

**WEST VIRGINIA
WATER RESEARCH INSTITUTE**

**U.S. Geological Survey
Department of the Interior**

**State Water Resources Research Institute Program
Fiscal Year 2019
Request for Proposals**

**Under Section 104 of the
Water Resources Research Act of 1984, as amended**

**CLOSING DATE
November 30, 2018
5:00 pm Eastern Time**

ELECTRONIC FILING OF PROPOSALS REQUIRED

The West Virginia Water Research Institute (WVWRI) is requesting proposals for research expected to be funded March 1, 2019 through February 28, 2020. **Proposals under this announcement must be submitted to the WVWRI in pdf format to: Tamara.Vandivort@mail.wvu.edu by 5:00 pm November 30, 2018.** The U.S. Geological Survey (USGS), Department of the Interior, will sponsor the research. Faculty from all West Virginia colleges and universities are encouraged to submit proposals.

Introduction

This Program Announcement is issued under the provisions of section 104 of the Water Resources Research Act of 1984 (Public Law 98-242), as amended by Public Laws 101-397, 104-147, 106-374, and 109-471. Section 104 of the Water Resources Research Act directs the Secretary of the Interior to administer program grants to Institutes and Centers established under the provisions of section 104(a) of the Act. Water Resources Institutes or Centers have been established in each of the 50 states, the District of Columbia, Puerto Rico, the U.S. Virgin Islands, and Guam. The Institute in Guam also serves the Federated States of Micronesia and the Commonwealth of the Northern Mariana Islands. The Institute in Hawaii also serves American Samoa. Responsibility for administration of the State Water Resources Research Institute program has been delegated to the U.S. Geological Survey (USGS).

Program Objectives

Section 104(b) of the Water Resources Research Act of 1984 requires Institutes or Centers to:
(1) “plan, conduct, or otherwise arrange for competent applied and peer reviewed research that fosters -

- (A) improvements in water supply reliability;
- (B) the exploration of new ideas that –
 - (i) address water problems; or
 - (ii) expand understanding of water and water-related phenomena;

(C) the entry of new research scientists, engineers, and technicians into water resources fields; and

(D) the dissemination of research results to water managers and the public.

(2) "cooperate closely with other colleges and universities in the State that have demonstrated capabilities for research, information dissemination, and graduate training in order to develop a statewide program designed to resolve State and regional water and related land problems."

The Act also requires each institute to:

(3) "cooperate closely with other institutes and other organizations in the region to increase the effectiveness of the institutes and for the purpose of promoting regional coordination."

Applications submitted under this Announcement are to be in furtherance of these objectives and promote the national mission and objectives of the U.S. Geological Survey which are focused on providing water quality and quantity information, understanding water availability, addressing the influence of climate on water resources, and responding to water-related emerging needs. Specific areas of emphasis are at the discretion of the individual Institute or Center Directors.

Areas of Emphasis/Research Priorities for the State of West Virginia

Water Metrics

- THM's-factors controlling PSD exceedances; especially in older systems along the Ohio river; what compliance reports are reflecting
- Bromide sources-sources, mass balance in streams, factors controlling stream concentrations, impacts
- Policy options proven to protect water resources that could help WV
- Data to support policy options

Climate Change Impacts on Water Resources

- Watershed management to reduce flooding
- Project changes in storm hydrographs
- Baseflow indices at the watershed level
- Pooling water resources for use during drought
- Capacity and effects of water withdrawals
- Warmer water temperatures lead to longer retention times in lakes and reservoirs (and decreases in mine drainage) which increases productivity of algae blooms, nitrogen, and phosphorus even in winter in regions of the Potomac Basin and Highlands of WV
- Effects of climate change on water bodies during seasonal withdraws
- Models for predicting future changes based on potential uses and withdrawals; of special interest – Opekiska and Stonewall Jackson/Tygart reservoirs

Industrial Processes and Urban Sprawl

- Withdrawals/consumptions
- Treating and managing high TDS waters from mining sources.

State Water Budget

- Access large, existing datasets such as those used to make annual reports to the State Legislature from sources such as WVDEP, USACE, USGS, WVDHHR, DNR and others.
- Identify small user data needs. Data Needs—Inventory and quantify small to medium water withdrawal users.
- Collaborate with agencies such as USGS, USACE, DNR, WVDEP, WVDHHR and others to develop new and build on existing models that reflect water inputs versus outputs, how much to release and when, what water quality looks like in the future based on climate change, seasonal impacts, and cumulative impacts on watersheds and aquatic life.
- Identify timing (seasonality) of water withdrawals; how much water is taken, when it is taken.
- Identify spatially water-sensitive watersheds (water quantity limited and biologically; e.g. federally or state listed ETC species) in the state.
- Use data such as TNC e-flows data to develop thresholds for adverse effects on biological life and drinking water quality and cumulative effects assessment at varying withdrawals, i.e., 30% and 50%.
- Propose pilot study in small watershed with current water withdrawals such as from shale gas development to identify biological end points, impacts to recreational value from flow variations on trout, bass, etc. in specific systems to show cumulative effects.
- Refine use data (withdrawal and user) by watershed to provide a general inventory by watershed of cumulative withdrawals regularly updated as to what is being withdrawn and translating hydrologic withdrawals into biological consequences, drinking water consequences (quality/condition/capacity of drinking water plants), and ecological services consequences.

Other Priorities for Funding Consideration

It is important that proposed projects have the potential for generating peer-reviewed publications, student training, and information transfer. Research in social sciences and information transfer activities may also be supported. Proposals that focus on preliminary explorations of innovative research areas will receive special consideration.

Projects that contain one or more of the following will be given higher consideration for funding:

- Use of existing data that results in acceptance of a paper by a peer-review journal for publication as a project deliverable will be given higher consideration.
- The principal investigator is an entry level, junior, assistant professor.
- One or more students, undergraduate or graduate, are engaged in the project.

Eligible Applicants

Applications will be accepted only from Institutes or Centers established pursuant to the provisions of Section 104 of the Water Resources Research Act of 1984, as amended. The applicant may consider project proposals only from faculty members or affiliates at institutions of higher education in its State. Therefore, eligible applicants are faculty members or affiliates at institutions of higher education in the State of West Virginia.

Applications Not Eligible for Funding

- A. Applications for research on health effects involving human subjects.
- B. Applications for research involving oceanography (estuarine research applications are acceptable).
- C. Applications submitted by an Institute or Center that has not met reporting requirements on a previous award by the USGS.

Federal Funds

Funding selected proposals is dependent upon the availability of funds. It is expected that 3-5 projects will be funded in the range of \$10,000 - \$20,000 each. It is expected that approximately \$70,000 will be available for new projects in 2019.

Matching Funds

Colleges and universities receiving research grants must provide a 2:1 match (\$2 cost-share for every \$1 Federal). Matching funds are to be obligated during the period of performance. The matching funds requirements is to be met during each 12 month budget period. Matching funds in excess of the required 2:1 non-Federal:Federal match are acceptable. Signed letters of cost-share commitment must be submitted as per the instructions in this RFP. Investigators are encouraged to solicit co-sponsors for their research to meet the matching requirement. Matching funds may contain indirect costs and non-federal salaries and benefits. The applicant's negotiated indirect cost rate (NICR) may be applied to both qualifying Federal and non-Federal direct costs, and the result used to satisfy part of the matching requirement under the non-federal share. The NICR shall not be applied to tuition and equipment costs. **Federal funds shall not be used to pay indirect costs.**

Calculating Indirect Costs

The following is an example with a university or college research indirect cost rate of 50.0%:

Cost Category	Federal	Non-Federal	Total
Total Direct Costs	\$10,000	\$10,000	\$20,000
INDIRECT COSTS			
Indirect costs on Federal Share:	N/A	\$5,000	\$5,000
Indirect costs on Non-Federal Share:	N/A	\$5,000	\$5,000
Total Indirect Costs	\$0.00	\$10,000	\$10,000
TOTAL ESTIMATED COSTS			
Total Direct Costs + Total Indirect Costs:	\$10,000	\$20,000	\$30,000

A Non-Federal:Federal match of 2:1 requires \$20,000 in cost share match for \$10,000 requested from USGS .

At a 50.0% university or college research indirect cost rate, the value of indirect costs on the Federal portion of \$10,000 = \$5,000 ($\$10,000 \times 0.50 = \$5,000$) and the value of indirect costs on the Non-Federal portion of \$10,000 = \$5,000 ($\$10,000 \times 0.50 = \$5,000$) for total indirect costs of \$20,000.

Project Duration

Projects may be one or two years in duration. Projects will be funded in yearly increments dependent upon available funds from the sponsoring agency, the U.S. Geological Survey.

Peer-Reviewed Journal Articles

Applicants who are selected to receive funding for their project are encouraged to: 1) use project results to leverage additional funds from other sources for follow-on work and 2) submit a paper on the project to a peer-reviewed journal for publication within one year of project completion. Applicants who have previously applied to USGS 104b program solicitations and have successfully received funding for their project(s) are required to submit their list of publications on their USGS 104b-funded project(s) as a criterium for consideration for funding in 2018.

Contacts

Inquiry	Name	Telephone	E-mail
Research priorities, research program, technical merit	Paul Ziemkiewicz	304-293-6958	Paul.Ziemkiewicz@mail.wvu.edu
Proposal content, budgeting, cost-share match, indirect/overhead rates, letters of intent, submission	Tamara Vandivort	304-293-6968	Tamara.Vandivort@mail.wvu.edu

Time Line

The schedule for developing the FY 2019 Program is as follows:

November 30, 2018	Deadline for submitting proposals in pdf format to: Tamara.Vandivort@mail.wvu.edu
January 15, 2019	West Virginia Water Advisory Committee for Water Research completes proposal evaluations and makes selections to forward to U.S. Geological Survey; applicants notified
January 24, 2019	Selected proposals sent to USGS for funding consideration
March 1, 2019	USGS funding arrives at West Virginia Water Research Institute and is disbursed to USGS-selected project recipients within 30 days

Reporting

The Principal Investigator of the successful proposal(s) will be obligated to submit progress reports and annual report(s) for each year of the project to the WVWRI Director. The annual and/or final report(s) will be due May 15 of each year of the project and must include:

- Research Accomplishments
- Publications submitted as pending and/or accepted for publication
- Presentations made at conferences (regional, national, international)
- Student support (number of students supported with USGS 104b and matching funds)
- Notable achievements and awards

INSTRUCTIONS FOR PROPOSAL PREPARATION AND SUBMISSION

Proposals must be submitted to email address: Tamara.Vandivort@mail.wvu.edu by 5:00 PM Eastern Time, **November 30, 2018.**

NOTE: Only those proposals submitted by the November 30, 2018 5:00 Eastern Time deadline will be considered for selection by the West Virginia Advisory Committee for Water Research.

Each application must be submitted to Tamara.Vandivort@mail.wvu.edu and shall be prepared and submitted in accordance with the specific instructions provided below. The proposal may be prepared using the word processing software of choice, but must be translated to pdf format prior to being submitted.

Each proposal shall consist of the following elements. There are 10 elements: **A-J**. Each element is to start as a new section on a new page. All 10 elements are to be consolidated and included into a single pdf document, with consecutive page numbering, and emailed to: Tamara.Vandivort@mail.wvu.edu by **5:00 pm Eastern Time November 30, 2018.**

A. COVER PAGE:

The Cover Page shall not exceed 1 single-spaced page; 12-point font.

- Title. Concise but descriptive.
- Project Type. Choose from the following: Research, Information Transfer, Information Management System, Education, or Other (please specify).
- Focus Categories. Choose a maximum of three focus categories from the list provided (**Attachment A**), with the most preferred focus category first.
- Research Category. Choose from the following the one category that most closely applies: Social Sciences, Groundwater Flow and Transport, Water Quality, Biological Sciences, Engineering, or Climate and Hydrologic Processes.
- Keywords. Enter keywords of your choice descriptive of the work.
- Start Date. Enter the actual beginning date for the project. (No earlier than March 1, 2019.)
- End Date. Enter the estimated end date for the project. (No later than February 28, 2021.)
- Principal investigator(s). Provide name, academic rank, university, email address and phone number of the principal investigators.
- Congressional District of the university where the work is to be conducted.

B. ABSTRACT:

The Abstract shall not 1 single-spaced page; 12-point font.

Provide a brief (one-page) description of the problem, methods, and objectives in the space provided at the Internet site.

C. BUDGET BREAKDOWN:

The Budget Breakdown should not exceed 2 pages; please use 12-point font.

Follow format outlined in **Attachment B**.

D. BUDGET JUSTIFICATION:

The Budget Justification has no page limit; please use 12-point font.

Follow format outlined in **Attachment C**.

E. PROPOSAL TEXT:

The Proposal Text shall not exceed 10 single-spaced pages; 12-point font.

- Title. Please use the same title as on the cover page (Item 1 above).
- Statement of regional or State water problem. Include an explanation of the need for the project, who wants it, and why.
- Statement of results or benefits. Specify the type of information that is to be gained and how it will be used.
- Nature, scope, and objectives of the project, including a timeline of activities.
- Methods, procedures, and facilities. Provide enough information to permit evaluation of the technical adequacy of the approach to satisfy the objectives.
- Related research. (Research projects only). Show by literature and communication citations the similarities and differences of the proposed project or on-going work on the same topic.
- Training potential. Estimate the number of graduate and undergraduate students, by degree level, who are expected to receive training in the project.

F. DATA MANAGEMENT PLAN (DMP):

The Data Management Plan shall not exceed 2 single-spaced pages, 12-point font.

The DMP should describe how the proposal will conform to USGS policy on the dissemination and sharing of research results and associated data. A valid DMP may include only the statement that no detailed plan is needed (e.g. “No data are expected to be produced from this project.”) as long as the statement is accompanied by a clear justification. This supplementary document may include:

- The types of data, samples, physical collections, software, curriculum materials, and other materials to be produced in the course of the project;
- The standards to be used for data and metadata format and content (where existing standards are absent or deemed inadequate, this should be documented along with any proposed solutions or remedies);
- Policies for access and sharing including provisions for appropriate protection of privacy, confidentiality, security, intellectual property, or other rights or requirements;
- Provisions for re-use, re-distribution, and the production of derivatives; and
- Plans for archiving data, samples, and other research products, and for preservation of free public access to them.

Additional guidance on data management plans is available from the USGS Data Management web site at: <http://www.usgs.gov/datamanagement/plan/dmplans.php>.

Collaborative proposals and proposals that include sub-awards are a single unified project and should include only one supplemental combined DMP by the lead PI that also addresses all sub-award data management needs, regardless of the number of non-lead collaborative proposals or sub-awards included. The DMP is to be uploaded as a pdf to the niwr.net website at the time of submission of the proposal following instructions on that website. Please be sure the document is legible.

G. RESUMES OF INVESTIGATOR’S QUALIFICATIONS

Each Resume shall not exceed 2 pages; nor list more than 15 pertinent publications.

Include resume(s) of the principal investigator(s). No resume shall exceed two pages or list more than 15 pertinent publications. **If previously funded through USGS 104b program, indicate which publications are associated with the USGS 104b-funded project(s).**

H. MATCHING COST-SHARE LETTERS OF COMMITMENT:

Letter(s) of cost-share commitment on letterhead signed by the authorized person at your institution of higher education must contain the dollar value of cash and/or in-kind services committed to the project. Letters are to be scanned and included as an

element in your proposal package. **Please be sure that the scanned documents are legible.**

I. INDIRECT COST RATE:

Federal funds cannot be used to pay indirect costs. However, matching funds may contain indirect costs for the value of direct costs of both Federal and matching funds. (Refer to Attachment B.) Applicants outside West Virginia University are to provide a scanned copy of the approved indirect cost rate agreement or other documentation to support the proposed indirect cost rate of their institute of higher education and included as an element in your proposal package.

J. SUB-RECIPIENT LETTERS OF INTENT:

For proposals that include a sub-recipient (contractor), a letter of intent from the proposed sub-recipient that includes level of commitment (number of hours and hourly rate), value of commitment (total monetary value of cash or in-kind), and duration of commitment (period of performance) on letterhead with signature is required. Letters are to be scanned and included as an element in your proposal package.

PROPOSAL SUBMISSION CHECKLIST

Each application must contain the following elements in a single pdf document.

Applications are to be emailed to: Tamara.Vandivort@mail.wvu.edu.

Applications must be emailed by 5:00 pm Eastern Time November 30, 2018.

- Element A: Cover Page
- Element B: Abstract
- Element C: Budget Breakdown
- Element D: Budget Justification
- Element E: Proposal Text
- Element F: Data Management Plan
- Element G: Resumes
- Element H: Matching Cost-share Letter(s) of Commitment
- Element I: Indirect Cost Rate, if applicable
- Element J: Letter(s) of intent from proposed sub-recipient(s), if applicable

PROPOSAL REVIEW PROCESS

The West Virginia Advisory Committee for Water Research will review the proposals. If an Advisory Committee member submits a proposal in response to this announcement, that committee member will abstain from the proposal review process. The Advisory Committee, after considering the merit of a proposal, will make recommendations for funding to the Director of the West Virginia Water Research Institute. The Institute Director, giving due consideration to the available funding and the requirements of the funding agency (USGS), will develop a coherent research program and submit it to USGS to consider for review and approval.

Evaluation criteria include:

- a. Importance of proposed research: Proposal addresses one or more State emphasis area(s)/research priority(ies).
- b. Potential for success: Proposed project includes methods for competent applied and peer reviewed research by fostering improvements in water supply reliability, exploration of new ideas that address water problems or expands understanding of water and water-related phenomena.
- c. Potential to expand water quality expert base: Fosters the entry of new research scientists, engineers, and technicians into water resources fields.
- d. Proposal includes a solid plan for disseminating research results to water managers and the public via peer-reviewed journal articles and conference presentations; previously funded USGS 104b project researchers have successful record of USGS 104b project results published in peer-reviewed journals.
- e. Qualifications of researchers: Project investigator(s) have demonstrated capabilities for research, information dissemination, and graduate training to complement the State program designed to resolve State and regional water and related land problems.
- f. Proposed project increases cooperative interaction with higher education institutes within the State of West Virginia.
- g. Proposed budget is adequate for proposed project, including matching funds.

Attachment A: Focus Categories

ACID DEPOSITION	ACD
AGRICULTURE	AG
CLIMATOLOGICAL PROCESSES	CP
CONSERVATION	COV
DROUGHT	DROU
ECOLOGY	ECL
ECONOMICS	ECON
EDUCATION	EDU
FLOODS	FL
GEOMORPOLOGICAL PROCESSES	GEOMOR
GEOCHEMICAL PROCESSES	GEOCHE
GROUNDWATER	GW
HYDROGEOCHEMISTRY	HYDGEO
HYDROLOGY	HYDROL
INVASIVE SPECIES	INV
IRRIGATION	IG
LAW, INSTITUTIONS, AND POLICY	LIP
MANAGEMENT AND PLANNING	M&P
METHODS	MET
MODELS	MOD
NITRATE CONTAMINATION	NC
NON POINT POLLUTION	NPP
NUTRIENTS	NU
RADIOACTIVE SUBSTANCES	RAD
RECREATION	REC
SEDIMENTS	SED
SOLUTE TRANSPORT	ST
SURFACE WATER	SW
TOXIC SUBSTANCES	TS
TREATMENT	TRT
WASTEWATER	WW
WATER QUALITY	WQL
WATER QUANTITY	WQN
WATER SUPPLY	WS
WATER USE	WU
WETLANDS	WL

Attachment B: Budget Breakdown

Project Title:

Principal Investigator:

Cost Category	Federal	Non-Federal	Total
DIRECT COSTS:			
Principal Investigator(s) Salaries and Wages:	\$	\$	\$
Graduate Student(s) Salaries and Wages:	\$	\$	\$
Undergraduate Student(s) Salaries and Wages:	\$	\$	\$
Other(s) Salaries and Wages:	\$	\$	\$
Total Salaries and Wages	\$	\$	\$
Principal Investigator(s) Fringe Benefits:	\$	\$	\$
Graduate Student(s) Fringe Benefits:	\$	\$	\$
Undergraduate Student(s) Fringe Benefits:	\$	\$	\$
Other(s) Fringe Benefits:	\$	\$	\$
Total Fringe Benefits:	\$	\$	\$
Graduate Student(s) Tuition:	\$	\$	\$
Undergraduate Student(s) Tuition:	\$	\$	\$
Total Tuition:	\$	\$	\$
Supplies:	\$	\$	\$
Equipment:	\$	\$	\$
Services or Consultants:	\$	\$	\$
Travel:	\$	\$	\$
Other Direct Costs:	\$	\$	\$
Total Direct Costs:	\$	\$	\$
INDIRECT COSTS			
Indirect Costs on Federal share:	N/A	\$	\$
Indirect costs on Non-Federal share:	N/A	\$	\$
Total Indirect Costs:	\$0.00	\$	\$
TOTAL ESTIMATED COSTS			
Total Direct Costs + Total Indirect Costs:	\$	\$	\$

Attachment C: Budget Justification

Project Title:

Principal Investigator:

<p>Salaries and Wages for PI's. Provide personnel, title/position, estimated hours and the rate of compensation proposed for each individual.</p>
<p>Salaries and Wages for Graduate Students. Provide personnel, title/position, estimated hours and the rate of compensation proposed for each individual. (Other forms of compensation paid as or in lieu of wages to students performing necessary work are allowable provided that the other payments are reasonable compensation for the work performed and are conditioned explicitly upon the performance of necessary work. Also, note that tuition has its own category below and that health insurance, if provided, is to be included under fringe benefits).</p>
<p>Salaries and Wages for Undergraduate Students. Provide personnel, title/position, estimated hours and the rate of compensation proposed for each individual. (Other forms of compensation paid as or in lieu of wages to students performing necessary work are allowable provided that the other payments are reasonable compensation for the work performed and are conditioned explicitly upon the performance of necessary work. Also, note that tuition has its own category below and that health insurance, if provided, is to be included under fringe benefits).</p>
<p>Salaries and Wages for Others. Provide personnel, title/position, estimated hours and the rate of compensation proposed for each individual.</p>
<p>Fringe Benefits for PI's. Provide the overall fringe benefit rate applicable to each category of employee proposed in the project. Note: Include health insurance here, if applicable.</p>
<p>Fringe Benefits for Graduate students. Provide the overall fringe benefit rate applicable to each category of employee proposed in the project. Note: Include health insurance here, if applicable.</p>
<p>Fringe Benefits for Undergraduate students. Provide the overall fringe benefit rate applicable to each category of employee proposed in the project. Note: Include health insurance here, if applicable.</p>
<p>Fringe Benefits for Others. Provide the overall fringe benefit rate applicable to each category of employee proposed in the project. Note: Include health insurance here, if applicable.</p>

Tuition for Graduate students. <i>Provide personnel, title/position and amount of tuition remission proposed for each individual.</i>
Tuition for Undergraduate students. <i>Provide personnel, title/position and amount of tuition remission proposed for each individual.</i>
Supplies. <i>Indicate separately the amounts proposed for office, laboratory, computing, and field supplies. Provide a breakdown of the supplies in each category.</i>
Equipment. <i>Identify non-expendable personal property having a useful life of more than one (1) year and an acquisition cost of more than \$5,000 per unit. If fabrication of equipment is proposed, list parts and materials required for each, and show costs separately from the other items. A detailed breakdown is required.</i>
Services or Consultants. <i>Identify the specific tasks for which these services, consultants, or subcontracts would be used. Provide a detailed breakdown of the services or consultants to include personnel, time, salary, supplies, travel, etc.</i>
Travel. <i>Provide purpose and estimated costs for all travel. A breakdown should be provided to include location, number of personnel, number of days, per diem rate, lodging rate, mileage and mileage rate, airfare (whatever is applicable).</i>
Other Direct Costs. <i>Itemize costs not included elsewhere, including publication costs. Costs for services and consultants should be included and justified under Services or Consultants (above). Please provide a breakdown for costs listed under this category.</i>
Indirect Costs. <i>Provide negotiated indirect (Facilities and Administration) cost rate.</i>