

Revitalizing Auto Communities Environmental Response
(RACER) Trust

Lower 1,4-Dioxane Biosparge 2025 Progress Report

**Lansing Industrial Land
Lansing, Michigan**

April 2026

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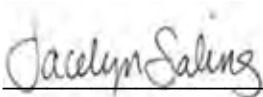
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Acronyms and Abbreviations

µg/L	micrograms per liter
%	percent
Arcadis	Arcadis of Michigan, LLC
EGLE	Michigan Department of Environment, Great Lakes, and Energy
IGMP	Interim Groundwater Monitoring Plan
O&M	operation and maintenance
RACER Trust	Revitalizing Auto Communities Environmental Response Trust
ROI	radius of influence
RRV	reference reduction value
Site	Revitalizing Auto Communities Environmental Response Trust Lansing Industrial Land Site, Lansing, Michigan

1 Introduction

On behalf of Revitalizing Auto Communities Environmental Response Trust (RACER Trust), Arcadis of Michigan, LLC (Arcadis) installed a propane biosparge remediation system at the RACER Trust Lansing Industrial Land Site in Lansing, Michigan (Site) to address 1,4-dioxane impacts in the weathered bedrock. Two treatment systems, encompassing 41 biosparge wells in four transects (Transects B, E, F, and G) on Plant 2 with an equipment enclosure (**Figure 1**) and seven wells in one transect (Transect A) on Plant 3 with an equipment enclosure (**Figure 2**), comprise the overall biosparge system. The biosparge system was designed to inject air and propane into the subsurface to facilitate co-metabolic biodegradation of 1,4-dioxane. The Plant 3 system was started up in July 2019 and the Plant 2 system was started up in August 2020. This progress report provides a summary of system operations and performance in 2025 and presents recommendations for system optimization in 2026.

The long-term objectives of the biosparge system are to:

- Provide for continued protection of the municipal drinking water supply wells by preventing site-related 1,4-dioxane-impacted groundwater from migrating offsite laterally in the weathered bedrock zone at concentrations greater than 7.2 micrograms per liter ($\mu\text{g/L}$); and
- Reduce the potential for substantial migration of 1,4-dioxane downward toward less-weathered bedrock.

The short-term objective of the biosparge system is to reduce site-related 1,4-dioxane concentrations along the core of the lower 1,4-dioxane weathered bedrock plume.

As presented in the Interim Measures Work Plan (Arcadis 2018), the biosparge system will be operated until:

- Concentrations of site-related 1,4-dioxane in weathered bedrock and bedrock monitoring wells along the core of the plume and in monitoring wells along the western Plant 2 property boundary exhibit stable or decreasing trends based on statistical evaluation (e.g., Mann-Kendall or other method acceptable to the Michigan Department of Environment, Great Lakes, and Energy [EGLE]);
- Further reduction in groundwater concentrations of 1,4-dioxane reaches the point of diminishing returns. Evaluation of the point of diminishing returns is detailed in Section 3.2 of this progress report. The diminishing returns evaluation process has been updated based on feedback from and in collaboration with EGLE over the course of operation of the biosparge system; or
- The short- and long-term objectives have been met.

2 Biosparge System Operation and Maintenance

The Plant 2 and Plant 3 biosparge systems operated throughout 2025 to continue treating 1,4-dioxane in the weathered bedrock. A summary of operations and maintenance (O&M) is outlined in the following sections.

2.1 Summary of Operations

The operational uptime of the Plant 3 system was 89 percent (%) from January through August 2025. The Plant 3 system was down approximately 2% of the time for routine maintenance activities and approximately 9% of the time for non-routine maintenance activities. The Plant 3 system was off from August 25 through December 31 for the ongoing Transect A shutdown test. The Plant 2 system was operational 84% of the time during 2025. The Plant 2 system was down approximately 2% of the time for routine maintenance activities and approximately 14% of the time for non-routine maintenance activities. Plant 2, Transect G was off from August 25 through December 31. These activities are detailed further in Sections 2.2 and 2.3.

The biosparge system operated as follows in 2025:

- Air flow rates, measured at each well injection line, of 2 to 5 actual cubic feet per minute (CFM, as measured inline at the system temperature and pressure and not converted to standard conditions) per biosparge well are targeted using the system variable frequency drive and the gate valves installed on the manifolds in the equipment enclosures. It was observed that flow in select wells on Plant 2 has started to decrease to below 2 CFM. Rehabilitation is planned for these select wells by means of jetting the well screens to achieve the desired flow range.
- Wells from different transects are grouped into three sparge groups at Plant 2 and two sparge groups at Plant 3. The different groups alternate sparge cycles, with time on for each group, followed by a rest cycle. Any given biosparge well receives 45 minutes of continuous air sparging followed by 3 hours and 15 minutes of continuous rest – a total of six sparge cycles and 4.5 hours of sparging and 19.5 hours of rest per day.
- Air dosed with propane at 15% to 20% of its lower explosive limit is injected into each of the sparging wells at Plant 2 and Plant 3 in 15 to 30-minute increments during four of the six sparge cycles per day, for a total of up to 2 hours of sparging dosed with propane per day per well (of the total 4.5 hours of sparging per day per well).
- The Plant 3 system continued to sparge into wells AS-19-A01 through AS-19-A05 from January to August. Wells AS-19-A06 and AS-19-A07 remain idle as previously communicated.

Detailed O&M data are provided in the completed O&M forms included in **Appendix A**.

2.2 Routine Operation and Maintenance

O&M visits were conducted monthly in 2025 and included data collection, equipment maintenance, and system checks to verify normal system operation. Onsite data collection included flow rates and pressures for individual wells while the overall system flow and pressure data were logged remotely through the programmable logic controller (PLC). At the Plant 3 system, the propane tank is a 20 lb cylinder and was changed out once per month. At the Plant 2 system, the propane tank is a 500-gallon tank that was filled two times in 2025.

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Other routine O&M activities included compressor maintenance, equipment calibration, and nutrient injections. Both the Plant 2 and Plant 3 compressors were serviced quarterly in 2025 in accordance with the manufacturer's recommendations. Based on performance optimization efforts, nutrient injections were reduced to once per year as of March 2024. For 2025, the annual nutrient injection was completed in March. The 2025 O&M logs are included in **Appendix A**.

2.3 Non-Routine Operation and Maintenance

2.3.1 Plant 3

The only non-routine maintenance for the Plant 3 biosparge system in 2025 was related to 3 power outages that caused the system to shut down. For safety reasons, the system compressor cannot be restarted remotely and therefore remains off until personnel manually restart the biosparge system.

2.3.2 Plant 2

The following non-routine maintenance was completed at the Plant 2 biosparge system in 2025:

- The system was off from February 3 through 15 and March 7 through 14 due to high propane line pressures. The high pressures were due to extreme temperature changes that led to the expansion of the propane gas as it went from cold (propane is stored outside) to inside the heated system building. To remedy this issue, the heater in the explosion proof (XP) room was set to a lower temperature. Limiting the temperature change limited gas expansion and allowed the propane to successfully pass through the lines.
- The compressor shut down for condensate tank high level alarms in July and September due to a buildup of iron precipitate in the auto drain valve preventing it from opening and allowing the tank to drain. Given that more condensate is generated during warmer months, increasing the frequency of routine maintenance on the auto drain from monthly to bi-weekly will be considered in summer months moving forward to prevent shutdowns.
- During the year, 2 power outages caused the system to shut down. For safety reasons, the system compressor cannot be restarted remotely and therefore remains off until personnel manually restart the biosparge system.

3 Performance Monitoring Results

System performance is monitored using the established performance monitoring well network across the Site. The Plant 2 and Plant 3 performance monitoring networks, including sampling frequency, are presented on **Figures 1** and **2**, respectively. Performance monitoring wells are distributed within the biosparge well radius of influence (ROI) and the upgradient and downgradient zones. Wells are positioned approximately every 300 feet along the transects. Groundwater sampling, including analytical data and field parameters, was performed at the performance monitoring wells quarterly for the first 2 years of biosparge operation, and semi-annually thereafter. Select biosparge performance wells are sampled more frequently for specific purposes (e.g., in anticipation of shutdown testing, to support the diminishing returns evaluation, etc.). **Figures 3** through **6** show the 1,4-dioxane and dissolved oxygen concentrations for performance monitoring wells at Plant 2 and Plant 3. Performance monitoring data, including 1,4-dioxane, dissolved oxygen, and nutrient concentrations, are summarized in **Table 1**.

Full results for groundwater sampling events, including all laboratory reports, all sampling logs, and data tables for constituents other than 1,4-dioxane, dissolved oxygen, and nutrients, will be provided in the 2026 Annual Groundwater Monitoring Report.

3.1 Performance Evaluation

The biosparge system has met the established short-term objective of reducing 1,4-dioxane concentrations along the core of the weathered bedrock plume. Based on biosparge performance monitoring and routine groundwater monitoring completed in accordance with the Revised Interim Monitoring Work Plan (IMWP, Arcadis 2025), the long-term objectives of continued protection of the municipal drinking water supply wells by preventing lateral migration and reducing the potential for vertical migration of site-related 1,4-dioxane continue to be achieved. **Figure 7** is a comparison of the lateral extent of the 1,4-dioxane plume from before system startup in 2019 and the end of 2025. Trend graphs for bedrock wells are included in **Appendix B**. Overall, the 1,4-dioxane concentration in most of the bedrock wells in the vicinity of the lower 1,4-dioxane plume continue to be below 1 µg/L. The remainder of the bedrock wells never exceeded the drinking water standard for 1,4-dioxane of 7.2 µg/L.

Performance monitoring indicates that the number of 1,4-dioxane exceedances of the drinking water criteria has decreased since system startup in 2019. **Figure 7** is a comparison of the lateral extent of the 1,4-dioxane plume from before system startup in 2019 and the end of 2025. The biosparge treatment transects were installed to treat 1,4-dioxane above the ten times the drinking water standard of 7.2 µg/L in the weathered bedrock and allow for quicker attenuation of 1,4-dioxane concentrations outside the treatment zones. The extent of the 72 µg/L contour has decreased to a fraction of its previous size. Annual Mann-Kendall analysis of plume stability is presented in the Annual Monitoring Reports (Arcadis 2022, 2023b, 2024b, 2025d, 2026b).

3.1.1 Plant 3

Plant 3 results since system startup are summarized here and presented on **Figure 3**, in **Table 2**, and in **Appendix B**. Note that Plant 3, Transect A was shut down after third quarter sampling on August 25, 2025 for the ongoing shutdown test:

- Upgradient wells: Both the upgradient weathered bedrock well, MW-13-22, and deep overburden upgradient well MW-12-21 show a decreasing trend per Mann-Kendall analyses (**Appendix B**). Neither appear to be directly influenced by the biosparge system as there was no significant change in the fourth quarter data when the biosparge system was turned off.

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- Radius of influence (ROI) wells: At Plant 3, Transect A, the original ROI performance monitoring well TW-14-06 was abandoned in February 2024 due to air leakage around the well casing that prevented adequate distribution of gases in the subsurface. During the ongoing shutdown test for Transect A, AS-19-A05 has been sampled as an ROI well. Data at AS-19-05 showed non detect in third quarter prior to the shutdown of Transect A and continued to be non-detect in fourth quarter approximately 2.5 months after the shutdown of Transect A. Typically, ROI wells show increased concentrations when the associated treatment transect is shutdown. AS-19-05 sustaining a non-detect concentration following the shutdown of Transect A indicates is a line of evidence that the short and long term objectives can continue to be met without active operation of this biosparge system transect.
- Downgradient wells:
 - Weathered bedrock monitoring wells 50 to 60 feet beyond Transect A (PW-14-03 and TW-15-11) exhibit the following results:
 - PW-14-03 has shown consistently low concentrations of 1,4-dioxane since 2021 which continued during the shutdown test in late 2025.
 - While TW-15-11 is downgradient of Transect A, concentrations of 1,4-dioxane in TW-15-11 have historically been directly affected by the operation of the biosparge system, similar to ROI wells. Similar trends were noted in 2025 at TW-15-11, specifically lower concentrations of 1,4-dioxane were observed in the first three quarters of the year during active operation of Transect A until the shutdown testing began. An increase in concentration was observed in fourth quarter following shut down of Transect A in August but are still below the pre-startup concentrations.
 - The two deep overburden wells, MW-13-29 and MW-13-48, located 250 and 460 feet downgradient of the treatment transect, exhibit the following results:
 - Concentrations of 1,4-dioxane at MW-13-29 have continued to decrease over time and as expected based on the distance from Transect A do not appear to be impacted by the shutdown test.
 - 1,4-dioxane in MW-13-48 are within the recent range of concentrations and are below the pre-start up concentrations at this well. Based on the distance of the well from Transect A, it is not expected that concentrations at MW-14-48 would be affected within 2.5 months of shutdown.
 - The next downgradient weathered bedrock well, MW-13-34, located next to deep overburden well MW-13-48 and approximately 460 feet from Transect A, remains relatively stable since the start up of the Plant 3 biosparge system in July of 2019.
- Shutdown Testing: **Table 3** summarizes the shutdown test sampling frequency, data collected and re-start triggers. Because the annual sample collected in fourth quarter for MW-13-34 and MW-13-48 was above the shutdown test baseline, additional sampling at these locations was completed in the first quarter of 2026.

3.1.2 Plant 2

Plant 2 results since system startup are summarized below and presented on **Figures 4** through **6**, in **Tables 4a** through **4c**, and in **Appendix B**:

- Upgradient wells: Concentrations at MW-21-142, located approximately 650 feet upgradient of Plant 2 Transect B and 600 feet downgradient of Plant 3 Transect A, continues to be stable. Concentrations at MW-20-126, located approximately 65 feet upgradient of Transect B, continue to decrease from a pre-start up concentration of 370 µg/L to as low as 4 µg/L in fourth quarter 2025. Wells located upgradient of Transects E, F, and G are all stable and/or decreasing and below pre-startup concentrations with the exception of MW-16-

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82 located upgradient of Transect F. Data collected in 2025 from MW-16-82 indicates an increasing trend, but at relatively low concentrations with a maximum concentration of 11 ug/L.

- Radius of influence wells: Concentrations at ROI performance monitoring wells are typically directly influenced by operation of the associated transect. Results at Plant 2 ROI performance monitoring wells are consistent with this observation as they continue to demonstrate effective treatment of 1,4-dioxane during active operation of the biosparge system. Concentrations of 1,4-dioxane in Transect G ROI well TW-14-02 were low in the first three quarters of the year during active operation of Transect G. An increase in concentration was observed in fourth quarter following shut down of Transect G in August but remains less than half the pre-startup concentrations. As expected, concentrations of 1,4-dioxane consistently remain low in all other Plant 2 ROI performance monitoring wells where transects are actively operating, TW-15-12, MW-20-128, MW-14-61, and MW-19-121.
- Downgradient wells: Downgradient wells, including those that exhibited non-detect/low concentrations of 1,4-dioxane when installed before the system was started, continue to exhibit low concentrations. Weathered bedrock wells 50 to 120 feet downgradient of the Plant 2 treatment transects exhibit decreased concentration trends, except for MW-20-127, located approximately 110 feet from Transect B, which continues to be stable. In 2025, concentrations at MW-19-123, located approximately 70 feet downgradient of Transect G, increased slightly from 2024 results but were within the recent range of concentrations and are below the pre-start up concentrations at this well. Based on the distance of the well from Transect G, it is not expected that concentrations at MW-19-123 would be affected within 2.5 months of shutdown.
- Shutdown Testing: **Table 3** summarizes the shutdown test sampling frequency, data collected and re-start triggers. Because the sample collected in fourth quarter for MW-16-74 and MW-16-77 was above baseline, additional sampling at these locations was scheduled for the first quarter of 2026.

3.2 Point of Diminishing Return Evaluation

Assessment of the point of diminishing returns is important in evaluating the effectiveness of ongoing biosparge treatment. The diminishing returns evaluation process has been updated based on feedback from and in collaboration with EGLE over the course of operation of the biosparge system. The current framework for evaluating the point of diminishing returns involves four main lines of evidence:

1. Assessment of upgradient well trends to evaluate the stability and magnitude of concentrations of 1,4-dioxane entering the biosparge system and requiring treatment;
2. Assessment of average plume concentrations to evaluate the trend of overall reductions year over year (i.e., 12-month reductions) to determine if ongoing treatment is meaningful;
3. Comparison of the 12-month average reduction of 1,4-dioxane to 20% of a reference reduction value (RRV) and;
4. Financial assessment of the cost per unit of treatment to understand the cost benefit of ongoing treatment.

To evaluate these lines of evidence in terms of localized system effectiveness, biosparge performance monitoring wells have been grouped based on proximity to each transect: one group for Plant 3 and three groups for Plant 2. An average concentration for each group of wells is calculated after each comprehensive sampling event. A 12-month reduction in the 1,4-dioxane concentration is calculated by subtracting the current average plume concentration from the average plume concentration 12 months prior. **Tables 2 and 4** present the average 1,4-dioxane plume concentrations and 12-month reduction values for the one group for Plant 3 and the three groups for Plant 2, respectively. For the third line of evidence listed, the maximum 12-month reduction in 1,4-dioxane observed during the first 3 years of operation serves as the RRV. While RACER proposed that 20% of the RRV

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be considered the point of diminishing returns and EGLE has not fully accepted, the diminishing returns evaluation also includes an evaluation of the overall trends for average plume concentration and 12-month reduction values, as shown on **Figures 8, 9, 10 and 11**. Looking at these trends provides a visual representation of the asymptotic conditions that occur when there are no longer changes in the average plume concentration and the 12-month reduction values, which is a strong line of evidence that the point of diminishing returns has been achieved.

Prior to 2023, the Plant 3 diminishing returns evaluation included upgradient wells but excluded deep overburden wells. Decreases observed in 1,4-dioxane concentrations since system startup in the deep overburden indicate that the deep overburden is influenced by the biosparge system and that mass flux to the weathered bedrock from the deep overburden continues to decrease. Therefore, to account for the reduction in mass flux contribution from the deep overburden to weathered bedrock downgradient of Plant 3, downgradient deep overburden wells MW-13-29 and MW-13-48 are included in the Plant 3 diminishing returns evaluation. While Plant 3 upgradient wells MW-13-22 and MW-12-21 have shown a decreasing concentration trend over the last 10 years, they do not appear to be under the direct influence of the biosparge system. Because the upgradient wells are considered in a separate portion of the diminishing returns evaluation (#1 in the list of lines of evidence), MW-13-22 was removed from the treatment portion of the diminishing returns evaluation to reduce potential bias in the calculation of the reference concentration reduction (#2 and #3 in the list of lines of evidence) and financial cost per unit of treatment (#4 in the list of lines of evidence) evaluations that are specifically evaluating the biosparge system performance.

Upgradient wells at Plant 2 will continue to be included in the reference reduction and treatment unit cost evaluations because they are either directly influenced by the system or could be affected by flushing of water treated from upgradient.

3.2.1 Plant 3

3.2.1.1 Upgradient Well Trends

As previously noted, both the upgradient weathered bedrock well, MW-13-22, and deep overburden upgradient well MW-12-21 show a decreasing trend per Mann-Kendall analyses (**Appendix B**). In monitoring well MW-13-22, the 1,4-dioxane concentration went from 160 µg/L pre-startup to 83 µg/L in the fourth quarter of 2025. The 1,4-dioxane concentrations in monitoring well MW-12-21 went from 255 µg/L pre-startup to 145 µg/L in fourth quarter of 2025. Neither appear to be directly influenced by the biosparge system based as there was no significant change in the fourth quarter data when the biosparge system was turned off. These decreasing trends indicate that the contribution of 1,4-dioxane from the historical source area continues to naturally attenuate over time.

3.2.1.2 Average Plume Concentrations

The assessment of the average plume concentration at Plant 3 was completed to evaluate if ongoing treatment is meaningful. Data are provided in **Table 2** and on **Figure 8a**, and key points are summarized below:

- The baseline average plume concentration before startup of the biosparge system was 232 µg/L.
- In 2025, the average plume concentration was 38 µg/L prior to shutdown of Transect A and 77 µg/L after the shutdown of Transect A.

Note that the apparent increase in average plume concentration in 2024 was likely due to removal of the abandoned ROI well TW-14-06 from the calculation which typically had very low or non-detect concentrations of 1,4-dioxane. AS-19-A05 was sampled in third and fourth quarter of 2025 as part of the ongoing shutdown test as

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an ROI well. Results from AS-19-A05 were non-detect in both sampling events. If this data is included in average plume calculation, the average plume concentration would be 65 µg/L in fourth quarter. Sustained reduction in average plume concentration after the shutdown of Transect A is a line of evidence that the short- and long-term objectives of the biosparge system will continue to be met without active operation of the biosparge system.

3.2.1.3 Reference Reduction Value Comparison

The 12-month reduction in the 1,4-dioxane concentration is calculated by subtracting the current average plume concentration from the average plume concentration 12 months prior. **Table 2** presents the average 1,4-dioxane plume concentrations and 12-month reduction values for Plant 3 Transect A. The maximum 12-month reduction in 1,4-dioxane observed during the first 3 years of operation serves as the Reference Reduction Value (RRV), and 20% of the RRV was identified as the point of diminishing returns. For Plant 3, the RRV is 142 µg/L, with 20% being 28.4 µg/L, representing the point of diminishing returns. As shown in **Table 2 and Figure 8b**, the 12-month reduction was less than 28.4 µg/L for all of 2022 and became negative in 2023 and 2024. A negative 12-month reduction value indicates that the average plume concentration increased year over year. As noted, the apparent increase in average plume concentration in 2024 was likely due to removal of the abandoned ROI well TW-14-06 from the calculation which typically had very low or non-detect concentrations of 1,4-dioxane. While the average 12-month reduction has bounced above and below zero over the past several years, the sustained reduction in plume average concentration after the shutdown of Transect A and reduced upgradient concentrations are lines of evidence that the short- and long- term objectives of the biosparge system will continue to be met without active operation of the biosparge system.

3.2.1.4 Financial Assessment

A financial assessment of the cost per unit of treatment was completed to evaluate the cost benefit of ongoing treatment. The cost of treatment was calculated using the annual O&M cost and the annual average reduction of 1,4-dioxane. **Exhibit 1** summarizes the approximate cost per 1 µg/L of 1,4-dioxane successfully treated (reduction in average plume concentration). Backup calculation details are included in **Appendix C**. The calculation of the cost per unit treated cannot be calculated for 2023 through 2025 because the average plume concentration did not decrease. The increased average plume concentration in 2023 through 2025 is another indicator that the biosparge system has reached the point of diminishing return.

Exhibit 1. Plant 3 Operations Cost per µg/L Treated (Excludes Upgradient Wells and Includes Deep Overburden Wells)

Year	Annual Average Reduction in Plume Concentration (µg/L)	Unit Treatment Cost (\$ per µg/L reduction)
2019*	108	\$216
2020	51	\$791
2021	29	\$1,402
2022	19	\$2,162
2023	-17	--
2024	-4.1	--
2025	-30	--

Note:

*The Plant 3 system began operation in June 2019, Concentrations and costs are based on 7 months of operation (June to December 2019).

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As of the end of 2025, the Plant 3 system has been operating for 6.5 years and based on the well trends, average plume concentration reductions, reference reduction value trends, and financial assessment, Plant 3 has reached the point of diminishing returns. Even with the shutdown of Transect A in August 2025, 1,4-dioxane levels remain significantly below the pre-start up concentrations. The sustained reduction in average plume concentration after the shutdown of Transect A and reduced upgradient concentrations are lines of evidence that the short- and long-term objectives of the biosparge system will continue to be met without active operation of the biosparge system.

3.2.2 Plant 2

3.2.2.1 Upgradient Well Trends

As noted, concentrations at MW-21-142, located approximately 650 feet upgradient of Plant 2 Transect B and 600 feet downgradient of Plant 3 Transect A, continues to be stable. Concentrations at MW-20-126, located approximately 65 feet upgradient of Transect B, continue to decrease from a pre-start up concentration of 370 µg /L to as low as 4 µg /L in fourth quarter 2025 (**Figure 4**).

Wells located upgradient of Transects E, F, and G are all stable and/or decreasing and are below pre-startup concentrations with the exception of MW-16-82 located upgradient of Transect F. Data collected in 2025 from MW-16-82 indicates an increasing trend, but at relatively low concentrations with a maximum concentration of 11 ug/L. These decreasing trends could be the result of direct treatment from the biosparge transect, clean water flushing from upgradient transects, decreased mass flux from the shallower subsurface, or a combination of these factors.

3.2.2.2 Average Plume Concentrations

The assessment of the average plume concentration at Plant 2 was completed to evaluate if ongoing treatment is meaningful. Data are provided in **Tables 4a, 4b, and 4c** and on **Figures 9a, 10a, and 11a**, and a summary of key points follows:

- The average plume concentration in northern Plant 2 (Transect B) prior to startup of the biosparge system in June 2020 was 206 µg/L. In 2025, the average plume concentration ranged from 49 µg/L to 54 µg/L, a 74% to 76% reduction over baseline. In the fourth quarter of 2025, the average plume concentration continues to be approximately the same to decreasing over previous years. The average plume concentrations for Plant 2 Transect B is shown on **Figure 9a**.
- The average plume concentration in southern Plant 2 (Transect G and Transect E wells AS-19-E01 through AS-19-E04) prior to startup of the biosparge system was 484 µg/L. In 2025, the average plume concentration was 17 µg/L prior to the shutdown of Transect G and 44 µg/L after the shutdown of Transect G. Sustained reduction in plume average concentration after the shutdown of Transect G and reduced upgradient concentrations are lines of evidence that the short and long term objectives of the biosparge system will continue to be met without active operation of the biosparge system. The average plume concentrations for Plant 2 Transects G&E are shown on **Figure 10a**.
- In eastern Plant 2 (Transect F and Transect E wells AS-19-E06 through AS-19-E12), the average plume concentration before startup of the biosparge system was 138 µg/L. The average plume concentration ranged from 30 µg/L to 32 µg/L in 2025, a 77% to 78% reduction over baseline. The average plume concentration in the fourth quarter of 2025 decreased overall compared to the average plume concentration in the fourth

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quarter of 2024. The average plume concentrations for Plant 2 Transects E&F have been relatively consistent to decreasing since 2022 as shown on **Figure 11a**.

- As presented in the Transect F Shutdown Memo (Arcadis 2026a), evaluation of Transect F performance data independently shows the average plume concentration before startup of the biosparge system was 128 µg/L. The average plume concentration over four quarters in 2025 ranged from 7 µg/L to 12 µg/L, a 91% to 95% reduction over baseline. The average plume concentration in the fourth quarter of 2025 was approximately the same as the average plume concentration in the fourth quarter of 2024 (10 µg/L in 2024 versus 12 µg/L in 2025).

3.2.2.3 Reference Reduction Value Comparison

As stated in Section 3.2, the 12-month reduction in the 1,4-dioxane concentration is calculated by subtracting the current average plume concentration from the average plume concentration 12 months prior. **Tables 4a, 4b, and 4c** present the average 1,4-dioxane plume concentrations and 12-month reduction values for Plant 2. The maximum 12-month reduction in 1,4-dioxane observed during the first 3 years of operation serves as the Reference Reduction Value (RRV), and 20% of the RRV was suggested as the point of diminishing returns. **Figures 9b, 10b, and 11b** show the 12-month reduction values over time for the different regions of Plant 2. A negative 12-month reduction value indicates that the average plume concentration increased year over year. Stabilization at or near zero indicates that the average plume concentration is no longer changing, which is a strong line of evidence that the point of diminishing returns has been achieved.

The RRV for the Plant 2 northern transect (Transect B) is 125 µg/L, with the point of diminishing returns identified as 25 µg/L. As shown in **Table 4a** and on **Figure 9b**, the 12-month reduction was less than 20% of the RRV in the fourth quarter of 2025. In the second quarter of 2025, the 12-month reduction was above the RRV due to an increase in concentration in early 2024 related to issues with sparged gases short circuiting.

The RRV for southern Plant 2 (Transects G and portions of E) is 398 µg/L, with the point of diminishing returns identified as 79.6 µg/L. As shown in **Table 4b and Figure 10b**, the 12-month reduction has been less than 79.6 µg/L since the second quarter of 2022, and since 2023 has plateaued near zero, indicating the average plume concentration is no longer significantly changing. The relatively consistent average 12-month reduction in plume concentration, even after the shutdown of Transect G, along with the reduced upgradient concentrations are lines of evidence that the short- and long-term objectives of the biosparge system will continue to be met without active operation of the biosparge system.

The RRV for eastern Plant 2 (Transect F and portions of E) is 91 µg/L, with the point of diminishing returns identified as 18.2 µg/L. As shown in **Table 4c and Figure 11b**, the average 12-month reduction has been below 20% of the RRV since the second quarter of 2023, and since then has plateaued near zero, indicating the average plume concentration is no longer significantly changing.

As presented in the Transect F Shutdown Memo (Arcadis 2026), evaluation of Transect F performance data independently shows the average 12-month reduction has been below 20% of the RRV since Q2 2022, and since then has plateaued near zero indicating the average plume concentration is no longer significantly changing for Transect F specifically.

3.2.2.4 Financial Assessment

A financial assessment of the cost per unit of treatment was completed for Plant 2 to evaluate the cost benefit of ongoing treatment. The cost of treatment was calculated using the annual O&M cost and the annual average reduction of 1,4-dioxane. **Exhibit 2** summarizes the approximate cost per 1 µg/L of 1,4-dioxane treated. The cost

Lower 1,4-Dioxane Biosparge 2025 Progress Report

per unit treated for some of the transects cannot when the annual reduction in average plume concentrations is less than zero.

Exhibit 2. Plant 2 Operations Cost per µg/L Treated

Year	P2 North – Transect B		P2 South – Transects G & E		P2 East – Transects E & F	
	Annual Reduction in Average Plume Concentration (µg/L)	Unit Treatment Cost (\$ per µg/L reduction)	Annual Average Reduction in Plume Concentration (µg/L)	Unit Treatment Cost (\$ per µg/L reduction)	Annual Average Reduction in Plume Concentration (µg/L)	Unit Treatment Cost (\$ per µg/L reduction)
2020*	54*	\$210	215*	\$121	40*	\$623
2021	38	\$724	215	\$290	38	\$1,590
2022	59	\$465	34	\$1,864	27	\$2,561
2023	4.8	\$5,751	-7.1	--	-3.7	--
2024	-18	--	4.6	\$13,500	2.7	\$25,879
2025	15	\$1,782	-21	--	2.9	\$24,585

Note:

*The Plant 2 system began operation in August 2020. Concentrations and costs are based on five months of operation (August to December 2020).

At the end of 2025, the Plant 2 system had been operating for more than 5 years. Data collected in the fourth quarter of 2025 indicated that even with the shutdown of Transect G in August 2025, 1,4-dioxane levels remain significantly below the pre-start up concentrations. The sustained reduction in plume average concentration after the shutdown of Transect G and reduced upgradient concentrations are lines of evidence that the short- and long-term objectives of the biosparge system will continue to be met without active operation of the biosparge system. Additionally, performance monitoring data in the vicinity of Transect F indicates that this area has met the point of diminishing returns. As such, the Transect F Shutdown Memo (Arcadis 2026) was submitted to EGLE proposing shutdown of Transect F and the associated monitoring plan.

4 Recommendations

The evaluation of biosparge performance monitoring, operations, and treatment cost data presented in Sections 2 and 3 leads to the following recommendations for optimization of the biosparge system.

4.1 Shutdown Evaluation

As discussed, EGLE approved the shutdown test of Transects A and G on July 21, 2025, and the test started in the third quarter of 2025. Baseline sampling was completed in third quarter prior to the shutdown and the first round of post-shutdown test sampling was conducted in the fourth quarter of 2025. Initial results show sustained reduction in plume average concentration after the shutdown of Transect A and G, as well as reduced upgradient concentrations. These are lines of evidence that the short- and long-term objectives of the biosparge system will continue to be met without active operation of the biosparge system. The shutdown test is scheduled to continue into 2026. Monitoring will be conducted in accordance with the approved plan and will be compared against the re-start thresholds documented in the plan. Assuming no re-start thresholds are exceeded, the shutdown test is planned through July 2026.

Additionally, performance monitoring data in the vicinity of Transect F indicates that this area has met the point of diminishing returns. As such the Transect F Shutdown Memo was submitted for EGLE consideration (Arcadis 2026) proposing the shutdown of Transect F.

Based on the information presented in the previous sections of this report, multiple lines of evidence confirm that the point of diminishing returns have been met and further operation of the biosparge system will not provide additional value. There are a few isolated locations where the biosparge system has not meaningfully reduced groundwater concentrations (e.g. Transect A, downgradient Monitoring Well MW-13-34; Transect B, downgradient Monitoring Well MW-20-127). The biosparge system has been operating sufficiently long enough that if the treatment were going to occur at these locations it should have been observed. Because of the highly complicated hydrogeologic conditions it is not unexpected to have isolated areas of no/minimal treatment. Even with these isolated areas, the short-term objective of reducing 1,4-dioxane mass in the weathered bedrock and long-term objectives of preventing lateral and vertical migration of 1,4-dioxane have been met. Therefore, shutdown requests in addition to the recently submitted request for Transect F will be considered after the in-progress shutdown test of Transect A and G is completed.

4.2 Optimization Recommendations

To continue meeting the goals of the biosparge system while minimizing O&M costs and wear and tear on equipment, Arcadis proposes sparge well redevelopment as needed, annual nutrient injection frequency, and consideration for additional reduction in sparge frequency and/or duration based on shutdown test results.

4.2.1 Sparge Well Redevelopment

Biosparge well redevelopment was performed on 10 sparge wells (AS-19-B06, AS-19-E09, AS-19-E11, AS-19-E12, AS-17-G02, AS-17-G03, AS-17-G01, AS-19-F02, AS-19-F08, and AS-19-G04) in 2024. Based on performance data, there was no well redevelopment performed in 2025. With the potential restart of Transect A and G in third quarter 2026, Arcadis intends to perform well redevelopment, as needed, on currently idled biosparge wells as well as on any other active biosparge wells that are operating below the design flow rate (<2 CFM) and/or have elevated injection pressures (>30 psi).

4.2.2 Reduction in Sparge Cycles

In 2023, air sparge duration was reduced by 25% at both plants to mitigate over pressurization of the subsurface formation and to assist in preventing sparged gases from short-circuiting. No changes to the propane sparge time were made, but air sparge time was reduced and rest-cycle time was increased.

Given that no decrease in treatment efficiency was seen with the reduction in air sparge frequency, further reduction of sparge frequency will be considered. If reduced air or propane sparge frequency/duration is proposed, the plan will be communicated with EGLE and the change will be made 4 to 8 weeks prior to a performance sampling event so that the impact on treatment, if any, can be assessed.

4.3 Ongoing Evaluation

As performance monitoring data are collected and evaluated, minor operational adjustments such as flow balancing, adjustment of maintenance schedules, etc. will be made as appropriate. Any significant actions will be communicated and discussed with EGLE prior to implementation and will be documented in annual progress reports.

5 5-Year Review

This section of the annual report serves as the 5-year review of the biosparge system as proposed in the Interim Measures Work Plan (Arcadis 2018). This 5-year review is completed to present system data, ensure that the remedial objectives continue to be met and assess if modifications to the system are recommended. RACER annually documents comprehensive system performance data and analysis in an Annual Biosparge Report, to show continued efficacy of the biosparge remedy. The data and analysis are presented in previous sections of this report. Over the operational life of the biosparge system, RACER has continued communication with EGLE through quarterly meetings, an annual biosparge report, and occasional emails. Quarterly updates and annual reports are made publicly available through RACER's website.

The Biosparge system continues to function as intended and is meeting the short- and long-term objectives. The long-term objectives of the biosparge system are to:

- Provide for continued protection of the municipal drinking water supply wells by preventing site-related 1,4-dioxane-impacted groundwater from migrating offsite laterally in the weathered bedrock zone at concentrations greater than 7.2 micrograms per liter ($\mu\text{g/L}$); and
- Reduce the potential for substantial migration of 1,4-dioxane downward toward less-weathered bedrock.

The short-term objective of the biosparge system is to reduce site-related 1,4-dioxane concentrations along the core of the lower 1,4-dioxane weathered bedrock plume.

As presented in the Interim Measures Work Plan (Arcadis 2018), the biosparge system will be operated until:

- Concentrations of site-related 1,4-dioxane in weathered bedrock and bedrock monitoring wells along the core of the plume and in monitoring wells along the western Plant 2 property boundary exhibit stable or decreasing trends based on statistical evaluation (e.g., Mann-Kendall or other method acceptable to the Michigan Department of Environment, Great Lakes, and Energy [EGLE]);
- Further reduction in groundwater concentrations of 1,4-dioxane reaches the point of diminishing returns. Evaluation of the point of diminishing returns is detailed in Section 3.2 of this progress report. The diminishing returns evaluation process has been updated based on feedback from and in collaboration with EGLE over the course of operation of the biosparge system; or
- The short- and long-term objectives have been met.

All exposure assumptions, toxicity data, cleanup levels, and remedial action objectives (RAOs) are still valid and there are no new pathways of exposure related to the lower 1,4-dioxane plume since the design and implementation of the biosparge system.

Shutdown testing for Transects A and G is ongoing to assess if the short- and long-term objectives of the system can continue to be met without active operation. Shutdown of Transect F has been proposed based on the performance monitoring data indicating short- and long-term objectives and the point of diminishing returns has been met in this area.

Based on the review of system performance data and site conditions, the biosparge system continues to meet remedial objectives. The system is operating as intended and effectively meeting the short- and long-term objectives. Over the last 5 years no significant deficiencies have been identified and continued monitoring will allow for assessment of the efficacy of the system. Recommendations regarding future biosparge system operation are provided in Section 4 of this report.

6 References

- Arcadis 2018. Interim Measures Work Plan: Lower 1,4-Dioxane Biosparge. RACER Trust Lansing Industrial Land, Lansing, Michigan. October 19.
- Arcadis 2020. 2019 Annual Groundwater Report. RACER Trust Lansing Industrial Land, Lansing, Michigan. May 4.
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- Arcadis 2023a. 2022 Lower 1,4-Dioxane Biosparge Progress Report and Shutdown Evaluation. March 15.
- Arcadis 2023b. 2022 Annual Groundwater Monitoring Report. RACER Trust Lansing Industrial Land, Lansing, Michigan. March 15.
- Arcadis 2023c. Revised Interim Groundwater Monitoring Plan. May 23.
- Arcadis 2024a. 2023 Lower 1,4-Dioxane Biosparge Progress Report. April 12.
- Arcadis 2024b. 2023 Annual Groundwater Monitoring Report. RACER Trust Lansing Industrial Land, Lansing, Michigan. June 19.
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- Arcadis 2025c. Revised Interim Monitoring Work Plan. April 18.
- Arcadis 2025d. 2024 Annual Groundwater Monitoring Report. RACER Trust Lansing Industrial Land, Lansing, Michigan. June 12.
- Arcadis 2026a. Biosparge Transect F Shutdown Memo. RACER Trust Lansing Industrial Land, Lansing, Michigan.
- Arcadis 2026b. 2025 Annual Groundwater Monitoring Report. RACER Trust Lansing Industrial Land, Lansing, Michigan.

Tables

Table 1
Biosparge Performance Results
Lower 1,4-Dioxane Biosparge Update Report
Lansing Industrial Land, Lansing, Michigan



Location ID	Plant	Date Collected	Field Parameters	Results			
			Dissolved Oxygen	Nitrate-N	Total Kjeldahl Nitrogen	Total Phosphorus	1,4-Dioxane
		Units	mg/L	mg/L	mg/L	mg/L	µg/L
MW-13-43	2	06/06/19	0.23	--	--	--	266
		12/04/19	0.36	--	--	--	320
		06/09/20	0.28	--	--	--	230
		12/04/20	4.26	--	--	--	15
		06/03/21	7.36	--	--	--	<1
		12/06/21	9.20	--	--	--	31
		06/07/22	14.84	--	--	--	3
		11/01/22	10.24	--	--	--	2
		05/16/23	10.51	--	--	--	2
		10/28/23	10.20	--	--	--	<1
		05/14/24	6.11	--	--	--	3
		11/12/24	8.05	--	--	--	4
		05/07/25	2.69	--	--	--	5
		10/28/25	4.94	--	--	--	1
MW-13-45	2	06/05/19	0.14	--	--	--	40
		12/03/19	-	--	--	--	41
		06/09/20	0.18	--	--	--	38
		12/04/20	0.09	--	--	--	58
		06/03/21	0.32	--	--	--	42
		12/06/21	0.29	--	--	--	37
		06/07/22	0.39	--	--	--	32
		11/01/22	0.85	--	--	--	26
		05/16/23	5.61	--	--	--	28
		10/28/23	0.19	--	--	--	25
		05/14/24	1.04	--	--	--	28
		11/12/24	0.91	--	--	--	27
		05/07/25	0.40	--	--	--	17
		10/28/25	1.61	--	--	--	23
MW-14-61	2	06/13/19	0.75	--	--	--	151
		12/06/19	0.25	--	--	--	140
		03/03/20	1.60	<0.50	0.60	0.07	148
		06/02/20	0.36	<0.50	0.80	0.05	152
		08/31/20	2.55	<0.50	0.50	0.03	98
		12/02/20	1.27	<0.50	0.30	0.15	18
		03/02/21	1.85	<0.50	1.00	0.76	21
		06/02/21	1.40	<0.50	0.20	0.23	9
		09/02/21	1.31 [1.31]	<0.50 [<0.50]	0.10 [0.10]	0.09 [0.08]	9 [8]
		11/30/21	1.10 [1.10]	--	0.20 [0.20]	0.14 [0.12]	5 [7]
		06/01/22	2.10	<0.50	0.30	0.11	16
		11/02/22	0.48	<0.50	0.30	0.13	21
		05/17/23	2.11	<0.50	0.17	0.07	13
		10/26/23	8.66	0.02	0.10	0.11	13
		05/15/24	0.53 [0.53]	--	--	--	8 [8]
		11/12/24	4.33	--	--	--	7
		05/07/25	0.34 [0.34]	--	--	--	6 [8]
		10/29/25	2.03	--	--	--	3
MW-15-72	2	05/16/16	0.11	--	--	--	190
		09/09/16	--	--	--	--	--
		11/11/16	4.31	--	--	--	--
		12/07/16	3.30	--	--	--	--
		12/29/16	4.85	--	--	--	--
		01/31/17	1.95	--	--	--	--
		04/26/17	0.23	--	--	--	320
		12/07/17	1.67	--	--	--	290
		01/10/18	0.27	--	--	--	--
		02/14/18	0.21	--	--	--	230
		03/08/18	0.40	--	--	--	324
		04/09/18	0.19	--	--	--	220
		05/08/18	0.25	--	--	--	260

Table 1
Biosparge Performance Results
Lower 1,4-Dioxane Biosparge Update Report
Lansing Industrial Land, Lansing, Michigan



Location ID	Plant	Date Collected	Field Parameters	Results			
			Dissolved Oxygen	Nitrate-N	Total Kjeldahl Nitrogen	Total Phosphorus	1,4-Dioxane
		Units	mg/L	mg/L	mg/L	mg/L	µg/L
MW-15-72 (Cont.)	2	09/05/18	0.06	--	--	--	240
		12/05/18	0.30	--	--	--	290
		02/27/19	0.68	--	--	--	28
		06/13/19	0.54	--	--	--	128
		09/26/19	--	--	--	--	17
		10/04/19	--	--	--	--	16
		12/05/19	0.24	--	--	--	310
		03/02/20	0.63	--	--	--	150
		06/02/20	0.18	--	--	--	270
		09/01/20	0.29	--	--	--	90
		12/03/20	0.09	--	--	--	270
		03/02/21	0.19	--	--	--	240
		06/02/21	4.94	--	--	--	15
		08/31/21	0.12	--	--	--	112
		12/01/21	0.34	--	--	--	133
		06/01/22	0.11	--	--	--	144
		11/03/22	0.46	--	--	--	11
		05/17/23	3.31	--	--	--	199
		10/27/23	0.28	--	--	--	67
		05/15/24	6.38	--	--	--	165
		11/13/24	0.52	--	--	--	108
		05/07/25	0.40	--	--	--	14
		10/29/25	2.09	--	--	--	74
MW-16-74	2	03/02/20	0.44	--	--	--	2
		06/05/20	0.49	--	--	--	2
		09/01/20	0.15	--	--	--	3
		12/01/20	0.62	--	--	--	<1
		03/03/21	0.43	--	--	--	<2
		06/02/21	0.37	--	--	--	<3
		08/31/21	0.12	--	--	--	2
		12/02/21	0.26	--	--	--	3
		06/01/22	0.17	--	--	--	2
		11/01/22	0.71	--	--	--	2
		05/17/23	0.27	--	--	--	2
		10/27/23	0.61	--	--	--	3
		05/14/24	0.04	--	--	--	3
		11/13/24	1.97	--	--	--	3
		05/07/25	0.46	--	--	--	2
MW-16-75	2	10/28/25	0.41	--	--	--	3
		06/05/19	0.11	--	--	--	<1
		12/05/19	0.57	--	--	--	2
		06/08/20	0.32	--	--	--	2
		12/04/20	0.06	--	--	--	<1
		06/03/21	0.34	--	--	--	<1
		12/06/21	0.70	--	--	--	3
		06/08/22	0.11	--	--	--	2
		11/01/22	0.47	--	--	--	2
		05/16/23	0.26	--	--	--	1
		10/28/23	0.35	--	--	--	2
		05/14/24	0.42	--	--	--	1
MW-16-77	2	05/08/25	0.55	--	--	--	1
		10/28/25	0.42	--	--	--	1
		06/06/19	0.33	--	--	--	<1
		12/05/19	6.54	--	--	--	<1
		06/08/20	0.74	--	--	--	<1
		12/04/20	0.26	--	--	--	<1
		06/04/21	0.46	--	--	--	<1
		12/06/21	0.78	--	--	--	<1
		06/08/22	0.61	--	--	--	1

Table 1
 Biosparge Performance Results
 Lower 1,4-Dioxane Biosparge Update Report
 Lansing Industrial Land, Lansing, Michigan



Location ID	Plant	Date Collected	Field Parameters	Results			
			Dissolved Oxygen	Nitrate-N	Total Kjeldahl Nitrogen	Total Phosphorus	1,4-Dioxane
		Units	mg/L	mg/L	mg/L	mg/L	µg/L
MW-16-77 (Cont.)	2	11/02/22	0.50	--	--	--	<1
		05/17/23	1.47	--	--	--	2
		10/28/23	1.09	--	--	--	1
		05/14/24	1.29	--	--	--	<1
		05/08/25	2.80	--	--	--	<1
		10/31/25	10.95	--	--	--	1
MW-16-78	2	06/05/19	0.16	--	--	--	<1
		12/04/19	0.20	--	--	--	<1
		06/09/20	0.26	--	--	--	<1
		12/07/20	0.14 [0.14]	--	--	--	<1 [<1]
		03/03/21	0.23	--	--	--	<1
		06/02/21	0.67	--	--	--	<1
		08/31/21	0.36	--	--	--	<1
		12/02/21	0.30	--	--	--	<1
		06/02/22	0.12	--	--	--	<1
		11/02/22	0.51	--	--	--	<1
		02/16/23	1.22 [1.22]	--	--	--	1 [1]
		05/17/23	0.15	--	--	--	1
		08/29/23	0.42	--	--	--	<1
		10/28/23	0.68	--	--	--	1
		02/12/24	0.00	--	--	--	<1
		05/14/24	0.00	--	--	--	<1
		11/13/24	0.22	--	--	--	<1
		05/08/25	0.19	--	--	--	<1
		10/31/25	0.59	--	--	--	<1
MW-16-79	2	06/04/19	0.86	--	--	--	<1
		12/04/19	1.10	--	--	--	2
		06/09/20	0.79	--	--	--	<1
		12/07/20	0.34	--	--	--	<1
		03/03/21	0.20	--	--	--	<1
		06/03/21	0.75	--	--	--	<1
		08/31/21	0.64	--	--	--	<1
		12/02/21	0.42	--	--	--	<1
		06/02/22	0.71	--	--	--	<1
MW-16-81	2	11/02/22	--	--	--	--	<1
		06/13/19	0.27	--	--	--	3200
		12/06/19	0.16	--	--	--	2500
		03/02/20	0.40 [0.40]	--	--	--	2600 [2700]
		06/05/20	0.26 [0.26]	--	--	--	3100 [2700]
		09/02/20	0.16 [0.16]	--	--	--	500 [590]
		12/03/20	0.23 [0.23]	--	--	--	1930 [1070]
		03/03/21	0.20 [0.20]	--	--	--	560 [570]
		06/03/21	0.52 [0.52]	--	--	--	490 [500]
		08/31/21	0.29	--	--	--	230
		12/01/21	0.80	--	--	--	310
		06/02/22	6.55	--	--	--	143
		11/03/22	1.00	--	--	--	70
		05/17/23	0.79	--	--	--	168
		10/27/23	1.83	--	--	--	99
		05/15/24	8.33	--	--	--	38
		11/13/24	1.17	--	--	--	58
		05/08/25	0.85	--	--	--	37
		10/29/25	1.27	--	--	--	32
MW-16-82	2	06/07/19	0.27	--	--	--	<1
		12/04/19	0.32	--	--	--	<1
		06/10/20	0.36	--	--	--	<1
		12/04/20	0.27	--	--	--	<1
		03/03/21	0.29	--	--	--	<1
		06/04/21	0.34	--	--	--	<1

Table 1
Biosparge Performance Results
Lower 1,4-Dioxane Biosparge Update Report
Lansing Industrial Land, Lansing, Michigan



Location ID	Plant	Date Collected	Field Parameters	Results			
			Dissolved Oxygen	Nitrate-N	Total Kjeldahl Nitrogen	Total Phosphorus	1,4-Dioxane
		Units	mg/L	mg/L	mg/L	mg/L	µg/L
MW-16-82 (Cont.)	2	09/01/21	0.30	--	--	--	<2
		12/02/21	0.31	--	--	--	<1
		06/02/22	0.09	--	--	--	1
		11/03/22	0.30	--	--	--	1
		05/17/23	0.21	--	--	--	1
		10/27/23	3.65	--	--	--	3
		05/14/24	0.54	--	--	--	6
		11/13/24	0.49	--	--	--	9
		05/08/25	0.26	--	--	--	11
		10/31/25	1.57	--	--	--	11
MW-16-84	2	06/04/19	7.89	--	--	--	47
		12/03/19	--	--	--	--	67
		03/04/20	0.21	--	--	--	66
		06/04/20	0.63 [0.63]	--	--	--	58 [58]
		09/01/20	0.39	--	--	--	57
		12/01/20	0.10	--	--	--	81
		03/02/21	1.69	<0.50	0.50	0.06	66
		06/03/21	0.51	<0.50	0.40	0.09	15
		09/01/21	0.21	--	--	--	43
		12/02/21	0.27	--	--	--	60
		06/02/22	0.14 [0.14]	--	--	--	44 [44]
		11/03/22	0.59 [0.59]	--	--	--	29 [30]
		05/17/23	0.23	--	--	--	44
		10/28/23	4.44	--	--	--	39
		05/14/24	2.88	--	--	--	32
		11/13/24	5.23	--	--	--	20
		05/08/25	3.95	--	--	--	14
		10/31/25	0.89	--	--	--	27
MW-16-85	2	06/04/19	4.49	--	--	--	16
		12/03/19	--	--	--	--	17
		06/08/20	0.48	--	--	--	8
		12/04/20	0.40	--	--	--	8
		06/04/21	0.27	--	--	--	4
		12/03/21	1.99	--	--	--	10
		06/06/22	0.03	--	--	--	8
		11/04/22	1.47	--	--	--	6
		05/18/23	0.58	--	--	--	6
		10/28/23	4.99	--	--	--	28
		05/16/24	0.73	--	--	--	18
		11/12/24	0.43	--	--	--	8
		05/08/25	2.48	--	--	--	4
		10/30/25	2.95	--	--	--	20
MW-17-86	2	06/04/19	0.23	--	--	--	75
		12/03/19	0.18	--	--	--	90
		03/04/20	0.15	--	--	--	99
		06/03/20	2.12	--	--	--	94
		09/01/20	0.53	--	--	--	88
		12/01/20	0.11	--	--	--	106
		03/03/21	0.20	--	--	--	79
		06/03/21	0.28 [0.28]	--	--	--	69 [70]
		09/01/21	0.28	--	--	--	48
		12/03/21	0.32	--	--	--	43
		06/02/22	0.42	--	--	--	27
		11/03/22	0.34	--	--	--	19
		05/17/23	0.86	--	--	--	20
		10/27/23	0.00	--	--	--	16
		05/14/24	0.67	--	--	--	16
		11/14/24	0.89	--	--	--	16
		05/08/25	8.31	--	--	--	10

Table 1
 Biosparge Performance Results
 Lower 1,4-Dioxane Biosparge Update Report
 Lansing Industrial Land, Lansing, Michigan



Location ID	Plant	Date Collected	Field Parameters	Results			
			Dissolved Oxygen	Nitrate-N	Total Kjeldahl Nitrogen	Total Phosphorus	1,4-Dioxane
		Units	mg/L	mg/L	mg/L	mg/L	µg/L
MW-17-86 (Cont.)	2	10/31/25	0.66	--	--	--	10
MW-19-115	2	12/20/19	0.68	--	--	--	11
		03/04/20	0.22	--	--	--	9
		06/03/20	0.24	--	--	--	13
		09/01/20	1.99	--	--	--	8
		12/01/20	0.17	--	--	--	12
		03/03/21	0.60	--	--	--	2
		06/04/21	1.08	--	--	--	2
		09/01/21	0.23	--	--	--	7
		12/03/21	0.24	--	--	--	8
		06/03/22	1.63	--	--	--	7
		11/02/22	0.39	--	--	--	7
		05/17/23	5.57	--	--	--	8
		10/27/23	5.08	--	--	--	6
		05/15/24	0.5	--	--	--	8
		11/14/24	1.41	--	--	--	7
		05/08/25	4.11	--	--	--	6
		10/31/25	0.23	--	--	--	6
MW-19-116	2	12/20/19	0.19	--	--	--	51
		03/04/20	0.17	--	--	--	60
		06/03/20	0.18	--	--	--	61
		09/02/20	0.24 [0.24]	--	--	--	54 [55]
		12/02/20	0.30 [0.30]	--	--	--	82 [83]
		03/03/21	0.22 [0.22]	--	--	--	72 [71]
		06/04/21	0.30	--	--	--	69
		09/01/21	0.20 [0.20]	--	--	--	54 [58]
		12/03/21	0.34 [0.34]	--	--	--	68 [73]
		06/03/22	7.01	--	--	--	69
		11/02/22	0.20	--	--	--	65
		05/17/23	1.91	--	--	--	81
		10/27/23	5.64	--	--	--	61
		05/15/24	0.11	--	--	--	148
		11/14/24	1.46	--	--	--	111
		05/08/25	3.33 [3.33]	--	--	--	76 [72]
		10/31/25	0.13	--	--	--	93
MW-19-117	2	06/03/20	0.30	--	--	--	2
		09/02/20	0.23	--	--	--	2
		12/02/20	0.23	--	--	--	<1
		03/03/21	1.22	--	--	--	<1
		06/04/21	0.16	--	--	--	<1
		09/02/21	0.13	--	--	--	<2
		12/03/21	0.29	--	--	--	1
		06/02/22	0.48	--	--	--	1
		11/03/22	0.16	--	--	--	<1
		05/18/23	0.36	--	--	--	<1
		10/27/23	0.94	--	--	--	<1
		05/15/24	0.11	--	--	--	<1
		11/15/24	0.37	--	--	--	<1
		05/08/25	0.66	--	--	--	<1
		11/06/25	0.39	--	--	--	<1
MW-19-120	2	12/04/19	0.63	--	--	--	165
		03/04/20	0.23	--	--	--	198
		06/04/20	0.35	--	--	--	184
		09/02/20	0.11	--	--	--	137
		12/02/20	2.68	--	--	--	28
		03/02/21	0.16	<0.50	0.50	0.02	73
		06/04/21	0.29	<0.50	0.40	0.02	49
		09/02/21	4.14	--	--	--	7
		12/03/21	2.75	--	--	--	15

Table 1
Biosparge Performance Results
Lower 1,4-Dioxane Biosparge Update Report
Lansing Industrial Land, Lansing, Michigan



Location ID	Plant	Date Collected	Field Parameters	Results			
			Dissolved Oxygen	Nitrate-N	Total Kjeldahl Nitrogen	Total Phosphorus	1,4-Dioxane
		Units	mg/L	mg/L	mg/L	mg/L	µg/L
MW-19-120 (Cont.)	2	06/02/22	1.08	--	--	--	12
		11/03/22	1.14	--	--	--	13
		05/18/23	0.50	--	--	--	15
		10/28/23	2.96	--	--	--	11
		05/14/24	4.23	--	--	--	7
		11/15/24	4.07	--	--	--	8
		05/08/25	0.33	--	--	--	7
		10/28/25	2.90	--	--	--	4
MW-19-121	2	12/04/19	0.75	--	--	--	99
		03/03/20	0.14	<0.50	0.70	0.10	119
		06/04/20	1.16	<0.50	0.80	0.14	115
		08/31/20	6.06	<0.50	0.90	0.06	17
		12/02/20	2.53	8.20	0.50	1.74	4
		03/02/21	2.13	2.20	0.40	0.87	<1
		06/04/21	4.36	8.80	0.30	1.66	<1
		09/02/21	1.20	7.60	0.20	0.89	<2
		11/30/21	0.33	--	0.10	11.30	<1
		03/01/22	1.89	--	--	--	<1
		06/01/22	5.79	18.60	0.40	4.10	<1
		11/02/22	4.55	15.00	0.80	15.30	<1
		02/16/23	10.50	--	--	--	<1
		05/17/23	4.29 [4.29]	5.60 [5.40]	0.32 [0.45]	5.10 [4.80]	<1 [<1]
		08/29/23	7.76	--	--	--	<1
		10/26/23	10.44 [10.44]	0.02 [0.02]	1.30 [1.30]	10.30 [10.30]	<1 [<1]
		02/12/24	8.08	--	--	--	<1
		05/14/24	2.03	--	--	--	<1
		11/14/24	4.18	<0.5	0.3	1.06	<1
		05/06/25	0.35	6.49	2.2	4.4	5
		10/31/25	2.26	--	--	--	<1
MW-19-122	2	12/03/19	0.97	--	--	--	43
		03/04/20	0.31 [0.31]	--	--	--	41 [41]
		06/05/20	0.21	--	--	--	42
		09/02/20	1.87	--	--	--	33
		12/03/20	0.11	--	--	--	34
		03/02/21	0.38	--	--	--	25
		06/03/21	1.20	--	--	--	37
		09/03/21	1.63	--	--	--	9
		12/03/21	6.25	--	--	--	4
		06/02/22	6.05	--	--	--	3
		11/01/22	5.12	--	--	--	6
		02/16/23	9.46	--	--	--	3
		05/18/23	6.57	--	--	--	2
		08/07/23	--	--	--	--	5
		08/29/23	1.02	--	--	--	8
		10/30/23	3.05	--	--	--	4
		02/12/24	2.88	--	--	--	6
		05/14/24	3.40	--	--	--	3
		11/15/24	3.23	--	--	--	2
		05/08/25	0.11	--	--	--	<1
		08/26/25	6.27	--	--	--	4
		10/31/25	2.80	--	--	--	4
MW-19-123	2	12/03/19	3.14	--	--	--	52
		03/04/20	0.21	--	--	--	76
		06/04/20	0.22	--	--	--	75
		09/01/20	1.46	--	--	--	51
		12/03/20	5.35	--	--	--	39
		03/02/21	5.49	<0.50	0.30	0.03	58
		06/07/21	6.03	<0.50	0.30	0.03	50
		09/02/21	5.35	<0.50	0.20	0.01	43

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Location ID	Plant	Date Collected	Field Parameters	Results			
			Dissolved Oxygen	Nitrate-N	Total Kjeldahl Nitrogen	Total Phosphorus	1,4-Dioxane
		Units	mg/L	mg/L	mg/L	mg/L	µg/L
MW-19-123 (Cont.)	2	11/30/21	6.43	--	0.10	0.02	20
		06/01/22	4.25	<0.50	0.30	0.01	25
		11/02/22	5.10	<0.50	0.30	0.01	21
		02/16/23	6.54	--	--	--	26
		05/17/23	10.19	<0.50	0.23	0.07	44
		08/07/23	--	--	--	--	53
		08/29/23	0.53	--	--	--	72
		10/26/23	4.10	0.02	0.10	0.02	39
		02/12/24	6.44	--	--	--	48
		05/14/24	6.03	--	--	--	24
		11/14/24	6.36	--	--	--	19
		05/06/25	4.14	<0.50	<0.1	<0.009	30
		08/26/25	5.51	--	--	--	32
		11/03/25	1.92	--	--	--	42
MW-19-124	2	12/04/19	0.67	--	--	--	220
		06/05/20	0.18	--	--	--	197
		09/02/20	0.12	--	--	--	230
		12/03/20	0.11	--	--	--	420
		03/02/21	0.17	--	--	--	182
		06/03/21	0.12	--	--	--	173
		09/03/21	0.72	--	--	--	222
		12/02/21	0.33	--	--	--	280
		06/02/22	0.48	--	--	--	90
		11/01/22	0.26	--	--	--	137
		05/18/23	0.24	--	--	--	172
		10/30/23	0.62	--	--	--	143
		05/14/24	0.37	--	--	--	186
		11/15/24	0.37	--	--	--	171
		05/07/25	0.40	--	--	--	184
		11/03/25	0.88	--	--	--	142
MW-20-126	2	07/23/20	0.26	--	--	--	370
		09/02/20	4.26	--	--	--	360
		12/03/20	0.94	--	--	--	320
		03/03/21	1.04	--	--	--	220
		06/03/21	6.70	--	--	--	156
		09/03/21	1.11	--	--	--	143
		12/02/21	5.39	--	--	--	170
		03/01/22	10.04	--	--	--	130
		06/03/22	4.65	--	--	--	120
		11/01/22	2.87	--	--	--	85
		02/16/23	10.89	--	--	--	82
		05/18/23	4.06	--	--	--	81
		08/30/23	9.61 [9.61]	--	--	--	91 [88]
		10/30/23	2.36	--	--	--	63
		02/12/24	2.40	--	--	--	58
		04/10/24	7.78	--	--	--	7
		11/13/24	1.71	--	--	--	27
		05/08/25	2.53	--	--	--	8
		11/03/25	1.48	--	--	--	4
MW-20-127	2	07/23/20	0.71	--	--	--	85
		08/31/20	7.15	<0.50	0.80	0.04	115
		12/02/20	0.06	<0.50	0.70	0.16	157
		03/02/21	4.00	<0.50	0.70	0.08	138
		06/03/21	0.23	<0.50	0.80	0.06	140
		09/02/21	2.01	<0.50	0.50	0.09	126
		11/30/21	0.56	--	0.50	0.09	158
		03/01/22	0.78	--	--	--	130
		06/01/22	0.60 [0.60]	<0.50 [<0.50]	0.70 [0.80]	0.06 [0.07]	142 [143]
		11/02/22	0.43 [0.43]	<0.50 [<0.50]	0.80 [0.70]	0.04 [0.04]	126 [122]
		02/16/23	0.40	--	--	--	146

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Location ID	Plant	Date Collected	Field Parameters	Results			
			Dissolved Oxygen	Nitrate-N	Total Kjeldahl Nitrogen	Total Phosphorus	1,4-Dioxane
		Units	mg/L	mg/L	mg/L	mg/L	µg/L
MW-20-127 (Cont.)	2	05/17/23	0.72	<0.50	0.75	0.06	155
		08/30/23	0.32	--	--	--	180
		10/26/23	0.00	0.54	0.70	0.05	132
		02/12/24	0.00	--	--	--	156
		05/15/24	0.35	--	--	--	171
		11/14/24	0.26 [0.26]	<0.5 [<0.5]	0.7 [0.7]	0.05 [0.05]	174 [172]
		05/06/25	0.55	<0.50	0.7	0.04	113
		11/03/25	1.22	--	--	--	123
MW-20-128	2	07/23/20	0.15	<0.50	0.60	0.09	270
		09/01/20	9.82	--	--	--	112
		12/03/20	7.13	--	--	--	20
		03/02/21	9.69	<0.50	1.40	0.43	9
		06/02/21	7.95	0.70	6.10	1.00	4
		09/02/21	3.92	<0.50	0.20	0.04	11
		11/30/21	9.39	--	2.10	0.70	5
		06/01/22	7.13	<0.50	2.20	0.39	6
		11/02/22	7.59	<0.50	1.60	0.60	<1
		05/17/23	7.58	<0.50	0.81	0.33	4
		10/26/23	11.62	0.03	6.70	3.30	1
		05/15/24	0.72 [0.72]	--	--	--	2 [2]
		11/15/24	1.31	--	--	--	3
		05/07/25	0.96	--	--	--	1
		11/04/25	--	--	--	--	7
MW-20-129	2	07/23/20	0.41	--	--	--	126
		09/01/20	0.35	--	--	--	126
		12/03/20	0.09	--	--	--	140
		03/02/21	0.48	--	--	--	108
		06/02/21	0.20	--	--	--	108
		09/02/21	0.18	--	--	--	82
		12/02/21	0.43	--	--	--	83
		06/03/22	0.17	--	--	--	80
		11/01/22	0.31	--	--	--	60
		02/16/23	0.79	--	--	--	71
		05/18/23	0.21	--	--	--	103
		08/07/23	--	--	--	--	75
		08/29/23	0.71	--	--	--	74
		10/30/23	0.38	--	--	--	71
		02/12/24	1.09	--	--	--	64
		05/15/24	2.91	--	--	--	67
		11/14/24	0.28	--	--	--	77
		05/07/25	0.32	--	--	--	61
		08/26/25	0.71	--	--	--	70
		11/03/25	1.31	--	--	--	75
MW-21-142	2	12/03/21	0.30	--	--	--	91
		06/07/22	0.04	--	--	--	81
		11/02/22	0.51	--	--	--	64
		05/18/23	0.48	--	--	--	82
		10/30/23	0.21	--	--	--	70
		05/15/24	0.00	--	--	--	112
		11/13/24	0.00	--	--	--	95
		05/07/25	3.41	--	--	--	55
PW-14-02	2	11/03/25	0.96	--	--	--	78
		06/06/19	0.12	--	--	--	260
		12/04/19	0.24	--	--	--	260
		06/03/20	0.39 [0.39]	--	--	--	160 [160]
		09/02/20	7.57	--	--	--	43
		12/03/20	1.15	--	--	--	97
		03/03/21	9.04	--	--	--	37
		06/02/21	8.56	--	--	--	23

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Location ID	Plant	Date Collected	Field Parameters	Results			
			Dissolved Oxygen	Nitrate-N	Total Kjeldahl Nitrogen	Total Phosphorus	1,4-Dioxane
		Units	mg/L	mg/L	mg/L	mg/L	µg/L
PW-14-02 (Cont.)	2	09/03/21	1.39	--	--	--	50
		12/02/21	0.70	--	--	--	95
		03/01/22	10.81 [10.81]	--	--	--	11 [12]
		06/01/22	5.46	<0.50	0.40	0.03	26
		11/03/22	8.20	--	--	--	9
		02/16/23	9.42	--	--	--	18
		05/18/23	7.50	--	--	--	14
		08/30/23	9.11	--	--	--	5
		10/26/23	8.97	--	--	--	7
		02/13/24	0.87 [0.87]	--	--	--	55 [51]
		05/15/24	1.41	--	--	--	84
		08/19/24	8.83 [8.83]	--	--	--	8 [8]
		11/13/24	11.29	--	--	--	6
		05/07/25	0.71	--	--	--	26
		10/28/25	1.21	--	--	--	34
TW-14-02	2	03/04/20	0.34	--	--	--	470
		06/04/20	0.37	--	--	--	410
		09/01/20	10.72	--	--	--	3
		12/02/20	9.81	--	--	--	<1
		03/03/21	12.61	--	--	--	<1
		06/02/21	8.39	--	--	--	<1
		09/03/21	5.08	--	--	--	29
		12/02/21	9.61	--	--	--	8
		03/02/22	9.44	--	--	--	<1
		06/01/22	8.07	<0.50	0.50	0.11	<1
		11/03/22	13.03	--	--	--	<1
		02/16/23	12.10	--	--	--	3
		05/18/23	8.16 [8.16]	--	--	--	9 [8]
		08/07/23	--	--	--	--	152
		08/29/23	0.32	--	--	--	220
		10/26/23	10.48	--	--	--	1
		02/12/24	10.44	--	--	--	4
		05/15/24	0.92	--	--	--	161
		08/20/24	8.24	--	--	--	16
		11/13/24	7.63	--	--	--	21
		05/06/25	0.62 [0.62]	--	--	--	2 [<1]
TW-15-12	2	08/26/25	6.26	--	--	--	2
		10/28/25	0.19	--	--	--	194
		03/03/20	0.33	<0.50	0.40	0.03	220
		06/02/20	1.33	<0.50	0.90	0.31	210
		08/31/20	7.42	<0.50	1.00	0.45	100
		12/02/20	9.19	<0.50	2.00	0.76	34
		03/02/21	10.91	<0.50	0.40	0.15	5
		06/02/21	8.58	<0.50	0.40	0.14	7
		09/02/21	6.15	<0.50	0.20	0.03	10
		11/30/21	8.86	--	0.10	0.02	34
		03/02/22	11.92	--	--	--	4
		06/01/22	7.33	0.50	5.10	2.50	9
		11/02/22	10.14	0.50	4.60	3.00	2
		02/16/23	10.73	--	--	--	1
		05/17/23	7.35	<0.50	0.30	0.12	3
		08/30/23	8.86	--	--	--	<1
		10/26/23	10.49	0.02	0.30	0.12	<1
		02/13/24	11.02	--	--	--	<1
		05/16/24	6.75	--	--	--	<1
		11/14/24	10.47	<0.5	0.2	0.03	<1
		05/06/25	0.74	<0.50	<0.1	0.12	<1
		10/28/25	9.25	--	--	--	<1

Table 1
Biosparge Performance Results
Lower 1,4-Dioxane Biosparge Update Report
Lansing Industrial Land, Lansing, Michigan



Location ID	Plant	Date Collected	Field Parameters	Results			
			Dissolved Oxygen	Nitrate-N	Total Kjeldahl Nitrogen	Total Phosphorus	1,4-Dioxane
		Units	mg/L	mg/L	mg/L	mg/L	µg/L
AS-19-A05	3	05/17/24	0.43	--	--	--	5
		11/18/24	0.74	--	--	--	2
		08/25/25	5.39	--	--	--	<1
		11/05/25	1.38	--	--	--	<1
AS-19-A06	3	07/06/22		--	--	--	<1
		08/30/22	3.24	--	--	--	<1
		11/07/22	0.50	--	--	--	<1
		02/17/23	1.27	--	--	--	<1
		05/19/23	0.49	--	--	--	<1
		08/30/23	1.16	--	--	--	<1
		11/02/23	0.79	--	--	--	<1
		02/13/24	3.83	--	--	--	<1
		05/17/24	1.79	--	--	--	<1
		11/18/24	1.77	--	--	--	2
AS-19-A07	3	2/17/2023	4.50	--	--	--	1
		5/19/2023	5.72	--	--	--	<1
		8/30/2023	1.98	--	--	--	3
		11/2/2023	4.09	--	--	--	3
MW-12-21	3	05/08/18	1.21	--	--	--	200
		12/11/18	4.54	--	--	--	251
		06/05/19	6.79	--	--	--	255
		12/06/19	0.57	--	--	--	250
		06/11/20	0.62	--	--	--	230
		12/08/20	0.20	--	--	--	310
		06/07/21	1.02 [1.02]	--	--	--	167 [171]
		12/09/21	0.46	--	--	--	177
		06/10/22	4.55	--	--	--	179
		11/04/22	1.10	--	--	--	150
		02/17/23	1.60	--	--	--	141
		05/19/23	0.77 [0.77]	--	--	--	162 [167]
		08/30/23	7.22	--	--	--	199
		11/01/23	0.45	--	--	--	118
		02/13/24	0.71	--	--	--	145
		05/16/24	0.87	--	--	--	157
		11/18/24	5.08	--	--	--	160
		05/09/25	0.56	--	--	--	120 Y
		08/25/25	0.55 [0.55]	--	--	--	150 [140]
		11/04/25	1.51	--	--	--	145
MW-13-22	3	12/12/18	1.11	--	--	--	160
		06/06/19	0.62	--	--	--	159
		08/27/19	6.58	<0.5	1.00	0.39	173
		12/05/19	1.91	--	--	--	162
		03/03/20	0.23	--	--	--	203
		06/11/20	0.47	--	--	--	157
		08/27/20	1.52	--	--	--	141
		12/01/20	3.55	--	--	--	162
		03/03/21	0.16	--	--	--	86
		06/07/21	0.34	--	--	--	45
		09/01/21	0.52	--	--	--	132
		12/07/21	0.45	--	--	--	152
		03/02/22	0.35	--	--	--	100
		06/06/22	0.37	--	--	--	109
		08/30/22	6.69	--	--	--	137
		11/05/22	0.22	--	--	--	84
		02/17/23	0.98	--	--	--	171
		05/19/23	1.39	--	--	--	179
		08/30/23	2.61	--	--	--	138
		11/01/23	0.23	--	--	--	135
		02/13/24	0 [0]	--	--	--	79 [77]

Table 1
Biosparge Performance Results
Lower 1,4-Dioxane Biosparge Update Report
Lansing Industrial Land, Lansing, Michigan



Location ID	Plant	Date Collected	Field Parameters	Results			
			Dissolved Oxygen	Nitrate-N	Total Kjeldahl Nitrogen	Total Phosphorus	1,4-Dioxane
		Units	mg/L	mg/L	mg/L	mg/L	µg/L
MW-13-22 (Cont.)	3	05/16/24	0.18	--	--	--	124
		11/18/24	0.04	--	--	--	173
		05/09/25	3.01	--	--	--	94
		08/25/25	1.23	--	--	--	131
		11/04/25	0.33	--	--	--	83
MW-13-29	3	12/10/18	1.00	--	--	--	16
		06/05/19	0.19	--	--	--	21
		06/10/20	0.26	--	--	--	35
		06/08/21	--	<0.50	0.70	0.06	26
		09/02/21	0.64	<0.50	0.40	0.01	18
		11/30/21	1.59	--	0.40	0.06	12
		06/06/22	3.46	--	--	--	8
		11/07/22	1.05	<0.50	0.80	0.02	12
		05/23/23	3.51	<0.50	0.47	0.08	9
		10/26/23	2.34 [2.34]	0.13 [0.12]	0.40 [0.20]	0.02 [0.02]	7 [7]
		05/16/24	0.23	--	--	--	9
		11/18/24	0.57	<0.5	0.4	0.01	6
		05/06/25	0.89	<0.50	0.4	0.02	2
		11/04/25	0.39	--	--	--	1
MW-13-34	3	05/14/18	3.53	--	--	--	75
		12/11/18	1.79	--	--	--	70
		06/07/19	0.15	--	--	--	74
		08/29/19	0.39	--	--	--	94
		12/05/19	1.42	--	--	--	105
		06/10/20	0.01	--	--	--	81
		08/27/20	0.35	--	--	--	75
		12/01/20	0.12	--	--	--	106
		03/03/21	6.61	--	--	--	127
		06/07/21	0.12	--	--	--	86
		09/02/21	0.31	--	--	--	77
		12/07/21	0.49	--	--	--	83
		03/02/22	0.86	--	--	--	75
		06/06/22	0.33	--	--	--	80
		11/08/22	0.47	--	--	--	81
		02/17/23	0.16 [0.16]	--	--	--	87 [85]
		05/19/23	0.99	--	--	--	109
		08/30/23	0.26	--	--	--	106
		11/02/23	0.21	--	--	--	82
		02/13/24	0.00	--	--	--	97
		05/16/24	0.01	--	--	--	114
		11/18/24	0.04 [0.04]	--	--	--	101 [115]
		05/09/25	0.86	--	--	--	80
		11/04/25	0.27	--	--	--	92
MW-13-48	3	05/14/18	0.24	--	--	--	141
		12/11/18	1.83	--	--	--	117
		06/07/19	0.10	--	--	--	128
		12/06/19	2.02	--	--	--	162
		06/10/20	0.01	--	--	--	128
		12/07/20	0.04 [0.04]	--	--	--	137 [137]
		06/07/21	1.03	--	--	--	114
		12/09/21	0.27	--	--	--	84
		06/10/22	0.65	--	--	--	37
		11/08/22	0.37	--	--	--	24
		05/19/23	0.63	--	--	--	62
		11/02/23	0.39	--	--	--	61
		05/16/24	0 [0]	--	--	--	86 [91]
		11/18/24	0.06	--	--	--	94
		05/09/25	0.23	--	--	--	62
		11/04/25	0.38 [0.38]	--	--	--	74 [73]

Table 1
Biosparge Performance Results
Lower 1,4-Dioxane Biosparge Update Report
Lansing Industrial Land, Lansing, Michigan



Location ID	Plant	Date Collected	Field Parameters	Results			
			Dissolved Oxygen	Nitrate-N	Total Kjeldahl Nitrogen	Total Phosphorus	1,4-Dioxane
		Units	mg/L	mg/L	mg/L	mg/L	µg/L
MW-19-109	3	06/20/19	3.99	--	--	--	34
		08/27/19	8.08	<0.50	0.40	0.40	29
		12/05/19	6.95	--	--	--	4
PW-14-03	3	05/09/18	0.29	--	--	--	500
		12/11/18	1.22	--	--	--	378
		06/04/19	0.33	<0.09	1.30	0.08	223
		08/27/19	0.64 [0.64]	<0.50 [<0.50]	1.20 [1.10]	0.14 [0.11]	250 [245]
		12/05/19	1.04	--	--	--	43
		03/03/20	5.90	--	--	--	75
		06/10/20	0.02	--	--	--	65
		08/27/20	4.51	--	--	--	69
		12/01/20	8.30	--	--	--	71
		03/03/21	9.12	--	--	--	27
		06/08/21	8.63	--	--	--	22
		09/01/21	7.59	--	--	--	19
		12/07/21	1.07	--	--	--	25
		03/02/22	10.37 [10.37]	--	--	--	3 [2]
		06/06/22	12.18 [12.18]	--	--	--	3 [3]
		11/05/22	5.53 [5.53]	--	--	--	8 [8]
		02/17/23	6.22	--	--	--	6
		05/20/23	7.69	--	--	--	5
		08/30/23	7.30	--	--	--	3
		11/02/23	7.59	--	--	--	2
		02/13/24	2.92	--	--	--	6
		05/17/24	0.38	--	--	--	13
		11/19/24	2.08	--	--	--	11
		05/09/25	0.41 [0.41]	--	--	--	14 [14]
		08/25/25	8.40	--	--	--	27
		11/04/25	0.46	--	--	--	20
TW-14-06	3	06/04/19	2.12	<0.09	2.40	1.00	700
		08/27/19	9.16	<0.50	9.10	14.00	430
		12/06/19	8.92 [8.92]	<0.50 [--]	1.50 [--]	1.00 [--]	59 [61]
		03/03/20	12.46	<0.50	22.40	29.00	23
		06/23/20	0.91	<0.50	2.70	1.60	13
		08/31/20	6.69 [6.69]	<0.50 [<0.50]	2.40 [2.20]	1.60 [1.14]	4 [4]
		12/02/20	12.49 [12.49]	<0.50 [<0.50]	18.00 [19.10]	22.00 [24.00]	<1 [<1]
		03/02/21	10.44 [10.44]	<0.50 [<0.50]	8.60 [8.40]	10.80 [8.30]	<1 [<1]
		06/07/21	12.87 [12.87]	<0.50 [<0.50]	8.20 [7.00]	14.00 [9.30]	<1 [<1]
		09/02/21	11.29 [11.29]	<0.50 [<0.50]	4.70 [4.70]	2.90 [1.90]	9 [8]
		11/30/21	11.24 [11.24]	--	7.50 [7.70]	4.00 [6.00]	34 [36]
		03/02/22	12.34	--	--	--	7
		06/06/22	15.09	<0.50	4.30	1.50	2
		11/07/22	9.53	2.50	2.60	0.60	10
		05/23/23	11.94	<0.50	9.70	10.00	4
		08/30/23	10.31 [10.31]	--	--	--	4 [5]
		10/26/23	11.92	0.02	0.80	0.46	<1
TW-15-11	3	06/04/19	0.20	<0.09	0.90	0.07	246
		08/28/19	4.22	<0.50	0.40	0.07	218
		12/05/19	2.78	--	--	--	250
		03/03/20	5.91	--	--	--	130
		06/23/20	0.63	--	--	--	220
		08/27/20	4.11	--	--	--	120
		12/01/20	10.66	--	--	--	51
		03/03/21	9.45	--	--	--	48
		06/07/21	11.85	--	--	--	41
		09/01/21	7.77	--	--	--	7
		12/08/21	0.32	--	--	--	30
		03/02/22	0.02	--	--	--	5
		06/06/22	13.66	--	--	--	5

Table 1
Biosparge Performance Results
Lower 1,4-Dioxane Biosparge Update Report
Lansing Industrial Land, Lansing, Michigan



Location ID	Plant	Date Collected	Field Parameters	Results			
			Dissolved Oxygen	Nitrate-N	Total Kjeldahl Nitrogen	Total Phosphorus	1,4-Dioxane
		Units	mg/L	mg/L	mg/L	mg/L	µg/L
TW-15-11 (Cont.)	3	11/05/22	9.82	--	--	--	22
		02/17/23	0.29	--	--	--	17
		05/20/23	8.66 [8.66]	--	--	--	46 [47]
		08/30/23	10.15	--	--	--	120
		11/02/23	12.88	--	--	--	108
		02/13/24	9.78	--	--	--	115
		05/17/24	0.03	--	--	--	197 Y
		08/19/24	7.76	--	--	--	24
		11/18/24	2.12	--	--	--	26
		05/09/25	3.74	--	--	--	32
		08/25/25	11.67	--	--	--	94
		11/05/25	1.06	--	--	--	199

Notes:

mg/L = milligrams per liter

µg/L = micrograms per liter

USEPA = United States Environmental Protection Agency

Y = elevated reporting limit due to high target concentration

< = less than lab reporting limit

-- = Not Analyzed

[] = Duplicate Sample

Analytical Methods:

Nitrate-N = USEPA Method E300.0

Total Kjeldahl Nitrogen = USEPA Method SM4500-N/NH₃ G

Total Phosphorous = USEPA Method SM4500-PE

1,4-Dioxane = USEPA Method SW8260B - SIM

Table 2
Biosparge Performance Tracking Plant 3
Lower 1,4-Dioxane Biosparge Update Report
Lansing Industrial Land, Lansing, Michigan



Plant 3 (Transect A) - Includes Deep Overburden Wells but Excludes Upgradient Wells

Descriptor: Distance (ft):		Well 1,4-Dioxane (µg/L)						Average (µg/L)	Average 12-month Reduction (µg/L)*
		TW-14-06 ROI 14	TW-15-11 DG 48	PW-14-03 DG 56	MW-13-34 DG 460	MW-13-29 DG 250	MW-13-48 DG 460		
Year	Quarter								
1	6/1/2019	700	246	223	74	21	128	232	NA
	9/1/2019	430	218	250	94	--	--	NA	NA
	12/1/2019	59	250	43	105	--	162	124	NA
	3/1/2020	23	130	75	--	--	--	NA	NA
2	6/1/2020	13	220	65	81	34	128	90	142
	9/1/2020	4	120	69	75	--	--	NA	NA
	12/1/2020	< 1	51	71	106	--	137	73	51
	3/1/2021	< 1	48	27	127	--	--	NA	NA
3	6/1/2021	< 1	41	22	86	26	114	48	42
	9/1/2021	9	7	19	77	18	--	NA	NA
	12/1/2021	34	30	25	83	12	84	45	29
	3/1/2022	7	5	3	75	--	--	NA	NA
4	6/1/2022	2	5	3	80	8	37	23	26
	9/1/2022	--	--	--	--	--	--	NA	NA
	12/1/2022	10	22	8	81	12	24	26	19
	3/1/2023	--	17	6	85	--	--	NA	NA
5	6/1/2023	4	47	5	109	9	62	39	-17
	9/1/2023	5	120	3	106	--	--	NA	NA
	12/1/2023	< 1	108	2	82	7	61	44	-17
	3/1/2024	--	115	6	97	--	--	NA	NA
6	6/1/2024	--	197	13	114	9	86	84	-44
	9/1/2024	--	24	--	--	--	--	NA	NA
	12/1/2024	--	26	11	101	6	94	48	-4
	3/1/2025	--	--	--	--	--	--	NA	NA
7	6/1/2025	--	32	14	80	2	62	38	46
	9/1/2025	--	94	27	--	--	--	NA	NA
	12/1/2025	--	199	20	92	1	74	77	-30

Notes:

All concentrations are in micrograms per liter.

Actual sample date varies, sample date displayed represents first day of the third month of the quarter.

Samples were analyzed for 1,4-Dioxane via USEPA method SW8260B - SIM.

ROI = radius of influence

DG = downgradient

UG = upgradient

USEPA = United States Environmental Protection Agency

µg/L = micrograms per liter

< = less than lab reporting limit

-- = not analyzed

NA = not applicable

- = increase in concentration over 12-months

*Reference Reduction Value (RRV) is 142 µg/L, the point of diminishing returns is achieved after 3 years of operation when the 12-month reduction is less than 20% of the RRV, or 28.4 µg/L.

Bold and Italic = below 20% of the RRV.

Table 3
Biosparge Shutdown Test Results
Lower 1,4-Dioxane Biosparge Update Report
Lansing Industrial Land, Lansing, Michigan

Well ID	Location	Type	Sampling Frequency	Restart Threshold	Baseline Q2/Q3	Q4
MW-20-129	Central P2	Upgradient	Quarterly	140 ug/L	70	75
TW-14-02	Transect G	ROI	Quarterly	410 ug/L	2	194
MW-19-122	Central P2	Upgradient	Quarterly	43 ug/L	4	4
MW-19-123	Southern P2	Downgradient	Quarterly	75 ug/L	30	42
MW-16-74	Southern P2	Downgradient	Semi-annual	Inc Trend	2	3
MW-16-78	Southeastern P2	Downgradient	Semi-annual	NA, treated by Trans E	<1	<1
MW-19-121	Transect E	ROI	Semi-annual	NA, treated by Trans E	5	<1
MW-12-01	Southwestern P2	Sidegradient	Annual	>3.6 ug/L	<0.2	--
MW-13-50	Southern P2	Far Downgradient	Annual	>3.6 ug/L	<1	--
MW-13-52	Southern P2	Far Downgradient	Annual	>3.6 ug/L	<1	--
MW-16-75	Southern P2	Downgradient	Annual	Inc Trend	1	1
MW-16-76	Southwestern P2	Sidegradient	Annual	Inc Trend	3	2
MW-16-77	Southwestern P2	Sidegradient	Annual	Inc Trend	<1	1
MW-13-22	Northern P3	Upgradient	Quarterly	270 ug/L	131	83
MW-12-21	Northern P3	Upgradient	Quarterly	510 ug/L	150	145
AS-19-A05	Transect A	ROI	Quarterly	700 ug/L	<1	<1
TW-15-11	Central P3	Downgradient	Quarterly	246 ug/L	94	199
PW-14-03	Central P3	Downgradient	Quarterly	223 ug/L	27	20
MW-13-29	Eastern P3	Downgradient	Semi-annual	Inc Trend	2	1
MW-13-23	Northeastern P3	Sidegradient	Annual	Inc Trend	<1	--
MW-13-28	Northern P3	Upgradient	Annual	Inc Trend	4	0.35
MW-13-34	Southeastern P3	Far Downgradient	Annual	Inc Trend	80	92
MW-13-46	Southern P3	Far Downgradient	Annual	>3.6 ug/L	<1	<1
MW-13-47	Southeastern P3	Far Downgradient	Annual	Inc Trend	1.2	--
MW-13-48	Southeastern P3	Far Downgradient	Annual	Inc Trend	62	74
MW-91-6	Southern P3	Far Downgradient	Annual	Inc Trend	0.7	--

Notes:

Increasing trend is determined as 3 consecutive increasing values, an increase in Q4 sample from baseline triggers a resample during next semi-annual sample

Table 4a
 Biosparge Performance Tracking Plant 2
 Lower 1,4-Dioxane Biosparge Update Report
 Lansing Industrial Land, Lansing, Michigan



Plant 2 North (Transect B)

Descriptor: Distance (ft):		Well 1,4-Dioxane (µg/L)				Average (µg/L)	Average 12-month Reduction (µg/L)*
		TW-15-12 ROI 8	PW-14-02 DG 54	MW-20-127 DG 102	MW-20-126 UG 66		
Year	Date						
1	6/1/2020	210	160	85	370	206	NA
	9/1/2020	100	43	115	360	155	NA
	12/1/2020	34	97	157	320	152	NA
	3/1/2021	5	37	138	220	100	NA
2	6/1/2021	7	23	140	156	82	125
	9/1/2021	10	50	126	143	82	72
	12/1/2021	34	95	158	170	114	38
	3/1/2022	4	11	130	130	69	31
3	6/1/2022	9	26	142	120	74	7
	9/1/2022	--	--	--	--	NA	NA
	12/1/2022	2	9	126	85	56	59
	3/1/2023	1	18	146	82	62	7
4	6/1/2023	3	14	155	81	63	11
	9/1/2023	< 1	5	180	88	69	NA
	12/1/2023	< 1	7	132	63	51	5
	3/1/2024	< 1	55	156	58	90	-28
5	6/1/2024	< 1	84	171	7	87	-24
	9/1/2024	--	8	--	--	NA	NA
	12/1/2024	< 1	6	174	27	69	-18
	3/1/2025	--	--	--	--	NA	NA
6	6/1/2025	< 1	26	113	8	49	38
	9/1/2025	--	--	--	--	NA	NA
	12/1/2025	< 1	34	123	4	54	15

Notes:

All concentrations are in micrograms per liter.

Actual sample date varies, sample date displayed represents first day of the third month of the quarter.

Samples were analyzed for 1,4-Dioxane via USEPA method SW8260B - SIM.

ROI = radius of influence

DG = downgradient

UG = upgradient

µg/L = micrograms per liter

USEPA = United States Environmental Protection Agency

< = less than lab reporting limit

-- = not analyzed

NA = not applicable

- = increase in concentration over 12-months

*Reference Reduction Value (RRV) is 125 µg/L, RACER proposes the point of diminishing returns is achieved after 3 years of operation when the 12-month reduction is less than 20% of the RRV, or 25 µg/L

Bold and Italic = below 20% of the RRV

Table 4b
Biosparge Performance Tracking Plant 2
Lower 1,4-Dioxane Biosparge Update Report
Lansing Industrial Land, Lansing, Michigan



Plant 2 South (Transect G & E)

Descriptor: Distance (ft):		Well 1,4-Dioxane (µg/L)								Average (µg/L)	Average 12-month Reduction (µg/L)*
		TW-14-02 ROI 2	MW-19-123 DG 70	MW-16-74 DG 75	MW-19-121 ROI 2	MW-20-129 UG 121	MW-19-122 UG 92	MW-16-78 DG 174	MW-16-81 UG 120		
Year	Date										
1	3/1/2020	470	76	2	119	--	41	--	2600	NA	NA
	6/1/2020	410	75	2	115	126	42	< 1	3100	484	NA
	9/1/2020	3	51	3	17	126	33	--	500	NA	NA
	12/1/2020	< 1	39	< 1	4	140	34	< 1	1930	269	NA
2	3/1/2021	< 1	58	< 1	< 1	108	25	< 1	560	94	NA
	6/1/2021	< 1	50	< 1	< 1	108	37	< 1	490	86	398
	9/1/2021	29	43	2	< 2	82	9	< 1	230	50	--
	12/1/2021	8	20	3	< 1	83	4	< 1	310	54	215
3	3/1/2022	< 1	--	--	< 1	--	--	--	--	NA	NA
	6/1/2022	< 1	25	2	< 1	80	3	< 1	143	32	54
	9/1/2022	--	--	--	--	--	--	--	--	NA	NA
	12/1/2022	< 1	21	2	< 1	60	6	< 1	70	20	34
4	3/1/2023	3	26	--	< 1	71	3	1	--	NA	NA
	6/1/2023	9	44	2	< 1	103	2	1	168	41	-9
	9/1/2023	220	72	--	< 1	74	8	< 1	--	NA	NA
	12/1/2023	1	39	3	< 1	71	4	1	99	27	-7
5	3/1/2024	4	48	--	< 1	64	6	< 1	--	NA	NA
	6/1/2024	161	24	3	< 1	67	3	< 1	38	37	4
	9/1/2024	16	--	--	--	--	--	--	--	NA	NA
	12/1/2024	21	19	3	< 1	77	2	< 1	58	23	5
6	3/1/2025	--	--	--	--	--	--	--	--	NA	NA
	6/1/2025	2	30	2	5	61	< 1	< 1	37	17	20
	9/1/2025	2	32	--	--	70	4	--	--	NA	NA
	12/1/2025	194	42	3	< 1	75	4	< 1	32	44	-21

Notes:

All concentrations are in micrograms per liter.

Actual sample date varies, sample date displayed represents first day of the third month of the quarter.

Samples were analyzed for 1,4-Dioxane via USEPA method SW8260B - SIM.

ROI = radius of influence

DG = downgradient

UG = upgradient

µg/L = micrograms per liter

USEPA = United States Environmental Protection Agency

< = less than lab reporting limit

-- = not analyzed

NA = not applicable

- = increase in concentration over 12-months

*Reference Reduction Value (RRV) is 398 µg/L, RACER proposes the point of diminishing returns is achieved after 3 years of operation when the 12-month reduction is less than 20% of the RRV, or 79.6 µg/L.

Bold and Italic = below 20% of the RRV.

Table 4c
Biosparge Performance Tracking Plant 2
Lower 1,4-Dioxane Biosparge Update Report
Lansing Industrial Land, Lansing, Michigan



Plant 2 East (Transect E & F)

Descriptor: Distance (ft):		Well 1,4-Dioxane (µg/L)							Average (µg/L)	Average 12-month Reduction (µg/L)*
		MW-14-61 ROI 13	MW-19-120 ROI 44	MW-20-128 ROI 17	MW-16-84 DG 69	MW-17-86 DG 115	MW-16-85 DG 200	MW-19-124 UG 99		
Year	Date									
1	3/1/2020	148	198	--	66	99	--	--	NA	NA
	6/1/2020	152	184	270	58	94	8	197	138	NA
	9/1/2020	98	137	112	57	88	--	230	120	NA
	12/1/2020	18	28	20	81	106	8	420	97	NA
2	3/1/2021	21	73	9	66	79	--	182	72	NA
	6/1/2021	9	49	4	15	69	4	173	46	91
	9/1/2021	9	7	11	43	48	--	222	57	64
	12/1/2021	5	15	5	60	43	10	280	60	38
3	3/1/2022	--	--	--	--	--	--	--	NA	NA
	6/1/2022	16	12	6	44	27	8	90	29	17
	9/1/2022	--	--	--	--	--	--	--	NA	NA
	12/1/2022	21	13	< 1	29	19	6	137	32	27
4	3/1/2023	--	--	--	--	--	--	--	NA	NA
	6/1/2023	13	15	4	44	20	6	172	39	-10
	9/1/2023	--	--	--	--	--	--	--	NA	NA
	12/1/2023	13	11	1	39	16	28	143	36	-4
5	3/1/2024	--	--	--	--	--	--	--	NA	NA
	6/1/2024	8	7	2	32	16	18	186	38	1
	9/1/2024	--	--	--	--	--	--	--	NA	NA
	12/1/2024	7	8	3	20	16	8	171	33	3
6	3/1/2025	--	--	--	--	--	--	--	NA	NA
	6/1/2025	6	7	1	14	10	4	184	32	6
	9/1/2025	--	--	--	--	--	--	--	NA	NA
	12/1/2025	3	4	7	27	10	20	142	30	3

Notes:

All concentrations are in micrograms per liter.

Actual sample date varies, sample date displayed represents first day of the third month of the quarter.

Samples were analyzed for 1,4-Dioxane via USEPA method SW8260B - SIM.

ROI = radius of influence

DG = downgradient

UG = upgradient

µg/L = micrograms per liter

USEPA = United States Environmental Protection Agency

< = less than lab reporting limit

-- = not analyzed

NA = not applicable

MW-16-79 was removed from calculation due to well damage.

- = increase in concentration over 12-months

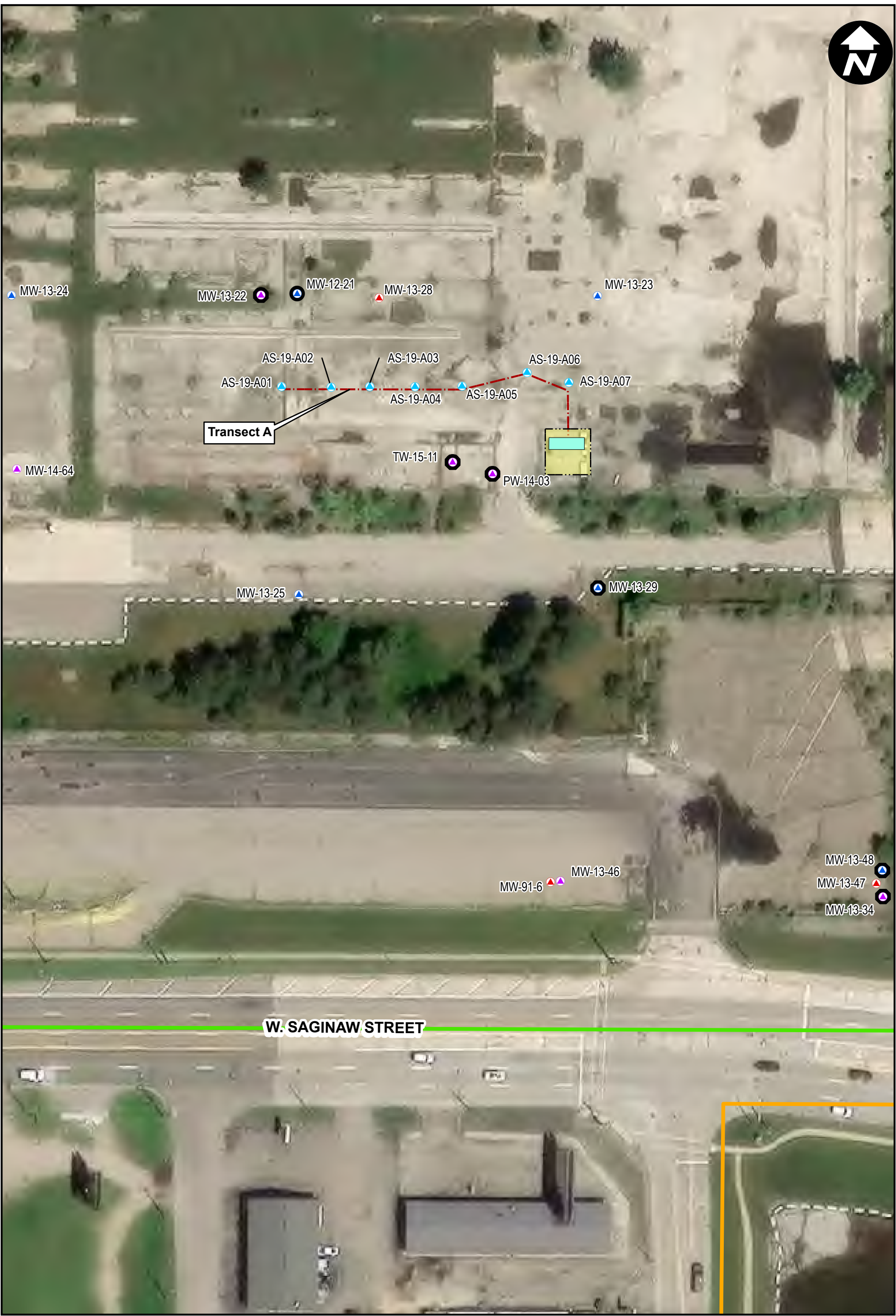
*Reference Reduction Value (RRV) is 91 µg/L, RACER proposes the point of diminishing returns is achieved after 3 years of operation when the 12-month reduction is less than 20% of the RRV, or 18.2 µg/L

Bold and Italic = below 20% of the RRV

Figures



CITY: Novi DIV: ENV PIC: J. BARRETT PM: R. CHRISTENSEN TM: A. LORENZ TR: P. CURRY PROJECT NUMBER: 30214036 04708 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl T:\RACER\Lansing_BuffaloData\MXDs\2024 Biosparge\Biosparge_2024.aprx PLOTTED: 3/13/2025 10:54 AM BY: KPullen



LEGEND:

BIOSPARGE	BIOSPARGE/IGMP SEMI-ANNUAL PERFORMANCE MONITORING WELL	1-INCH CONVEYANCE HOSE
DEEP OVERBURDEN MONITORING WELL	SYSTEM BUILDING	PLANT 2
WEATHERED BEDROCK MONITORING WELL	FENCE	PLANT 3
BEDROCK MONITORING WELL	FENCED AREA	

0 60 120

SCALE IN FEET

Imagery Source:
ESRI World Imagery Service
Imagery Date: 7/30/2023

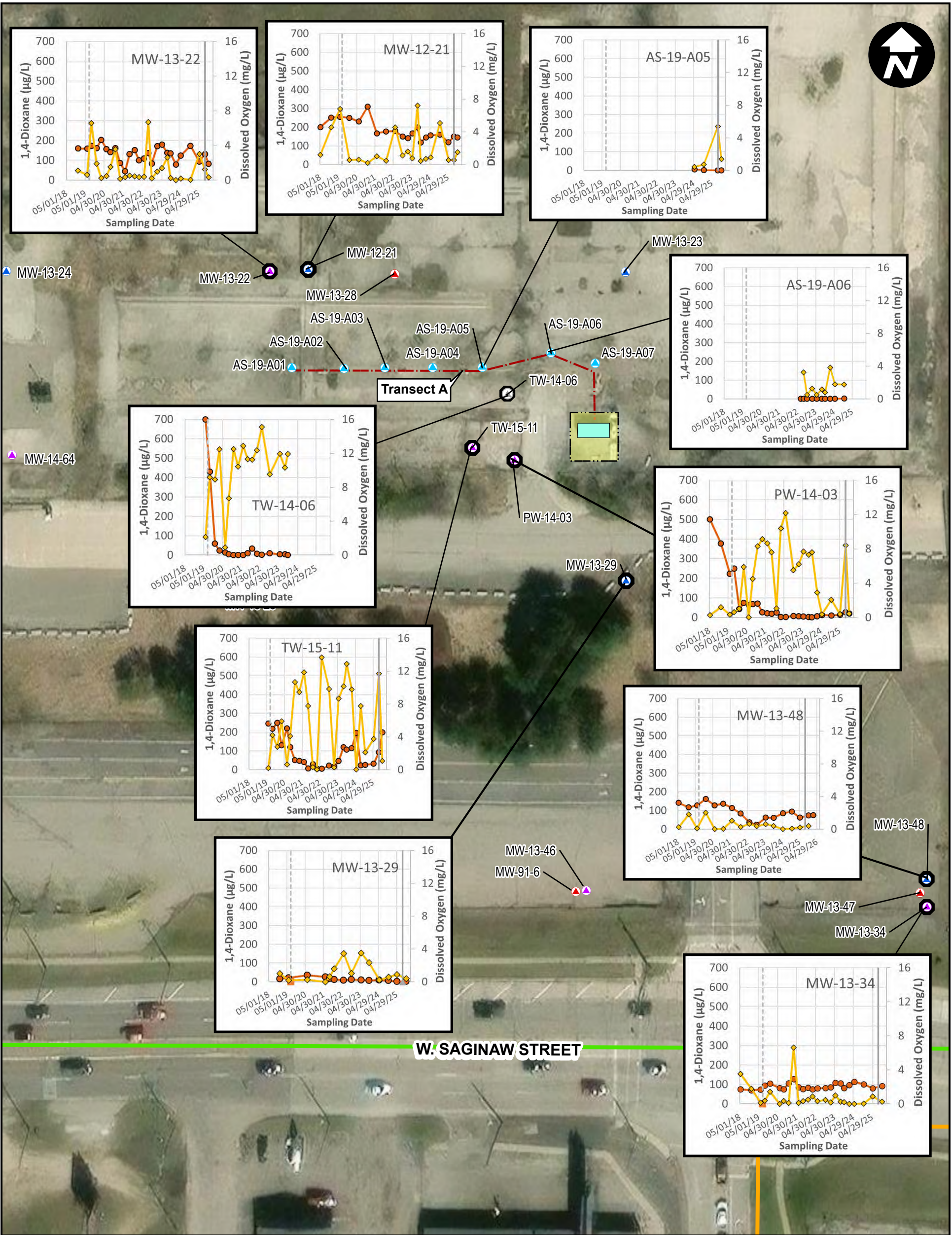
RACER TRUST
LANSING INDUSTRIAL LAND
LANSING, MICHIGAN

PLANT 3 BIOSPARGE SYSTEM AND PERFORMANCE MONITORING WELLS

ARCADIS

FIGURE

2



LEGEND

WELLS

- BIOSPARGE
- DEEP OVERBUDEN MONITORING WELL
- WEATHERED BEDROCK MONITORING WELL
- BEDROCK MONITORING WELL
- ABANDONED MONITORING WELL
- BIOSPARGE/IGMP SEMI-ANNUAL PERFORMANCE MONITORING WELL
- SYSTEM BUILDING
- FENCE
- FENCED AREA

1-INCH CONVEYANCE HOSE

PLANT BOUNDARIES

- PLANT 2
- PLANT 3

GRAPH LEGEND

- 1,4-DIOXANE
- DISSOLVED OXYGEN
- SYSTEM AIR + PROPANE START DATE
- SHUTDOWN TEST START
- ug/L MICROGRAMS PER LITER
- mg/L MILLIGRAMS PER LITER

Imagery Source: ESRI World Imagery
Service Imagery Date: 7/30/2023

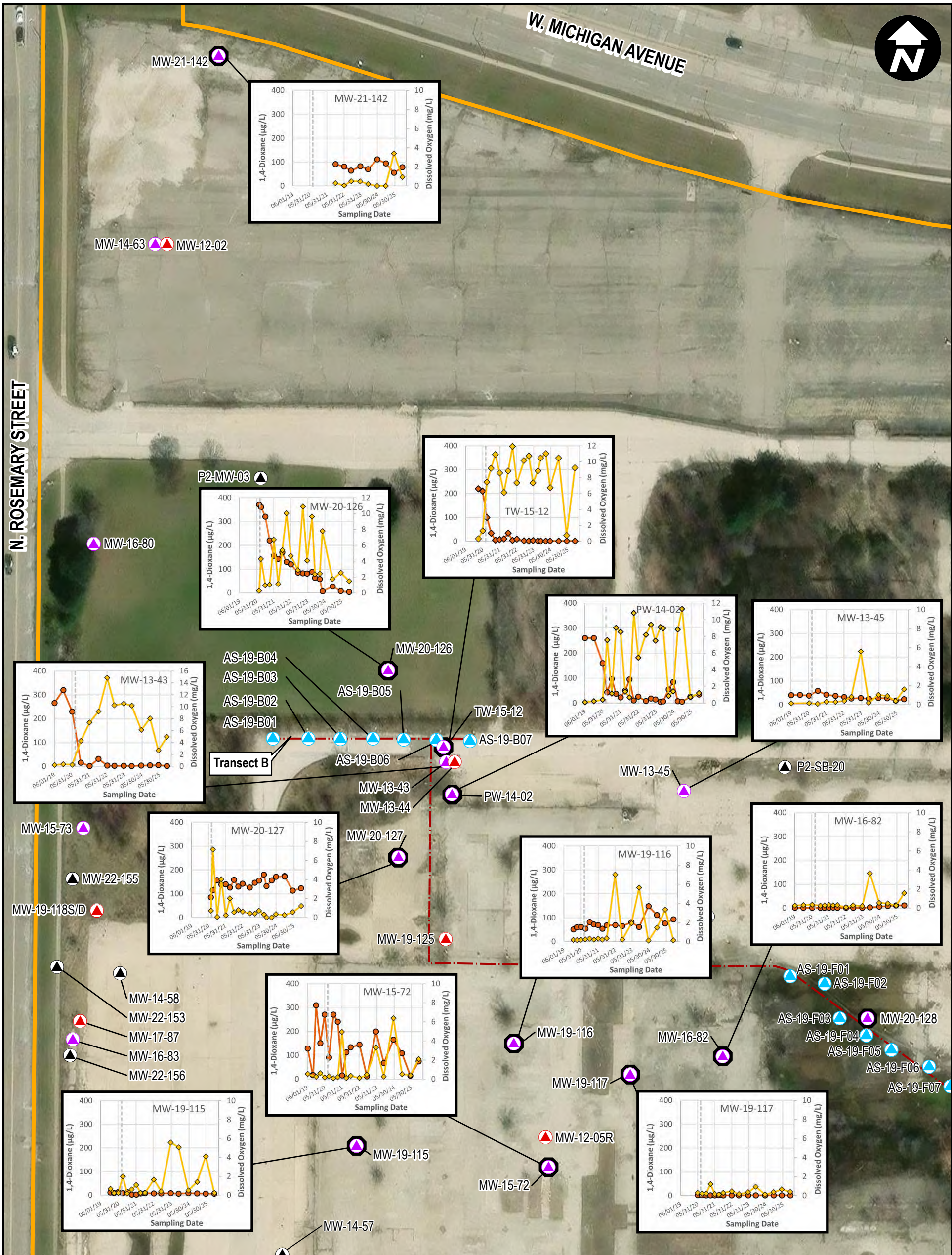
0 60 120
SCALE IN FEET

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LANSING, MICHIGAN

**PLANT 3 BIOSPARGE
PERFORMANCE MONITORING RESULTS**

ARCADIS

FIGURE
3



LEGEND

WELLS

- BIOSPARGE
- PERCHED MONITORING WELL
- WEATHERED BEDROCK MONITORING WELL
- BEDROCK MONITORING WELL
- BIOSPARGE PERFORMANCE MONITORING WELL
- 1-INCH CONVEYANCE HOSE

PLANT BOUNDARIES

- PLANT 2
- PLANT 3

GRAPH LEGEND

- 1,4-DIOXANE
- DISSOLVED OXYGEN
- SYSTEM AIR + PROPANE START DATE
- SHUTDOWN TEST START
- µg/L MICROGRAMS PER LITER
- mg/L MILLIGRAMS PER LITER

Imagery Source: ESRI World Imagery
Service Imagery Date: 7/30/2023



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LANSING, MICHIGAN

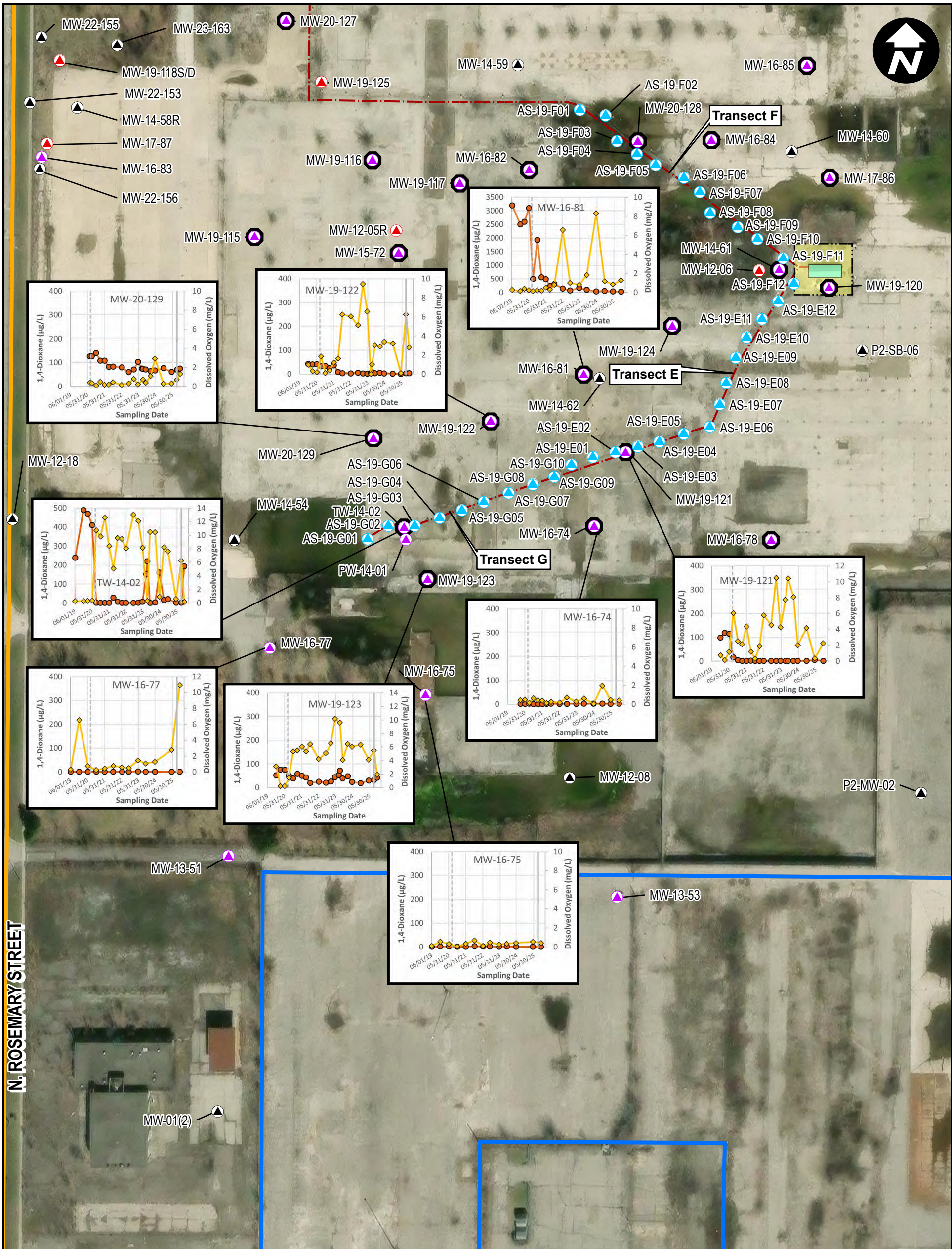
PLANT 2 NORTH BIOSPARGE
PERFORMANCE MONITORING RESULTS



FIGURE

4

N. ROSEMARY STREET



LEGEND

WELLS

- BIOSPARGE
- PERCHED MONITORING WELL
- WEATHERED BEDROCK MONITORING WELL
- BEDROCK MONITORING WELL
- BIOSPARGE PERFORMANCE MONITORING WELL

- FENCE
- SYSTEM BUILDING
- FENCED AREA

1-INCH CONVEYANCE HOSE

PLANT BOUNDARIES

- PLANT 2
- PLANT 3
- PLANT 6

GRAPH LEGEND

- 1,4-DIOXANE
- DISSOLVED OXYGEN
- SYSTEM AIR + PROPANE START DATE
- SHUTDOWN TEST START
- ug/L MICROGRAMS PER LITER
- mg/L MILLIGRAMS PER LITER

Imagery Source: ESRI World Imagery
Service Imagery Date: 7/30/2023

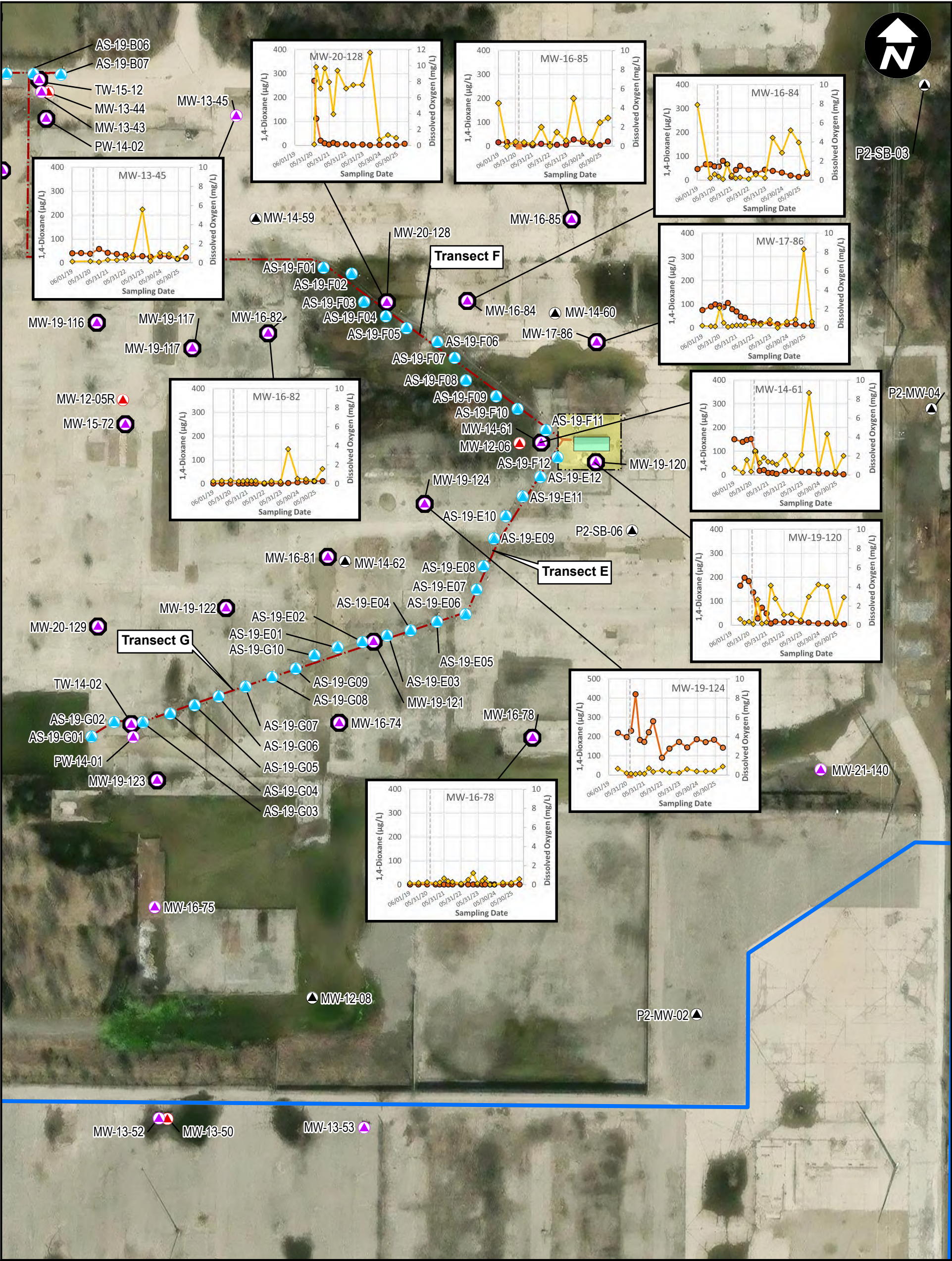


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LANSING, MICHIGAN

PLANT 2 SOUTH BIOSPARGE
PERFORMANCE MONITORING RESULTS



T:_ENV\RACER\Lansing_BuffaloData\MXD\2025 Biosparge\Biosparge_2025.aprx PLOTTED: 3/20/2026 1:30 PM BY: AKENS



LEGEND

WELLS

- BIOSPARGE
- PERCHED MONITORING WELL
- WEATHERED BEDROCK MONITORING WELL
- BEDROCK MONITORING WELL
- BIOSPARGE PERFORMANCE MONITORING WELL
- FENCE
- SYSTEM BUILDING
- FENCED AREA

1-INCH CONVEYANCE HOSE

PLANT BOUNDARIES

- PLANT 2
- PLANT 3
- PLANT 6

GRAPH LEGEND

- 1,4-DIOXANE
- DISSOLVED OXYGEN
- SYSTEM AIR + PROPANE START DATE
- SHUTDOWN TEST START
- ug/L MICROGRAMS PER LITER
- mg/L MILLIGRAMS PER LITER

Imagery Source: ESRI World Imagery
Service Imagery Date: 7/30/2023



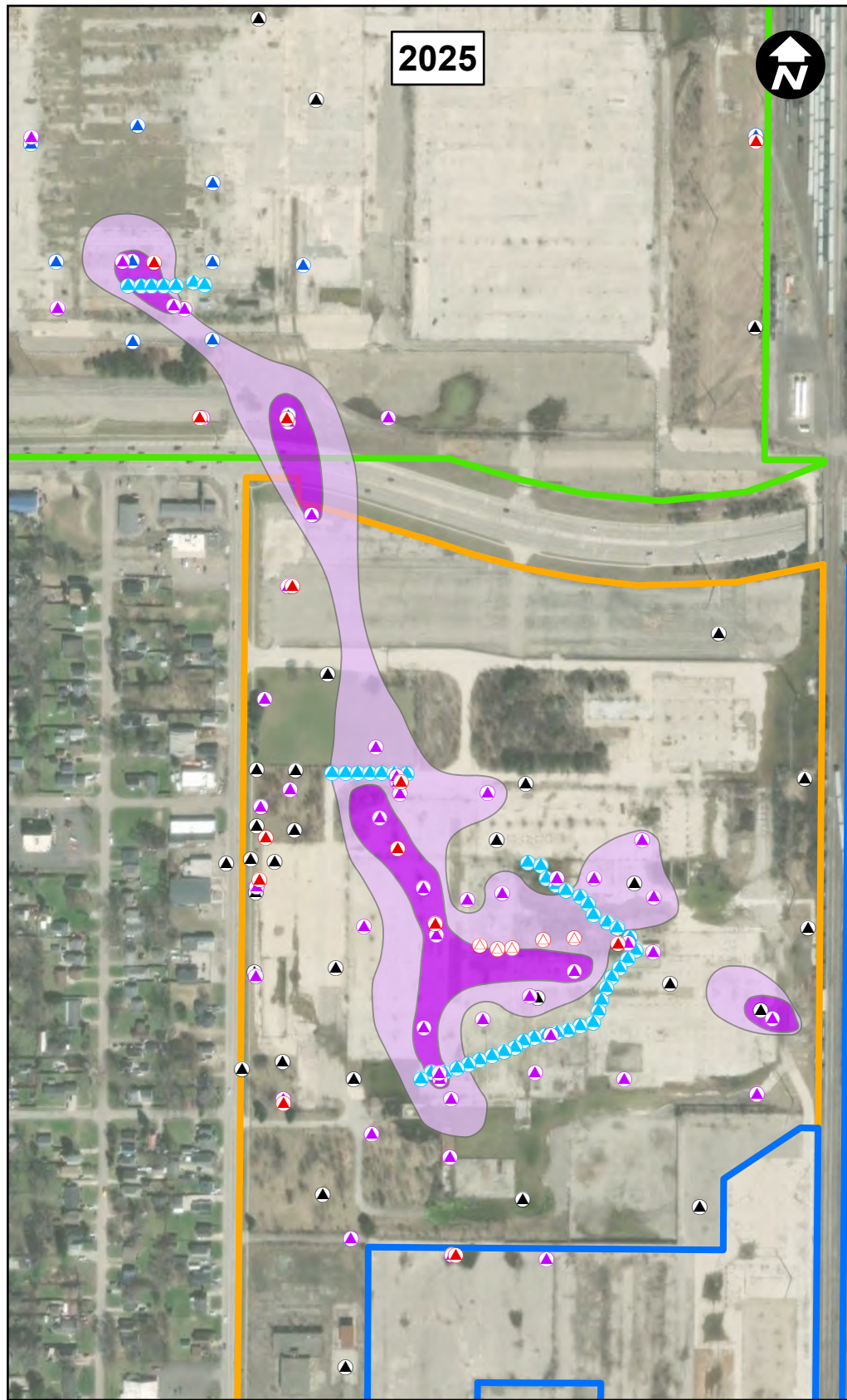
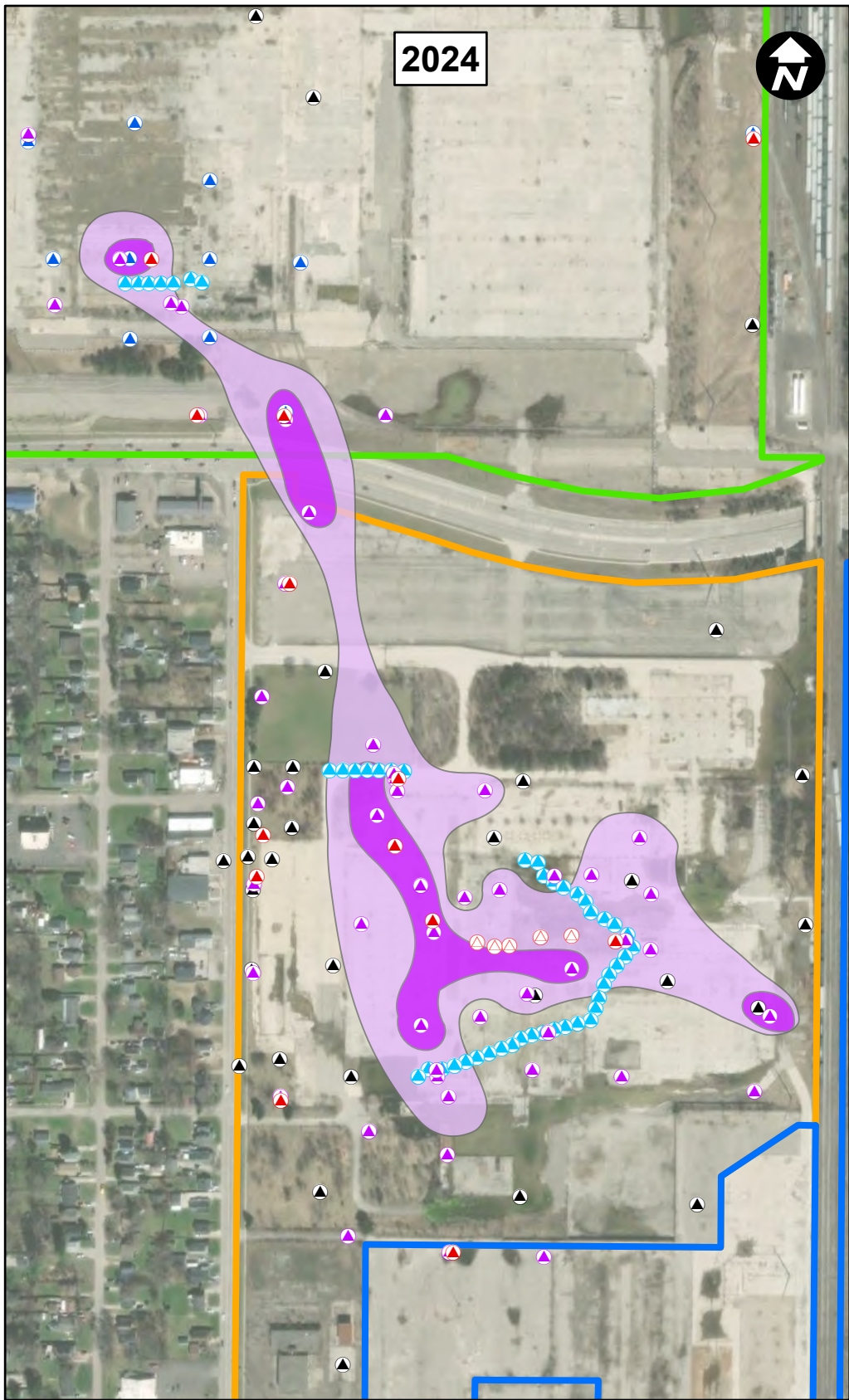
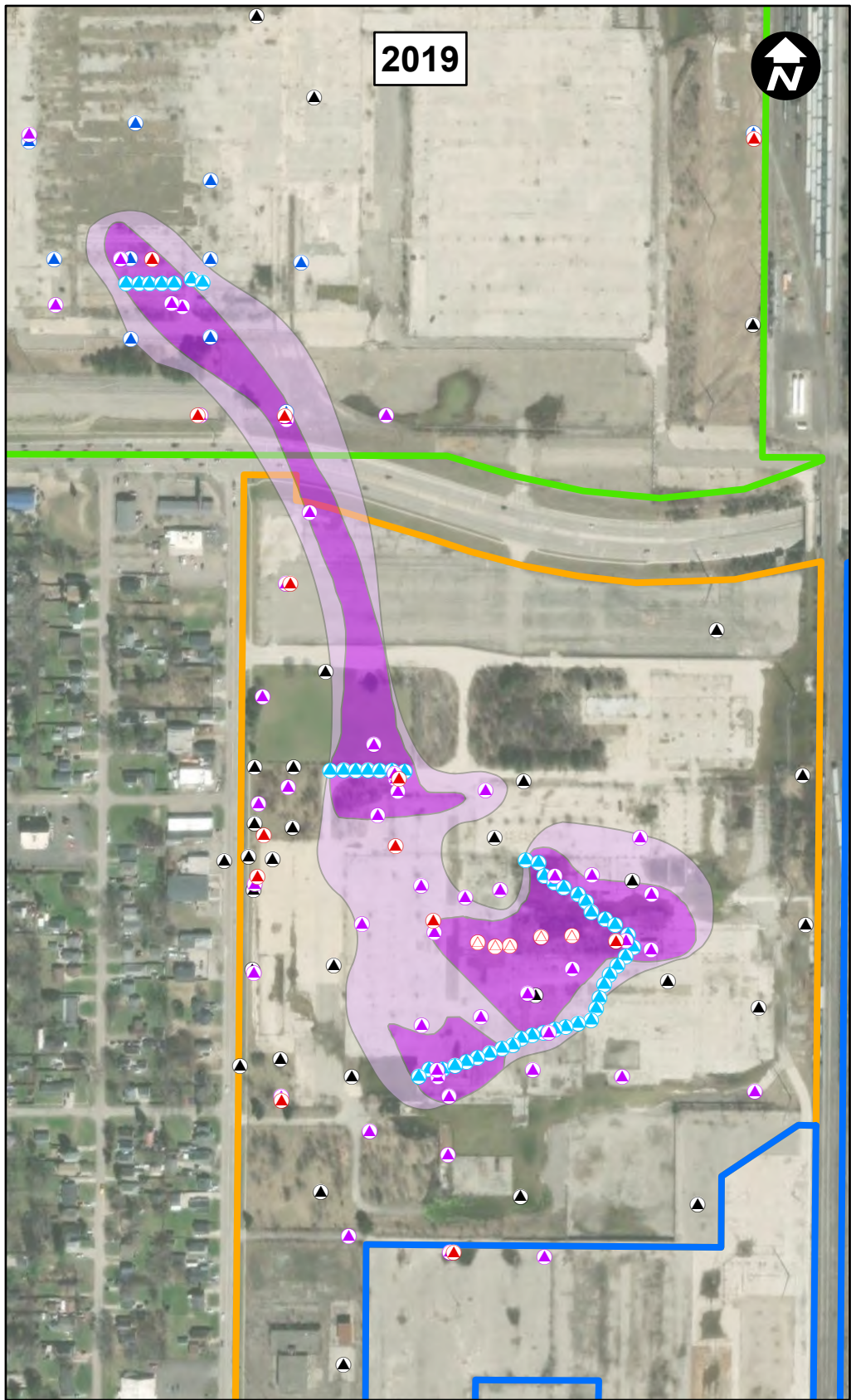
**PLANT 2 CENTRAL/EAST BIOSPARGE
PERFORMANCE MONITORING RESULTS**



FIGURE

6

CITY: Novi DIV: ENV PIC: J. BARRETT PM: T. LINDER TM: A. VILLHAUER TR: PROJECT NUMBER: 30171056 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl
T:_ENV\RACER\Lansing_BuffaloData\MXDs\2024 Biosparge\Biosparge_2024.aprx PLOTTED: 3/20/2026 1:34 PM BY: AKENS



LEGEND:

- | | |
|-----------------------------------|--|
| BIOSPARGE | LOWER 1,4-DIOXANE PLUME > 72 µg/L |
| PERCHED MONITORING WELL | LOWER 1,4-DIOXANE IMPACTS > DW CRITERIA (7.2 µg/L) |
| LNAPL MONITORING WELL | PLANT 2 |
| DEEP OVBURDEN MONITORING WELL | PLANT 3 |
| WEATHERED BEDROCK MONITORING WELL | PLANT 6 |
| BEDROCK MONITORING WELL | |

0 200 400 800
Feet

Imagery Source:
ESRI World Imagery Service
Imagery Date: 7/30/2023

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LANSING, MICHIGAN

**LOWER 1,4-DIOXANE PLUME
COMPARISON 2019 VS 2024 VS 2025**

ARCADIS

**FIGURE
7**

Figure 8
Plant 3 Transect A Average Plume Concentration of 1,4-Dioxane

Lower 1,4-Dioxane Biosparge Update Report
Lansing Industrial Land, Lansing, Michigan

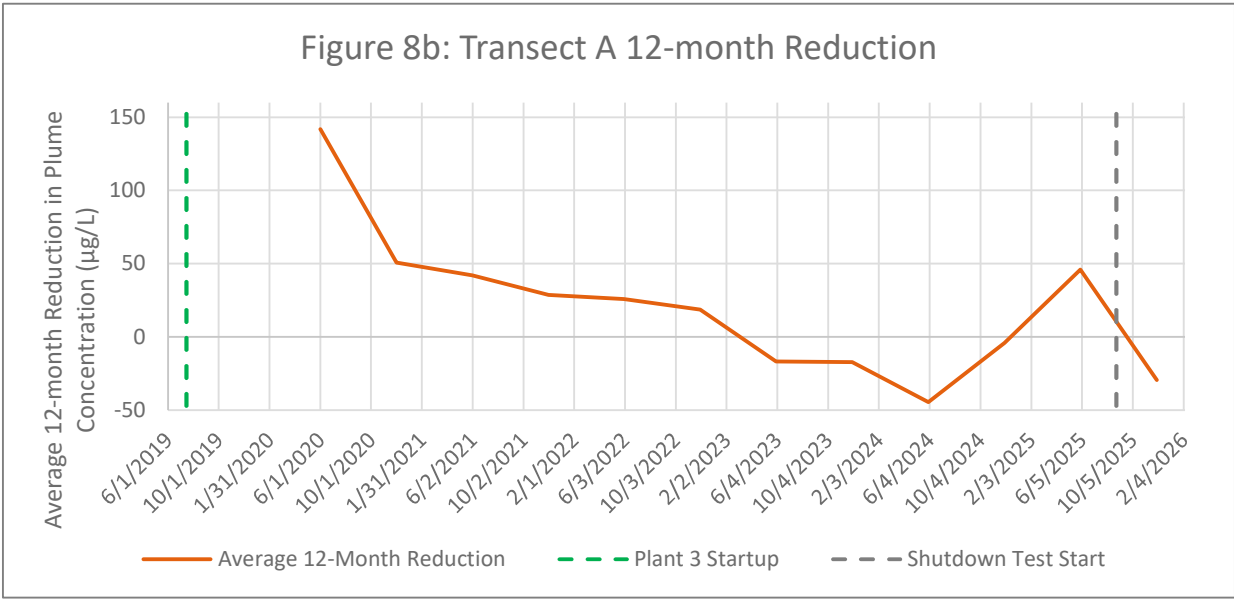
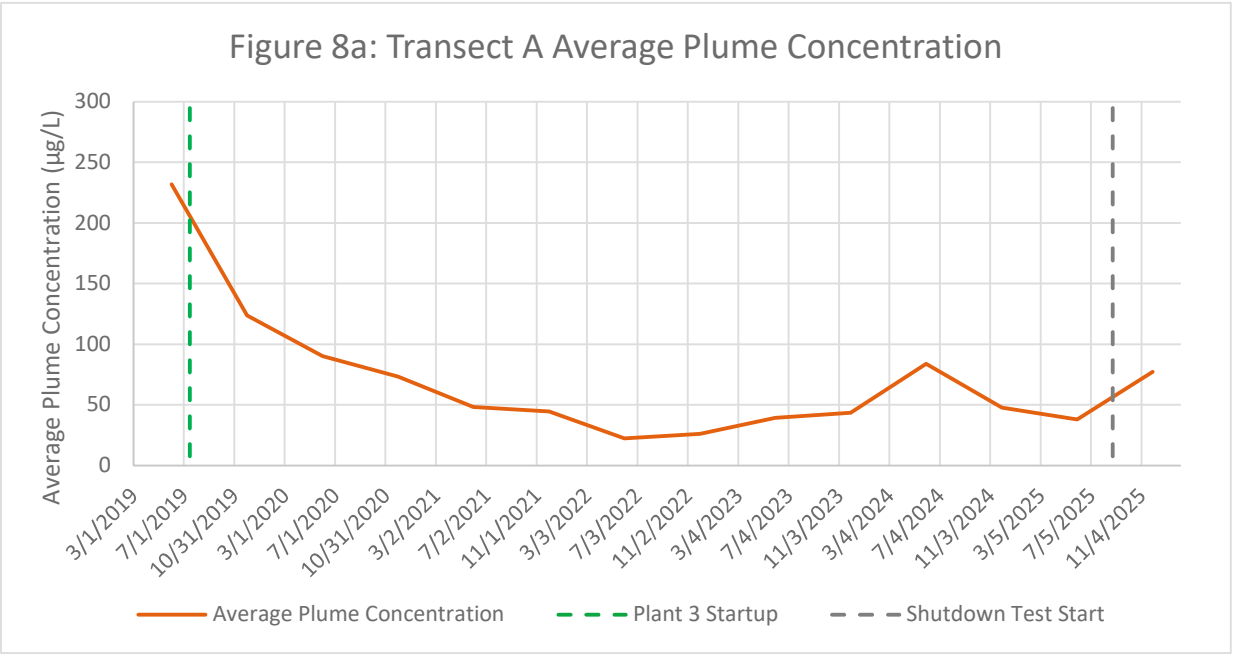


Figure 9
Plant 2 Transect B Average Plume Concentration of 1,4-Dioxane

Lower 1,4-Dioxane Biosparge Update Report
Lansing Industrial Land, Lansing, Michigan

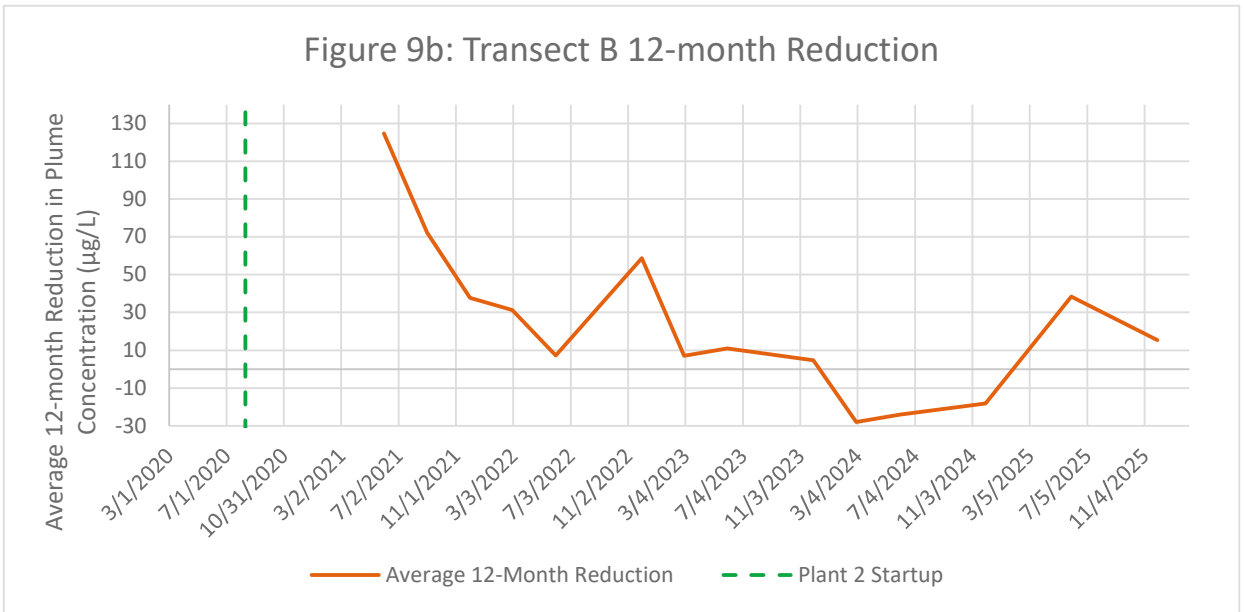
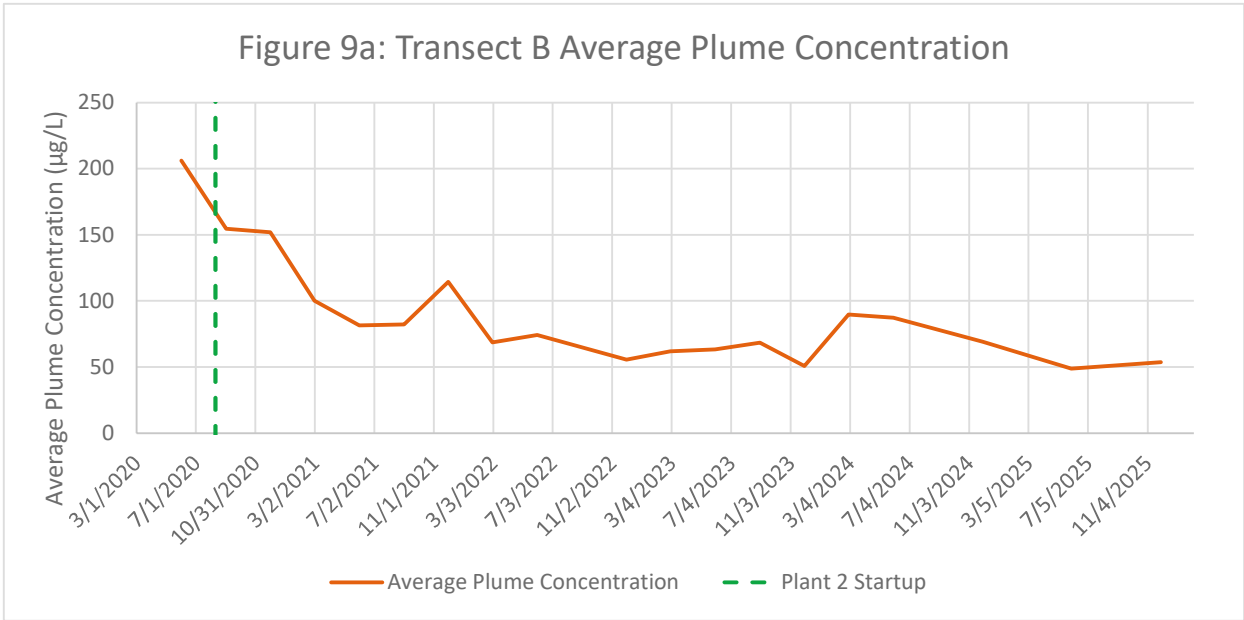


Figure 10
Plant 2 Transect G E Average Plume Concentration of 1,4-Dioxane
Lower 1,4-Dioxane Biosparge Update Report
Lansing Industrial Land, Lansing, Michigan

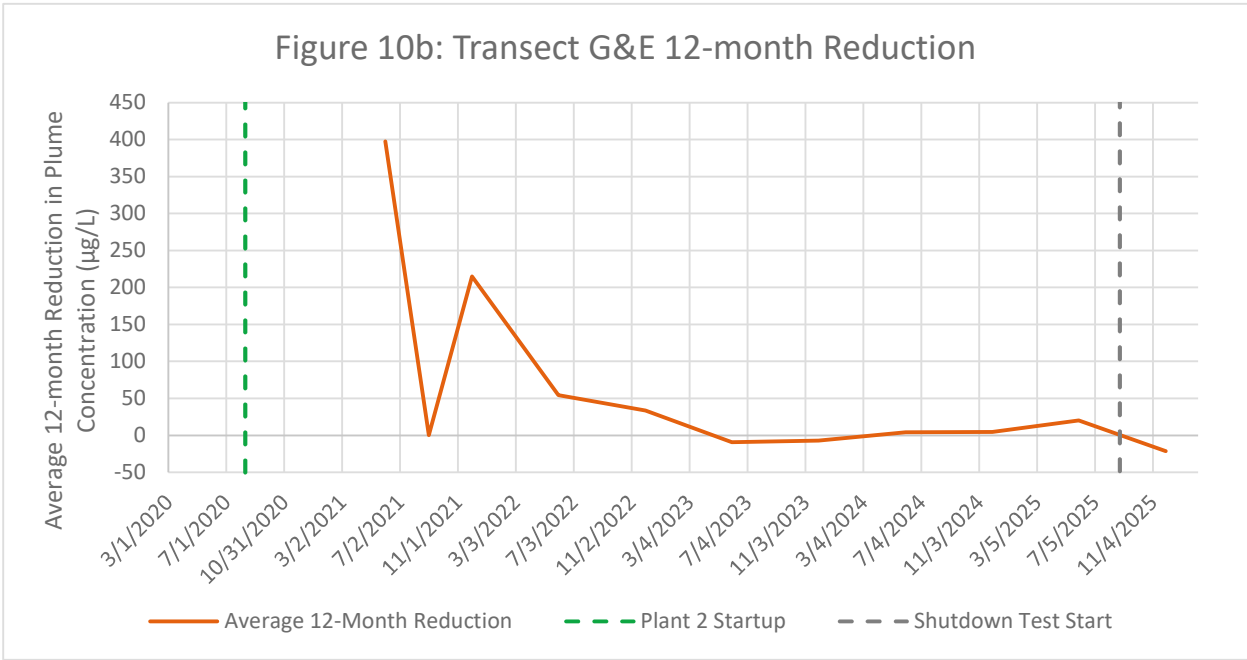
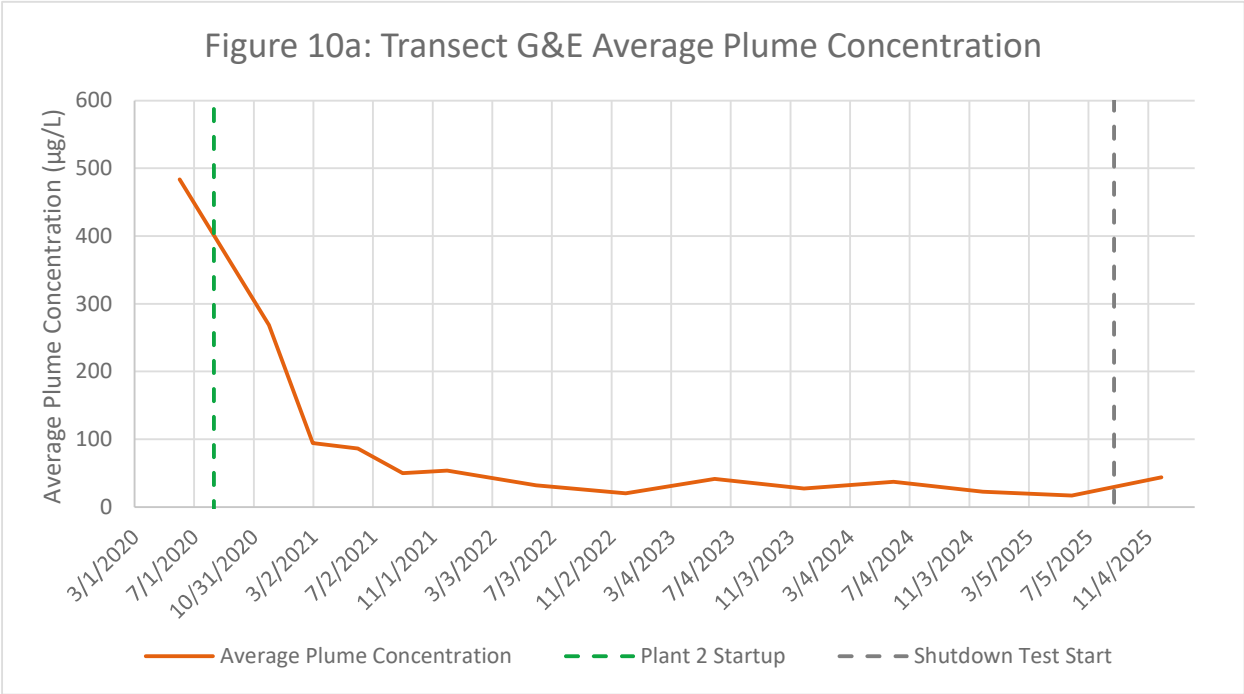
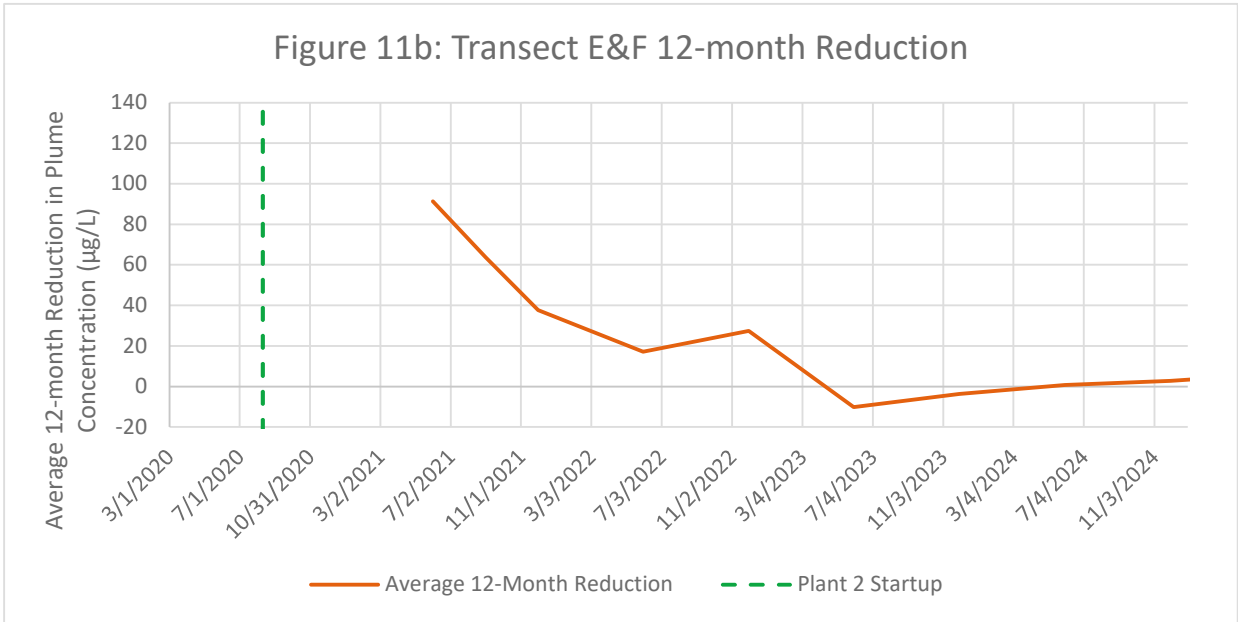
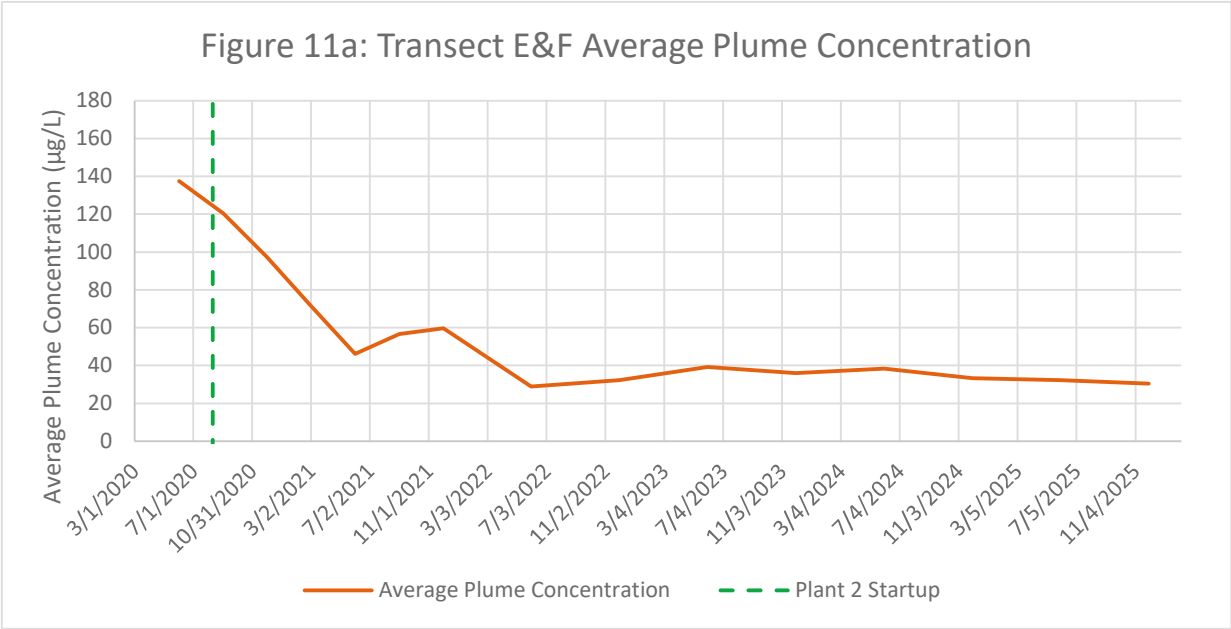


Figure 11
Plant 2 Transect E F Average Plume Concentration of 1,4-Dioxane
Lower 1,4-Dioxane Biosparge Update Report
Lansing Industrial Land, Lansing, Michigan



Appendix A

Operation and Maintenance Logs

Inspection Date	January 2, 2025
-----------------	-----------------

Last Quarterly Event Date	
---------------------------	--

Arrival Time	07:35
--------------	-------

Personnel	Billy J Cobern
-----------	----------------

Weather	Cloudy, breezy, 20's
---------	----------------------

FWL Electrical Meter Reading (kWh)	7038.33
------------------------------------	---------

HMI and Control Panel

Surge Suppressor Visual Checks

Main surge suppressor: all 3 green lights on?	Yes
---	-----

Main Surge Suppressor Comments	
--------------------------------	--

Control panel surge suppressor: all 3 green lights on?	Yes
--	-----

Control panel Surge Suppressor Comments	
---	--

Breaker box surge suppressor: all 3 green lights on?	Yes
--	-----

Breaker box Surge Suppressor Comments	
---------------------------------------	--

HMI display functioning (not frozen)?	Yes
---------------------------------------	-----

Current zone	Rest
--------------	------

Compressed air setpoint (LPM)	1000
-------------------------------	------

Propane setpoint (LPM)	1.596
------------------------	-------

PIT-101 (PSIG)	51.5
----------------	------

PIT-102 (PSIA)	65.6
----------------	------

FQI-101 (SLPM)	1859
----------------	------

PIT-201 (PSIA)	65.5
----------------	------

PIT-300 (PSIG)	27.1
----------------	------

FQI-201 (LPM)	0.049
---------------	-------

AE-350 (%LEL)	0
---------------	---

AE-351 (%LEL)	0
---------------	---

AE-500 (%LEL)	0.2
---------------	-----

Ensure the time on the HMI is accurate to the minute, adjust if necessary	Verified
---	----------

UPS enabled?	No
--------------	----

Comments	System on rest cycle upon arrival and system in alarm condition for high room LEL. Cleared alarm and restarted system. . Turned on 1 and 4 to check measurements.
----------	---

Non-XP Room

Fire Extinguisher Check	Needle in the green?, All moving parts appear intact?, No deformation?, Recertification
Heater set to turn on and operation verified?	Yes
Room fan set to turn on and operation verified?	Yes
Bi-Weekly Compressor Maintenance	Check the cooling oil level, Cooler: Check the Filter Mat, Control cabinet: Check Filter Mat, Check the condensate drain, Used compressed air to blow out the air filter mat
Quarterly Compressor Maintenance	Cooler: Change filter mat, Control Cabinet: Change filter mat, Change oil filter
Semiannual Compressor Maintenance	Condensate drain: Change the service unit, Display: Sigma Control 2: Maintain the drive belt, Display: Sigma Control 2: Change the air filter
Is the annual compressor inspection happening during this event?	No
Compressor Audio	1 Audio File
Number of air filters remaining	0
Do we need more compressor oil? (Less than a half gallon remaining)	No
Motor Runtime (hours)	34064
Oil Pressure (PSIG)	13
Wet receiver tank loading pressure (PI-101)	120
Wet receiver tank unloading pressure (PI-101)	130
How full is the condensate drum? (Percentage)	50
PI-101 (PSIG)	120
PI-102 (PSIG)	110
PI-103 (PSIG)	49
Are the trident desiccant dryer meters green?	Yes
Bi-Weekly Non-XP Instrument Maintenance	TCA-101 Verify draining, S-101 Verify autodrain is functioning (makes a loud noise when it turns on and water drains into the condensate drum), PF-101 Verify auto drain operational, CF-101 Verify auto drain operational, TCA-102 Check for moisture, PR-101 Verify pressure
Monthly Non-XP Instrument Maintenance	TCA-101 Inspect for debris sludge clean, Tote Transfer contents of condensate drum into outdoor drum when it is 2/3 full. It will fill up quickly during humid summer months., AD-101 Verify the drying-and-regeneration cycle is normal, AD-101 Verify the silencers are not clogged, AD-101 Inspect and determine the state of the desiccant. Brown (oil-polluted) or dusty desiccant needs to be replaced., PI-103 Verify pressure, PT-103 Check pressure reading on HMI and make sure it is close to a manual pressure gauge, MFC-101 / PIT-102 Check the flow rate to make sure it matches the setpoint on the PLC. Check the pressure reading as well., S-101 Actuate valves and ensure they are working properly (turn on and off and listen for the click), Electric box Open panel to ensure there are no tripped circuit breakers, Close valve on autodrain and clean strainer. Re-open valve to place back into operation.

Semiannual Non-XP Instrument Maintenance	HS-401 Hit button to test system shutdown and that alarm is sent, ENC198 Take used compressor oil to Advanced Auto Parts for recycling (it can be recycled like used car oil), TP-401/402 Verify outlet pressure, TP-401/402 change mechanical seal, TP-401/402 Clean descsale pump, FQI-451-462 Verify digital display ON / replace battery, T-401 / T-402 Verify level
Quarterly Filter Maintenance	PF-101 Check and clean filter (knock out dirt and rinse with DI water). Replace filter if necessary., CF-101 Check and clean filter element and chamber. Replace if necessary., PF-102 Check and replace filter element, PF-103 Check/Replace Filter element, PI-103 Verify pressure, PT-103 Check pressure reading on HMI and make sure it is close to a manual pressure gauge
Desiccant Media Replaced?	No
Which compressed air Alicat is in use (upon leaving system)?	MFC-101A (older)
MFC-101 compressed air temperature	19.88
MFC-101 standardized flow rate on display (SLPM)	1862
MFC-101 uncorrected flow rate on display (LPM)	411
Comments	Cleaned condensate solenoid valve screen.
Non-XP room photo	

XP-Room

First Aid Kit Expiration Date	July 3, 2026
Fire Extinguisher Check	Needle in the green?, All moving parts appear intact?, No deformation?, Recertification
Heater turned on and verified to be operating?	Yes
Fan turned on and verified to be operating?	Yes
PI-201 (PSIG)	74
PI-202 (PSIG)	48
PSH-201 Setpoints	
MFC-201 temperature	26.22
MFC-201 standard flow rate on alicat display during propane cycle (SLPM)	5.69

MFC-201 uncorrected flow rate on alicat display during propane cycle (LPM)	1.78
PI-300 (PSIG)	35
Bi-Weekly XP Instrumentation Checks	FQI-351/352 verify rate, AE-350 Investigate significant changes in the reading. Check the LEL during a propane sparging cycle. Check to make sure the reading is accurate for the conditions (should read 0% in the atmosphere)., AE-351 Investigate significant changes in the reading. Check the LEL during a propane sparging cycle. Check to make sure the reading is accurate for the conditions (should read 0% in the atmosphere)., AE-500 Investigate significant changes in the reading. Check to make sure the reading is accurate for the conditions (should read 0% in the atmosphere).
Monthly XP Instrumentation Checks	MFC-201 / PIT-202 Check the flow rate to make sure it matches the setpoint on the PLC. Check the pressure reading as well, S-201 Actuate valves and ensure it is working properly (turn on and off and listen for the click), PIT-300 Check pressure reading on HMI and make sure it is close to a manual pressure gauge, FQI-301 Check flow reading to make sure it is close to the flow reading on the HMI, S-301 to S-306 Actuate valves and ensure they are working properly (turn on and off and listen for the click)
Semiannual XP Instrumentation Checks	
AE-500 Reading	0
AE-350 reading during propane sparge cycle	0
AE-351 reading during propane sparge cycle	0
Quarterly LEL Meter Calibration	No
Which propane Alicat is in use (upon leaving system)?	MFC-201A (older)
Comments	
XP-room photo	

Zone 1

AS-19-G01 Manifold Pressure (PSIG)	32
AS-19-G01 Manifold Flowrate (3-5 CFM)	0.5
AS-19-G03 Manifold Pressure (PSIG)	32

AS-19-G03 Manifold Flowrate (3-5 CFM)	0.5
AS-19-G06 Manifold Pressure (PSIG)	18
AS-19-G06 Manifold Flowrate (3-5 CFM)	5
AS-19-G09 Manifold Pressure (PSIG)	9
AS-19-G09 Manifold Flowrate (3-5 CFM)	6
AS-19-E02 Manifold Pressure (PSIG)	25
AS-19-E02 Manifold Flowrate (3-5 CFM)	2
AS-19-E05 Manifold Pressure (PSIG)	4
AS-19-E05 Manifold Flowrate (3-5 CFM)	4
AS-19-E08 Manifold Pressure (PSIG)	25
AS-19-E08 Manifold Flowrate (3-5 CFM)	1

Zone 2

AS-19-G02 Manifold Pressure (PSIG)	30
AS-19-G02 Manifold Flowrate (3-5 CFM)	0
AS-19-G05 Manifold Pressure (PSIG)	10
AS-19-G05 Manifold Flowrate (3-5 CFM)	3
AS-19-G08 Manifold Pressure (PSIG)	8
AS-19-G08 Manifold Flowrate (3-5 CFM)	3
AS-19-E01 Manifold Pressure (PSIG)	4
AS-19-E01 Manifold Flowrate (3-5 CFM)	4
AS-19-E04 Manifold Pressure (PSIG)	5
AS-19-E04 Manifold Flowrate (3-5 CFM)	2
AS-19-E07 Manifold Pressure (PSIG)	18
AS-19-E07 Manifold Flowrate (3-5 CFM)	2
AS-19-E10 Manifold Pressure (PSIG)	18
AS-19-E10 Manifold Flowrate (3-5 CFM)	2.5

Zone 3

AS-19-G04 Manifold Pressure (PSIG)	25
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AS-19-G04 Manifold Flowrate (3-5 CFM)	3.5
AS-19-G07 Manifold Pressure (PSIG)	9
AS-19-G07 Manifold Flowrate (3-5 CFM)	0.5
AS-19-G10 Manifold Pressure (PSIG)	12
AS-19-G10 Manifold Flowrate (3-5 CFM)	1.4
AS-19-E03 Manifold Pressure (PSIG)	3
AS-19-E03 Manifold Flowrate (3-5 CFM)	4
AS-19-E06 Manifold Pressure (PSIG)	14
AS-19-E06 Manifold Flowrate (3-5 CFM)	2.5
AS-19-E09 Manifold Pressure (PSIG)	25
AS-19-E09 Manifold Flowrate (3-5 CFM)	2.5
AS-19-E12 Manifold Pressure (PSIG)	15
AS-19-E12 Manifold Flowrate (3-5 CFM)	1.5

Zone 4

AS-19-F12 Manifold Pressure (PSIG)	8
AS-19-F12 Manifold Flowrate (3-5 CFM)	4
AS-19-F09 Manifold Pressure (PSIG)	20
AS-19-F09 Manifold Flowrate (3-5 CFM)	2
AS-19-F06 Manifold Pressure (PSIG)	10
AS-19-F06 Manifold Flowrate (3-5 CFM)	5
AS-19-F03 Manifold Pressure (PSIG)	12
AS-19-F03 Manifold Flowrate (3-5 CFM)	4
AS-19-B06 Manifold Pressure (PSIG)	32
AS-19-B06 Manifold Flowrate (3-5 CFM)	1
AS-19-B03 Manifold Pressure (PSIG)	15
AS-19-B03 Manifold Flowrate (3-5 CFM)	3.5

Zone 5

AS-19-E11 Manifold Pressure (PSIG)	22
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AS-19-E11 Manifold Flowrate (3-5 CFM)	0.5
AS-19-F11 Manifold Pressure (PSIG)	20
AS-19-F11 Manifold Flowrate (3-5 CFM)	2
AS-19-F08 Manifold Pressure (PSIG)	30
AS-19-F08 Manifold Flowrate (3-5 CFM)	4
AS-19-F05 Manifold Pressure (PSIG)	15
AS-19-F05 Manifold Flowrate (3-5 CFM)	4
AS-19-F02 Manifold Pressure (PSIG)	28
AS-19-F02 Manifold Flowrate (3-5 CFM)	2.5
AS-19-B05 Manifold Pressure (PSIG)	12
AS-19-B05 Manifold Flowrate (3-5 CFM)	2.5
AS-19-B02 Manifold Pressure (PSIG)	12
AS-19-B02 Manifold Flowrate (3-5 CFM)	6

Zone 6

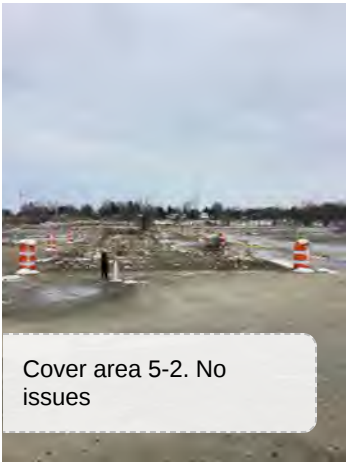
AS-19-F10 Manifold Pressure (PSIG)	19
AS-19-F10 Manifold Flowrate (3-5 CFM)	2.5
AS-19-F07 Manifold Pressure (PSIG)	10
AS-19-F07 Manifold Flowrate (3-5 CFM)	4
AS-19-F04 Manifold Pressure (PSIG)	24
AS-19-F04 Manifold Flowrate (3-5 CFM)	0.5
AS-19-F01 Manifold Pressure (PSIG)	10
AS-19-F01 Manifold Flowrate (3-5 CFM)	3
AS-19-B07 Manifold Pressure (PSIG)	16
AS-19-B07 Manifold Flowrate (3-5 CFM)	1.5
AS-19-B04 Manifold Pressure (PSIG)	10
AS-19-B04 Manifold Flowrate (3-5 CFM)	3
AS-19-B01 Manifold Pressure (PSIG)	10
AS-19-B01 Manifold Flowrate (3-5 CFM)	3

Outdoors and General

Propane tank level (%)	72
Number of condensate drums outside	2
Drum Photo	
 2 condensate drums next to LNAPL displaced water drum  1 LNAPL displaced water drum  1 Plant 2 purge water drum  1 Plant 3 purge water drum  16 empty drums  2 Plant 6 purge water drums	
Electric Meter Reading (kWh)	708253
Last fire extinguisher certification date	September 3, 2024
Walked hose corridors and fixed fallen barrels?	Yes
Checked wellheads for leaks/hissing?	Yes
Comments on wellheads:	No issues
Comments on car parkers and site accessibility:	No issues
Car parking photos if near buildings	
Monthly Outdoor Maintenance Tasks	PR-201 Check pressure on regulator, PSH-201 Check settings, ENC198 Check electric meter at the property boundary pole to track overall electrical usage
Quarterly Building Maintenance Tasks	Wipe down system components to cut down on general grime, Remove trash from the system building, Tidy up system and notify TM of unneeded sampling equipment, Take used compressor oil to Advanced Auto Parts for recycling if there is a full container of used oil

System building photo

Photos



Cover area 5-3. Tightened plastic chain.

Cover area 5-2. No issues

Videos

Any equipment that needs to be ordered?

Comments, questions, ruminations, suggestions for improvement?

Plant 2 building was unlocked upon arrival. System was in alarm condition upon arrival. I reset the alarm and restarted the system. Inspected cover areas 5-3 & 5-2. Both areas looked good. Barrels and chains along both transects looked good.

Signature

Signed 1/2/2025, 9:04:55 AM EST

Departure Time

10:00

Inspection Date	February 5, 2025
Last Quarterly Event Date	
Arrival Time	11:45
Personnel	Billy J Cobern
Weather	Cloudy, 20's
FWL Electrical Meter Reading (kWh)	7860.16

HMI and Control Panel

Surge Suppressor Visual Checks

Main surge suppressor: all 3 green lights on?	Yes
Main Surge Suppressor Comments	
Control panel surge suppressor: all 3 green lights on?	Yes
Control panel Surge Suppressor Comments	
Breaker box surge suppressor: all 3 green lights on?	Yes
Breaker box Surge Suppressor Comments	
HMI display functioning (not frozen)?	Yes
Current zone	Rest
Compressed air setpoint (LPM)	1000
Propane setpoint (LPM)	0
PIT-101 (PSIG)	51.8
PIT-102 (PSIA)	66.1
FQI-101 (SLPM)	1858
PIT-201 (PSIA)	65.4
PIT-300 (PSIG)	29.1
FQI-201 (LPM)	0.044
AE-350 (%LEL)	0
AE-351 (%LEL)	0
AE-500 (%LEL)	0.2
Ensure the time on the HMI is accurate to the minute, adjust if necessary	Verified
UPS enabled?	No
Comments	System off upon arrival. Air compressor fault. Cleared alarm and restarted system. . Turned on 1 and 4 to check measurements.

Non-XP Room

Fire Extinguisher Check	Needle in the green?, All moving parts appear intact?, No deformation?, Recertification
Heater set to turn on and operation verified?	Yes
Room fan set to turn on and operation verified?	Yes
Bi-Weekly Compressor Maintenance	Check the cooling oil level, Cooler: Check the Filter Mat, Control cabinet: Check Filter Mat, Check the condensate drain, Used compressed air to blow out the air filter mat
Quarterly Compressor Maintenance	Cooler: Change filter mat, Control Cabinet: Change filter mat, Change oil filter
Semiannual Compressor Maintenance	Condensate drain: Change the service unit, Display: Sigma Control 2: Maintain the drive belt, Display: Sigma Control 2: Change the air filter
Is the annual compressor inspection happening during this event?	No
Compressor Audio	1 Audio File
Number of air filters remaining	0
Do we need more compressor oil? (Less than a half gallon remaining)	No
Motor Runtime (hours)	34695
Oil Pressure (PSIG)	13
Wet receiver tank loading pressure (PI-101)	120
Wet receiver tank unloading pressure (PI-101)	130
How full is the condensate drum? (Percentage)	50
PI-101 (PSIG)	130
PI-102 (PSIG)	110
PI-103 (PSIG)	49
Are the trident desiccant dryer meters green?	Yes
Bi-Weekly Non-XP Instrument Maintenance	TCA-101 Verify draining, S-101 Verify autodrain is functioning (makes a loud noise when it turns on and water drains into the condensate drum), PF-101 Verify auto drain operational, CF-101 Verify auto drain operational, TCA-102 Check for moisture, PR-101 Verify pressure
Monthly Non-XP Instrument Maintenance	TCA-101 Inspect for debris sludge clean, Tote Transfer contents of condensate drum into outdoor drum when it is 2/3 full. It will fill up quickly during humid summer months., AD-101 Verify the drying-and-regeneration cycle is normal, AD-101 Verify the silencers are not clogged, AD-101 Inspect and determine the state of the desiccant. Brown (oil-polluted) or dusty desiccant needs to be replaced., PI-103 Verify pressure, PT-103 Check pressure reading on HMI and make sure it is close to a manual pressure gauge, MFC-101 / PIT-102 Check the flow rate to make sure it matches the setpoint on the PLC. Check the pressure reading as well., S-101 Actuate valves and ensure they are working properly (turn on and off and listen for the click), Electric box Open panel to ensure there are no tripped circuit breakers, Close valve on autodrain and clean strainer. Re-open valve to place back into operation.

Semiannual Non-XP Instrument Maintenance	HS-401 Hit button to test system shutdown and that alarm is sent, ENC198 Take used compressor oil to Advanced Auto Parts for recycling (it can be recycled like used car oil), TP-401/402 Verify outlet pressure, TP-401/402 change mechanical seal, TP-401/402 Clean descsale pump, FQI-451-462 Verify digital display ON / replace battery, T-401 / T-402 Verify level
Quarterly Filter Maintenance	PF-101 Check and clean filter (knock out dirt and rinse with DI water). Replace filter if necessary., CF-101 Check and clean filter element and chamber. Replace if necessary., PF-102 Check and replace filter element, PF-103 Check/Replace Filter element, PI-103 Verify pressure, PT-103 Check pressure reading on HMI and make sure it is close to a manual pressure gauge
Desiccant Media Replaced?	No
Which compressed air Alicat is in use (upon leaving system)?	MFC-101A (older)
MFC-101 compressed air temperature	21.32
MFC-101 standardized flow rate on display (SLPM)	1860
MFC-101 uncorrected flow rate on display (LPM)	409
Comments	Cleaned condensate solenoid valve screen.
Non-XP room photo	

XP-Room

First Aid Kit Expiration Date	July 3, 2026
Fire Extinguisher Check	Needle in the green?, All moving parts appear intact?, No deformation?, Recertification
Heater turned on and verified to be operating?	Yes
Fan turned on and verified to be operating?	Yes
PI-201 (PSIG)	70
PI-202 (PSIG)	48
PSH-201 Setpoints	
MFC-201 temperature	28.22
MFC-201 standard flow rate on alicat display during propane cycle (SLPM)	5.56

MFC-201 uncorrected flow rate on alicat display during propane cycle (LPM)	1.67
PI-300 (PSIG)	38
Bi-Weekly XP Instrumentation Checks	FQI-351/352 verify rate, AE-350 Investigate significant changes in the reading. Check the LEL during a propane sparging cycle. Check to make sure the reading is accurate for the conditions (should read 0% in the atmosphere)., AE-351 Investigate significant changes in the reading. Check the LEL during a propane sparging cycle. Check to make sure the reading is accurate for the conditions (should read 0% in the atmosphere)., AE-500 Investigate significant changes in the reading. Check to make sure the reading is accurate for the conditions (should read 0% in the atmosphere).
Monthly XP Instrumentation Checks	MFC-201 / PIT-202 Check the flow rate to make sure it matches the setpoint on the PLC. Check the pressure reading as well, S-201 Actuate valves and ensure it is working properly (turn on and off and listen for the click), PIT-300 Check pressure reading on HMI and make sure it is close to a manual pressure gauge, FQI-301 Check flow reading to make sure it is close to the flow reading on the HMI, S-301 to S-306 Actuate valves and ensure they are working properly (turn on and off and listen for the click)
Semiannual XP Instrumentation Checks	
AE-500 Reading	0
AE-350 reading during propane sparge cycle	0
AE-351 reading during propane sparge cycle	0
Quarterly LEL Meter Calibration	No
Which propane Alicat is in use (upon leaving system)?	MFC-201A (older)
Comments	
XP-room photo	

Zone 1

AS-19-G01 Manifold Pressure (PSIG)	34
AS-19-G01 Manifold Flowrate (3-5 CFM)	0.5
AS-19-G03 Manifold Pressure (PSIG)	33

AS-19-G03 Manifold Flowrate (3-5 CFM)	0.5
AS-19-G06 Manifold Pressure (PSIG)	19
AS-19-G06 Manifold Flowrate (3-5 CFM)	6
AS-19-G09 Manifold Pressure (PSIG)	9
AS-19-G09 Manifold Flowrate (3-5 CFM)	6
AS-19-E02 Manifold Pressure (PSIG)	26
AS-19-E02 Manifold Flowrate (3-5 CFM)	2
AS-19-E05 Manifold Pressure (PSIG)	4
AS-19-E05 Manifold Flowrate (3-5 CFM)	4
AS-19-E08 Manifold Pressure (PSIG)	27
AS-19-E08 Manifold Flowrate (3-5 CFM)	1.5

Zone 2

AS-19-G02 Manifold Pressure (PSIG)	32
AS-19-G02 Manifold Flowrate (3-5 CFM)	0
AS-19-G05 Manifold Pressure (PSIG)	18
AS-19-G05 Manifold Flowrate (3-5 CFM)	2
AS-19-G08 Manifold Pressure (PSIG)	10
AS-19-G08 Manifold Flowrate (3-5 CFM)	2.5
AS-19-E01 Manifold Pressure (PSIG)	5
AS-19-E01 Manifold Flowrate (3-5 CFM)	4
AS-19-E04 Manifold Pressure (PSIG)	8
AS-19-E04 Manifold Flowrate (3-5 CFM)	2
AS-19-E07 Manifold Pressure (PSIG)	19
AS-19-E07 Manifold Flowrate (3-5 CFM)	2
AS-19-E10 Manifold Pressure (PSIG)	18
AS-19-E10 Manifold Flowrate (3-5 CFM)	2.5

Zone 3

AS-19-G04 Manifold Pressure (PSIG)	25
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AS-19-G04 Manifold Flowrate (3-5 CFM)	2
AS-19-G07 Manifold Pressure (PSIG)	9
AS-19-G07 Manifold Flowrate (3-5 CFM)	1
AS-19-G10 Manifold Pressure (PSIG)	11
AS-19-G10 Manifold Flowrate (3-5 CFM)	2
AS-19-E03 Manifold Pressure (PSIG)	5
AS-19-E03 Manifold Flowrate (3-5 CFM)	4
AS-19-E06 Manifold Pressure (PSIG)	15
AS-19-E06 Manifold Flowrate (3-5 CFM)	3.5
AS-19-E09 Manifold Pressure (PSIG)	28
AS-19-E09 Manifold Flowrate (3-5 CFM)	2
AS-19-E12 Manifold Pressure (PSIG)	25
AS-19-E12 Manifold Flowrate (3-5 CFM)	0.5

Zone 4

AS-19-F12 Manifold Pressure (PSIG)	7
AS-19-F12 Manifold Flowrate (3-5 CFM)	4
AS-19-F09 Manifold Pressure (PSIG)	20
AS-19-F09 Manifold Flowrate (3-5 CFM)	2.5
AS-19-F06 Manifold Pressure (PSIG)	10
AS-19-F06 Manifold Flowrate (3-5 CFM)	5.5
AS-19-F03 Manifold Pressure (PSIG)	15
AS-19-F03 Manifold Flowrate (3-5 CFM)	4
AS-19-B06 Manifold Pressure (PSIG)	33
AS-19-B06 Manifold Flowrate (3-5 CFM)	1
AS-19-B03 Manifold Pressure (PSIG)	15
AS-19-B03 Manifold Flowrate (3-5 CFM)	3.5

Zone 5

AS-19-E11 Manifold Pressure (PSIG)	24
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AS-19-E11 Manifold Flowrate (3-5 CFM)	0.5
AS-19-F11 Manifold Pressure (PSIG)	20
AS-19-F11 Manifold Flowrate (3-5 CFM)	2
AS-19-F08 Manifold Pressure (PSIG)	31
AS-19-F08 Manifold Flowrate (3-5 CFM)	3
AS-19-F05 Manifold Pressure (PSIG)	15
AS-19-F05 Manifold Flowrate (3-5 CFM)	3
AS-19-F02 Manifold Pressure (PSIG)	30
AS-19-F02 Manifold Flowrate (3-5 CFM)	2
AS-19-B05 Manifold Pressure (PSIG)	14
AS-19-B05 Manifold Flowrate (3-5 CFM)	3.5
AS-19-B02 Manifold Pressure (PSIG)	14
AS-19-B02 Manifold Flowrate (3-5 CFM)	5.5

Zone 6

AS-19-F10 Manifold Pressure (PSIG)	21
AS-19-F10 Manifold Flowrate (3-5 CFM)	2
AS-19-F07 Manifold Pressure (PSIG)	12
AS-19-F07 Manifold Flowrate (3-5 CFM)	4
AS-19-F04 Manifold Pressure (PSIG)	27
AS-19-F04 Manifold Flowrate (3-5 CFM)	0.5
AS-19-F01 Manifold Pressure (PSIG)	11
AS-19-F01 Manifold Flowrate (3-5 CFM)	3
AS-19-B07 Manifold Pressure (PSIG)	18
AS-19-B07 Manifold Flowrate (3-5 CFM)	1.5
AS-19-B04 Manifold Pressure (PSIG)	15
AS-19-B04 Manifold Flowrate (3-5 CFM)	3
AS-19-B01 Manifold Pressure (PSIG)	12
AS-19-B01 Manifold Flowrate (3-5 CFM)	3

Outdoors and General

Propane tank level (%) 69

Number of condensate drums outside 2

Drum Photo

Electric Meter Reading (kWh) 723050

Last fire extinguisher certification date September 3, 2024

Walked hose corridors and fixed fallen barrels? Yes

Checked wellheads for leaks/hissing? Yes

Comments on wellheads: No issues

Comments on car parkers and site accessibility: No issues

Car parking photos if near buildings

Monthly Outdoor Maintenance Tasks PR-201 Check pressure on regulator, PSH-201 Check settings, ENC198 Check electric meter at the property boundary pole to track overall electrical usage

Quarterly Building Maintenance Tasks Wipe down system components to cut down on general grime, Remove trash from the system building, Tidy up system and notify TM of unneeded sampling equipment, Take used compressor oil to Advanced Auto Parts for recycling if there is a full container of used oil

System building photo

Photos



Videos

Any equipment that needs to be ordered?

Comments, questions, ruminations, suggestions for improvement?

System was in alarm condition upon arrival. I reset the alarm and restarted the compressor. Inspected cover areas 5-3 & 5-2. Both areas looked good. Barrels and chains along both transects looked good.

Signature

Signed 2/5/2025, 12:41:29 PM EST

Departure Time

14:00

Inspection Date	March 7, 2025
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Last Quarterly Event Date	
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Arrival Time	07:55
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Personnel	Billy J Cobern
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Weather	Cloudy, 30's
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FWL Electrical Meter Reading (kWh)	8237.07
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HMI and Control Panel

Surge Suppressor Visual Checks

Main surge suppressor: all 3 green lights on?	Yes
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Main Surge Suppressor Comments	
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Control panel surge suppressor: all 3 green lights on?	Yes
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Control panel Surge Suppressor Comments	
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Breaker box surge suppressor: all 3 green lights on?	Yes
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Breaker box Surge Suppressor Comments	
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HMI display functioning (not frozen)?	Yes
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Current zone	Zone 2 and 5
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Compressed air setpoint (LPM)	2000
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Propane setpoint (LPM)	1.811
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PIT-101 (PSIG)	51.3
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PIT-102 (PSIA)	65.2
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FQI-101 (SLPM)	2002
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PIT-201 (PSIA)	26.3
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PIT-300 (PSIG)	28
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FQI-201 (LPM)	0
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AE-350 (%LEL)	0.1
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AE-351 (%LEL)	0.1
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AE-500 (%LEL)	0.2
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Ensure the time on the HMI is accurate to the minute, adjust if necessary	Verified
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UPS enabled?	Yes
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Comments	Readings taken @10:30
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Non-XP Room

Fire Extinguisher Check	Needle in the green?, All moving parts appear intact?, No deformation?
Heater set to turn on and operation verified?	Yes
Room fan set to turn on and operation verified?	Yes
Bi-Weekly Compressor Maintenance	Check the cooling oil level, Cooler: Check the Filter Mat, Control cabinet: Check Filter Mat, Check the condensate drain
Quarterly Compressor Maintenance	Cooler: Change filter mat, Control Cabinet: Change filter mat
Semiannual Compressor Maintenance	No
Is the annual compressor inspection happening during this event?	No
Compressor Audio	1 Audio File
Number of air filters remaining	0
Do we need more compressor oil? (Less than a half gallon remaining)	No
Motor Runtime (hours)	35235
Oil Pressure (PSIG)	10
Wet receiver tank loading pressure (PI-101)	120
Wet receiver tank unloading pressure (PI-101)	130
How full is the condensate drum? (Percentage)	50
PI-101 (PSIG)	120
PI-102 (PSIG)	95
PI-103 (PSIG)	49
Are the trident desiccant dryer meters green?	Yes
Bi-Weekly Non-XP Instrument Maintenance	TCA-101 Verify draining, S-101 Verify autodrain is functioning (makes a loud noise when it turns on and water drains into the condensate drum), PF-101 Verify auto drain operational, CF-101 Verify auto drain operational, TCA-102 Check for moisture, PR-101 Verify pressure
Monthly Non-XP Instrument Maintenance	TCA-101 Inspect for debris sludge clean, Tote Transfer contents of condensate drum into outdoor drum when it is 2/3 full. It will fill up quickly during humid summer months., AD-101 Verify the drying-and-regeneration cycle is normal, AD-101 Verify the silencers are not clogged, AD-101 Inspect and determine the state of the desiccant. Brown (oil-polluted) or dusty desiccant needs to be replaced., PI-103 Verify pressure, PT-103 Check pressure reading on HMI and make sure it is close to a manual pressure gauge, MFC-101 / PIT-102 Check the flow rate to make sure it matches the setpoint on the PLC. Check the pressure reading as well., S-101 Actuate valves and ensure they are working properly (turn on and off and listen for the click), Electric box Open panel to ensure there are no tripped circuit breakers, Close valve on autodrain and clean strainer. Re-open valve to place back into operation.
Semiannual Non-XP Instrument Maintenance	No

Quarterly Filter Maintenance	CF-101 Check and clean filter element and chamber. Replace if necessary., PF-102 Check and replace filter element, PF-103 Check/Replace Filter element, PI-103 Verify pressure, PT-103 Check pressure reading on HMI and make sure it is close to a manual pressure gauge, PF-101 Check and clean filter (knock out dirt and rinse with DI water). Replace filter if necessary.
Desiccant Media Replaced?	No
Which compressed air Alicat is in use (upon leaving system)?	MFC-101A (older)
MFC-101 compressed air temperature	21.02
MFC-101 standardized flow rate on display (SLPM)	2001
MFC-101 uncorrected flow rate on display (LPM)	445
Comments	Air components on site for the quarterly compressor maintenance
Non-XP room photo	

XP-Room

First Aid Kit Expiration Date	April 7, 2026
Fire Extinguisher Check	Needle in the green?, All moving parts appear intact?, No deformation?
Heater turned on and verified to be operating?	Yes
Fan turned on and verified to be operating?	Yes
PI-201 (PSIG)	80
PI-202 (PSIG)	50
PSH-201 Setpoints	High setpoint at 80 psi, Deadband at 20 psi
MFC-201 temperature	20.43
MFC-201 standard flow rate on alicat display during propane cycle (SLPM)	6.01
MFC-201 uncorrected flow rate on alicat display during propane cycle (LPM)	2.32
PI-300 (PSIG)	26

Bi-Weekly XP Instrumentation Checks	AE-350 Investigate significant changes in the reading. Check the LEL during a propane sparging cycle. Check to make sure the reading is accurate for the conditions (should read 0% in the atmosphere)., AE-351 Investigate significant changes in the reading. Check the LEL during a propane sparging cycle. Check to make sure the reading is accurate for the conditions (should read 0% in the atmosphere)., AE-500 Investigate significant changes in the reading. Check to make sure the reading is accurate for the conditions (should read 0% in the atmosphere).
Monthly XP Instrumentation Checks	MFC-201 / PIT-202 Check the flow rate to make sure it matches the setpoint on the PLC. Check the pressure reading as well, S-201 Actuate valves and ensure it is working properly (turn on and off and listen for the click), PIT-300 Check pressure reading on HMI and make sure it is close to a manual pressure gauge, FQI-301 Check flow reading to make sure it is close to the flow reading on the HMI, S-301 to S-306 Actuate valves and ensure they are working properly (turn on and off and listen for the click)
Semiannual XP Instrumentation Checks	HS-402 Hit button to test system shutdown and that alarm is sent
AE-500 Reading	0
AE-350 reading during propane sparge cycle	0
AE-351 reading during propane sparge cycle	0
Quarterly LEL Meter Calibration	Yes: AE-500 calibrated
Which propane Alicat is in use (upon leaving system)?	MFC-201A (older)
Comments	
XP-room photo	

Zone 1

AS-19-G01 Manifold Pressure (PSIG)	30
AS-19-G01 Manifold Flowrate (3-5 CFM)	0.5
AS-19-G03 Manifold Pressure (PSIG)	30
AS-19-G03 Manifold Flowrate (3-5 CFM)	1
AS-19-G06 Manifold Pressure (PSIG)	15
AS-19-G06 Manifold Flowrate (3-5 CFM)	3

AS-19-G09 Manifold Pressure (PSIG)	8
AS-19-G09 Manifold Flowrate (3-5 CFM)	6
AS-19-E02 Manifold Pressure (PSIG)	25
AS-19-E02 Manifold Flowrate (3-5 CFM)	2
AS-19-E05 Manifold Pressure (PSIG)	6
AS-19-E05 Manifold Flowrate (3-5 CFM)	4
AS-19-E08 Manifold Pressure (PSIG)	24
AS-19-E08 Manifold Flowrate (3-5 CFM)	3

Zone 2

AS-19-G02 Manifold Pressure (PSIG)	25
AS-19-G02 Manifold Flowrate (3-5 CFM)	0.5
AS-19-G05 Manifold Pressure (PSIG)	10
AS-19-G05 Manifold Flowrate (3-5 CFM)	3
AS-19-G08 Manifold Pressure (PSIG)	8
AS-19-G08 Manifold Flowrate (3-5 CFM)	4
AS-19-E01 Manifold Pressure (PSIG)	2
AS-19-E01 Manifold Flowrate (3-5 CFM)	4
AS-19-E04 Manifold Pressure (PSIG)	6
AS-19-E04 Manifold Flowrate (3-5 CFM)	4
AS-19-E07 Manifold Pressure (PSIG)	15
AS-19-E07 Manifold Flowrate (3-5 CFM)	4
AS-19-E10 Manifold Pressure (PSIG)	15
AS-19-E10 Manifold Flowrate (3-5 CFM)	3

Zone 3

AS-19-G04 Manifold Pressure (PSIG)	22
AS-19-G04 Manifold Flowrate (3-5 CFM)	4
AS-19-G07 Manifold Pressure (PSIG)	5
AS-19-G07 Manifold Flowrate (3-5 CFM)	4

AS-19-G10 Manifold Pressure (PSIG)	10
AS-19-G10 Manifold Flowrate (3-5 CFM)	4
AS-19-E03 Manifold Pressure (PSIG)	2
AS-19-E03 Manifold Flowrate (3-5 CFM)	4
AS-19-E06 Manifold Pressure (PSIG)	10
AS-19-E06 Manifold Flowrate (3-5 CFM)	3
AS-19-E09 Manifold Pressure (PSIG)	22
AS-19-E09 Manifold Flowrate (3-5 CFM)	3
AS-19-E12 Manifold Pressure (PSIG)	12
AS-19-E12 Manifold Flowrate (3-5 CFM)	2.5

Zone 4

AS-19-F12 Manifold Pressure (PSIG)	10
AS-19-F12 Manifold Flowrate (3-5 CFM)	4
AS-19-F09 Manifold Pressure (PSIG)	20
AS-19-F09 Manifold Flowrate (3-5 CFM)	3
AS-19-F06 Manifold Pressure (PSIG)	10
AS-19-F06 Manifold Flowrate (3-5 CFM)	5
AS-19-F03 Manifold Pressure (PSIG)	14
AS-19-F03 Manifold Flowrate (3-5 CFM)	4
AS-19-B06 Manifold Pressure (PSIG)	32
AS-19-B06 Manifold Flowrate (3-5 CFM)	2
AS-19-B03 Manifold Pressure (PSIG)	10
AS-19-B03 Manifold Flowrate (3-5 CFM)	4

Zone 5

AS-19-E11 Manifold Pressure (PSIG)	20
AS-19-E11 Manifold Flowrate (3-5 CFM)	0.5
AS-19-F11 Manifold Pressure (PSIG)	18
AS-19-F11 Manifold Flowrate (3-5 CFM)	2

AS-19-F08 Manifold Pressure (PSIG)	22
AS-19-F08 Manifold Flowrate (3-5 CFM)	4
AS-19-F05 Manifold Pressure (PSIG)	8
AS-19-F05 Manifold Flowrate (3-5 CFM)	3
AS-19-F02 Manifold Pressure (PSIG)	25
AS-19-F02 Manifold Flowrate (3-5 CFM)	3.5
AS-19-B05 Manifold Pressure (PSIG)	10
AS-19-B05 Manifold Flowrate (3-5 CFM)	3.5
AS-19-B02 Manifold Pressure (PSIG)	12
AS-19-B02 Manifold Flowrate (3-5 CFM)	4

Zone 6

AS-19-F10 Manifold Pressure (PSIG)	10
AS-19-F10 Manifold Flowrate (3-5 CFM)	4
AS-19-F07 Manifold Pressure (PSIG)	10
AS-19-F07 Manifold Flowrate (3-5 CFM)	4
AS-19-F04 Manifold Pressure (PSIG)	16
AS-19-F04 Manifold Flowrate (3-5 CFM)	3
AS-19-F01 Manifold Pressure (PSIG)	14
AS-19-F01 Manifold Flowrate (3-5 CFM)	3
AS-19-B07 Manifold Pressure (PSIG)	14
AS-19-B07 Manifold Flowrate (3-5 CFM)	3
AS-19-B04 Manifold Pressure (PSIG)	9
AS-19-B04 Manifold Flowrate (3-5 CFM)	3.5
AS-19-B01 Manifold Pressure (PSIG)	11
AS-19-B01 Manifold Flowrate (3-5 CFM)	3

Outdoors and General

Propane tank level (%)	65
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Number of condensate drums outside	2
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Drum Photo



Electric Meter Reading (kWh)	735669
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Last fire extinguisher certification date	September 7, 2024
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Walked hose corridors and fixed fallen barrels?	Yes
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Checked wellheads for leaks/hissing?	Yes
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Comments on wellheads:	All good
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Comments on car parkers and site accessibility:	N/A no cars on lot
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Car parking photos if near buildings

Monthly Outdoor Maintenance Tasks	PR-201 Check pressure on regulator, PSH-201 Check settings, ENC198 Check electric meter at the property boundary pole to track overall electrical usage
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Quarterly Building Maintenance Tasks	Wipe down system components to cut down on general grime, Remove trash from the system building, Tidy up system and notify TM of unneeded sampling equipment, Take used compressor oil to Advanced Auto Parts for recycling if there is a full container of used oil
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System building photo

Photos



Cover area 5-3 no issues

Cover area 5-2 no issues

Videos

Any equipment that needs to be ordered? No

Comments, questions, ruminations, suggestions for improvement?

Signature

Signed 3/7/2025, 11:20:01 AM EST

Departure Time 12:30

Inspection Date	April 4, 2025
Last Quarterly Event Date	
Arrival Time	07:45
Personnel	Billy J Cobern
Weather	Partly Cloudy, 30's
FWL Electrical Meter Reading (kWh)	8237.07

HMI and Control Panel

Surge Suppressor Visual Checks

Main surge suppressor: all 3 green lights on?	Yes
Main Surge Suppressor Comments	
Control panel surge suppressor: all 3 green lights on?	Yes
Control panel Surge Suppressor Comments	
Breaker box surge suppressor: all 3 green lights on?	Yes
Breaker box Surge Suppressor Comments	
HMI display functioning (not frozen)?	Yes
Current zone	Rest
Compressed air setpoint (LPM)	2000
Propane setpoint (LPM)	6
PIT-101 (PSIG)	57.6
PIT-102 (PSIA)	71.7
FQI-101 (SLPM)	1861
PIT-201 (PSIA)	41.5
PIT-300 (PSIG)	32.3
FQI-201 (LPM)	0.198
AE-350 (%LEL)	0.1
AE-351 (%LEL)	0.1
AE-500 (%LEL)	0.1
Ensure the time on the HMI is accurate to the minute, adjust if necessary	Verified
UPS enabled?	Yes
Comments	Activated zones 1&4 on a gas cycle to collect readings

Non-XP Room

Fire Extinguisher Check	Needle in the green?, All moving parts appear intact?, No deformation?
Heater set to turn on and operation verified?	Yes
Room fan set to turn on and operation verified?	Yes
Bi-Weekly Compressor Maintenance	Check the cooling oil level, Cooler: Check the Filter Mat, Control cabinet: Check Filter Mat, Check the condensate drain
Quarterly Compressor Maintenance	Cooler: Change filter mat, Control Cabinet: Change filter mat
Semiannual Compressor Maintenance	No
Is the annual compressor inspection happening during this event?	No
Compressor Audio	1 Audio File
Number of air filters remaining	0
Do we need more compressor oil? (Less than a half gallon remaining)	No
Motor Runtime (hours)	35838
Oil Pressure (PSIG)	10
Wet receiver tank loading pressure (PI-101)	120
Wet receiver tank unloading pressure (PI-101)	130
How full is the condensate drum? (Percentage)	60
PI-101 (PSIG)	130
PI-102 (PSIG)	115
PI-103 (PSIG)	54
Are the trident desiccant dryer meters green?	Yes
Bi-Weekly Non-XP Instrument Maintenance	TCA-101 Verify draining, S-101 Verify autodrain is functioning (makes a loud noise when it turns on and water drains into the condensate drum), PF-101 Verify auto drain operational, CF-101 Verify auto drain operational, TCA-102 Check for moisture, PR-101 Verify pressure
Monthly Non-XP Instrument Maintenance	TCA-101 Inspect for debris sludge clean, Tote Transfer contents of condensate drum into outdoor drum when it is 2/3 full. It will fill up quickly during humid summer months., AD-101 Verify the drying-and-regeneration cycle is normal, AD-101 Verify the silencers are not clogged, AD-101 Inspect and determine the state of the desiccant. Brown (oil-polluted) or dusty desiccant needs to be replaced., PI-103 Verify pressure, PT-103 Check pressure reading on HMI and make sure it is close to a manual pressure gauge, MFC-101 / PIT-102 Check the flow rate to make sure it matches the setpoint on the PLC. Check the pressure reading as well., S-101 Actuate valves and ensure they are working properly (turn on and off and listen for the click), Electric box Open panel to ensure there are no tripped circuit breakers, Close valve on autodrain and clean strainer. Re-open valve to place back into operation.
Semiannual Non-XP Instrument Maintenance	No

Quarterly Filter Maintenance	CF-101 Check and clean filter element and chamber. Replace if necessary., PF-102 Check and replace filter element, PF-103 Check/Replace Filter element, PI-103 Verify pressure, PT-103 Check pressure reading on HMI and make sure it is close to a manual pressure gauge, PF-101 Check and clean filter (knock out dirt and rinse with DI water). Replace filter if necessary.
Desiccant Media Replaced?	No
Which compressed air Alicat is in use (upon leaving system)?	MFC-101A (older)
MFC-101 compressed air temperature	10.13
MFC-101 standardized flow rate on display (SLPM)	1860
MFC-101 uncorrected flow rate on display (LPM)	445
Comments	
Non-XP room photo	

XP-Room

First Aid Kit Expiration Date	April 7, 2026
Fire Extinguisher Check	Needle in the green?, All moving parts appear intact?, No deformation?
Heater turned on and verified to be operating?	Yes
Fan turned on and verified to be operating?	Yes
PI-201 (PSIG)	64
PI-202 (PSIG)	60
PSH-201 Setpoints	High setpoint at 80 psi, Deadband at 20 psi
MFC-201 temperature	22.81
MFC-201 standard flow rate on alicat display during propane cycle (SLPM)	5.59
MFC-201 uncorrected flow rate on alicat display during propane cycle (LPM)	1.54
PI-300 (PSIG)	40

Bi-Weekly XP Instrumentation Checks

AE-350 Investigate significant changes in the reading. Check the LEL during a propane sparging cycle. Check to make sure the reading is accurate for the conditions (should read 0% in the atmosphere)., AE-351 Investigate significant changes in the reading. Check the LEL during a propane sparging cycle. Check to make sure the reading is accurate for the conditions (should read 0% in the atmosphere)., AE-500 Investigate significant changes in the reading. Check to make sure the reading is accurate for the conditions (should read 0% in the atmosphere).

Monthly XP Instrumentation Checks

MFC-201 / PIT-202 Check the flow rate to make sure it matches the setpoint on the PLC. Check the pressure reading as well, S-201 Actuate valves and ensure it is working properly (turn on and off and listen for the click), PIT-300 Check pressure reading on HMI and make sure it is close to a manual pressure gauge, FQI-301 Check flow reading to make sure it is close to the flow reading on the HMI, S-301 to S-306 Actuate valves and ensure they are working properly (turn on and off and listen for the click)

Semiannual XP Instrumentation Checks

AE-500 Reading

0

AE-350 reading during propane sparge cycle

0

AE-351 reading during propane sparge cycle

0

Quarterly LEL Meter Calibration

Yes: AE-500 calibrated

Which propane Alicat is in use (upon leaving system)?

MFC-201A (older)

Comments

XP-room photo

Zone 1

AS-19-G01 Manifold Pressure (PSIG) | 36

AS-19-G01 Manifold Flowrate (3-5 CFM) | 0.5

AS-19-G03 Manifold Pressure (PSIG) | 36

AS-19-G03 Manifold Flowrate (3-5 CFM) | 0.5

AS-19-G06 Manifold Pressure (PSIG) | 15

AS-19-G06 Manifold Flowrate (3-5 CFM) | 4

AS-19-G09 Manifold Pressure (PSIG)	5
AS-19-G09 Manifold Flowrate (3-5 CFM)	8
AS-19-E02 Manifold Pressure (PSIG)	0
AS-19-E02 Manifold Flowrate (3-5 CFM)	0
AS-19-E05 Manifold Pressure (PSIG)	6
AS-19-E05 Manifold Flowrate (3-5 CFM)	5
AS-19-E08 Manifold Pressure (PSIG)	22
AS-19-E08 Manifold Flowrate (3-5 CFM)	4

Zone 2

AS-19-G02 Manifold Pressure (PSIG)	25
AS-19-G02 Manifold Flowrate (3-5 CFM)	0.5
AS-19-G05 Manifold Pressure (PSIG)	11
AS-19-G05 Manifold Flowrate (3-5 CFM)	3
AS-19-G08 Manifold Pressure (PSIG)	9
AS-19-G08 Manifold Flowrate (3-5 CFM)	3
AS-19-E01 Manifold Pressure (PSIG)	4
AS-19-E01 Manifold Flowrate (3-5 CFM)	4
AS-19-E04 Manifold Pressure (PSIG)	10
AS-19-E04 Manifold Flowrate (3-5 CFM)	5
AS-19-E07 Manifold Pressure (PSIG)	15
AS-19-E07 Manifold Flowrate (3-5 CFM)	3
AS-19-E10 Manifold Pressure (PSIG)	14
AS-19-E10 Manifold Flowrate (3-5 CFM)	3

Zone 3

AS-19-G04 Manifold Pressure (PSIG)	0
AS-19-G04 Manifold Flowrate (3-5 CFM)	0
AS-19-G07 Manifold Pressure (PSIG)	7
AS-19-G07 Manifold Flowrate (3-5 CFM)	3

AS-19-G10 Manifold Pressure (PSIG)	15
AS-19-G10 Manifold Flowrate (3-5 CFM)	3
AS-19-E03 Manifold Pressure (PSIG)	8
AS-19-E03 Manifold Flowrate (3-5 CFM)	5
AS-19-E06 Manifold Pressure (PSIG)	8
AS-19-E06 Manifold Flowrate (3-5 CFM)	4
AS-19-E09 Manifold Pressure (PSIG)	22
AS-19-E09 Manifold Flowrate (3-5 CFM)	4
AS-19-E12 Manifold Pressure (PSIG)	0
AS-19-E12 Manifold Flowrate (3-5 CFM)	20

Zone 4

AS-19-F12 Manifold Pressure (PSIG)	22
AS-19-F12 Manifold Flowrate (3-5 CFM)	6
AS-19-F09 Manifold Pressure (PSIG)	12
AS-19-F09 Manifold Flowrate (3-5 CFM)	4
AS-19-F06 Manifold Pressure (PSIG)	9
AS-19-F06 Manifold Flowrate (3-5 CFM)	3
AS-19-F03 Manifold Pressure (PSIG)	10
AS-19-F03 Manifold Flowrate (3-5 CFM)	3
AS-19-B06 Manifold Pressure (PSIG)	0
AS-19-B06 Manifold Flowrate (3-5 CFM)	0
AS-19-B03 Manifold Pressure (PSIG)	15
AS-19-B03 Manifold Flowrate (3-5 CFM)	5

Zone 5

AS-19-E11 Manifold Pressure (PSIG)	0
AS-19-E11 Manifold Flowrate (3-5 CFM)	0
AS-19-F11 Manifold Pressure (PSIG)	20
AS-19-F11 Manifold Flowrate (3-5 CFM)	2

AS-19-F08 Manifold Pressure (PSIG)	21
AS-19-F08 Manifold Flowrate (3-5 CFM)	5
AS-19-F05 Manifold Pressure (PSIG)	8
AS-19-F05 Manifold Flowrate (3-5 CFM)	3
AS-19-F02 Manifold Pressure (PSIG)	22
AS-19-F02 Manifold Flowrate (3-5 CFM)	4
AS-19-B05 Manifold Pressure (PSIG)	10
AS-19-B05 Manifold Flowrate (3-5 CFM)	4
AS-19-B02 Manifold Pressure (PSIG)	12
AS-19-B02 Manifold Flowrate (3-5 CFM)	5

Zone 6

AS-19-F10 Manifold Pressure (PSIG)	10
AS-19-F10 Manifold Flowrate (3-5 CFM)	3
AS-19-F07 Manifold Pressure (PSIG)	10
AS-19-F07 Manifold Flowrate (3-5 CFM)	3.5
AS-19-F04 Manifold Pressure (PSIG)	17
AS-19-F04 Manifold Flowrate (3-5 CFM)	4
AS-19-F01 Manifold Pressure (PSIG)	15
AS-19-F01 Manifold Flowrate (3-5 CFM)	3
AS-19-B07 Manifold Pressure (PSIG)	15
AS-19-B07 Manifold Flowrate (3-5 CFM)	3.5
AS-19-B04 Manifold Pressure (PSIG)	15
AS-19-B04 Manifold Flowrate (3-5 CFM)	3.5
AS-19-B01 Manifold Pressure (PSIG)	19
AS-19-B01 Manifold Flowrate (3-5 CFM)	2.5

Outdoors and General

Propane tank level (%)	60
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Number of condensate drums outside	6
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Drum Photo

Electric Meter Reading (kWh)	746414
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Last fire extinguisher certification date	September 7, 2024
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Walked hose corridors and fixed fallen barrels?	Yes
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Checked wellheads for leaks/hissing?	Yes
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Comments on wellheads:	E-02, G-04, E-12, B-06, & E-11 are off due to leaks after the nutrient injections.
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Comments on car parkers and site accessibility:	N/A no cars on lot
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Car parking photos if near buildings

Monthly Outdoor Maintenance Tasks	PR-201 Check pressure on regulator, PSH-201 Check settings, ENC198 Check electric meter at the property boundary pole to track overall electrical usage
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Quarterly Building Maintenance Tasks	Wipe down system components to cut down on general grime, Remove trash from the system building, Tidy up system and notify TM of unneeded sampling equipment, Take used compressor oil to Advanced Auto Parts for recycling if there is a full container of used oil
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System building photo

Photos



Videos	
Any equipment that needs to be ordered?	No
Comments, questions, ruminations, suggestions for improvement?	Several barrels down due to storms from the previous weekend. I picked up the drums and reattached the chains. Propane tank pressure is at 65 psi. I did not adjust it because we are going to have AmeriGas install a new regulator next week. Cleaned the auto drain. Pump 175 gallons of condensate into 4 drums.
Signature	Signed 4/4/2025, 8:38:10 AM EDT
Departure Time	12:30

Inspection Date	May 2, 2025
Last Quarterly Event Date	
Arrival Time	08:00
Personnel	Billy J Cobern
Weather	Mostly Cloudy, 40's-50's
FWL Electrical Meter Reading (kWh)	8237.07

HMI and Control Panel

Surge Suppressor Visual Checks

Main surge suppressor: all 3 green lights on?	Yes
Main Surge Suppressor Comments	
Control panel surge suppressor: all 3 green lights on?	Yes
Control panel Surge Suppressor Comments	
Breaker box surge suppressor: all 3 green lights on?	Yes
Breaker box Surge Suppressor Comments	
HMI display functioning (not frozen)?	Yes
Current zone	Rest
Compressed air setpoint (LPM)	2000
Propane setpoint (LPM)	6.003
PIT-101 (PSIG)	54.1
PIT-102 (PSIA)	67.9
FQI-101 (SLPM)	2001
PIT-201 (PSIA)	32.6
PIT-300 (PSIG)	18.6
FQI-201 (LPM)	0.212
AE-350 (%LEL)	0.1
AE-351 (%LEL)	0.1
AE-500 (%LEL)	0.1
Ensure the time on the HMI is accurate to the minute, adjust if necessary	Verified
UPS enabled?	Yes
Comments	Activated zones 3&6 on a gas cycle to collect readings

Non-XP Room

Fire Extinguisher Check	Needle in the green?, All moving parts appear intact?, No deformation?
Heater set to turn on and operation verified?	Yes
Room fan set to turn on and operation verified?	Yes
Bi-Weekly Compressor Maintenance	Check the cooling oil level, Cooler: Check the Filter Mat, Control cabinet: Check Filter Mat, Check the condensate drain
Quarterly Compressor Maintenance	Cooler: Change filter mat, Control Cabinet: Change filter mat
Semiannual Compressor Maintenance	No
Is the annual compressor inspection happening during this event?	No
Compressor Audio	1 Audio File
Number of air filters remaining	0
Do we need more compressor oil? (Less than a half gallon remaining)	No
Motor Runtime (hours)	36453
Oil Pressure (PSIG)	10
Wet receiver tank loading pressure (PI-101)	120
Wet receiver tank unloading pressure (PI-101)	130
How full is the condensate drum? (Percentage)	5
PI-101 (PSIG)	120
PI-102 (PSIG)	100
PI-103 (PSIG)	52
Are the trident desiccant dryer meters green?	Yes
Bi-Weekly Non-XP Instrument Maintenance	TCA-101 Verify draining, S-101 Verify autodrain is functioning (makes a loud noise when it turns on and water drains into the condensate drum), PF-101 Verify auto drain operational, CF-101 Verify auto drain operational, TCA-102 Check for moisture, PR-101 Verify pressure
Monthly Non-XP Instrument Maintenance	TCA-101 Inspect for debris sludge clean, Tote Transfer contents of condensate drum into outdoor drum when it is 2/3 full. It will fill up quickly during humid summer months., AD-101 Verify the drying-and-regeneration cycle is normal, AD-101 Verify the silencers are not clogged, AD-101 Inspect and determine the state of the desiccant. Brown (oil-polluted) or dusty desiccant needs to be replaced., PI-103 Verify pressure, PT-103 Check pressure reading on HMI and make sure it is close to a manual pressure gauge, MFC-101 / PIT-102 Check the flow rate to make sure it matches the setpoint on the PLC. Check the pressure reading as well., S-101 Actuate valves and ensure they are working properly (turn on and off and listen for the click), Electric box Open panel to ensure there are no tripped circuit breakers, Close valve on autodrain and clean strainer. Re-open valve to place back into operation.
Semiannual Non-XP Instrument Maintenance	No

Quarterly Filter Maintenance	CF-101 Check and clean filter element and chamber. Replace if necessary., PF-102 Check and replace filter element, PF-103 Check/Replace Filter element, PI-103 Verify pressure, PT-103 Check pressure reading on HMI and make sure it is close to a manual pressure gauge, PF-101 Check and clean filter (knock out dirt and rinse with DI water). Replace filter if necessary.
Desiccant Media Replaced?	No
Which compressed air Alicat is in use (upon leaving system)?	MFC-101A (older)
MFC-101 compressed air temperature	26.4
MFC-101 standardized flow rate on display (SLPM)	2000
MFC-101 uncorrected flow rate on display (LPM)	434
Comments	
Non-XP room photo	

XP-Room

First Aid Kit Expiration Date	April 7, 2026
Fire Extinguisher Check	Needle in the green?, All moving parts appear intact?, No deformation?
Heater turned on and verified to be operating?	Yes
Fan turned on and verified to be operating?	Yes
PI-201 (PSIG)	70
PI-202 (PSIG)	58
PSH-201 Setpoints	High setpoint at 80 psi, Deadband at 20 psi
MFC-201 temperature	27.58
MFC-201 standard flow rate on alicat display during propane cycle (SLPM)	6.01
MFC-201 uncorrected flow rate on alicat display during propane cycle (LPM)	2.6
PI-300 (PSIG)	21

Bi-Weekly XP Instrumentation Checks	AE-350 Investigate significant changes in the reading. Check the LEL during a propane sparging cycle. Check to make sure the reading is accurate for the conditions (should read 0% in the atmosphere)., AE-351 Investigate significant changes in the reading. Check the LEL during a propane sparging cycle. Check to make sure the reading is accurate for the conditions (should read 0% in the atmosphere)., AE-500 Investigate significant changes in the reading. Check to make sure the reading is accurate for the conditions (should read 0% in the atmosphere).
Monthly XP Instrumentation Checks	MFC-201 / PIT-202 Check the flow rate to make sure it matches the setpoint on the PLC. Check the pressure reading as well, S-201 Actuate valves and ensure it is working properly (turn on and off and listen for the click), PIT-300 Check pressure reading on HMI and make sure it is close to a manual pressure gauge, FQI-301 Check flow reading to make sure it is close to the flow reading on the HMI, S-301 to S-306 Actuate valves and ensure they are working properly (turn on and off and listen for the click)
Semiannual XP Instrumentation Checks	
AE-500 Reading	0
AE-350 reading during propane sparge cycle	0
AE-351 reading during propane sparge cycle	0
Quarterly LEL Meter Calibration	No
Which propane Alicat is in use (upon leaving system)?	MFC-201A (older)
Comments	
XP-room photo	

Zone 1

AS-19-G01 Manifold Pressure (PSIG)	32
AS-19-G01 Manifold Flowrate (3-5 CFM)	0.5
AS-19-G03 Manifold Pressure (PSIG)	18
AS-19-G03 Manifold Flowrate (3-5 CFM)	2
AS-19-G06 Manifold Pressure (PSIG)	15
AS-19-G06 Manifold Flowrate (3-5 CFM)	3

AS-19-G09 Manifold Pressure (PSIG)	4
AS-19-G09 Manifold Flowrate (3-5 CFM)	8
AS-19-E02 Manifold Pressure (PSIG)	0
AS-19-E02 Manifold Flowrate (3-5 CFM)	0
AS-19-E05 Manifold Pressure (PSIG)	4
AS-19-E05 Manifold Flowrate (3-5 CFM)	5
AS-19-E08 Manifold Pressure (PSIG)	21
AS-19-E08 Manifold Flowrate (3-5 CFM)	4

Zone 2

AS-19-G02 Manifold Pressure (PSIG)	22
AS-19-G02 Manifold Flowrate (3-5 CFM)	0
AS-19-G05 Manifold Pressure (PSIG)	10
AS-19-G05 Manifold Flowrate (3-5 CFM)	3
AS-19-G08 Manifold Pressure (PSIG)	6
AS-19-G08 Manifold Flowrate (3-5 CFM)	4
AS-19-E01 Manifold Pressure (PSIG)	2
AS-19-E01 Manifold Flowrate (3-5 CFM)	4
AS-19-E04 Manifold Pressure (PSIG)	5
AS-19-E04 Manifold Flowrate (3-5 CFM)	5
AS-19-E07 Manifold Pressure (PSIG)	10
AS-19-E07 Manifold Flowrate (3-5 CFM)	4
AS-19-E10 Manifold Pressure (PSIG)	10
AS-19-E10 Manifold Flowrate (3-5 CFM)	4

Zone 3

AS-19-G04 Manifold Pressure (PSIG)	0
AS-19-G04 Manifold Flowrate (3-5 CFM)	0
AS-19-G07 Manifold Pressure (PSIG)	7
AS-19-G07 Manifold Flowrate (3-5 CFM)	4

AS-19-G10 Manifold Pressure (PSIG)	12
AS-19-G10 Manifold Flowrate (3-5 CFM)	4
AS-19-E03 Manifold Pressure (PSIG)	4
AS-19-E03 Manifold Flowrate (3-5 CFM)	6
AS-19-E06 Manifold Pressure (PSIG)	8
AS-19-E06 Manifold Flowrate (3-5 CFM)	3
AS-19-E09 Manifold Pressure (PSIG)	18
AS-19-E09 Manifold Flowrate (3-5 CFM)	4
AS-19-E12 Manifold Pressure (PSIG)	0
AS-19-E12 Manifold Flowrate (3-5 CFM)	0

Zone 4

AS-19-F12 Manifold Pressure (PSIG)	25
AS-19-F12 Manifold Flowrate (3-5 CFM)	4
AS-19-F09 Manifold Pressure (PSIG)	11
AS-19-F09 Manifold Flowrate (3-5 CFM)	5
AS-19-F06 Manifold Pressure (PSIG)	8
AS-19-F06 Manifold Flowrate (3-5 CFM)	4
AS-19-F03 Manifold Pressure (PSIG)	11
AS-19-F03 Manifold Flowrate (3-5 CFM)	4
AS-19-B06 Manifold Pressure (PSIG)	0
AS-19-B06 Manifold Flowrate (3-5 CFM)	0
AS-19-B03 Manifold Pressure (PSIG)	15
AS-19-B03 Manifold Flowrate (3-5 CFM)	5

Zone 5

AS-19-E11 Manifold Pressure (PSIG)	0
AS-19-E11 Manifold Flowrate (3-5 CFM)	0
AS-19-F11 Manifold Pressure (PSIG)	10
AS-19-F11 Manifold Flowrate (3-5 CFM)	4

AS-19-F08 Manifold Pressure (PSIG)	16
AS-19-F08 Manifold Flowrate (3-5 CFM)	4
AS-19-F05 Manifold Pressure (PSIG)	15
AS-19-F05 Manifold Flowrate (3-5 CFM)	6
AS-19-F02 Manifold Pressure (PSIG)	5
AS-19-F02 Manifold Flowrate (3-5 CFM)	4
AS-19-B05 Manifold Pressure (PSIG)	18
AS-19-B05 Manifold Flowrate (3-5 CFM)	4.5
AS-19-B02 Manifold Pressure (PSIG)	8
AS-19-B02 Manifold Flowrate (3-5 CFM)	4

Zone 6

AS-19-F10 Manifold Pressure (PSIG)	8
AS-19-F10 Manifold Flowrate (3-5 CFM)	3.5
AS-19-F07 Manifold Pressure (PSIG)	11
AS-19-F07 Manifold Flowrate (3-5 CFM)	4
AS-19-F04 Manifold Pressure (PSIG)	16
AS-19-F04 Manifold Flowrate (3-5 CFM)	4
AS-19-F01 Manifold Pressure (PSIG)	14
AS-19-F01 Manifold Flowrate (3-5 CFM)	4
AS-19-B07 Manifold Pressure (PSIG)	15
AS-19-B07 Manifold Flowrate (3-5 CFM)	3
AS-19-B04 Manifold Pressure (PSIG)	12
AS-19-B04 Manifold Flowrate (3-5 CFM)	3.5
AS-19-B01 Manifold Pressure (PSIG)	16
AS-19-B01 Manifold Flowrate (3-5 CFM)	2

Outdoors and General

Propane tank level (%)	56
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Number of condensate drums outside	0
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Drum Photo

Electric Meter Reading (kWh)	746414
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Last fire extinguisher certification date	September 7, 2024
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Walked hose corridors and fixed fallen barrels?	Yes
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Checked wellheads for leaks/hissing?	Yes
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Comments on wellheads:	E-02, G-04, E-12, B-06, & E-11 are off due to leaks after the nutrient injections. E-12 was not leaking, so I opened it back up.
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Comments on car parkers and site accessibility:	N/A no cars on lot
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Car parking photos if near buildings

Monthly Outdoor Maintenance Tasks	PR-201 Check pressure on regulator, PSH-201 Check settings, ENC198 Check electric meter at the property boundary pole to track overall electrical usage
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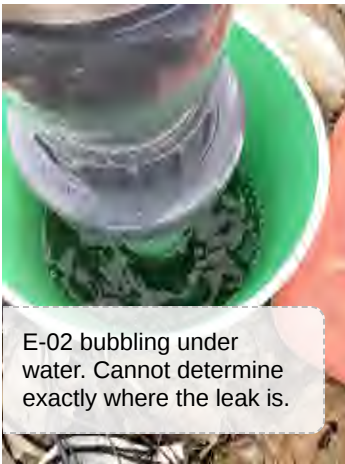
Quarterly Building Maintenance Tasks	Wipe down system components to cut down on general grime, Remove trash from the system building, Tidy up system and notify TM of unneeded sampling equipment, Take used compressor oil to Advanced Auto Parts for recycling if there is a full container of used oil
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System building photo

Photos

Area 5-3. Picked up barrels and reattached chains.

Cover area 5-4. Picked up barrels, reattached the chains



E-02 bubbling under water. Cannot determine exactly where the leak is.



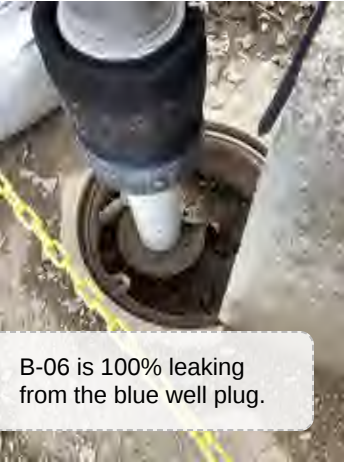
E-11 is leaking from this cracked union



E-12 does not seem to have a leak at this time.



G-04 bubbling under water. Cannot determine exactly where the leak is.



B-06 is 100% leaking from the blue well plug.

Videos

Any equipment that needs to be ordered?

No

Comments, questions, ruminations, suggestions for improvement?

Several barrels down due to storms from Thursday. I picked up the drums and reattached the chains. Propane tank pressure is at 65 psi. Cleaned the auto drain. Shut off system at 12:00 to prepare for GWS next week.

Signature

Signed 5/2/2025, 11:14:58 AM EDT

Departure Time

12:30

Inspection Date	June 6, 2025
Last Quarterly Event Date	
Arrival Time	17:30
Personnel	Billy J Cobern
Weather	Partly Cloudy, 80's-70's
FWL Electrical Meter Reading (kWh)	8237.07

HMI and Control Panel

Surge Suppressor Visual Checks

Main surge suppressor: all 3 green lights on?	Yes
Main Surge Suppressor Comments	
Control panel surge suppressor: all 3 green lights on?	Yes
Control panel Surge Suppressor Comments	
Breaker box surge suppressor: all 3 green lights on?	Yes
Breaker box Surge Suppressor Comments	
HMI display functioning (not frozen)?	Yes
Current zone	Rest
Compressed air setpoint (LPM)	1000
Propane setpoint (LPM)	5.583
PIT-101 (PSIG)	57.8
PIT-102 (PSIA)	71.6
FQI-101 (SLPM)	2001
PIT-201 (PSIA)	72
PIT-300 (PSIG)	17.8
FQI-201 (LPM)	0.213
AE-350 (%LEL)	0.1
AE-351 (%LEL)	0.1
AE-500 (%LEL)	0.1
Ensure the time on the HMI is accurate to the minute, adjust if necessary	Verified
UPS enabled?	Yes
Comments	Activated zones 2&5 on a gas cycle to collect readings

Non-XP Room

Fire Extinguisher Check	Needle in the green?, All moving parts appear intact?, No deformation?
Heater set to turn on and operation verified?	Yes
Room fan set to turn on and operation verified?	Yes
Bi-Weekly Compressor Maintenance	Check the cooling oil level, Cooler: Check the Filter Mat, Control cabinet: Check Filter Mat, Check the condensate drain
Quarterly Compressor Maintenance	Cooler: Change filter mat, Control Cabinet: Change filter mat
Semiannual Compressor Maintenance	No
Is the annual compressor inspection happening during this event?	No
Compressor Audio	1 Audio File
Number of air filters remaining	0
Do we need more compressor oil? (Less than a half gallon remaining)	No
Motor Runtime (hours)	37206
Oil Pressure (PSIG)	10
Wet receiver tank loading pressure (PI-101)	120
Wet receiver tank unloading pressure (PI-101)	130
How full is the condensate drum? (Percentage)	40
PI-101 (PSIG)	120
PI-102 (PSIG)	100
PI-103 (PSIG)	52
Are the trident desiccant dryer meters green?	Yes
Bi-Weekly Non-XP Instrument Maintenance	TCA-101 Verify draining, S-101 Verify autodrain is functioning (makes a loud noise when it turns on and water drains into the condensate drum), PF-101 Verify auto drain operational, CF-101 Verify auto drain operational, TCA-102 Check for moisture, PR-101 Verify pressure
Monthly Non-XP Instrument Maintenance	TCA-101 Inspect for debris sludge clean, Tote Transfer contents of condensate drum into outdoor drum when it is 2/3 full. It will fill up quickly during humid summer months., AD-101 Verify the drying-and-regeneration cycle is normal, AD-101 Verify the silencers are not clogged, AD-101 Inspect and determine the state of the desiccant. Brown (oil-polluted) or dusty desiccant needs to be replaced., PI-103 Verify pressure, PT-103 Check pressure reading on HMI and make sure it is close to a manual pressure gauge, MFC-101 / PIT-102 Check the flow rate to make sure it matches the setpoint on the PLC. Check the pressure reading as well., S-101 Actuate valves and ensure they are working properly (turn on and off and listen for the click), Electric box Open panel to ensure there are no tripped circuit breakers, Close valve on autodrain and clean strainer. Re-open valve to place back into operation.
Semiannual Non-XP Instrument Maintenance	No

Quarterly Filter Maintenance	CF-101 Check and clean filter element and chamber. Replace if necessary., PF-102 Check and replace filter element, PF-103 Check/Replace Filter element, PI-103 Verify pressure, PT-103 Check pressure reading on HMI and make sure it is close to a manual pressure gauge, PF-101 Check and clean filter (knock out dirt and rinse with DI water). Replace filter if necessary.
Desiccant Media Replaced?	No
Which compressed air Alicat is in use (upon leaving system)?	MFC-101A (older)
MFC-101 compressed air temperature	29.7
MFC-101 standardized flow rate on display (SLPM)	2000
MFC-101 uncorrected flow rate on display (LPM)	438
Comments	
Non-XP room photo	

XP-Room

First Aid Kit Expiration Date	April 7, 2026
Fire Extinguisher Check	Needle in the green?, All moving parts appear intact?, No deformation?
Heater turned on and verified to be operating?	Yes
Fan turned on and verified to be operating?	Yes
PI-201 (PSIG)	68
PI-202 (PSIG)	56
PSH-201 Setpoints	High setpoint at 80 psi, Deadband at 20 psi
MFC-201 temperature	40.46
MFC-201 standard flow rate on alicat display during propane cycle (SLPM)	6.01
MFC-201 uncorrected flow rate on alicat display during propane cycle (LPM)	2.58
PI-300 (PSIG)	21

Bi-Weekly XP Instrumentation Checks

AE-350 Investigate significant changes in the reading. Check the LEL during a propane sparging cycle. Check to make sure the reading is accurate for the conditions (should read 0% in the atmosphere)., AE-351 Investigate significant changes in the reading. Check the LEL during a propane sparging cycle. Check to make sure the reading is accurate for the conditions (should read 0% in the atmosphere)., AE-500 Investigate significant changes in the reading. Check to make sure the reading is accurate for the conditions (should read 0% in the atmosphere).

Monthly XP Instrumentation Checks

MFC-201 / PIT-202 Check the flow rate to make sure it matches the setpoint on the PLC. Check the pressure reading as well, S-201 Actuate valves and ensure it is working properly (turn on and off and listen for the click), PIT-300 Check pressure reading on HMI and make sure it is close to a manual pressure gauge, FQI-301 Check flow reading to make sure it is close to the flow reading on the HMI, S-301 to S-306 Actuate valves and ensure they are working properly (turn on and off and listen for the click)

Semiannual XP Instrumentation Checks**AE-500 Reading**

0

AE-350 reading during propane sparge cycle

0

AE-351 reading during propane sparge cycle

0

Quarterly LEL Meter Calibration

No

Which propane Alicat is in use (upon leaving system)?

MFC-201A (older)

Comments**XP-room photo****Zone 1****AS-19-G01 Manifold Pressure (PSIG)** 10**AS-19-G01 Manifold Flowrate (3-5 CFM)** 0.5**AS-19-G03 Manifold Pressure (PSIG)** 18**AS-19-G03 Manifold Flowrate (3-5 CFM)** 2**AS-19-G06 Manifold Pressure (PSIG)** 8**AS-19-G06 Manifold Flowrate (3-5 CFM)** 3

AS-19-G09 Manifold Pressure (PSIG)	2
AS-19-G09 Manifold Flowrate (3-5 CFM)	6
AS-19-E02 Manifold Pressure (PSIG)	18
AS-19-E02 Manifold Flowrate (3-5 CFM)	2
AS-19-E05 Manifold Pressure (PSIG)	2
AS-19-E05 Manifold Flowrate (3-5 CFM)	4
AS-19-E08 Manifold Pressure (PSIG)	19
AS-19-E08 Manifold Flowrate (3-5 CFM)	3

Zone 2

AS-19-G02 Manifold Pressure (PSIG)	20
AS-19-G02 Manifold Flowrate (3-5 CFM)	0
AS-19-G05 Manifold Pressure (PSIG)	14
AS-19-G05 Manifold Flowrate (3-5 CFM)	3
AS-19-G08 Manifold Pressure (PSIG)	5
AS-19-G08 Manifold Flowrate (3-5 CFM)	5
AS-19-E01 Manifold Pressure (PSIG)	4
AS-19-E01 Manifold Flowrate (3-5 CFM)	6
AS-19-E04 Manifold Pressure (PSIG)	5
AS-19-E04 Manifold Flowrate (3-5 CFM)	6
AS-19-E07 Manifold Pressure (PSIG)	11
AS-19-E07 Manifold Flowrate (3-5 CFM)	5
AS-19-E10 Manifold Pressure (PSIG)	12
AS-19-E10 Manifold Flowrate (3-5 CFM)	3

Zone 3

AS-19-G04 Manifold Pressure (PSIG)	5
AS-19-G04 Manifold Flowrate (3-5 CFM)	2
AS-19-G07 Manifold Pressure (PSIG)	3
AS-19-G07 Manifold Flowrate (3-5 CFM)	3

AS-19-G10 Manifold Pressure (PSIG)	10
AS-19-G10 Manifold Flowrate (3-5 CFM)	3
AS-19-E03 Manifold Pressure (PSIG)	4
AS-19-E03 Manifold Flowrate (3-5 CFM)	6
AS-19-E06 Manifold Pressure (PSIG)	5
AS-19-E06 Manifold Flowrate (3-5 CFM)	3
AS-19-E09 Manifold Pressure (PSIG)	15
AS-19-E09 Manifold Flowrate (3-5 CFM)	2
AS-19-E12 Manifold Pressure (PSIG)	15
AS-19-E12 Manifold Flowrate (3-5 CFM)	0.5

Zone 4

AS-19-F12 Manifold Pressure (PSIG)	14
AS-19-F12 Manifold Flowrate (3-5 CFM)	4
AS-19-F09 Manifold Pressure (PSIG)	7
AS-19-F09 Manifold Flowrate (3-5 CFM)	5
AS-19-F06 Manifold Pressure (PSIG)	8
AS-19-F06 Manifold Flowrate (3-5 CFM)	5
AS-19-F03 Manifold Pressure (PSIG)	8
AS-19-F03 Manifold Flowrate (3-5 CFM)	4
AS-19-B06 Manifold Pressure (PSIG)	15
AS-19-B06 Manifold Flowrate (3-5 CFM)	0.5
AS-19-B03 Manifold Pressure (PSIG)	10
AS-19-B03 Manifold Flowrate (3-5 CFM)	6

Zone 5

AS-19-E11 Manifold Pressure (PSIG)	20
AS-19-E11 Manifold Flowrate (3-5 CFM)	0
AS-19-F11 Manifold Pressure (PSIG)	18
AS-19-F11 Manifold Flowrate (3-5 CFM)	3

AS-19-F08 Manifold Pressure (PSIG)	15
AS-19-F08 Manifold Flowrate (3-5 CFM)	3
AS-19-F05 Manifold Pressure (PSIG)	5
AS-19-F05 Manifold Flowrate (3-5 CFM)	4
AS-19-F02 Manifold Pressure (PSIG)	15
AS-19-F02 Manifold Flowrate (3-5 CFM)	2
AS-19-B05 Manifold Pressure (PSIG)	10
AS-19-B05 Manifold Flowrate (3-5 CFM)	3
AS-19-B02 Manifold Pressure (PSIG)	10
AS-19-B02 Manifold Flowrate (3-5 CFM)	4

Zone 6

AS-19-F10 Manifold Pressure (PSIG)	5
AS-19-F10 Manifold Flowrate (3-5 CFM)	4
AS-19-F07 Manifold Pressure (PSIG)	12
AS-19-F07 Manifold Flowrate (3-5 CFM)	2
AS-19-F04 Manifold Pressure (PSIG)	15
AS-19-F04 Manifold Flowrate (3-5 CFM)	3
AS-19-F01 Manifold Pressure (PSIG)	9
AS-19-F01 Manifold Flowrate (3-5 CFM)	5
AS-19-B07 Manifold Pressure (PSIG)	9
AS-19-B07 Manifold Flowrate (3-5 CFM)	4
AS-19-B04 Manifold Pressure (PSIG)	10
AS-19-B04 Manifold Flowrate (3-5 CFM)	3.5
AS-19-B01 Manifold Pressure (PSIG)	15
AS-19-B01 Manifold Flowrate (3-5 CFM)	2

Outdoors and General

Propane tank level (%)	50
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Number of condensate drums outside	0
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Drum Photo

Electric Meter Reading (kWh)	769491
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Last fire extinguisher certification date	September 7, 2024
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Walked hose corridors and fixed fallen barrels?	Yes
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Checked wellheads for leaks/hissing?	Yes
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Comments on wellheads:	No leaks
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Comments on car parkers and site accessibility:	N/A no cars on lot
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Car parking photos if near buildings

Monthly Outdoor Maintenance Tasks	PR-201 Check pressure on regulator, PSH-201 Check settings, ENC198 Check electric meter at the property boundary pole to track overall electrical usage
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Quarterly Building Maintenance Tasks	Wipe down system components to cut down on general grime, Remove trash from the system building, Tidy up system and notify TM of unneeded sampling equipment, Take used compressor oil to Advanced Auto Parts for recycling if there is a full container of used oil
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System building photo

Photos

Videos	
Any equipment that needs to be ordered?	No
Comments, questions, ruminations, suggestions for improvement?	
Signature	Signed 6/6/2025, 6:11:01 PM EDT
Departure Time	19:30

Inspection Date	July 9, 2025
Last Quarterly Event Date	
Arrival Time	11:00
Personnel	Billy J Cobern
Weather	Cloudy, 80's
FWL Electrical Meter Reading (kWh)	8237.07

HMI and Control Panel

Surge Suppressor Visual Checks

Main surge suppressor: all 3 green lights on?	Yes
Main Surge Suppressor Comments	
Control panel surge suppressor: all 3 green lights on?	Yes
Control panel Surge Suppressor Comments	
Breaker box surge suppressor: all 3 green lights on?	Yes
Breaker box Surge Suppressor Comments	
HMI display functioning (not frozen)?	Yes
Current zone	Zone 3 and 6
Compressed air setpoint (LPM)	1000
Propane setpoint (LPM)	6.005
PIT-101 (PSIG)	54
PIT-102 (PSIA)	67.8
FQI-101 (SLPM)	2001
PIT-201 (PSIA)	73.2
PIT-300 (PSIG)	16
FQI-201 (LPM)	30.7
AE-350 (%LEL)	0.1
AE-351 (%LEL)	0.1
AE-500 (%LEL)	0.1
Ensure the time on the HMI is accurate to the minute, adjust if necessary	Verified
UPS enabled?	Yes
Comments	

Non-XP Room

Fire Extinguisher Check	Needle in the green?, All moving parts appear intact?, No deformation?
Heater set to turn on and operation verified?	Yes
Room fan set to turn on and operation verified?	Yes
Bi-Weekly Compressor Maintenance	Check the cooling oil level, Cooler: Check the Filter Mat, Control cabinet: Check Filter Mat, Check the condensate drain
Quarterly Compressor Maintenance	Cooler: Change filter mat, Control Cabinet: Change filter mat
Semiannual Compressor Maintenance	No
Is the annual compressor inspection happening during this event?	No
Compressor Audio	1 Audio File
Number of air filters remaining	0
Do we need more compressor oil? (Less than a half gallon remaining)	No
Motor Runtime (hours)	37923
Oil Pressure (PSIG)	10
Wet receiver tank loading pressure (PI-101)	120
Wet receiver tank unloading pressure (PI-101)	130
How full is the condensate drum? (Percentage)	10
PI-101 (PSIG)	125
PI-102 (PSIG)	115
PI-103 (PSIG)	52
Are the trident desiccant dryer meters green?	Yes
Bi-Weekly Non-XP Instrument Maintenance	TCA-101 Verify draining, S-101 Verify autodrain is functioning (makes a loud noise when it turns on and water drains into the condensate drum), PF-101 Verify auto drain operational, CF-101 Verify auto drain operational, TCA-102 Check for moisture, PR-101 Verify pressure
Monthly Non-XP Instrument Maintenance	TCA-101 Inspect for debris sludge clean, Tote Transfer contents of condensate drum into outdoor drum when it is 2/3 full. It will fill up quickly during humid summer months., AD-101 Verify the drying-and-regeneration cycle is normal, AD-101 Verify the silencers are not clogged, AD-101 Inspect and determine the state of the desiccant. Brown (oil-polluted) or dusty desiccant needs to be replaced., PI-103 Verify pressure, PT-103 Check pressure reading on HMI and make sure it is close to a manual pressure gauge, MFC-101 / PIT-102 Check the flow rate to make sure it matches the setpoint on the PLC. Check the pressure reading as well., S-101 Actuate valves and ensure they are working properly (turn on and off and listen for the click), Electric box Open panel to ensure there are no tripped circuit breakers, Close valve on autodrain and clean strainer. Re-open valve to place back into operation.
Semiannual Non-XP Instrument Maintenance	No

Quarterly Filter Maintenance	CF-101 Check and clean filter element and chamber. Replace if necessary., PF-102 Check and replace filter element, PF-103 Check/Replace Filter element, PI-103 Verify pressure, PT-103 Check pressure reading on HMI and make sure it is close to a manual pressure gauge, PF-101 Check and clean filter (knock out dirt and rinse with DI water). Replace filter if necessary.
Desiccant Media Replaced?	No
Which compressed air Alicat is in use (upon leaving system)?	MFC-101A (older)
MFC-101 compressed air temperature	28.29
MFC-101 standardized flow rate on display (SLPM)	2001
MFC-101 uncorrected flow rate on display (LPM)	439
Comments	
Non-XP room photo	

XP-Room

First Aid Kit Expiration Date	April 7, 2026
Fire Extinguisher Check	Needle in the green?, All moving parts appear intact?, No deformation?
Heater turned on and verified to be operating?	Yes
Fan turned on and verified to be operating?	Yes
PI-201 (PSIG)	69
PI-202 (PSIG)	57
PSH-201 Setpoints	High setpoint at 80 psi, Deadband at 20 psi
MFC-201 temperature	30.72
MFC-201 standard flow rate on alicat display during propane cycle (SLPM)	6.01
MFC-201 uncorrected flow rate on alicat display during propane cycle (LPM)	2.89
PI-300 (PSIG)	18

Bi-Weekly XP Instrumentation Checks	AE-350 Investigate significant changes in the reading. Check the LEL during a propane sparging cycle. Check to make sure the reading is accurate for the conditions (should read 0% in the atmosphere)., AE-351 Investigate significant changes in the reading. Check the LEL during a propane sparging cycle. Check to make sure the reading is accurate for the conditions (should read 0% in the atmosphere)., AE-500 Investigate significant changes in the reading. Check to make sure the reading is accurate for the conditions (should read 0% in the atmosphere).
Monthly XP Instrumentation Checks	MFC-201 / PIT-202 Check the flow rate to make sure it matches the setpoint on the PLC. Check the pressure reading as well, S-201 Actuate valves and ensure it is working properly (turn on and off and listen for the click), PIT-300 Check pressure reading on HMI and make sure it is close to a manual pressure gauge, FQI-301 Check flow reading to make sure it is close to the flow reading on the HMI, S-301 to S-306 Actuate valves and ensure they are working properly (turn on and off and listen for the click)
Semiannual XP Instrumentation Checks	
AE-500 Reading	0
AE-350 reading during propane sparge cycle	0
AE-351 reading during propane sparge cycle	0
Quarterly LEL Meter Calibration	No
Which propane Alicat is in use (upon leaving system)?	MFC-201A (older)
Comments	
XP-room photo	

Zone 1

AS-19-G01 Manifold Pressure (PSIG)	10
AS-19-G01 Manifold Flowrate (3-5 CFM)	0.5
AS-19-G03 Manifold Pressure (PSIG)	22
AS-19-G03 Manifold Flowrate (3-5 CFM)	1
AS-19-G06 Manifold Pressure (PSIG)	16
AS-19-G06 Manifold Flowrate (3-5 CFM)	7

AS-19-G09 Manifold Pressure (PSIG)	2
AS-19-G09 Manifold Flowrate (3-5 CFM)	4
AS-19-E02 Manifold Pressure (PSIG)	14
AS-19-E02 Manifold Flowrate (3-5 CFM)	3
AS-19-E05 Manifold Pressure (PSIG)	4
AS-19-E05 Manifold Flowrate (3-5 CFM)	4
AS-19-E08 Manifold Pressure (PSIG)	18
AS-19-E08 Manifold Flowrate (3-5 CFM)	1.5

Zone 2

AS-19-G02 Manifold Pressure (PSIG)	20
AS-19-G02 Manifold Flowrate (3-5 CFM)	0.5
AS-19-G05 Manifold Pressure (PSIG)	12
AS-19-G05 Manifold Flowrate (3-5 CFM)	3
AS-19-G08 Manifold Pressure (PSIG)	5
AS-19-G08 Manifold Flowrate (3-5 CFM)	5
AS-19-E01 Manifold Pressure (PSIG)	4
AS-19-E01 Manifold Flowrate (3-5 CFM)	6
AS-19-E04 Manifold Pressure (PSIG)	5
AS-19-E04 Manifold Flowrate (3-5 CFM)	6
AS-19-E07 Manifold Pressure (PSIG)	12
AS-19-E07 Manifold Flowrate (3-5 CFM)	5
AS-19-E10 Manifold Pressure (PSIG)	10
AS-19-E10 Manifold Flowrate (3-5 CFM)	3

Zone 3

AS-19-G04 Manifold Pressure (PSIG)	11
AS-19-G04 Manifold Flowrate (3-5 CFM)	1
AS-19-G07 Manifold Pressure (PSIG)	5

AS-19-G07 Manifold Flowrate (3-5 CFM)	4
AS-19-G10 Manifold Pressure (PSIG)	10
AS-19-G10 Manifold Flowrate (3-5 CFM)	3
AS-19-E03 Manifold Pressure (PSIG)	2
AS-19-E03 Manifold Flowrate (3-5 CFM)	6
AS-19-E06 Manifold Pressure (PSIG)	4
AS-19-E06 Manifold Flowrate (3-5 CFM)	3.5
AS-19-E09 Manifold Pressure (PSIG)	14
AS-19-E09 Manifold Flowrate (3-5 CFM)	2
AS-19-E12 Manifold Pressure (PSIG)	11
AS-19-E12 Manifold Flowrate (3-5 CFM)	1

Zone 4

AS-19-F12 Manifold Pressure (PSIG)	22
AS-19-F12 Manifold Flowrate (3-5 CFM)	4
AS-19-F09 Manifold Pressure (PSIG)	10
AS-19-F09 Manifold Flowrate (3-5 CFM)	4.5
AS-19-F06 Manifold Pressure (PSIG)	8
AS-19-F06 Manifold Flowrate (3-5 CFM)	4
AS-19-F03 Manifold Pressure (PSIG)	10
AS-19-F03 Manifold Flowrate (3-5 CFM)	3.5
AS-19-B06 Manifold Pressure (PSIG)	22
AS-19-B06 Manifold Flowrate (3-5 CFM)	0.5
AS-19-B03 Manifold Pressure (PSIG)	10
AS-19-B03 Manifold Flowrate (3-5 CFM)	5.5

Zone 5

AS-19-E11 Manifold Pressure (PSIG)	20
AS-19-E11 Manifold Flowrate (3-5 CFM)	0.5

AS-19-F11 Manifold Pressure (PSIG)	19
AS-19-F11 Manifold Flowrate (3-5 CFM)	3
AS-19-F08 Manifold Pressure (PSIG)	10
AS-19-F08 Manifold Flowrate (3-5 CFM)	0.5
AS-19-F05 Manifold Pressure (PSIG)	5
AS-19-F05 Manifold Flowrate (3-5 CFM)	4
AS-19-F02 Manifold Pressure (PSIG)	18
AS-19-F02 Manifold Flowrate (3-5 CFM)	2
AS-19-B05 Manifold Pressure (PSIG)	10
AS-19-B05 Manifold Flowrate (3-5 CFM)	2.5
AS-19-B02 Manifold Pressure (PSIG)	10
AS-19-B02 Manifold Flowrate (3-5 CFM)	4.5

Zone 6

AS-19-F10 Manifold Pressure (PSIG)	9
AS-19-F10 Manifold Flowrate (3-5 CFM)	4
AS-19-F07 Manifold Pressure (PSIG)	10
AS-19-F07 Manifold Flowrate (3-5 CFM)	4
AS-19-F04 Manifold Pressure (PSIG)	15
AS-19-F04 Manifold Flowrate (3-5 CFM)	3
AS-19-F01 Manifold Pressure (PSIG)	12
AS-19-F01 Manifold Flowrate (3-5 CFM)	2
AS-19-B07 Manifold Pressure (PSIG)	14
AS-19-B07 Manifold Flowrate (3-5 CFM)	1.5
AS-19-B04 Manifold Pressure (PSIG)	11
AS-19-B04 Manifold Flowrate (3-5 CFM)	5
AS-19-B01 Manifold Pressure (PSIG)	10
AS-19-B01 Manifold Flowrate (3-5 CFM)	3

Outdoors and General

Propane tank level (%)	45
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Number of condensate drums outside	5
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Drum Photo	
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Electric Meter Reading (kWh)	781890
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Last fire extinguisher certification date	September 7, 2024
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Walked hose corridors and fixed fallen barrels?	Yes
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Checked wellheads for leaks/hissing?	Yes
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Comments on wellheads:	No leaks
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Comments on car parkers and site accessibility:	Cars are being unloaded
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Car parking photos if near buildings	
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Monthly Outdoor Maintenance Tasks	PR-201 Check pressure on regulator, PSH-201 Check settings, ENC198 Check electric meter at the property boundary pole to track overall electrical usage
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Quarterly Building Maintenance Tasks	Wipe down system components to cut down on general grime, Remove trash from the system building, Tidy up system and notify TM of unneeded sampling equipment, Take used compressor oil to Advanced Auto Parts for recycling if there is a full container of used oil
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System building photo	
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Photos

Videos	
Any equipment that needs to be ordered?	No
Comments, questions, ruminations, suggestions for improvement?	5 full condensate drums and 4 empty drums
Signature	Signed 7/9/2025, 3:15:10 PM UTC
Departure Time	13:15

Inspection Date	July 31, 2025
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Last Quarterly Event Date	
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Arrival Time	14:55
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Personnel	Billy J Cobern
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Weather	Cloudy, 70's
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FWL Electrical Meter Reading (kWh)	8237.07
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HMI and Control Panel

Surge Suppressor Visual Checks

Main surge suppressor: all 3 green lights on?	Yes
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Main Surge Suppressor Comments	
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Control panel surge suppressor: all 3 green lights on?	Yes
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Control panel Surge Suppressor Comments	
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Breaker box surge suppressor: all 3 green lights on?	Yes
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Breaker box Surge Suppressor Comments	
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HMI display functioning (not frozen)?	Yes
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Current zone	Zone 3 and 6
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Compressed air setpoint (LPM)	1000
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Propane setpoint (LPM)	6.007
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PIT-101 (PSIG)	54.1
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PIT-102 (PSIA)	68.1
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FQI-101 (SLPM)	2000
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PIT-201 (PSIA)	15.1
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PIT-300 (PSIG)	16.7
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FQI-201 (LPM)	0.212
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AE-350 (%LEL)	0.1
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AE-351 (%LEL)	0.1
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AE-500 (%LEL)	0.1
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Ensure the time on the HMI is accurate to the minute, adjust if necessary	Verified
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UPS enabled?	Yes
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Comments	
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Non-XP Room

Fire Extinguisher Check	Needle in the green?, All moving parts appear intact?, No deformation?
Heater set to turn on and operation verified?	Yes
Room fan set to turn on and operation verified?	Yes
Bi-Weekly Compressor Maintenance	Check the cooling oil level, Cooler: Check the Filter Mat, Control cabinet: Check Filter Mat, Check the condensate drain
Quarterly Compressor Maintenance	Cooler: Change filter mat, Control Cabinet: Change filter mat
Semiannual Compressor Maintenance	No
Is the annual compressor inspection happening during this event?	No
Compressor Audio	1 Audio File
Number of air filters remaining	0
Do we need more compressor oil? (Less than a half gallon remaining)	No
Motor Runtime (hours)	38416
Oil Pressure (PSIG)	10
Wet receiver tank loading pressure (PI-101)	120
Wet receiver tank unloading pressure (PI-101)	130
How full is the condensate drum? (Percentage)	175
The condensate drum needs to be transferred to an outdoor drum (use RED TAPED submersible pump)	Complete
PI-101 (PSIG)	118
PI-102 (PSIG)	118
PI-103 (PSIG)	52
Are the trident desiccant dryer meters green?	Yes
Bi-Weekly Non-XP Instrument Maintenance	TCA-101 Verify draining, S-101 Verify autodrain is functioning (makes a loud noise when it turns on and water drains into the condensate drum), PF-101 Verify auto drain operational, CF-101 Verify auto drain operational, TCA-102 Check for moisture, PR-101 Verify pressure
Monthly Non-XP Instrument Maintenance	TCA-101 Inspect for debris sludge clean, Tote Transfer contents of condensate drum into outdoor drum when it is 2/3 full. It will fill up quickly during humid summer months., AD-101 Verify the drying-and-regeneration cycle is normal, AD-101 Verify the silencers are not clogged, AD-101 Inspect and determine the state of the desiccant. Brown (oil-polluted) or dusty desiccant needs to be replaced., PI-103 Verify pressure, PT-103 Check pressure reading on HMI and make sure it is close to a manual pressure gauge, MFC-101 / PIT-102 Check the flow rate to make sure it matches the setpoint on the PLC. Check the pressure reading as well., S-101 Actuate valves and ensure they are working properly (turn on and off and listen for the click), Electric box Open panel to ensure there are no tripped circuit breakers, Close valve on autodrain and clean strainer. Re-open valve to place back into operation.

Semiannual Non-XP Instrument Maintenance	No
Quarterly Filter Maintenance	CF-101 Check and clean filter element and chamber. Replace if necessary., PF-102 Check and replace filter element, PF-103 Check/Replace Filter element, PI-103 Verify pressure, PT-103 Check pressure reading on HMI and make sure it is close to a manual pressure gauge, PF-101 Check and clean filter (knock out dirt and rinse with DI water). Replace filter if necessary.
Desiccant Media Replaced?	No
Which compressed air Alicat is in use (upon leaving system)?	MFC-101B (newer)
MFC-101 compressed air temperature	29.77
MFC-101 standardized flow rate on display (SLPM)	1997
MFC-101 uncorrected flow rate on display (LPM)	439
Comments	Changed out AliCats. Cleaned out auto drain and line. Pumped 75 gallons of water from Wet receiver tank 101
Non-XP room photo	

XP-Room

First Aid Kit Expiration Date	April 7, 2026
Fire Extinguisher Check	Needle in the green?, All moving parts appear intact?, No deformation?
Heater turned on and verified to be operating?	Yes
Fan turned on and verified to be operating?	Yes
PI-201 (PSIG)	68
PI-202 (PSIG)	58
PSH-201 Setpoints	High setpoint at 80 psi, Deadband at 20 psi
MFC-201 temperature	36.87
MFC-201 standard flow rate on alicat display during propane cycle (SLPM)	6.01

MFC-201 uncorrected flow rate on alicat display during propane cycle (LPM)	2.96
PI-300 (PSIG)	20
Bi-Weekly XP Instrumentation Checks	AE-350 Investigate significant changes in the reading. Check the LEL during a propane sparging cycle. Check to make sure the reading is accurate for the conditions (should read 0% in the atmosphere)., AE-351 Investigate significant changes in the reading. Check the LEL during a propane sparging cycle. Check to make sure the reading is accurate for the conditions (should read 0% in the atmosphere)., AE-500 Investigate significant changes in the reading. Check to make sure the reading is accurate for the conditions (should read 0% in the atmosphere).
Monthly XP Instrumentation Checks	MFC-201 / PIT-202 Check the flow rate to make sure it matches the setpoint on the PLC. Check the pressure reading as well, S-201 Actuate valves and ensure it is working properly (turn on and off and listen for the click), PIT-300 Check pressure reading on HMI and make sure it is close to a manual pressure gauge, FQI-301 Check flow reading to make sure it is close to the flow reading on the HMI, S-301 to S-306 Actuate valves and ensure they are working properly (turn on and off and listen for the click)
Semiannual XP Instrumentation Checks	
AE-500 Reading	0
AE-350 reading during propane sparge cycle	0
AE-351 reading during propane sparge cycle	0
Quarterly LEL Meter Calibration	No
Which propane Alicat is in use (upon leaving system)?	MFC-201B (newer)
Comments	
XP-room photo	

Zone 1

AS-19-G01 Manifold Pressure (PSIG)	8
AS-19-G01 Manifold Flowrate (3-5 CFM)	0.5
AS-19-G03 Manifold Pressure (PSIG)	20
AS-19-G03 Manifold Flowrate (3-5 CFM)	0.5

AS-19-G06 Manifold Pressure (PSIG)	17
AS-19-G06 Manifold Flowrate (3-5 CFM)	7
AS-19-G09 Manifold Pressure (PSIG)	2
AS-19-G09 Manifold Flowrate (3-5 CFM)	4
AS-19-E02 Manifold Pressure (PSIG)	15
AS-19-E02 Manifold Flowrate (3-5 CFM)	4
AS-19-E05 Manifold Pressure (PSIG)	3
AS-19-E05 Manifold Flowrate (3-5 CFM)	5
AS-19-E08 Manifold Pressure (PSIG)	17
AS-19-E08 Manifold Flowrate (3-5 CFM)	1.5

Zone 2

AS-19-G02 Manifold Pressure (PSIG)	18
AS-19-G02 Manifold Flowrate (3-5 CFM)	0.5
AS-19-G05 Manifold Pressure (PSIG)	8
AS-19-G05 Manifold Flowrate (3-5 CFM)	3.5
AS-19-G08 Manifold Pressure (PSIG)	6
AS-19-G08 Manifold Flowrate (3-5 CFM)	4.5
AS-19-E01 Manifold Pressure (PSIG)	4
AS-19-E01 Manifold Flowrate (3-5 CFM)	7
AS-19-E04 Manifold Pressure (PSIG)	5
AS-19-E04 Manifold Flowrate (3-5 CFM)	6
AS-19-E07 Manifold Pressure (PSIG)	12
AS-19-E07 Manifold Flowrate (3-5 CFM)	4.5
AS-19-E10 Manifold Pressure (PSIG)	10
AS-19-E10 Manifold Flowrate (3-5 CFM)	3.5

Zone 3

AS-19-G04 Manifold Pressure (PSIG)	12
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AS-19-G04 Manifold Flowrate (3-5 CFM)	1
AS-19-G07 Manifold Pressure (PSIG)	5
AS-19-G07 Manifold Flowrate (3-5 CFM)	5
AS-19-G10 Manifold Pressure (PSIG)	10
AS-19-G10 Manifold Flowrate (3-5 CFM)	3
AS-19-E03 Manifold Pressure (PSIG)	3
AS-19-E03 Manifold Flowrate (3-5 CFM)	6
AS-19-E06 Manifold Pressure (PSIG)	9
AS-19-E06 Manifold Flowrate (3-5 CFM)	3.5
AS-19-E09 Manifold Pressure (PSIG)	15
AS-19-E09 Manifold Flowrate (3-5 CFM)	2
AS-19-E12 Manifold Pressure (PSIG)	12
AS-19-E12 Manifold Flowrate (3-5 CFM)	1.5

Zone 4

AS-19-F12 Manifold Pressure (PSIG)	20
AS-19-F12 Manifold Flowrate (3-5 CFM)	3
AS-19-F09 Manifold Pressure (PSIG)	10
AS-19-F09 Manifold Flowrate (3-5 CFM)	4.5
AS-19-F06 Manifold Pressure (PSIG)	10
AS-19-F06 Manifold Flowrate (3-5 CFM)	4
AS-19-F03 Manifold Pressure (PSIG)	10
AS-19-F03 Manifold Flowrate (3-5 CFM)	3.5
AS-19-B06 Manifold Pressure (PSIG)	22
AS-19-B06 Manifold Flowrate (3-5 CFM)	0.5
AS-19-B03 Manifold Pressure (PSIG)	10
AS-19-B03 Manifold Flowrate (3-5 CFM)	5.5

Zone 5

AS-19-E11 Manifold Pressure (PSIG)	20
AS-19-E11 Manifold Flowrate (3-5 CFM)	0.5
AS-19-F11 Manifold Pressure (PSIG)	19
AS-19-F11 Manifold Flowrate (3-5 CFM)	3
AS-19-F08 Manifold Pressure (PSIG)	10
AS-19-F08 Manifold Flowrate (3-5 CFM)	0.5
AS-19-F05 Manifold Pressure (PSIG)	5
AS-19-F05 Manifold Flowrate (3-5 CFM)	4
AS-19-F02 Manifold Pressure (PSIG)	15
AS-19-F02 Manifold Flowrate (3-5 CFM)	3.5
AS-19-B05 Manifold Pressure (PSIG)	8
AS-19-B05 Manifold Flowrate (3-5 CFM)	2.5
AS-19-B02 Manifold Pressure (PSIG)	9
AS-19-B02 Manifold Flowrate (3-5 CFM)	4.5

Zone 6

AS-19-F10 Manifold Pressure (PSIG)	10
AS-19-F10 Manifold Flowrate (3-5 CFM)	4
AS-19-F07 Manifold Pressure (PSIG)	12
AS-19-F07 Manifold Flowrate (3-5 CFM)	3.5
AS-19-F04 Manifold Pressure (PSIG)	15
AS-19-F04 Manifold Flowrate (3-5 CFM)	2
AS-19-F01 Manifold Pressure (PSIG)	10
AS-19-F01 Manifold Flowrate (3-5 CFM)	2.5
AS-19-B07 Manifold Pressure (PSIG)	14
AS-19-B07 Manifold Flowrate (3-5 CFM)	1.5
AS-19-B04 Manifold Pressure (PSIG)	13
AS-19-B04 Manifold Flowrate (3-5 CFM)	4
AS-19-B01 Manifold Pressure (PSIG)	10

AS-19-B01 Manifold Flowrate (3-5 CFM)	3
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Outdoors and General

Propane tank level (%)	40
Number of condensate drums outside	8
Drum Photo	
Electric Meter Reading (kWh)	790372
Last fire extinguisher certification date	September 7, 2024
Walked hose corridors and fixed fallen barrels?	Yes
Checked wellheads for leaks/hissing?	Yes
Comments on wellheads:	No leaks
Comments on car parkers and site accessibility:	No problems
Car parking photos if near buildings	
Monthly Outdoor Maintenance Tasks	PR-201 Check pressure on regulator, PSH-201 Check settings, ENC198 Check electric meter at the property boundary pole to track overall electrical usage
Quarterly Building Maintenance Tasks	Wipe down system components to cut down on general grime, Remove trash from the system building, Tidy up system and notify TM of unneeded sampling equipment, Take used compressor oil to Advanced Auto Parts for recycling if there is a full container of used oil

System building photo

Photos

Videos

Any equipment that needs to be ordered?	No
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Comments, questions, ruminations, suggestions for improvement?	5 condensate drums upon arrival. Generated 3 more condensate drums.
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Signature

Signed 7/31/2025, 7:32:02 PM UTC

Departure Time	16:15
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Inspection Date	September 5, 2025
Last Quarterly Event Date	
Arrival Time	07:45
Personnel	Billy J Cobern
Weather	Cloudy, windy, 60's
FWL Electrical Meter Reading (kWh)	8237.07

HMI and Control Panel

Surge Suppressor Visual Checks

Main surge suppressor: all 3 green lights on?	Yes
Main Surge Suppressor Comments	
Control panel surge suppressor: all 3 green lights on?	Yes
Control panel Surge Suppressor Comments	
Breaker box surge suppressor: all 3 green lights on?	Yes
Breaker box Surge Suppressor Comments	
HMI display functioning (not frozen)?	Yes
Current zone	Zone 3 and 6
Compressed air setpoint (LPM)	1000
Propane setpoint (LPM)	4.711
PIT-101 (PSIG)	54.6
PIT-102 (PSIA)	68.6
FQI-101 (SLPM)	1569
PIT-201 (PSIA)	70.8
PIT-300 (PSIG)	15.6
FQI-201 (LPM)	0.168
AE-350 (%LEL)	0.1
AE-351 (%LEL)	0.1
AE-500 (%LEL)	0.1
Ensure the time on the HMI is accurate to the minute, adjust if necessary	Verified
UPS enabled?	Yes
Comments	

Non-XP Room

Fire Extinguisher Check	Needle in the green?, All moving parts appear intact?, No deformation?
Heater set to turn on and operation verified?	Yes
Room fan set to turn on and operation verified?	Yes
Bi-Weekly Compressor Maintenance	Check the cooling oil level, Cooler: Check the Filter Mat, Control cabinet: Check Filter Mat, Check the condensate drain
Quarterly Compressor Maintenance	Cooler: Change filter mat, Control Cabinet: Change filter mat
Semiannual Compressor Maintenance	Condensate drain: Change the service unit, Display: Sigma Control 2: Maintain the drive belt, Display: Sigma Control 2: Change the air filter
Is the annual compressor inspection happening during this event?	Yes
Annual Compressor Inspection	Display Sigma Control 2: Change the oil filter, Check The safety Valve, Check the overheating safety function, Check the Emergency Stop, Refrigerated Dryer: check pressure monitor, Check the cooler for leaks, Maintain the heat recovery system, Check the electrical connections are tight, Replace drive belt, Biennial: Display Sigma Control 2: Change the oil separator cartridge
Compressor Audio	1 Audio File
Number of air filters remaining	0
Do we need more compressor oil? (Less than a half gallon remaining)	No
Motor Runtime (hours)	39181
Oil Pressure (PSIG)	10
Wet receiver tank loading pressure (PI-101)	120
Wet receiver tank unloading pressure (PI-101)	130
How full is the condensate drum? (Percentage)	20
PI-101 (PSIG)	125
PI-102 (PSIG)	110
PI-103 (PSIG)	53
Are the trident desiccant dryer meters green?	Yes
Bi-Weekly Non-XP Instrument Maintenance	TCA-101 Verify draining, S-101 Verify autodrain is functioning (makes a loud noise when it turns on and water drains into the condensate drum), PF-101 Verify auto drain operational, CF-101 Verify auto drain operational, TCA-102 Check for moisture, PR-101 Verify pressure

Monthly Non-XP Instrument Maintenance

TCA-101 Inspect for debris sludge clean, Tote Transfer contents of condensate drum into outdoor drum when it is 2/3 full. It will fill up quickly during humid summer months., AD-101 Verify the drying-and-regeneration cycle is normal, AD-101 Verify the silencers are not clogged, AD-101 Inspect and determine the state of the desiccant. Brown (oil-polluted) or dusty desiccant needs to be replaced., PI-103 Verify pressure, PT-103 Check pressure reading on HMI and make sure it is close to a manual pressure gauge, MFC-101 / PIT-102 Check the flow rate to make sure it matches the setpoint on the PLC. Check the pressure reading as well., S-101 Actuate valves and ensure they are working properly (turn on and off and listen for the click), Electric box Open panel to ensure there are no tripped circuit breakers, Close valve on autodrain and clean strainer. Re-open valve to place back into operation.

Semiannual Non-XP Instrument Maintenance

No

Quarterly Filter Maintenance

CF-101 Check and clean filter element and chamber. Replace if necessary., PF-102 Check and replace filter element, PF-103 Check/Replace Filter element, PI-103 Verify pressure, PT-103 Check pressure reading on HMI and make sure it is close to a manual pressure gauge, PF-101 Check and clean filter (knock out dirt and rinse with DI water). Replace filter if necessary.

Desiccant Media Replaced?

No

Which compressed air Alicat is in use (upon leaving system)?

MFC-101B (newer)

MFC-101 compressed air temperature

21.99

MFC-101 standardized flow rate on display (SLPM)

1572

MFC-101 uncorrected flow rate on display (LPM)

334

Comments**Non-XP room photo****XP-Room****First Aid Kit Expiration Date**

April 7, 2026

Fire Extinguisher Check

Needle in the green?, All moving parts appear intact?, No deformation?

Heater turned on and verified to be operating?

Yes

Fan turned on and verified to be operating?

Yes

PI-201 (PSIG)

70

PI-202 (PSIG)	56
PSH-201 Setpoints	High setpoint at 80 psi, Deadband at 20 psi
MFC-201 temperature	25.48
MFC-201 standard flow rate on alicat display during propane cycle (SLPM)	4.72
MFC-201 uncorrected flow rate on alicat display during propane cycle (LPM)	2.28
PI-300 (PSIG)	20
Bi-Weekly XP Instrumentation Checks	AE-350 Investigate significant changes in the reading. Check the LEL during a propane sparging cycle. Check to make sure the reading is accurate for the conditions (should read 0% in the atmosphere)., AE-351 Investigate significant changes in the reading. Check the LEL during a propane sparging cycle. Check to make sure the reading is accurate for the conditions (should read 0% in the atmosphere)., AE-500 Investigate significant changes in the reading. Check to make sure the reading is accurate for the conditions (should read 0% in the atmosphere).
Monthly XP Instrumentation Checks	MFC-201 / PIT-202 Check the flow rate to make sure it matches the setpoint on the PLC. Check the pressure reading as well, S-201 Actuate valves and ensure it is working properly (turn on and off and listen for the click), PIT-300 Check pressure reading on HMI and make sure it is close to a manual pressure gauge, FQI-301 Check flow reading to make sure it is close to the flow reading on the HMI, S-301 to S-306 Actuate valves and ensure they are working properly (turn on and off and listen for the click)
Semiannual XP Instrumentation Checks	
AE-500 Reading	0
AE-350 reading during propane sparge cycle	0
AE-351 reading during propane sparge cycle	0
Quarterly LEL Meter Calibration	No
Which propane Alicat is in use (upon leaving system)?	MFC-201B (newer)
Comments	
XP-room photo	

Zone 1

AS-19-G01 Manifold Pressure (PSIG)	0
AS-19-G01 Manifold Flowrate (3-5 CFM)	0
AS-19-G03 Manifold Pressure (PSIG)	0
AS-19-G03 Manifold Flowrate (3-5 CFM)	0
AS-19-G06 Manifold Pressure (PSIG)	0
AS-19-G06 Manifold Flowrate (3-5 CFM)	0
AS-19-G09 Manifold Pressure (PSIG)	0
AS-19-G09 Manifold Flowrate (3-5 CFM)	0
AS-19-E02 Manifold Pressure (PSIG)	15
AS-19-E02 Manifold Flowrate (3-5 CFM)	3
AS-19-E05 Manifold Pressure (PSIG)	10
AS-19-E05 Manifold Flowrate (3-5 CFM)	6
AS-19-E08 Manifold Pressure (PSIG)	19
AS-19-E08 Manifold Flowrate (3-5 CFM)	2

Zone 2

AS-19-G02 Manifold Pressure (PSIG)	0
AS-19-G02 Manifold Flowrate (3-5 CFM)	0
AS-19-G05 Manifold Pressure (PSIG)	0
AS-19-G05 Manifold Flowrate (3-5 CFM)	0
AS-19-G08 Manifold Pressure (PSIG)	0
AS-19-G08 Manifold Flowrate (3-5 CFM)	0
AS-19-E01 Manifold Pressure (PSIG)	4
AS-19-E01 Manifold Flowrate (3-5 CFM)	6
AS-19-E04 Manifold Pressure (PSIG)	8
AS-19-E04 Manifold Flowrate (3-5 CFM)	6
AS-19-E07 Manifold Pressure (PSIG)	14
AS-19-E07 Manifold Flowrate (3-5 CFM)	4.5
AS-19-E10 Manifold Pressure (PSIG)	15

AS-19-E10 Manifold Flowrate (3-5 CFM)	3
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Zone 3

AS-19-G04 Manifold Pressure (PSIG)	0
AS-19-G04 Manifold Flowrate (3-5 CFM)	0
AS-19-G07 Manifold Pressure (PSIG)	0
AS-19-G07 Manifold Flowrate (3-5 CFM)	0
AS-19-G10 Manifold Pressure (PSIG)	0
AS-19-G10 Manifold Flowrate (3-5 CFM)	0
AS-19-E03 Manifold Pressure (PSIG)	3
AS-19-E03 Manifold Flowrate (3-5 CFM)	6
AS-19-E06 Manifold Pressure (PSIG)	8
AS-19-E06 Manifold Flowrate (3-5 CFM)	4
AS-19-E09 Manifold Pressure (PSIG)	15
AS-19-E09 Manifold Flowrate (3-5 CFM)	2
AS-19-E12 Manifold Pressure (PSIG)	15
AS-19-E12 Manifold Flowrate (3-5 CFM)	2.5

Zone 4

AS-19-F12 Manifold Pressure (PSIG)	22
AS-19-F12 Manifold Flowrate (3-5 CFM)	2
AS-19-F09 Manifold Pressure (PSIG)	12
AS-19-F09 Manifold Flowrate (3-5 CFM)	4
AS-19-F06 Manifold Pressure (PSIG)	10
AS-19-F06 Manifold Flowrate (3-5 CFM)	4
AS-19-F03 Manifold Pressure (PSIG)	12
AS-19-F03 Manifold Flowrate (3-5 CFM)	3
AS-19-B06 Manifold Pressure (PSIG)	24
AS-19-B06 Manifold Flowrate (3-5 CFM)	0.5

AS-19-B03 Manifold Pressure (PSIG)	10
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AS-19-B03 Manifold Flowrate (3-5 CFM)	5.5
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Zone 5

AS-19-E11 Manifold Pressure (PSIG)	20
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AS-19-E11 Manifold Flowrate (3-5 CFM)	0.5
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AS-19-F11 Manifold Pressure (PSIG)	20
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AS-19-F11 Manifold Flowrate (3-5 CFM)	1.5
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AS-19-F08 Manifold Pressure (PSIG)	10
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AS-19-F08 Manifold Flowrate (3-5 CFM)	0.5
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AS-19-F05 Manifold Pressure (PSIG)	7
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AS-19-F05 Manifold Flowrate (3-5 CFM)	4
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AS-19-F02 Manifold Pressure (PSIG)	16
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AS-19-F02 Manifold Flowrate (3-5 CFM)	2.5
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AS-19-B05 Manifold Pressure (PSIG)	9
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AS-19-B05 Manifold Flowrate (3-5 CFM)	2.5
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AS-19-B02 Manifold Pressure (PSIG)	10
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AS-19-B02 Manifold Flowrate (3-5 CFM)	5
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Zone 6

AS-19-F10 Manifold Pressure (PSIG)	12
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AS-19-F10 Manifold Flowrate (3-5 CFM)	3
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AS-19-F07 Manifold Pressure (PSIG)	12
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AS-19-F07 Manifold Flowrate (3-5 CFM)	4
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AS-19-F04 Manifold Pressure (PSIG)	15
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AS-19-F04 Manifold Flowrate (3-5 CFM)	2
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AS-19-F01 Manifold Pressure (PSIG)	12
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AS-19-F01 Manifold Flowrate (3-5 CFM)	3.5
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AS-19-B07 Manifold Pressure (PSIG)	15
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AS-19-B07 Manifold Flowrate (3-5 CFM)	1.5
AS-19-B04 Manifold Pressure (PSIG)	12
AS-19-B04 Manifold Flowrate (3-5 CFM)	4.5
AS-19-B01 Manifold Pressure (PSIG)	10
AS-19-B01 Manifold Flowrate (3-5 CFM)	3.5

Outdoors and General

Propane tank level (%)	34
Number of condensate drums outside	12

Drum Photo

Electric Meter Reading (kWh)	803227
Last fire extinguisher certification date	September 7, 2024
Walked hose corridors and fixed fallen barrels?	Yes
Checked wellheads for leaks/hissing?	Yes
Comments on wellheads:	No leaks
Comments on car parkers and site accessibility:	No problems

Car parking photos if near buildings

Monthly Outdoor Maintenance Tasks	PR-201 Check pressure on regulator, PSH-201 Check settings, ENC198 Check electric meter at the property boundary pole to track overall electrical usage
Quarterly Building Maintenance Tasks	Wipe down system components to cut down on general grime, Remove trash from the system building, Tidy up system and notify TM of unneeded sampling equipment, Take used compressor oil to Advanced Auto Parts for recycling if there is a full container of used oil

System building photo

Photos



Videos	
Any equipment that needs to be ordered?	No
Comments, questions, ruminations, suggestions for improvement?	12 condensate drums upon arrival

Signature

Signed 9/5/2025, 12:17:21 PM UTC

Departure Time

12:45

Inspection Date	October 6, 2025
Last Quarterly Event Date	
Arrival Time	08:30
Personnel	Billy J Cobern
Weather	Partly Cloudy, 60's-80's
FWL Electrical Meter Reading (kWh)	8237.07

HMI and Control Panel

Surge Suppressor Visual Checks

Main surge suppressor: all 3 green lights on?	Yes
Main Surge Suppressor Comments	
Control panel surge suppressor: all 3 green lights on?	Yes
Control panel Surge Suppressor Comments	
Breaker box surge suppressor: all 3 green lights on?	Yes
Breaker box Surge Suppressor Comments	
HMI display functioning (not frozen)?	Yes
Current zone	Rest
Compressed air setpoint (LPM)	1000
Propane setpoint (LPM)	4.7
PIT-101 (PSIG)	57.6
PIT-102 (PSIA)	71.9
FQI-101 (SLPM)	1
PIT-201 (PSIA)	70.8
PIT-300 (PSIG)	15.7
FQI-201 (LPM)	0.001
AE-350 (%LEL)	0.1
AE-351 (%LEL)	0.1
AE-500 (%LEL)	0.1
Ensure the time on the HMI is accurate to the minute, adjust if necessary	Verified
UPS enabled?	Yes
Comments	

Non-XP Room

Fire Extinguisher Check	Needle in the green?, All moving parts appear intact?, No deformation?
Heater set to turn on and operation verified?	Yes
Room fan set to turn on and operation verified?	Yes
Bi-Weekly Compressor Maintenance	Check the cooling oil level, Cooler: Check the Filter Mat, Control cabinet: Check Filter Mat, Check the condensate drain
Quarterly Compressor Maintenance	Cooler: Change filter mat, Control Cabinet: Change filter mat
Semiannual Compressor Maintenance	Condensate drain: Change the service unit, Display: Sigma Control 2: Maintain the drive belt, Display: Sigma Control 2: Change the air filter
Is the annual compressor inspection happening during this event?	No
Compressor Audio	1 Audio File
Number of air filters remaining	0
Do we need more compressor oil? (Less than a half gallon remaining)	No
Motor Runtime (hours)	39863
Oil Pressure (PSIG)	10
Wet receiver tank loading pressure (PI-101)	120
Wet receiver tank unloading pressure (PI-101)	130
How full is the condensate drum? (Percentage)	40
PI-101 (PSIG)	120
PI-102 (PSIG)	110
PI-103 (PSIG)	53
Are the trident desiccant dryer meters green?	Yes
Bi-Weekly Non-XP Instrument Maintenance	TCA-101 Verify draining, S-101 Verify autodrain is functioning (makes a loud noise when it turns on and water drains into the condensate drum), PF-101 Verify auto drain operational, CF-101 Verify auto drain operational, TCA-102 Check for moisture, PR-101 Verify pressure
Monthly Non-XP Instrument Maintenance	TCA-101 Inspect for debris sludge clean, Tote Transfer contents of condensate drum into outdoor drum when it is 2/3 full. It will fill up quickly during humid summer months., AD-101 Verify the drying-and-regeneration cycle is normal, AD-101 Verify the silencers are not clogged, AD-101 Inspect and determine the state of the desiccant. Brown (oil-polluted) or dusty desiccant needs to be replaced., PI-103 Verify pressure, PT-103 Check pressure reading on HMI and make sure it is close to a manual pressure gauge, MFC-101 / PIT-102 Check the flow rate to make sure it matches the setpoint on the PLC. Check the pressure reading as well., S-101 Actuate valves and ensure they are working properly (turn on and off and listen for the click), Electric box Open panel to ensure there are no tripped circuit breakers, Close valve on autodrain and clean strainer. Re-open valve to place back into operation.
Semiannual Non-XP Instrument Maintenance	No

Quarterly Filter Maintenance	CF-101 Check and clean filter element and chamber. Replace if necessary., PF-102 Check and replace filter element, PF-103 Check/Replace Filter element, PI-103 Verify pressure, PT-103 Check pressure reading on HMI and make sure it is close to a manual pressure gauge, PF-101 Check and clean filter (knock out dirt and rinse with DI water). Replace filter if necessary.
Desiccant Media Replaced?	No
Which compressed air Alicat is in use (upon leaving system)?	MFC-101B (newer)
MFC-101 compressed air temperature	23.27
MFC-101 standardized flow rate on display (SLPM)	1570
MFC-101 uncorrected flow rate on display (LPM)	335
Comments	TCA-101 was not draining upon arrival. I cleaned the autodrain screen, the autodrain line and blew out the water from TCA-101 into a drum. Autodrain is now functioning normally.
Non-XP room photo	

XP-Room

First Aid Kit Expiration Date	April 7, 2026
Fire Extinguisher Check	Needle in the green?, All moving parts appear intact?, No deformation?
Heater turned on and verified to be operating?	Yes
Fan turned on and verified to be operating?	Yes
PI-201 (PSIG)	70
PI-202 (PSIG)	56
PSH-201 Setpoints	High setpoint at 80 psi, Deadband at 20 psi
MFC-201 temperature	34.67
MFC-201 standard flow rate on alicat display during propane cycle (SLPM)	4.72
MFC-201 uncorrected flow rate on alicat display during propane cycle (LPM)	1.96
PI-300 (PSIG)	22

Bi-Weekly XP Instrumentation Checks	AE-350 Investigate significant changes in the reading. Check the LEL during a propane sparging cycle. Check to make sure the reading is accurate for the conditions (should read 0% in the atmosphere)., AE-351 Investigate significant changes in the reading. Check the LEL during a propane sparging cycle. Check to make sure the reading is accurate for the conditions (should read 0% in the atmosphere)., AE-500 Investigate significant changes in the reading. Check to make sure the reading is accurate for the conditions (should read 0% in the atmosphere).
Monthly XP Instrumentation Checks	MFC-201 / PIT-202 Check the flow rate to make sure it matches the setpoint on the PLC. Check the pressure reading as well, S-201 Actuate valves and ensure it is working properly (turn on and off and listen for the click), PIT-300 Check pressure reading on HMI and make sure it is close to a manual pressure gauge, FQI-301 Check flow reading to make sure it is close to the flow reading on the HMI, S-301 to S-306 Actuate valves and ensure they are working properly (turn on and off and listen for the click)
Semiannual XP Instrumentation Checks	
AE-500 Reading	0
AE-350 reading during propane sparge cycle	0
AE-351 reading during propane sparge cycle	0
Quarterly LEL Meter Calibration	No
Which propane Alicat is in use (upon leaving system)?	MFC-201B (newer)
Comments	Cleaned condensate auto drain. Cleaned auto drain line.
XP-room photo	

Zone 1

AS-19-G01 Manifold Pressure (PSIG)	0
AS-19-G01 Manifold Flowrate (3-5 CFM)	0
AS-19-G03 Manifold Pressure (PSIG)	0
AS-19-G03 Manifold Flowrate (3-5 CFM)	0
AS-19-G06 Manifold Pressure (PSIG)	0
AS-19-G06 Manifold Flowrate (3-5 CFM)	0

AS-19-G09 Manifold Pressure (PSIG)	0
AS-19-G09 Manifold Flowrate (3-5 CFM)	0
AS-19-E02 Manifold Pressure (PSIG)	18
AS-19-E02 Manifold Flowrate (3-5 CFM)	3
AS-19-E05 Manifold Pressure (PSIG)	4
AS-19-E05 Manifold Flowrate (3-5 CFM)	6
AS-19-E08 Manifold Pressure (PSIG)	18
AS-19-E08 Manifold Flowrate (3-5 CFM)	1.5

Zone 2

AS-19-G02 Manifold Pressure (PSIG)	0
AS-19-G02 Manifold Flowrate (3-5 CFM)	0
AS-19-G05 Manifold Pressure (PSIG)	0
AS-19-G05 Manifold Flowrate (3-5 CFM)	0
AS-19-G08 Manifold Pressure (PSIG)	0
AS-19-G08 Manifold Flowrate (3-5 CFM)	0
AS-19-E01 Manifold Pressure (PSIG)	5
AS-19-E01 Manifold Flowrate (3-5 CFM)	5
AS-19-E04 Manifold Pressure (PSIG)	9
AS-19-E04 Manifold Flowrate (3-5 CFM)	6
AS-19-E07 Manifold Pressure (PSIG)	15
AS-19-E07 Manifold Flowrate (3-5 CFM)	5
AS-19-E10 Manifold Pressure (PSIG)	16
AS-19-E10 Manifold Flowrate (3-5 CFM)	4

Zone 3

AS-19-G04 Manifold Pressure (PSIG)	0
AS-19-G04 Manifold Flowrate (3-5 CFM)	0
AS-19-G07 Manifold Pressure (PSIG)	0

AS-19-G07 Manifold Flowrate (3-5 CFM)	0
AS-19-G10 Manifold Pressure (PSIG)	0
AS-19-G10 Manifold Flowrate (3-5 CFM)	0
AS-19-E03 Manifold Pressure (PSIG)	4
AS-19-E03 Manifold Flowrate (3-5 CFM)	6
AS-19-E06 Manifold Pressure (PSIG)	10
AS-19-E06 Manifold Flowrate (3-5 CFM)	3.5
AS-19-E09 Manifold Pressure (PSIG)	15
AS-19-E09 Manifold Flowrate (3-5 CFM)	2
AS-19-E12 Manifold Pressure (PSIG)	15
AS-19-E12 Manifold Flowrate (3-5 CFM)	2

Zone 4

AS-19-F12 Manifold Pressure (PSIG)	18
AS-19-F12 Manifold Flowrate (3-5 CFM)	4
AS-19-F09 Manifold Pressure (PSIG)	8
AS-19-F09 Manifold Flowrate (3-5 CFM)	4
AS-19-F06 Manifold Pressure (PSIG)	8
AS-19-F06 Manifold Flowrate (3-5 CFM)	3.5
AS-19-F03 Manifold Pressure (PSIG)	8
AS-19-F03 Manifold Flowrate (3-5 CFM)	3
AS-19-B06 Manifold Pressure (PSIG)	20
AS-19-B06 Manifold Flowrate (3-5 CFM)	0.5
AS-19-B03 Manifold Pressure (PSIG)	10
AS-19-B03 Manifold Flowrate (3-5 CFM)	5.5

Zone 5

AS-19-E11 Manifold Pressure (PSIG)	21
AS-19-E11 Manifold Flowrate (3-5 CFM)	0.5

AS-19-F11 Manifold Pressure (PSIG)	20
AS-19-F11 Manifold Flowrate (3-5 CFM)	2
AS-19-F08 Manifold Pressure (PSIG)	11
AS-19-F08 Manifold Flowrate (3-5 CFM)	1
AS-19-F05 Manifold Pressure (PSIG)	6
AS-19-F05 Manifold Flowrate (3-5 CFM)	5
AS-19-F02 Manifold Pressure (PSIG)	18
AS-19-F02 Manifold Flowrate (3-5 CFM)	2
AS-19-B05 Manifold Pressure (PSIG)	10
AS-19-B05 Manifold Flowrate (3-5 CFM)	2.5
AS-19-B02 Manifold Pressure (PSIG)	11
AS-19-B02 Manifold Flowrate (3-5 CFM)	5

Zone 6

AS-19-F10 Manifold Pressure (PSIG)	12
AS-19-F10 Manifold Flowrate (3-5 CFM)	4
AS-19-F07 Manifold Pressure (PSIG)	15
AS-19-F07 Manifold Flowrate (3-5 CFM)	3
AS-19-F04 Manifold Pressure (PSIG)	15
AS-19-F04 Manifold Flowrate (3-5 CFM)	2.5
AS-19-F01 Manifold Pressure (PSIG)	11
AS-19-F01 Manifold Flowrate (3-5 CFM)	4
AS-19-B07 Manifold Pressure (PSIG)	15
AS-19-B07 Manifold Flowrate (3-5 CFM)	1
AS-19-B04 Manifold Pressure (PSIG)	14
AS-19-B04 Manifold Flowrate (3-5 CFM)	4.5
AS-19-B01 Manifold Pressure (PSIG)	10
AS-19-B01 Manifold Flowrate (3-5 CFM)	4

Outdoors and General

Propane tank level (%)	28
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Number of condensate drums outside	15
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Drum Photo



Electric Meter Reading (kWh)	814275
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Last fire extinguisher certification date	September 7, 2024
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Walked hose corridors and fixed fallen barrels?	Yes
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Checked wellheads for leaks/hissing?	Yes
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Comments on wellheads:	No leaks
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Comments on car parkers and site accessibility:	No problems
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Car parking photos if near buildings

Monthly Outdoor Maintenance Tasks	PR-201 Check pressure on regulator, PSH-201 Check settings, ENC198 Check electric meter at the property boundary pole to track overall electrical usage
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Quarterly Building Maintenance Tasks	Wipe down system components to cut down on general grime, Remove trash from the system building, Tidy up system and notify TM of unneeded sampling equipment, Take used compressor oil to Advanced Auto Parts for recycling if there is a full container of used oil
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System building photo

Photos



Videos

Any equipment that needs to be ordered?

No

Comments, questions, ruminations, suggestions for improvement?

12 condensate drums upon arrival, 15 upon departure

Signature

Signed 10/6/2025, 3:23:33 PM UTC

Departure Time

12:45

Inspection Date	November 11, 2025
Last Quarterly Event Date	
Arrival Time	10:03
Personnel	Robert Prigge
Weather	30s
FWL Electrical Meter Reading (kWh)	8237.07

HMI and Control Panel

Surge Suppressor Visual Checks

Main surge suppressor: all 3 green lights on?	Yes
Main Surge Suppressor Comments	
Control panel surge suppressor: all 3 green lights on?	Yes
Control panel Surge Suppressor Comments	
Breaker box surge suppressor: all 3 green lights on?	Yes
Breaker box Surge Suppressor Comments	
HMI display functioning (not frozen)?	Yes
Current zone	Zone 2 and 5
Compressed air setpoint (LPM)	1000
Propane setpoint (LPM)	4.7043
PIT-101 (PSIG)	54.4
PIT-102 (PSIA)	68.6
FQI-101 (SLPM)	1571
PIT-201 (PSIA)	82.6
PIT-300 (PSIG)	20.5
FQI-201 (LPM)	0.079
AE-350 (%LEL)	0.1
AE-351 (%LEL)	0.1
AE-500 (%LEL)	0.1
Ensure the time on the HMI is accurate to the minute, adjust if necessary	Verified
UPS enabled?	No
Comments	

Non-XP Room

Fire Extinguisher Check	Needle in the green?, All moving parts appear intact?, No deformation?
Heater set to turn on and operation verified?	Yes
Room fan set to turn on and operation verified?	Yes
Bi-Weekly Compressor Maintenance	Cooler: Check the Filter Mat, Check the cooling oil level, Control cabinet: Check Filter Mat, Check the condensate drain
Quarterly Compressor Maintenance	
Semiannual Compressor Maintenance	
Is the annual compressor inspection happening during this event?	No
Compressor Audio	1 Audio File
Number of air filters remaining	0
Do we need more compressor oil? (Less than a half gallon remaining)	No
Motor Runtime (hours)	40666
Oil Pressure (PSIG)	10
Wet receiver tank loading pressure (PI-101)	136
Wet receiver tank unloading pressure (PI-101)	120
How full is the condensate drum? (Percentage)	0
PI-101 (PSIG)	118
PI-102 (PSIG)	110
PI-103 (PSIG)	54
Are the trident desiccant dryer meters green?	Yes
Bi-Weekly Non-XP Instrument Maintenance	TCA-101 Verify draining, S-101 Verify autodrain is functioning (makes a loud noise when it turns on and water drains into the condensate drum), PF-101 Verify auto drain operational, CF-101 Verify auto drain operational, TCA-102 Check for moisture, PR-101 Verify pressure
Monthly Non-XP Instrument Maintenance	TCA-101 Inspect for debris sludge clean, Tote Transfer contents of condensate drum into outdoor drum when it is 2/3 full. It will fill up quickly during humid summer months., AD-101 Verify the drying-and-regeneration cycle is normal, AD-101 Verify the silencers are not clogged, AD-101 Inspect and determine the state of the desiccant. Brown (oil-polluted) or dusty desiccant needs to be replaced., PI-103 Verify pressure, PT-103 Check pressure reading on HMI and make sure it is close to a manual pressure gauge, MFC-101 / PIT-102 Check the flow rate to make sure it matches the setpoint on the PLC. Check the pressure reading as well., S-101 Actuate valves and ensure they are working properly (turn on and off and listen for the click), Electric box Open panel to ensure there are no tripped circuit breakers, Close valve on autodrain and clean strainer. Re-open valve to place back into operation.
Semiannual Non-XP Instrument Maintenance	
Quarterly Filter Maintenance	

Desiccant Media Replaced?	No
Which compressed air Alicat is in use (upon leaving system)?	MFC-101A (older)
MFC-101 compressed air temperature	19.62
MFC-101 standardized flow rate on display (SLPM)	1294
MFC-101 uncorrected flow rate on display (LPM)	271
Comments	Auto drain valve clogged and stripped out. (Black plastic knob not operating. Removed auto drain plumbing. Rusty out. Clogged with rusty metal. In need of replacement. 75 gallons of condensate water drummed from wet receiver tank 101

Non-XP room photo



XP-Room

First Aid Kit Expiration Date	September 11, 2024
Fire Extinguisher Check	Needle in the green?, All moving parts appear intact?, No deformation?
Heater turned on and verified to be operating?	Yes
Fan turned on and verified to be operating?	Yes
PI-201 (PSIG)	68
PI-202 (PSIG)	58

PSH-201 Setpoints	High setpoint at 80 psi, Deadband at 20 psi
MFC-201 temperature	20.26
MFC-201 standard flow rate on alicat display during propane cycle (SLPM)	3.88
MFC-201 uncorrected flow rate on alicat display during propane cycle (LPM)	1.48
PI-300 (PSIG)	26
Bi-Weekly XP Instrumentation Checks	AE-350 Investigate significant changes in the reading. Check the LEL during a propane sparging cycle. Check to make sure the reading is accurate for the conditions (should read 0% in the atmosphere)., FQI-351/352 verify rate, AE-351 Investigate significant changes in the reading. Check the LEL during a propane sparging cycle. Check to make sure the reading is accurate for the conditions (should read 0% in the atmosphere)., AE-500 Investigate significant changes in the reading. Check to make sure the reading is accurate for the conditions (should read 0% in the atmosphere).
Monthly XP Instrumentation Checks	MFC-201 / PIT-202 Check the flow rate to make sure it matches the setpoint on the PLC. Check the pressure reading as well, S-201 Actuate valves and ensure it is working properly (turn on and off and listen for the click), PIT-300 Check pressure reading on HMI and make sure it is close to a manual pressure gauge, FQI-301 Check flow reading to make sure it is close to the flow reading on the HMI, S-301 to S-306 Actuate valves and ensure they are working properly (turn on and off and listen for the click)
Semiannual XP Instrumentation Checks	
AE-500 Reading	0
AE-350 reading during propane sparge cycle	0
AE-351 reading during propane sparge cycle	0
Quarterly LEL Meter Calibration	No
Which propane Alicat is in use (upon leaving system)?	MFC-201B (newer)
Comments	Eye wash expired. AE350 and AE351 valves off

XP-room photo

Zone 1

AS-19-G01 Manifold Pressure (PSIG) | 0

AS-19-G01 Manifold Flowrate (3-5 CFM)	0
AS-19-G03 Manifold Pressure (PSIG)	0
AS-19-G03 Manifold Flowrate (3-5 CFM)	0
AS-19-G06 Manifold Pressure (PSIG)	0
AS-19-G06 Manifold Flowrate (3-5 CFM)	0
AS-19-G09 Manifold Pressure (PSIG)	0
AS-19-G09 Manifold Flowrate (3-5 CFM)	0
AS-19-E02 Manifold Pressure (PSIG)	24
AS-19-E02 Manifold Flowrate (3-5 CFM)	1
AS-19-E05 Manifold Pressure (PSIG)	9
AS-19-E05 Manifold Flowrate (3-5 CFM)	6.5
AS-19-E08 Manifold Pressure (PSIG)	22
AS-19-E08 Manifold Flowrate (3-5 CFM)	1.5

Zone 2

AS-19-G02 Manifold Pressure (PSIG)	0
AS-19-G02 Manifold Flowrate (3-5 CFM)	0
AS-19-G05 Manifold Pressure (PSIG)	0
AS-19-G05 Manifold Flowrate (3-5 CFM)	0
AS-19-G08 Manifold Pressure (PSIG)	0
AS-19-G08 Manifold Flowrate (3-5 CFM)	0
AS-19-E01 Manifold Pressure (PSIG)	6
AS-19-E01 Manifold Flowrate (3-5 CFM)	6
AS-19-E04 Manifold Pressure (PSIG)	0
AS-19-E04 Manifold Flowrate (3-5 CFM)	6
AS-19-E07 Manifold Pressure (PSIG)	17
AS-19-E07 Manifold Flowrate (3-5 CFM)	4
AS-19-E10 Manifold Pressure (PSIG)	17
AS-19-E10 Manifold Flowrate (3-5 CFM)	2.5

Zone 3

AS-19-G04 Manifold Pressure (PSIG)	0
AS-19-G04 Manifold Flowrate (3-5 CFM)	0
AS-19-G07 Manifold Pressure (PSIG)	0
AS-19-G07 Manifold Flowrate (3-5 CFM)	0
AS-19-G10 Manifold Pressure (PSIG)	0
AS-19-G10 Manifold Flowrate (3-5 CFM)	0
AS-19-E03 Manifold Pressure (PSIG)	5
AS-19-E03 Manifold Flowrate (3-5 CFM)	6
AS-19-E06 Manifold Pressure (PSIG)	5
AS-19-E06 Manifold Flowrate (3-5 CFM)	5
AS-19-E09 Manifold Pressure (PSIG)	16
AS-19-E09 Manifold Flowrate (3-5 CFM)	2
AS-19-E12 Manifold Pressure (PSIG)	16
AS-19-E12 Manifold Flowrate (3-5 CFM)	2

Zone 4

AS-19-F12 Manifold Pressure (PSIG)	12
AS-19-F12 Manifold Flowrate (3-5 CFM)	3
AS-19-F09 Manifold Pressure (PSIG)	13
AS-19-F09 Manifold Flowrate (3-5 CFM)	4
AS-19-F06 Manifold Pressure (PSIG)	10
AS-19-F06 Manifold Flowrate (3-5 CFM)	4
AS-19-F03 Manifold Pressure (PSIG)	12
AS-19-F03 Manifold Flowrate (3-5 CFM)	3
AS-19-B06 Manifold Pressure (PSIG)	24
AS-19-B06 Manifold Flowrate (3-5 CFM)	0
AS-19-B03 Manifold Pressure (PSIG)	11
AS-19-B03 Manifold Flowrate (3-5 CFM)	4.5

Zone 5

AS-19-E11 Manifold Pressure (PSIG)	22
AS-19-E11 Manifold Flowrate (3-5 CFM)	0
AS-19-F11 Manifold Pressure (PSIG)	22
AS-19-F11 Manifold Flowrate (3-5 CFM)	0.5
AS-19-F08 Manifold Pressure (PSIG)	11
AS-19-F08 Manifold Flowrate (3-5 CFM)	1
AS-19-F05 Manifold Pressure (PSIG)	8
AS-19-F05 Manifold Flowrate (3-5 CFM)	4
AS-19-F02 Manifold Pressure (PSIG)	18
AS-19-F02 Manifold Flowrate (3-5 CFM)	2
AS-19-B05 Manifold Pressure (PSIG)	10
AS-19-B05 Manifold Flowrate (3-5 CFM)	2.5
AS-19-B02 Manifold Pressure (PSIG)	10
AS-19-B02 Manifold Flowrate (3-5 CFM)	5

Zone 6

AS-19-F10 Manifold Pressure (PSIG)	13
AS-19-F10 Manifold Flowrate (3-5 CFM)	3.5
AS-19-F07 Manifold Pressure (PSIG)	14
AS-19-F07 Manifold Flowrate (3-5 CFM)	3
AS-19-F04 Manifold Pressure (PSIG)	16
AS-19-F04 Manifold Flowrate (3-5 CFM)	2
AS-19-F01 Manifold Pressure (PSIG)	14
AS-19-F01 Manifold Flowrate (3-5 CFM)	3.5
AS-19-B07 Manifold Pressure (PSIG)	17
AS-19-B07 Manifold Flowrate (3-5 CFM)	0.5
AS-19-B04 Manifold Pressure (PSIG)	14
AS-19-B04 Manifold Flowrate (3-5 CFM)	4.5

AS-19-B01 Manifold Pressure (PSIG)	14
AS-19-B01 Manifold Flowrate (3-5 CFM)	2.5

Outdoors and General

Propane tank level (%)	24
Number of condensate drums outside	17

Drum Photo

Electric Meter Reading (kWh)	827025
Last fire extinguisher certification date	September 11, 2024
Walked hose corridors and fixed fallen barrels?	Yes
Checked wellheads for leaks/hissing?	Yes
Comments on wellheads:	AS-19-E02, AS-19-E03, and AS-19-F10 leaking air at well seals. AS-19-E03 completely off-attempted to re-seat
Comments on car parkers and site accessibility:	No cars
Car parking photos if near buildings	
Monthly Outdoor Maintenance Tasks	PR-201 Check pressure on regulator, PSH-201 Check settings, ENC198 Check electric meter at the property boundary pole to track overall electrical usage

Quarterly Building Maintenance Tasks

System building photo

Photos

Videos

Any equipment that needs to be ordered? Eye wash. Fire extinguisher renewal inspection. Auto drain piping all rusted out. Causing auto drain to get clogged. Propane needed this winter. Drum pick up and new drums needed.

Comments, questions, ruminations, suggestions for improvement?

Signature

Signed 11/11/2025, 6:48:51 PM UTC

Departure Time 14:30

Inspection Date	December 4, 2025
Last Quarterly Event Date	
Arrival Time	11:24
Personnel	Robert Prigge
Weather	10-20 windy, sunny
FWL Electrical Meter Reading (kWh)	8237.07

HMI and Control Panel

Surge Suppressor Visual Checks

Main surge suppressor: all 3 green lights on?	Yes
Main Surge Suppressor Comments	
Control panel surge suppressor: all 3 green lights on?	Yes
Control panel Surge Suppressor Comments	
Breaker box surge suppressor: all 3 green lights on?	Yes
Breaker box Surge Suppressor Comments	
HMI display functioning (not frozen)?	Yes
Current zone	Zone 3 and 6
Compressed air setpoint (LPM)	1000
Propane setpoint (LPM)	4.72
PIT-101 (PSIG)	54.4
PIT-102 (PSIA)	68.8
FQI-101 (SLPM)	1572
PIT-201 (PSIA)	39.3
PIT-300 (PSIG)	16.6
FQI-201 (LPM)	0.012
AE-350 (%LEL)	0.1
AE-351 (%LEL)	0.1
AE-500 (%LEL)	0.2
Ensure the time on the HMI is accurate to the minute, adjust if necessary	Verified
UPS enabled?	No
Comments	

Non-XP Room

Fire Extinguisher Check	Needle in the green?, All moving parts appear intact?, No deformation?
Heater set to turn on and operation verified?	Yes
Room fan set to turn on and operation verified?	Yes
Bi-Weekly Compressor Maintenance	Check the cooling oil level, Cooler: Check the Filter Mat, Control cabinet: Check Filter Mat, Check the condensate drain
Quarterly Compressor Maintenance	Control Cabinet: Change filter mat, Cleaned filter mat. Air Components changed air filter and oil filter. Oil level ok
Semiannual Compressor Maintenance	
Is the annual compressor inspection happening during this event?	No
Compressor Audio	1 Audio File
Number of air filters remaining	0
Do we need more compressor oil? (Less than a half gallon remaining)	No
Motor Runtime (hours)	41172
Oil Pressure (PSIG)	10
Wet receiver tank loading pressure (PI-101)	110
Wet receiver tank unloading pressure (PI-101)	125
How full is the condensate drum? (Percentage)	2
PI-101 (PSIG)	125
PI-102 (PSIG)	122
PI-103 (PSIG)	56
Are the trident desiccant dryer meters green?	Yes
Bi-Weekly Non-XP Instrument Maintenance	TCA-101 Verify draining, S-101 Verify autodrain is functioning (makes a loud noise when it turns on and water drains into the condensate drum), PF-101 Verify auto drain operational, CF-101 Verify auto drain operational, TCA-102 Check for moisture, PR-101 Verify pressure
Monthly Non-XP Instrument Maintenance	TCA-101 Inspect for debris sludge clean, AD-101 Verify the drying-and-regeneration cycle is normal, AD-101 Verify the silencers are not clogged, AD-101 Inspect and determine the state of the desiccant. Brown (oil-polluted) or dusty desiccant needs to be replaced., PI-103 Verify pressure, PT-103 Check pressure reading on HMI and make sure it is close to a manual pressure gauge, MFC-101 / PIT-102 Check the flow rate to make sure it matches the setpoint on the PLC. Check the pressure reading as well., S-101 Actuate valves and ensure they are working properly (turn on and off and listen for the click), Electric box Open panel to ensure there are no tripped circuit breakers, Close valve on autodrain and clean strainer. Re-open valve to place back into operation.
Semiannual Non-XP Instrument Maintenance	
Quarterly Filter Maintenance	
Desiccant Media Replaced?	No

Which compressed air Alicat is in use (upon leaving system)?	MFC-101A (older)
MFC-101 compressed air temperature	17.42
MFC-101 standardized flow rate on display (SLPM)	1570
MFC-101 uncorrected flow rate on display (LPM)	326
Comments	Replaced wet receiver tank 101 piping for drain and auto drain. Replaced Y -strainer/auto drain
Non-XP room photo	

XP-Room

First Aid Kit Expiration Date	April 4, 2026
Fire Extinguisher Check	Needle in the green?, All moving parts appear intact?, No deformation?
Heater turned on and verified to be operating?	Yes
Fan turned on and verified to be operating?	Yes
PI-201 (PSIG)	55
PI-202 (PSIG)	50
PSH-201 Setpoints	High setpoint at 80 psi, Deadband at 20 psi
MFC-201 temperature	17.77
MFC-201 standard flow rate on alicat display during propane cycle (SLPM)	4.72
MFC-201 uncorrected flow rate on alicat display during propane cycle (LPM)	1.82
PI-300 (PSIG)	25

Bi-Weekly XP Instrumentation Checks	FQI-351/352 verify rate, AE-350 Investigate significant changes in the reading. Check the LEL during a propane sparging cycle. Check to make sure the reading is accurate for the conditions (should read 0% in the atmosphere)., AE-351 Investigate significant changes in the reading. Check the LEL during a propane sparging cycle. Check to make sure the reading is accurate for the conditions (should read 0% in the atmosphere)., AE-500 Investigate significant changes in the reading. Check to make sure the reading is accurate for the conditions (should read 0% in the atmosphere).
Monthly XP Instrumentation Checks	MFC-201 / PIT-202 Check the flow rate to make sure it matches the setpoint on the PLC. Check the pressure reading as well, S-201 Actuate valves and ensure it is working properly (turn on and off and listen for the click), PIT-300 Check pressure reading on HMI and make sure it is close to a manual pressure gauge, FQI-301 Check flow reading to make sure it is close to the flow reading on the HMI, S-301 to S-306 Actuate valves and ensure they are working properly (turn on and off and listen for the click)
Semiannual XP Instrumentation Checks	
AE-500 Reading	0
AE-350 reading during propane sparge cycle	0
AE-351 reading during propane sparge cycle	0
Quarterly LEL Meter Calibration	No
Which propane Alicat is in use (upon leaving system)?	MFC-201A (older)
Comments	
XP-room photo	

Zone 1

AS-19-G01 Manifold Pressure (PSIG)	0
AS-19-G01 Manifold Flowrate (3-5 CFM)	0
AS-19-G03 Manifold Pressure (PSIG)	0
AS-19-G03 Manifold Flowrate (3-5 CFM)	0
AS-19-G06 Manifold Pressure (PSIG)	0
AS-19-G06 Manifold Flowrate (3-5 CFM)	0

AS-19-G09 Manifold Pressure (PSIG)	0
AS-19-G09 Manifold Flowrate (3-5 CFM)	0
AS-19-E02 Manifold Pressure (PSIG)	22
AS-19-E02 Manifold Flowrate (3-5 CFM)	1
AS-19-E05 Manifold Pressure (PSIG)	8
AS-19-E05 Manifold Flowrate (3-5 CFM)	4
AS-19-E08 Manifold Pressure (PSIG)	21
AS-19-E08 Manifold Flowrate (3-5 CFM)	2

Zone 2

AS-19-G02 Manifold Pressure (PSIG)	0
AS-19-G02 Manifold Flowrate (3-5 CFM)	0
AS-19-G05 Manifold Pressure (PSIG)	0
AS-19-G05 Manifold Flowrate (3-5 CFM)	0
AS-19-G08 Manifold Pressure (PSIG)	0
AS-19-G08 Manifold Flowrate (3-5 CFM)	0
AS-19-E01 Manifold Pressure (PSIG)	7
AS-19-E01 Manifold Flowrate (3-5 CFM)	6
AS-19-E04 Manifold Pressure (PSIG)	10
AS-19-E04 Manifold Flowrate (3-5 CFM)	6
AS-19-E07 Manifold Pressure (PSIG)	16
AS-19-E07 Manifold Flowrate (3-5 CFM)	4
AS-19-E10 Manifold Pressure (PSIG)	16
AS-19-E10 Manifold Flowrate (3-5 CFM)	3.5

Zone 3

AS-19-G04 Manifold Pressure (PSIG)	0
AS-19-G04 Manifold Flowrate (3-5 CFM)	0
AS-19-G07 Manifold Pressure (PSIG)	0

AS-19-G07 Manifold Flowrate (3-5 CFM)	0
AS-19-G10 Manifold Pressure (PSIG)	0
AS-19-G10 Manifold Flowrate (3-5 CFM)	0
AS-19-E03 Manifold Pressure (PSIG)	6
AS-19-E03 Manifold Flowrate (3-5 CFM)	6
AS-19-E06 Manifold Pressure (PSIG)	10
AS-19-E06 Manifold Flowrate (3-5 CFM)	4
AS-19-E09 Manifold Pressure (PSIG)	16
AS-19-E09 Manifold Flowrate (3-5 CFM)	2
AS-19-E12 Manifold Pressure (PSIG)	16
AS-19-E12 Manifold Flowrate (3-5 CFM)	1.5

Zone 4

AS-19-F12 Manifold Pressure (PSIG)	24
AS-19-F12 Manifold Flowrate (3-5 CFM)	2
AS-19-F09 Manifold Pressure (PSIG)	14
AS-19-F09 Manifold Flowrate (3-5 CFM)	4
AS-19-F06 Manifold Pressure (PSIG)	10
AS-19-F06 Manifold Flowrate (3-5 CFM)	4
AS-19-F03 Manifold Pressure (PSIG)	12
AS-19-F03 Manifold Flowrate (3-5 CFM)	3
AS-19-B06 Manifold Pressure (PSIG)	25
AS-19-B06 Manifold Flowrate (3-5 CFM)	0.5
AS-19-B03 Manifold Pressure (PSIG)	10
AS-19-B03 Manifold Flowrate (3-5 CFM)	5

Zone 5

AS-19-E11 Manifold Pressure (PSIG)	22
AS-19-E11 Manifold Flowrate (3-5 CFM)	0.5

AS-19-F11 Manifold Pressure (PSIG)	22
AS-19-F11 Manifold Flowrate (3-5 CFM)	2
AS-19-F08 Manifold Pressure (PSIG)	14
AS-19-F08 Manifold Flowrate (3-5 CFM)	4.5
AS-19-F05 Manifold Pressure (PSIG)	9
AS-19-F05 Manifold Flowrate (3-5 CFM)	4
AS-19-F02 Manifold Pressure (PSIG)	20
AS-19-F02 Manifold Flowrate (3-5 CFM)	1
AS-19-B05 Manifold Pressure (PSIG)	12
AS-19-B05 Manifold Flowrate (3-5 CFM)	4
AS-19-B02 Manifold Pressure (PSIG)	12
AS-19-B02 Manifold Flowrate (3-5 CFM)	4

Zone 6

AS-19-F10 Manifold Pressure (PSIG)	13
AS-19-F10 Manifold Flowrate (3-5 CFM)	3.5
AS-19-F07 Manifold Pressure (PSIG)	15
AS-19-F07 Manifold Flowrate (3-5 CFM)	2.5
AS-19-F04 Manifold Pressure (PSIG)	16
AS-19-F04 Manifold Flowrate (3-5 CFM)	2
AS-19-F01 Manifold Pressure (PSIG)	13
AS-19-F01 Manifold Flowrate (3-5 CFM)	3
AS-19-B07 Manifold Pressure (PSIG)	17
AS-19-B07 Manifold Flowrate (3-5 CFM)	0.5
AS-19-B04 Manifold Pressure (PSIG)	14
AS-19-B04 Manifold Flowrate (3-5 CFM)	4
AS-19-B01 Manifold Pressure (PSIG)	12
AS-19-B01 Manifold Flowrate (3-5 CFM)	3.5

Outdoors and General

Propane tank level (%)	18
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Number of condensate drums outside	17
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Drum Photo	
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Electric Meter Reading (kWh)	835816
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Last fire extinguisher certification date	November 4, 2025
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Walked hose corridors and fixed fallen barrels?	Yes
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Checked wellheads for leaks/hissing?	Yes
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Comments on wellheads:	AS-19-E03 still leaking air from well seal
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Comments on car parkers and site accessibility:	None
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Car parking photos if near buildings	
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Monthly Outdoor Maintenance Tasks	PR-201 Check pressure on regulator, PSH-201 Check settings, ENC198 Check electric meter at the property boundary pole to track overall electrical usage
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Quarterly Building Maintenance Tasks	
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System building photo	
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Photos

Videos	
Any equipment that needs to be ordered?	
Comments, questions, ruminations, suggestions for improvement?	Checked on hex chrome drum in small shed. Drum in good condition. ~10% full
Signature	Signed 12/4/2025, 7:44:35 PM UTC
Departure Time	15:39

Inspection Date	January 2, 2025
Last Quarterly Event Date	
Arrival Time	10:15
Personnel	Billy J Cobern
Weather	Cloudy, breezy, 20's

HMI and Control Panel

HMI display functioning (not frozen)?	Yes
Current zone	Rest
Compressed air setpoint (LPM)	300
Propane setpoint (LPM)	0.6
PIT-101 (PSIG)	20.1
PIT-102 (PSIA)	30.3
FQI-101 (SLPM)	281.7
FQI-201 (SLPM)	0.6
PIT-202 (PSIA)	30.7
FE-301 (LPM)	289.7
AE-350 (%LEL)	0.1
PIT-300 (PSIG)	17.4
Ensure the time on the HMI is accurate to the minute, adjust if necessary	Verified
XP fan set to AUTO?	Yes
UPS enabled?	No
Comments	System was offline upon arrival. AE-401 high level, AE-350 low level. Leak in one of the braided gas lines that connect the propane tanks to the system.

Non-classified Room

Fire Extinguisher Check	Needle in the green, All moving parts appear intact, No deformation
Heater set to turn on and operation verified?	Yes
Room fan set to turn on and operation verified?	Yes
Compressor operating hours	2690954
Biweekly Compressor Maintenance	Clean the intake filter with compressed air, Clean the aftercooler with compressed air, Open and check the condensate drain, clean if necessary, Check oil levels while the compressor is turned off - oil should be at the end of the plug threads. Top off if necessary, Listen for the wet receiver tank auto-drain to turn on to confirm it is working
Quarterly Compressor Maintenance	

Fill out the Mattei Compressor Oil Change and Sample Tracking form on Teams	No
Oil sample taken?	No
Number of routine maintenance kits remaining	1
Number of air filters remaining	1
Compressor Audio	2 Audio Files
Do we need more compressor oil? (Less than a gallon remaining)	No
Motor voltage while loading	230
Motor Current while loading (amps)	14.59
Motor RPMs while loading	1800
VFD thermal state	48
VFD line voltage in (while compressor is loading)	230
Wet receiver tank loading pressure (PI-101)	65
Wet receiver tank unloading pressure (PI-101)	78
How full is the condensate drum? (Gallons)	37.5
PI-102 (PSIG)	20
PI-103 (PSIG)	18
Trident Desiccant Dryer Pressure (PSIG)	60
Are the trident desiccant dryer meters green?	Yes
Biweekly Non-XP Instrument Maintenance	PF-101 drained manually, PF-102 needle green, Verify the desiccant dryer is cycling properly, Verify the silencers on the desiccant dryer are not clogged, PF-103 needle green, Actuate S-101 to ensure it is working properly, CF-102 needle green, Make sure there are no tripped breakers in the breaker panel, Breaker panel surge protector green light on
Quarterly Filter Maintenance	
Desiccant Media Replaced?	No
Dried air tank pressure (PSIG)	75
Which compressed air Alicat is in use (upon leaving system)?	MFC-101B (newer, use August through February)
Verify MFC-101 flow rate	Complete
MFC-101 temperature (Fahrenheit)	74.77
MFC-101 standardized flow rate on display (SLPM)	300.1
MFC-101 uncorrected flow rate on display (LPM)	133.8
Comments	

Non-XP room photo

Classified Room

First Aid Kit Expiration Date	July 6, 2026
Fire Extinguisher Check	All moving parts appear intact, No deformation, Needle in the green
Heater turned on and verified to be operating?	Yes
Fan turned on and verified to be operating?	Yes
Swap out the propane tanks	Complete
PI-201 (PSIG)	69
PI-202 (PSIG)	49
PSH-201 Setpoints	
MFC-201 temperature (Fahrenheit)	68.52
MFC-201 standard flow rate on alicat display during propane cycle (SLPM)	0.6
MFC-201 uncorrected flow rate on alicat display during propane cycle (LPM)	0.274
PI-300 (PSIG)	18
PI-301 Z1 (PSIG)	15
PI-302 Z2 (PSIG)	9
PI-303 Z3 (PSIG)	15
Monthly XP Instrumentation Checks	Propane pressure switch set to 85PSI, Zone solenoids actuating properly, Manual flow meter checked against alicat flow rate (divide LPM by 28 for SCFM), LEL vent line flow set between 1 and 3 LPM
AE-401 Reading	0
AE-350 reading during propane sparge cycle	0
Quarterly LEL Meter Calibration	AE-350 calibrated, AE-401 calibrated, No
Which propane Alicat is in use (upon leaving system)?	MFC-201B (newer, use August through February)

Comments

Replaced leaking propane line with a spare that was found on site. Tested entire propane system for leaks. No leaks were observed. Reset AE-401

XP-room photo

Outdoors and General

AS-19-A01 Wellhead Pressure (PSIG) 10

AS-19-A02 Wellhead Pressure (PSIG) 15

AS-19-A03 Wellhead Pressure (PSIG) 10

AS-19-A04 Wellhead Pressure (PSIG) 15

AS-19-A05 Wellhead Pressure (PSIG) 10

AS-19-A06 Wellhead Pressure (PSIG) 0

AS-19-A07 Wellhead Pressure (PSIG) 0

Number of condensate drums outside 0

Drum Photo

Electric Meter Reading (kWh) 219915

Electric meter power draw (kW) while compressor is on 10.36

Walked hose corridors and fixed fallen barrels? Yes

Listened for leaks/hissing at wellheads?	Yes
Wellhead comments:	Good. No leaks.
Comments on car parkers and site accessibility:	None
Car parking photos if near buildings	
Last fire extinguisher certification date	September 3, 2024
Quarterly Building Maintenance Tasks	
System building photo	

Photos

Videos	
Any equipment that needs to be ordered?	Propane lines being ordered by Eric
Comments, questions, ruminations, suggestions for improvement?	
Signature	Signed 1/2/2025, 2:52:06 PM EST
Departure Time	14:30

Inspection Date	February 3, 2025
Last Quarterly Event Date	
Arrival Time	09:45
Personnel	Billy J Cobern
Weather	Cloudy, foggy, 30's

HMI and Control Panel

HMI display functioning (not frozen)?	Yes
Current zone	Zone 2
Compressed air setpoint (LPM)	300
Propane setpoint (LPM)	0.6
PIT-101 (PSIG)	20.6
PIT-102 (PSIA)	29.1
FQI-101 (SLPM)	299.4
FQI-201 (SLPM)	0
PIT-202 (PSIA)	21.7
FE-301 (LPM)	299.4
AE-350 (%LEL)	0.1
PIT-300 (PSIG)	16.4
Ensure the time on the HMI is accurate to the minute, adjust if necessary	Verified
XP fan set to AUTO?	Yes
UPS enabled?	No
Comments	System was offline upon arrival. AE-401 high level, AE-350 low level. Propane is low.

Non-classified Room

Fire Extinguisher Check	Needle in the green, All moving parts appear intact, No deformation
Heater set to turn on and operation verified?	Yes
Room fan set to turn on and operation verified?	Yes
Compressor operating hours	2767494
Biweekly Compressor Maintenance	Clean the intake filter with compressed air, Clean the aftercooler with compressed air, Open and check the condensate drain, clean if necessary, Check oil levels while the compressor is turned off - oil should be at the end of the plug threads. Top off if necessary, Listen for the wet receiver tank auto-drain to turn on to confirm it is working
Quarterly Compressor Maintenance	
Fill out the Mattei Compressor Oil Change and Sample Tracking form on Teams	No

Oil sample taken?	No
Number of routine maintenance kits remaining	1
Number of air filters remaining	1
Compressor Audio	1 Audio File
Do we need more compressor oil? (Less than a gallon remaining)	No
Motor voltage while loading	230
Motor Current while loading (amps)	13.8
Motor RPMs while loading	1750
VFD thermal state	67
VFD line voltage in (while compressor is loading)	230
Wet receiver tank loading pressure (PI-101)	75
Wet receiver tank unloading pressure (PI-101)	65
How full is the condensate drum? (Gallons)	37.5
PI-102 (PSIG)	20
PI-103 (PSIG)	20
Trident Desiccant Dryer Pressure (PSIG)	64
Are the trident desiccant dryer meters green?	Yes
Biweekly Non-XP Instrument Maintenance	PF-101 drained manually, PF-102 needle green, Verify the desiccant dryer is cycling properly, Verify the silencers on the desiccant dryer are not clogged, PF-103 needle green, Actuate S-101 to ensure it is working properly, CF-102 needle green, Make sure there are no tripped breakers in the breaker panel, Breaker panel surge protector green light on
Quarterly Filter Maintenance	
Desiccant Media Replaced?	No
Dried air tank pressure (PSIG)	70
Which compressed air Alicat is in use (upon leaving system)?	MFC-101B (newer, use August through February)
Verify MFC-101 flow rate	Complete
MFC-101 temperature (Fahrenheit)	71.56
MFC-101 standardized flow rate on display (SLPM)	300.2
MFC-101 uncorrected flow rate on display (LPM)	145.9
Comments	Cleaned and drained all moisture traps and oil traps. Re set air flow regulator. Reseated the SD cards in in.

Non-XP room photo

Classified Room

First Aid Kit Expiration Date	July 6, 2026
Fire Extinguisher Check	All moving parts appear intact, No deformation, Needle in the green
Heater turned on and verified to be operating?	Yes
Fan turned on and verified to be operating?	Yes
Swap out the propane tanks	Complete
PI-201 (PSIG)	68
PI-202 (PSIG)	45
PSH-201 Setpoints	High setpoint: 80 psi, Deadband setpoint: 20psi
MFC-201 temperature (Fahrenheit)	53.55
MFC-201 standard flow rate on alicat display during propane cycle (SLPM)	0.6
MFC-201 uncorrected flow rate on alicat display during propane cycle (LPM)	0.258
PI-300 (PSIG)	18
PI-301 Z1 (PSIG)	18
PI-302 Z2 (PSIG)	12
PI-303 Z3 (PSIG)	20
Monthly XP Instrumentation Checks	Propane pressure switch set to 85PSI, Zone solenoids actuating properly, Manual flow meter checked against alicat flow rate (divide LPM by 28 for SCFM), LEL vent line flow set between 1 and 3 LPM
AE-401 Reading	0
AE-350 reading during propane sparge cycle	0
Quarterly LEL Meter Calibration	AE-350 calibrated, AE-401 calibrated, No
Which propane Alicat is in use (upon leaving system)?	MFC-201B (newer, use August through February)

Comments

XP-room photo

Outdoors and General

AS-19-A01 Wellhead Pressure (PSIG) | 14

AS-19-A02 Wellhead Pressure (PSIG) | 11

AS-19-A03 Wellhead Pressure (PSIG) | 12

AS-19-A04 Wellhead Pressure (PSIG) | 11

AS-19-A05 Wellhead Pressure (PSIG) | 10

AS-19-A06 Wellhead Pressure (PSIG) | 0

AS-19-A07 Wellhead Pressure (PSIG) | 0

Number of condensate drums
outside | 0

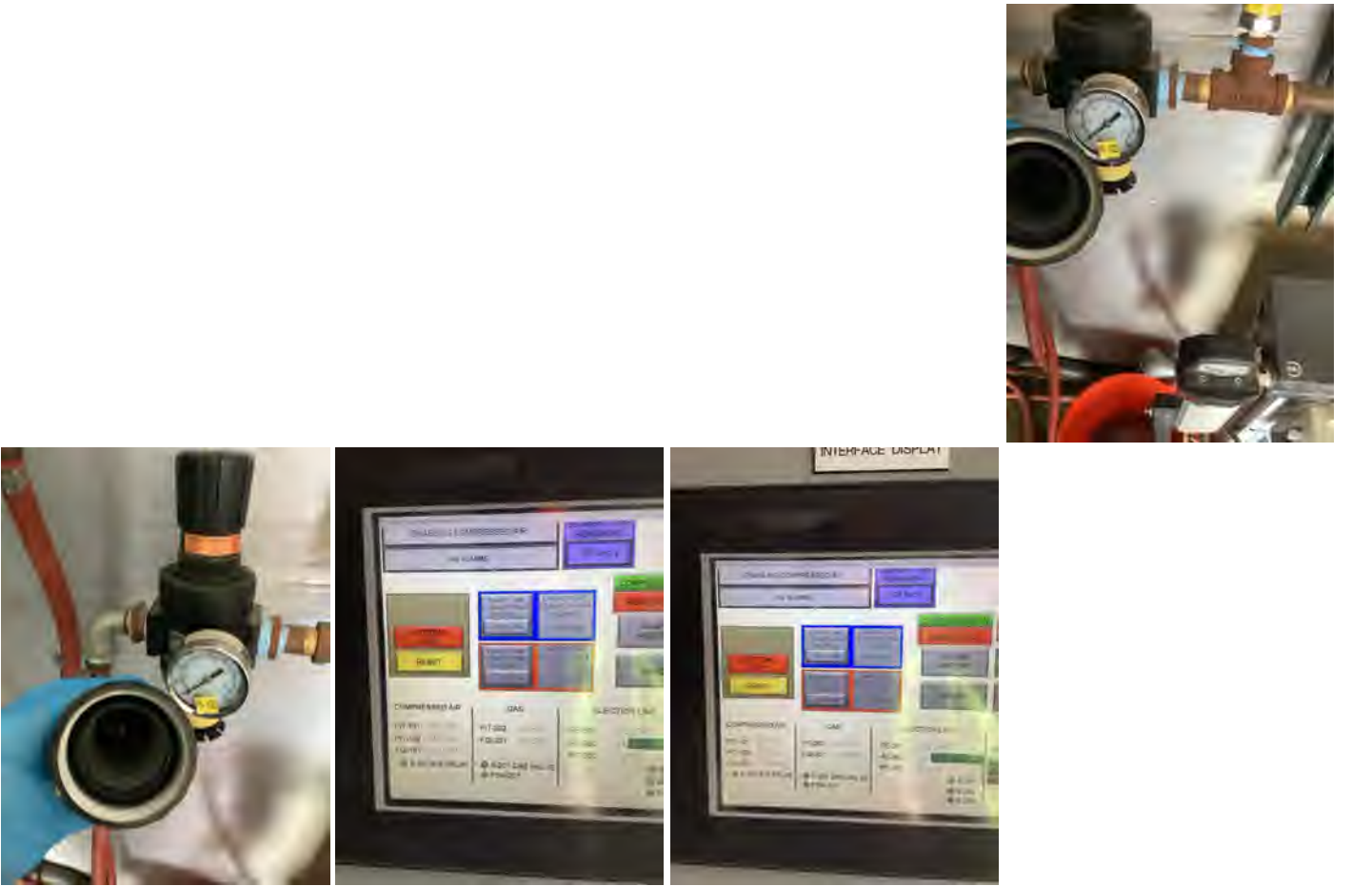
Drum Photo

Electric Meter Reading (kWh) | 224778

Electric meter power draw (kW) while
compressor is on | 10.66Walked hose corridors and fixed
fallen barrels? | Yes

Listened for leaks/hissing at wellheads?	Yes
Wellhead comments:	Good. No leaks.
Comments on car parkers and site accessibility:	None
Car parking photos if near buildings	
Last fire extinguisher certification date	September 3, 2024
Quarterly Building Maintenance Tasks	
System building photo	

Photos



Videos

Any equipment that needs to be ordered?

Comments, questions, ruminations, suggestions for improvement?

Signature

Signed 2/3/2025, 10:13:46 AM EST

Departure Time

13:30

Inspection Date	March 7, 2025
Last Quarterly Event Date	
Arrival Time	12:40
Personnel	Billy J Cobern
Weather	Cloudy, 30's

HMI and Control Panel

HMI display functioning (not frozen)?	Yes
Current zone	Zone 1
Compressed air setpoint (LPM)	300
Propane setpoint (LPM)	0.6
PIT-101 (PSIG)	24.2
PIT-102 (PSIA)	27.1
FQI-101 (SLPM)	300.5
FQI-201 (SLPM)	0.6
PIT-202 (PSIA)	27.3
FE-301 (LPM)	300.4
AE-350 (%LEL)	0.1
PIT-300 (PSIG)	14.6
Ensure the time on the HMI is accurate to the minute, adjust if necessary	Verified
XP fan set to AUTO?	Yes
UPS enabled?	Yes
Comments	

Non-classified Room

Fire Extinguisher Check	Needle in the green, All moving parts appear intact, No deformation
Heater set to turn on and operation verified?	Yes
Room fan set to turn on and operation verified?	Yes
Compressor operating hours	2844457
Biweekly Compressor Maintenance	Clean the intake filter with compressed air, Clean the aftercooler with compressed air, Open and check the condensate drain, clean if necessary, Check oil levels while the compressor is turned off - oil should be at the end of the plug threads. Top off if necessary, Listen for the wet receiver tank auto-drain to turn on to confirm it is working
Quarterly Compressor Maintenance	Change the intake filter, Clean the oil filter and replace O-rings, Clean oil return valves with non-flammable solvent and replace O-rings, Change the oil (Q1 and Q3). Use only Mattei Rotoroil 8000F2

Fill out the Mattei Compressor Oil Change and Sample Tracking form on Teams	No
Oil sample taken?	No
Number of routine maintenance kits remaining	1
Number of air filters remaining	2
Compressor Audio	1 Audio File
Do we need more compressor oil? (Less than a gallon remaining)	No
Motor voltage while loading	230
Motor Current while loading (amps)	14.71
Motor RPMs while loading	1800
VFD thermal state	55
VFD line voltage in (while compressor is loading)	206
Wet receiver tank loading pressure (PI-101)	75
Wet receiver tank unloading pressure (PI-101)	65
How full is the condensate drum? (Gallons)	36.5
PI-102 (PSIG)	21
PI-103 (PSIG)	23
Trident Desiccant Dryer Pressure (PSIG)	60
Are the trident desiccant dryer meters green?	Yes
Biweekly Non-XP Instrument Maintenance	System depressurized to drain filter chambers, PF-101 drained manually, PF-102 needle green, PF-102 needle yellow or red, Verify the desiccant dryer is cycling properly, Verify the silencers on the desiccant dryer are not clogged, PF-103 needle green, PF-103 needle yellow or red, Actuate S-101 to ensure it is working properly, CF-102 needle green, CF-102 needle yellow or red, Make sure there are no tripped breakers in the breaker panel, Breaker panel surge protector green light on
Quarterly Filter Maintenance	Check and clean PF-101, Check, clean, and replace filter element on CF-101
Desiccant Media Replaced?	No
Dried air tank pressure (PSIG)	65
Which compressed air Alicat is in use (upon leaving system)?	MFC-101A (older, use February through August)
Verify MFC-101 flow rate	Complete
MFC-101 temperature (Fahrenheit)	72.79
MFC-101 standardized flow rate on display (SLPM)	30.98
MFC-101 uncorrected flow rate on display (LPM)	150.33
Comments	

Non-XP room photo

Classified Room

First Aid Kit Expiration Date	April 7, 2026
Fire Extinguisher Check	Needle in the green, All moving parts appear intact, No deformation
Heater turned on and verified to be operating?	Yes
Fan turned on and verified to be operating?	Yes
Swap out the propane tanks	N/A
PI-201 (PSIG)	85
PI-202 (PSIG)	52
PSH-201 Setpoints	High setpoint: 80 psi, Deadband setpoint: 20psi
MFC-201 temperature (Fahrenheit)	87.94
MFC-201 standard flow rate on alicat display during propane cycle (SLPM)	0.309
MFC-201 uncorrected flow rate on alicat display during propane cycle (LPM)	0.308
PI-300 (PSIG)	12
PI-301 Z1 (PSIG)	12
PI-302 Z2 (PSIG)	10
PI-303 Z3 (PSIG)	12
Monthly XP Instrumentation Checks	Propane pressure switch set to 85PSI, Zone solenoids actuating properly, Manual flow meter checked against alicat flow rate (divide LPM by 28 for SCFM), LEL vent line flow set between 1 and 3 LPM
AE-401 Reading	0
AE-350 reading during propane sparge cycle	0
Quarterly LEL Meter Calibration	Yes: AE-401 calibrated
Which propane Alicat is in use (upon leaving system)?	MFC-201A (older, use February through August)

Comments

XP-room photo

Outdoors and General

AS-19-A01 Wellhead Pressure (PSIG) | 12

AS-19-A02 Wellhead Pressure (PSIG) | 10

AS-19-A03 Wellhead Pressure (PSIG) | 12

AS-19-A04 Wellhead Pressure (PSIG) | 10

AS-19-A05 Wellhead Pressure (PSIG) | 12

AS-19-A06 Wellhead Pressure (PSIG) | 0

AS-19-A07 Wellhead Pressure (PSIG) | 0

Number of condensate drums
outside | 0

Drum Photo

Electric Meter Reading (kWh) | 230141

Electric meter power draw (kW) while
compressor is on | 10.64Walked hose corridors and fixed
fallen barrels? | Yes

Videos

Any equipment that needs to be ordered?	No
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Comments, questions, ruminations, suggestions for improvement?	With zone 2 (1,3,5) on an air cycle, I depressurized zone 1 (2,4), and disconnected the top of the wellhead at 2 and 4. I could hear water gurgling inside both wells, but water did not reach the surface while I was checking. I reattached the tops of the wellheads, pressure tested both wells, and returned the system to normal operation.
--	--

Signed 3/7/2025, 1:00:27 PM EST

Inspection Date	April 4, 2025
Last Quarterly Event Date	
Arrival Time	12:10
Personnel	Billy J Cobern
Weather	Cloudy, 30's

HMI and Control Panel

HMI display functioning (not frozen)?	Yes
Current zone	Zone 1
Compressed air setpoint (LPM)	300
Propane setpoint (LPM)	0.6
PIT-101 (PSIG)	24.3
PIT-102 (PSIA)	27.5
FQI-101 (SLPM)	300.1
FQI-201 (SLPM)	0.6
PIT-202 (PSIA)	27.6
FE-301 (LPM)	300.3
AE-350 (%LEL)	0.1
PIT-300 (PSIG)	14.9
Ensure the time on the HMI is accurate to the minute, adjust if necessary	Verified
XP fan set to AUTO?	Yes
UPS enabled?	Yes
Comments	

Non-classified Room

Fire Extinguisher Check	Needle in the green, All moving parts appear intact, No deformation
Heater set to turn on and operation verified?	Yes
Room fan set to turn on and operation verified?	Yes
Compressor operating hours	2910744
Biweekly Compressor Maintenance	Clean the intake filter with compressed air, Clean the aftercooler with compressed air, Open and check the condensate drain, clean if necessary, Check oil levels while the compressor is turned off - oil should be at the end of the plug threads. Top off if necessary, Listen for the wet receiver tank auto-drain to turn on to confirm it is working
Quarterly Compressor Maintenance	
Fill out the Mattei Compressor Oil Change and Sample Tracking form on Teams	No

Oil sample taken?	No
Number of routine maintenance kits remaining	1
Number of air filters remaining	1
Compressor Audio	1 Audio File
Do we need more compressor oil? (Less than a gallon remaining)	No
Motor voltage while loading	228
Motor Current while loading (amps)	14.23
Motor RPMs while loading	1740
VFD thermal state	51
VFD line voltage in (while compressor is loading)	226
Wet receiver tank loading pressure (PI-101)	75
Wet receiver tank unloading pressure (PI-101)	65
How full is the condensate drum? (Gallons)	37
PI-102 (PSIG)	21
PI-103 (PSIG)	23
Trident Desiccant Dryer Pressure (PSIG)	60
Are the trident desiccant dryer meters green?	Yes
Biweekly Non-XP Instrument Maintenance	System depressurized to drain filter chambers, PF-101 drained manually, PF-102 needle green, PF-102 needle yellow or red, Verify the desiccant dryer is cycling properly, Verify the silencers on the desiccant dryer are not clogged, PF-103 needle green, PF-103 needle yellow or red, Actuate S-101 to ensure it is working properly, CF-102 needle green, CF-102 needle yellow or red, Make sure there are no tripped breakers in the breaker panel, Breaker panel surge protector green light on
Quarterly Filter Maintenance	
Desiccant Media Replaced?	No
Dried air tank pressure (PSIG)	65
Which compressed air Alicat is in use (upon leaving system)?	MFC-101A (older, use February through August)
Verify MFC-101 flow rate	Complete
MFC-101 temperature (Fahrenheit)	79
MFC-101 standardized flow rate on display (SLPM)	300.74
MFC-101 uncorrected flow rate on display (LPM)	150.45
Comments	

Non-XP room photo

Classified Room

First Aid Kit Expiration Date	April 7, 2026
Fire Extinguisher Check	Needle in the green, All moving parts appear intact, No deformation
Heater turned on and verified to be operating?	Yes
Fan turned on and verified to be operating?	Yes
Swap out the propane tanks	Complete
PI-201 (PSIG)	75
PI-202 (PSIG)	62
PSH-201 Setpoints	High setpoint: 80 psi, Deadband setpoint: 20psi
MFC-201 temperature (Fahrenheit)	74.86
MFC-201 standard flow rate on alicat display during propane cycle (SLPM)	0.602
MFC-201 uncorrected flow rate on alicat display during propane cycle (LPM)	0.297
PI-300 (PSIG)	13
PI-301 Z1 (PSIG)	12
PI-302 Z2 (PSIG)	11
PI-303 Z3 (PSIG)	11
Monthly XP Instrumentation Checks	Propane pressure switch set to 85PSI, Zone solenoids actuating properly, Manual flow meter checked against alicat flow rate (divide LPM by 28 for SCFM), LEL vent line flow set between 1 and 3 LPM
AE-401 Reading	0
AE-350 reading during propane sparge cycle	0
Quarterly LEL Meter Calibration	No
Which propane Alicat is in use (upon leaving system)?	MFC-201A (older, use February through August)

Comments

XP-room photo

Outdoors and General

AS-19-A01 Wellhead Pressure (PSIG) | 11

AS-19-A02 Wellhead Pressure (PSIG) | 13

AS-19-A03 Wellhead Pressure (PSIG) | 11

AS-19-A04 Wellhead Pressure (PSIG) | 10

AS-19-A05 Wellhead Pressure (PSIG) | 13

AS-19-A06 Wellhead Pressure (PSIG) | 0

AS-19-A07 Wellhead Pressure (PSIG) | 0

Number of condensate drums
outside | 0

Drum Photo

Electric Meter Reading (kWh) | 233532

Electric meter power draw (kW) while
compressor is on | 10.34Walked hose corridors and fixed
fallen barrels? | Yes

Listened for leaks/hissing at wellheads?	Yes
Wellhead comments:	
Comments on car parkers and site accessibility:	N/A
Car parking photos if near buildings	
Last fire extinguisher certification date	September 7, 2024
Quarterly Building Maintenance Tasks	Wipe down system components to cut down on general grime, Remove trash from the system building, Tidy up system and notify TM of unneeded sampling equipment, Take used compressor oil to Advanced Auto Parts for recycling if there is a full container of used oil
System building photo	

Photos

Videos	
Any equipment that needs to be ordered?	No
Comments, questions, ruminations, suggestions for improvement?	
Signature	Signed 4/4/2025, 12:59:29 PM EDT
Departure Time	13:45

Inspection Date	May 2, 2025
Last Quarterly Event Date	
Arrival Time	12:15
Personnel	Billy J Cobern
Weather	Cloudy, 50's, periods of rain

HMI and Control Panel

HMI display functioning (not frozen)?	Yes
Current zone	Zone 1
Compressed air setpoint (LPM)	300
Propane setpoint (LPM)	0.6
PIT-101 (PSIG)	24.2
PIT-102 (PSIA)	27.7
FQI-101 (SLPM)	299.4
FQI-201 (SLPM)	0.6
PIT-202 (PSIA)	27.7
FE-301 (LPM)	300.3
AE-350 (%LEL)	0.1
PIT-300 (PSIG)	15.1
Ensure the time on the HMI is accurate to the minute, adjust if necessary	Verified
XP fan set to AUTO?	Yes
UPS enabled?	Yes
Comments	

Non-classified Room

Fire Extinguisher Check	Needle in the green, All moving parts appear intact, No deformation
Heater set to turn on and operation verified?	Yes
Room fan set to turn on and operation verified?	Yes
Compressor operating hours	2978039
Biweekly Compressor Maintenance	Clean the intake filter with compressed air, Clean the aftercooler with compressed air, Open and check the condensate drain, clean if necessary, Check oil levels while the compressor is turned off - oil should be at the end of the plug threads. Top off if necessary, Listen for the wet receiver tank auto-drain to turn on to confirm it is working
Quarterly Compressor Maintenance	
Fill out the Mattei Compressor Oil Change and Sample Tracking form on Teams	No

Oil sample taken?	No
Number of routine maintenance kits remaining	1
Number of air filters remaining	1
Compressor Audio	1 Audio File
Do we need more compressor oil? (Less than a gallon remaining)	No
Motor voltage while loading	231
Motor Current while loading (amps)	14.12
Motor RPMs while loading	1740
VFD thermal state	5
VFD line voltage in (while compressor is loading)	229
Wet receiver tank loading pressure (PI-101)	75
Wet receiver tank unloading pressure (PI-101)	65
How full is the condensate drum? (Gallons)	37.5
PI-102 (PSIG)	21
PI-103 (PSIG)	23
Trident Desiccant Dryer Pressure (PSIG)	60
Are the trident desiccant dryer meters green?	Yes
Biweekly Non-XP Instrument Maintenance	System depressurized to drain filter chambers, PF-101 drained manually, PF-102 needle green, PF-102 needle yellow or red, Verify the desiccant dryer is cycling properly, Verify the silencers on the desiccant dryer are not clogged, PF-103 needle green, PF-103 needle yellow or red, Actuate S-101 to ensure it is working properly, CF-102 needle green, CF-102 needle yellow or red, Make sure there are no tripped breakers in the breaker panel, Breaker panel surge protector green light on
Quarterly Filter Maintenance	No
Desiccant Media Replaced?	No
Dried air tank pressure (PSIG)	65
Which compressed air Alicat is in use (upon leaving system)?	MFC-101A (older, use February through August)
Verify MFC-101 flow rate	Complete
MFC-101 temperature (Fahrenheit)	76.32
MFC-101 standardized flow rate on display (SLPM)	301.12
MFC-101 uncorrected flow rate on display (LPM)	149.51
Comments	

Non-XP room photo

Classified Room

First Aid Kit Expiration Date	April 7, 2026
Fire Extinguisher Check	Needle in the green, All moving parts appear intact, No deformation
Heater turned on and verified to be operating?	Yes
Fan turned on and verified to be operating?	Yes
Swap out the propane tanks	Complete
PI-201 (PSIG)	75
PI-202 (PSIG)	60
PSH-201 Setpoints	High setpoint: 80 psi, Deadband setpoint: 20psi
MFC-201 temperature (Fahrenheit)	68.13
MFC-201 standard flow rate on alicat display during propane cycle (SLPM)	0.294
MFC-201 uncorrected flow rate on alicat display during propane cycle (LPM)	0.293
PI-300 (PSIG)	14
PI-301 Z1 (PSIG)	12
PI-302 Z2 (PSIG)	10
PI-303 Z3 (PSIG)	10
Monthly XP Instrumentation Checks	Propane pressure switch set to 85PSI, Zone solenoids actuating properly, Manual flow meter checked against alicat flow rate (divide LPM by 28 for SCFM), LEL vent line flow set between 1 and 3 LPM
AE-401 Reading	0
AE-350 reading during propane sparge cycle	0
Quarterly LEL Meter Calibration	No
Which propane Alicat is in use (upon leaving system)?	MFC-201A (older, use February through August)

Comments

XP-room photo

Outdoors and General

AS-19-A01 Wellhead Pressure (PSIG) | 11

AS-19-A02 Wellhead Pressure (PSIG) | 14

AS-19-A03 Wellhead Pressure (PSIG) | 11

AS-19-A04 Wellhead Pressure (PSIG) | 14

AS-19-A05 Wellhead Pressure (PSIG) | 10

AS-19-A06 Wellhead Pressure (PSIG) | 0

AS-19-A07 Wellhead Pressure (PSIG) | 0

Number of condensate drums
outside | 0

Drum Photo

Electric Meter Reading (kWh) | 236090

Electric meter power draw (kW) while
compressor is on | 6.36Walked hose corridors and fixed
fallen barrels? | Yes

Listened for leaks/hissing at wellheads?	Yes
Wellhead comments:	
Comments on car parkers and site accessibility:	N/A
Car parking photos if near buildings	
Last fire extinguisher certification date	September 7, 2024
Quarterly Building Maintenance Tasks	Wipe down system components to cut down on general grime, Remove trash from the system building, Tidy up system and notify TM of unneeded sampling equipment, Take used compressor oil to Advanced Auto Parts for recycling if there is a full container of used oil
System building photo	

Photos

Videos	
Any equipment that needs to be ordered?	No
Comments, questions, ruminations, suggestions for improvement?	
Signature	Signed 5/2/2025, 1:50:13 PM EDT
Departure Time	14:00

Inspection Date	June 6, 2025
Last Quarterly Event Date	
Arrival Time	19:45
Personnel	Billy J Cobern
Weather	Partly Cloudy, 70's

HMI and Control Panel

HMI display functioning (not frozen)?	Yes
Current zone	Zone 1
Compressed air setpoint (LPM)	300
Propane setpoint (LPM)	0.6
PIT-101 (PSIG)	24.5
PIT-102 (PSIA)	27
FQI-101 (SLPM)	300.1
FQI-201 (SLPM)	0.6
PIT-202 (PSIA)	14.3
FE-301 (LPM)	299.7
AE-350 (%LEL)	0.1
PIT-300 (PSIG)	14.5
Ensure the time on the HMI is accurate to the minute, adjust if necessary	Verified
XP fan set to AUTO?	Yes
UPS enabled?	Yes
Comments	

Non-classified Room

Fire Extinguisher Check	Needle in the green, All moving parts appear intact, No deformation
Heater set to turn on and operation verified?	Yes
Room fan set to turn on and operation verified?	Yes
Compressor operating hours	3054411
Biweekly Compressor Maintenance	Clean the intake filter with compressed air, Clean the aftercooler with compressed air, Open and check the condensate drain, clean if necessary, Check oil levels while the compressor is turned off - oil should be at the end of the plug threads. Top off if necessary, Listen for the wet receiver tank auto-drain to turn on to confirm it is working
Quarterly Compressor Maintenance	Change the intake filter, Clean the oil filter and replace O-rings, Clean oil return valves with non-flammable solvent and replace O-rings, Change the oil (Q1 and Q3). Use only Mattei Rotoroil 8000F2

Fill out the Mattei Compressor Oil Change and Sample Tracking form on Teams	No
Oil sample taken?	No
Number of routine maintenance kits remaining	1
Number of air filters remaining	1
Compressor Audio	1 Audio File
Do we need more compressor oil? (Less than a gallon remaining)	No
Motor voltage while loading	234
Motor Current while loading (amps)	14.15
Motor RPMs while loading	1740
VFD thermal state	5
VFD line voltage in (while compressor is loading)	225
Wet receiver tank loading pressure (PI-101)	75
Wet receiver tank unloading pressure (PI-101)	65
How full is the condensate drum? (Gallons)	39.5
PI-102 (PSIG)	20
PI-103 (PSIG)	22
Trident Desiccant Dryer Pressure (PSIG)	59
Are the trident desiccant dryer meters green?	Yes
Biweekly Non-XP Instrument Maintenance	System depressurized to drain filter chambers, PF-101 drained manually, PF-102 needle green, PF-102 needle yellow or red, Verify the desiccant dryer is cycling properly, Verify the silencers on the desiccant dryer are not clogged, PF-103 needle green, PF-103 needle yellow or red, Actuate S-101 to ensure it is working properly, CF-102 needle green, CF-102 needle yellow or red, Make sure there are no tripped breakers in the breaker panel, Breaker panel surge protector green light on
Quarterly Filter Maintenance	No
Desiccant Media Replaced?	No
Dried air tank pressure (PSIG)	70
Which compressed air Alicat is in use (upon leaving system)?	MFC-101A (older, use February through August)
Verify MFC-101 flow rate	Complete
MFC-101 temperature (Fahrenheit)	96.28
MFC-101 standardized flow rate on display (SLPM)	299.92
MFC-101 uncorrected flow rate on display (LPM)	158.64
Comments	

Non-XP room photo

Classified Room

First Aid Kit Expiration Date	April 7, 2026
Fire Extinguisher Check	Needle in the green, All moving parts appear intact, No deformation
Heater turned on and verified to be operating?	Yes
Fan turned on and verified to be operating?	Yes
Swap out the propane tanks	Both tanks greater than 50%
PI-201 (PSIG)	120
PI-202 (PSIG)	50
PSH-201 Setpoints	High setpoint: 80 psi, Deadband setpoint: 20psi
MFC-201 temperature (Fahrenheit)	68.13
MFC-201 standard flow rate on alicat display during propane cycle (SLPM)	0.283
MFC-201 uncorrected flow rate on alicat display during propane cycle (LPM)	0.307
PI-300 (PSIG)	12
PI-301 Z1 (PSIG)	11
PI-302 Z2 (PSIG)	10
PI-303 Z3 (PSIG)	10
Monthly XP Instrumentation Checks	Propane pressure switch set to 85PSI, Zone solenoids actuating properly, Manual flow meter checked against alicat flow rate (divide LPM by 28 for SCFM), LEL vent line flow set between 1 and 3 LPM
AE-401 Reading	0
AE-350 reading during propane sparge cycle	0
Quarterly LEL Meter Calibration	No
Which propane Alicat is in use (upon leaving system)?	MFC-201A (older, use February through August)

Comments	
XP-room photo	

Outdoors and General

AS-19-A01 Wellhead Pressure (PSIG)	11
AS-19-A02 Wellhead Pressure (PSIG)	11
AS-19-A03 Wellhead Pressure (PSIG)	11
AS-19-A04 Wellhead Pressure (PSIG)	10
AS-19-A05 Wellhead Pressure (PSIG)	10
AS-19-A06 Wellhead Pressure (PSIG)	0
AS-19-A07 Wellhead Pressure (PSIG)	0
Number of condensate drums outside	0

Drum Photo	
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Electric Meter Reading (kWh)	239645
Electric meter power draw (kW) while compressor is on	8.52
Walked hose corridors and fixed fallen barrels?	Yes



Listened for leaks/hissing at wellheads?	Yes
Wellhead comments:	
Comments on car parkers and site accessibility:	N/A
Car parking photos if near buildings	
Last fire extinguisher certification date	September 7, 2024
Quarterly Building Maintenance Tasks	Wipe down system components to cut down on general grime, Remove trash from the system building, Tidy up system and notify TM of unneeded sampling equipment, Take used compressor oil to Advanced Auto Parts for recycling if there is a full container of used oil
System building photo	

Photos

Videos	
Any equipment that needs to be ordered?	No
Comments, questions, ruminations, suggestions for improvement?	
Signature	Signed 6/6/2025, 6:44:37 PM EDT
Departure Time	20:45

Inspection Date	July 9, 2025
Last Quarterly Event Date	
Arrival Time	12:30
Personnel	Billy J Cobern
Weather	Mostly Cloudy, 80's

HMI and Control Panel

HMI display functioning (not frozen)?	Yes
Current zone	Zone 1
Compressed air setpoint (LPM)	300
Propane setpoint (LPM)	0.6
PIT-101 (PSIG)	24.4
PIT-102 (PSIA)	27.4
FQI-101 (SLPM)	300.1
FQI-201 (SLPM)	0.6
PIT-202 (PSIA)	27.3
FE-301 (LPM)	300.2
AE-350 (%LEL)	0.1
PIT-300 (PSIG)	14.7
Ensure the time on the HMI is accurate to the minute, adjust if necessary	Verified
XP fan set to AUTO?	Yes
UPS enabled?	Yes
Comments	

Non-classified Room

Fire Extinguisher Check	Needle in the green, All moving parts appear intact, No deformation
Heater set to turn on and operation verified?	Yes
Room fan set to turn on and operation verified?	Yes
Compressor operating hours	3128636
Biweekly Compressor Maintenance	Clean the intake filter with compressed air, Clean the aftercooler with compressed air, Open and check the condensate drain, clean if necessary, Check oil levels while the compressor is turned off - oil should be at the end of the plug threads. Top off if necessary, Listen for the wet receiver tank auto-drain to turn on to confirm it is working
Quarterly Compressor Maintenance	Change the intake filter, Clean the oil filter and replace O-rings, Clean oil return valves with non-flammable solvent and replace O-rings, Change the oil (Q1 and Q3). Use only Mattei Rotoroil 8000F2

Fill out the Mattei Compressor Oil Change and Sample Tracking form on Teams	No
Oil sample taken?	No
Number of routine maintenance kits remaining	1
Number of air filters remaining	1
Compressor Audio	1 Audio File
Do we need more compressor oil? (Less than a gallon remaining)	No
Motor voltage while loading	232
Motor Current while loading (amps)	14.1
Motor RPMs while loading	1740
VFD thermal state	5
VFD line voltage in (while compressor is loading)	225
Wet receiver tank loading pressure (PI-101)	75
Wet receiver tank unloading pressure (PI-101)	65
How full is the condensate drum? (Gallons)	47
PI-102 (PSIG)	21
PI-103 (PSIG)	23
Trident Desiccant Dryer Pressure (PSIG)	55
Are the trident desiccant dryer meters green?	Yes
Biweekly Non-XP Instrument Maintenance	System depressurized to drain filter chambers, PF-101 drained manually, PF-102 needle green, PF-102 needle yellow or red, Verify the desiccant dryer is cycling properly, Verify the silencers on the desiccant dryer are not clogged, PF-103 needle green, PF-103 needle yellow or red, Actuate S-101 to ensure it is working properly, CF-102 needle green, CF-102 needle yellow or red, Make sure there are no tripped breakers in the breaker panel, Breaker panel surge protector green light on
Quarterly Filter Maintenance	No
Desiccant Media Replaced?	No
Dried air tank pressure (PSIG)	65
Which compressed air Alicat is in use (upon leaving system)?	MFC-101A (older, use February through August)
Verify MFC-101 flow rate	Complete
MFC-101 temperature (Fahrenheit)	87.46
MFC-101 standardized flow rate on display (SLPM)	300.6
MFC-101 uncorrected flow rate on display (LPM)	154.42
Comments	

Non-XP room photo

Classified Room

First Aid Kit Expiration Date	April 7, 2026
Fire Extinguisher Check	Needle in the green, All moving parts appear intact, No deformation
Heater turned on and verified to be operating?	Yes
Fan turned on and verified to be operating?	Yes
Swap out the propane tanks	Complete
PI-201 (PSIG)	135
PI-202 (PSIG)	52
PSH-201 Setpoints	High setpoint: 80 psi, Deadband setpoint: 20psi
MFC-201 temperature (Fahrenheit)	95.11
MFC-201 standard flow rate on alicat display during propane cycle (SLPM)	0.312
MFC-201 uncorrected flow rate on alicat display during propane cycle (LPM)	0.312
PI-300 (PSIG)	12
PI-301 Z1 (PSIG)	12
PI-302 Z2 (PSIG)	10
PI-303 Z3 (PSIG)	12
Monthly XP Instrumentation Checks	Propane pressure switch set to 85PSI, Zone solenoids actuating properly, Manual flow meter checked against alicat flow rate (divide LPM by 28 for SCFM), LEL vent line flow set between 1 and 3 LPM
AE-401 Reading	0
AE-350 reading during propane sparge cycle	0
Quarterly LEL Meter Calibration	No
Which propane Alicat is in use (upon leaving system)?	MFC-201A (older, use February through August)

Comments**XP-room photo****Outdoors and General****AS-19-A01 Wellhead Pressure (PSIG)** | 12**AS-19-A02 Wellhead Pressure (PSIG)** | 13**AS-19-A03 Wellhead Pressure (PSIG)** | 10**AS-19-A04 Wellhead Pressure (PSIG)** | 13**AS-19-A05 Wellhead Pressure (PSIG)** | 10**AS-19-A06 Wellhead Pressure (PSIG)** | 0**AS-19-A07 Wellhead Pressure (PSIG)** | 0**Number of condensate drums outside** | 0**Drum Photo****Electric Meter Reading (kWh)** | 242871**Electric meter power draw (kW) while
compressor is on** | 6.4**Walked hose corridors and fixed fallen
barrels?** | Yes**Listened for leaks/hissing at wellheads?** | Yes

Videos

Comments, questions, ruminations, suggestions for improvement?	Pumped condensate from drums and inside building to a drum outside the building.
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Signature

Signed 7/9/2025, 5:54:50 PM UTC

Departure Time	15:00
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Inspection Date	July 31, 2025
Last Quarterly Event Date	
Arrival Time	12:30
Personnel	Billy J Cobern
Weather	Mostly Cloudy, 70's

HMI and Control Panel

HMI display functioning (not frozen)?	Yes
Current zone	Zone 2
Compressed air setpoint (LPM)	300
Propane setpoint (LPM)	0.6
PIT-101 (PSIG)	24.1
PIT-102 (PSIA)	27.1
FQI-101 (SLPM)	300.1
FQI-201 (SLPM)	0.6
PIT-202 (PSIA)	27.1
FE-301 (LPM)	300.6
AE-350 (%LEL)	0.1
PIT-300 (PSIG)	14.1
Ensure the time on the HMI is accurate to the minute, adjust if necessary	Verified
XP fan set to AUTO?	Yes
UPS enabled?	Yes
Comments	Adjusted clock

Non-classified Room

Fire Extinguisher Check	Needle in the green, All moving parts appear intact, No deformation
Heater set to turn on and operation verified?	Yes
Room fan set to turn on and operation verified?	Yes
Compressor operating hours	3181374
Biweekly Compressor Maintenance	Clean the intake filter with compressed air, Clean the aftercooler with compressed air, Open and check the condensate drain, clean if necessary, Check oil levels while the compressor is turned off - oil should be at the end of the plug threads. Top off if necessary, Listen for the wet receiver tank auto-drain to turn on to confirm it is working
Quarterly Compressor Maintenance	Change the intake filter, Clean the oil filter and replace O-rings, Clean oil return valves with non-flammable solvent and replace O-rings, Change the oil (Q1 and Q3). Use only Mattei Rotoroil 8000F2

Fill out the Mattei Compressor Oil Change and Sample Tracking form on Teams	No
Oil sample taken?	No
Number of routine maintenance kits remaining	1
Number of air filters remaining	1
Compressor Audio	1 Audio File
Do we need more compressor oil? (Less than a gallon remaining)	No
Motor voltage while loading	225
Motor Current while loading (amps)	14.1
Motor RPMs while loading	1800
VFD thermal state	50
VFD line voltage in (while compressor is loading)	223
Wet receiver tank loading pressure (PI-101)	75
Wet receiver tank unloading pressure (PI-101)	65
How full is the condensate drum? (Gallons)	10
PI-102 (PSIG)	21
PI-103 (PSIG)	23
Trident Desiccant Dryer Pressure (PSIG)	58
Are the trident desiccant dryer meters green?	Yes
Biweekly Non-XP Instrument Maintenance	System depressurized to drain filter chambers, PF-101 drained manually, PF-102 needle green, PF-102 needle yellow or red, Verify the desiccant dryer is cycling properly, Verify the silencers on the desiccant dryer are not clogged, PF-103 needle green, PF-103 needle yellow or red, Actuate S-101 to ensure it is working properly, CF-102 needle green, CF-102 needle yellow or red, Make sure there are no tripped breakers in the breaker panel, Breaker panel surge protector green light on
Quarterly Filter Maintenance	No
Desiccant Media Replaced?	No
Dried air tank pressure (PSIG)	65
Which compressed air Alicat is in use (upon leaving system)?	MFC-101B (newer, use August through February)
Verify MFC-101 flow rate	Complete
MFC-101 temperature (Fahrenheit)	80.38
MFC-101 standardized flow rate on display (SLPM)	300.1
MFC-101 uncorrected flow rate on display (LPM)	155.3
Comments	Changed out AliCats

Non-XP room photo

Classified Room

First Aid Kit Expiration Date	April 7, 2026
Fire Extinguisher Check	Needle in the green, All moving parts appear intact, No deformation
Heater turned on and verified to be operating?	Yes
Fan turned on and verified to be operating?	Yes
Swap out the propane tanks	Complete
PI-201 (PSIG)	123
PI-202 (PSIG)	50
PSH-201 Setpoints	High setpoint: 80 psi, Deadband setpoint: 20psi
MFC-201 temperature (Fahrenheit)	83.14
MFC-201 standard flow rate on alicat display during propane cycle (SLPM)	0.6
MFC-201 uncorrected flow rate on alicat display during propane cycle (LPM)	0.311
PI-300 (PSIG)	11
PI-301 Z1 (PSIG)	10
PI-302 Z2 (PSIG)	10
PI-303 Z3 (PSIG)	11
Monthly XP Instrumentation Checks	Propane pressure switch set to 85PSI, Zone solenoids actuating properly, Manual flow meter checked against alicat flow rate (divide LPM by 28 for SCFM), LEL vent line flow set between 1 and 3 LPM
AE-401 Reading	0
AE-350 reading during propane sparge cycle	0
Quarterly LEL Meter Calibration	No
Which propane Alicat is in use (upon leaving system)?	MFC-201B (newer, use August through February)

Comments

Changed out AliCats

XP-room photo

Outdoors and General

AS-19-A01 Wellhead Pressure (PSIG) | 13

AS-19-A02 Wellhead Pressure (PSIG) | 12

AS-19-A03 Wellhead Pressure (PSIG) | 13

AS-19-A04 Wellhead Pressure (PSIG) | 10

AS-19-A05 Wellhead Pressure (PSIG) | 10

AS-19-A06 Wellhead Pressure (PSIG) | 0

AS-19-A07 Wellhead Pressure (PSIG) | 0

Number of condensate drums outside | 0

Drum Photo

Electric Meter Reading (kWh) | 245033

Electric meter power draw (kW) while
compressor is on | 4.96Walked hose corridors and fixed fallen
barrels? | Yes

Listened for leaks/hissing at wellheads? | Yes

Videos	
Any equipment that needs to be ordered?	No
Comments, questions, ruminations, suggestions for improvement?	
Signature	Signed 7/31/2025, 6:33:43 PM UTC
Departure Time	15:45

Inspection Date	September 5, 2025
Last Quarterly Event Date	
Arrival Time	10:00
Personnel	Billy J Cobern
Weather	Mostly Cloudy, windy, 60's

HMI and Control Panel

HMI display functioning (not frozen)?	Yes
Current zone	Zone 2
Compressed air setpoint (LPM)	300
Propane setpoint (LPM)	0.6
PIT-101 (PSIG)	0
PIT-102 (PSIA)	0
FQI-101 (SLPM)	0
FQI-201 (SLPM)	0
PIT-202 (PSIA)	0
FE-301 (LPM)	0
AE-350 (%LEL)	0.1
PIT-300 (PSIG)	0
Ensure the time on the HMI is accurate to the minute, adjust if necessary	Verified
XP fan set to AUTO?	Yes
UPS enabled?	Yes
Comments	

Non-classified Room

Fire Extinguisher Check	Needle in the green, All moving parts appear intact, No deformation
Heater set to turn on and operation verified?	Yes
Room fan set to turn on and operation verified?	Yes
Compressor operating hours	3245388
Biweekly Compressor Maintenance	Clean the intake filter with compressed air, Clean the aftercooler with compressed air, Open and check the condensate drain, clean if necessary, Check oil levels while the compressor is turned off - oil should be at the end of the plug threads. Top off if necessary, Listen for the wet receiver tank auto-drain to turn on to confirm it is working
Quarterly Compressor Maintenance	Change the intake filter, Clean the oil filter and replace O-rings, Clean oil return valves with non-flammable solvent and replace O-rings, Change the oil (Q1 and Q3). Use only Mattei Rotoroil 8000F2

Fill out the Mattei Compressor Oil Change and Sample Tracking form on Teams	No
Oil sample taken?	No
Number of routine maintenance kits remaining	1
Number of air filters remaining	1
Compressor Audio	
Do we need more compressor oil? (Less than a gallon remaining)	No
Motor voltage while loading	0
Motor Current while loading (amps)	0
Motor RPMs while loading	0
VFD thermal state	0
VFD line voltage in (while compressor is loading)	0
Wet receiver tank loading pressure (PI-101)	0
Wet receiver tank unloading pressure (PI-101)	0
How full is the condensate drum? (Gallons)	18
PI-102 (PSIG)	0
PI-103 (PSIG)	0
Trident Desiccant Dryer Pressure (PSIG)	0
Are the trident desiccant dryer meters green?	Yes
Biweekly Non-XP Instrument Maintenance	System depressurized to drain filter chambers, PF-101 drained manually, PF-102 needle green, PF-102 needle yellow or red, Verify the desiccant dryer is cycling properly, Verify the silencers on the desiccant dryer are not clogged, PF-103 needle green, PF-103 needle yellow or red, Actuate S-101 to ensure it is working properly, CF-102 needle green, CF-102 needle yellow or red, Make sure there are no tripped breakers in the breaker panel, Breaker panel surge protector green light on
Quarterly Filter Maintenance	Check and clean PF-101, Check, clean, and replace filter element on CF-101, Check PF-102 filter element and inform TM if it needs to be replaced, Check PF-103 filter element and inform TM if it needs to be replaced, Open and clean CF-102, inform TM if element needs to be replaced, Open and check PF-104, inform TM if element needs to be replaced, Open desiccant dryer towers, take picture, note condition in the comments (Q2 and Q4)
Desiccant Media Replaced?	No
Dried air tank pressure (PSIG)	0
Which compressed air Alicat is in use (upon leaving system)?	MFC-101B (newer, use August through February)
Verify MFC-101 flow rate	Complete
MFC-101 temperature (Fahrenheit)	68.72
MFC-101 standardized flow rate on display (SLPM)	0

MFC-101 uncorrected flow rate on display (LPM)	0
--	---

Comments	
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Non-XP room photo	
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Classified Room

First Aid Kit Expiration Date	April 7, 2026
-------------------------------	---------------

Fire Extinguisher Check	Needle in the green, All moving parts appear intact, No deformation
-------------------------	---

Heater turned on and verified to be operating?	Yes
--	-----

Fan turned on and verified to be operating?	Yes
---	-----

Swap out the propane tanks	System off, propane off
----------------------------	-------------------------

PI-201 (PSIG)	0
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PI-202 (PSIG)	0
---------------	---

PSH-201 Setpoints	High setpoint: 80 psi, Deadband setpoint: 20psi
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MFC-201 temperature (Fahrenheit)	76.53
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MFC-201 standard flow rate on alicat display during propane cycle (SLPM)	0
--	---

MFC-201 uncorrected flow rate on alicat display during propane cycle (LPM)	0
--	---

PI-300 (PSIG)	0
---------------	---

PI-301 Z1 (PSIG)	0
------------------	---

PI-302 Z2 (PSIG)	0
------------------	---

PI-303 Z3 (PSIG)	0
------------------	---

Monthly XP Instrumentation Checks	Propane pressure switch set to 85PSI, Zone solenoids actuating properly, Manual flow meter checked against alicat flow rate (divide LPM by 28 for SCFM), LEL vent line flow set between 1 and 3 LPM
-----------------------------------	---

AE-401 Reading	0
----------------	---

AE-350 reading during propane sparge cycle	0
--	---

Quarterly LEL Meter Calibration	No
Which propane Alicat is in use (upon leaving system)?	MFC-201B (newer, use August through February)
Comments	
XP-room photo	

Outdoors and General

AS-19-A01 Wellhead Pressure (PSIG)	0
AS-19-A02 Wellhead Pressure (PSIG)	0
AS-19-A03 Wellhead Pressure (PSIG)	0
AS-19-A04 Wellhead Pressure (PSIG)	0
AS-19-A05 Wellhead Pressure (PSIG)	0
AS-19-A06 Wellhead Pressure (PSIG)	0
AS-19-A07 Wellhead Pressure (PSIG)	0
Number of condensate drums outside	0

Drum Photo

Electric Meter Reading (kWh)	248185
Electric meter power draw (kW) while compressor is on	5.7

Videos

Any equipment that needs to be ordered?	No
---	----

Comments, questions, ruminations, suggestions for improvement?	System is off for shut down test, annual compressor maintenance today
--	---

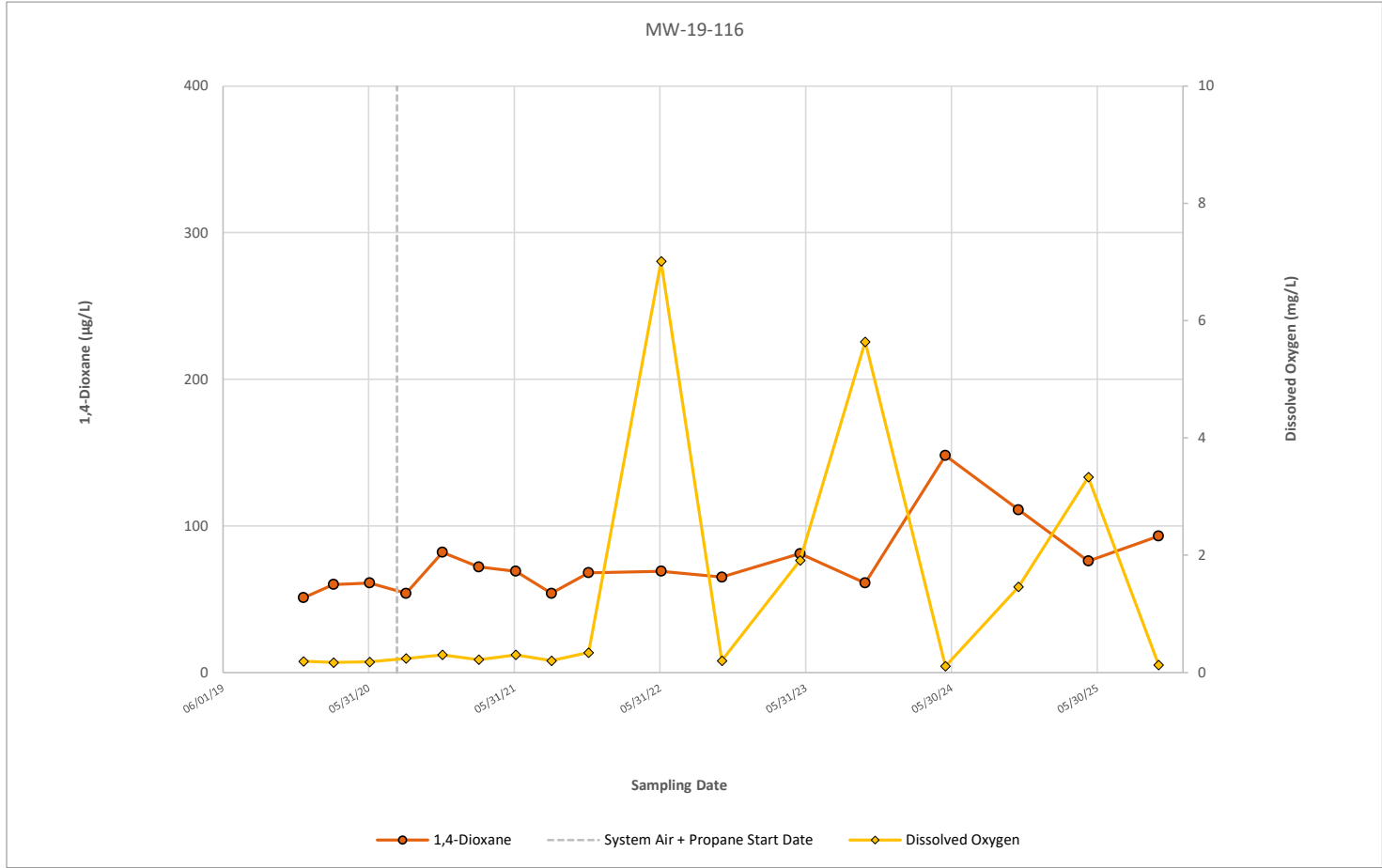
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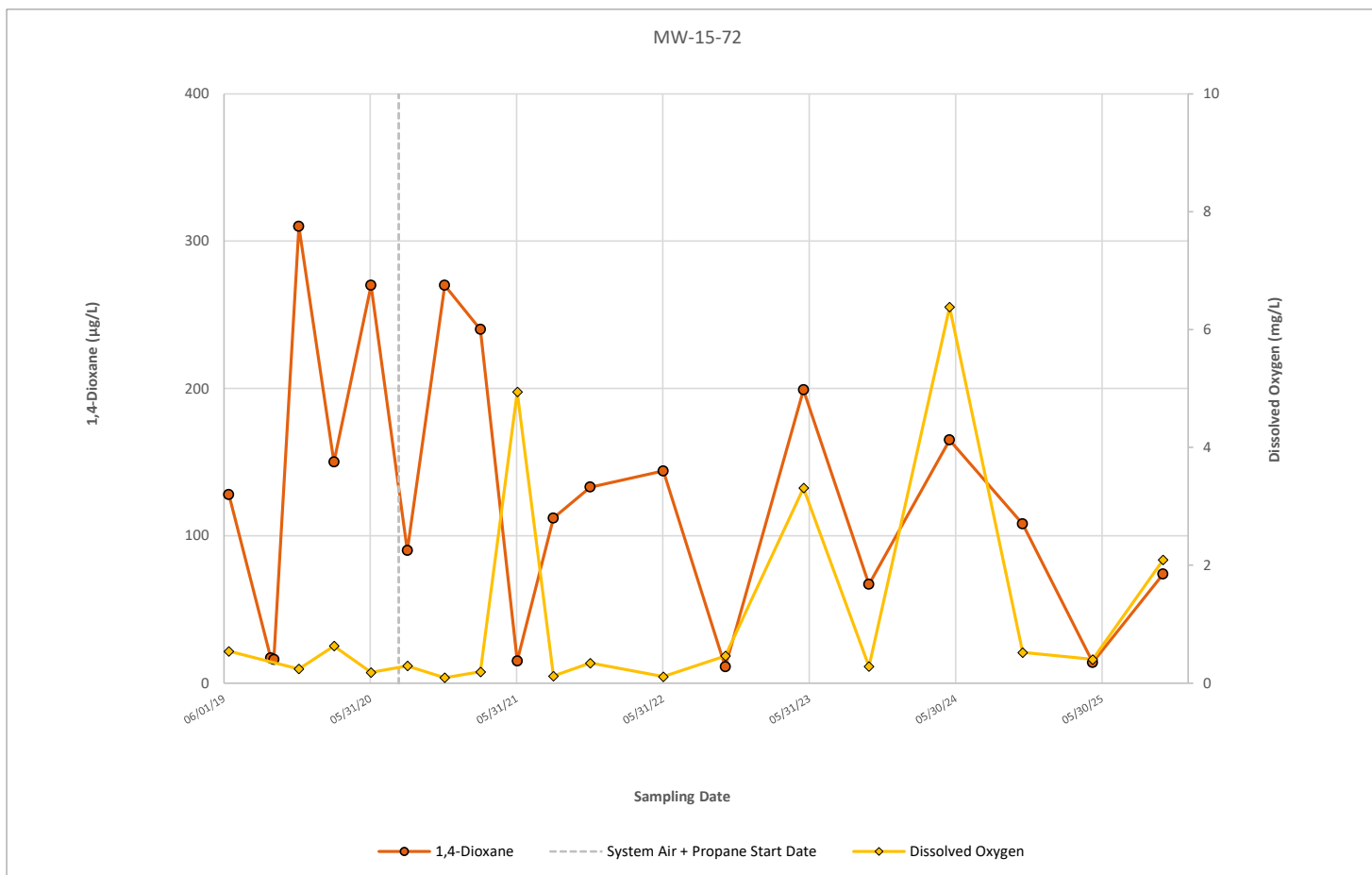
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Departure Time	11:00
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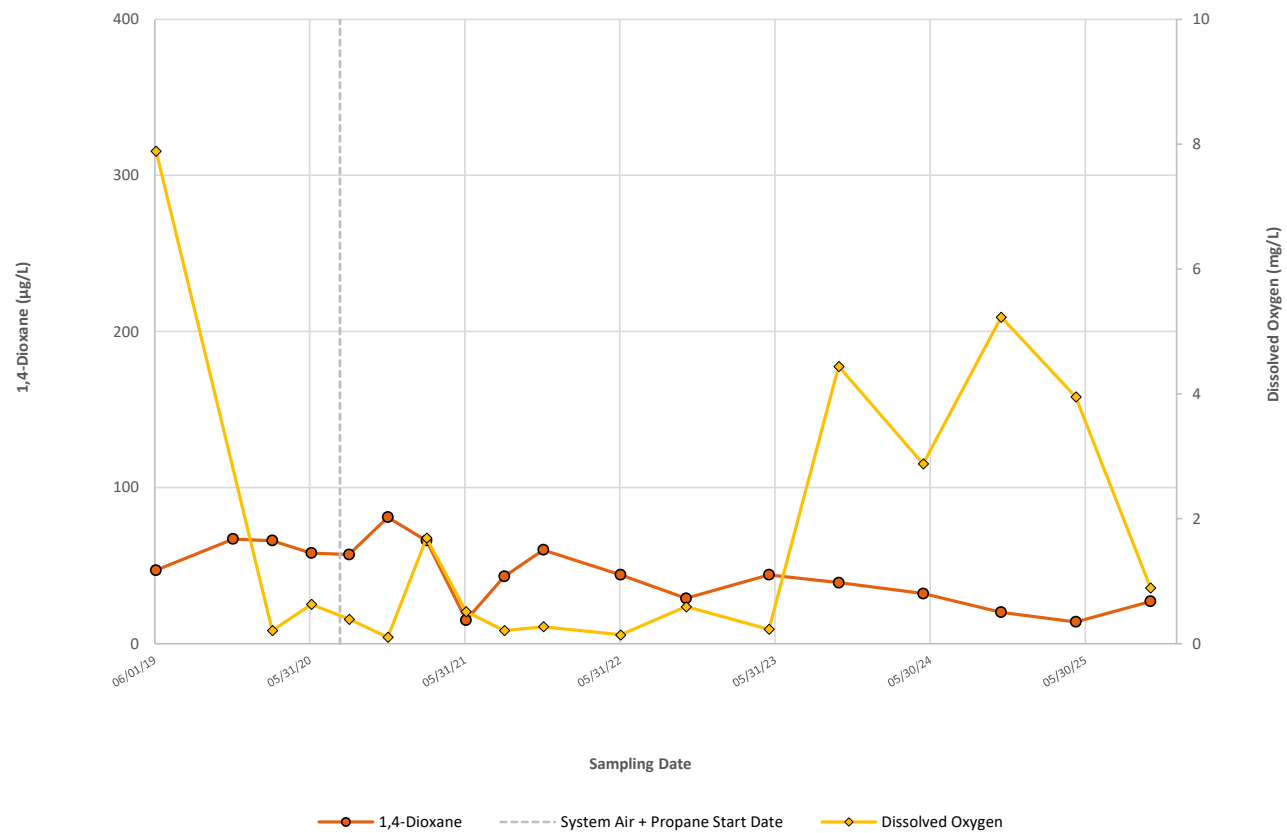
Appendix B

Performance Graphs

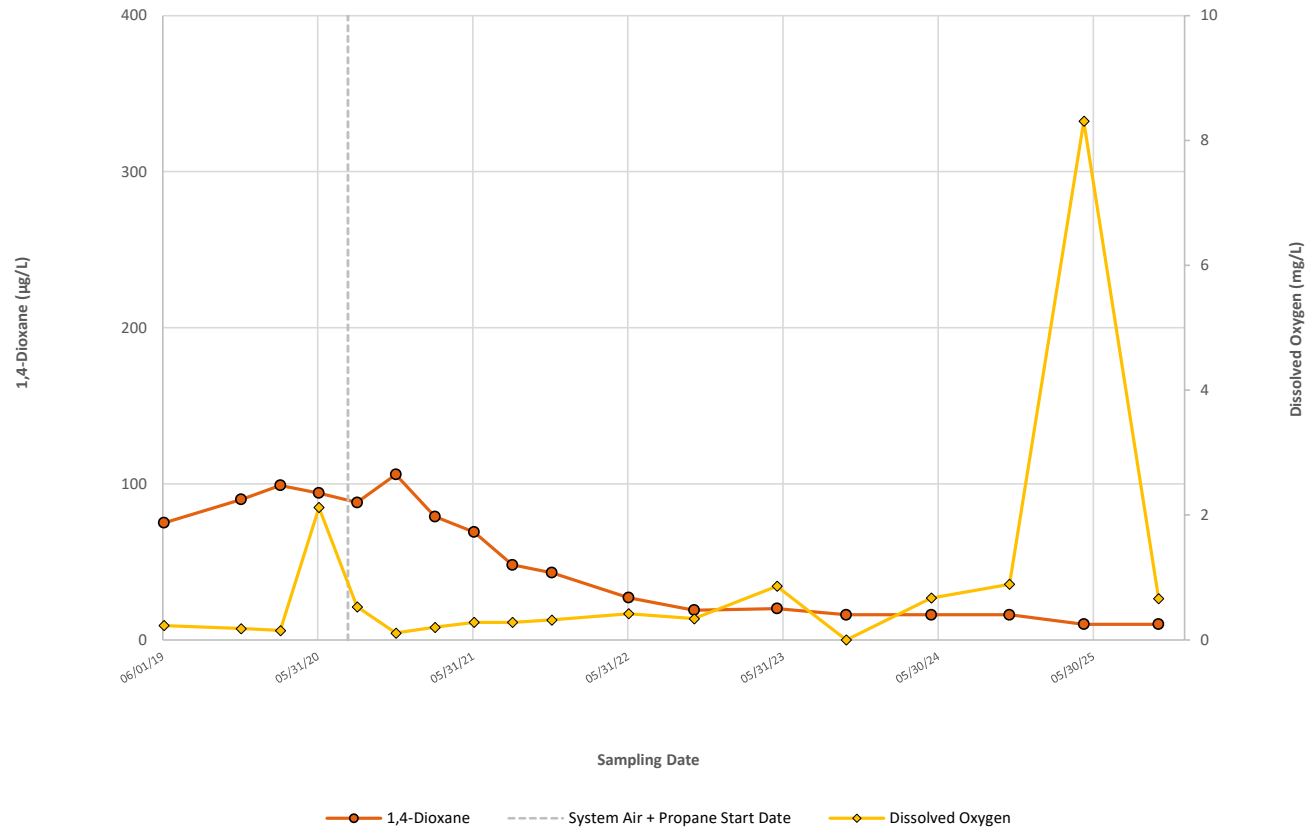




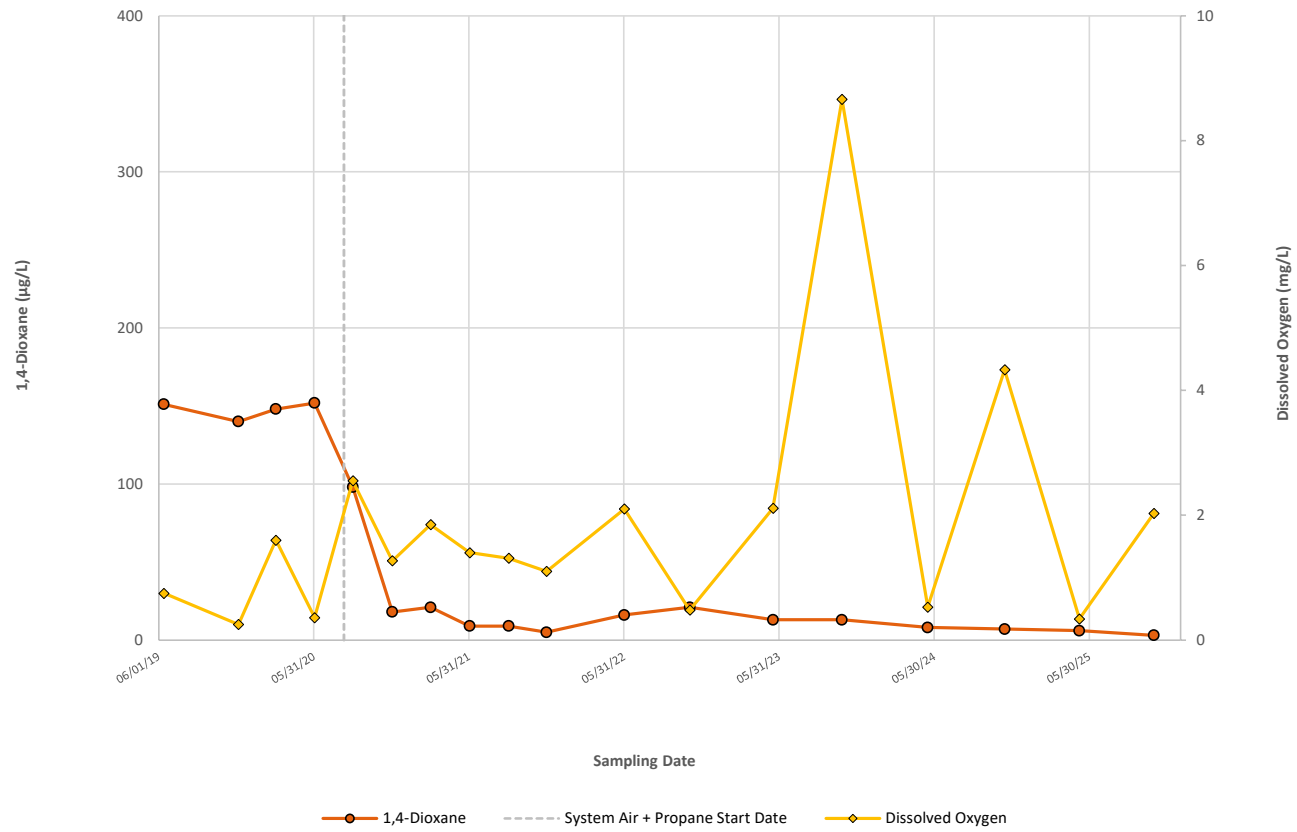
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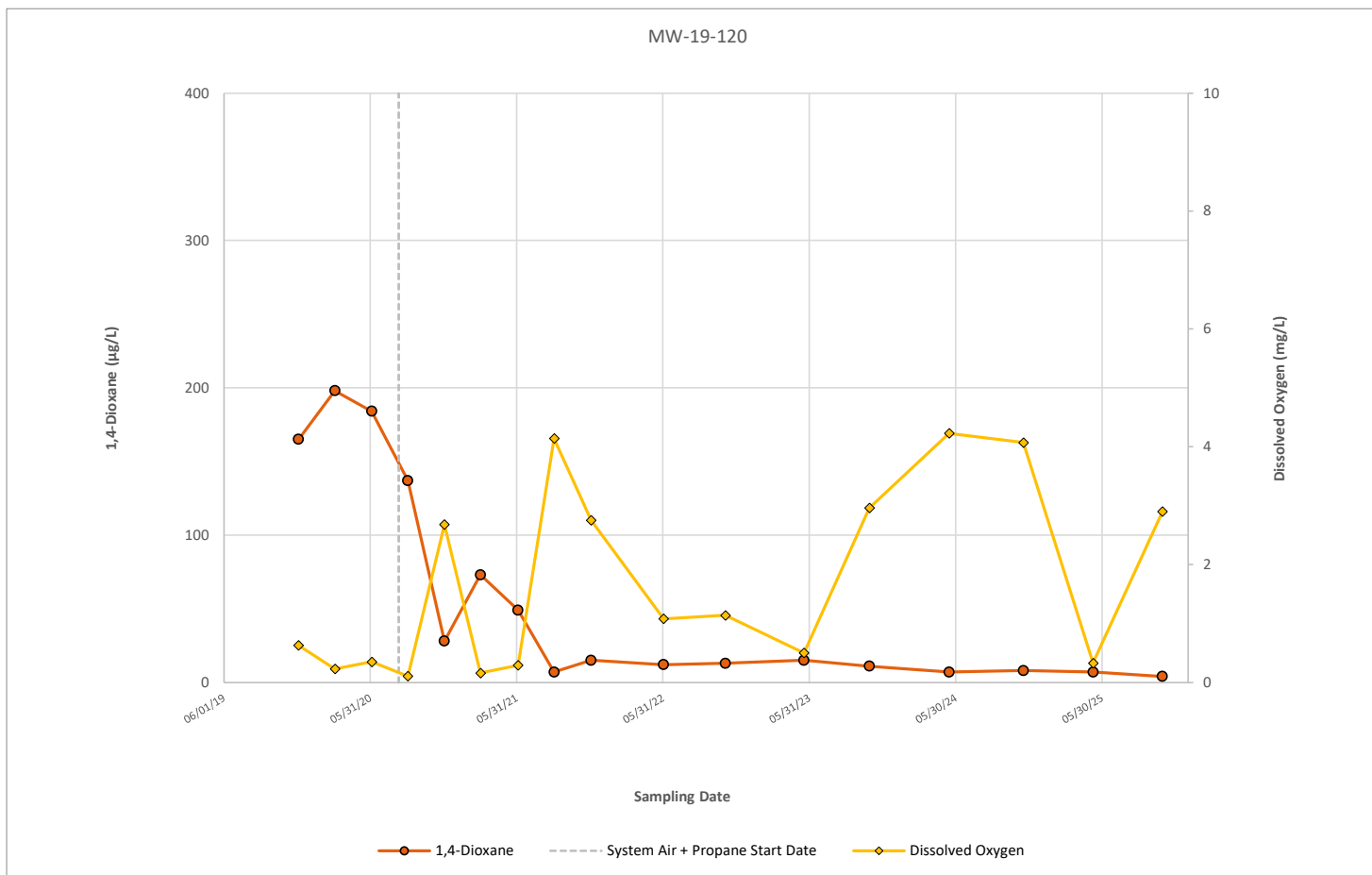


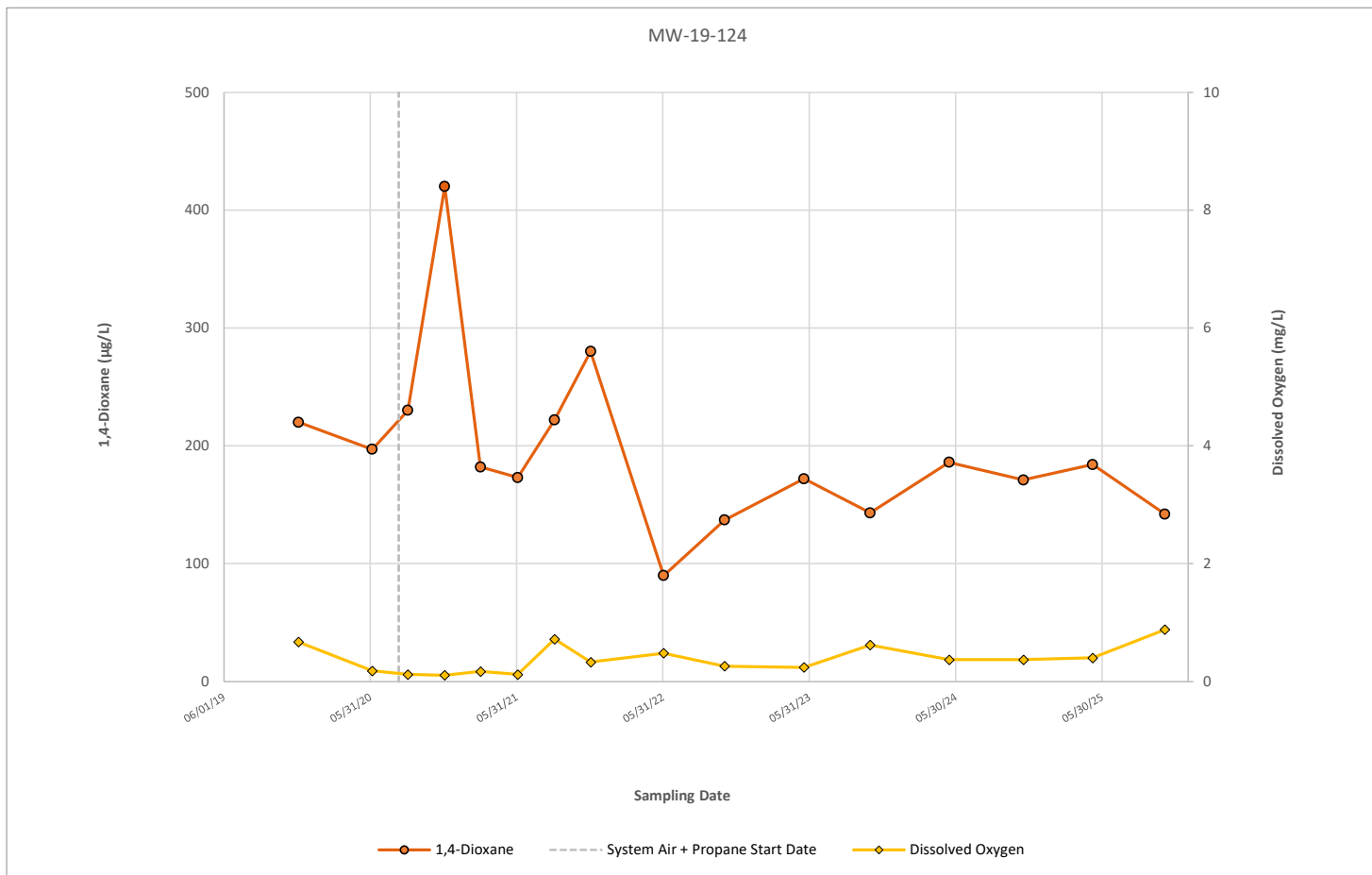
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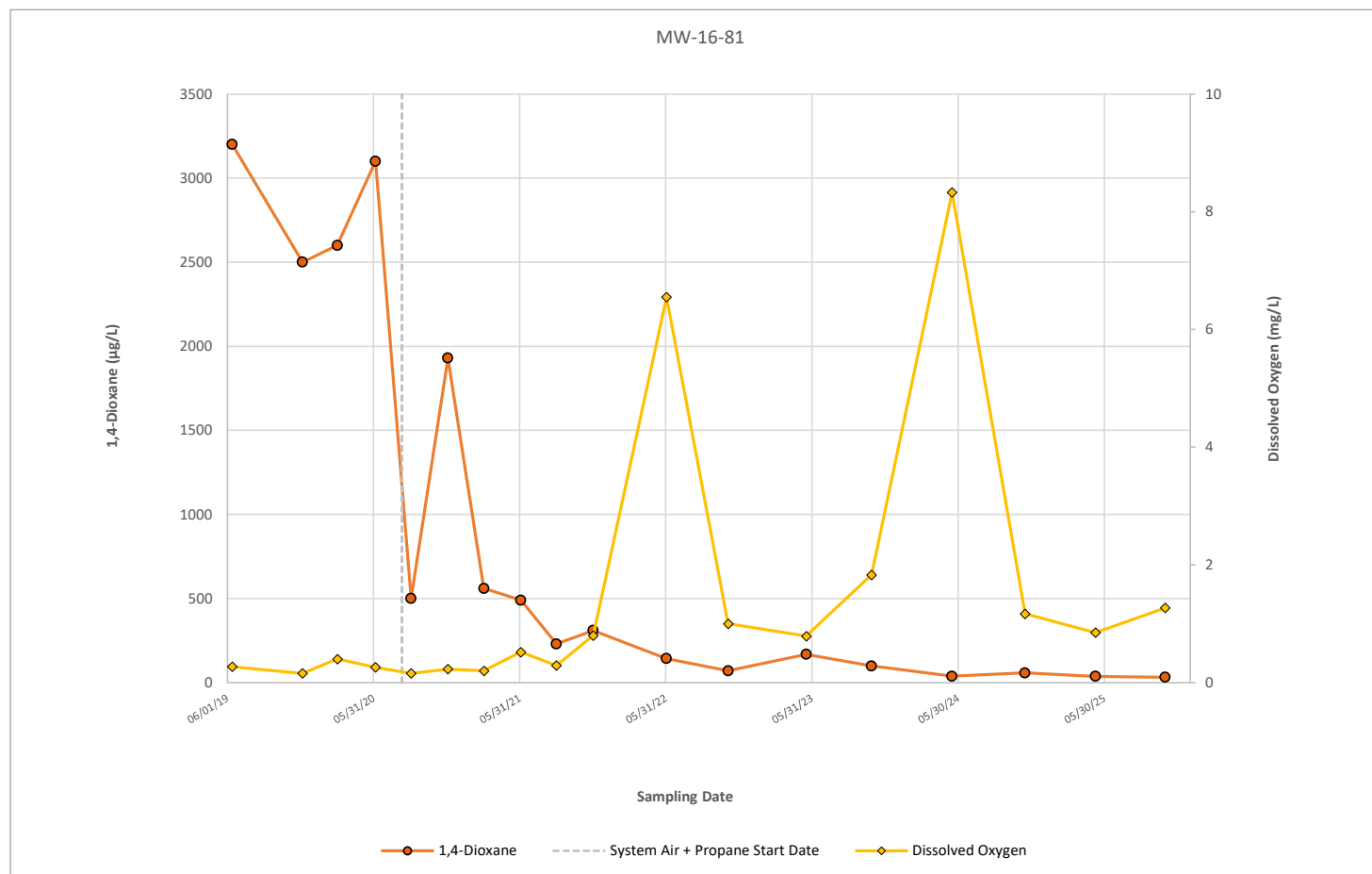


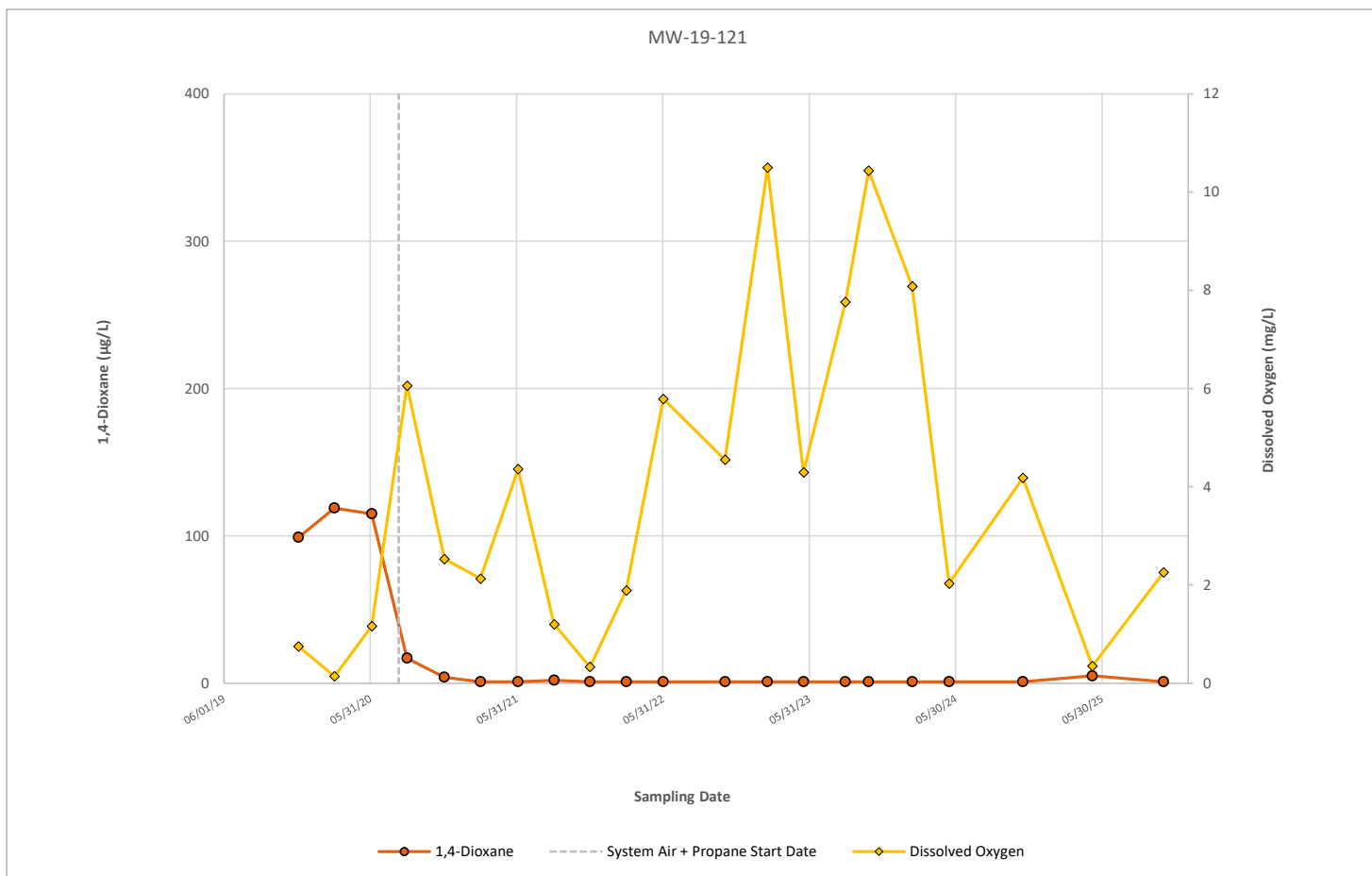
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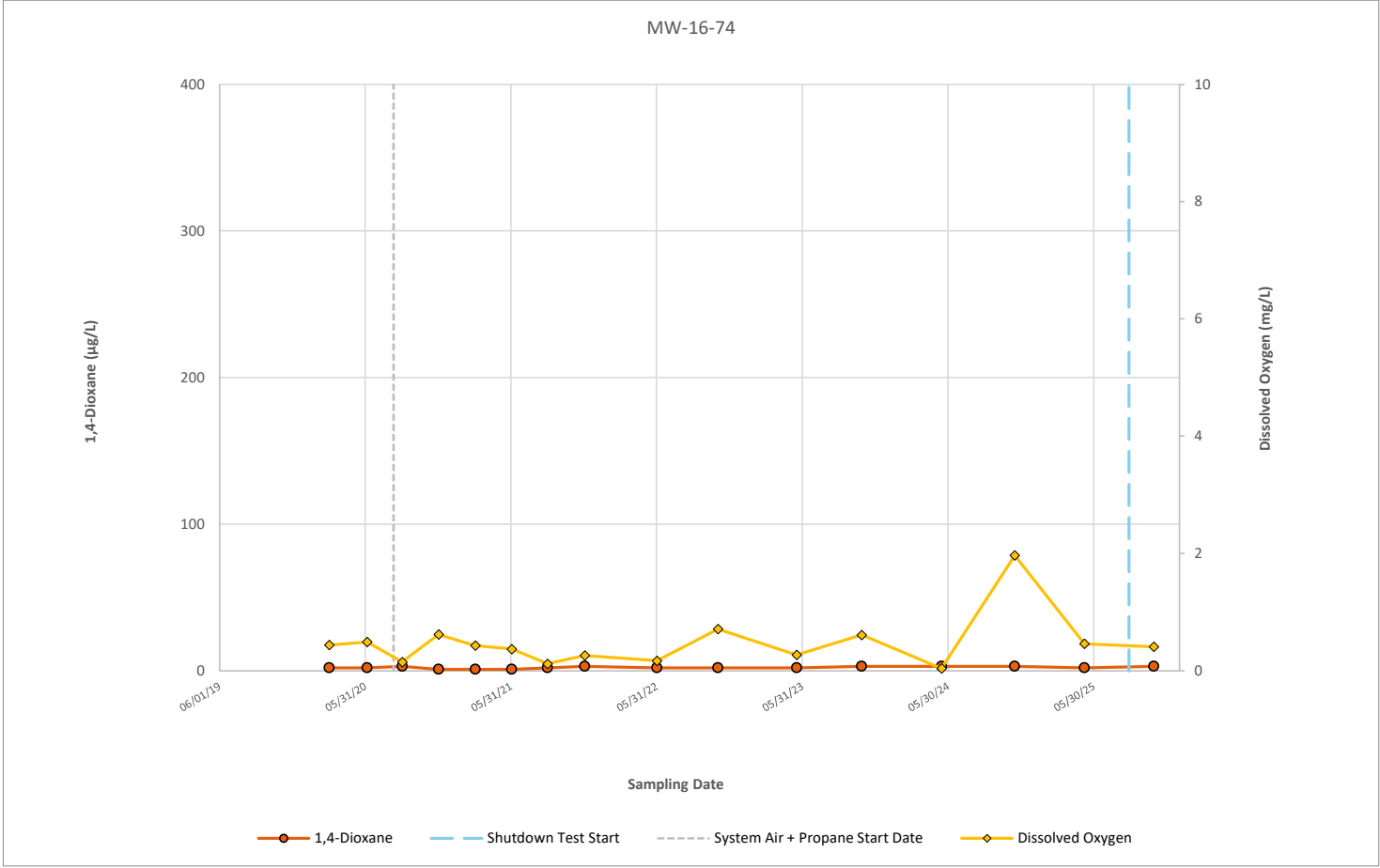


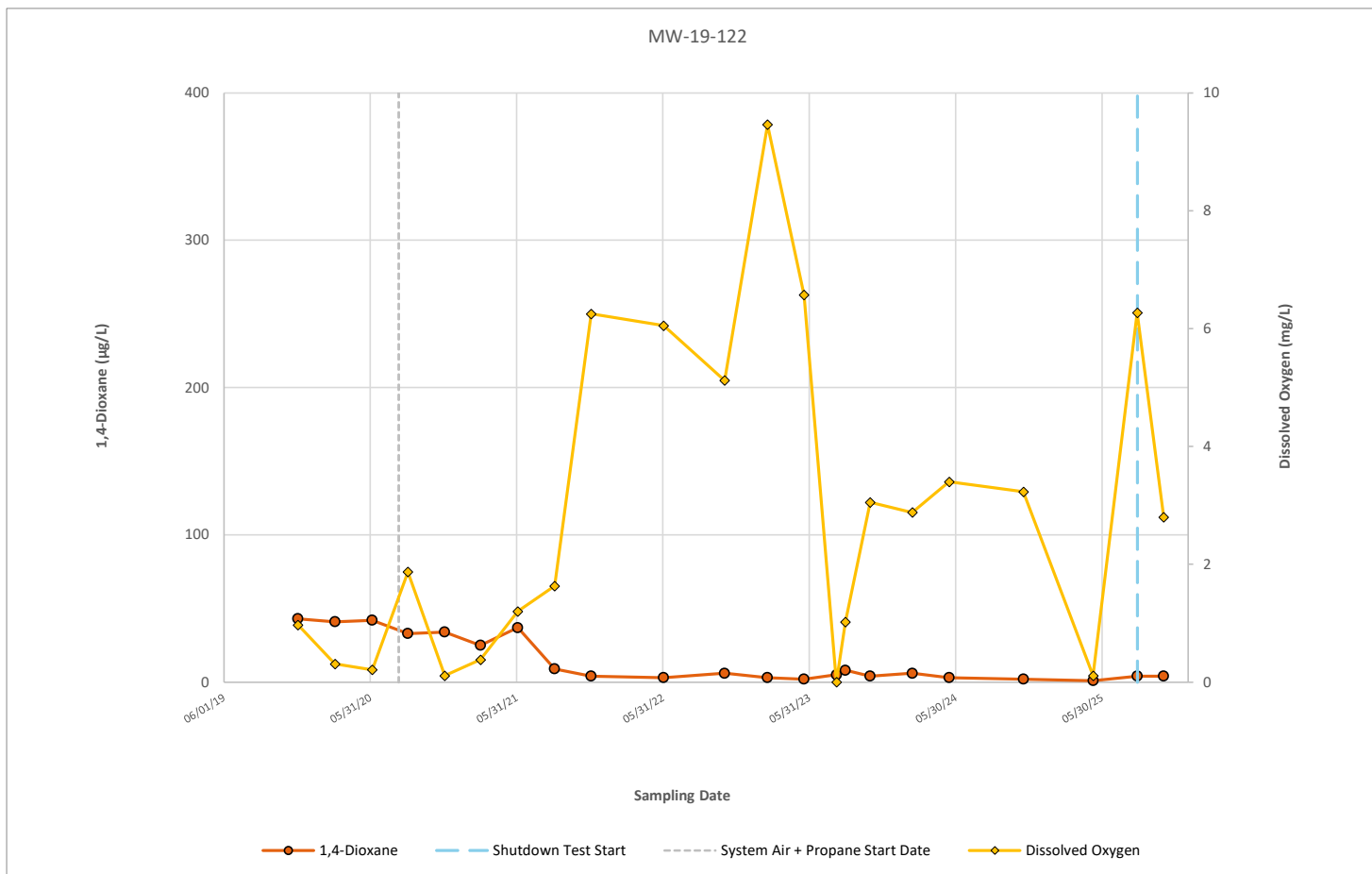


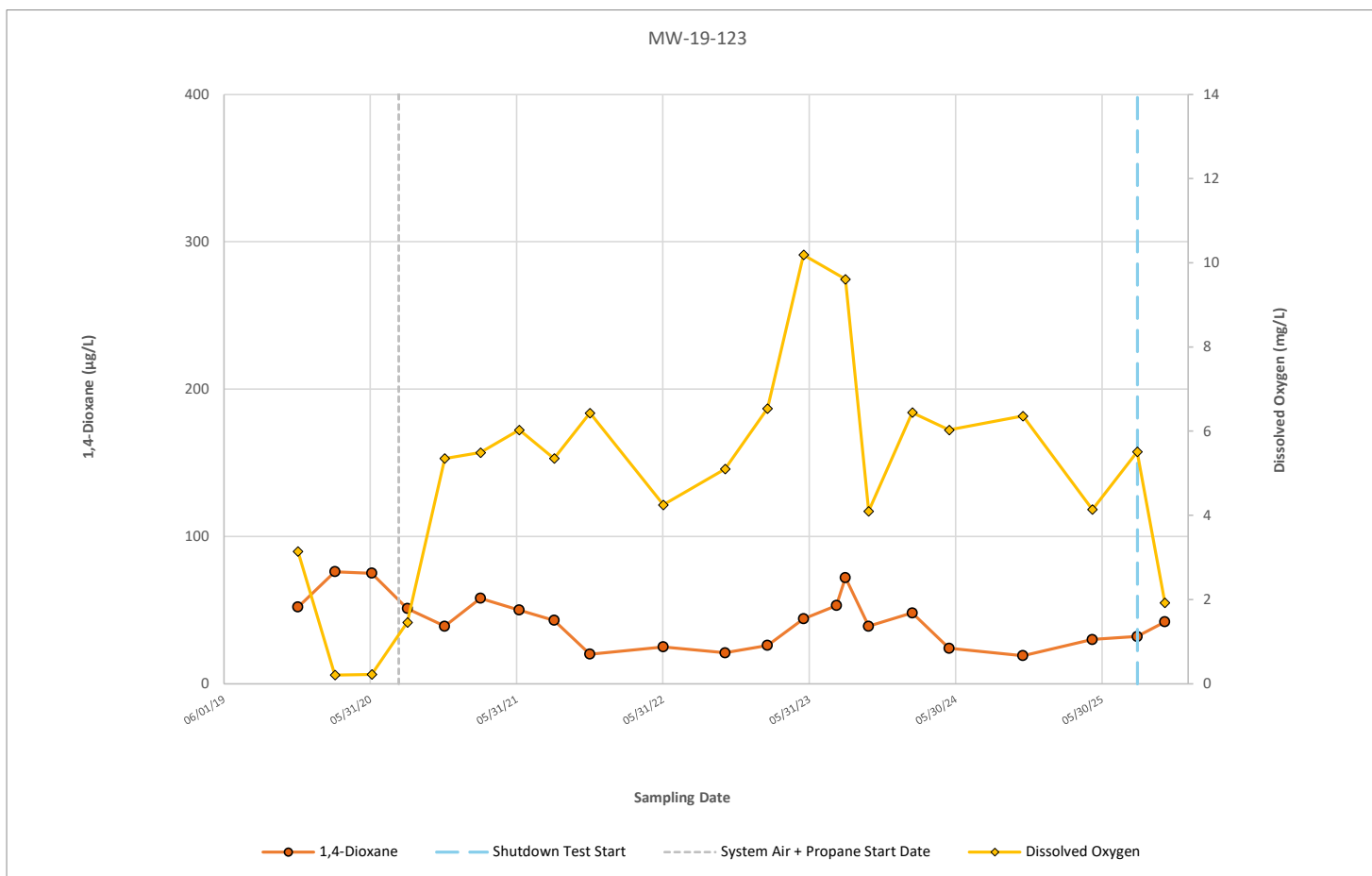


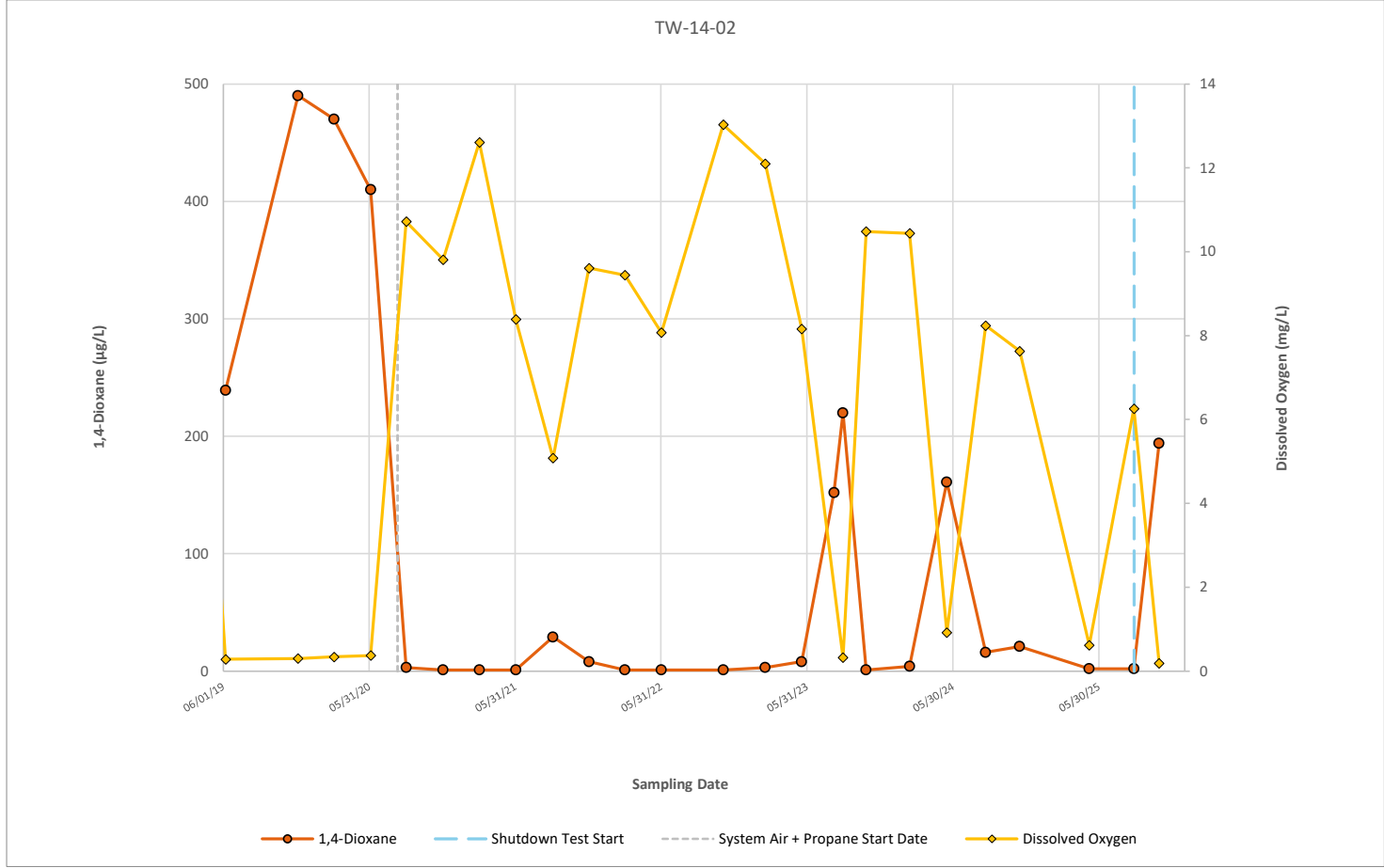


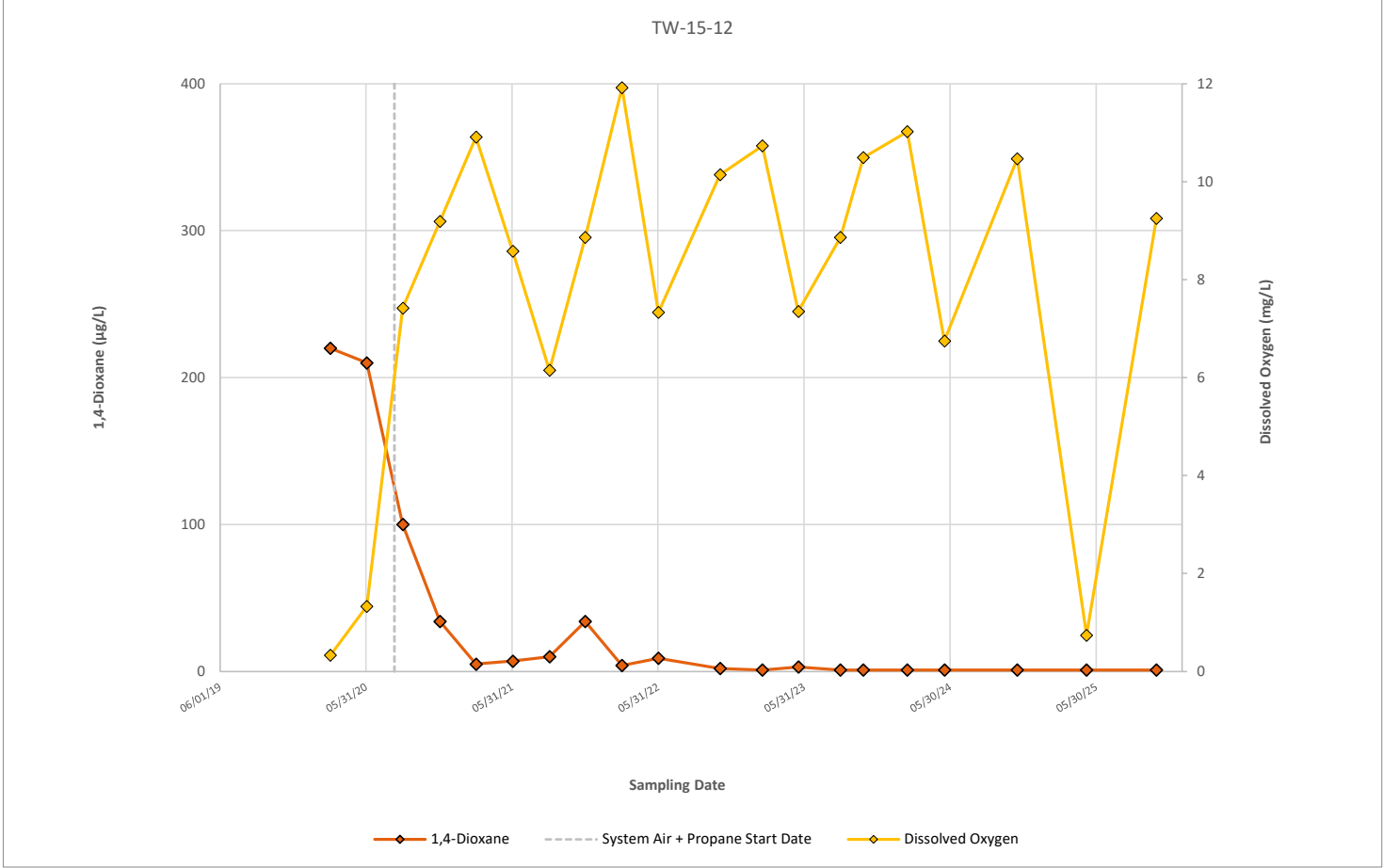


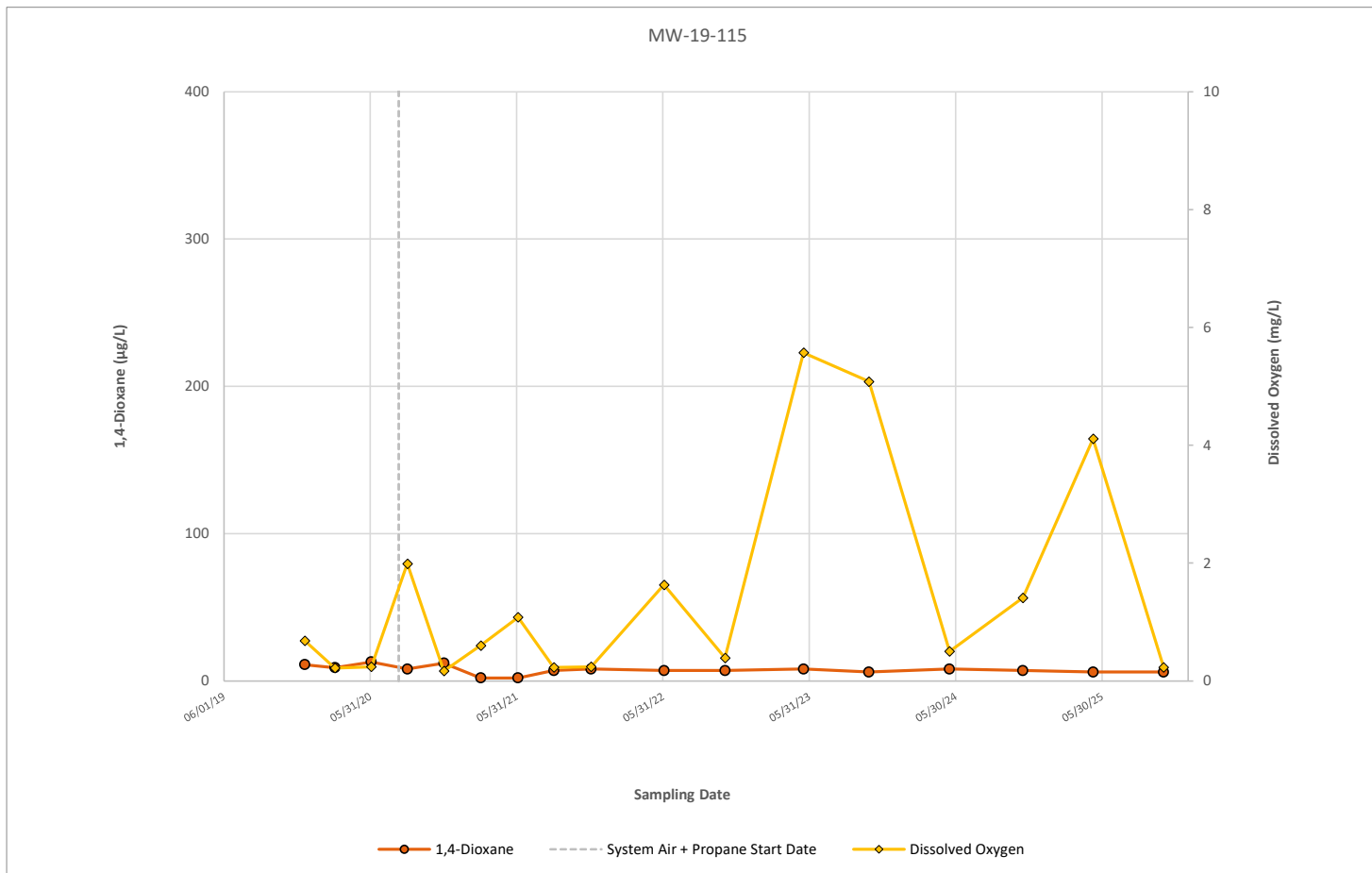


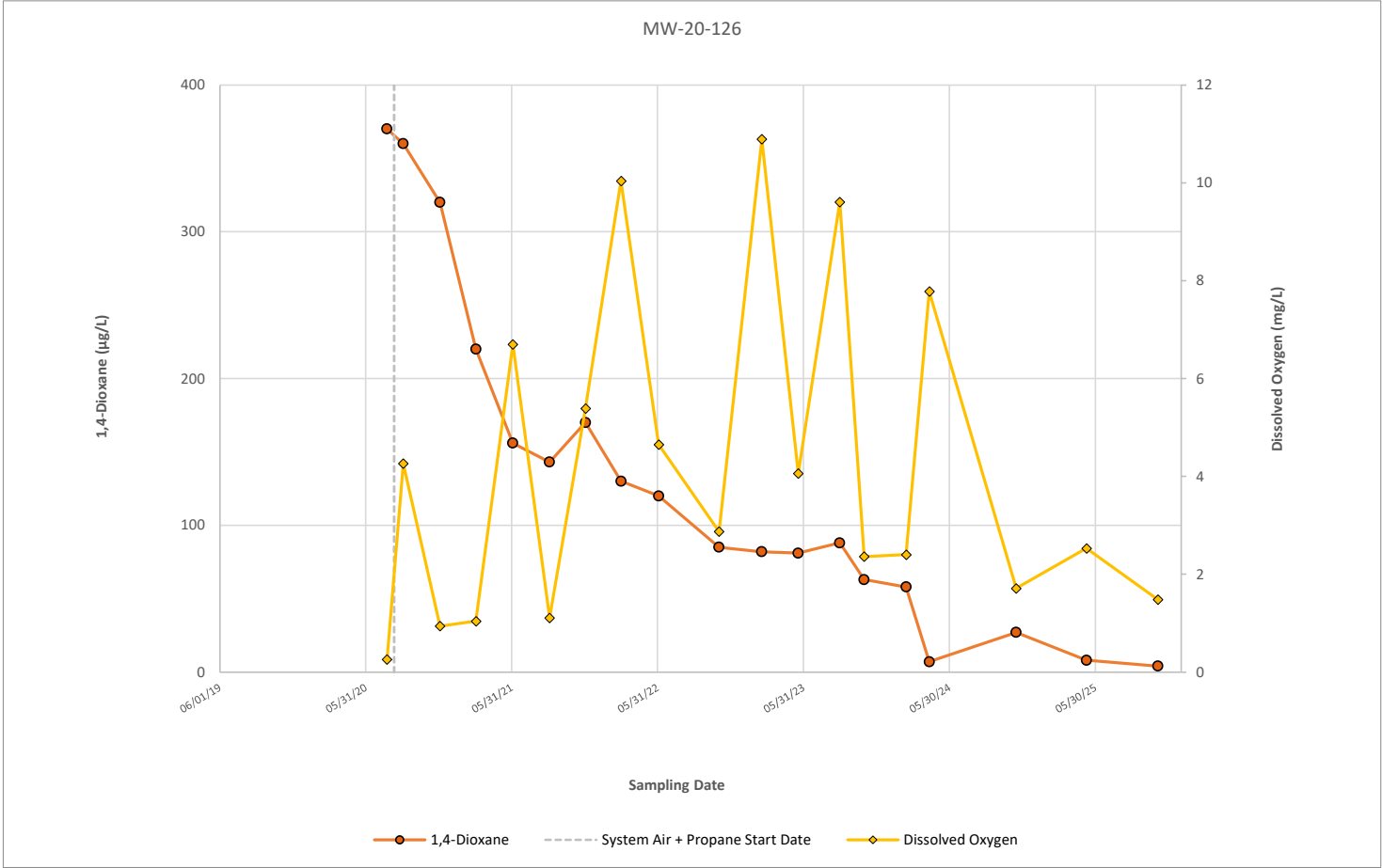


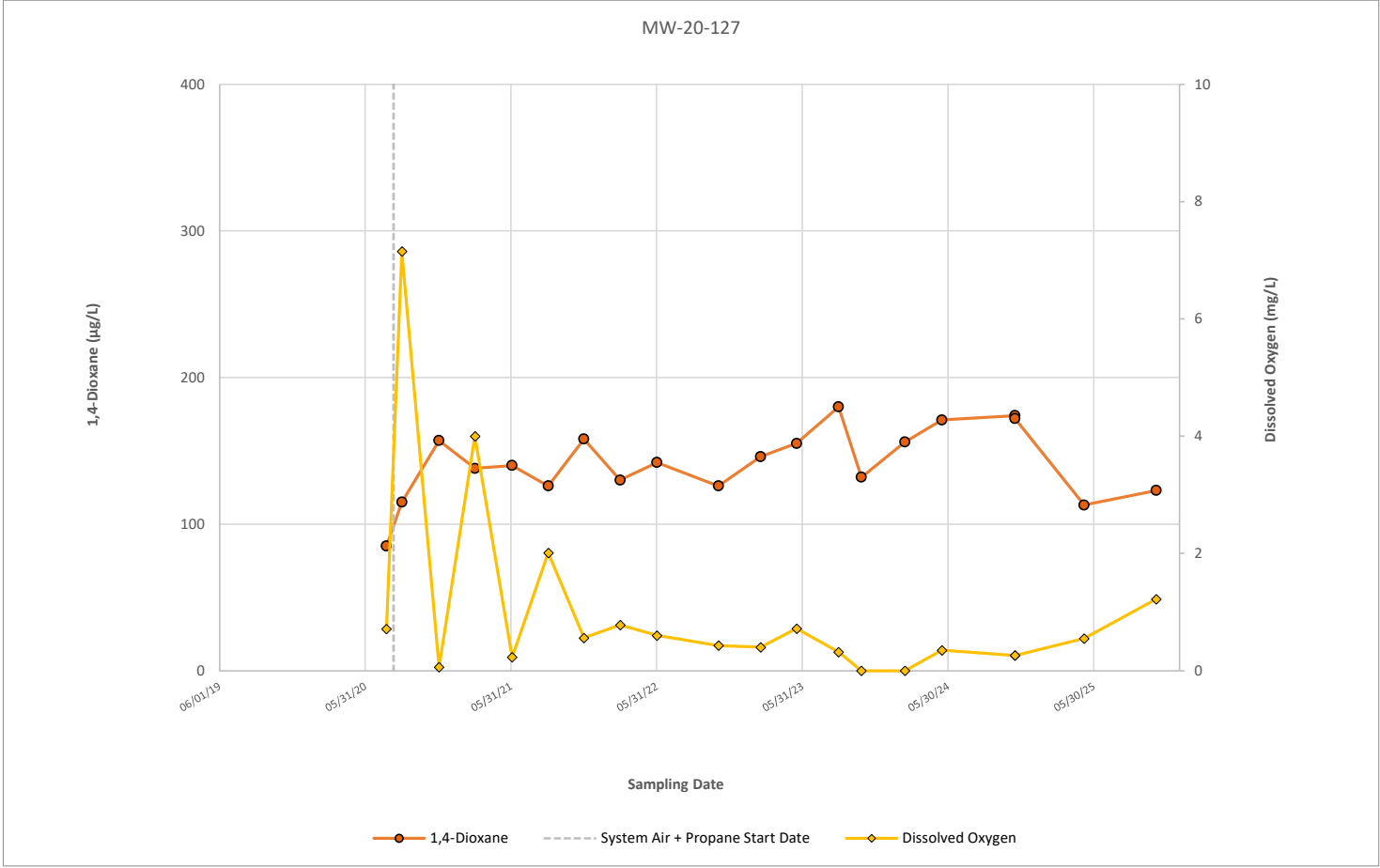


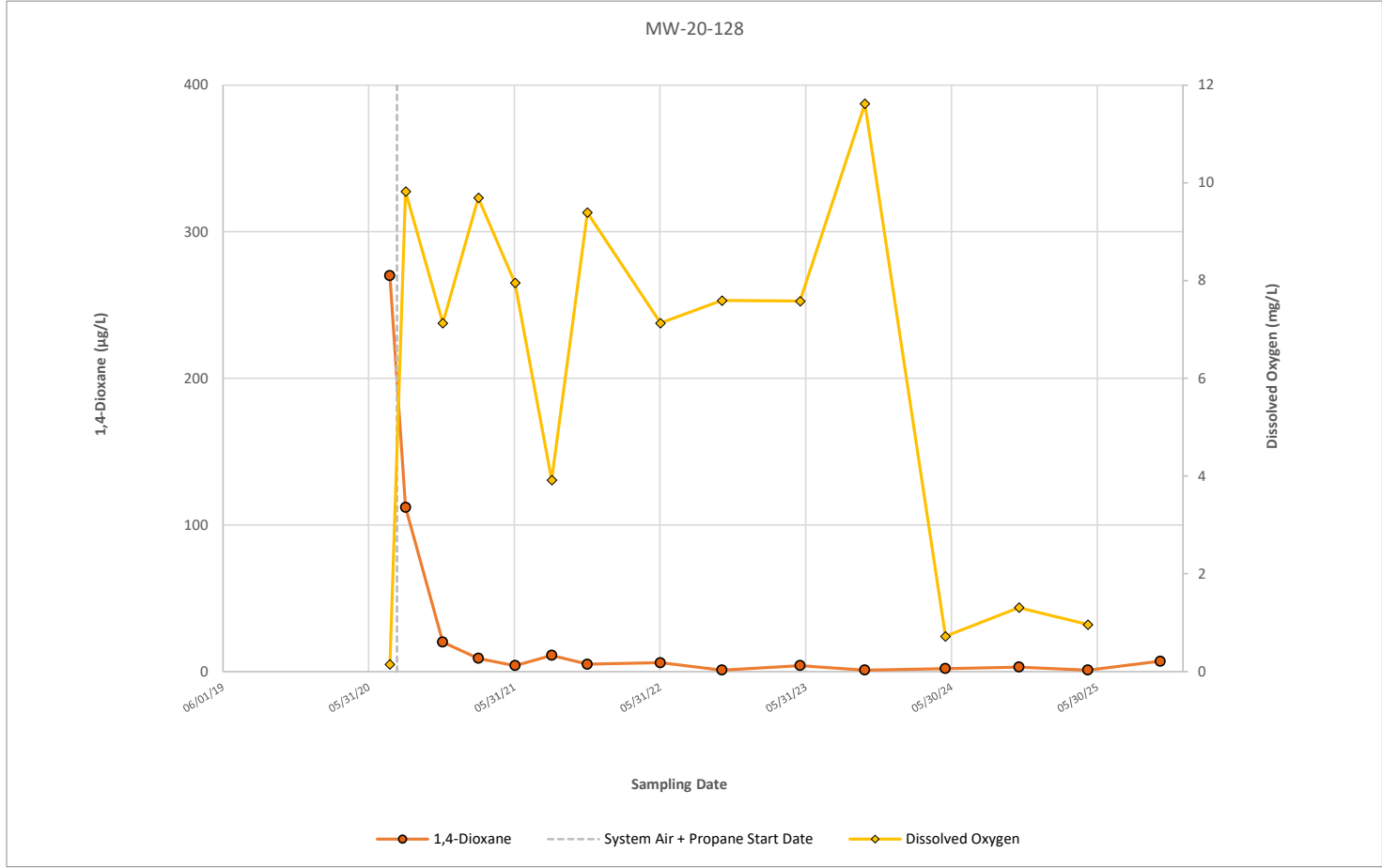


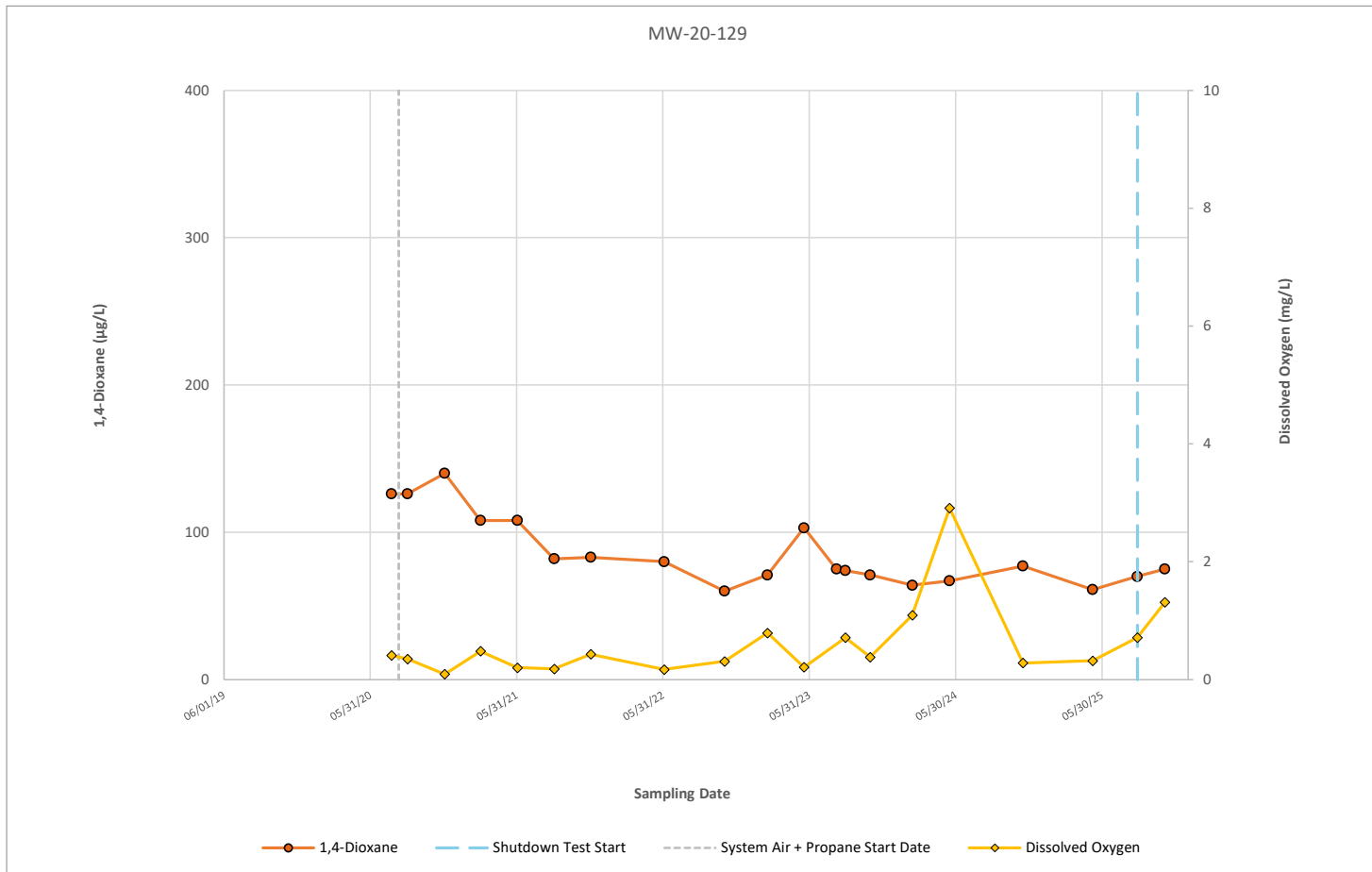


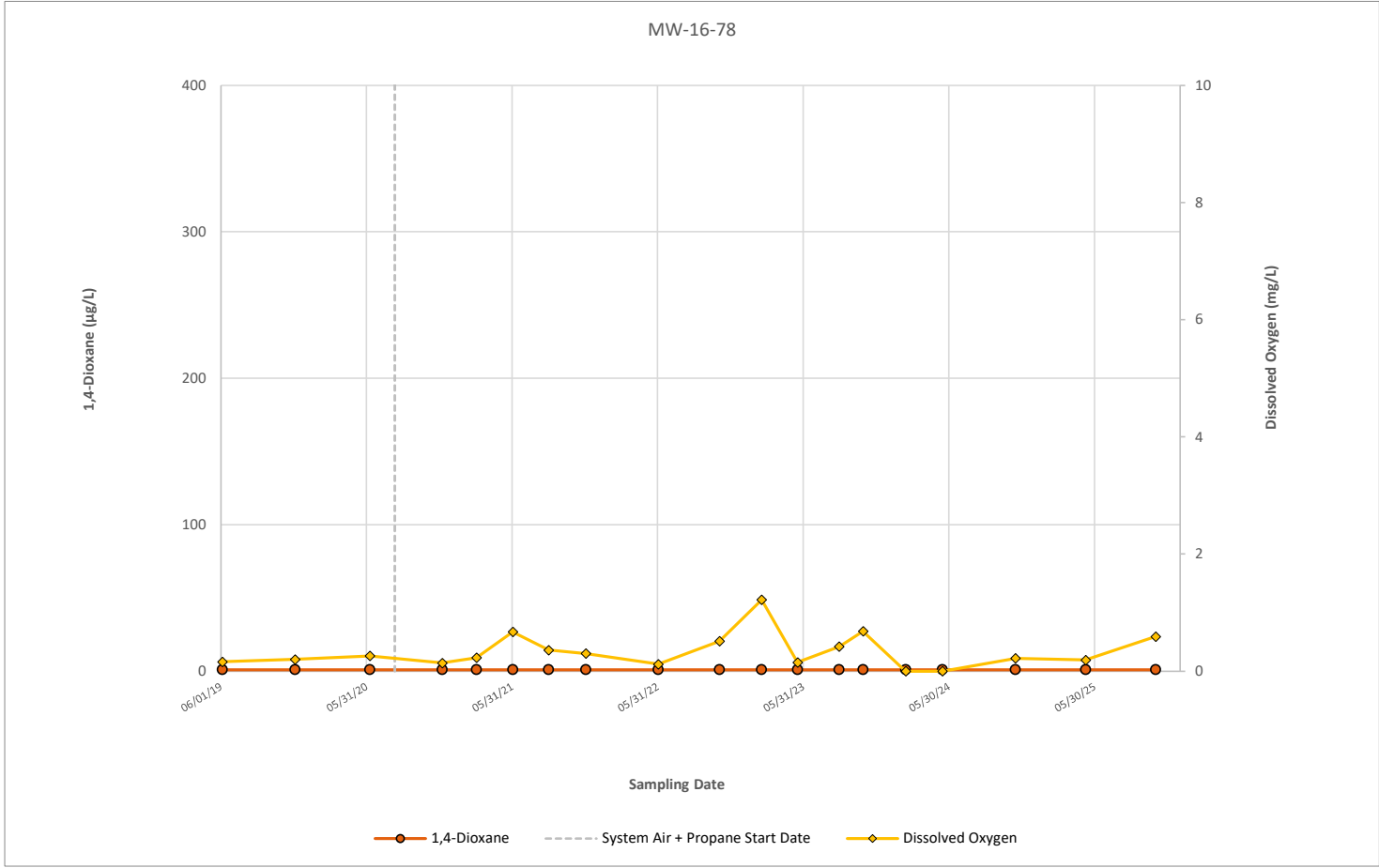


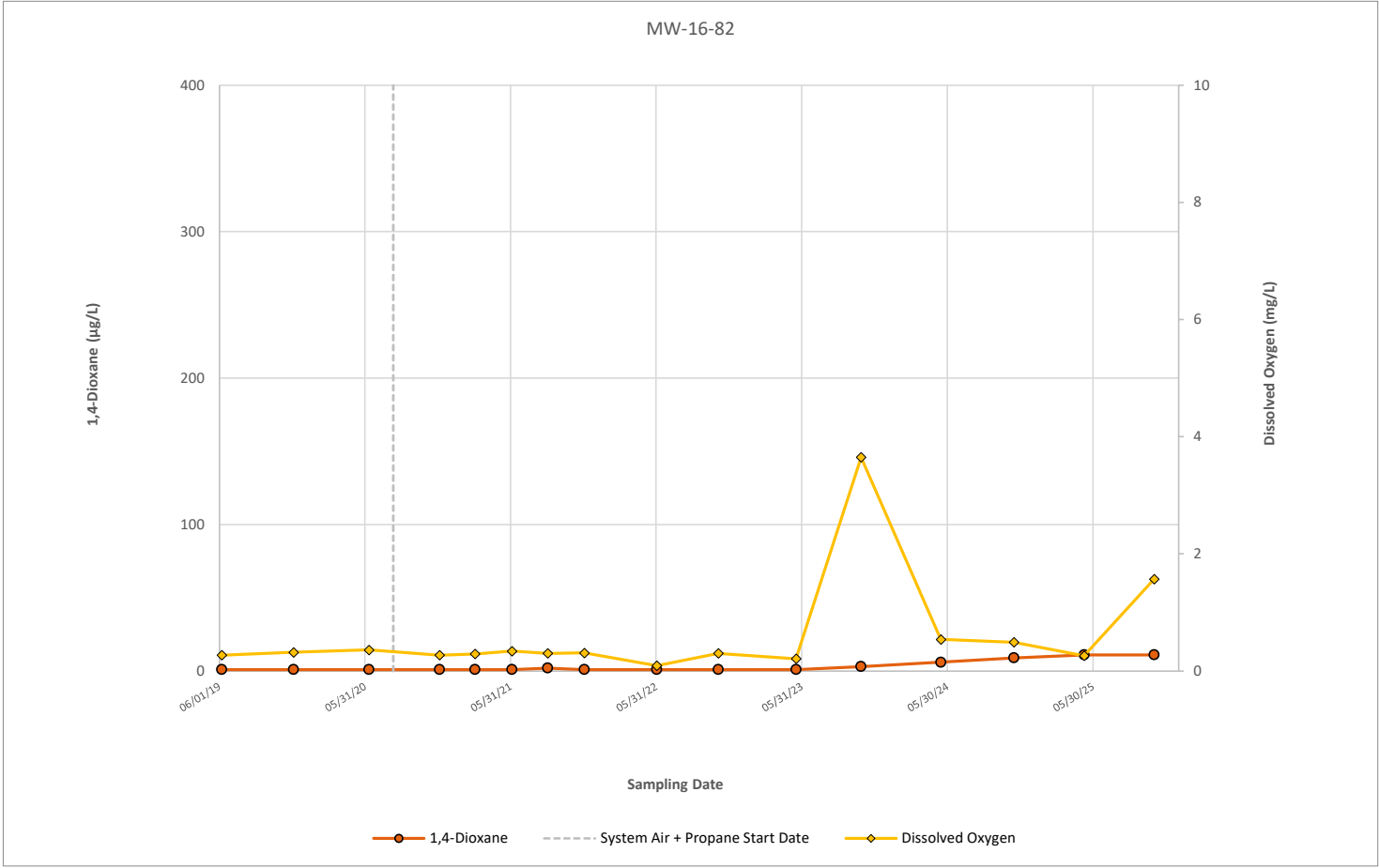


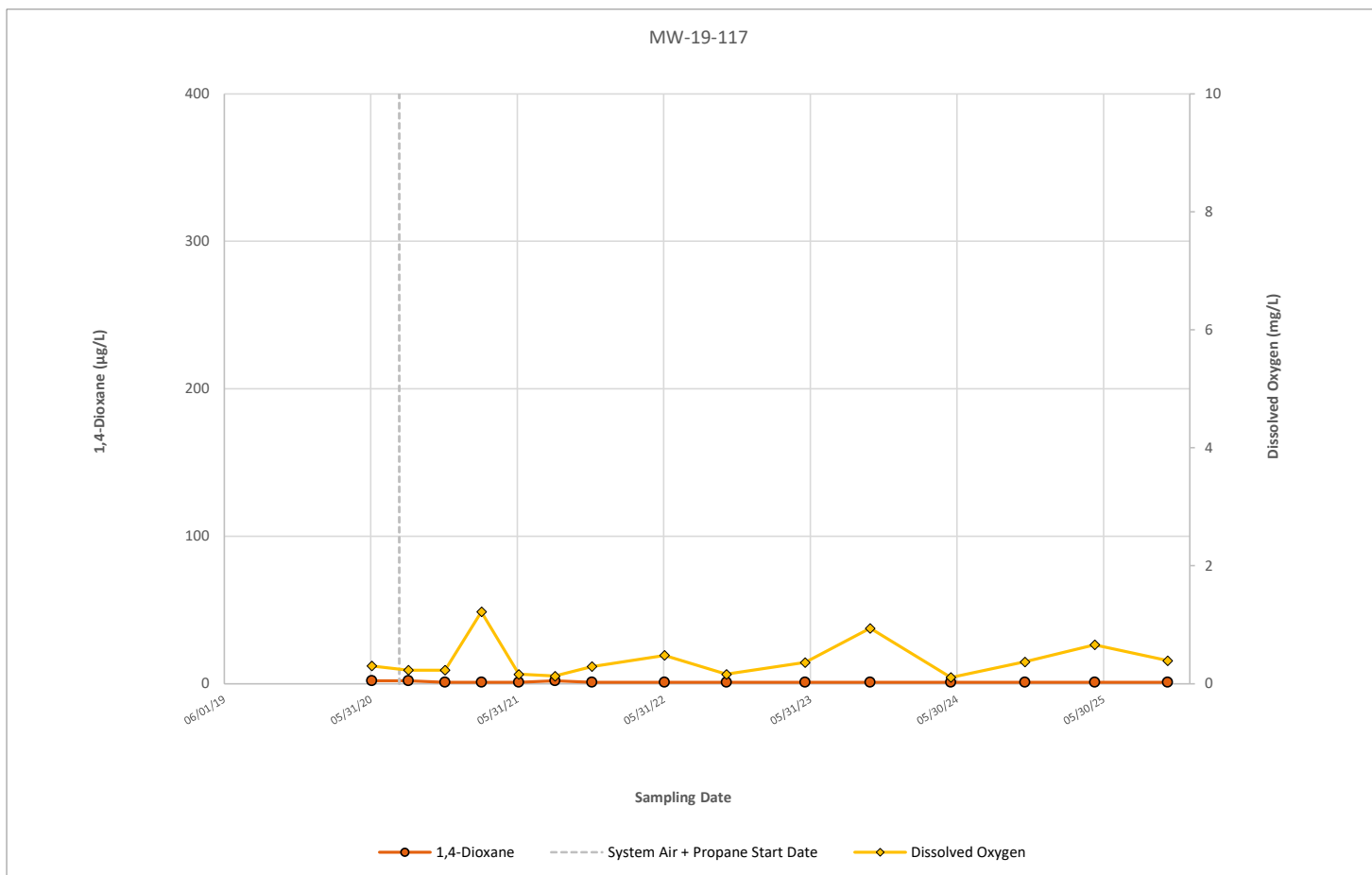


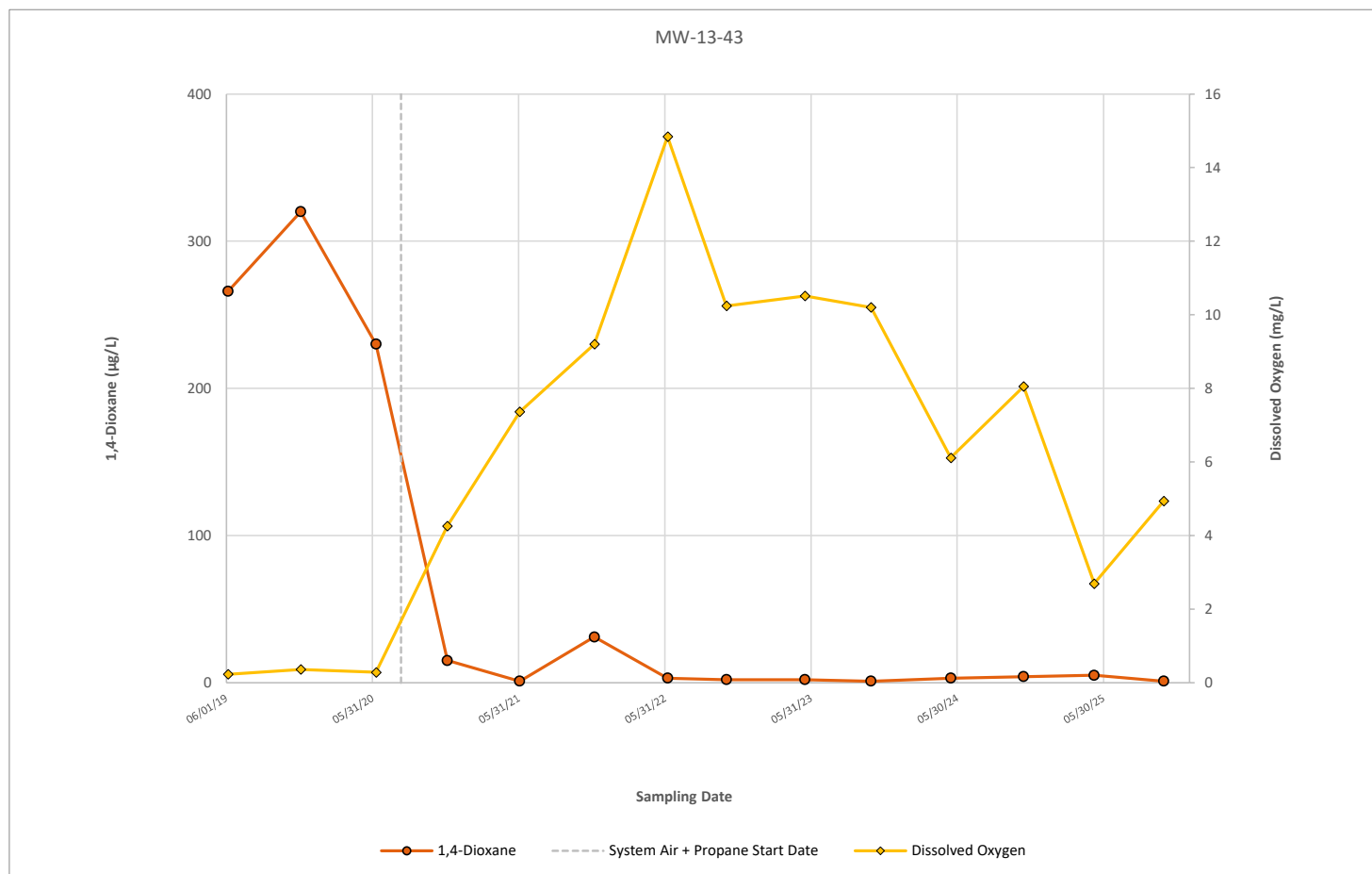


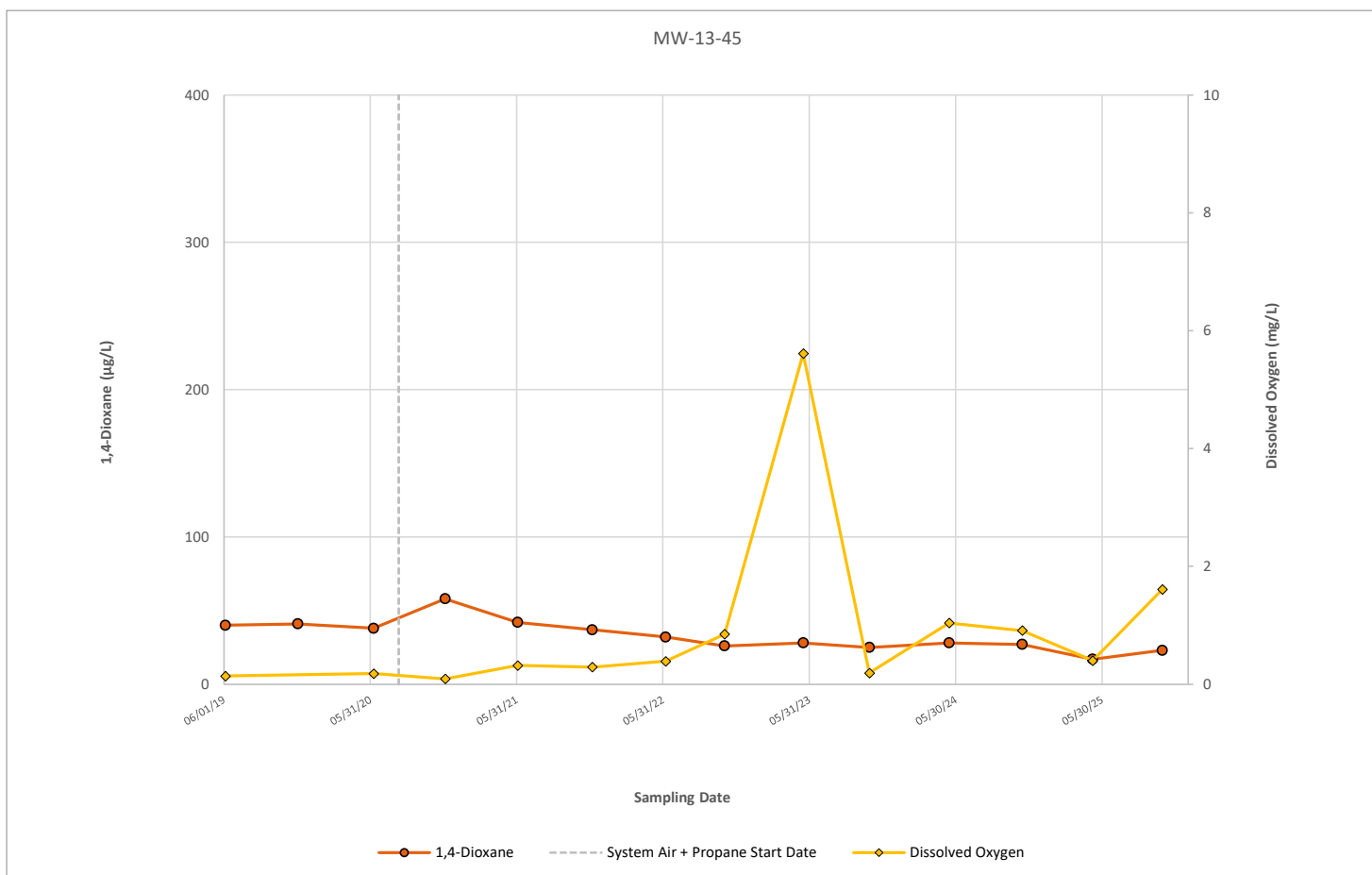


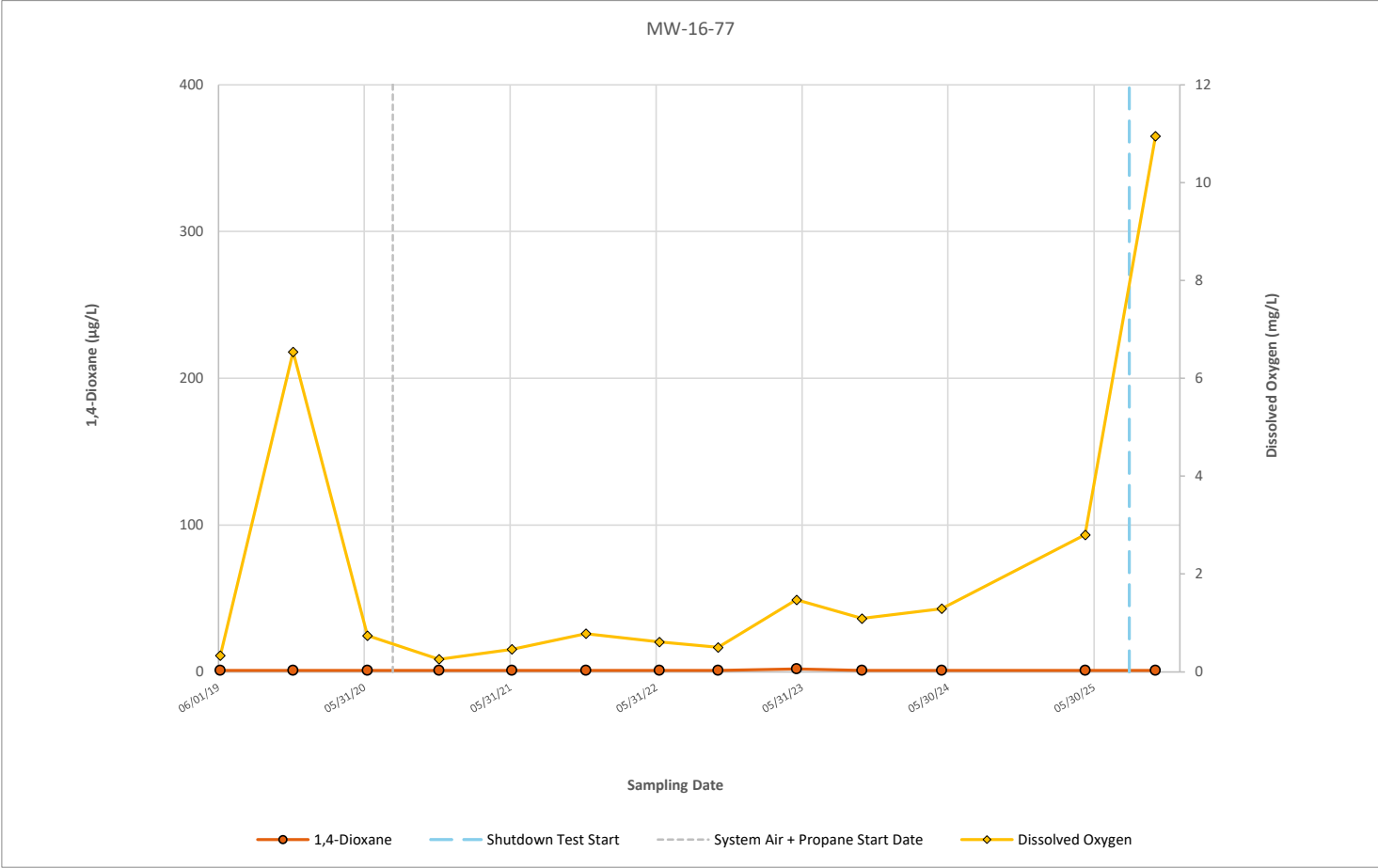


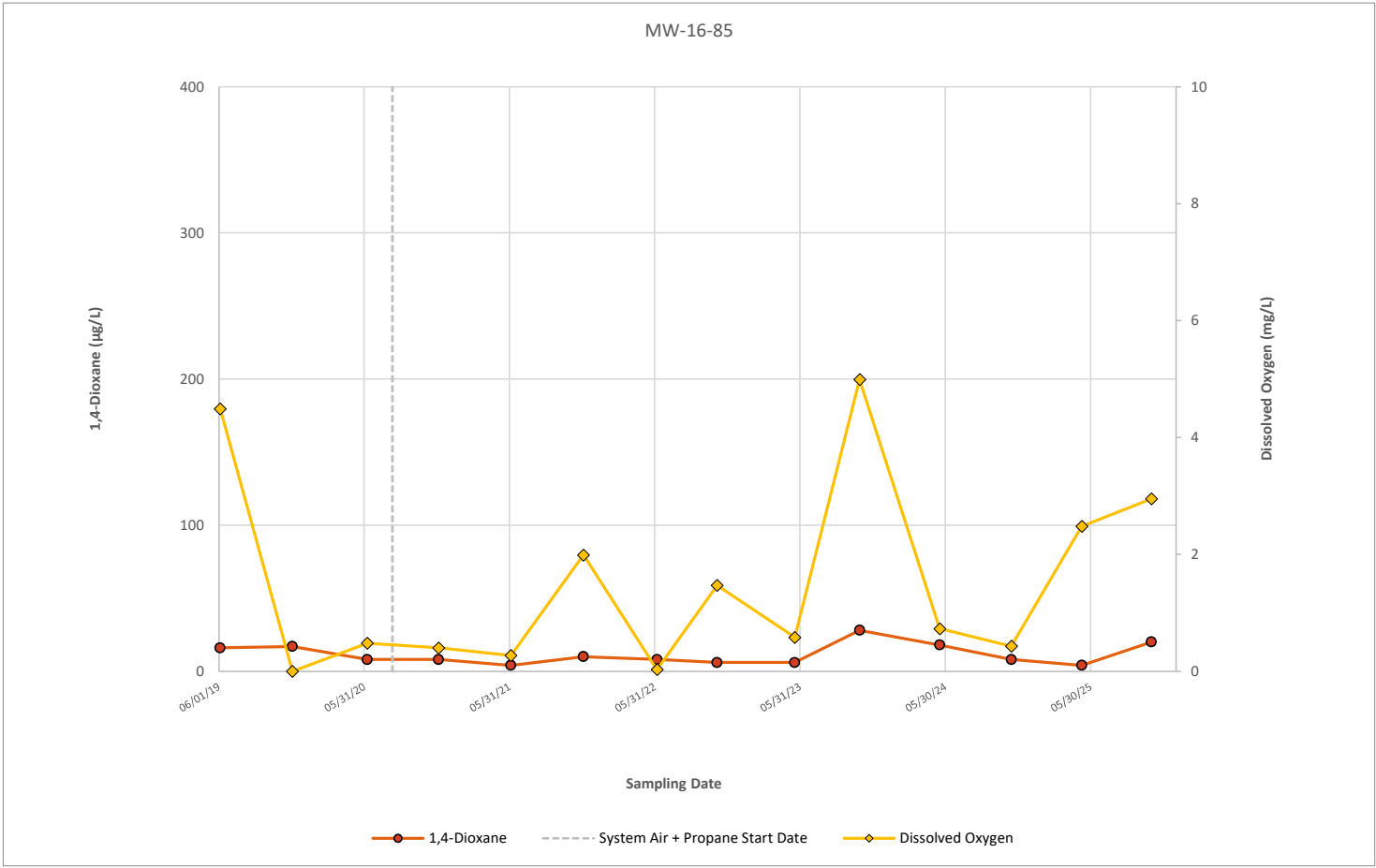


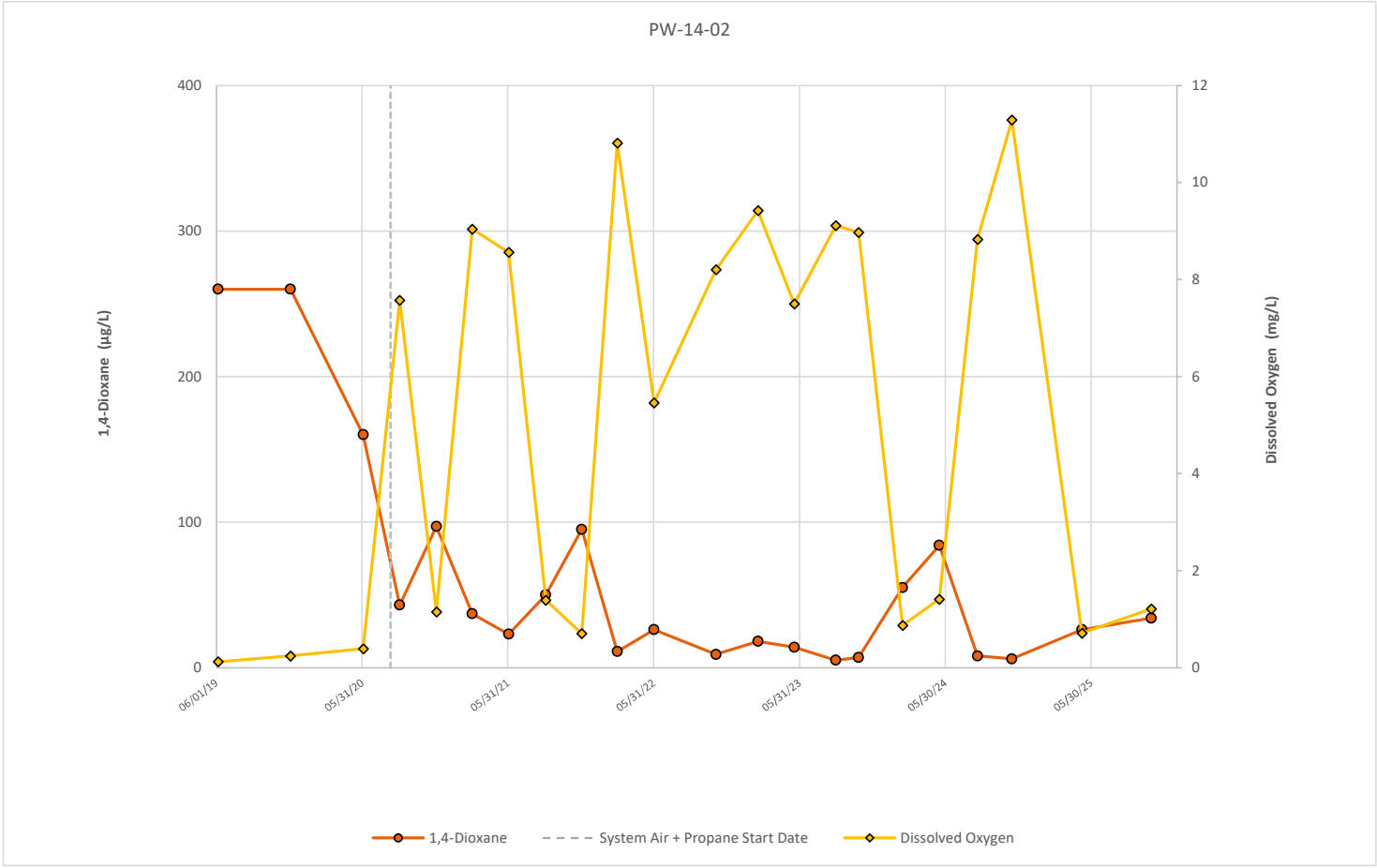


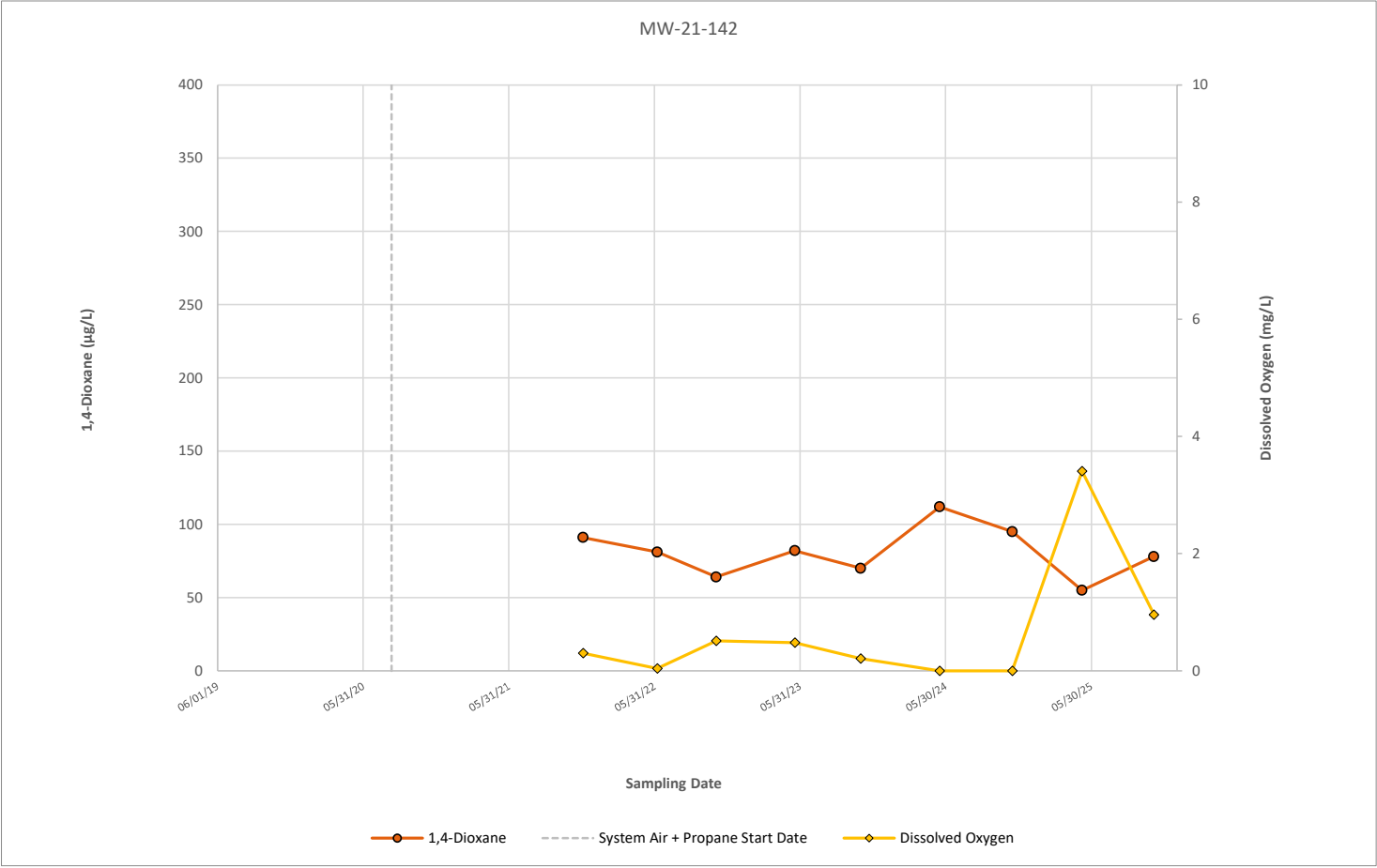




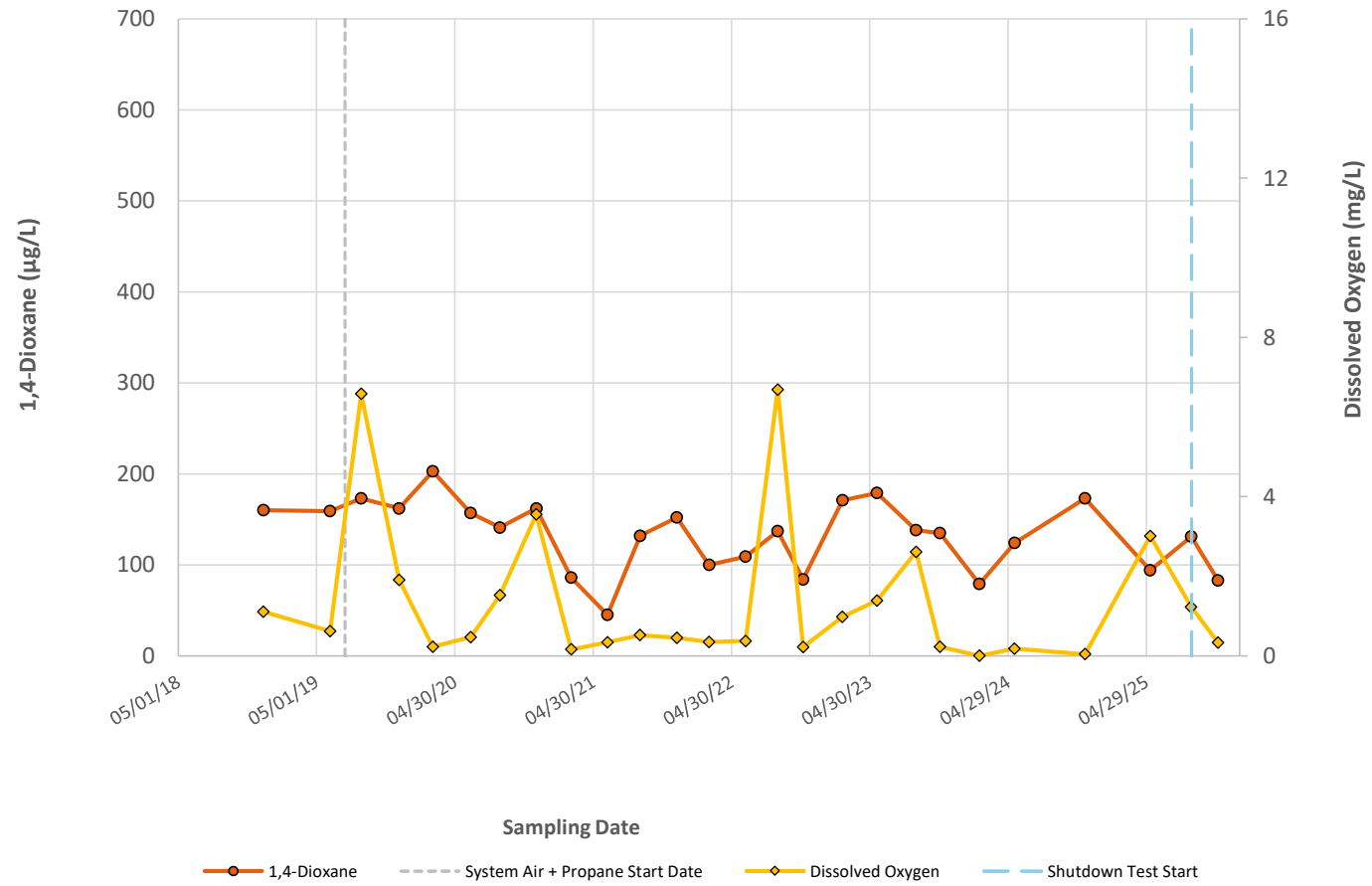


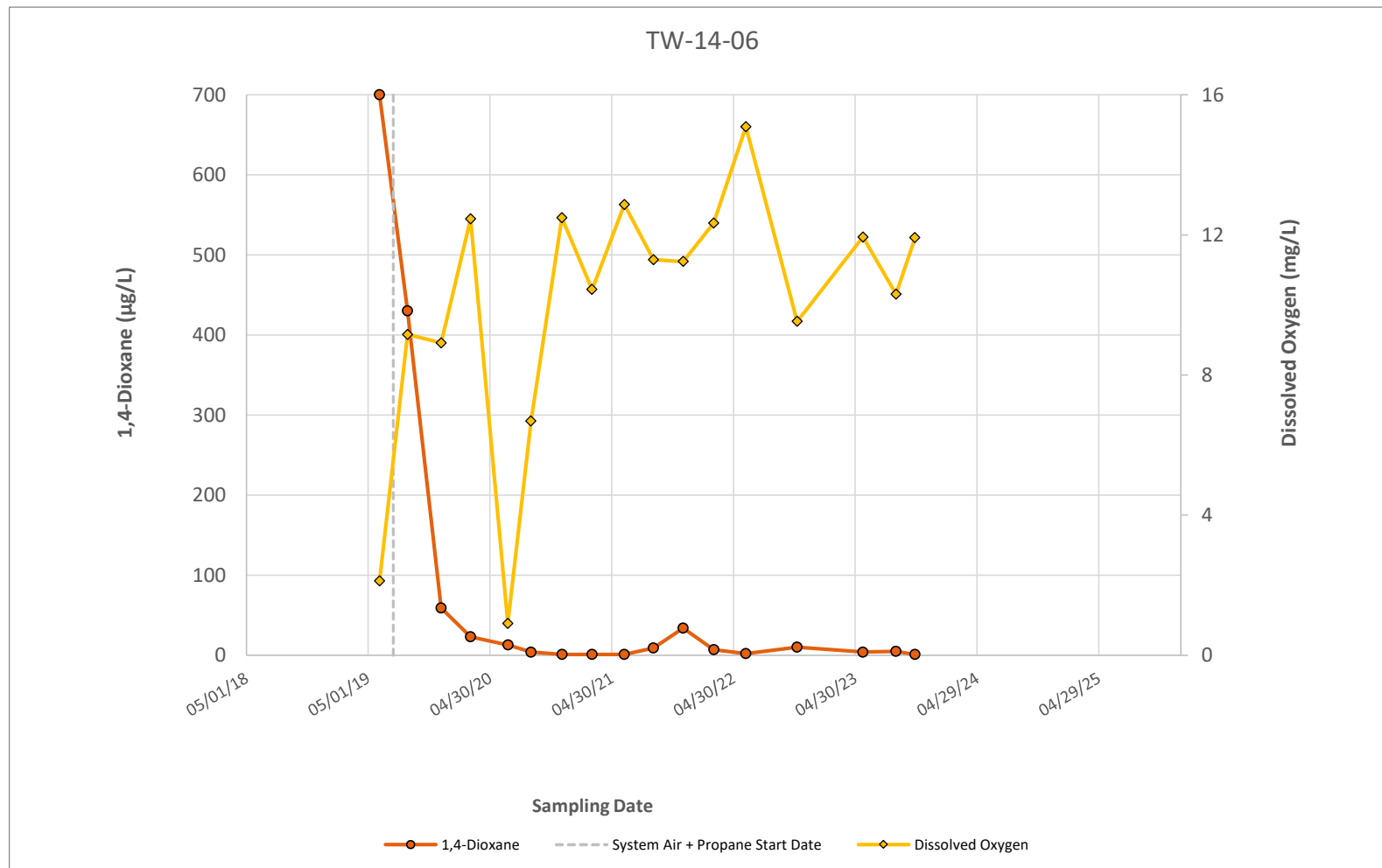


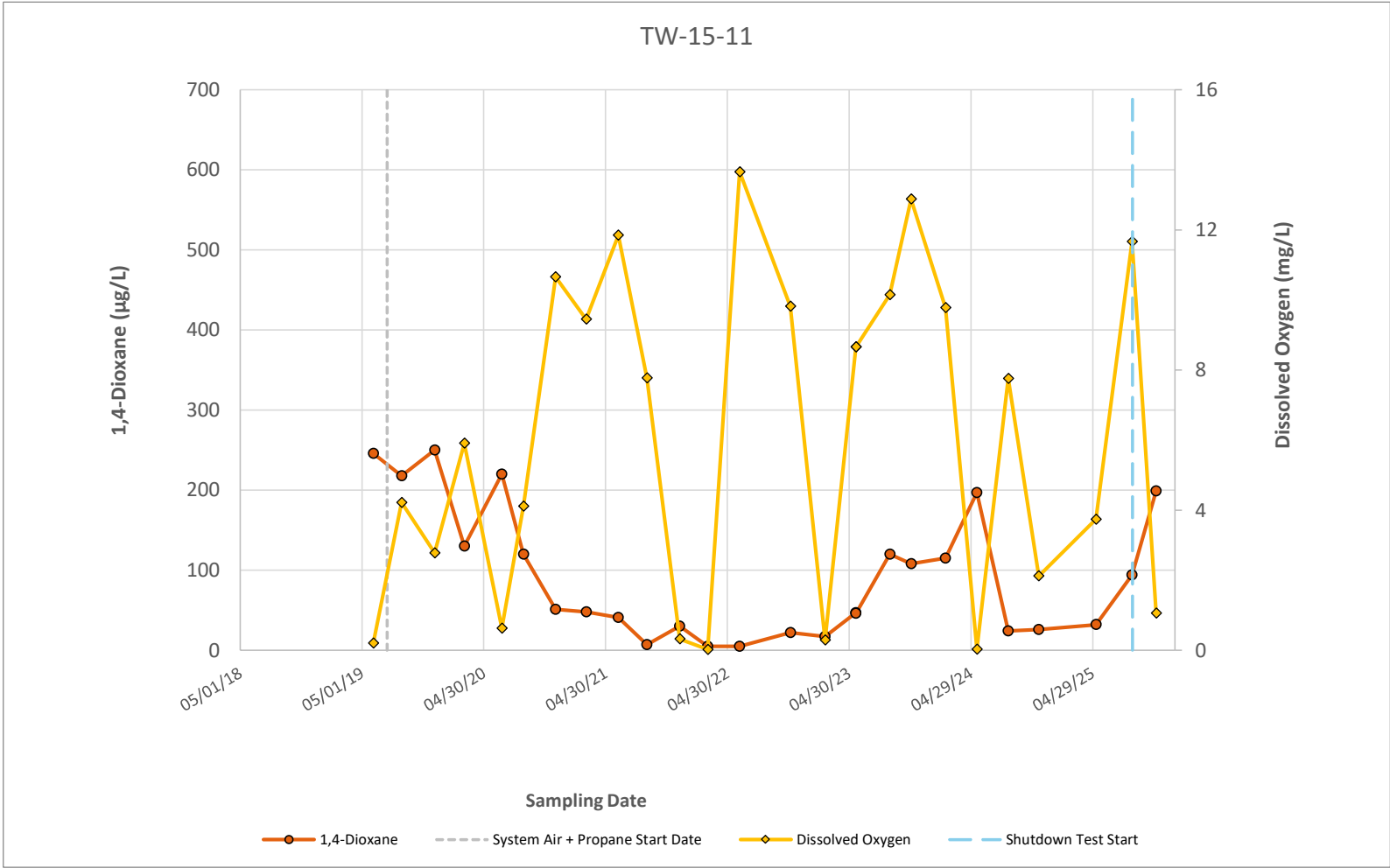




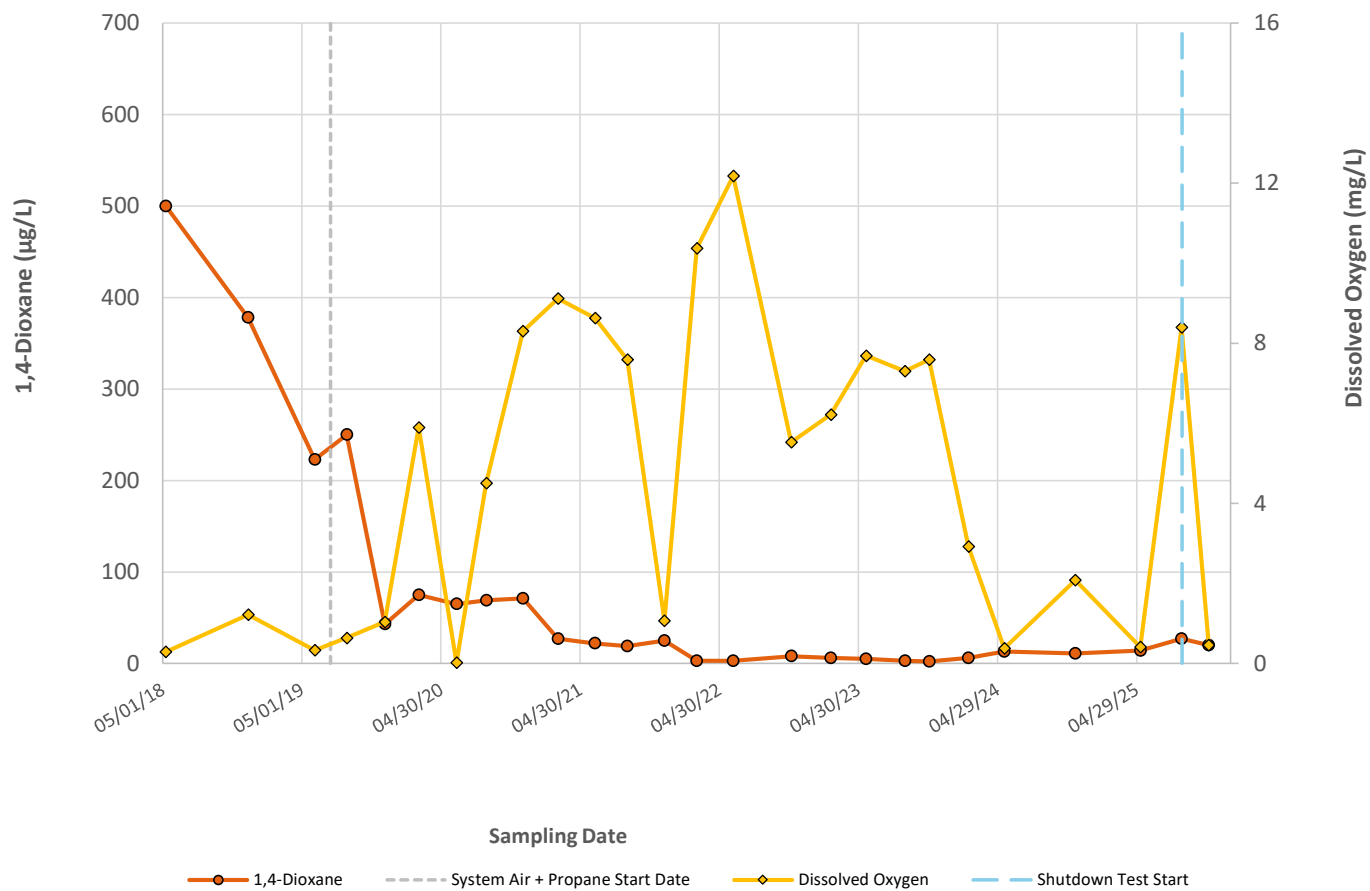
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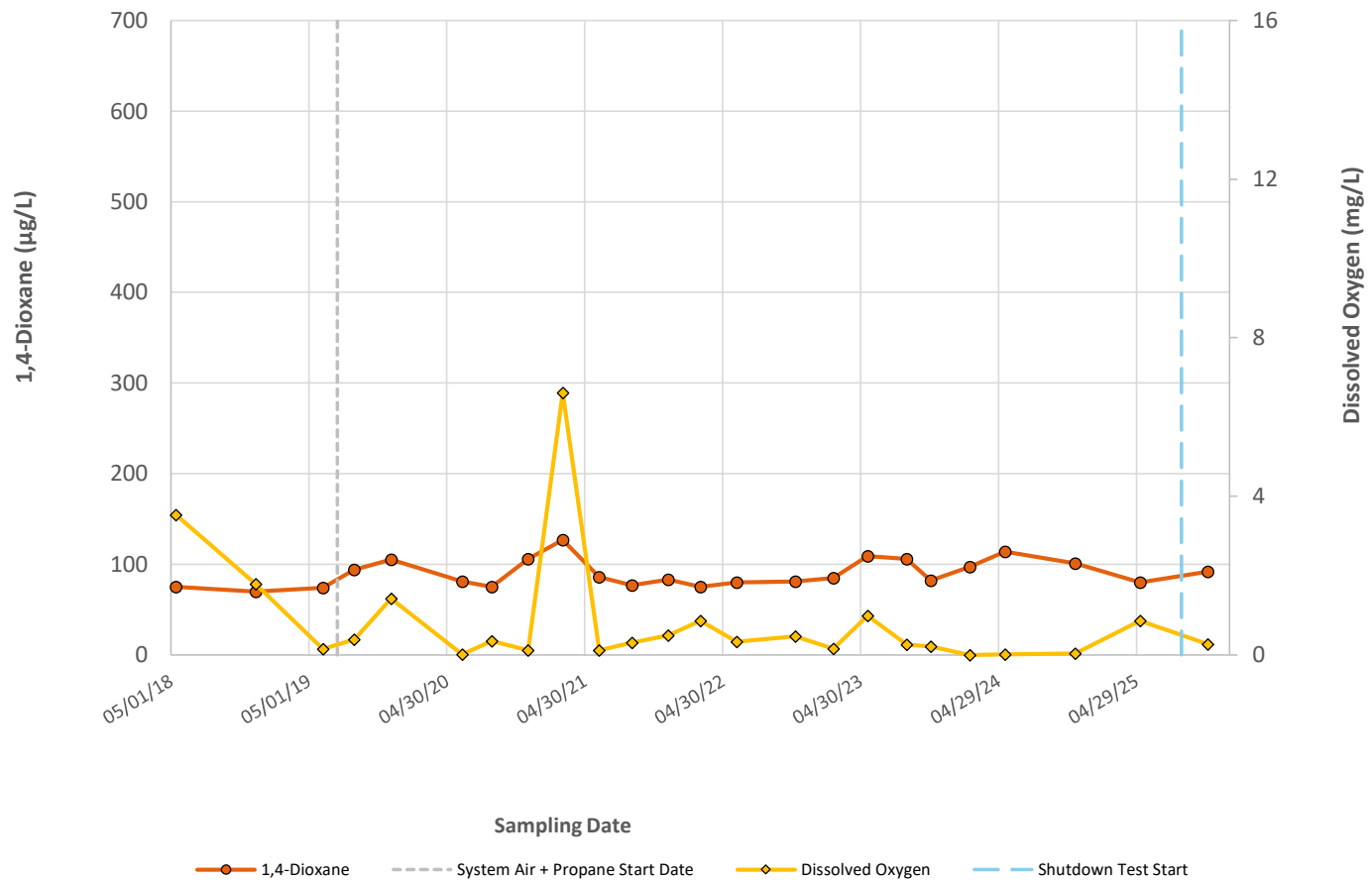


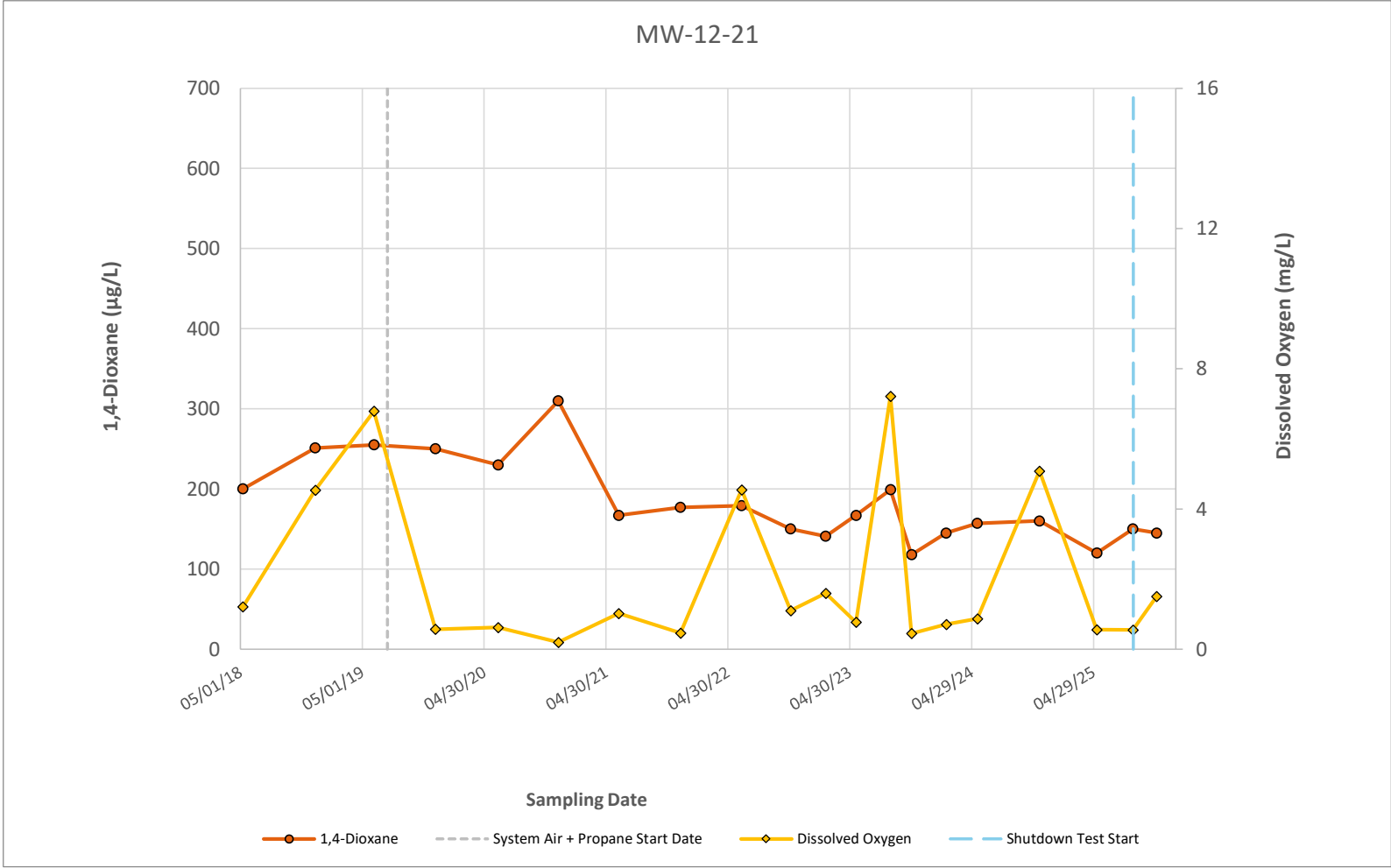


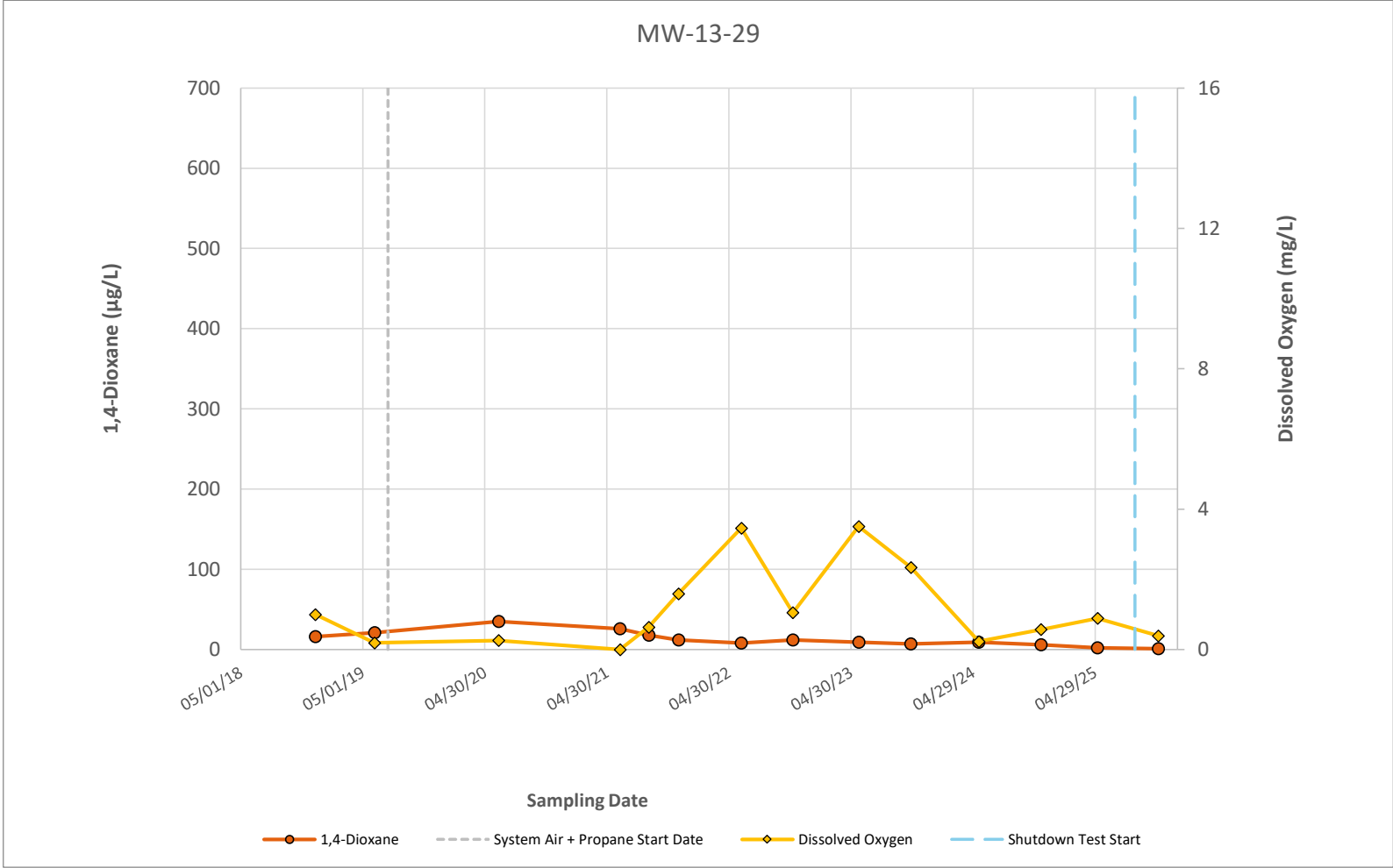
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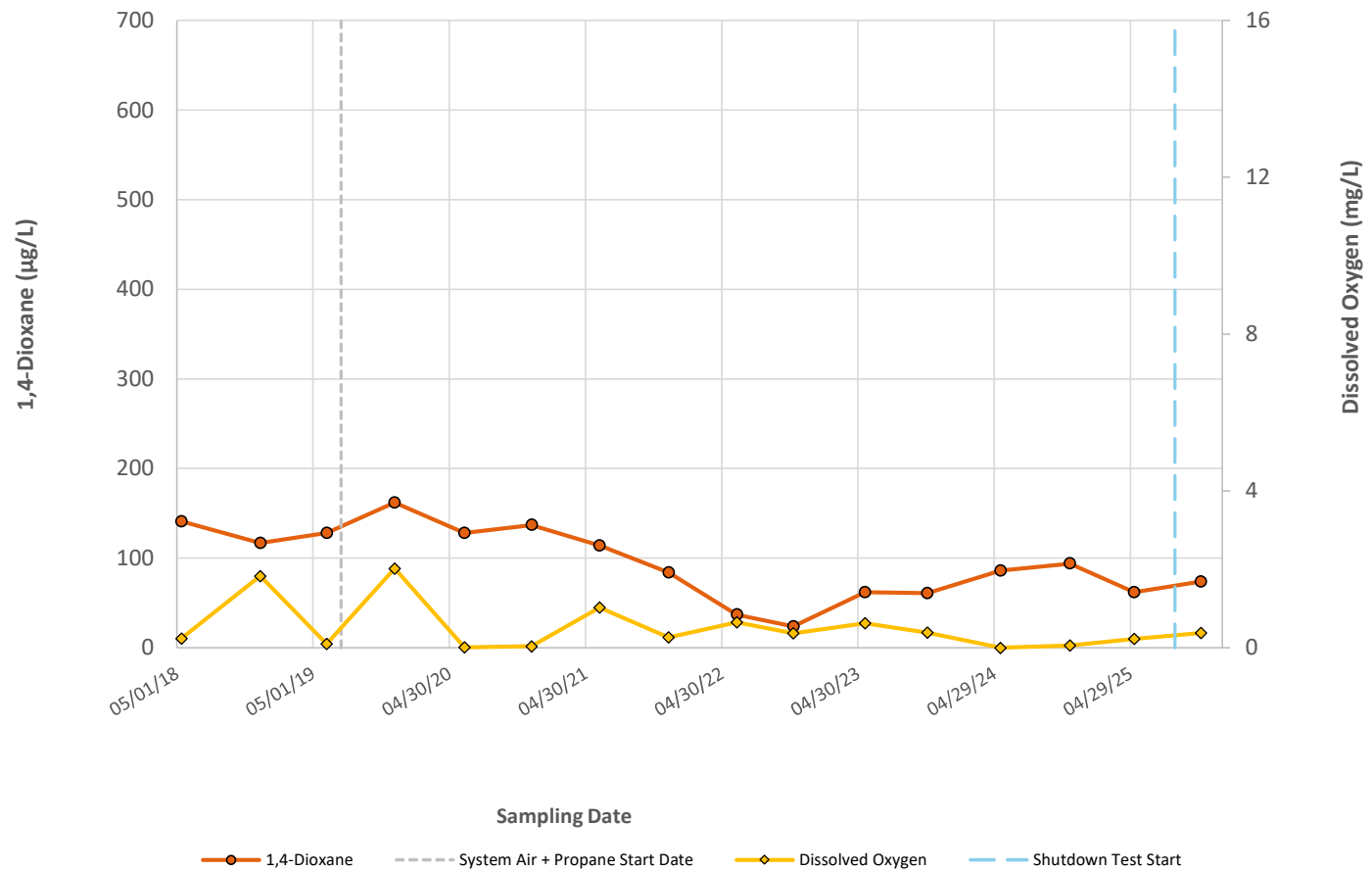
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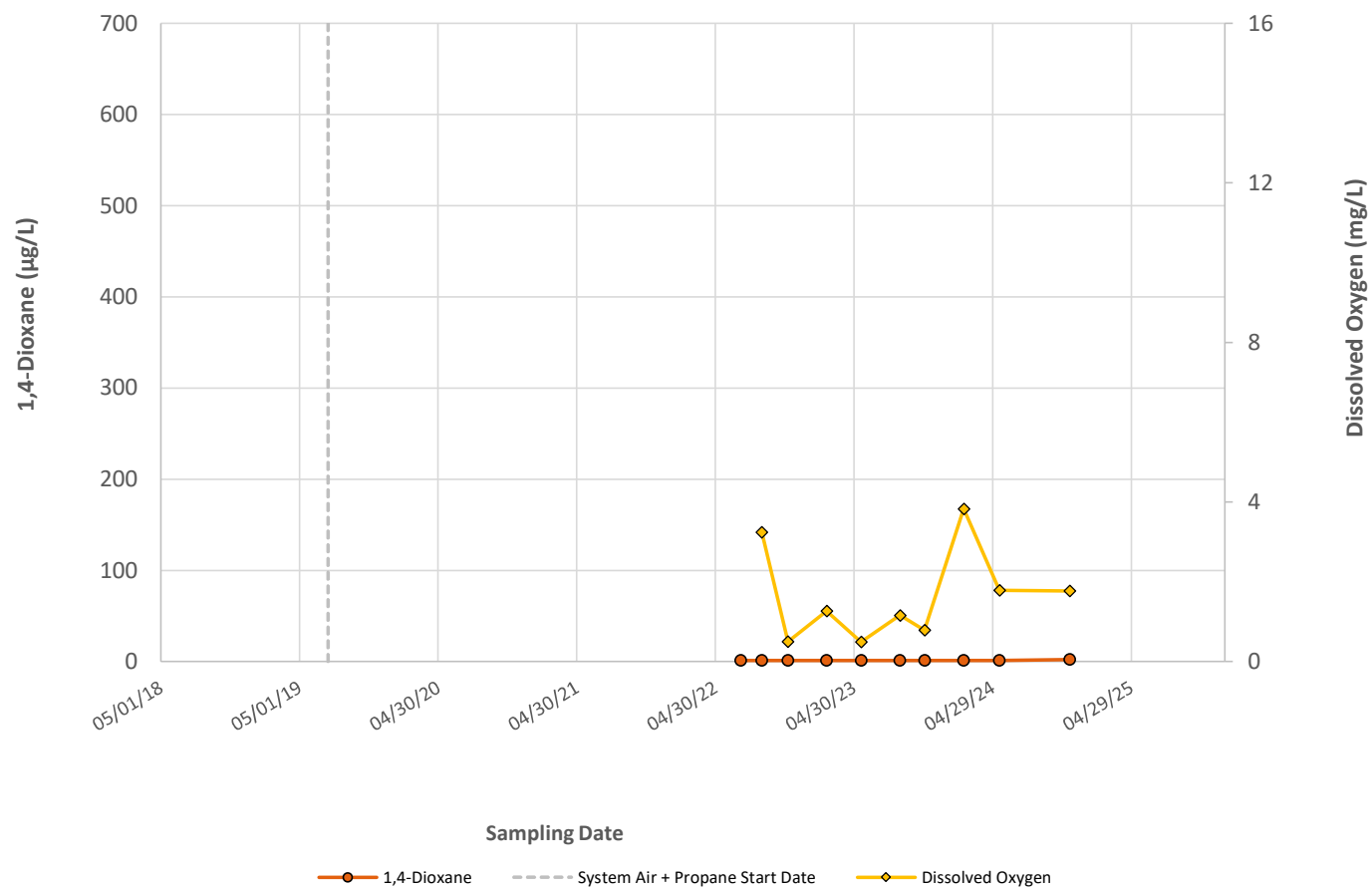




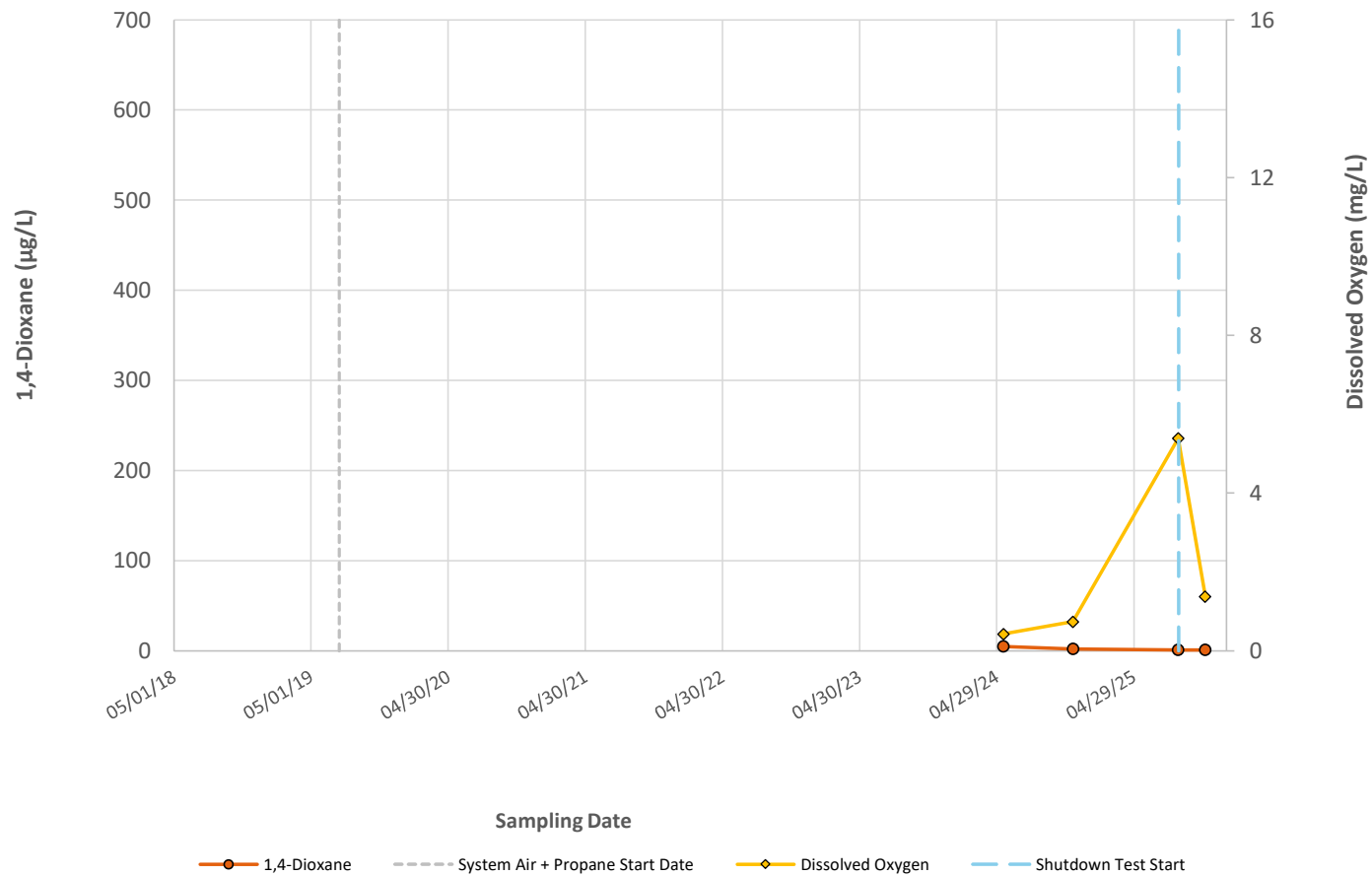
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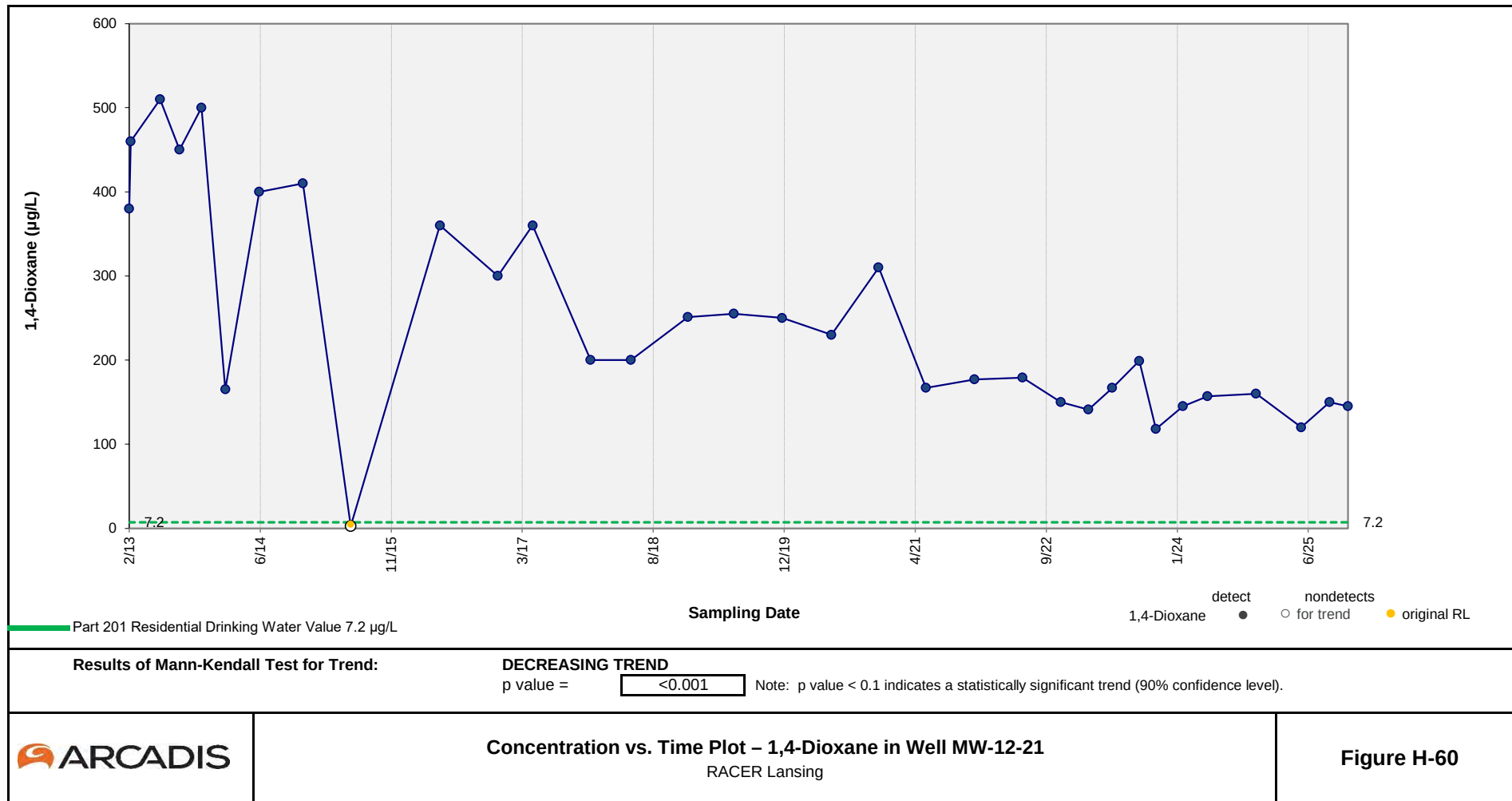


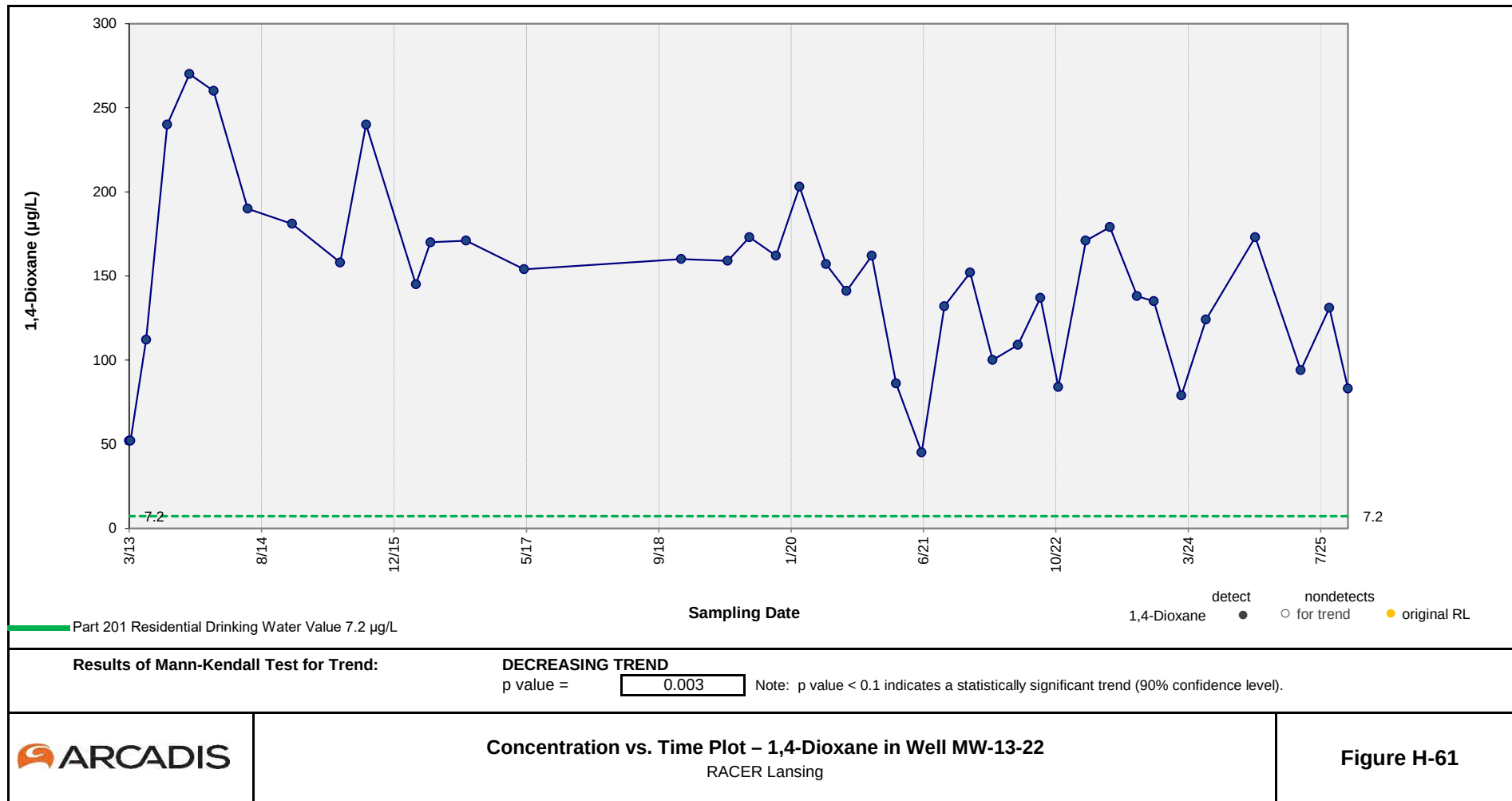
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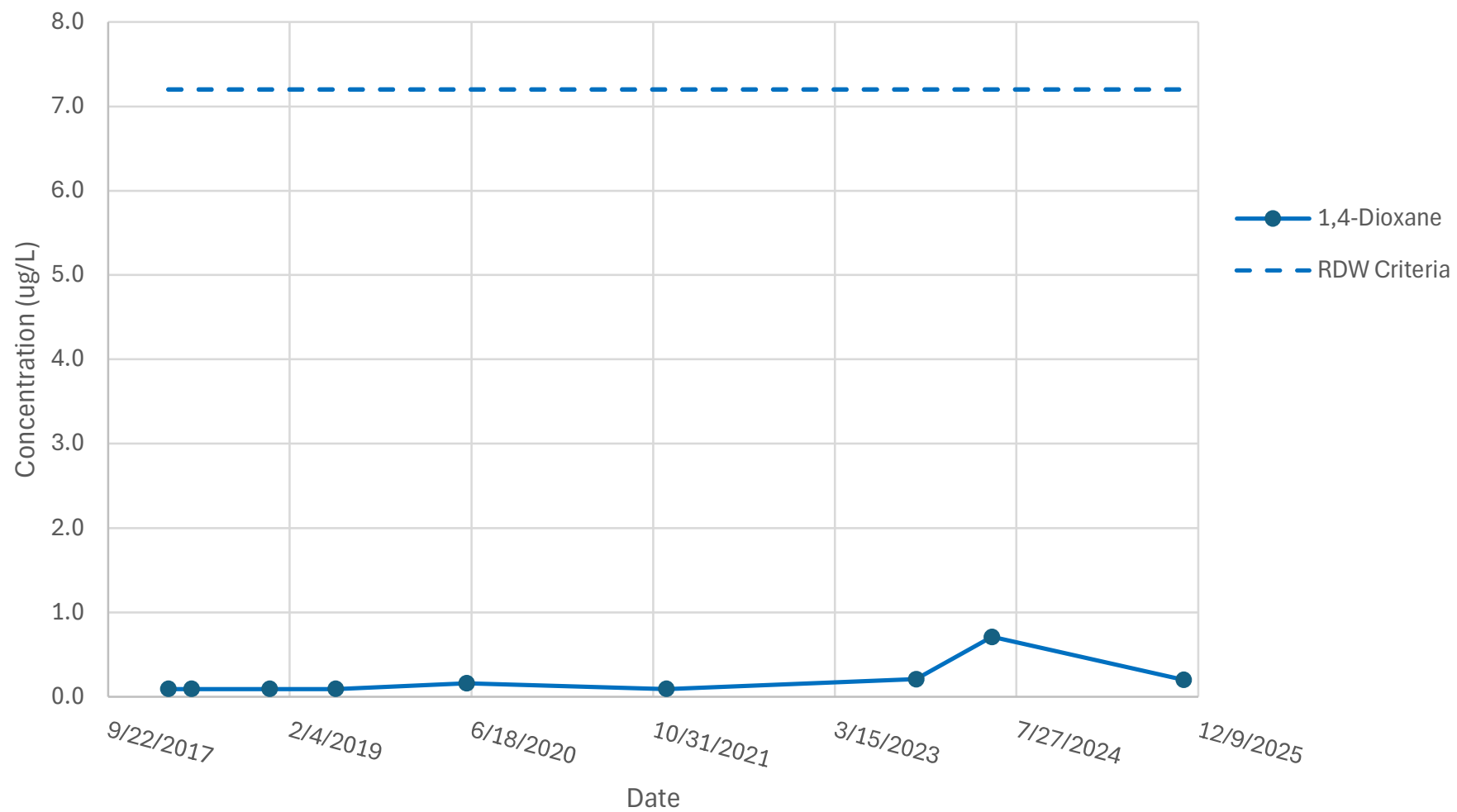
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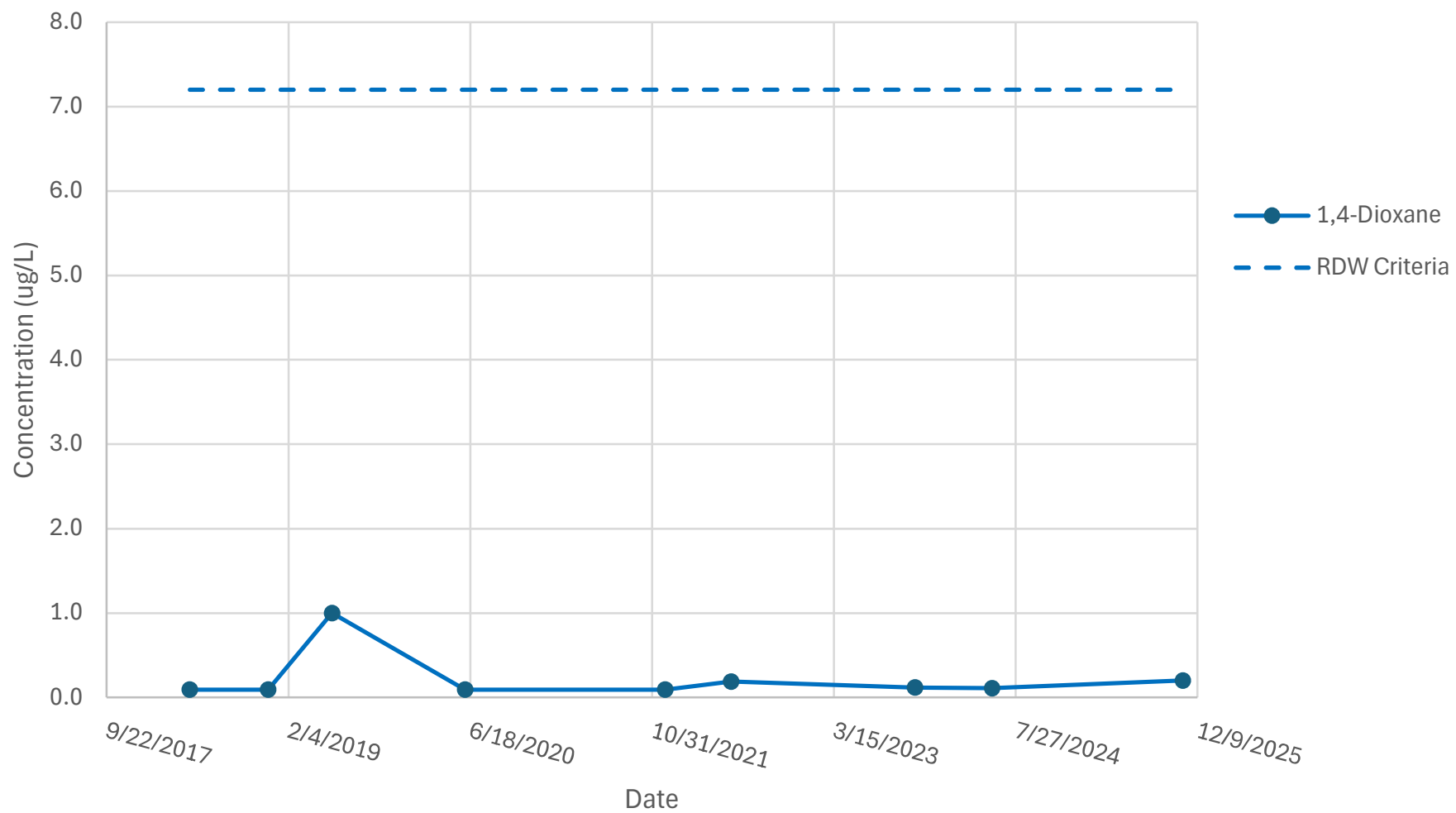




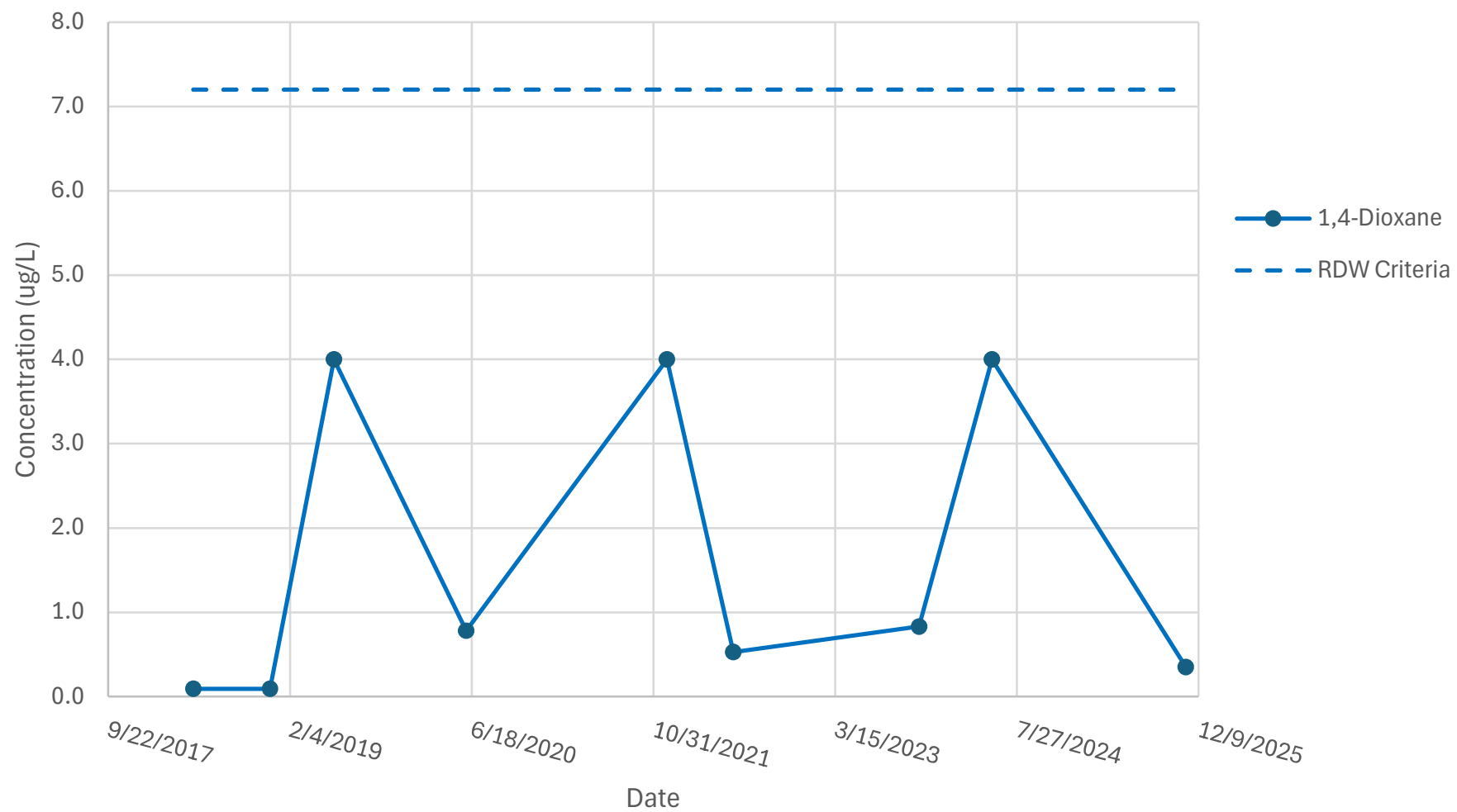
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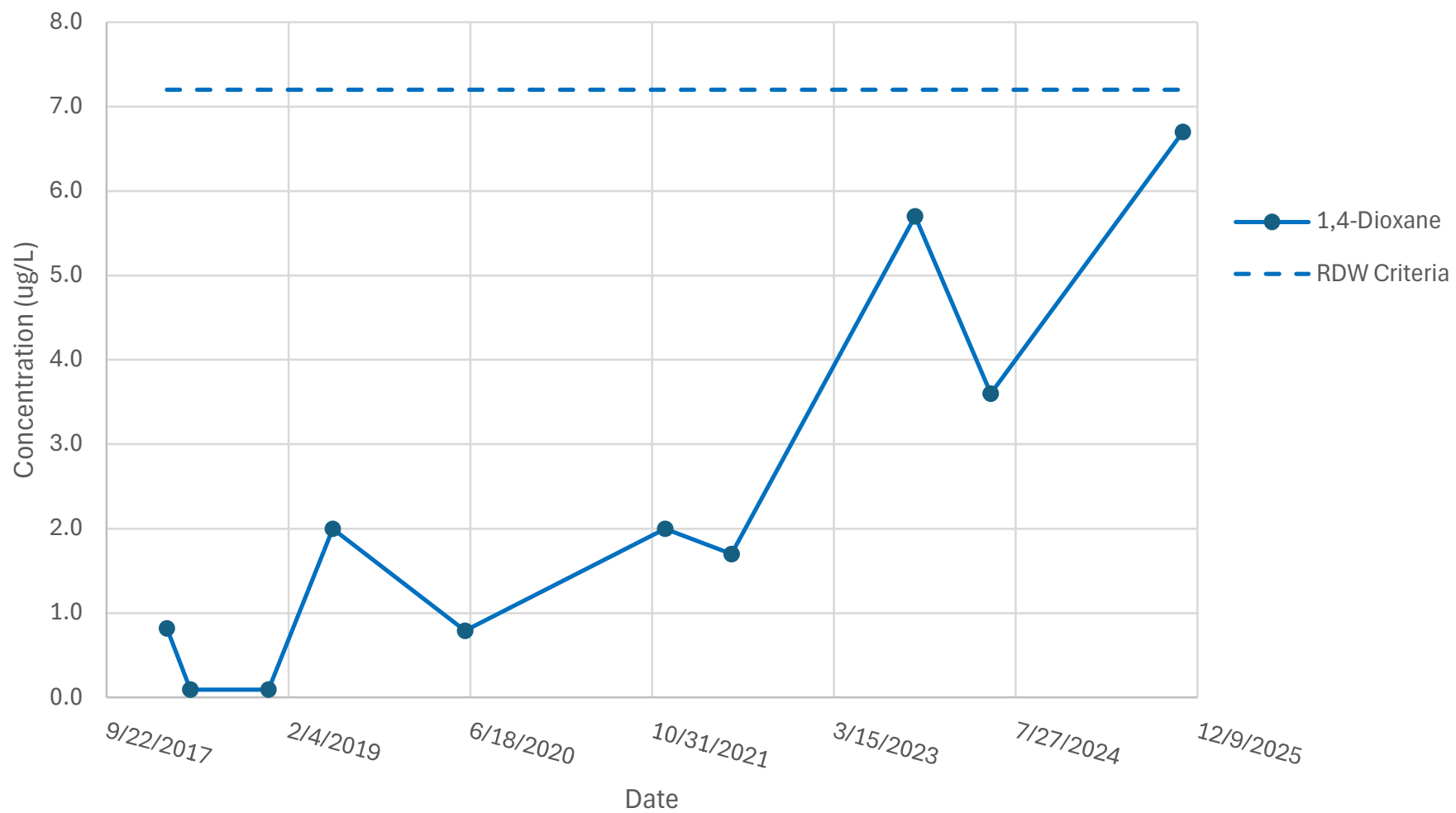
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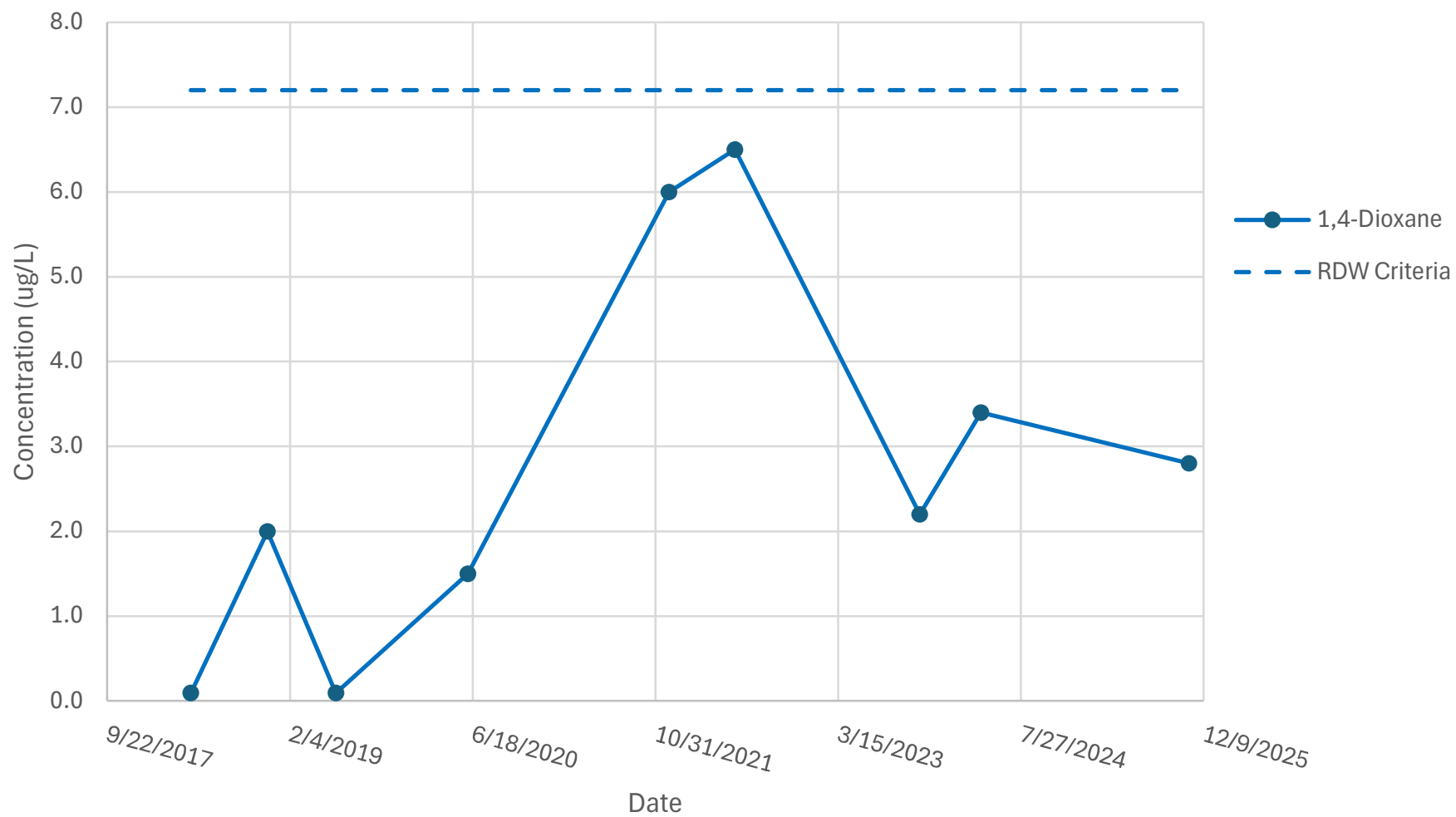
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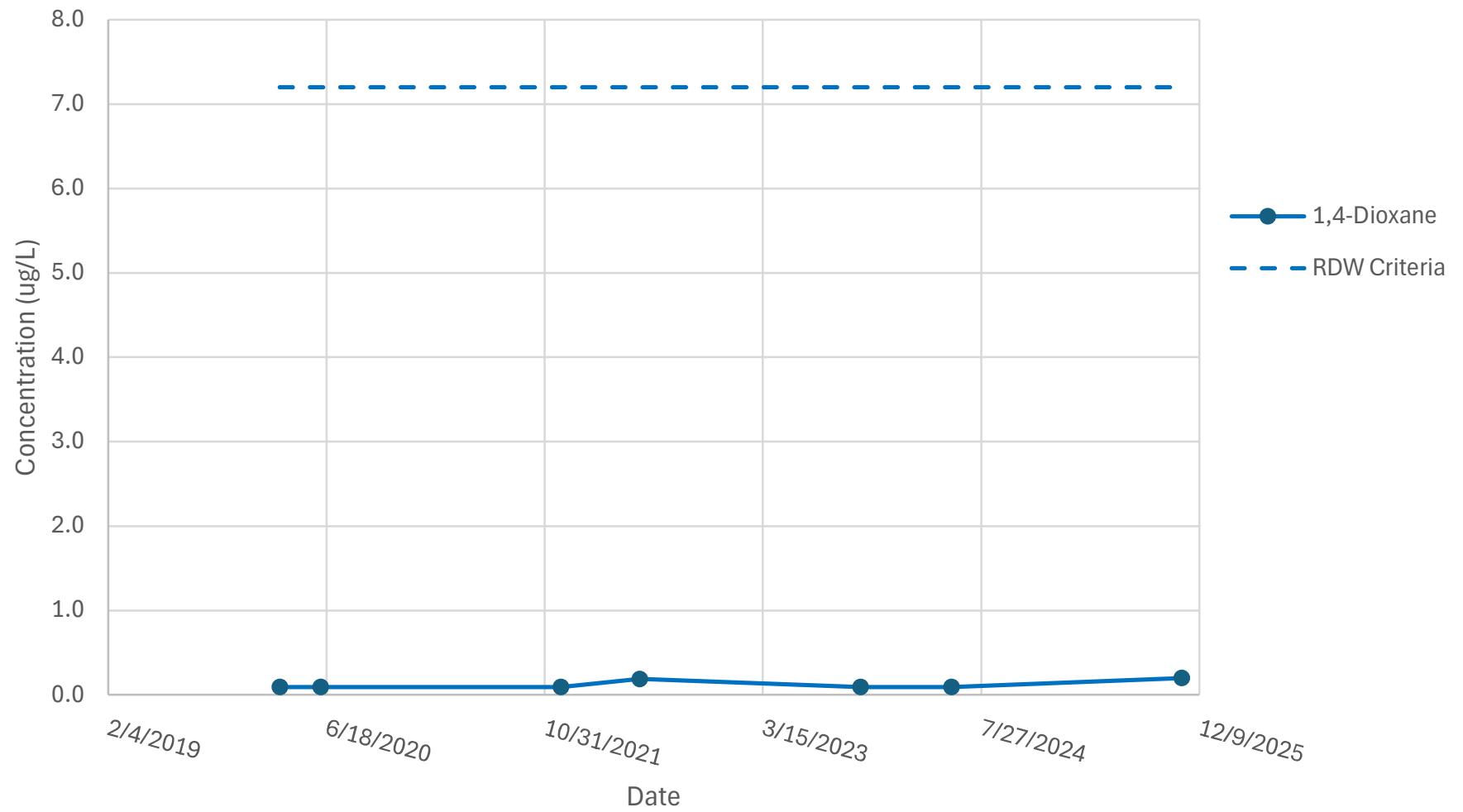
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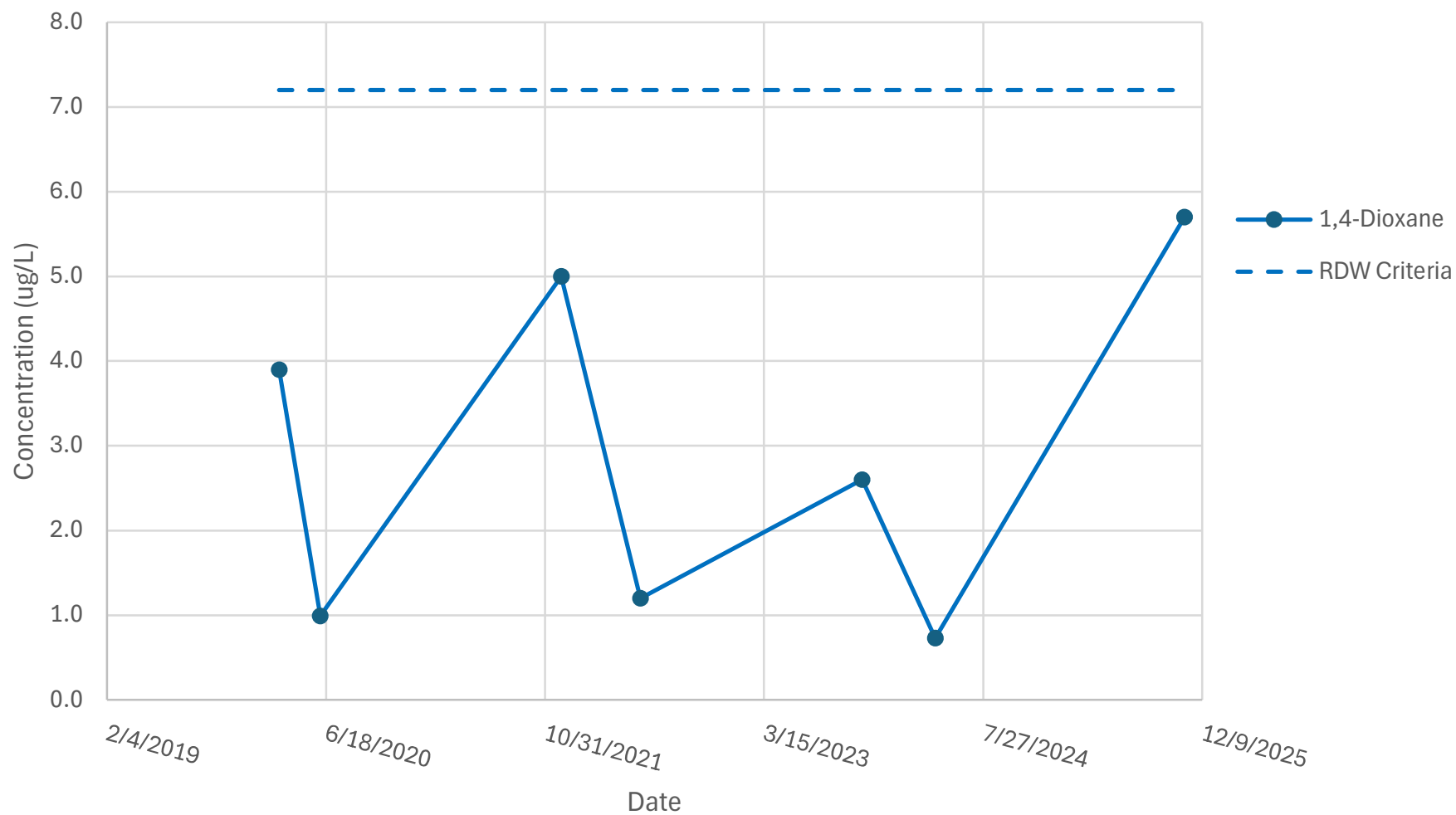
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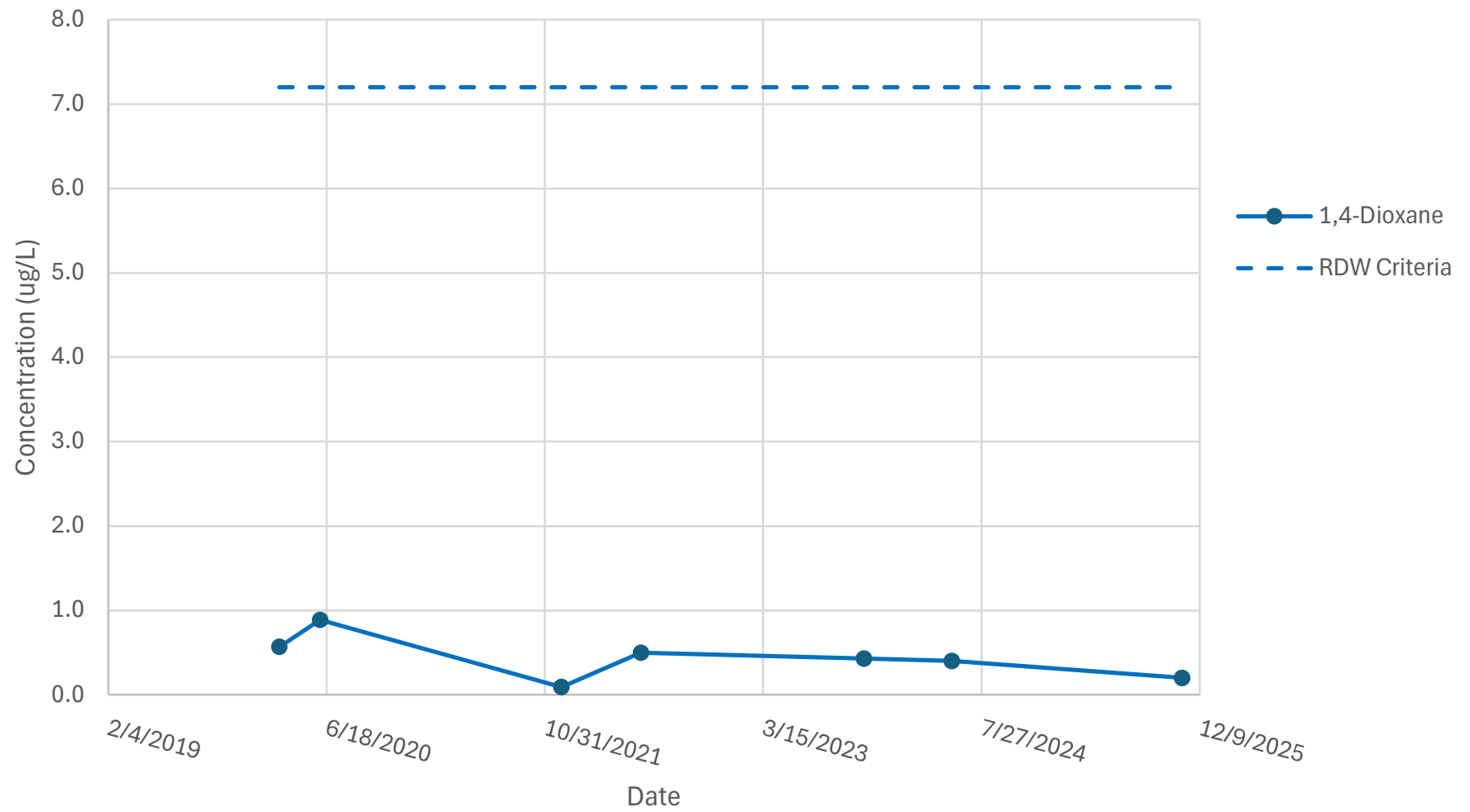
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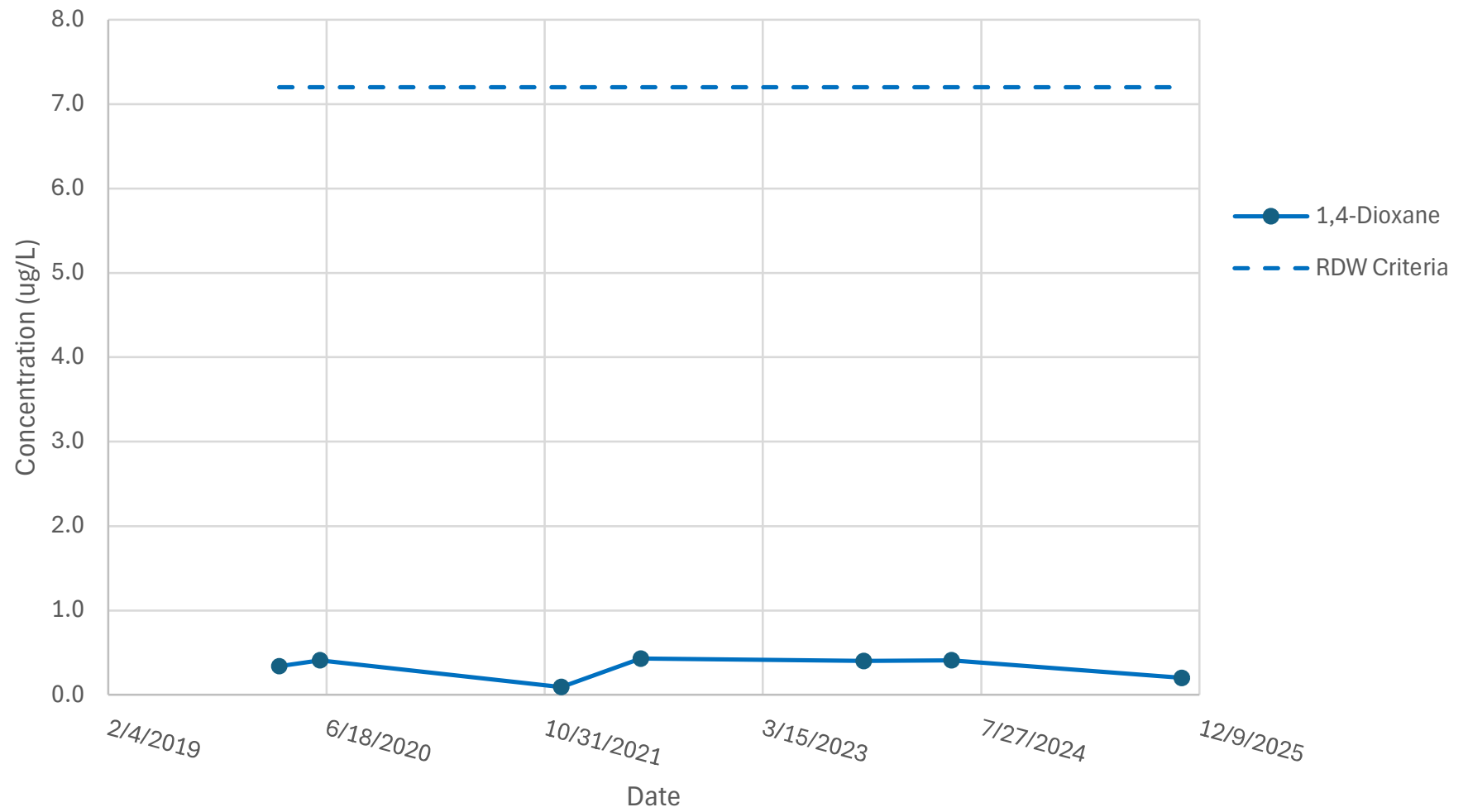
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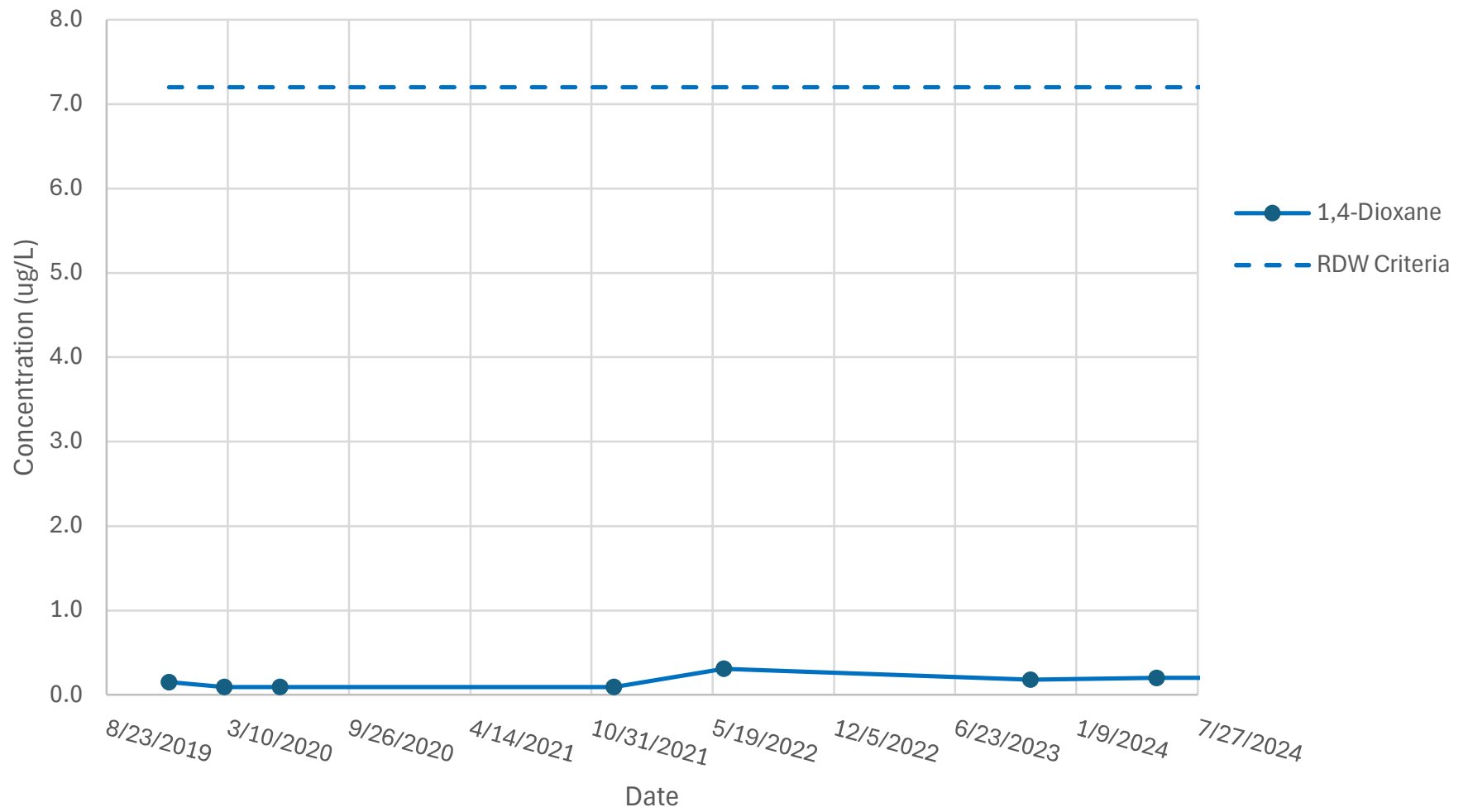
MW-19-119D



MW-19-119S



MW-19-125



Appendix C

Treatment Cost Evaluation

Appendix C
Biosparge Performance Cost Tracking



Lower 1,4-Dioxane Biosparge Progress Report
Lansing Industrial Land, Lansing, Michigan

Total annual O&M cost for both systems =	\$200,000
Plant 2 (80%)	\$160,000
Plant 3 (20%)	\$40,000

Plant 3 Operations Cost Per ug/L Treated (without up-gradient well, with deep overburden wells)

Year	Months of Operation	Yearly Operation Price	Annual Avg Reduction in Plume Concentration	Unit Treatment Cost (\$ per ug/L)
2019*	7	\$23,333	108	\$216
2020	12	\$40,000	51	\$791
2021	12	\$40,000	29	\$1,402
2022	12	\$40,000	19	\$2,162
2023	12	\$40,000	-17	--
2024	12	\$40,000	-4.1	--
2025	12	\$40,000	-30	--

*Plant 3 system began operation in June 2019 – concentrations and costs were based on 7 months of operation (June – December 2019)

Plant 2 Operations Cost Per ug/L Treated

Year	Months of Operation	Yearly Operation Price	P2 North - B		P2 South - G&E		P2 East - E&F	
			Annual Avg Reduction in Plume Concentration	Unit Treatment Cost (\$ per ug/L)	Annual Avg Reduction in Plume Concentration	Unit Treatment Cost (\$ per ug/L)	Annual Avg Reduction in Plume Concentration	Unit Treatment Cost (\$ per ug/L)
2020*	5	\$66,667	54	\$210	215	\$121	40	\$727
2021	12	\$160,000	38	\$724	215	\$290	38	\$1,870
2022	12	\$160,000	59	\$465	34	\$1,864	27	\$2,561
2023	12	\$160,000	4.8	\$5,751	-7.1	--	-3.7	--
2024	12	\$160,000	-18	--	4.6	\$13,500	2.7	\$25,879
2025	12	\$160,000	15	\$1,782	-21	--	2.9	\$24,585

*Plant 2 system began operation in August 2020 – concentrations and costs were based on 5 months of operation (Aug – Dec 2020)

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