



**Instructions on Page 5**

### I. Project information

Project title: Root River Watershed Pollutant Load Monitoring

**Local Partner information:**

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**Reporting period:**

Start date: 01/01/2015  
(mm/dd/yyyy)

End date: 6/30/2016  
(mm/dd/yyyy)

**Project details:**

Basin (check all that apply):

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

Major Watershed(s): Root River

Hydrologic unit code(s): 07040008

Name of eligible laboratory: Minnesota Department of Health

How many full-time equivalents (FTEs) worked on this project (total project hours/2,088 hours): 0.73

### II. Activities completed

**Table 1: Workplan activities**

- Please list activities completed during the reporting period. Include task level detail as appropriate. Please separate activities by calendar year, if applicable.** Refer to the instructions for examples. (Insert more rows as needed by hitting the tab key in the last row/column.)

Objective	Description
1: Stream Sampling, Task A: Acquire monitoring equipment and supplies.	2015: Purchased supplies for monitoring equipment in March and August 2016: Purchased supplies March-April 2016, ice for sample shipments was ongoing throughout the reporting period.
1: Stream Sampling, Task B: Obtain required field training.	2015: Two staff participated in the following training sessions: webinar training on March 9 <sup>th</sup> and April 15 <sup>th</sup> . 2016: Two staff participated in the following training sessions: webinar trainings on Feb 11 <sup>th</sup> , 18 <sup>th</sup> and 25 <sup>th</sup> . Also attended field training with DNR (Fred) on April 13 <sup>th</sup> .
1: Stream Sampling, Task C: Follow sample collection protocols as	2015: (Sampling period 3/09/15 to 10/22/15) Sample collections, field measurements, observations and photographs were completed following the sample collection protocols as defined in the WPLMN SOP at the following sites: 23 sets at Main Branch Root River, 22 sets at South Fork Root River, 23

defined in the WPLMN SOP at both non-AIS and AIS affected waters. Ship samples to MDH lab for analyses. Collect photos, DO, temp, pH, etc. at each site visit.	sets at South Branch Root River, 23 sets at North Branch Root River, 22 sets at Middle Branch Root River.  2016: (sampling period for this contract is 2/18/16 to 6/23/16) Sample collections, field measurements, observations and photographs were completed following the sample collection protocols as defined in the WPLMN SOP at the following sites: 26 sets at Main Branch Root River, 23 sets at South Fork Root River, 25 sets at South Branch Root River, 24 sets at North Branch Root River, 25 sets at Middle Branch Root River.
1: Stream Sampling, Task D: Follow QA/QC procedures as defined in the QAPP.	2015: QA/QC samples were collected on 7/16/15 and 10/22/15 at all 5 sites.  2016: QA/QC samples were collected on 4/13/16 at all 5 sites.
1: Stream Sampling, Task E: Ensure field meter is calibrated and in good operational order.	2015: Field probe was calibrated 15 times during the sampling season. Calibrations occurred either weekly or immediately prior to a sample collection day.  2016: Field probe was calibrated 6 times during the sampling season. Calibrations occurred either weekly or immediately prior to a sample collection day.
2: FLUX, Task A: Complete load calculations using the FLUX32 model.	2015: Two staff attended FLUX training in Rochester on June 23rd. Seasonal load calculations were completed using the FLUX32 model for 2013 sampling season at Main Branch Root River, South Fork Root River, South Branch Root River, North Branch Root River and Middle Branch Root River. Verification meetings attended by staff on 10/21/15, 10/20/15 and 10/26/15.  2016: Seasonal load calculations were completed using the FLUX32 model for 2014 sampling season at Main Branch Root River, South Fork Root River, South Branch Root River, Middle Branch Root River and partially for North Branch Root River. Verification meeting attended by staff on 4/27/16.
3: Weekly Call In Meetings, Data Submittal, Task A: Compile and submit EQUS template, site inspection template, photos, and photo log.	2015: EQUS template was submitted to Project Manager for 12 reporting periods. Site inspection spreadsheet, field sheets, photos and calibration logs were submitted to Project Manager in November  2016: EQUS template was submitted to Project Manager for 7 reporting periods.
3: Weekly Call In Meetings, Data Submittal, Task B: Participate in weekly telephone conferences.	2015: Seventeen weekly call-in meetings were attended by staff.  2016: Nine weekly call-in meetings were attended by staff.
4: Grant administration, Task A: Track project expenditures and submit invoices.	2015: Quarterly invoices were submitted in April, July, October and January 2015. Change order 5 was completed in November, 2015, and Change Order 6 in December 2015. A budget was prepared for the FY 2016 WPLMN agreement.  2016: Quarterly invoices were submitted in April and drafted in June for submission in July with the final report.
4: Grant administration, Task B: Complete reporting requirements as defined in contract using format provided by MPCA Project Manager.	2015: The 2014 interim report was submitted in February.  2016: Final report was begun in June for submission in July documenting all activities and expenditures from January 2015 to the end of the grant period (June 30, 2016).

**2. Please answer the following questions relating to the deliverables for the project.**

a. Were any changes made to the Quality Assurance Project Plan during the reporting period?

Yes  No      Revision date (mm/dd/yyyy): \_\_\_\_\_

If yes, please summarize:

b. Was an Interim Progress Report submitted?

Yes  No      Submittal date (mm/dd/yyyy): 1/9/2015

If no, please describe why:

- c. If applicable, were FLUX32 pollutant loads submitted to your MPCA Project Manager?

Yes  No  N/A

Please list the sites and years where loads were calculated:

2013 sampling season at Main Branch Root River, South Fork Root River, South Branch Root River, North Branch Root River and Middle Branch Root River; 2014 sampling season at Main Branch Root River, South Fork Root River, South Branch Root River, Middle Branch Root River and partially for North Branch Root River

If no, please describe why:

- d. Were you able to attend a majority of the weekly check-in telephone conferences during the project period?

Yes  No

If no, please describe:

- e. 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:

Caleb Fischer, Conservation Technician for the Fillmore SWCD and seasonal interns for the SWCD served as back-up samplers. Back-up samplers received extensive field and office training and often attended weekly call-in meetings.

**Table 2: Lab analyte summary**

3. Please enter the number of samples collected at each site for each analyte over the reporting period. Refer to the instructions at the end of this report for an example of the completed table. Please describe conditions when either sample count was more or less than what is specified in the workplan. A Microsoft Excel template is also available to complete this table. Please see instructions for more information. (Insert more rows as needed by hitting the tab key in the last row/column.)

Year	Site Type	Stream Name	EQulS ID	TSS	SVS	Turbidity	OP	TP	NOx	TKN	Comments
2015	Subwatershed	Main Branch Root River	S004-820	23	18	18	23	23	23	23	SVS and Turbidity were removed starting Aug 2015
2015	Subwatershed	South Fork Root River	S004-860	22	17	17	22	22	22	22	SVS and Turbidity were removed starting Aug 2015
2015	Subwatershed	South Branch Root River	S004-840	23	18	18	23	23	23	23	SVS and Turbidity were removed starting Aug 2015
2015	Subwatershed	North Branch Root River	S004-842	23	18	18	23	23	23	23	SVS and Turbidity were removed starting Aug 2015
2015	Subwatershed	Middle Branch Root River	S007-113	22	17	17	22	22	22	22	SVS and Turbidity were removed starting Aug 2015
2016	Subwatershed	Main Branch Root River	S004-820	21	0	0	21	21	21	21	SVS and Turbidity were removed starting Aug 2015. Carry over samples from 2015 were used for snowmelt sampling in 2016.

2016	Subwatershed	South Fork Root River	S004-860	18	0	0	18	18	18	18	SVS and Turbidity were removed starting Aug 2015. Carry over samples from 2015 were used for snowmelt sampling in 2016.
2016	Subwatershed	South Branch Root River	S004-840	20	0	0	20	20	20	20	SVS and Turbidity were removed starting Aug 2015. Carry over samples from 2015 were used for snowmelt sampling in 2016.
2016	Subwatershed	North Branch Root River	S004-842	20	0	0	20	20	20	20	SVS and Turbidity were removed starting Aug 2015. Carry over samples from 2015 were used for snowmelt sampling in 2016.
2016	Subwatershed	Middle Branch Root River	S007-113	20	0	0	20	20	20	20	SVS and Turbidity were removed starting Aug 2015. Carry over samples from 2015 were used for snowmelt sampling in 2016.

**Table 3: QA/QC samples summary**

4. Please complete the table below. The table should include actual results for the original and duplicate samples over the project period. The RPD should be calculated. Provide additional information in the comments about site conditions, sampling error, etc., if known. A Microsoft Excel template is also available to complete this table. Please see instructions for more information. (Insert more rows as needed by hitting the tab key in the last row/column.)

Stream Name	Date		TSS	RPD	SVS	RPD	Turbidity	RPD	DOP	RPD	TP	RPD	NOX	RPD	TKN	RPD
Main Branch Root River	7/16/15	Sample	20.0	16.2	2.4	28.6	5.7	7.3	0.024	11.8	0.040	7.8	4.4	6.6	0.20	0.0
		QA/QC	17.0		3.2		5.3		0.027		0.037		4.7		0.20	
South Fork Root River	7/16/15	Sample	30.0	6.9	3.2	13.3	7.9	8.5	0.048	15.7	0.059	1.7	3.5	5.6	0.20	0.0
		QA/QC	28.0		2.8		8.6		0.041		0.060		3.7		0.20	
South Branch Root River	7/16/15	Sample	22.0	0.0	3.2	22.2	9.8	2.0	0.039	2.6	0.056	5.5	6.5	4.5	0.20	0.0
		QA/QC	22.0		4.0		10.0		0.038		0.053		6.8		0.20	
North Branch Root River	7/16/15	Sample	10.0	0.0	2.4	0.0	3.3	9.5	0.025	3.9	0.035	2.9	6.2	3.2	0.20	0.0
		QA/QC	10.0		2.4		3.0		0.026		0.034		6.4		0.20	
Middle Branch Root River	7/16/15	Sample	14.0	7.4	2.8	15.4	6.2	0.0	0.035	2.9	0.051	0.0	6.9	4.3	0.20	0.0
		QA/QC	13.0		2.4		6.2		0.034		0.051		7.2		0.20	
Main Branch Root River	10/22/15	Sample	6.0	12.5					0.026	26.1	0.020	4.9	3.3	0.0	0.20	26.1
		QA/QC	6.8					0.020	0.021		3.3		0.26			

South Fork Root River	10/22/15	Sample	17.0	19.4				0.029	15.9	0.034	5.7	3.6	2.7	0.20	22.2
		QA/QC	14.0					0.034		0.036		3.7		0.25	
South Branch Root River	10/22/15	Sample	13.0	0.0				0.034	5.7	0.040	0.0	5.0	0.0	0.31	25.5
		QA/QC	13.0					0.036		0.040		5.0		0.24	
North Branch Root River	10/22/15	Sample	3.6	20.0				0.012	0.0	0.013	8.0	4.5	2.2	0.20	0.0
		QA/QC	4.4					0.012		0.012		4.6		0.20	
Middle Branch Root River	10/22/15	Sample	4.8	0.0				0.029	0.0	0.028	3.5	5.2	0.0	0.20	0.0
		QA/QC	4.8					0.029		0.029		5.2		0.20	
Main Branch Root River	4/13/16	Sample	36.0	2.8				0.027	3.6	0.059	0.0	6.6	0.0	0.20	0.0
		QA/QC	35.0					0.028		0.059		6.6		0.20	
South Fork Root River	4/13/16	Sample	14.0	0.0				0.018	5.4	0.033	3.0	3.7	0.0	0.20	0.0
		QA/QC	14.0					0.019		0.034		3.7		0.20	
South Branch Root River	4/13/16	Sample	11.0	9.5				0.014	6.9	0.026	3.8	7.7	0.0	0.20	0.0
		QA/QC	10.0					0.015		0.027		7.7		0.20	
North Branch Root River	4/13/16	Sample	21.0	4.7				0.023	4.4	0.041	4.8	8.7	0.0	0.20	0.0
		QA/QC	22.0					0.022		0.043		8.7		0.20	
Middle Branch Root River	4/13/16	Sample	10.0	9.5				0.017	0.0	0.026	3.8	9.6	1.0	0.20	0.0
		QA/QC	11.0					0.017		0.027		9.7		0.20	

Comments:

*There was a mix-up in the data received from the lab for the QA/QC samples taken on 10/22/15. I switched the data for South Branch QA/QC and North Branch QA/QC and the data made more sense. I investigated prior data for similar sampling dates and verified that it was the rep data and not the sample data that was mixed up. Other instances with high RPD occur on Main Branch samples, which tends to be a wide and shallow stretch of the river, making it more difficult to get replicate samples in the most representative location.*

*Sampling numbers for 2015 were less than 25 because the second half of the sampling season had very few sampling events. We reduced base flow sampling to conserve samples for events, but had nothing significant in terms of discharge/stage or turbidity. Sampling numbers for 2016 are less than 25 because the grant period ended in 6/30/16, before the sampling season concludes.*

**5. Please answer the following questions and provide comments.**

Were you comfortable with your level of training and current ability to:

- a. Collect stream samples over the entire range of the hydrograph?  Yes  No

Comments:

- b. Calibrate and use the field meter and equipment?  Yes  No

Comments:

- c. Enter data and information into the MPCA templates and logs?  Yes  No

Comments:

- d. Use the FLUX32 model and submit pollutant load data and supporting information?  Yes  No

Comments:

- e. Complete and submit invoices?  Yes  No

Comments:

- f. Complete the Interim Progress Report?  Yes  No

Comments:

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

*None encountered during this reporting period.*

**7. Were there any change orders and/or amendments to the contract and workplan? If yes, summarize the changes.**

- Yes  No

Comments:

*Two change orders were approved from January 2015 to June 30, 2016. Change order 5 was approved in November 2015 and allowed use of funds remaining in the FY2013 agreement to completed tasks in the work plan until June 30, 2016. There was also a transfer of \$200 from Objective 2 training and materials to Objective 1 shipping. Change order 6 extended the date for submitting the Final Progress Report to June 30, 2016.*

**8. If there are unspent funds, please list the Objective and Task and explain the reason for the unspent funds:**

*Objective 1: Sampling personnel \$362.50 remaining (99% spent). Overestimated staff hours needed by about 10-15 hours.*

*Objective 1: Shipping \$40.10 remaining (96% spent). Overestimated by about four shipments.*

*Objective 1: Monitoring supplies \$1502.51 remaining (85% spent). Supplies purchased were adequate for the needs.*

*Objective 2: FLUX personnel \$2828.50 remaining (54% spent). Staff were able to complete FLUX calculations more quickly than anticipated.*

*Objective 2: FLUX training and materials \$251.00 remaining (3% spent). Only meals were charged to this category. Staff did not need an overnight stay to attend trainings.*

*Objective 4: Grant administration personnel \$71.00 remaining (99% spent). Overestimated staff time needed by about 1.5 hours.*

*Objective 5: QAPP personnel \$109.00 remaining (49% spent). Only 3 hours of staff time needed to complete the QAPP.*

**9. Please provide any constructive feedback regarding the WPLMN (training, forms, program directives, etc.):**

*The invoice forms developed for this project are very simple to use and make reporting much more efficient while tracking grant expenses by Objective and Task. The final report budget table required some backtracking to report total sample numbers, total staff hours per objective, total miles, etc. It would have been helpful to have known how this cumulative information was to be reported so it could have been tracked with each quarterly report.*

### III. Budget information

Budget item	Objective 1	Objective 2	Objective 3	Objective 4	Objective 5	Total expended
<b>Objective title:</b>	Sampling	FLUX	Weekly call-in, data submittal	Grant administration	QAPP	
<b>Personnel: wages and benefits</b>						
Staff #1: No. of hours <u>883.</u>	\$ 23931.50	\$ 3152.50	\$ 4864.50	\$	\$ 38.00	\$ 31986.50
Staff #2: No. of hours <u>531.</u>	\$ 13608.00	\$ 189.00	\$ 526.50	\$	\$ 27.00	\$ 14350.50
Staff #3: No. of hours <u>89.5</u>	\$	\$	\$	\$ 3529.00	\$ 40.00	\$ 3569.00
<b>Laboratory analyses:</b>						
No. of stream samples <u>529</u>	\$ 77158.00	\$	\$	\$	\$	\$ 77158.00
<b>Travel reimbursement:</b> No. of miles <u>12377.3</u>	\$ 6948.90	\$	\$	\$	\$	\$ 6948.90
<b>Equipment</b>	\$	\$	\$	\$	\$	\$
<b>Monitoring supplies</b>	\$ 8202.49	\$	\$	\$	\$	\$ 8202.49
<b>Shipping</b>	\$ 859.90	\$	\$	\$	\$	\$ 859.90
<b>Training and materials</b>	\$	\$ 9.00	\$	\$	\$	\$ 9.00
<b>Other</b> (describe the activity and cost – be specific):						
	\$	\$	\$	\$	\$	\$
	\$	\$	\$	\$	\$	\$
<b>Column total:</b>	<b>\$130,708.79</b>	<b>\$3,350.50</b>	<b>\$5,391.00</b>	<b>\$3,529.00</b>	<b>\$ 105.00</b>	<b>\$143,084.29</b>

### III. Hydrographs







