Final Abstract

Final Report Approved on December 5, 2025

M.L. 2021 Project Abstract

For the Period Ending June 30, 2025

Project Title: County Groundwater Atlas

Project Manager: Vanessa Baratta-Person

Affiliation: MN DNR - Ecological and Water Resources Division

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Website: https://www.dnr.state.mn.us/ewr/index.html

Funding Source:

Fiscal Year:

Legal Citation: M.L. 2021, First Special Session, Chp. 6, Art. 6, Sec. 2, Subd. 03c and M.L. 2024, Chp. Sec. 2, Subd. 18

Appropriation Amount: $1,875,000

Amount Spent: $1,875,000

Amount Remaining: -

Sound bite of Project Outcomes and Results

The Groundwater Atlas provides foundational, science-based, information for use and management of Minnesota groundwaters. The atlas is valuable to government, industry, and for research. The grant supported work on sixteen atlases and publication of county groundwater atlases (County Atlas Part B) for Dodge, Hubbard, Wadena, and Isanti counties.

Overall Project Outcome and Results

Protecting Minnesota's natural environment and vibrant quality of life and growing its economy requires informed use, management and planning related to all the state's natural resources, including groundwater. Groundwater Atlases provide comprehensive geologic and groundwater mapping and interpretations for planners, managers, scientists and citizens statewide for a wide variety of projects such as water-supply planning, land-use decisions, resource development, resource protection, transportation planning, agricultural water supply, groundwater research/studies, and Environmental Impact Statements.

During the period of the grant, County Groundwater Atlases were published for Dodge, Hubbard, Wadena, and Isanti

counties. Mapping activities also continued through the end of the grant in Aitkin, Kandiyohi, Nobles, Olmsted, Rock, and Steele counties, with publication of a completed report for Houston County expected in late 2025.

Groundwater sampling is a key element in the completion of an atlas. Collection of nearly 500 samples (mostly wells, but also lakes and springs) was completed for the St. Louis, Lake, Lac qui Parle, and Dakota County Groundwater Atlases. These samples were analyzed for cations, anions, trace elements, and stable isotopes to aid in classifying groundwater flow, connections between surface water and groundwater, and groundwater sensitivity to pollution. An additonal 67 samples were collected for Ottertail, St. Louis, Lake, Lac qui Parle, and Aitkin counties for carbon-14 analysis. As part of this grant, letters describing sampling results were provided to well owners.

Dissemination and outreach activities continued throughout the grant period including presentations, news releases, GovDelivery list serve (6,000 recipients) notifications, and virtual meetings with county staff and county boards, seminars, and presentations. Dissemination also included workshops for completed reports in Becker, Hubbard, Wadena, Dodge, and jointly for Redwood and Brown counties to present results and provide hands-on experience with our finished reports.

Project Results Use and Dissemination

Dissemination activities focused on notification of sampling activities and publication of atlases through news releases and GovDelivery, participation in seminars, presentations, and field trips to a diverse set of stakeholders and resources managers including county SWCDs, county boards, Legislative Subcommittee on Water Policy, LCCMR events, and others. Dissemination also included workshops with counties, publication of summary articles, updated website, and many personal contacts with users of the atlas. Completed atlas products have been posted to the website noted above and include PDF products as well as all the related GIS data.

Environment and Natural Resources Trust Fund

M.L. 2021 Approved Final Report

General Information

Date: December 5, 2025

ID Number: 2021-071

Staff Lead: Noah Fribley

Project Title: County Groundwater Atlas

Project Budget: $1,875,000

Project Manager Information

Name: Vanessa Baratta-Person

Organization: MN DNR - Ecological and Water Resources Division

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Email: vanessa.baratta@state.mn.us

Web Address: https://www.dnr.state.mn.us/ewr/index.html

Project Reporting

Final Report Approved: December 5, 2025

Reporting Status: Project Completed

Date of Last Action: December 5, 2025

Project Completion: June 30, 2025

Legal Information

Legal Citation: M.L. 2021, First Special Session, Chp. 6, Art. 6, Sec. 2, Subd. 03c and M.L. 2024, Chp. Sec. 2, Subd. 18

Appropriation Language: $1,875,000 the first year is from the trust fund to the commissioner of natural resources to continue producing county groundwater atlases to inform management of surface water and groundwater resources for drinking and other purposes. This appropriation is for Part B, to characterize the potential water yields of aquifers and aquifers' sensitivity to contamination.and (a) The availability of the appropriations for the following projects is extended to June 30, 2025: (12) Laws 2021, First Special Session chapter 6, article 6, section 2, subdivision 3, paragraph (c), County Groundwater Atlas;

Appropriation End Date: June 30, 2025

Narrative

Project Summary: This project supports continuing development of the County Groundwater Atlases. The goal is to provide this valuable water and resource management "information infrastructure" to every county in Minnesota.

Describe the opportunity or problem your proposal seeks to address. Include any relevant background information.

Groundwater is one of the most valuable, often overlooked, and misunderstood of our natural resources. Our state is placing more demands on our groundwater every year. The challenge to balance wise-use for the benefit of our citizens and economy and resource protection will only increase over time. Minnesota's healthy natural environment, growing economy, and vibrant quality of life requires informed use, management and planning related to all the state's natural resources, including groundwater. Industry, researchers, state and local governments and others need comprehensive and accurate information about those resources to do their jobs on behalf of all Minnesotans. The Groundwater Atlas in one important tool for professional planners, resource managers, researchers and citizens to help make these critical informed judgments.

What is your proposed solution to the problem or opportunity discussed above? Introduce us to the work you are seeking funding to do. You will be asked to expand on this proposed solution in Activities & Milestones.

To address this pressing need, our goal is an Atlas for all Minnesota counties as soon as possible. This appropriation will support atlas work on six or more counties (Chippewa, Lake, Lincoln, Pennington, Pipestone, St. Louis) depending upon completion of the Part A Atlas by the MGS and when they are provided to DNR.

The atlas is a critical tool for a broad range of resource managers. It provides comprehensive geologic and groundwater mapping and associated information for planners, managers, scientists and citizens statewide for a wide variety of projects such as: water supply planning, land use decisions, resource development, resource protection, transportation planning, agricultural water supply, groundwater research/studies, and Environmental Impact Statements.

Jerry Spetzman, Administrator Chisago Lakes Lake Improvement District, Chisago County stated, "Chisago County uses the atlas to help inform land use policy decisions. Specific examples include: the Pollution Sensitivity of Near-Surface Materials map was used to help determine the location of a natural burial cemetery; the Bedrock Geology map was used to determine if sufficient quantities of ground water was available to cool a natural gas power plant; the sand distribution model was used to inform frac sand."

What are the specific project outcomes as they relate to the public purpose of protection, conservation, preservation, and enhancement of the state's natural resources?

The atlases will provide valuable information and training to future resource managers who, in the decades ahead, will be grappling with the many challenges of balancing use and preservation of their groundwater resources. The atlases will provide an important tool for maintaining long-term stable water supplies for growing economies, and help protect ecological systems that rely on groundwater.

For example. Amanda Guertin, Benton County, noted that they used map overlays from the atlas to help "create a Sensitive Areas Management Plan to identify sensitive areas to be protected from development or disturbance due to critical, vulnerable, or rare water resources."

Project Location

What is the best scale for describing where your work will take place?

Statewide

What is the best scale to describe the area impacted by your work?

Statewide

When will the work impact occur?

During the Project and In the Future

Activities and Milestones

Activity 1: Groundwater & surface water sampling and analysis

Activity Budget: $484,256

Activity Description:
The DNR will analyze Geologic Atlas data (from the Minnesota Geological Survey), prepare a sampling plan for up to 100 wells in each of up to four counties and selected surface water bodies, compile field chemistry; and analyze groundwater samples for natural chemistry and age-dating isotopes.

Project design and data collection for counties in southeast Minnesota may include specialty mapping of the karst groundwater conditions, including dye tracing to help understand complex groundwater flow conditions in this area of vulnerable natural resources. Mapping in northeast Minnesota may also require specialized sampling and analysis techniques.

Activity Milestones:

Description	Approximate Completion Date
Complete water sampling & analysis in 2-3 counties	October 31, 2022
Complete water sampling & analysis in 2-3 counties	October 31, 2023

Activity 2: Groundwater Atlas preparation and publication

Activity Budget: $1,300,744

Activity Description:
The activity includes preparing, writing and publishing atlas following data collection. The activity includes analyzing collected data (geology, water chemistry, water usage, other), preparing groundwater flow direction maps and groundwater cross sections, pollution sensitivity maps, preparing and publishing reports (hardcopy and web). This activity includes providing GIS data layers for use in decision-support systems, such as county land use planning, and county environmental programs. The assembled GIS layers and electronic files also make the information usable for local, regional, and state decision makers, scientists, industry and citizens.

Activity Milestones:

Description	Approximate Completion Date
Preparation and publication of up to 2-3 complete County Groundwater Atlases	March 31, 2023
Preparation and publication of up to 2-3 complete County Groundwater Atlases	March 31, 2024

Activity 3: Atlas Stakeholder Workshop & Dissemination Activities

Activity Budget: $90,000

Activity Description:
To introduce local resource professionals to the atlas when complete, for this activity DNR will provide hands-on workshops and potentially field trips in cooperation with county staff. Workshops include real-life exercises that demonstrate some of the critical and creative ways to use the groundwater atlas to manage resources. DNR will conduct other dissemination activities as detailed in that section of this work plan.

Activity Milestones:

Description	Approximate Completion Date
Complete workshops for 2-3 completed county groundwater atlases	June 30, 2023
Complete workshops for 2-3 completed county groundwater atlases	June 30, 2024

Dissemination

Describe your plans for dissemination, presentation, documentation, or sharing of data, results, samples, physical collections, and other products and how they will follow ENRTF Acknowledgement Requirements and Guidelines.
At the completion of a Groundwater Atlas for a county, DNR provides direct personal notification to county partners of the availability of the atlas. DNR also notifies LCCMR staff and approximately 4,000 email recipients (listserv: http://www.dnr.state.mn.us/emailupdates) who have signed up to receive such notifications. DNR uses official news releases that are picked up by media outlets across the state, and targeted news releases to county media. Additional dissemination outlets include articles or updates in newsletters for organizations such as the Legislative Water Commission, Association of Minnesota County's, the Minnesota Ground Water Association, internal DNR agency news releases, and presentations at technical and local conferences across Minnesota.

Each completed atlas is printed in paper format and distributed to the county, libraries, state agencies, and other organizations. County representatives are provided with up to 100 paper (hard) copies of the final atlas to distribute to local stakeholders at no charge. Project data, including water chemistry data and GIS data are available on the DNR web site. Water chemistry data are also incorporated into the interagency EquiS database that can be used by all state government entities. PDF versions of the complete report are posted to the DNR web site: https://www.dnr.state.mn.us/waters/groundwater_section/mapping/status.html.

Following the publication of each atlas, a local workshop is held to introduce the report contents and train users in its application. County representatives host the workshop, inviting interested parties. Real-life exercises based on the specific groundwater resources of the county are used to walk stakeholders through the use of the comprehensive information provided in the CGA for their county. Following dissemination and the local workshop, DNR staff are available to the counties and others to answer questions and assist in the continued application and use of the atlas.

The Minnesota Environment and Natural Resources Trust Fund (ENRTF) is acknowledged through use of the trust fund logo or attribution language on project print and electronic media, publications, signage, and other communications per the ENRTF Acknowledgement Guidelines.

Long-Term Implementation and Funding

Describe how the results will be implemented and how any ongoing effort will be funded. If not already addressed as part of the project, how will findings, results, and products developed be implemented after project completion? If additional work is needed, how will this work be funded?
The DNR provides training and support to atlas users, through workshops, field trips, user guides, conference and media presentations and importantly, ongoing support to individual county and local resource managers on specific projects and challenges. Additionally, DNR uses data from each newly completed atlas to update state-wide atlas products like the Groundwater Provinces Maps, Pollution Sensitivity of the Bedrock Surface (HG-01) & Near Surface Materials (HG-02), spring shed mapping and the extensive chemistry database. With ongoing funding from DNR, atlas groundwater professional staff will continue to provide atlas-related support as needed after each county atlas is completed.

Other ENRTF Appropriations Awarded in the Last Six Years

Name	Appropriation	Amount Awarded
County Geologic Atlases - Part B	M.L. 2015, Chp. 76, Sec. 2, Subd. 03b	$2,000,000
County Geologic Atlases - Part B, Mapping Aquifer Hydrology	M.L. 2019, First Special Session, Chp. 4, Art. 2, Sec. 2, Subd. 03o	$2,400,000

Budget Summary

Category / Name	Subcategory or Type	Description	Purpose	Gen. Ineligible	% Benefits	# FTE	Classified Staff?	$ Amount	$ Amount Spent	$ Amount Remaining
Personnel										
Hydrogeologist Supervisor		Project Manager/Senior Technical			20%	0.75	X	$116,250	-	-
Information Officer 2		Technical Editor			20%	0.75	X	$82,250	-	-
Hydrogeologist 2/Engineer		Hydrogeologist/Author			20%	1.5	X	$130,639	-	-
Hydrogeologist 2		Hydrogeologist/Author			20%	1.5	X	$181,000	-	-
Hydrogeologist 2		Hydrogeologist/Author			20%	1.5	X	$133,000	-	-
Hydrogeologist 3		Hydrogeologist/Lead Author			20%	0.75	X	$103,750	-	-
Senior Groundwater Specialist		Project Lead/Karst Geology Specialist			20%	0.45	X	$66,250	-	-
Research Analyst Senior		Lead GIS			20%	0.75	X	$85,250	-	-
Hydrogeologist 1		Hydrogeologist/Fieldwork Lead			20%	1.5		$146,922	-	-
Hydrogeologist 2		Hydrogeologist/Author			20%	1.5	X	$130,000	-	-
Research Scientist/Hydrogeologist		Chief Author/Senior Technical			20%	1.5	X	$204,000	-	-
							Sub Total	**$1,379,311**	**$1,379,311**	**-**
Contracts and Services										
Minnesota Department of Agriculture Chemistry Laboratory	Professional or Technical Service Contract	MDA Laboratory provides comprehensive chemical analysis of approximately 110 groundwater samples from each county included in the atlas schedule. With ML2021 appropriation, groundwater from six counties would be analyzed by the MDA for approximately 660 samples analyzed, at a total cost of approximately $240,000.		X		2		$218,868	$218,868	-
University of Minnesota Chemistry Laboratory	Professional or Technical Service Contract	UM Chemistry Laboratory provides carbon-14 analysis of groundwater samples collected for each county to understand groundwater residence time and groundwater-surface water		X		0.2		-	-	-

		connections. Analytical costs are approximately $8,000 per county, or $48,000 for six counties.								
University of Waterloo	Professional or Technical Service Contract	The University of Waterloo provides unique laboratory analytical services that are not readily available from other vendors for tritium and stable isotopes in groundwater. Cost per county for tritium and stable isotope analysis is approximately $18,000, or a total cost for six counties of approximately $108,000.		X		0.4		$93,101	$93,101	-
							Sub Total	**$311,969**	**$311,969**	**-**
Equipment, Tools, and Supplies										
	Tools and Supplies	Supplies, including expendable water sampling supplies. Approx. 660 samples total @ $30/sample: high volume micro filters; valves and tubing for each well sampled, titration supplies (est. $19,000). Shipping costs for water samples to laboratories (est. $1,000).	Disposable supplies used for approximately 110 samples in each of the six counties sampled as part of this proposal.					$20,000	$20,000	-
	Equipment	Non-capital equipment including: water sampling and measurement tools and field analytical meters and equipment (individual instruments/equipment cost less than $5000 each). Estimated total is $13,256 for replacement of multiple, individual meters as needed: Trimble, Hack water quality meters, Rugged Pro field probes and titrate system.	Necessary equipment and instruments for groundwater sampling.					$3,932	$3,932	-
							Sub Total	**$23,932**	**$23,932**	**-**
Capital Expenditures										
							Sub Total	**-**	**-**	**-**

Acquisitions and Stewardship										
							Sub Total	-	-	-
Travel In Minnesota										
	Miles/ Meals/ Lodging	In-state vehicle mileage (est. $25,000) and travel expenses for meals and lodging (est. $30,000), primarily for groundwater sampling and field data collection in up to six counties. All travel per the DNR travel policy.	Groundwater sampling in up to six counties.					$59,979	$59,979	-
							Sub Total	**$59,979**	**$59,979**	-
Travel Outside Minnesota										
							Sub Total	-	-	-
Printing and Publication										
	Printing	Each Groundwater Atlas includes hard-copy publication. This includes digital posting as well as off-set printing of approximately 200 copies: 1) One 40-60 page bound report with up to 40 color figures, maps and tables, 2) Three to four full color map plates that are each approximately 24-inches by 36-inches in size. Some Atlases require a second, figures only, bound report. Printing costs also includes vendor preparation of 1,000 post cards for each county and postage to mail to citizens to obtain permission for water-well sampling. Total anticipated printing costs per county (cards, atlases, postage) estimated to be $8,000. Printing costs for six (6) county atlas estimated to be ~$48,000.	Post cards are used to request permission from well owners to collect samples from their wells. Approximately 200 copies of the Groundwater Atlas are printed in hard copy for each county for distribution to stakeholders and resource managers. Postage costs are included for post cards and sending copies of the atlas to stakeholders.					$14,315	$14,315	-

							Sub Total	**$14,315**	**$14,315**	**-**
Other Expenses										
		*Direct and Necessary Expenses: HR Support (~$20,680), Safety Support (~$3,842), Financial Support (~$16,812), Communication Support (~$1,324), IT Support (~$41,687), and Planning Support (~$1,149) necessary to accomplish funded programs/projects.	*Direct and Necessary Expenses includes all Department Support Services.					$85,494	$85,494	-
							Sub Total	**$85,494**	**$85,494**	**-**
							Grand Total	**$1,875,000**	**$1,875,000**	**-**

Classified Staff or Generally Ineligible Expenses

Category/Name	Subcategory or Type	Description	Justification Ineligible Expense or Classified Staff Request
Personnel - Hydrogeologist Supervisor		Project Manager/Senior Technical	**Classified :** Because the atlas program represents a longer-term project (decades) to complete an atlas for each county, most staff paid for with ENRTF funds are in classified positions hired specifically to accelerate the completion of the atlas work. Staff in these positions generally did not have and currently do not have other assignments. The positions will be canceled and the approved complement of the agency reduced accordingly once the appropriation has been spent.
Personnel - Information Officer 2		Technical Editor	**Classified :** Because the atlas program represents a longer-term project (decades) to complete an atlas for each county, most staff paid for with ENRTF funds are in classified positions hired specifically to accelerate the completion of the atlas work. Staff in these positions generally did not have and currently do not have other assignments. The positions will be canceled and the approved complement of the agency reduced accordingly once the appropriation has been spent.
Personnel - Hydrogeologist 2/Engineer		Hydrogeologist/Author	**Classified :** Because the atlas program represents a longer-term project (decades) to complete an atlas for each county, most staff paid for with ENRTF funds are in classified positions hired specifically to accelerate the completion of the atlas work. Staff in these positions generally did not have and currently do not have other assignments. The positions will be canceled and the approved complement of the agency reduced accordingly once the appropriation has been spent.
Personnel - Hydrogeologist 2		Hydrogeologist/Author	**Classified :** Because the atlas program represents a longer-term project (decades) to complete an atlas for each county, most staff paid for with ENRTF funds are in classified positions hired specifically to accelerate the completion of the atlas work. Staff in these positions generally did not have and currently do not have other assignments. The positions will be canceled and the approved complement of the agency reduced accordingly once the appropriation has been spent.
Personnel - Hydrogeologist 2		Hydrogeologist/Author	**Classified :** Because the atlas program represents a longer-term project (decades) to complete an atlas for each county, most staff paid for with ENRTF funds are in classified positions hired specifically to accelerate the completion of the atlas work. Staff in these positions generally did not have and currently do not have other assignments. The positions will be canceled and the approved complement of the agency reduced accordingly once the appropriation has been spent.
Personnel - Hydrogeologist 3		Hydrogeologist/Lead Author	**Classified :** Because the atlas program represents a longer-term project (decades) to complete an atlas for each county, most staff paid for with ENRTF funds are in classified positions hired specifically to accelerate the completion of the atlas work.

			Staff in these positions generally did not have and currently do not have other assignments. The positions will be canceled and the approved complement of the agency reduced accordingly once the appropriation has been spent.
Personnel - Senior Groundwater Specialist		Project Lead/Karst Geology Specialist	**Classified :** Because the atlas program represents a longer-term project (decades) to complete an atlas for each county, most staff paid for with ENRTF funds are in classified positions hired specifically to accelerate the completion of the atlas work. Staff in these positions generally did not have and currently do not have other assignments. The positions will be canceled and the approved complement of the agency reduced accordingly once the appropriation has been spent.
Personnel - Research Analyst Senior		Lead GIS	**Classified :** Because the atlas program represents a longer-term project (decades) to complete an atlas for each county, most staff paid for with ENRTF funds are in classified positions hired specifically to accelerate the completion of the atlas work. Staff in these positions generally did not have and currently do not have other assignments. The positions will be canceled and the approved complement of the agency reduced accordingly once the appropriation has been spent.
Personnel - Hydrogeologist 2		Hydrogeologist/Author	**Classified :** Because the atlas program represents a longer-term project (decades) to complete an atlas for each county, most staff paid for with ENRTF funds are in classified positions hired specifically to accelerate the completion of the atlas work. Staff in these positions generally did not have and currently do not have other assignments. The positions will be canceled and the approved complement of the agency reduced accordingly once the appropriation has been spent.
Personnel - Research Scientist/Hydrogeologist		Chief Author/Senior Technical	**Classified :** Because the atlas program represents a longer-term project (decades) to complete an atlas for each county, most staff paid for with ENRTF funds are in classified positions hired specifically to accelerate the completion of the atlas work. Staff in these positions generally did not have and currently do not have other assignments. The positions will be canceled and the approved complement of the agency reduced accordingly once the appropriation has been spent.
Contracts and Services - Minnesota Department of Agriculture Chemistry Laboratory	Professional or Technical Service Contract	MDA Laboratory provides comprehensive chemical analysis of approximately 110 groundwater samples from each county included in the atlas schedule. With ML2021 appropriation, groundwater from six counties would be analyzed by the MDA for approximately 660 samples analyzed, at a total cost of approximately $240,000.	As a State Agency, the MDA is given preference for this contract.

Contracts and Services - University of Minnesota Chemistry Laboratory	Professional or Technical Service Contract	UM Chemistry Laboratory provides carbon-14 analysis of groundwater samples collected for each county to understand groundwater residence time and groundwater-surface water connections. Analytical costs are approximately $8,000 per county, or $48,000 for six counties.	This is unique laboratory analytical work not readily available from other contractors, and as a state entity, the University of Minnesota Laboratory Is given preference for this work.
Contracts and Services - University of Waterloo	Professional or Technical Service Contract	The University of Waterloo provides unique laboratory analytical services that are not readily available from other vendors for tritium and stable isotopes in groundwater. Cost per county for tritium and stable isotope analysis is approximately $18,000, or a total cost for six counties of approximately $108,000.	This is unique laboratory analytical work not readily available from other contractors.

Non ENRTF Funds

Category	Specific Source	Use	Status	$ Amount	$ Amount Spent	$ Amount Remaining
State						
Cash	DNR General Funds appropriated by the legislature, and distributed by the commissioner of the DNR.	DNR General Funds to support salaries for atlas staff (~2 FTE) and related support resources for the 2-year project period to support completion of groundwater atlases.	Secured	$1,200,000	-	$1,200,000
			State Sub Total	**$1,200,000**	**-**	**$1,200,000**
Non-State						
In-Kind	In-Kind county/local government assistance through staff, resources, facilities and goods.	County/local government assistance to arrange water sampling access, arrange and sponsor local training workshops, field trips and training. Approximately $4,000/county for up to six counties.	Potential	$24,000	$4,000	$20,000
			Non State Sub Total	**$24,000**	**$4,000**	**$20,000**
			Funds Total	**$1,224,000**	**$4,000**	**$1,220,000**

Attachments

Required Attachments

Visual Component

File: c7fece3d-809.pdf

Alternate Text for Visual Component

The first page is a Minnesota map which shows the estimated status of groundwater atlases for each county as of July 2022. Counties are shaded according to their status as either, 1) not yet started, 2) complete/anticipated completion, or as 3) 2021-071 counties. This appropriation includes work on portions of a groundwater atlas for the six counties shown as 2021-071 counties: : Chippewa, Lake, Lincoln, Pennington, Pipestone, St. Louis. Page two is a list of all eighty seven (87) counties g...

Supplemental Attachments

Capital Project Questionnaire, Budget Supplements, Support Letter, Photos, Media, Other

Title	File
County Support for Groundwater Atlas	e762306d-9b8.pdf
Background Check Certification	6bef3935-d88.pdf
Redwood Brown Presentation	095fbcb0-eab.pptx
Becker Presentation	689ca969-110.pptx
Dodge Presentation	d0aa3bd2-33b.pptx
Hubbard Presentation	b4da1ff5-779.pptx
Wadena Presentation	24e1d88a-fea.pptx
Updated CGA Status Map Aug 2025	5df1cfa2-842.png
Dodge Groundwater Atlas Report	5d3c59e1-b4d.pdf
Dodge Plate 7	d3c356b2-b4f.pdf
Dodge Plate 8	20dff1d5-36a.pdf
Dodge Plate 9	2214c12f-3b2.pdf
Hubbard Groundwater Atlas Report	2fcc7006-d0e.pdf
Hubbard Plate 7	15636f32-783.pdf
Hubbard Plate 8	fcf2d486-d26.pdf
Hubbard Plate 9	145041ef-f9c.pdf
Isanti Groundwater Atlas Report	7b529fc8-7b6.pdf
Isanti Plate 7	2c3f604f-2c5.pdf
Isanti Plate 8	bb6f26a9-597.pdf
Wadena Groundwater Atlas Report	9ce937ec-8c5.pdf
Wadena Plate 6	64396609-0f1.pdf
Wadena Plate 7	5c83bcc5-284.pdf

Difference between Proposal and Work Plan

Describe changes from Proposal to Work Plan Stage

The recommended funding is 75% of the original proposal request (from $2,500,000 to $1,875,000). To achieve this reduction, the work plan was reduced by approximately 25% in all categories. The number of counties planned for this work (including groundwater sampling) was reduced by 25% from eight to six. Polk and Red Lake counties, which were in the original proposal, have been removed from the work plan. The personnel funding was reduced from approximately two (2) years of support to one and one-half (1.5) years, a 25% reduction.

DNR added more detailed activities and milestones per LCCMR staff recommendations. The activities and milestones

had to be revised to account for overlapping appropriations (2020-009, 2021-071) resulting from the legislative process in 2020/2021. We selected state-wide work and impacts from new drop downs because our plans call for work across the state and we update statewide coverages (near surface and bedrock sensitivity and water table) every time a new county atlas is completed. No changes to budget or scope were made.

Additional Acknowledgements and Conditions:

The following are acknowledgements and conditions beyond those already included in the above workplan:

Do you understand and acknowledge the ENRTF repayment requirements if the use of capital equipment changes?

N/A

Do you understand that travel expenses are only approved if they follow the "Commissioner's Plan" promulgated by the Commissioner of Management of Budget or, for University of Minnesota projects, the University of Minnesota plan?

Yes, I understand the Commissioner's Plan applies.

Does your project have potential for royalties, copyrights, patents, sale of products and assets, or revenue generation?

No

Do you understand and acknowledge IP and revenue-return and sharing requirements in 116P.10?

N/A

Do you wish to request reinvestment of any revenues into your project instead of returning revenue to the ENRTF?

N/A

Does your project include original, hypothesis-driven research?

Yes

Does the organization have a fiscal agent for this project?

No

Work Plan Amendments

Amendment ID	Request Type	Changes made on the following pages	Explanation & justification for Amendment Request (word limit 75)	Date Submitted	Approved	Date of LCCMR Action
1	Amendment Request	• Budget • Project Collaborators - Project Manager Info • Narrative • Other • Budget - Capital, Equipment, Tools, and Supplies • Budget - Travel and Conferences • Budget - Printing and Publication • Budget - Other	I made adjustments to the budget summary tab to update the budget summary report and report current amounts spent for: Personnel, Equipment, Tools and Supplies, Travel, Printing and Publication, and Direct and Necessary Costs.	February 1, 2024	Yes	May 22, 2024
2	Project Manager	Previous Manager: Paul Putzier (paul.putzier@state.mn.us) New Manager: Vanessa Baratta-Person (vanessa.baratta@state.mn.us)	Current Project Manager is retiring.	September 1, 2023	Yes	September 7, 2023
3	Completion Date	Previous Completion Date: 06/30/2024 New Completion Date: 06/30/2025; Governor Approved on 04/15/2024	Reduced staff due to retirements and turnover has resulted in less funding requirements at present. Two grants were also awarded simultaneously during the pandemic and the first grant (2020-009) was expended during the first two years of the award and work continues now under this grant (2021-071).	September 1, 2023	Yes	May 22, 2024
4	Amendment Request	• Budget • Budget - Personnel • Budget - Professional / Technical Contracts • Budget - Capital, Equipment, Tools, and Supplies • Budget - Travel and Conferences • Budget - Printing and Publication • Budget - Other	Adjustments were made to the budget because printing and lab costs have been less than originally budgeted in the workplan due to shifting to print on demand, the U of M lab C14 work being completed by Waterloo, and adjustments to our sampling schedule. Money was shifted into payroll and travel to cover increased travel costs and	November 25, 2024	Yes	February 13, 2025

			staff time as we plan to use up the fund this fiscal year.			
5	Amendment Request	• Budget • Other • Budget - Personnel • Budget - Professional / Technical Contracts • Budget - Capital, Equipment, Tools, and Supplies • Budget - Travel and Conferences • Budget - Printing and Publication • Budget - Other • Attachments	Adjustments were made to the budget to clear up the final expenses to cover the end of the appropriation. Portions were shifted out of printing and communication, Lab expenses, and Non-capitol equipment because the amount remaining was not needed during spring sampling and money was shifted into payroll to support staff time.	August 14, 2025	Yes	October 20, 2025

Status Update Reporting

Final Status Update August 14, 2025

Date Submitted: August 14, 2025

Date Approved: October 20, 2025

Overall Update
All funds for this grant were utilized by the end of the fiscal year 2025 on June 30,2025 and all of the activities and milestones have been completed. The summaries presented in each of the activities sections of this update represent an overview of the accomplishments during the entire grant usage.

Activity 1
This grant supported the collection of core samples for the St. Louis, Lake, Lac qui Parle, and Dakota County Groundwater Atlases. The sampling for these four counties amounted to a total of 500 samples (5 standard counties), because St. Louis County was so large it was sampled as if it were two counties. Carbon-14 sampling was completed for Ottertail, St. Louis, Lake, Lac qui Parle, and Aitkin counties. Work was also started for Lincoln and Pipestone counties, including coordination with county and internal staff to begin developing groundwater sampling plans for fall 2025.
(This activity marked as complete as of this status update)

Activity 2
This grant supported the publication of the Dodge, Hubbard, Wadena, and Isanti County Groundwater Atlas. It supported significant progress on the Houston County Groundwater atlas that is in the final stages of review and is expected to be published by the end of 2025. It also supported continued work on atlases for Aitkin, Kandiyohi, Nobles, Olmsted, Rock, and Steele counties. DNR staff conducted reviews of multiple draft components of Geologic Atlases (Part A) prepared by the MGS. These reviews included components of Cook, Pipestone, Lincoln, Pennington, Red Lake, Waseca, and Fairbault County Geologic Atlases.
(This activity marked as complete as of this status update)

Activity 3
Workshops were delayed when this appropriation was first awarded due to Covid-19 restrictions on in-person meetings while we were using an earlier grant. Once meetings in person resumed, this grant supported workshops for the completed groundwater atlases in Becker, Hubbard, Wadena, and Dodge counties. A joint workshop was held for the completed groundwater atlases in Redwood and Brown counties. Initial planning is also underway for a workshop for the recently published Isanti County Groundwater Atlas, and is expected to take place in Fall/Winter of 2025. Additional requests for information and presentations were provided to both county and state agency staff for multiple counties.
(This activity marked as complete as of this status update)

Dissemination
In addition to completing workshops and communications with our county partners for Becker, Hubbard, Wadena, Dodge, and Redwood/Brown counties, staff: presented to multiple County/SWCD boards, participated/presented in a water tour hosted by the Hubbard County SWCD and the Legislative Subcommittee on Water Policy, worked the DNR State Fair Water Day to discuss groundwater issues and atlas work funded by LCCMR, fielded requests for data from atlases and interpretations of atlas data for ongoing research into residence time and nitrate trends in southeastern Minnesota (requests came from multiple agencies including MDA, MPCA, MDH, and the Minnesota Geological Survey), updated the Groundwater Atlas webpages to make our work more accessible to end users, and met with University of Minnesota researchers to wrap up the data and final report of the neonicotinoid groundwater collaboration project (collaboration related to LCCMR 2019-048-B project).

Atlas staff published news releases and updates via GovDelivery (over 7,000 people on the list-serve) for work in St. Louis, Lake, Lac qui Parle, Dakota, Hubbard, Wadena, and Dodge counties. Using the recently published Cass County Groundwater Atlas, staff worked with Leech Lake Band of Ojibwe to understand groundwater conditions related to contamination issues the Band is addressing.

Status Update Reporting

Status Update February 1, 2025

Date Submitted: February 3, 2025

Date Approved: February 13, 2025

Overall Update
CGA staff used the 2021-071 grant as our primary funding source during this assessment period. Group activity focused on: project management tasks, external review and publishing of the Dodge and Wadena County Groundwater Atlases (CGA), and planning and completing sampling in Lake and Lac Qui Parle counties, as well as carbon-14 (C-14) sampling in St Louis County. Dissemination activities included presentations presenting results from the Hubbard County Groundwater Atlas, three workshops (Hubbard, Wadena, and Dodge counties), and a presentation at a Part A workshop for St. Louis County.

Activity 1
During this assessment period work continued for milestone 2. Groundwater sampling for C-14 analysis was completed in St. Louis County in fall 2024, because this county was very large relative to other Minnesota counties, DNR increased the number of samples to 17 (under the equivalent of two typically sized counties as identified in the work plan). Standard sets of samples were also collected for Lake and Lac qui Parle counties. Analytical laboratory fees for some of this sampling is still pending. Groundwater sampling for the complete atlas sampling suite is planned for Dakota County later this spring, as well as C-14 sampling for Lake and Lac qui Parle counties.

Activity 2
As part of milestone 2 (milestone 1 was completed during this assessment period), Wadena and Dodge County Groundwater Atlases were published in fall 2024, and Isanti CGA is beginning its review process and publication is planned for spring of 2025. GIS and report production work has also continued for Aitkin, Houston, Kandiyohi, Nobles, Olmsted, Rock, Steele, and St. Louis counties.

Activity 3
Milestone 2 complete. The Hubbard, Wadena, and Dodge County workshops all took place during this assessment period. The Hubbard County workshop was held on September 11th in Park Rapids, the Wadena County workshop was held on November 18th in Wadena, and the Dodge County workshop was held on January 22nd in Mantorville. County Groundwater Atlas staff also took part in a Minnesota Geological Survey workshop for St. Louis County during this assessment period. Planning will be underway for the Isanti county workshop after its publication later this year. As always, we invite the LCCMR members and staff to attend.
(This activity marked as complete as of this status update)

Dissemination
Dissemination activities during the update period included presentations to the Hubbard County Coalition of Lakes commission, the August water tour (hosted by the Hubbard County SWCD and the Legislative Subcommittee on Water Policy), three workshops (Hubbard, Wadena, and Dodge County Groundwater Atlases), and a presentation at a Part A workshop for members of the Fond du Lac tribe in St. Louis County. GovDelivery and news releases were distributed to notify the public of the publications of the Hubbard, Wadena, and Dodge County Groundwater Atlases.
In our outreach and communication activities, DNR Groundwater Atlas staff make every effort to acknowledge support from the ENRTF including press releases, publications, event advertisements & invitations, newsletters, printed materials, and presentations.

Status Update Reporting

Status Update August 1, 2024

Date Submitted: August 1, 2024

Date Approved: August 23, 2024

Overall Update
CGA staff used the 2021-071 grant as our primary funding source during this assessment period. Group activity focused on: project management tasks, external review and publishing of the Hubbard County Groundwater Atlas (CGA), review of an internal draft of the Wadena and Dodge CGAs, planning and completing carbon-14 sampling events in Otter Tail County, and hiring and onboarding of new staff. Dissemination activities included presentations to the SWCD board in Hubbard County, two workshops (Becker County and a joint workshop for Redwood and Brown CGAs), and presentations at Part A workshops for Dakota, St. Louis, Lac Qui Parle, and Lake counties.

Activity 1
During this assessment period work continued for milestone 2. Groundwater sampling for carbon-14 (C-14) analysis was completed in Otter Tail County in spring 2024. Because this county was very large relative to other Minnesota counties, DNR doubled the number of C-14 samples to 20 (the equivalent of two typically sized counties as identified in the work plan). Analytical laboratory fees for some of this sampling is still pending. Groundwater sampling for the complete atlas sampling suite is planned for Lake and Lac Qui Parle counties in the remainder of the summer as well as St. Louis County C-14.

Activity 2
As part of Activity 2, both milestones, Hubbard CGA was published in the spring, Wadena CGA has been completed and is currently being finalized at our printer, and Dodge CGA has completed its round of external review and publication is planned for fall of 2024. Work has also continued for Aitkin, Houston, Isanti, Kandiyohi, Nobles, Olmsted, Rock, Steele, and St. Louis counties.
DNR staff conducted reviews of draft Geologic Atlases (Part A) prepared by the MGS, including components of Cook and Pipestone counties. DNR has also gone live with a Print-on-Demand (POD) application that includes all our historic county atlases. POD reduces printing and administrative costs to store and sell hardcopies.

Activity 3
Milestone 1 complete during previous assessment period.

Milestone 2 underway. The Becker County workshop took place on February 27th in Detroit Lakes, in preparation for this workshop presentations were made to the Becker County Commissioners and SWCD Board. A joint workshop for Redwood and Brown counties took place on June 27th in Springfield. Groundwater Atlas staff also took part in the Minnesota Geological Survey workshops for Dakota, St. Louis, Lac Qui Parle, and Lake counties during this assessment period. Planning is underway for workshops in Hubbard and Wadena counties this fall. As always, we invite the LCCMR members and staff to attend.

Dissemination
Dissemination activities during the update period included presentations to the SWCD board in Hubbard County, two workshops (Becker County and a joint workshop for Redwood and Brown CGAs), presentations at Part A workshops for Dakota, St. Louis, Lac Qui Parle, and Lake counties, and a presentation to the subcommittee on Minnesota Water Policy on June 10th. GovDelivery and news releases were distributed to notify the public of the sampling that will be taking place in Lake and Lac Qui Parle counties.
In our outreach and communication activities, DNR Groundwater Atlas staff make every effort to acknowledge support

from the ENRTF including press releases, publications, event advertisements & invitations, newsletters, printed materials, and presentations.

Additional Status Update Reporting

Additional Status Update August 14, 2024

Date Submitted: August 1, 2024

Date Approved: August 23, 2024

Overall Update
This update is not needed due to legislative extension.

Activity 1
This update is not needed due to legislative extension.

Activity 2
This update is not needed due to legislative extension.

Activity 3
This update is not needed due to legislative extension.

Dissemination
This update is not needed due to legislative extension.

Status Update Reporting

Status Update February 1, 2024

Date Submitted: February 1, 2024

Date Approved: May 22, 2024

Overall Update
DNR requested two separate grants (2021-071 and 2020-009) over the last several years, with the intention that funding would be available consecutively and provide for the development of atlases over a 4-6 year timeframe. However, the grants were received at the same time with concurrent calendars over three years. CGA staff started to use the 2021-071 grant as our primary funding source during this assessment period. Group activity focused on: project management tasks, review of an internal draft of the Hubbard County Groundwater Atlas, planning and completing groundwater sampling events in St. Louis County, coordinating and planning for the Becker County workshop, and hiring and onboarding of new staff. Dissemination activities included presentations to the board of County Commissioners and SWCD board in Becker County, and presentations and meetings with inside stakeholders (DNR staff), state agencies, other interested parties, and the public.

Activity 1
During this assessment period work continued for milestone 2. Groundwater sampling for the complete atlas-suite was completed in St. Louis County in fall 2023. Because this county was very large relative to other Minnesota counties, DNR doubled the number of samples collected to approximately 200 (the equivalent of two typically sized counties as identified in the work plan). Analytical laboratory fees for St. Louis County samples are pending. Groundwater sampling for Otter Tail County C-14 is planned for spring of 2024.

Activity 2
As part of Activity 2, both milestones, Hubbard CGA has moved into our internal review process and significant progress has been made for Wadena, Dodge and Houston Groundwater Atlases. Publication of these atlases is planned for summer/fall of 2024. Work has also continued for Aitkin, Isanti, Kandiyohi, Nobles, Olmsted, Rock, Steele, and St. Louis counties.

DNR staff conducted reviews of draft Geologic Atlases (Part A) prepared by the MGS, including components of Lincoln, Pennington, Red Lake, and Waseca counties. DNR has also gone live with a Print-on-Demand (POD) application that includes all our historic county atlases. POD reduces printing and administrative costs to store and sell hardcopies.

Activity 3
Milestone 1 complete during previous assessment period.

Milestone 2 underway. The Becker County workshop is scheduled for February 27th in Detroit Lakes, in preparation for this workshop presentations were made to the Becker County Commissioners and SWCD Board. Additional workshops have been discussed for the atlases that will be published this summer/fall. Groundwater Atlas staff also took part in the Minnesota Geological Survey workshop for Olmsted County in Fall 2023 and provided preliminary findings. As always, we invite the LCCMR members and staff to attend.

Dissemination
Dissemination activities during the update period included presentations to the Becker County Commissioners Board and SWCD Board (See Activity 3). GovDelivery and news releases were distributed to notify the public of the sampling taking place in St. Louis County. Additional presentations and engagements to introduce the atlas and groundwater issues included: State Fair Water Day and a monthly meeting of DNR Water Monitoring and Surveying staff (35+).

Groundwater Atlas Staff fulfilled requests for data from atlases and interpretations of atlas data for ongoing research into residence time and nitrate trends in southeastern Minnesota. Requests came from multiple agencies including MDA, MPCA, MDH, and the Minnesota Geological Survey.

Groundwater Atlas staff reviewed and contributed to a University of Minnesota researcher paper related to the presence of neonicotinoids in groundwater. Collaboration related to LCCMR 2019-048-B project.

In our outreach and communication activities, DNR Groundwater Atlas staff make every effort to acknowledge support from the ENRTF including press releases, publications, event advertisements & invitations, newsletters, printed materials, and presentations.

Status Update Reporting

Status Update August 1, 2023

Date Submitted: August 3, 2023

Date Approved: August 31, 2023

Overall Update

DNR had proposed on two separate grants over several years, with the intention that the funding would be available consecutively and provide for the development of atlases over 4-6 years. However, the grants were received at the same time with concurrent calendars over three years. At the start of the review period, DNR Atlas work used funding from the original grant (2020-009). In early 2023 DNR started to use this grant (2021-071) as the county projects progressed. The activity continued to focus on project management tasks to managing staffing assignments, review of internal report drafts for Becker, and Isanti, planning for groundwater sampling events in St. Louis and Otter Tail counties, coordinating, planning, and attending atlas workshops for Cass and Hennepin counties, and communicating with our partners at Minnesota Geological Survey and the counties. In June most of the work conducted by the Atlas team transitioned to ML2021-071 including field work associated with groundwater sampling in Otter Tail County. Dissemination activities included presentations and work sessions with several Boards of County Commissioners, presentations and meetings with inside stakeholders (DNR staff), other interested parties and the public.

Activity 1

Milestone 1 completed. Groundwater sampling for the complete atlas-suite was completed in Otter Tail County in spring 2023 and planning continued for groundwater sampling in St. Louis County in fall 2023. Because these two counties are very large relative to other Minnesota counties, DNR is doubling the number of groundwater samples collected to approximately 200 from each county, or the equivalent of two more typically sized counties as identified in the work plan. Analytical laboratory fees for Otter Tail County samples are pending. Groundwater sampling for C-14 was completed in Aitkin County.

Milestone 2 underway. Planning has started to sample approximately 200 wells in St. Louis County in fall 2023 and spring 2024. This is the equivalent of two counties including double the typical number of samples collected because St. Louis County is very large.

Activity 2

Milestone 1 is partially completed with publication of Becker CGA. DNR Atlas work, including tasks related to Activity 2, was largely conducted using funding from the original grant (2020-009) in 2023, switching more activity to this grant (2021-071) in late spring of 2023 as the projects progress. As mentioned, the Becker County Groundwater Atlas was published in spring 2023. Publication of Isanti, Wadena and Houston is planned for late 2023.

As part of Activity 2, both milestones, DNR continued development of Print-on-Demand (POD) application, updating the atlas report template, and overhauling our webpages and metadata. The Becker County Groundwater Atlas is the first published with our POD contractor, and the updated atlas template was used for the Becker Atlas. POD reduces printing and administrative costs to store and sell hardcopies. The report template was updated reflecting comments from stakeholders increasing understanding and responding to changes in technical elements like reporting tritium results.

Milestone 2 is underway. Work continued on Aitkin, Dodge, Hubbard, Isanti, Kandiyohi, Nobles, Olmsted, Rock, Steele, and Wadena counties. As part of Activity 2, DNR staff conducted reviews of draft Geologic Atlases (Part A) prepared by the MGS, including Dakota County.

Activity 3

Milestone 1 complete. During this update period activities included planning and holding formal in-person Groundwater Atlas Workshop for Cass County (May 16, 2023) and an extended presentations were made to the Le Sueur County Board (Working Session) and a second workshop for over 100 guests from Hennepin County Energy & Environment Division (July 26, 2023).

Milestone 2 underway. Planning is underway for a workshops in Becker, and possibly in Brown and Redwood counties. As always, we invite the LCCMR members and staff to attend.

Dissemination

Dissemination activities during the update period included the formal workshop in Cass County (See Activity 3), presentations and work sessions with Le Sueur, Cass and Cottonwood county boards of commissioners. DNR Atlas Staff also met with Cass County SWCD staff and presented to the Hennepin County Division of Energy and Environment (100+ Guests).

GovDelivery (7,000 emails) and news releases were distributed to notify the public about publication of atlases, upcoming sampling and workshops.

Atlas staff presented to fifty attendees at a second meeting of the Geological Society of Minnesota in February. Additional presentations and engagements to introduce the atlas and groundwater issues included: Mystery Cave Water Day (Karst geology) and the monthly meeting of DNR Field Hydrologists (50+).

Using the recently published Cass County Groundwater Atlas, staff worked with Leech Lake Band of Ojibwe to understand groundwater conditions related to contamination issues the Band is addressing.

DNR Atlas staff met with University of Minnesota researchers to wrap up the data portion of the neonicotinoid groundwater collaboration project.

In our outreach and communication activities, the DNR Atlas staff make every effort to acknowledge support from the ENRTF including press releases, publications, event advertisements & invitations, newsletters, printed materials, and presentations.

Status Update Reporting

Status Update February 1, 2023

Date Submitted: February 8, 2023

Date Approved: February 16, 2023

Overall Update

DNR had proposed on two separate grants over several years, with the intention that the funding would be available consecutively and provide for the development of atlases over 4-6 years. However, because of the pandemic, the grants were received at the same time with concurrent calendars over three years. DNR Atlas work has largely been conducted using funding from the original grant (2020-009) with plans to move more activity to this grant (2021-071) as the projects progress. As such, a calendar extension may be required for the second grant. And, for this reason, relatively limited budget was used during this update period. The activity focused on project management tasks to establish internal budgets, managing staffing assignments, review of internal report drafts for Cass, Becker, and Isanti, planning for groundwater sampling events in St. Louis and Otter Tail counties, coordinating, planning and attending atlas workshops (Winona, Hennepin, Kanabec), and communicating with our partners at Minnesota Geological Survey and the counties.

Activity 1

Limited budget was used during this update period with activities focused on project management including coordination with county and internal staff to develop groundwater sampling plans for 2023 for Otter Tail and St. Louis counties. The work included updating laboratory contracts for upcoming analytical work, coordinating orders and budgets for the large quantity of sampling supplies and equipment (meters, containers, filters, equipment), technical review of available sample sources (number and distribution of water wells, and distribution of known aquifers) to develop sample plans. Because these two counties are very large relative to other Minnesota counties, DNR plans to double the number of groundwater samples collected to approximately 200 from each county. Completing sampling in Otter Tail and St. Louis in 2023 will be the equivalent of sampling four 'typical' counties. Management activities also included organizing a large gathering of stakeholders to discuss strategies for groundwater atlas projects planned for 2023 in northeastern Minnesota, including St. Louis County. DNR expects to complete groundwater sampling in one large county, the equivalent of two counties (Otter tail) using a portion of this grant in the Spring of 2023.

Activity 2

DNR Atlas work, including tasks related to Activity 2, has largely been conducted using funding from the original grant (2020-009) first, with plans to switch more activity to this grant (2021-071) in FY24 as the projects progress. No new atlases were publishes using this grant in the reporting period. However, work completed for Activity 2 included management reviews of internal and final drafts for Aitkin, Cass, Becker and Isanti county atlases, management activities related to printing contracts and development of print-on-demand (POD) capabilities for future cost savings and coordination with partners at MGS for publication details of Part A geologic atlases. Work associated with Activity 2 will pick up substantially beginning in the late spring of 2023, and into fiscal year FY24 starting in July 2023 with publication of Becker, Houston, and Isanti atlases.

Activity 3

During this update period activities included planning and holding one post-pandemic in-person Groundwater Atlas Workshop for Winona County and scheduling and planning for workshops in Hennepin (Feb. 10, 2023) and Kanabec (Mar. 16, 2023) counties. We are on schedule to complete these three workshops by the milestone due date. Planning is also underway for a combined workshop for Brown and Redwood counties, and for Cass County by the end of 2023.

Dissemination

Dissemination activities for this grant were limited to those completed by the project manager, the only atlas staff using this funding during the update period. The Winona County Groundwater Atlas workshop was held on November 17, 2022. The workshop was very successful, due in large part to the engagement and work of Winona County staff. Approximately forty stakeholders attended, including farmers, quarry operators, county planners, county transportation staff and three of five sitting county commissioners. There was a robust discussion around groundwater issues and where the atlas can help provide information for protection, wise management, and use of the groundwater resources.

In-person workshops were scheduled and planning efforts became more focused for Hennepin County (February 10, 2023) and Kanabec County (March 16, 2023).

DNR atlas staff worked the DNR State Fair Information Booth, engaging in conversations about the atlas program, groundwater and other water resources issues.

Atlas staff presented to about fifty attendees at the January 30, 2023 Geological Society of Minnesota. The topic was, "Minnesota's Major Aquifers – An introduction to the Groundwater Provinces".

Status Update Reporting

Status Update August 1, 2022

Date Submitted: September 8, 2022

Date Approved: September 9, 2022

Overall Update
DNR had proposed on two separate grants over several years, with the intention that the funding would be available consecutively and provide for the development of atlases over 4-6 years. However, because of the pandemic, the grants were received at the same time with concurrent calendars over three years. DNR Atlas plans to access the original grant (2020-009) first, and then switch to use of this grant (2021-071) as the projects progress. A calendar extension may be required for the second grant. For this reason, relatively limited budget was used during this update period with relatively limited work. During the reporting period DNR began project management activities to establish internal budgets, begin making staffing assignments, and communicate with our partners at Minnesota Geological Survey and with several counties. (updated 9/8/2022 at LCCMR Request)

Activity 1
Relatively limited budget was used during this update period toward Activity 1 with relatively limited work completed because DNR was accessing an earlier ENRTF grant for most of the work. During the reporting period DNR used this grant to begin project management activities to establish internal budgets for groundwater sampling and field work, began making staffing assignments, and communicated with our partners at Minnesota Geological Survey about data transfers. DNR expects to complete groundwater sampling in one county using a portion of this grant in the Spring of 2023.

Activity 2
During the reporting period no work was completed for Activity 2 using this grant. However, work associated with Activity 2 will begin in the spring of 2023.

Activity 3
During the reporting period communication continued with Hennepin, Winona and Kanabec counties to organize county workshops. County staff are discussing potential for in-person workshops, rather than holding the workshops virtually. Plans are to complete the workshop for these three counties by the milestone due date.

Dissemination
During the reporting period DNR had limited dissemination activities including communication with several counties and stakeholders. Dissemination activities supported by this grant will begin in fall 2023.