now more in line with what the GPI Envirosuite meters are reading. GPI re-emphasized that they are seeing much lower H2S readings on their Jerome Meter, as compared to the Envirosuite meters (often less than 1 ppb on Jerome, vs. 10-20 ppb on Envirosuite). Steven Smock makes side by side readings with the Jerome meter vs. the Envirosuite meters, and the Jerome meter is always much lower. Gregg Lanternier pointed out again that the operating range of the Envirosuite meters are 0-1000 ppb, and the readings being observed are at the bottom 1-2 % of that range. Jim Cornell pointed out that these meters are operational, field instruments

that are meant to show changes in the readings and provide us feedback in that respect, versus laboratory, very expensive, research quality equipment. (The difference between “Best Available Technology - BAT vs. Best Practical Technology – BPT).

Aaron asked about another privately contracted engineering/odor study conducted by GHD. He was skeptical of the conclusions, and asked what the actual target goal is, or readings to be accomplished in the end. Jim Cornell responded that the final goal in the end is probably not going to be a numerical reading, but should ultimately be to get to the point that there are no longer any complaints from the local residents in the community. Aaron also asked about more of the recommendations from the GHD study, like covering the GPI wastewater clarifier to contain the odors, etc.

Meeting held February 23, 2022:

The minutes have not been distributed from this meeting. Agenda items discussed by Graphic Packaging International included:

GPI Project Status Update.

GPI Envirosuite System Update.

GPI Odor Management Systems Update.

The minutes from the February 23, 2022 meeting will be included in the next quarterly update, covering the period of March 2022 – May 2022.

Next meeting date - TBD

Nuisance Minimization Plan for Odors (NMP)

Graphic Packaging had a phone conference February 23, 2022 with EGLE to follow up on the next steps in reviewing and implementing the NMP. EGLE provided feedback on the NMP draft document. This feedback is being reviewed for update to the NMP with a follow-up phone conference scheduled for March 17, 2022.

Clarifier and Wastewater Treatment Plant Status

Graphic Packaging continues to optimize process chemistry to further reduce the potential for nuisance odors. Primary chemistry in use includes an Oxygen Injection System to increase the dissolved oxygen levels in the wastewater clarifier, as well as liquid Hydrogen Peroxide to the Wastewater Treatment Plant. The combination of these continues to be an overall improvement to managing the potential for odors from the mill wastewater treatment plant.

Envirosuite Monitoring System

Graphic Packaging continues to maintain the sixteen (16) monitor system. There have been some battery/charging issues that have caused a few sensors to be off-line for some periods of time. Graphic Packaging continues to work with Envirosuite to address these issues to keep the entire sixteen (16) sensor system on-line providing consistent data to monitor the ambient H₂S levels throughout the plant site.

As outlined in the 2020 4th Quarter Odor Management Update submitted December 11, 2020, Graphic Packaging will continue to:

- Provide quarterly reports to the City of Kalamazoo summarizing our odor mitigation efforts.
- Continue to work with the community's Odor Task Force.
- Continue to remove sludge from the concrete pad along Paterson Street five to six days per week. Historically this was performed two or three days per week. This has reduced the potential for composting odors.
- Continue to add chemical treatments to the clarifier to reduce the potential for odor.
- Continue to use the Envirosuite monitoring network installed in September 2020 to monitor H₂S ambient air concentrations at various locations.
- Continue to work with consultants to finalize the operational practices to minimize odors from GPI's operations.

Appendices

The full report with appendices is available on the City's website at:

<https://www.kalamazoo-city.org/odortaskforce/q1-2022-report>