

**Instructions on page 5
Due February 1, annually**

 Submittal date: 1/10/2023
 (mm/dd/yyyy)

 Approval date: 2/20/2023 Minnesota Pollution Control Agency (MPCA) approver: Kelli Nerem
 (mm/dd/yyyy)

I. Project information

 Project title: Lake of the Woods SWCD WPLMN FY20

 TEMPO Agency Interest ID: 206936 TEMPO Activity ID: PRO20200004

 SWIFT number: 173245 Purchase order number: 300026067

Local partner information:

 Organization name: Lake of the Woods Soil and Water Conservation District

 Primary contact name: Mike Hirst Phone: 218-634-1842 Email address: mike.hirst@mn.nacdnet.net

Reporting period:

 Start date: 1/1/2022 End date: 12/31/2022
 (mm/dd/yyyy) (mm/dd/yyyy)

Project location:

Basin (check all that apply):

 Red River Rainy River Lake Superior Minnesota Lower Mississippi St. Croix Upper Mississippi

 Major watershed(s): Rainy River - Baudette, Rapid River Hydrologic unit code(s): 09030008, 09030007

 Name of eligible laboratory: RMB Environmental Laboratories, Inc

 How many full-time equivalents (FTEs) worked on this project in the report period (hours/2,088 hours): 0.20

II. Activities completed

Table 1: Workplan activities

- Please list activities completed during the report period under the current contract. Include task level detail as appropriate. Refer to the instructions on the last page for an example. (Insert more rows as needed by hitting the tab key in the last row/column.)**

Objective/task	Description
Task A	There was one virtual training in 2022. Water Resources Technician attended this training on 2/24/2022. MPCA project manager planned to do field visits in 2022 but, had to postpone until a later date.
Task B	Four invoices were submitted during the reporting period to the MPCA Project Manager. The 4 th Quarter invoice from 2021 and the first, second, and third quarter invoices from 2022.
Task C	An interim progress report for 2021 was submitted on 01/12/2022 and approved by the MPCA on 08/31/2022. Approved Reports for the current contract are posted on the district's website www.lakeofthewoodsswcd.org under district operations.
Task D	The primary water sampling staff, Water Resources Technician, attended most of the scheduled one-hour calls with MPCA. The Conservation Corps of MN & IA summer apprentice also sat in on a few of the calls when available.

Task E	Sampling staff was already familiar with sampling locations and had bottles, coolers, and monitoring equipment on hand from previous years of monitoring. A new YSI ProDSS field meter was purchased in July of 2022 to replace an aging YSI 6920 Series Sonde that was starting to have issues. Still waiting for YSI to ship conductivity and temperature sensor but, have received everything else as of December 2022 for the new meter.
Task E	LoW SWCD obtained a DNR permit to take and transport water. Permit number INF-20-002, valid through 12/31/2024. Copies of the permit are kept in both district vehicles that could be used for sampling.
Task E	A copy of MPCA's WPLMN 2018 SOPs for AIS is kept with the field data and all SOPs are followed while monitoring in AIS designated waters i.e., the Rainy River. LoW SWCD has a separate set of equipment designated for use in AIS invested waters which includes a secchi tube, photo bottle and sample bottle.
Task F	Multiple websites are utilized for weather forecasting and past observations, but most reliable information comes from the NOAA. The HADS and CSG websites, as well as the USGS NWIS website are used to monitor hydrographs and determine sampling events.
Task F	Typically, all lab results are reviewed immediately after receiving them from RMB. LoW SWCD had to request corrections to lab reports on multiple occasions due to minor errors, usually regarding sample times. One report for a sample collected on the Rainy River on 10/11/2022 had TP results (0.021 mg/L) lower than DOP (0.023 mg/L). LoW SWCD inquired about this, and it was determined that since the two results were within the reporting limit of 0.003 mg/L that the reported values were valid. After discussion with the MPCA project manager, who pointed out the DOP result was still unusually high for that particular stream reach at that time of year, LoW SWCD did request RMB Labs to rerun the DOP analysis for that sample. The rerun results came out to be 0.019 mg/L which RMB still considered essentially the same result within the 0.003 mg/L reporting limit.
Task G	LOW SWCD currently still uses a 6920 Series YSI Sonde SN: 08E100535 Hand Pad SN: 08F101766. After experiencing battery power issues LOW SWCD requested an alternate hand pad from the MPCA. After receiving hand pad SN:0260208 AB it was determined that the ODO Sensor was the root of the battery problem. Calibrations for conductivity and pH were conducted on average every two weeks during the open water season and at least once a month over winter. The field meter is calibrated for dissolved oxygen before every sampling event. Two temperature checks, using a NIST Thermometer, were performed during the reporting period on 03/29/2022 and 12/16/2022.
Task G	Experienced several issues with the field meter in 2022. Towards the end of July, the existing optical DO sensor started to malfunction and shortly stopped working all together. A used ODO sensor was shipped to LoW SWCD from the MPCA, and this Sensor was installed 7/27/22. The used sensor worked well for about a month until the Sonde's Hand pad started to burn through batteries unusually fast. The hand pad uses four C batteries and usually will last at least the entire open water season. New batteries were installed in the hand pad on 8/24/22 and they were no longer sustaining the Sonde after about one more month. The Sonde would power on and attempt to take measurements but, would power down after a short period of time not even allowing readings to stabilize. Thinking the issue was the hand pad, LoW SWCD requested a different hand pad and MPCA shipped hand pad SN:0260208 AB. Once this alternate hand pad was utilized it was realized the ODO sensor itself was causing the battery issues. The ODO sensor was then removed and only the pH and conductivity sensors remained for the last samples collected in 2022. LoW SWCD then reached out to others in the MPCA and tracked down a new ODO sensor. This new sensor was received 12/6/22 and installed on the 6920 Series Sonde the next day. The new ODO sensor seemed to resolve the battery power issues.
Task G	All calibrations are recorded on log sheets and submitted to the project manager. 2022 calibration logs were submitted on 12/16/2022.
Task H	Eighteen water quality samples were collected at the Tier one Subwatershed site East Fork Rapid River (S007-611). Twenty-four water quality samples were collected at the Tier 1 major watershed site Rapid River at Clementson (S000-184) and twenty-two samples were collected at the Tier 1 basin site Rainy River at Manitou (S006-897).
Task H	One field replicate was collected at the Subwatershed site (S007-611) on 07/18/2022 and an equipment blank was collected 10/31/2022. Three field replicates were collected at the major watershed site (S000-184), the first on 06/27/2022, the second on 10/03/2022 and the third on 12/05/2022. Three field replicates were also collected at the basin site (S006-897), the first on 06/27/2022, the second on 08/24/2022 and the third was collected on 12/05/2022.
Task H	All samples were shipped to RMB Labs for analysis via Spee-Dee Delivery. In 2022, most samples did arrive at the lab the next day but, on several occasions still exceeded 24-hour hold time for DOP. Sampling staff has always granted permission to the lab to analyze samples that are past hold times for DOP. All lab data is submitted to Lab MN using an EDD format.

Task I	Field meter measurements (dissolved oxygen, temperature, pH, specific conductance) were collected, when possible, with nearly every sample visit along with secchi readings, photos, and general stream conditions. All data and photos were entered in GoCanvas after each sample run. When applicable, datalogger readings were recorded and compared to on site stage measurements via wire weight gage or staff gage.
Task I	Field sheets were submitted to project manager on (or prior to) each quarterly deadline.
Task J	In 2022, LoW SWCD completed 2020 load calculations for all three WPLMN sites. All FLUX32 input files received from the MPCA were completed with FLUX32 and returned as zip files within the sixty day time frame after receipt. Load calculations for 2020 were extra difficult due to the Covid shutdown and unsampled spring runoff events. To rectify this, samples from 2019 were combined with 2020 samples to give the FLUX model something more to work with. LoW SWCD staff that completed the load calculations participated in all three verification meetings with MPCA Staff.

2. Please answer the following questions relating to the deliverables for the project. If deadlines were missed, please provide comments. Dates should be entered in the mm/dd/yy format.

- a. Quality Assurance Project Plan (QAPP) approval date: 11/12/20
- b. Was the QAPP revised during this reporting period? Yes No
 Revised date: _____ Reason for revision(s): _____
- c. Was the field meter calibration log submitted by January 1? Yes No
 If no, submittal date: _____ Comments: _____
- d. Were GoCanvas submissions completed by the 1st and 15th of each month (check one)?
 Rarely (9+ missed deadlines) Sometimes (3-8 missed deadlines)
 Almost always (1-2 missed deadlines) Always
 Comments: _____
- e. Please list the submittal dates for the field sheets, field books, and extra pictures.
 Deadline January 1. Submittal date: 12/16/22 Comments: Calibration Logs
 Deadline May 1. Submittal date: 4/29/22 Comments: Field sheets/photos
 Deadline August 1. Submittal date: 7/28/22 Comments: Field sheets
 Deadline November 1. Submittal date: 10/31/22 Comments: Field sheets
- f. If applicable, were pollutant loads submitted by deadline (within 60 days of receiving the .xml)?
 Rarely Sometimes Almost Always Always
 Comments: _____
- g. Were project staff able to attend the check in telephone conferences during the reporting period?
 Rarely (9+ missed meetings) Sometimes (3-8 missed meetings)
 Almost always (1-2 missed meetings) Never missed a meeting
 Comments: _____

3. Was a backup sampler used to collect any of the samples? Yes No

If yes, please describe when, who, if they were trained, and any other details:

Back up samplers were only used to assist primary sampler during the winter months. A trained intern also assisted the primary sampler multiple times over the summer.

4. Were you comfortable with your level of training and current ability to complete the obligations of your workplan?

Yes

5. Describe in detail any problems, delays, or difficulties that occurred in fulfilling the requirements of the workplan. How did you resolve these problems?

Following a drought year in 2021, the spring of 2022 saw some historic high flows. In order to sample the major spring events some weekend sampling was required. Halfway through the year there were issues with the field meter that resulted in not collecting all the field parameters on a few sample runs. The district has been using an older YSI 6920 Series Sonde that started experiencing issues with the optical DO sensor. Eventually the sensor stopped working altogether. A used ODO

sensor was obtained through the MPCA and worked in the Sonde for a few more months. Eventually this Sensor started to malfunction as well and would cause the handpad batteries to drain very quickly. After a while the Sonde would not function at all with the ODO sensor installed. So, the ODO sensor was removed and only pH, conductivity and temperature were able to be measured for a short time. The District did purchase a new YSI ProDSS to replace the old 6920 Series in July of 2022 using funds from this contract. Unfortunately, due to parts shortages and shipping delays at YSI, the District still does not have all the sensors for this new meter. An alternate handpad and a new ODO sensor were obtained by the district through the MPCA and were installed on the 6920 Series Sonde in December 2022. After that, the Sonde seemed to be back to fully functional once more for use until the new ProDSS can be utilized.

6. Were there any change orders and/or amendments to the contract and workplan? Yes No

If yes, summarize the changes:

Our original contract was set to expire on June 30th, 2022 so, there was an amendment to extend the contract an additional two years to June 30th, 2024, update tasks and clauses, and increase the budget. All required signatures for this amendment were obtained by March 3rd, 2022.

7. Please provide any constructive feedback regarding the WPLMN (training, deliverables, deadlines, program directives):

III. Budget Information

Please copy the information on the Invoice tab from the Microsoft Excel Invoice workbook and paste into this Interim Progress Report template. See Instructions for details. If budget information does not encompass all expenditures through December 31, please provide the date in the Comments. The documented amounts should be within 30 days of December 31.

Line item	MPCA funds awarded	MPCA funds expended prior to this invoice	MPCA funds expended this invoice	MPCA funds expended	Balance	Budget expended (%)
Personnel	\$68,628.24	\$43,320.63	\$3,390.04	\$46,710.67	\$21,917.57	68%
Laboratory	\$19,511.00	\$13,062.00	\$903.00	\$13,965.00	\$5,546.00	72%
Mileage	\$4,639.63	\$2,778.28	\$156.25	\$2,934.53	\$1,705.10	63%
Lodging	\$300.00	\$0.00	\$0.00	\$0.00	\$300.00	0%
Meals	\$108.00	\$0.00	\$0.00	\$0.00	\$108.00	0%
Shipping	\$1,779.48	\$1,352.96	\$83.83	\$1,436.79	\$342.69	81%
Equipment and supplies	\$8,455.65	\$6,626.07	\$448.88	\$7,074.95	\$1,380.70	84%
Total:	\$103,422.00	\$67,139.94	\$4,982.00	\$72,121.94	\$31,300.06	70%

Comments:

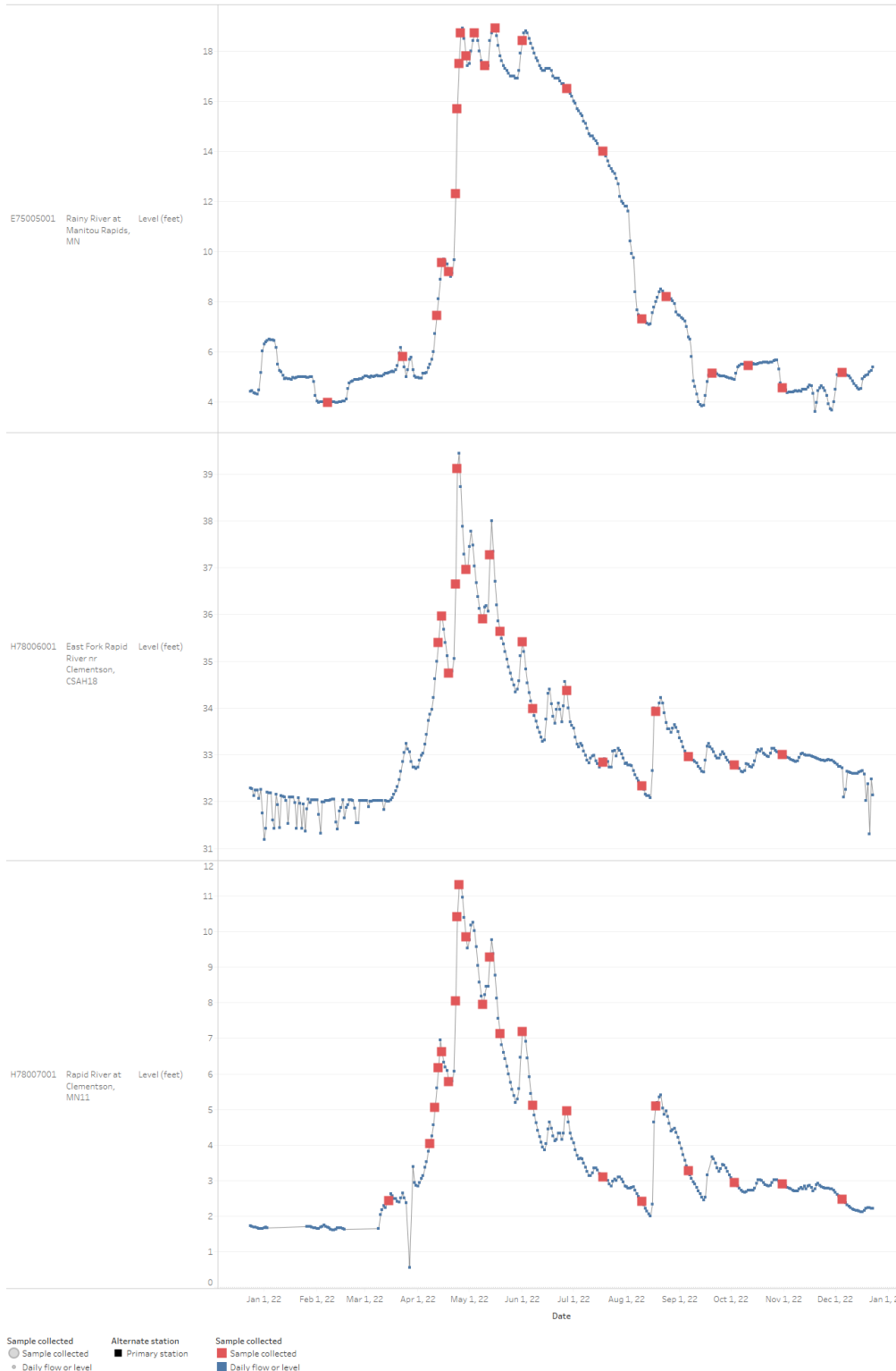
Invoice date: 01/04/2023 which encompasses all expenditures through 12/31/2022

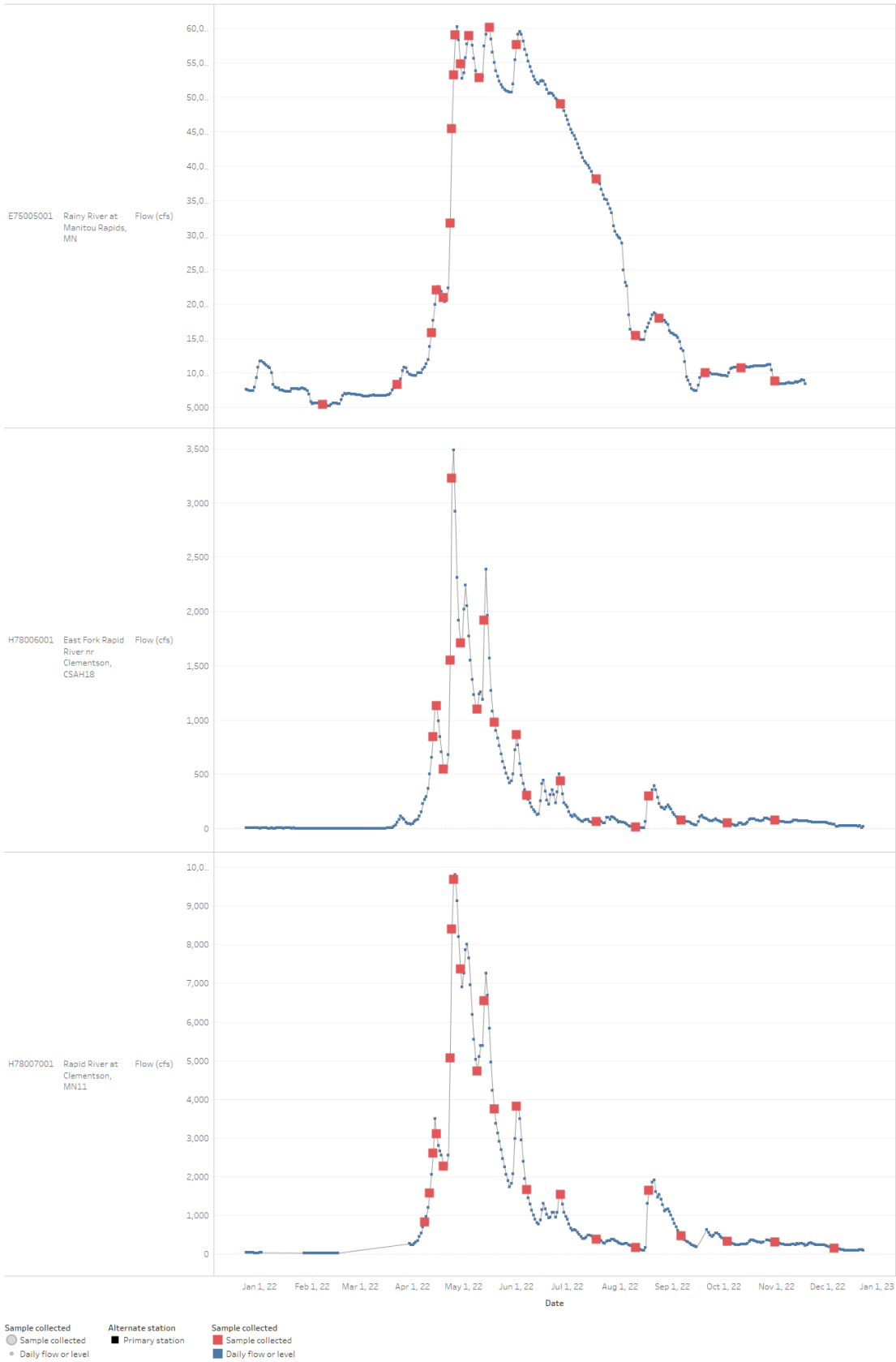
IV. Hydrographs

Please note hydrographs are provisional.

Comments:

Watershed Pollutant Load Monitoring Network (WPLMN) sample hydrograph and field data viewer - Data for previous 12 months
WISKI exported data at All and Tableau loaded it at 12/23/2022 11:18:39 AM.





Sample collected (grey circle) Alternate station (black square) Sample collected (red square)
 Sample collected (grey circle) Primary station (black square) Sample collected (red square)
 Daily flow or level (blue dot) Daily flow or level (blue square) Daily flow or level (blue square)