



**Environment and Natural Resources Trust Fund (ENRTF)  
M.L. 2011 Work Plan**

**Date of Status Update:**

**Date of Next Status Update:** 1/1/2012

**Date of Work Plan Approval:** 6/23/2011

**Project Completion Date:** 6/30/2015

**Is this an amendment request?** \_\_\_\_\_

**Project Title: County Geologic Atlases for Sustainable Water Management**

**Project Manager:** Jan Falteisek

**Affiliation:** MN DNR

**Address:** 500 Lafayette Rd

**City:** St Paul **State:** MN **Zipcode:** 55155

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**Web Address:** http://mndnr.gov

**Location:**

**Counties Impacted:** Anoka, Benton, Blue Earth, Carlton, Carver, Chisago, Clay, McLeod, Nicollet, Renville, Sibley, Wright

**Ecological Section Impacted:** Minnesota and Northeast Iowa Morainal (222M), North Central Glaciated Plains (251B), Northern Minnesota Drift and Lake Plains (212N), Northern Superior Uplands (212L), Red River Valley (251A), Southern Superior Uplands (212J), Western Superior Uplands (212K)

<b>Total ENRTF Project Budget:</b>	<b>ENRTF Appropriation \$:</b>	600,000
	<b>Amount Spent \$:</b>	<u>0</u>
	<b>Balance \$:</b>	600,000

**Legal Citation:** M.L. 2011, First Special Session, Chp. 2, Art.3, Sec. 2, Subd. 03b2

**Appropriation Language:**

\$900,000 the first year and \$900,000 the second year are from the trust fund to accelerate the production of county geologic atlases to provide information essential to sustainable management of ground water resources by defining aquifer boundaries and the connection of aquifers to the land surface and surface water resources. Of this appropriation, \$600,000 each year is to the Board of Regents of the University of Minnesota for the Geologic Survey and \$300,000 each year is to the commissioner of natural resources. This appropriation is available until June 30, 2015, by which time the project must be completed and final products delivered.

**I. PROJECT TITLE:** County Geologic Atlases for Sustainable Water Management (DNR)

**II. PROJECT SUMMARY:**

Geologic atlases provide information essential to sustainable management of groundwater resources. Atlases define aquifer boundaries, the connection of aquifers to the land surface, and the connection of aquifers to surface water resources. They facilitate and enhance the operations of natural resource management and regulation by state and local government units.

County Geologic Atlases are specifically identified as essential data in the Statewide Conservation Plan, and in the efforts of the Environmental Quality Board, DNR Waters, and the Water Resources Center at the University of Minnesota to design a sustainable water management process. County geologic atlases facilitate management activities to identify sustainable water use and to protect water quality

This project continues the acceleration of County Geologic Atlases, Part B by DNR initiated under M.L. 2009 that provides funding through June 30, 2012. This work plan provides support for ongoing Part B atlases in Carlton, McLeod, Carver, Benton, and Chisago counties and initiates seven new Part B atlases over the project period FY12-13. The seven new Part B atlases to be initiated include Blue Earth, Nicollet, Sibley, Anoka, Clay, Renville, and Wright counties. The County Geologic Atlases, Part A, for these seven counties are currently in progress by the Minnesota Geological Survey. Publication of the Part B reports initiated during this project is planned for 2014 or 2015. This is a long-term joint effort by the Minnesota Geological Survey and DNR; the MGS will prepare a separate, coordinated proposal.

**III. PROJECT STATUS UPDATES:**

**Project Status as of January 15, 2012:**

**Project Status as of July 15, 2012:**

**Project Status as of January 15, 2013:**

**Project Status as of July 15, 2013:**

**IV. PROJECT ACTIVITIES AND OUTCOMES:**

**ACTIVITY 1:** County Geologic Atlases, Part B.

**Description:** This project will complete five ongoing and initiate seven new County Geologic Atlases, Part B. A County Geologic Atlas is a single report that includes two parts, Part A, geology, completed by the Minnesota Geologic Survey and Part B, groundwater and pollution sensitivity, completed by DNR. Part A is completed first, followed by Part B, which uses and builds upon the geologic data assembled, analyzed and interpreted in Part A. The groundwater portion of the atlas includes maps of aquifers, groundwater flow, and pollution sensitivity.

**Summary Budget Information for Activity 1:**

**ENRTF Budget: \$ 600,000**  
**Amount Spent: \$ 0**  
**Balance: \$ 600,000**

**Activity Completion Date:**

Outcome	Completion Date	Budget
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<p><b>1.</b> Support completion of ongoing County Geologic Atlas, Part B reports for Carlton, McLeod, Carver, Benton, and Chisago counties. Includes final assembly of data layers; analysis of chemistry data; development of maps of aquifers; geophysics field data collection and analysis; technical analysis of aquifers and groundwater systems; construction of hydrogeologic cross sections; maps of pollution sensitivity, preparation of final atlas report and publication, training of local atlas users, and dissemination of data. Publication is planned for FY12 or FY13. Part B Atlas program hydrogeologists supported by General Fund will be assigned to several of these projects so funds from both General Fund and ENTRF will be used to complete these atlases.</p>	<p>30 June 2013</p>	<p>\$100,000</p>
<p><b>2.</b> Initiate County Geologic Atlas, Part B atlases for Blue Earth, Nicollet, Sibley, Anoka, Clay, Renville, and Wright counties. Includes assembly of data layers and development of conceptual hydrogeologic models; development of preliminary maps of the water table; groundwater sample collection and analysis; geophysics field data collection and analysis; preliminary technical analysis and maps of groundwater systems; construction of preliminary hydrogeologic cross sections; and preliminary maps of pollution sensitivity. Publication is planned for FY14 or FY15. Part B Atlas program hydrogeologists supported by General Fund will be assigned to several of these projects so therefore funds from both General Fund and ENTRF will be used to complete these atlases.</p>	<p>Initiate by 30 June 2014.</p>	<p>\$500,000</p>

**Activity Status as of January 15, 2012:**

**Activity Status as of July 15, 2012:**

**Activity Status as of January 15, 2013:**

**Activity Status as of July 15, 2013:**

**Final Report Summary:**

**V. DISSEMINATION:**

**Description:** Each county geologic atlas, Part B completed is printed in paper format distributed to county, libraries, state agencies, and other organizations. They are available for sale at the MGS. PDF versions of the report are posted to the DNR web site and are available through [http://www.dnr.state.mn.us/waters/groundwater\\_section/mapping/status.html](http://www.dnr.state.mn.us/waters/groundwater_section/mapping/status.html) . Project data, including water chemistry data and GIS data are also posted to the DNR web site. Following publication of each Part B report, a local workshop is held to introduce the report content and train users in its application.

**Status as of January 15, 2012:**

**Status as of July 15, 2012:**

Status as of January 15, 2013:

Status as of July 15, 2013:

Final Report Summary:

**VI. PROJECT BUDGET SUMMARY:**

**A. ENRTF Budget:** See also M.L. 2011 Attachment A: Budget Detail

<b>Budget Category</b>	<b>\$ Amount</b>	<b>Explanation</b>
Personnel:	\$ 350,000	Hydrologist Supervisor (classified), Project Manager/Technical Supervisor: \$100,000 (79% salary, 21% benefits); 50% FTE; FY12-13. Hydrologist 2 (unclassified), \$65,000 (68% salary, 32% benefits); 95% FTE; FY13. Hydrologist 2 (unclassified): \$63,000 (75% salary, 25% benefits); 100% FTE; FY13. Information Officer 2 (technical editor) (unclassified): \$66,000 (68% salary, 32% benefits); 90% FTE; FY13. Research Analyst–GIS (unclassified): \$56,000 (63% salary, 37% benefits); 100% FTE; FY13.
Professional/Technical Contracts:	\$ 185,000	Laboratory analysis and interpretation of water samples for natural and isotope chemistry.
Equipment/Tools/Supplies:	\$ 22,000	Water sampling tools and field analytical meters and equipment. Supplies, including expendable water sampling supplies.
Printing:	\$ 12,000	
Travel Expenses in MN:	\$ 26,000	Mileage, lodging, meals.
Other:	\$ 5,000	Report production software licenses and software upgrades. Report production software licenses and software upgrades (Adobe Illustrator, Photoshop, InDesign; Avenza Map Publisher). Report production software licenses and upgrades are the responsibility of the work unit. Shipping costs for water samples to laboratory.
<b>TOTAL ENRTF BUDGET:</b>	<b>\$ 600,000</b>	

**Explanation of Use of Classified Staff:** Any classified position paid for with LCCMR funds will either be 1) backfilled with a new position or 2) the work previously done by this position will be delayed, eliminated, or completed by the start of the project.

There is one classified position working on this project to be paid partially by this grant. The hydrologist supervisor provides overall atlas program direction, on-going program management, and is the technical supervisor for staff assigned to specific atlas projects or who support the atlas program as GIS or report production specialists. A portion of the hydrologist supervisor’s time (0.5 FTE) will be paid by this grant and the remaining portion will be paid by General Fund, subject to an approved DNR budget.

**Explanation of Capital Expenditures Greater Than \$3,500:** No capital expenditures greater than \$3,500 are planned.

**Number of Full-time Equivalent (FTE) funded with this ENRTF appropriation:** 0.5 in FY12; 4.35 in FY13.

**Number of Full-time Equivalent (FTE) estimated to be funded through contracts with this ENRTF appropriation:** N/A

**B. Other Funds:**

<b>Source of Funds</b>	<b>\$ Amount Proposed</b>	<b>\$ Amount Spent</b>	<b>Use of Other Funds</b>
<b>State</b>			
Other State \$ Being Applied to Project During Project Period: General Fund, atlas staff and support, estimated \$660,000 for 2-year project period to initiate three and complete two Part B atlases in base program. Clean Water Fund, M.L. 2009 Ch 172 Art 2 Sec 5(f) for July 1, 2009 thru December 31, 2014; estimated \$500,000 of CWF appropriation will be used during project period.	\$ 1,160,000	\$	Personnel, laboratory analysis and interpretation, printing, travel expenses, water sampling equipment and supplies, and related expenses. Clean Water Funds primarily intended to expand and improve subsurface data acquisition in support of atlases.
Remaining \$ from Current ENRTF Appropriation: M.L. 2009 Ch 143 Sec 2 Subd 3 ENRTF to DNR \$890,000 (county geologic atlas portion). An additional \$52,300 of the unspent balance is encumbered for FY11, primarily for laboratory services.	\$ 580,000 (as of May 2011)		Personnel, laboratory analysis and interpretation, printing, travel expenses, water sampling equipment and supplies, and related expenses.
Minnesota DNR's In-kind Contribution: \$64,000 for shared services and governance. General fund and other funds as appropriate.	\$ 64,000		Shared Services (operations support governance) are services that DNR relies on in order to conduct business and support the work of the department. These services are more efficient when shared.
In-kind Services During Project Period: County assistance to arrange sampling access and sponsor local training workshop	\$ 5000		County assists staff in local access to well owners and sponsors the training workshop at the conclusion of the project.
<b>TOTAL OTHER FUNDS:</b>	<b>\$ 1,809,000</b>	<b>\$</b>	

**VII. PROJECT STRATEGY:**

See also MGS Atlas FY12-13 Work Plan to be submitted separately to LCCMR.

**A. Project Partners:** The Minnesota Geological Survey completes Part A of county geologic atlases (see MGS Work Plan for county atlas continuation). At the completion of the Part A work, DNR Waters Division completes Part B, the groundwater portion, of the atlases. To initiate a project, the MGS will require that the counties participate either with funding, or with in-kind services. Local participation is a primary factor in determining which counties are chosen for this project. Groundwater sensitivity, resource demand, and the size of the population served are also considerations. The DNR does not require additional local funding or in-kind services to do the Part B portion of an atlas. However, DNR does request local government sponsorship of the training workshop for local staff and the public that is held at the completion of a Part B atlas. The local government makes the arrangements and DNR atlas project staff present the training program. The workshop program transfers knowledge and data acquired during the atlas project to local users and managers for improved decision-making and long-term resource protection.

**B. Project Impact and Long-term Strategy:** MGS is the geologic mapping agency of the state and intends to provide comprehensive geologic mapping and associated databases at appropriate scales statewide as quickly as possible. The County Geologic Atlas program is the primary vehicle for completing this goal. Atlases are complete or under construction for 32 of the 87 counties. The MGS receives funding from DNR, and also leverages federal dollars from the National Cooperative Geologic Mapping Program of the USGS. The MGS competes for these cost share dollars annually and they cover half of the costs of each map product incurred in that one-year window. MGS intends to continue cost sharing several of the map products associated with their work plan. MGS Part A atlas development is also supported by ENRTF and Clean Water Fund direct appropriations to MGS.

DNR has been a cooperator and funding partner with the MGS since the early 1990's. For each Part A atlas completed by the MGS, DNR completes a Part B atlas. The Part B atlases are currently supported by a combination of state general fund, ENRTF, and Clean Water Fund appropriations to DNR.

**C. Spending History:**

Funding Source	M.L. 2005 or FY 2006-07	M.L. 2007 or FY 2008	M.L. 2008 or FY 2009	M.L. 2009 or FY 2010	M.L. 2010 or FY 2011
ENRTF (FY10-12) to DNR				\$890,000 Subd. 3(b)	

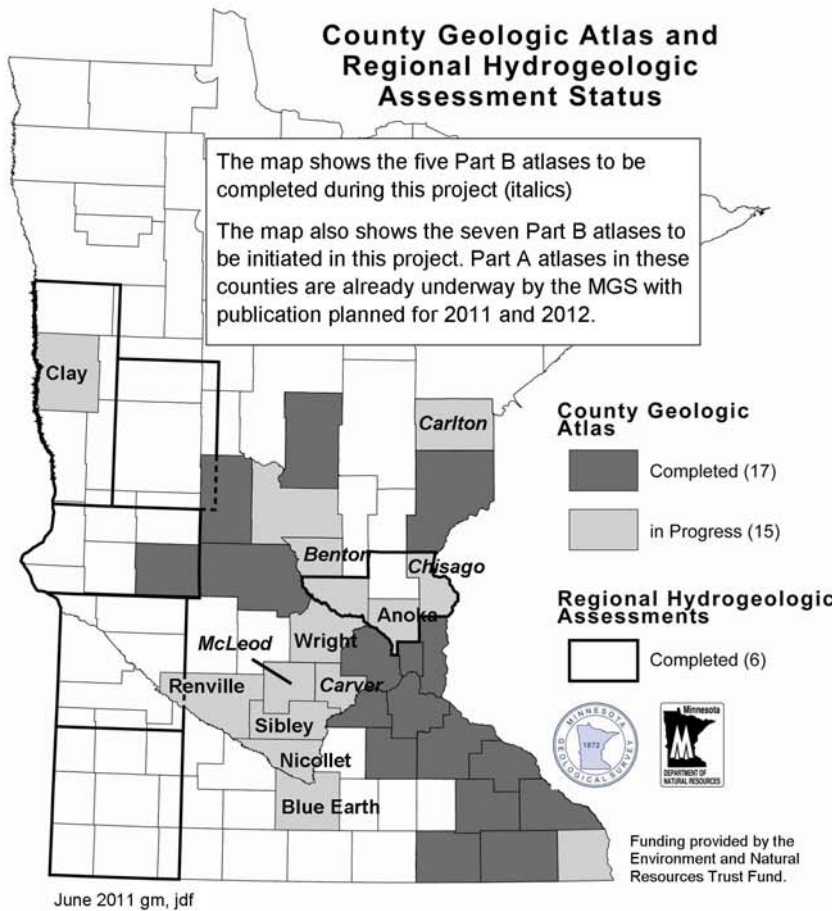
**VIII. ACQUISITION/RESTORATION LIST:** N/A

**IX. MAP:** See attached map of Part B atlases to be completed and initiated.

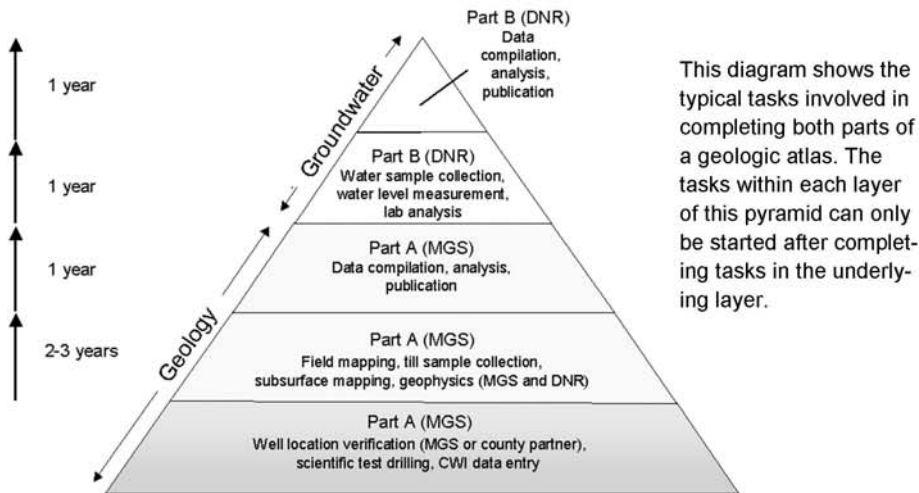
**X. RESEARCH ADDENDUM:** N/A

**XI. REPORTING REQUIREMENTS:**

Periodic work plan status update reports will be submitted not later than January 15, 2012, July 15, 2012, and July 15, 2013. A final report and associated products will be submitted between June 30 and August 1, 2013 as requested by the LCCMR.



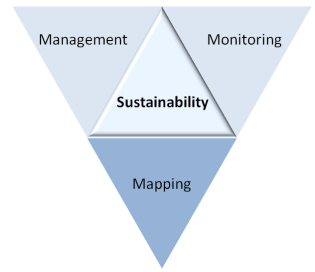
### County atlas tasks and dependencies



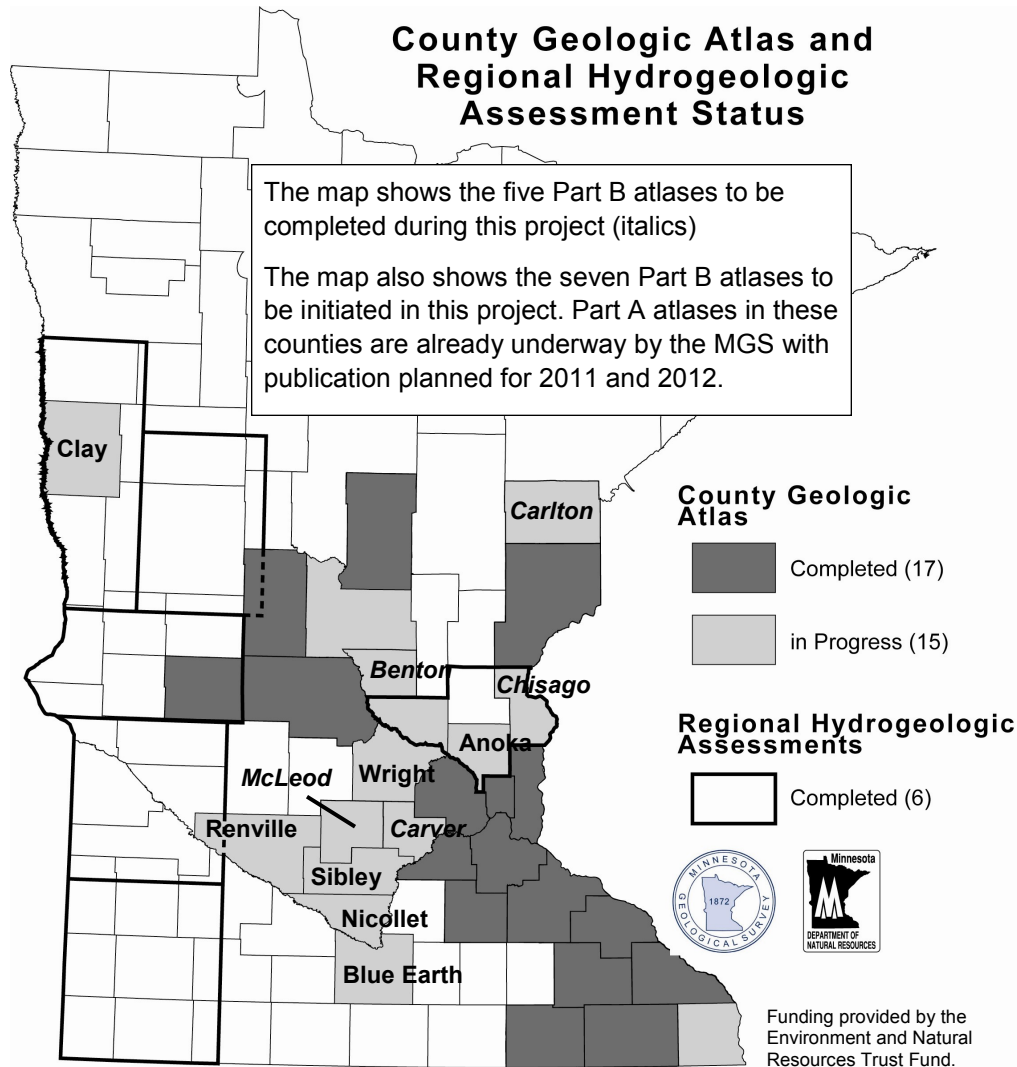


**Attachment A: Budget Detail for M.L. 2011 (FY 2012-13) Environment and Natural Resources Trust Fund Projects**

<b>Project Title:</b> County Geologic Atlases for Sustainable Water Management (DNR)					
<b>Legal Citation:</b> <i>To Be Determined</i>					
<b>Project Manager:</b> Jan Falteisek					
<b>M.L. 2011 (FY 2012-13) ENRTF Appropriation:</b> \$ 600,000					
<b>Project Length and Completion Date:</b> Two years, June 30, 2013					
<b>Date of Update:</b> June 17, 2011					
<b>ENVIRONMENT AND NATURAL RESOURCES TRUST FUND BUDGET</b>	<b>Activity 1 Budget</b>	<b>Amount Spent</b>	<b>Balance</b>	<b>TOTAL BUDGET</b>	<b>TOTAL BALANCE</b>
<b>BUDGET ITEM</b>	<b>Complete five (5) and initiate seven (7) County Geologic Atlases, Part B</b>				
<b>Personnel (Wages and Benefits)</b>	\$350,000.00	\$0.00	\$350,000.00	\$350,000.00	\$350,000.00
Hydrologist Supervisor (classified), Project Manager/Technical Supervisor: \$100,000 (79% salary, 21% benefits); 50% FTE; FY12-13					
Hydrologist 2 (unclassified), \$65,000 (68% salary, 32% benefits); 95% FTE; FY13					
Hydrologist 2 (unclassified): \$63,000 (75% salary, 25% benefits); 100% FTE; FY13					
Information Officer 2 (technical editor) (unclassified): \$66,000 (68% salary, 32% benefits); 90% FTE; FY13					
Research Analyst - GIS (unclassified): \$55,000 (63% salary, 37% benefits); 100% FTE; FY13					
<b>Professional/Technical Contracts</b>					
Laboratory analysis and interpretation of water samples for natural and isotope chemistry	\$185,000.00	\$0.00	\$185,000.00	\$185,000.00	\$185,000.00
<b>Equipment/Tools/Supplies</b>					
Water sampling tools and field analytical meters and equipment	\$10,000.00	\$0.00	\$10,000.00	\$10,000.00	\$10,000.00
Supplies, including expendable water sampling supplies	\$12,000.00	\$0.00	\$12,000.00	\$12,000.00	\$12,000.00
<b>Printing</b>	\$12,000.00	\$0.00	\$12,000.00	\$12,000.00	\$12,000.00
<b>Travel expenses in Minnesota</b>					
Mileage, lodging, meals	\$26,000.00	\$0.00	\$26,000.00	\$26,000.00	\$26,000.00
<b>Other</b>					
Report production software licenses and software upgrades (Adobe Illustrator, Photoshop, InDesign; Avenza Map Publisher). Report production software licenses and upgrades are the responsibility of the work unit.	\$3,000.00	\$0.00	\$3,000.00	\$3,000.00	\$3,000.00
Shipping costs for water samples to laboratory	\$2,000.00	\$0.00	\$2,000.00	\$2,000.00	\$2,000.00
<b>COLUMN TOTAL</b>	<b>\$600,000</b>	<b>\$0</b>	<b>\$600,000</b>	<b>\$600,000</b>	<b>\$600,000</b>

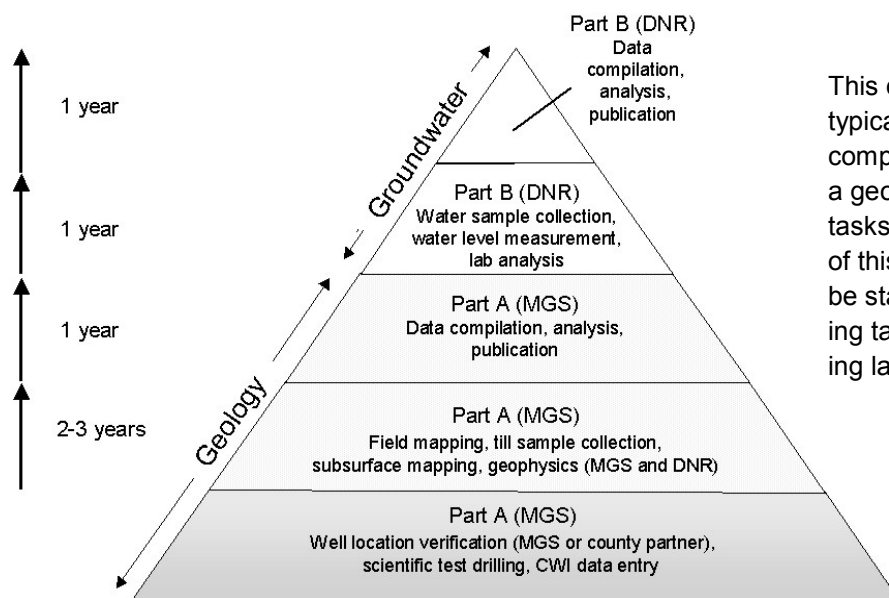


## County Geologic Atlas and Regional Hydrogeologic Assessment Status



June 2011 gm, jdf

## County atlas tasks and dependencies



This diagram shows the typical tasks involved in completing both parts of a geologic atlas. The tasks within each layer of this pyramid can only be started after completing tasks in the underlying layer.