



# City of Lawton

## Department of Public Utilities

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May 13, 2024

David Mercer, PE, District Engineer  
Municipal Wastewater Enforcement Section - Water Quality Division  
Oklahoma Department of Environmental Quality  
707 North Robinson, PO Box 1677  
Oklahoma City, OK 73101-1677

Subject: Notice of Violation Response – NOV No. S-11303-24-1

To Mr. Mercer,

Please consider this correspondence the City of Lawton's (City) formal response to receipt of the Notice of Violation (NOV) No. S-11303-24-1. As required by the current Consent Order (CO) No. 20-214 and subsequent Addendum A to the same, the City has been working diligently to correct issues experienced at the City's wastewater treatment plant (WWTP) over the past three years. These efforts have included an immediate equipment replacement project (completed in November 2022) and the ongoing Phase I construction project that is currently ongoing. These two projects together alone have totaled over \$100M in investment dedicated to the WWTP.

In January 2024, the WWTP experienced unanticipated equipment failures while the plant was in a vulnerable state due to the construction project mentioned above. Additionally, an industrial user discharged and has continued discharging effluent in excess of typical concentrations. These three events happening at the same time created significant treatment challenges over the last several months, resulting in the non-compliance presented in the NOV. These events are summarized below:

- **Aeration basin blower failure.** The existing blowers onsite are obsolete and are no longer reliably serviced by the manufacturer, despite several visits by the blower manufacturer to correct the issue. A log of requests, visits to the facility, and payments made to blower manufacturer to demonstrate multiple repair attempts have been attached hereto. Upon blower failure, the aeration basins turned septic, thus compromising the performance of the activated sludge process. As such, although the original planned scope was to perform the maintenance and service of the existing blowers by the manufacturer and replace the control system, the manufacturer's inability to keep the blowers operational led to the decision to fully replace the blowers as part of Phase I.
- **A scheduled rehabilitation of one trickling filter.** As part of the Phase I construction scope of work, each trickling filter is to be taken offline for cleaning and rehabilitation. While one was offline as scheduled, the remaining three trickling filters struggled due to age and obsolescence of equipment. When operating effectively, these trickling filters reduce BOD upstream of the

aeration basin. Their reduced performance compounded the issues experienced with the blower failure in the aeration basin.

- **High BOD influent BOD Loading.** Lawton currently has a significant industrial user (SIU) that is also experiencing failures at their pre-treatment WWTP. As a result, the BOD concentration received at the Lawton WWTP has been over four times the permitted concentration typically received from this SIU over this time period. On October 31<sup>st</sup>, 2023, Republic Paperboard was issued a NOV for BOD and TSS exceedance from October 17<sup>th</sup>, 2023, onward. On December 7<sup>th</sup>, 2023, the COL wrote a letter to Republic stating the NOV would remain open until consistent compliance has been achieved. BOD results from October 17<sup>th</sup>, 2023, to April 2024 have averaged over 2,675mg/l.

As a result of the above, the aeration basin has not been able to maintain an adequate mixed liquor concentration to treat sufficiently. The combination of increased BOD loading and a compromised activated sludge process is the greatest contributor to the recent non-compliance. The quality of the sludge from the aeration basin upset the clarifiers, further resulting in a solids loading that was non-compliant. In response, City Staff have mobilized the following temporary solutions:

- Rental blowers were mobilized in January 2024 in anticipation of the failing, existing blowers.
- Temporary modifications were made by City Staff to improve operation of the trickling filters.
- Temporary chlorination and de-chlorination have been mobilized to bolster the UV disinfection system to meet disinfection requirements.
- Temporary polymer addition has been mobilized to assist in the flocculation and settling in the final clarifiers. This polymer addition is intended to increase the rate at which the aeration basin mixed liquor concentration can be increased.
- Reseeding process of the Aeration Basin. – Feb 16<sup>th</sup>, 2024, staff augmented the basins with supplementary bioseed (30 bags based on vendor specifications). On March 28<sup>th</sup> – April 4<sup>th</sup>, 6000-gallon trucks of activated sludge from Ft. Sill WWTP were mobilized to the Lawton WWTP aeration basins. From April 15<sup>th</sup>-Current, staff have been running trucks five days per week, three 6000-gallon trucks per day from the Duncan WWTP waste activated sludge at higher concentration to reseed the Lawton WWTP aeration basins.

In addition, City Staff have preped a spreadsheet showing the current status of each facility in the WWTP, how many units within each process are currently operational, what temporary measures have been put in place (if applicable), as well as other information to provide a complete depiction of the current state of the WWTP. This spreadsheet has been attached hereto.

Alongside all of the temporary measures discussed herein, recall that Lawton is currently constructing the \$85M Phase I project, and is currently designing the Phase II project with an anticipated construction cost of \$85-100M. A summary of mid-term and long-term solutions that have also been put in place are summarized below:

- Following the blower failure discussed above and in Attachment No. 1, Lawton made the decision to expedite the replacement of the existing blowers at full-scale. As such, Lawton mobilized a change order to design, procure, and install new blowers in the existing facility as part of the Phase I construction project. New, permanent blowers have been ordered and are expected to be installed and commissioned by August of 2025.
- As mentioned previously, design is currently underway for Phase II Improvements at the WWTP. These scope items include facilities that were previously planned as part of Phase III. Given the urgency of the situation, Lawton has moved certain items from Phase III into Phase II to address as many facilities as possible. This Phase II design will provide a new UV disinfection facility, a new solids handling facility, as well as other improvements across the site.

Finally, through the completion of the Phase I construction, numerous equipment procurement delays have presented themselves. These items, in addition to the change order for new blowers, have

necessitated an extension of the Phase I construction schedule. The current Consent Order milestone for Task F – Complete Construction of the Interim CAP is December 2024. Due to the issues stated here, the City would like to request an eight-month extension to the current milestone. This would result in a new milestone for Task F as August 2025. The City of Lawton would like to request an in-person meeting with ODEQ staff to discuss actions taken to date, the path forward on the NOV items, as well as this request for extension on the Phase I project.

The City takes this issue very seriously and is leveraging significant resources and funding mechanisms to put long-term solutions in place. We hope that the improvements and efforts demonstrated thus far are indicative of the City's desire to address this issue as soon as possible.

If you have any questions or comments, please contact me or Cole Niblett with Garver at 405-928-7555.

Sincerely,  
City of Lawton



Rusty Whisenhunt  
Public Utilities Director

Attachments:

- 1) Aeration Basin Blower Timeline and Corrective Action Log
- 2) WWTP Process Summary

CC: Mayor, CM Lawton  
Cole Niblett and Mary Elizabeth Mach / Garver

## **Attachment 1: Lawton WWTP Aeration Basin Blower Timeline and Corrective Action Log**

- June 2023 - quote requested for level 2 service on (2) 200HP Blowers with Bearing replacement service.
- July 2023 – PO issued to Howden on July 5 to proceed with service as noted.
- August 2023 – Notified by Howden on 7.27.23 that service would be performed on September 5th and 6th, 2023 to perform level 2 service on both 200HP blowers.
- September/October 2023 – Howden rescheduled and arrived 9.26.24. Tech worked on blower #2 and found that he could not perform level 2 service due to missing parts needed. Tech worked until 10.20.23 to attempt repair taking parts from existing 100HP which temporarily got #2 working. Blower performed for approximately 48hrs, then continued to surge and shut down. Issued Change Order to the PO to accommodate additional parts/labor not previously noted in original level 2 service. This left Blower 2 (200HP) and Blower 1 (100HP) Inoperable and only #3 50% operational.
- November 2023- No work performed by Howden, still running blower #3 at 50-80% operational speed with discussions with Howden over the phone to get more out of the blower. Evaluations of rental blower options began in November. Also, the decision to move forward with a full blower replacement was made at this time.
- December 2023 – Howden scheduled for week of Christmas to arrive and perform work on #2 blower, then Blower 2. Howden rescheduled for the Week of January 8, 2024, due to lack of parts.
- January 2024 – Howden arrived on January 9th, 2024. With arrival of parts, tech performed level 2 service on Blower 2. Noticed parts shipped were incorrect. Other parts had still not arrived. Worked on blower 1 (100HP) to try to get it running. Ran blower in test mode and shut off due to process monitor issues. Performed level 2 service on Blower 3 (200HP), could not complete due to mechanical issues and lack of parts. Blower service could not be completed due to lack of parts. Parts arrived 1.15.24 to complete service to Blower 3. Tech started blower and shut down due to additional parts issues. Tech worked on Blower 2 upon receiving additional parts and installed. Tech departed 1.18.24. Blower status at that time was: Blower 1 – inoperable, Blower 2 – partially operational 50%, Blower 3 – operational for 48hrs and could not be restarted to desired speed.
- January 18, 2023 – Rental Blower options were finalized and mobilized to the WWTP. Aerzen Rental was installed, wired and operational on 1.25.24.
- February – May 2024 – Aerzen blower has demonstrated it can perform effectively for our aeration needs. No Turblex blowers have been in operation since 1.25.24. Backup/standby Aerzen rental blower was mobilized in February, backup unit replaced in April and will remain onsite through the remainder of rental blower usage.
- May 2024 – Change order for procurement of the new blower replacement models to be executed on May 14 Lawton City Council.

Republic Paperboard Company Collection System Loading			
Date	BOD (mg/L)	Flow (MG)	Loading (lbs/day)
1/24/2023	234	1.148218	2,240.82
5/9/2023	962	0.809808	6,497.15
8/1/2023	171	0.930801	1,327.45
10/17/2023	1450	0.797000	9,638.12
10/22/2023	261	0.577600	1,257.29
10/28/2023	1320	1.187001	13,067.46
10/29/2023	1280	1.329901	14,196.96
11/15/2023	1190	0.671700	6,666.35
12/5/2023	1650	0.481998	6,632.77
12/19/2023	2340	1.010400	19,718.56
1/5/2024	1450	0.784270	9,484.18
1/9/2024	2520	1.104601	23,215.18
1/17/2024	2870	0.891998	21,350.69
1/24/2024	2290	0.848999	16,214.69
1/31/2024	3110	0.687298	17,826.72
2/7/2024	3150	0.618597	16,251.16
3/6/2024	2780	0.974101	22,584.73
3/20/2024	3230	0.630093	16,973.57
<b>2023 Daily Averages</b>	<b>1086</b>	<b>0.894443</b>	<b>8124.29</b>
<b>2024 Daily Averages</b>	<b>2675</b>	<b>0.817495</b>	<b>17987.61</b>

COL Influent/RAW Loading			
Date	BOD (mg/L)	PE Flow (MG)	Loading (lbs/day)
1/24/2023	225	8.82	16550.73
5/9/2023	365	13.9	42312.99
8/1/2023	423	14.7	51858.954
10/17/2023	295	10.22	25144.266
10/22/2023	393	15.5	50803.11
10/28/2023	426	14.69	52191.2196
10/29/2023	427	15	53417.7
11/15/2023	309	14.49	37341.5994
12/5/2023	377	9.86	31001.6148
12/19/2023	379	15.4	48677.244
1/5/2024	459	10.24	39199.33
1/9/2024	572	15.27	72845.23
1/17/2024	286	15.46	36875.81
1/24/2024	326	10.5	28547.82
1/31/2024	343	14.71	42079.72
2/7/2024	388	10.09	32650.43
3/6/2024	403	13.12	44096.58
3/20/2024	288	14.82	35596.45
<b>2023 Daily Averages</b>	<b>362</b>	<b>13.26</b>	<b>40929.94</b>
<b>2024 Daily Averages</b>	<b>383</b>	<b>13.03</b>	<b>41486.42</b>

Date	Percent RPC Discharge in RAW	Percent RPC Loading in RAW assuming no removal in collection system
1/24/2023	13.02	13.54
5/9/2023	5.83	15.35
8/1/2023	6.33	2.56
10/17/2023	7.80	38.33
10/22/2023	3.73	2.47
10/28/2023	8.08	25.04
10/29/2023	8.87	26.58
11/15/2023	4.64	17.85
12/5/2023	4.89	21.39
12/19/2023	6.56	40.51
1/5/2024	7.66	24.19
1/9/2024	7.23	31.87
1/17/2024	5.77	57.90
1/24/2024	8.09	56.80
1/31/2024	4.67	42.36
2/7/2024	6.13	49.77
3/6/2024	7.42	51.22
3/20/2024	4.25	47.68
<b>2023 Average</b>	<b>6.97</b>	<b>20.36</b>
<b>2024 Average</b>	<b>6.40</b>	<b>45.22</b>



Process	Facility	Total Number of Units	Total Capacity (MGD)	Firm Capacity (MGD)	Number of Units Needed for Avg. Day	Number of Units Needed for Max Day	Number of Units Operational	Total Percent Capacity Online	Total Capacity Online (MGD)	Last Date of Full Operation	Estimated Date of Repair/Replacement	Temporary Workaround (if applicable)	New or Ongoing Operational Changes
Headworks	Influent Screens	3 (1 large + 2 small)	70	40	1	2	1	57%	40	2019	6/1/2025 (Phase I Construction)	Existing screens under repair, basket screen (trash rack) installed 2023	Small screen is under repair
	Influent Pump Station	5 (3 large + 2 small)	52	40	2	4	4	77%	40	2018	6/1/2025 (Phase I Construction)	Rental pumps mobilized as needed	12mgd
	Grit Removal Basins	2	59	29.5	1	1	0	0%	0	2011	6/1/2025 (Phase I Construction)	WWTP staff remove grit build-up in grit chambers via excavation equipment	
Primary Treatment	Primary Clarifiers	4	30	22.5	2	3	2	50%	15	2023		Hiring subcontractors to clean out clarifiers as needed	Additional repairs of rebuilt clarifiers as needed
	Primary Effluent Pump Station	5	56	45	2	4	5	100%	56	2024	6/1/2025 (Phase I Construction)	Rental pumps mobilized as needed	
Secondary Treatment	Trickling Filters	4	18	13.5	2	3	3	75%	13.5	2018	6/1/2025 (Phase I Construction)		Temporary modifications made to re-start TFs
	Trickling Filter Clarifiers	4	23	17.3	2	3	4	100%	23	2024			New sludge valve actuators on order
	Nitrification Basins	3	17	11	2	3	2	67%	11.3	2024			East Aeration train has been taken offline for cleanup by contractor
	Nitrification Clarifiers	6	17	14.1	4	5	5	83%	14.2	2024		NC2 has plugged suction line and being addressed internally	Polymer injection being used to improve settleability
Disinfection / Tertiary	UV Disinfection	8	24	21	4	6	8	100%	24	2024			
	Final Effluent Pump Station	3	24	16.0	1	2	3	100%	24	2024		Chlorination/Dechlorination mobilized to bolster disinfection	