Environment and Natural Resources Trust Fund (ENRTF)
M.L. 2017 LCCMR Work Plan

Date of Submission: September 13, 2016

Date of Next Status Update Report: January 15, 2018

Date of Work Plan Approval: 06/07/2017

Project Completion Date: June 30, 2020

Does this submission include an amendment request? No

PROJECT TITLE: Groundwater Contamination Mapping

Project Manager: Hans Neve

Organization: Minnesota Pollution Control Agency

Mailing Address: 520 Lafayette Road N

City/State/Zip Code: Saint Paul, MN

Telephone Number: (651) 757-2608

Email Address: hans.neve@state.mn.us

Web Address: www.pca.state.mn.us

Location: Statewide

Total ENRTF Project Budget:		
	ENRTF Appropriation:	$400,000
	Amount Spent:	$0
	Balance:	$400,000

Legal Citation: M.L. 2017, Chp. 96, Sec. 2, Subd. 03h

Appropriation Language:
$400,000 the first year is from the trust fund to the commissioner of the Pollution Control Agency to develop a Web-based interactive map of groundwater contamination to improve protection of groundwater resources for drinking water. This appropriation is available until June 30, 2020, by which time the project must be completed and final products delivered.

I. PROJECT TITLE: Mapping Groundwater Contamination: accessible data to protect resources

II. PROJECT STATEMENT: Minnesota properties that were once home to dry cleaners, metal plating shops, manufacturing plants and other industrial facilities in many cases have contaminated the groundwater from spills and leaks of hazardous chemicals. Frequently the contamination spreads off the property creating an area of groundwater contamination. The Minnesota Pollution Control Agency (MPCA) proposes to compile data currently kept in individual Superfund Program project files to show these areas of groundwater contamination in an interactive web-based map. The interactive web-based map will fill a data accessibility gap for anyone involved in groundwater use, regulation and conservation in Minnesota.

MPCA programs that address hazardous substance contamination in groundwater are focused on addressing health and environmental risks from individual sources of contamination. Without additional resources, compiling data from individual project files and presenting it in an interactive web-based format has been beyond the program capacity. This is the primary reason the need for easy access to groundwater contamination data has not been met.

When making decisions about the location of new municipal drinking water wells and planning for drinking water treatment, knowing where groundwater contamination areas are located is particularly important. Businesses also need this information as many industries rely on clean water to function, or as they are looking to expand existing or develop new facilities.

Collecting data in one place and generating an interactive map showing areas of contaminated groundwater will help manage and protect the largest source of clean drinking water in the state. This effort will save government agencies, businesses, and Minnesota citizens' time and resources.

III. OVERALL PROJECT STATUS UPDATES:

Project Status as of January 15, 2018:

Project Status as of June 15, 2018:

Project Status as of January 15, 2019:

Project Status as of June 15, 2019:

Project Status as of January 15, 2020:

Overall Project Outcomes and Results:

IV. PROJECT ACTIVITIES AND OUTCOMES:

ACTIVITY 1: Extract groundwater testing data from individual MPCA files to populate a centralized database
Description: There are 93 active Superfund sites that are part of this project. Currently data is kept in various paper and electronic files. Groundwater contamination at each of the contaminated sites is monitored using a network of monitoring wells. Samples of the groundwater are collected from each well and taken to a lab for analysis. The frequency of sampling and the contamination that the lab will test for varies from project to project.

The State has a standard environmental monitoring database called EQuIS that stores various data including the facility, monitoring locations, characteristics of the underground geology, chemical concentrations, and field

notes/observations. The first step in the project is to load laboratory testing results into the EQuIS database. The sampling results are from groundwater testing at the 93 active Superfund sites.

To do this we will hire and train one full-time hydrologist and two part-time graduate-level student workers to extract data from files and load it into EQuIS.

Summary Budget Information for Activity 1:

ENRTF Budget: $ 133,333
Amount Spent: $ 0
Balance: $ 133,333

Outcome	Completion Date
1. *Hire and train a hydrologist and graduate-level student workers to understand site files and the environmental database.*	November 2017
2. *Groundwater monitoring well locations associated with the 93 active Superfund sites are extracted from files and loaded into the environmental database.*	April 2018
3. *Groundwater testing results from laboratory reports for each monitoring well are extracted from files and loaded into the environmental database.*	July 2018

Activity 1 Status as of January 15, 2018:

Activity 1 Status as of June 15, 2018:

Activity 1 Status as of January 15, 2019:

Activity 1 Status as of June 15, 2019:

Activity 1 Status as of January 15, 2020:

Final Report Summary:

ACTIVITY 2: Map areas of groundwater contamination using data that has been loaded into EQUIS
Description: Using the groundwater data that has been loaded into EQuIS we will map areas of groundwater contamination. Senior-level hydrologists will peer review the mapped areas for consistency and accuracy. These contamination areas will be stored in a GIS database and will be used in Activity 3 to make interactive maps that will be presented on a comprehensive interactive webpage.

Summary Budget Information for Activity 2:

ENRTF Budget: $ 133,333
Amount Spent: $ 0
Balance: $ 133,333

Outcome	Completion Date
1. *Areas of groundwater contamination surrounding 93 Superfund sites are mapped*	April 2019
2. *Groundwater contamination areas are peer reviewed to ensure consistency and accuracy.*	April 2019
3. *Groundwater contamination areas are in a centralized, GIS database.*	June 2019

Activity 2 Status as of January 15, 2018:

Activity 2 Status as of June 15, 2018:

Activity 2 Status as of January 15, 2019:

Activity 2 Status as of June 15, 2019:

Activity 2 Status as of January 15, 2020:

Final Report Summary:

ACTIVITY 3: Share interactive web-based map
Description: The MPCA will use GIS technology to present the areas of groundwater contamination on an interactive web-based map.

A data portal will be created for sharing the groundwater contamination areas. There are multiple options for the data portal and web-based map. We plan to use Esri's GIS platform called ArcMap and ArcGIS Online. We may also use Tableau's data visualization tools. However, because technology is changing so rapidly our plan will evolve as we prepare to build the data portal and web-based map. MPCA will work closely with MN.IT and will develop the preferred option as the project progresses. All the work products will be sharable in the Minnesota Geospatial Commons. This will make our data GIS-ready for other groundwater resource planning tools.

The project team will work in close coordination with the MPCA Communication group to develop a comprehensive communication plan for this project. This interactive web-based map will increase public awareness of groundwater contamination. Currently, our Superfund program webpage is at https://www.pca.state.mn.us/waste/superfund-program and it is likely that we will embed the new application there.

Summary Budget Information for Activity 3:

ENRTF Budget: $ 133,333
Amount Spent: $ 0
Balance: $ 133,333

Outcome	Completion Date
1. *Interactive web-based map showing areas of groundwater contamination is published.*	May 2020
2. *Users will have better access to MPCA's groundwater contamination results.*	June 2020
3. *Increased public awareness of the groundwater contamination areas in the State.*	June 2020

Activity 3 Status as of January 15, 2018:

Activity 3 Status as of June 15, 2018:

Activity 3 Status as of January 15, 2019:

Activity 3 Status as of June 15, 2019:

Activity 3 Status as of January 15, 2020:

Final Report Summary:

V. DISSEMINATION:
Description:

Our dissemination plan is a significant part of Activity 3. As part of Activity 3, we plan to work closely with MPCA's Communications team to publicize the web-based map and also deliver a comprehensive message about the importance of our groundwater resource. We will also craft metrics to measure our effectiveness in reaching key audiences. This data and interactive web map will be available on the MPCA website at www.pca.state.mn.us.

Status as of January 15, 2018:

Status as of June 15, 2018:

Status as of January 15, 2019:

Status as of June 15, 2019:

Status as of January 15, 2020:

Final Report Summary:

VI. PROJECT BUDGET SUMMARY:

A. Preliminary ENRTF Budget Overview:

***This section represents an overview of the preliminary budget at the start of the project. It will be reconciled with actual expenditures at the time of the final report.**

Budget Category	$ Amount	Overview Explanation
Personnel:	$ 400,000	For all three years: Hydrologist: 1.0 FTE/year, 3.0 FTE total Student worker 1: 0.333 FTE/year, 1.0 FTE total Student worker 2: 0.333 FTE/year, 1.0 FTE total
TOTAL ENRTF BUDGET:	**$400,000**	

Explanation of Use of Classified Staff:

Staffing for this project is all temporary/unclassified. The only classified staff will be the in-kind contributions.

Explanation of Capital Expenditures Greater Than $5,000:

None

Total Number of Full-time Equivalents (FTE) Directly Funded with this ENRTF Appropriation:

For all three years:

Hydrologist:	1.0 FTE/year,	3.0 FTE total
Student worker 1:	0.333 FTE/year,	1.0 FTE total
Student worker 2:	0.333 FTE/year,	1.0 FTE total
Project Total		5.0 FTE

Total Number of Full-time Equivalents (FTE) Estimated to Be Funded through Contracts with this ENRTF Appropriation: None

B. Other Funds:

Source of Funds	$ Amount Proposed	$ Amount Spent	Use of Other Funds
Non-state	$0	$0	
State	$0	$0	

Environment Fund, in kind	$240,000	$	Existing Personnel (1 FTE/year for three years). The FTE will be allocated amongst 4 permanent project team members and other additional staff, as needed.
TOTAL OTHER FUNDS:	**$240,000**	**$**	

VII. PROJECT STRATEGY:

A. Project Partners:

Partners receiving ENRTF funding

- *None*

Partners NOT receiving ENRTF funding

- *Cathy Villas-Horns, Supervisor, Minnesota Department of Agriculture, Data Provider and Beneficiary*
- *Jim Porter, EQuIS Database Administrator, MN.IT@PCA, Database Administrator*
- *Dan Ross, Director, MnGEO, MnGEO Commons Host*
- *Randy Ellingboe, MDH, Data Provider and Beneficiary*

B. Project Impact and Long-term Strategy:

This project is a stepping stone to increase public awareness about groundwater. For most people groundwater is a resource that is out of sight and out of mind. Allowing areas where the resource has been degraded to be seen and more fully known will build public knowledge and appreciation to protect and conserve groundwater. The interactive web-based map will be statewide and will encompass all active Superfund sites. Cities, counties, the Metropolitan Council, the Department of Natural Resources, the Minnesota Department of Health, community groups and individual citizens will be able to get this information faster.

Once this system is built, the MPCA will continue to update and publish the data. Conversations with partnering agencies during the duration of the project will help develop the best strategies for long-term maintenance. The MPCA is committed to ongoing data processing and hosting as part of the Agency's overall data and document management strategy.

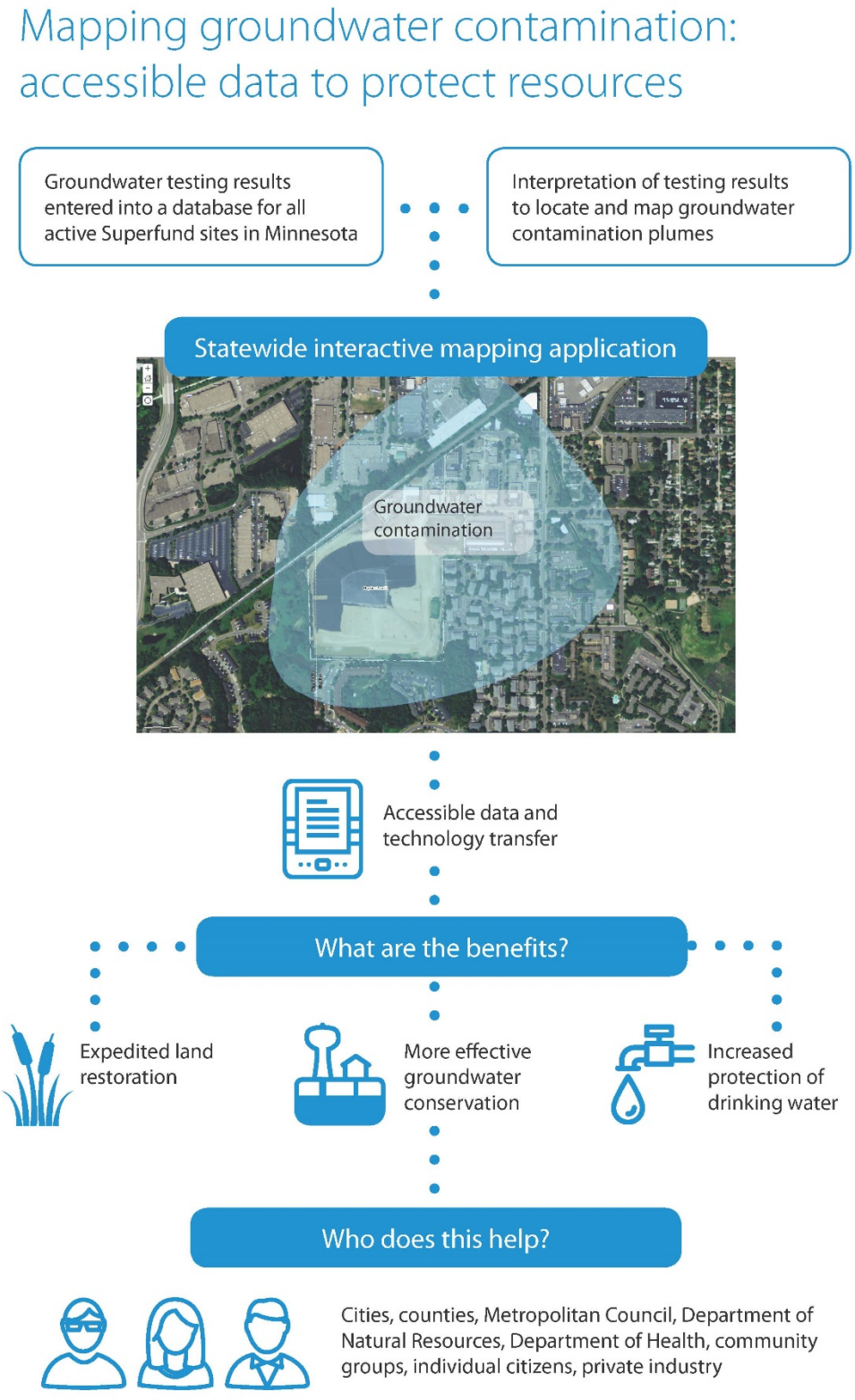
C. Funding History:

Funding Source and Use of Funds	Funding Timeframe	$ Amount
Environment Fund, in kind	2016	$23,000

VIII. REPORTING REQUIREMENTS:

- The project is scheduled for 3 years beginning on 07/01/17 and ending on 06/30/20.
- Periodic project status update reports will be submitted 01/15 and 06/15 of each year.
- A final report and associated products will be submitted between June 30 and August 15, 2020.

IX. VISUAL COMPONENT or MAP(S):



Environment and Natural Resources Trust Fund
M.L. 2017 Project Budget

Project Title: Groundwater Contamination Mapping
Legal Citation: M.L. 2017, Chp. 96, Sec. 2, Subd. 03h
Project Manager: *Hans Neve*
Organization: *Minnesota Pollution Control Agency*
M.L. 2017 ENRTF Appropriation: $*400,000*
Project Length and Completion Date: *3 Years, June 30, 2020*
Date of Report: *September 15, 2016*

ENVIRONMENT AND NATURAL RESOURCES TRUST FUND BUDGET	Activity 1 Budget	Amount Spent	Activity 1 Balance	Activity 2 Budget	Amount Spent	Activity 2 Balance	Activity 3 Budget	Amount Spent	Activity 3 Balance	TOTAL BUDGET	TOTAL BALANCE
BUDGET ITEM	**Extract groundwater testing data and populate a centralized database**			**Map areas of groundwater contamination**			**Create and share interactive web-based map**				
Personnel (Wages and Benefits)	$133,334	$0	$133,334	$133,333	$0	$133,333	$133,333	$0	$133,333	$400,000	$400,000
TBD, Hydrologist, $240,000 (68% salary 32% benefits), 100% FTE each year for 3 of years											
TBD, Student Worker, $80,000 (92% salary 8% benefits), 33.3% FTE each year for 3 of years											
TBD, Student Worker, $80,000 (92% salary 8% benefits), 33.3% FTE each year for 3 of years											
COLUMN TOTAL	**$133,334**	**$0**	**$133,334**	**$133,333**	**$0**	**$133,333**	**$133,333**	**$0**	**$133,333**	**$400,000**	**$400,000**