



Recycled Water Reuse Program
Idaho Department of Environmental Quality
Coeur d'Alene Regional Office

Outlet Bay Sewer District

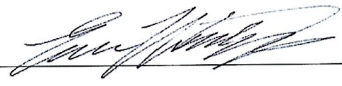
M-018-05

2022 Annual Report Review

Date Completed: November 2, 2023

Completed by: Emma Wooldridge, EIT

Department of Environmental Quality - Reuse Program
 Reuse Permit: Annual Report Review Form

1 Preliminary Information	
1.1 Reviewer	
1.1.1 Name and Title	Emma Wooldridge, EIT Water Quality Engineer
1.1.2 Office (Work Station)	<input type="checkbox"/> Technical Services <input type="checkbox"/> BRO <input checked="" type="checkbox"/> CRO <input type="checkbox"/> IFRO <input type="checkbox"/> State Program Office <input type="checkbox"/> LRO <input type="checkbox"/> PRO <input type="checkbox"/> TFRO
1.1.3 Address	2110 Ironwood Parkway Coeur d'Alene, ID 83814
1.1.4 Phone; e-mail	Phone: (208) 666-4604 e-mail: emma.wooldridge@deq.idaho.gov
1.2 Annual Report	
1.2.1 Document Date:	January 10, 2022
1.2.2 Received Date:	January 10, 2023
1.2.3 Time Period Covered:	Beginning Date: November 1, 2021 End Date: October 31, 2022
1.2.4 Received by Due Date?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Comments: Received prior to January 31, 2023
1.3 Date of last Annual Report Review and Reviewer	Date: October 11, 2022 Reviewer Name: Emma Wooldridge
1.4 Reuse Summary Data: Recycled Water and Constituents applied to reuse site	Recycled Water applied: 16.45 million gallons Nitrogen: 2,110 lbs
1.5 Signature of Reviewer and Date	 Date: 11/02/2023

2 Facility Information	
2.1 Permittee Name	Outlet Bay Sewer District
2.2 Permit Number	M-018-05
2.3 Permit Expiration Date	November 1, 2026
2.4 Facility Type	<input checked="" type="checkbox"/> Slow Rate <input type="checkbox"/> Rapid Infiltration <input type="checkbox"/> Overland Flow <input type="checkbox"/> Aquifer Recharge <input type="checkbox"/> Other
2.5 Recycled Water Type	Municipal -> <input type="checkbox"/> Class A <input type="checkbox"/> Class B <input checked="" type="checkbox"/> Class C <input type="checkbox"/> Class D <input type="checkbox"/> Class E Industrial -> <input type="checkbox"/> Potato <input type="checkbox"/> Cheese <input type="checkbox"/> Sugar Beet <input type="checkbox"/> Other:
2.6 Facility Contact Information	
2.6.1 Facility Contact (name and title)	Mr. Fritz Broschet, Operator
2.6.2 Address	149 Outlet Bay Road Priest Lake, Idaho 83856
2.6.3 Phone and e-mail	Phone: (208) 443-3831 e-mail: broschet@moosebytes.net
2.7 Regional Office Jurisdiction	<input type="checkbox"/> BRO <input checked="" type="checkbox"/> CRO <input type="checkbox"/> IFRO <input type="checkbox"/> LRO <input type="checkbox"/> PRO <input type="checkbox"/> TFRO

3 Hydraulic Loading (Recycled Water and Supplemental Irrigation Water)	
3.1 Is the land application site hydraulically loaded within permit limits?	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Yes No Not Known Not Reviewed Not Applicable
Comments: The permit restricts hydraulic loading to below or substantially at the irrigation water requirement (IWR). During the 2022 growing season (GS), the permittee irrigated approximately 16.45 million gallons of Class C recycled water over 46 acres of a native forested site (Appendix A, Figure 1).	
3.2 Are hydraulic loading calculations correct?	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Yes No Not Known Not Reviewed Not Applicable
Comments: The permittee's hydraulic loading calculations appear to match DEQ staff calculations.	
3.3 Are only permitted sites being used for land application?	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Yes No Not Known Not Reviewed Not Applicable
Comments: The permittee irrigates 46 acres of native forested site. There were no indications from the annual report submittal that additional areas were irrigated.	

3.4 Is the growing season hydraulic loading substantially at the irrigation water requirement (IWR)?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Known <input type="checkbox"/> Not Reviewed <input type="checkbox"/> Not Applicable
Comments: Reuse permit M-018-05 requires the permittee to irrigate the native forest site substantially at or below the IWR. During the 2022 GS, the permittee irrigated below the IWR (Appendix A, Figure 2).	
3.5 Are non-growing season recycled water loading rates within permitted limits?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Known <input type="checkbox"/> Not Reviewed <input checked="" type="checkbox"/> Not Applicable
Comments: Not applicable. Irrigation during the non-growing season is not permitted (DEQ 2016, Section 4.2, p. 11).	

4 Nutrient / Constituent Loading and Cropping	
4.1 Which nutrients and/or constituents have loading limits in the permit?	<input checked="" type="checkbox"/> Nitrogen <input type="checkbox"/> Phosphorus <input type="checkbox"/> COD <input type="checkbox"/> BOD <input type="checkbox"/> Salt (i.e. NVDS, TDS, TDIS) <input type="checkbox"/> Other <input type="checkbox"/> None
Comments: The permit limits nitrogen loading to 72 lb/acre (DEQ 2016, Section 4.3, p. 11).	
4.2 Are nutrients / constituents land applied within limits of the permit?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Known <input type="checkbox"/> Not Reviewed <input type="checkbox"/> Not Applicable
Comments: DEQ calculated a nitrogen loading of 45.87 lb/ac, which is less than the permit limit of 72 lb/ac. See Appendix A, Figure 3.	
4.3 Are nutrient / constituent loading calculations correct?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Known <input type="checkbox"/> Not Reviewed <input type="checkbox"/> Not Applicable
Comments: Calculations are substantially correct.	
4.4 Are crops grown on recycled water land treatment acreage?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Known <input type="checkbox"/> Not Reviewed <input checked="" type="checkbox"/> Not Applicable
Comments: The permittee irrigates 46 acres of a native forested site.	
4.5 Are crop yields typical for the region?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Known <input type="checkbox"/> Not Reviewed <input checked="" type="checkbox"/> Not Applicable
Comments: Not applicable.	
4.6 Are crop uptake calculations done correctly?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Known <input type="checkbox"/> Not Reviewed <input checked="" type="checkbox"/> Not Applicable
Comments: Not applicable.	

5 Monitoring	
5.1 Which media are required to be sampled in the permit during this reporting period?	<input type="checkbox"/> Wastewater <input checked="" type="checkbox"/> Recycled Water <input type="checkbox"/> Ground Water <input type="checkbox"/> Plant Tissue <input type="checkbox"/> Irrigation Water <input checked="" type="checkbox"/> Soils <input type="checkbox"/> Other
Comments: See Section 5 of the Permit for monitoring requirements (DEQ 2016, pp. 14-15).	
5.2 Ground Water Monitoring	
5.2.1 Is the facility reporting monitoring data as required in the permit?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Known <input type="checkbox"/> Not Reviewed <input checked="" type="checkbox"/> Not Applicable
Comments: Not applicable. The permit does not require groundwater monitoring.	
5.2.2 Are correct analytical methods used?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Known <input type="checkbox"/> Not Reviewed <input checked="" type="checkbox"/> Not Applicable
Comments: Not applicable. The permit does not require groundwater monitoring.	
5.2.3 Do monitoring data indicate compliance with permit limits (and Ground Water Quality Rule IDAPA 58.01.11 standards where applicable)?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Known <input type="checkbox"/> Not Reviewed <input checked="" type="checkbox"/> Not Applicable
Comments: Not applicable. The permit does not require groundwater monitoring.	
5.2.4 Has the facility provided analyses/ interpretation of ground water data? If yes, summarize interpretation and/or add DEQ comments below.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Known <input type="checkbox"/> Not Reviewed <input checked="" type="checkbox"/> Not Applicable
Comments: Not applicable. The permit does not require groundwater monitoring.	
5.3 Recycled Water / Irrigation Water	
5.3.1 Is the facility reporting monitoring data as required in the permit?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Known <input type="checkbox"/> Not Reviewed <input type="checkbox"/> Not Applicable
Comments: The permittee is required to monitor the following: <ul style="list-style-type: none"> • Total nitrogen in the first month irrigation occurs and in July and September when irrigating (DEQ 2016, Section 5.1.1, p. 14). • Total coliform monthly when irrigating (DEQ 2016, Section 5.1.1, p. 14). • Chlorine residuals daily when irrigating (DEQ 2016, Section 5.1.1, p. 14). <p>Monitoring appears to have been completed as required by the reuse permit.</p>	

5.3.2 Are correct analytical methods used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Known <input type="checkbox"/> Not Reviewed <input type="checkbox"/> Not Applicable
Comments: Recycled water constituents are analyzed through Accurate Testing Labs, LLC. <ul style="list-style-type: none"> Nitrate and nitrite is analyzed using EPA method, EPA 300.0. Total Kjeldahl Nitrogen (TKN) is analyzed using Standard Method, SM 4500NORG B. Total coliforms are analyzed using Standard Method, SM 9221 B. The correct analytical methods are being used and covered in the most recent Quality Assurance Project Plan (QAPP). The Outlet Bay QAPP dated April 2017 (submittal letter addressed on May 10, 2017) does include EPA Method 300.0 as one of the methods acceptable for analyzing nitrate and nitrite nitrogen (see p. 19, Table 12 of the 2017 QAPP).	
5.3.3 Are current recycled water characteristics still as described in permit application materials?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Known <input type="checkbox"/> Not Reviewed <input type="checkbox"/> Not Applicable
Comments: Total nitrogen concentrations reported for the 2022 GS are slightly above or as described in permit application materials and historical data. See Appendix A, Figure 4. The permittee stated that the facility had issues with the aerators, which were then taken out in the fall to be fixed, and that could have caused higher concentrations (Outlet Bay 2023).	
5.3.4 Which recycled water constituents have concentration limits in the permit?	<input type="checkbox"/> Nitrogen <input type="checkbox"/> Phosphorus <input type="checkbox"/> Turbidity <input type="checkbox"/> TSS <input checked="" type="checkbox"/> Total Coliform <input type="checkbox"/> Other Microbial <input type="checkbox"/> Other <input type="checkbox"/> None
Comments: The permit specifies Class C wastewater; total coliform cannot exceed a five sample median of 23 total coliform organisms per 100mL or a single sample of 230 total coliform organisms per 100 mL (DEQ 2016, Section 4.5, p. 12).	
5.3.5 Are constituent concentrations within limits of the permit?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Known <input type="checkbox"/> Not Reviewed <input type="checkbox"/> Not Applicable
Comments: All but two total coliform results were non-detect (ND) during the 2022 GS. No single sample was above the specified limit and the median of the last five samples was below 23 during the 2022 GS.	
5.3.6 Has the facility provided analyses/ interpretation of recycled water/irrigation water data? If yes, summarize interpretation and/or add DEQ comments below.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Known <input type="checkbox"/> Not Reviewed <input type="checkbox"/> Not Applicable
Comments: See Comment 5.3.3 above.	
5.4 Soils	
5.4.1 Is the facility reporting monitoring data as required in the permit?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Known <input type="checkbox"/> Not Reviewed <input type="checkbox"/> Not Applicable
Comments: The permit requires soil monitoring in the fifth year of the permit (DEQ 2016, Section 5.2.2, p. 15). Soil monitoring was completed in 2021.	
5.4.2 Are correct analytical methods used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Known <input type="checkbox"/> Not Reviewed <input type="checkbox"/> Not Applicable
Comments: No comment.	

5.4.3 Has the facility provided analyses/ interpretation of soils data? If yes, summarize interpretation and/or add DEQ comments below.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Known <input type="checkbox"/> Not Reviewed <input type="checkbox"/> Not Applicable
Comments: Facility provided discussion on the sampling conducted, but no interpretation of the results.	
5.5 Plant Tissue Monitoring	
5.5.1 Is the facility reporting monitoring data as required in the permit?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Known <input type="checkbox"/> Not Reviewed <input checked="" type="checkbox"/> Not Applicable
Comments: Not applicable. The permit does not require plant tissue monitoring.	
5.5.2 Are correct analytical methods used?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Known <input type="checkbox"/> Not Reviewed <input checked="" type="checkbox"/> Not Applicable
Comments: Not applicable. See Section 5.5.1.	
5.5.3 Has the facility provided analyses/ interpretation of plant tissue data? If yes, summarize interpretation and/or add DEQ comments below.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Known <input type="checkbox"/> Not Reviewed <input checked="" type="checkbox"/> Not Applicable
Comments: Not applicable. See Section 5.5.1.	
5.6 Other Monitoring	
5.6.1 Briefly Describe Other Monitoring Required: Flow measurement and calibration.	
5.6.2 Is the facility reporting monitoring data as required in the permit?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Known <input type="checkbox"/> Not Reviewed <input type="checkbox"/> Not Applicable
Comments: The permit requires the permittee to calibrate and verify each flow measurement device used in measuring recycled water in accordance with the manufacturer's specifications (DEQ 2016, Section 4.5, p. 12). Permittee stated in the annual report that Wapiti Consulting calibrated the three flow meters during the 2022 reporting year. The calibration results were included in the annual report.	
5.6.3 Are correct analytical methods used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Known <input type="checkbox"/> Not Reviewed <input type="checkbox"/> Not Applicable
Comments: Permit requires the calibration to be done in accordance with the manufacturer's specifications (DEQ 2016, Section 4.5, p. 12). It appears the permittee is following manufacturer's specifications.	
5.6.4 Has the facility provided analyses/ interpretation of other monitoring data? If yes, summarize interpretation and/or add DEQ comments below.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Known <input type="checkbox"/> Not Reviewed <input type="checkbox"/> Not Applicable
Comments: Permittee discussed that the manufacturer recommends calibration every three years and that all flow meters were "within specifications" (Outlet Bay 2023).	

6 Other Permit Conditions, General Comments, and Recommendations	
6.1 Were acts of noncompliance reported as required by the permit?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Known <input type="checkbox"/> Not Reviewed <input checked="" type="checkbox"/> Not Applicable
Comments: The annual report and results indicate that there were no acts of noncompliance to report.	
6.2 Was a compliance activity status update included in the annual report?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Known <input type="checkbox"/> Not Reviewed <input type="checkbox"/> Not Applicable
Comments: The permittee did briefly discuss the compliance activities for the facility. See Appendix A, Figure 5.	
6.3 Were results of backflow testing, repairs, and replacements included?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Known <input type="checkbox"/> Not Reviewed <input checked="" type="checkbox"/> Not Applicable
Comments: The annual report did not discuss backflow testing. However, this facility does not appear to have any connections that would require backflow prevention.	
6.4 Was a discussion of major maintenance activities (major equipment replacement, lagoon liner maintenance, wastewater treatment plant and reuse facility maintenance) included?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Known <input type="checkbox"/> Not Reviewed <input type="checkbox"/> Not Applicable
Comments: Permittee discussed ongoing maintenance of the irrigation area, completed in accordance with the Silviculture Plan, and acknowledged the upcoming seepage testing in 2024 (Outlet Bay 2023).	
6.5 If there are follow-up items from a previous annual report review describe these items and their current status in the Comment Section below.	
Comments: DEQ did not have any follow-up items to be addressed (DEQ 2022).	
6.6 Is the annual report submitted substantially complete?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Known <input type="checkbox"/> Not Reviewed <input type="checkbox"/> Not Applicable
Comments: The annual report submitted for the 2022 GS is substantially complete.	

6.7 Recommendations

DEQ has no recommendations to offer at this time. Thank you for your continued effort and cooperation with DEQ staff.

6.8 References:

- Outlet Bay Sewer District. 2017. *Water Reuse Permit M-018-05 Quality Assurance Project Plan for Required Environmental and Process Monitoring*. (Outlet Bay 2017).
- Outlet Bay Sewer District, 2023. *2022 Annual Report – Reuse Permit. M-018-05*. (Outlet Bay 2023).
- The Idaho Department of Environmental Quality (DEQ). 2016. *Wastewater Reuse Permit for The Outlet Bay Sewer District. Permit M-018-05*. (DEQ 2016).
- The Idaho Department of Environmental Quality (DEQ). 2021. *2021 Annual Report Review for Outlet Bay Sewer District. Permit M-018-05*. (DEQ 2022).

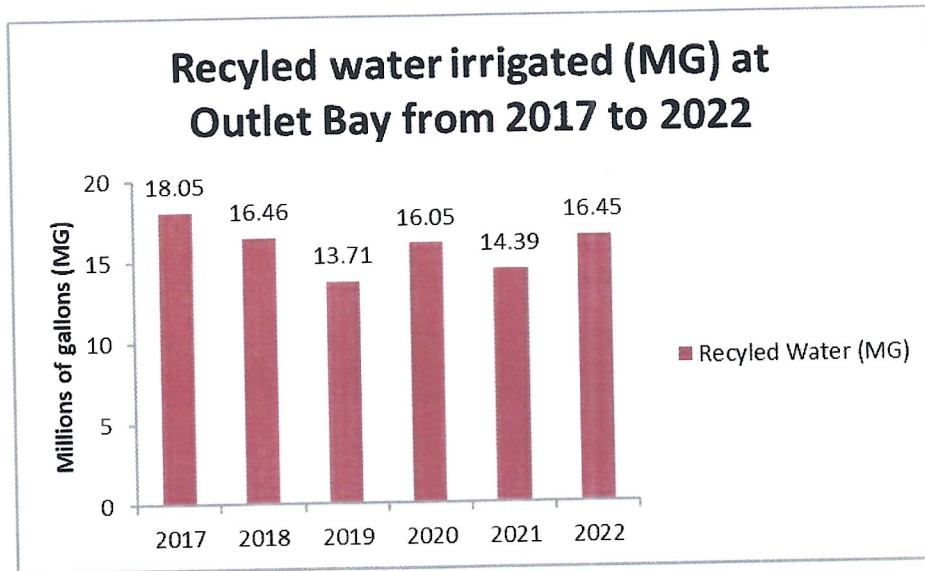


Figure 1: Volume of recycled water irrigated from 2017-2022.

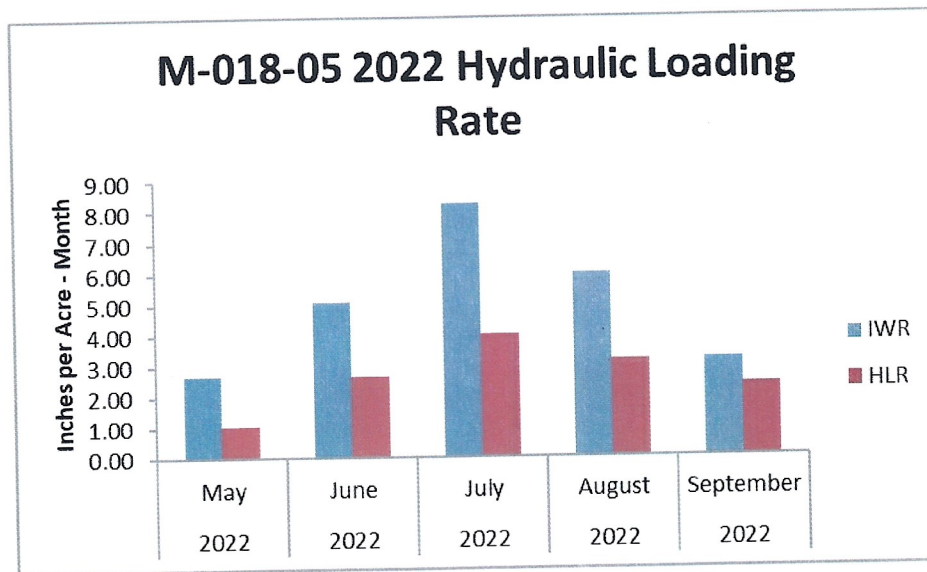


Figure 2: Hydraulic loading rates (HLR) from the 2022 growing season compared to irrigation water requirement (IWR)

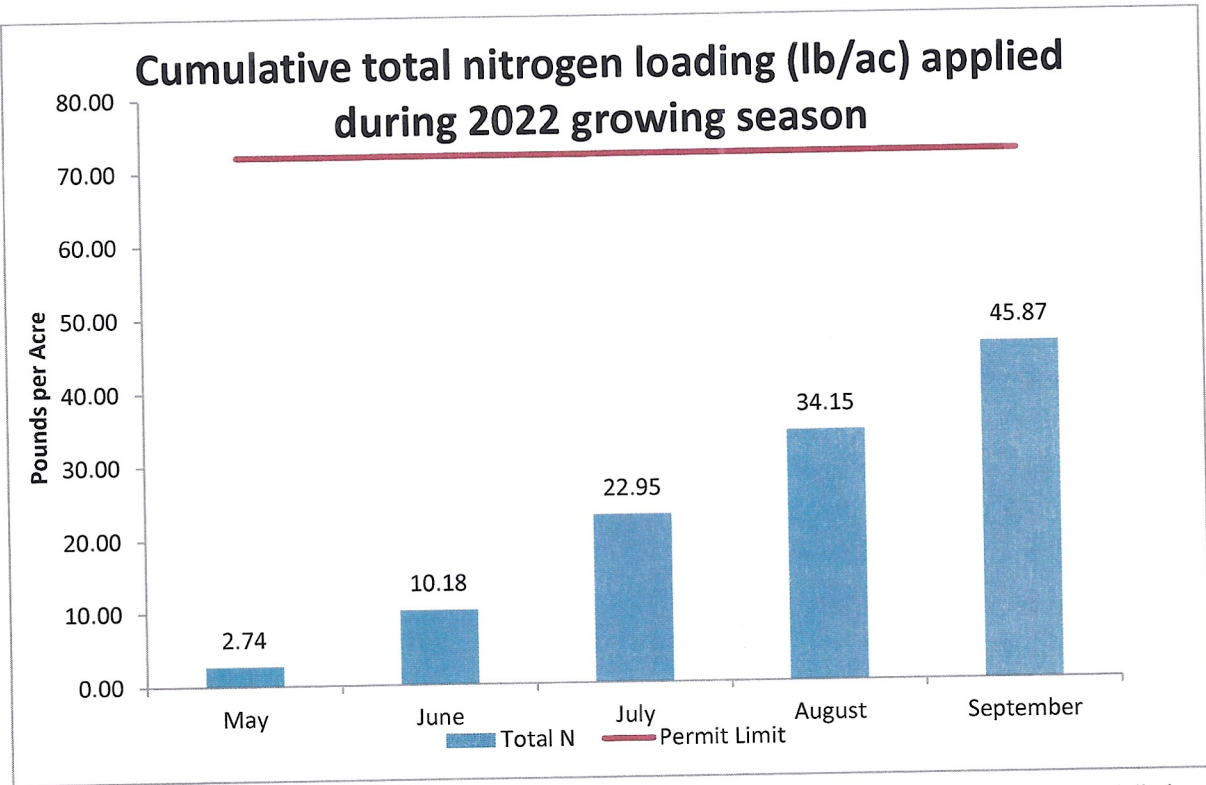


Figure 3: Cumulative total nitrogen loading rates (lb/ac) applied during 2022 growing season compared to permit limit.

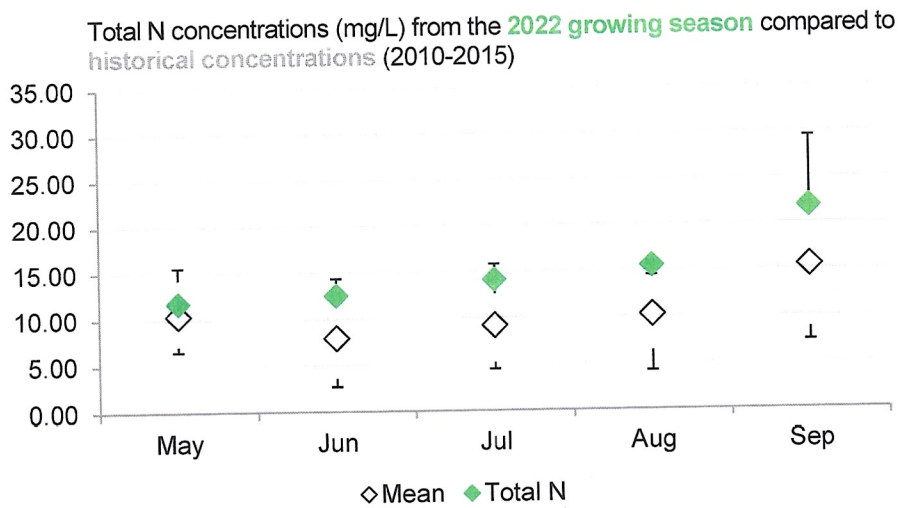


Figure 4: Total N Concentrations (mg/L) from the 2022 growing season compared to historical concentrations (2010-2015).

Compliance Activities			
CA Description	Completion Due Date	Status	
CA-018-01	Update the plan of operations (PO)	November 1, 2017	Submitted to DEQ on August 24, 2016
CA-018-02	Prepare a quality assurance project plan (QAPP)	November 1, 2017	Submitted to DEQ on August 24, 2016 DEQ issued comments on December 21, 2016 DEQ received resubmittal on November 15, 2017
CA-018-03	Submit seepage testing results	October 31, 2024	Pending
CA-018-04	Attend a pre-application workshop	November 1, 2025	Pending
CA-018-05	Submit a reuse permit renewal	May 2, 2026	Pending

Figure 5: Compliance activity update