

# **GROUND WATER INVESTIGATION PROGRAM**

## Montana Bureau of Mines and Geology

### **General Information for submitting a GWIP project nomination**

The Montana Bureau of Mines and Geology Ground-Water Investigations Program (GWIP) investigates site-specific water-resource issues throughout Montana. Candidate projects are nominated to the Ground-Water Steering Committee. The Committee ranks and prioritizes the nominations and assigns selected projects to GWIP for execution.

Nominated projects have included:

- Potential stream depletion from groundwater development or changes in irrigation practices,
- Cumulative effects of existing and proposed water development on stream flow,
- Impacts to groundwater and surface water from changes in irrigation practices or land use,
- Possible impacts of energy development on groundwater resources,
- Implementation of aquifer storage and recovery (ASR) in Montana, and
- Evaluation of mitigation/offset plans in closed basins.

Each investigation is expected to take between 1 and 3 years to complete, depending on the complexity. The results of projects will typically include:

- A detailed report that describes the hydrogeologic system,
- Numerical models that simulate hydrogeologic features and processes, and
- A comprehensive set of hydrogeologic data available through the MBMG Ground-Water Information Center (GWIC)

Projects may be nominated by any individual or group. But to avoid duplication of effort we do encourage coordination through local or state water-resources groups such as your local county or conservation district, the Montana Association of Counties (MACo) or Montana Association of Conservation Districts (MACD).

More information about the programs, previously nominated sites, and updates on active projects are available at the GWIP web site: <http://www.mbmgt.mtech.edu/gwip/gwip.asp>.

### **Timeline for Project Submittals**

The following provides information on nominating a project and the steps of review for each project nomination.

- 1) Groundwater Steering Committee Chair and GWIP program manager send out a request for GWIP project nominations (by February 27, 2015). Project sponsors are encouraged to contact the GWIP manager if there are questions regarding the types of investigations appropriate to the program, the project size or any other criteria specified in the nominating package. Nomination packages are available online and sponsors need not wait until February to submit a project.

- 2) Nomination packages are returned to GWIP by nominating entity by (April 24, 2015).
- 3) GWIP personnel will look through each nomination and determine lacking information needed to help the steering committee rank the project.
  - a. Based on what is submitted, GWIP personnel put together a 'project overview' which includes a preliminary assessment of previous work, potential data needs, and the feasibility of addressing the question within the proposed study area. The overview will also help establish a more realistic timeframe in which the project can be completed.
  - b. GWIP personnel contact the nominating entity for additional information to assist with a more complete submittal that will help rank the projects by the Steering Committee (no later than July 1, 2015).
- 4) Nomination is refined by MBMG and returned to nominating entity for a review.
  - a. Nominating entity comments on the suggested refinements and submits them to MBMG within 30-days of receiving them.
- 5) MBMG builds a ranking matrix based on the ranking criteria using information in the nomination package and public databases (August 1, 2015).
- 6) Steering committee gets full nomination package along with the project overview and ranking sheet of all projects nominated (September 1, 2015).
- 7) Steering Committee convenes, reviews ranking matrix scoring and prioritizes projects (by September 30, 2015).

Prior to the ranking meeting of the Committee, the Chair and the GWIP manager will evaluate the available GWIP resources during the next two-year cycle and estimate how many projects GWIP teams might reasonably investigate. During the ranking meeting, the Committee will approve the number of projects that is appropriate for the upcoming GWIP work load. If GWIP does not complete all of the approved projects prior to the next round of ranking, the approved but not initiated projects will stay in their respective position on the ranking list and the future approved work load decreased to accommodate these carry overs. In the event GWIP completes the approved investigations prior to the next scheduled round of ranking, the Committee can re-evaluate the existing list of unapproved projects and move one or more into the approved category.

### **Required Information for GWIP Nominations**

The Nomination addresses the seven categories listed below and is limited to **three** pages of text. Any figures and tables should be submitted in an appendix attached to the three pages of text. Nominations are prioritized according to the Ranking Criteria. The Ranking Criteria are addressed in the Nomination by information provided in the seven categories below. Related ranking criteria associated with the seven categories are listed in each nomination category. The Ranking Criteria are included in this document and are also available on line at: [http://www.mbm.g.mtech.edu/gwip/gwip\\_pdf/2015/GWIPRankingCriteria2014-2015.pdf](http://www.mbm.g.mtech.edu/gwip/gwip_pdf/2015/GWIPRankingCriteria2014-2015.pdf)

**1) Defined Project Purpose (Ranking Criteria 1)**

Clear and concise statement of the water issue and investigation question, as related to current and anticipated growth in housing, agriculture, industrial, and/or commercial (MCA 85-2-525) activity. Permit applications for the development of water rights and timing of adjudication, if it relates to the project question, should also be specified in the project purpose statement. Typically, the length of the project purpose statement with the succinct investigation question should be no more than two or three sentences.

**2) Study area (Ranking Criteria 1)**

A workable study area size depends on the nature of the investigation question and water issues in the project area. For example, detailed hydrogeologic investigations related to groundwater/surface-water interactions should generally be less than a couple of dozen square miles. Focused investigation questions or efforts regarding some specific element of a basin water budget or aquifer system might encompass larger areas. Generally, larger study areas result in less resolution in the results. Include a scaled map with the project boundaries defined in the project proposal.

**3) Overview and magnitude of the problem (Ranking Criteria 2 through 10)**

This is the main section of the nomination. Specifically state if the project is being nominated for water issues related to current and anticipated growth of:

- a. Subdivisions/housing
- b. Industry
- c. Agriculture, or
- d. Commercial activity

In your discussion, present credible information supporting why the project is being nominated on the selected issue(s) stated in a – d above. Specify the source(s) of information that supports the nomination issue(s).

Provide background on the proposed investigation question, what has led up to the problem, current status of concern, be specific. Cite references of previous work within the proposed study area.

**4) Landowner cooperation and access (Ranking Criteria 11)**

Each GWIP project requires landowner access to acquire the necessary hydrogeology data to address the key concerns within the study area. Provide information on how the proposing entity will assist with site access permissions. This may include talking individually with landowners about the study and introducing GWIP staff to key landowners. Specify landowners that may have already been contacted in relation to preparing this proposal, and whether they have agreed to allow access. Scoring this category will depend on willingness of nominating entity to assist with securing private land access.

Proposing entity may be asked to provide additional landowner information such as names and contact information for important hydrogeologic areas as identified by the MBMG in the proposal review process. Lack of landowner cooperation and access can result in denomination of a project even after the project is underway.

**5) Uses of the Project Results (Ranking Criteria 13)**

Provide specific information on how project results will be used. Include information on potential plans/solutions the proposing entity may have to help address the investigation question and how GWIP results can be used to facilitate that solution.

Include any other ancillary or secondary uses of the project results.

**6) Technical Urgency (Ranking Criteria 12 and 13)**

Address how urgent and timely from a technical viewpoint the proposal is with regards to how GWIP results relate to any pending water resource permits, other water management decisions etc. Include pertinent information such as dates of pending water right applications, timelines related to water management decisions or other time frames related to growth factors in housing, agriculture, industrial and /or commercial components of the proposal. This will help determine whether pending water management decisions fall within the GWIP timeline for project completion.

**7) Complimentary Investigations and Project Support (Ranking Criteria 13)**

Specify other ongoing investigations in the project area and how GWIP data/results can complement that research. List cooperators on a local and state level such as conservation districts, watershed groups, local government, and/or other entities, etc. Cooperation can be in the form of either direct funding and/or documented support.

**8) Appendices**

Include any figures, maps, tables cited in 1 – 7 above.

## The Ranking Criteria

The Ranking Criteria are used to assign numerical values to the submitted details of nominated projects. These Ranking Criteria scores are input to the Ranking Matrix and summed to prioritize the nominated projects. The Ranking Criteria are provided as background in the nomination package to help clarify some the details of the seven categories addressed in the nomination package. Do not add comments or input in the Ranking Criteria section, use it as information to complete the seven categories in the Nomination Package.

**1) Is the project purpose and the geographical area **appropriate for a GWIP investigation?****

Scored yes or no by the committee. In the case of a “No” response, if the question and area can be refocused to a GWIP question, MBMG will work with the sponsor to prepare a new submittal.

**2) Water issues related to current and anticipated growth of **Housing/subdivisions** (Score: 0, 1 or 2)**

Subdivision scoring will be based on the change in population within the study area boundary between the two most recent ten-year censuses (2000 and 2010 censuses). All nominated study areas will be listed in order of population change. The highest total population change value (2010 population minus 2000 population) will be divided by 3. The entire list is then assigned a score based on this three-fold subdivision.

Score 2: Population change values that fall in the upper third will score high

Score 1: Population change values that fall in the middle third

Score 0: Population change values that fall in the lowest third will score low (score=0).

Score is based on census-block data (<http://svc.mt.gov/gov/siteselector>). The score may be augmented with information provided in the nominating package, and local knowledge.

**3) Water issues related to current and anticipated growth of **Industry** (Score 0 or 2)**

For the purpose of this ranking, industry is defined as any facility that produces goods, such as a factory, oil and gas fields, mines, or water depots. Scoring is based on information provided in the nominating package.

Score 2: Water resource issue is based on expansion of current and anticipated growth of industry and the nominating package clearly states why this is creating an issue, sources of information are included in the nominating packet

Score 0: Water resource issue proposed in the nominating package is not related to current and anticipated growth of industry

**4) Water issues related to current and anticipated growth of **Agriculture** (Score: 0 or 2)**

Water issues related to current and anticipated growth of agriculture will be scored based on information provided in the nominating package.

Score 2: Water resource issue is based on current and anticipated growth of agriculture and the nominating package clearly states why this is creating an issue, sources of information are included in the nominating packet

Score 0: Water resource issue proposed in the nominating package is not related to agricultural use expansion

**5) Water issues related to current and anticipated growth of Commercial Activity (Score: 0 or 2)**

For the purposes of this ranking, commercial is defined as any facility that sells goods or services, such as restaurant, malls, or motels. Scoring is based on information provided in the nominating package.

Score 2: Water resource issue is based on current and anticipated growth of commercial activity and the nominating package clearly states why this is creating an issue, sources of information are included in the nominating packet

Score 0: Water resource issue proposed in the nominating package is not related to current and anticipated growth of commercial activity

**6) Designated Closed Basin (Score: 0 or 2)**

This category addresses surface water quantity in basins in which there is no water available for legal appropriation ([http://www.dnrc.mt.gov/wrd/water\\_rts/appro\\_info/basinclose-cgw\\_areas.pdf](http://www.dnrc.mt.gov/wrd/water_rts/appro_info/basinclose-cgw_areas.pdf)). Score based on comparing the nominated study area to the Montana State Closed Basin map from DNRC ([http://dnrc.mt.gov/wrd/water\\_rts/mt\\_basinclosures.asp](http://dnrc.mt.gov/wrd/water_rts/mt_basinclosures.asp)).

Score 2: Project is in a closed basin

Score 0: Project is not in a closed basin

**7) Open Basin with Closed Basin issues (Score: 0 or 2)**

This category addresses surface water quantity in basins that are not closed but are experiencing the types of issues that are similar to those in a closed basin. Scoring is based on information from the DNRC River Water Basin Plans (Clark Fork and Kootenai, Yellowstone, Upper Missouri, and Lower Missouri River Basins) where appropriate.

Score 2: Projects in an area where surface water is not legally available for appropriation

Score 0: Projects in an area where surface water is legally available for appropriation

Issues related to closed basins which can be applied in this Open Basin category include:

- Water availability problems
- Concern for protecting existing water rights

**8) Controlled groundwater Area (Score: 0, 1 or 2)**

Compare the nominated study area to the Montana State Controlled Groundwater Area map from DNRC ([http://dnrc.mt.gov/wrd/water\\_rts/mt\\_basinclosures.asp](http://dnrc.mt.gov/wrd/water_rts/mt_basinclosures.asp)).

Score 2: Project is in a controlled or a temporary controlled groundwater area

Score 1: There is an active petition within the study area for a controlled groundwater area

Score 0: Project is not in a controlled or temporary controlled groundwater area

**9) Impaired Surface-Water Quality (Score: 0, 1 or 2)**

The score is based on information provided in the nominating package, available public data (for example the Montana State 303(d) TMDL list from DEQ: <http://cwaic.mt.gov/instruct.aspx>), committee members, and scientific research.

Score 2: There has been a documented impact to surface water quality and it is the reason the project is nominated

- Score 1: There is a threat to surface water that has not been documented or is anticipated but has not yet occurred
- Score 0: If there is no known surface-water-quality impact, the score will be 0.

**10) Impaired Groundwater Quality (Score: 0, 1 or 2)**

The score is based on information provided in the nominating package, databases, and committee members.

- Score 2: There has been a documented impact to groundwater quality and it is the reason the project is nominated
- Score 1: There is a threat to groundwater quality that has not been documented or is anticipated but has not yet occurred
- Score 0: No known threat to groundwater quality

If the study area is in a Controlled Ground Water Area ([http://dnrc.mt.gov/wrd/water\\_rts/mt\\_basinclosures.asp](http://dnrc.mt.gov/wrd/water_rts/mt_basinclosures.asp)) due to water quality impairments, it will receive a 1 or a 2 in either the Controlled Groundwater Area (8) or the Impaired Groundwater Quality (10) category, but not both.

**11) Local Support (Score: 0, 1, 2 or 3)**

Each GWIP study requires the establishment of a monitoring network in order to collect site-specific data that will be used to address the key concerns in the area. An inability to monitor certain sites can lead to inadequate data collection and a failure to meet study objectives; therefore, gaining access to monitoring locations, and keeping that access through the duration of the project is critical to success.

Is the sponsor prepared to assist with site access permissions? This may include talking individually with landowners about the study and introducing them to GWIP staff after GWIP has designed a monitoring network. If a project is started and then access to critical sites cannot be gained, the project may be dropped from the current list and considered at a later time if re-nominated. Score is based on responses from the project sponsor in the nomination package. Scoring will consider how the sponsor will assist in obtaining land owner access, such as:

- Score 3: Nominating entity demonstrates that key land owners have been contacted and are agreeable to the project
- Score 2: Nominating entity agrees to assist with access permissions in consultation with MBMG personnel
- Score 1: Nominating entity provides names and contact information including phone numbers
- Score 0: Nominating entity provides no information regarding private landowners

**12) A New Hydrologic Question (Score: 0, 1 or 2)**

The purpose of the category is to 1) identify water resource issues that have not previously investigated, or 2) address water resource issues that have been previously investigated but not in the hydrogeologic setting as proposed by the applicant. Most investigation results can be applied, with some limitations, to other areas and provide a starting point for new projects. An issue that has not been investigated has extra importance as the answer will likely be helpful in other areas in Montana.

Score is based on the nomination package, information from MBMG and other reports and data, and committee input.

- Score 2: A complex hydrogeologic question and one that has not previously been investigated

Score 1: A less complex hydrogeologic question that may have been studied in other hydrogeologic settings

Score 0: Hydrogeologic question is well documented in other areas and constitute a fairly straightforward investigation approach

**13) Ground Water Steering Committee Input (Score -5 to +5)**

Steering Committee membership is chosen based on expertise in issues across the state. As such, members may choose to assign or remove ranking points based on professional judgment. These criteria might include: ongoing or upcoming complimentary projects in the study area; value of project results; likelihood of implementation of results; data available in GWIC; water permit applications; more recent population census data; number of subdivision lot permits issued in the last 5 years and other ancillary information as deemed appropriate. The Committee must provide documentation to support their decision if they change a ranking using this category.

**14) Efficiency of effort (Score: None assigned, to be used as an implementation priority)**

If an adjacent and related study area is nominated where the GWIP program can combine field work and analysis, efficiency in effort can be realized. This only applies when projects are ranked within the funding.