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October 12, 2012

WATER MISSION AREA MEMORANDUM NO. 13.01

Subject: Programs and Plans-Guidelines for Preparation, Submission, and Approval of Water Science Center Project Proposals

This memorandum establishes a consistent set of guidelines for the preparation, submission, and approval of project proposals to the Water Mission Area. Project proposals serve to focus, coordinate, communicate, and document USGS science activities. Because the proposal specifies the scope and objectives, approach, timeline and expected products it provides a basis for evaluating project progress and success and aids in ensuring cooperator satisfaction. Formal reviews of proposed projects help to ensure adherence to all applicable technical and organizational policy issues (including alignment with Bureau priorities) for reimbursable, Cooperative Water Program (CWP), and Other Federal Agency (OFA) water-resources projects. Prior to initiating the formal proposal process, Science Centers are encouraged to informally discuss proposed water-resources project concepts with appropriate Water Science Field Team (WSFT) personnel, the Regional Science Advisor and/or Safety Officer.

PREPARATION OF PROJECT PROPOSALS BY WATER SCIENCE CENTERS

Project proposals are mandatory for interpretive projects and may be required for data projects. Generally, a project can be defined as: a set of related activities or planned efforts designed to achieve a definite goal (or set of goals) with specified staff, budget and time requirements appropriate to the nature of the work, and that culminates with measurable products, services, or results. The types of activities that typically require the development, review, and approval of a project proposal include:

- All interpretive activities,
- Data activities that have a defined set of objectives and scope and data-quality objectives that rely on non-standard methods, and
- Data-collection projects that grow substantially in scope or are planned from the start to address a set of objectives that will involve interpretive work.

Specific requirements for proposal preparation are outlined in Attachment 1. Approved draft proposals are posted on the internal USGS WSFT web site at https://collaboration.usgs.gov/wg/wsft/Proposal%20Review%20Library/Forms/AllItems.aspx?View={5890E62B-F6FC-4C0E-BC50-C5D1EDF1CEAE}&FilterClear=1. These approved draft proposals and can be used as examples.

SUBMISSION OF PROJECT PROPOSALS TO THE WATER SCIENCE FIELD TEAM

Project proposals must be submitted to the WSFT for review of technical and policy considerations to ensure that projects are technically sound and meet national quality standards; projects have an approved outlet for data, scientific information and interpretation; and the work does not violate USGS policy. If unexpected technical findings or fiscal circumstances result in significant modification of planned project activities and funding levels, a revised proposal must be submitted for review and approval by the WSFT and the Regional Director's (RD) Office. Similarly, a new proposal will be required when data collection projects, for which no proposal was originally required, transition into interpretive studies.

The WSFT will be issuing unified guidance on proposal submissions and will institute a single proposal tracking system and repository during Fiscal Year 2013. Until then, proposals should be submitted according to past practice of the WSFT serving your Region.

APPROVAL OF PROJECT PROPOSALS BY THE REGIONAL DIRECTOR

After project proposals are reviewed by the WSFT for technical and policy considerations, a recommendation for approval will be sent to the appropriate Regional Director's Office. Final approval of the project proposal is the responsibility of the RD Office. Project work should not begin without RD Office approval, a signed Joint Funding Agreement, and entry of the project into BASIS+. (Note: A waiver to begin work without a signed agreement with appropriate justification may be submitted to the RD Office for approval. Time-sensitive activities, such as those associated with floods or emergencies, may also proceed with verbal approval from the RD Office.)

If you have questions regarding the preparation, submission, or approval of project proposals, please contact the appropriate WSFT Chief for your Science Center.

William H. Werkheiser ***//s// William H. Werkheiser***
Associate Director for Water

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Attachments:

1. Guidelines For Preparation Of Project Proposals
2. Strengthening the Relevance and Benefits Section of Proposals

Attachment 1

GUIDELINES FOR PREPARATION OF PROJECT PROPOSALS

It is vitally important that USGS science be relevant to the strategic directions, and priorities of the Bureau, Water Mission Area (WMA), and Regions. Additionally, it is critical that we communicate to our stakeholders the specific needs or problems to be addressed and the science objectives and approaches of the proposed studies. A well formulated, scientifically sound project proposal is essential to the success of a project and forms the basis for effective communication of our planned and ongoing science activities. Other important functions of a good project proposal include:

- Documents the appropriateness to the USGS mission and priorities.
- Facilitates successful planning and execution of the project by describing the objectives and scope of work envisioned as well as the proposed methodologies and products (deliverables). The proposal thus serves as a list of the agreed upon commitments that can be used to gauge the successful completion of the project.
- Specifies the amount and sources of funding needed to execute the project.

Guidelines for developing pre-proposals and full proposals are described below in terms of their content, submission, review and approval. The following points summarize the intent and expectations for pre-proposals and full proposals.

Pre-proposals (*Optional*):

- Can be informal brief 'draft' idea/concept statements that outline prospective projects. Pre-proposals are *optional*, but early consultation with the Water Science Field Team (WSFT) may result in faster turn-around times when the full proposal is submitted. Content and format are flexible. Typically, the pre-proposal will include a brief background or problem statement, a list of primary objectives, discussion of the approach envisioned to achieve the stated objectives, and preliminary report/product plans.
- Submit directly to the appropriate WSFT personnel and similarly to the Regional Science Advisor and Safety Officer, as appropriate.

The WSFT will provide informal timely comments on the technical or policy aspects of the pre-proposal (turnaround time for WSFT review of pre-proposals generally will be less than one week).

Full proposal (*approval required*):

Concise but thorough narratives should address each of the required elements **B1–B12** listed below. There is no length criterion for full proposals. Proposals may adopt a format required by the cooperator or program coordinator, as long as the required elements of the proposal are presented. In these cases, please indicate the need for a different format on the cover sheet.

- Proposals must be submitted electronically to the appropriate WSFT Chief (preferably compiled in a single file). Either PDF- or WORD-formatted versions are acceptable; any supporting figures and tables cited in the text should be embedded in the digital document. The submission must include a Project Proposal Cover Sheet (see item **A** below, and a Job Hazard Analysis with appropriate signatures.
- The WSFT review will focus on elements **B1–B8**, but the review will consider the contents of elements **B9–B11**. Element **1C**, pertaining to Safety and the Proposal Job Hazard Analysis, will be formally reviewed by the Regional Safety Officer.
- The WSFT will attempt to complete reviews of the final draft of the proposal within two weeks. The WSFT will attempt to resolve any problems with the proposals directly with the Water Science Center (WSC).
- The WSFT review package and recommendation will be sent via email to the appropriate designee in the RD Office for review and approval, with a copy to the originating WSC Director.
- The WSFT will archive approved proposals and review packages in an accessible proposal repository (currently at: (http://water.usgs.gov/usgs/wsft/proposals.html).

Elements of a Full Proposal:

A. **A completed and signed Project Proposal Cover Sheet** (available at) http://water.usgs.gov/usgs/wsft/proposals/coversheet-template.pdf)

B. **Project Proposal:**

1. **TITLE—** should relate, as concisely as possible, to the objective(s) and scope of the proposed study and include the location of the study, if applicable. Ideally, the title should reflect the preliminary title(s) of any proposed information product from the study. Omit company or trade-marked product names in the title.

2. **BACKGROUND/INTRODUCTION—** This section can be used to provide additional information about the study area, such as demographics and political considerations, previous investigations and results, and any information that will help the reader understand the **problem** and **objective** sections of the proposal.

3. **PROBLEM—**State concisely the problems and related background information motivating USGS involvement. Note that the cooperator's problem can be described as well, but not to the exclusion of the broader water resources issue/problem. Previous studies and existing information should be briefly summarized and referenced. Provide sufficient supporting background information to facilitate understanding key technical and social factors relevant to the proposed study. For place studies, a map showing the location and extent of the study area should be included in this section.

4. **OBJECTIVES and SCOPE —** State concisely the attainable objectives of the project. Objectives are statements of desired results, not statements of project approach such as collecting data or constructing a model. Relate each objective directly to the problem issue(s). The objectives must be compatible with the problem and approach statements, responsive to cooperator/customer needs, and consistent with the USGS mission. Use caution in setting the objectives and scope to avoid misrepresenting the expected goals of the project.

5. **RELEVANCE and BENEFITS—**Describe the relevance and benefits to the cooperator/customer and the USGS and demonstrate how results will contribute to improved planning and (or) management capabilities and to advancing applied science. Specify the national interest(s) served by the project. A strong Relevance and Benefits section serves to address the Federal interest and mitigate potential conflicts regarding competition with the private sector. Proposed projects should state the relevance of the study to USGS Strategic Science Directions at a minimum; statements of relevance to WMA Strategic Directions, Cooperative Water Program (CWP) priorities (if CWP funds are requested), WSC Science Plans, and (or) other relevant USGS priorities are encouraged. Include any relevant state and local priorities. See **Attachment 2** for guidelines to strengthen this section.

6. **APPROACH**—Describe the tasks, methods, and technologies that constitute the scientific approach proposed to achieve the stated objective(s). A summary describing the science strategy for achieving the objective(s) within the prescribed timeframe and resources should be stated in the first paragraph. The rationale for using the proposed analytical or investigative tools should be explained.

   Following the summary description, address the project study plan: a clear logical presentation of the data types, tasks, methods, and sequence of activities for the project. If proven techniques and methods are proposed, then a brief description will suffice. Any unique, innovative, or original method should be described, referenced, and (or) justified. A description of how the data or model output will be analyzed and interpreted to achieve the objective(s) should be included. It is important to describe how results will be evaluated to determine whether the stated objective(s) were achieved.

   The approach for complex or research-oriented projects should be organized into subsections that represent phases of the study that show the planned evolution of the study. Sequential numbering of components or a decision flow diagram can be used to show a logical plan for adapting the course of study to the various potential outcomes as the project progresses.

7. **QUALITY ASSURANCE/QUALITY CONTROL**– Describe the QA procedures that will be used to guide data-collection and review activities for the project. For standard data collection, simply cite the Science Center QA Plan or other pertinent documents,

such as the National Field Manual, Techniques and Methods reports, or WMA Technical Memoranda.

For all water-quality projects, specify the numbers of each type of QC sample (blanks, replicates, and spikes) that will be collected for each constituent group. If an outside laboratory will be used, indicate that a laboratory evaluation will be made in accordance with Office of Water Quality Technical Memorandum 2007.01. Ensure that the project budget includes adequate time and resources to accomplish the specified QC components.

Some projects involving other Federal agencies require preparation, review, and approval of a Quality Assurance Project Plan (QAPP) prior to any environmental data collection. Indicate whether a QAPP will be required, and if so, describe the added time and expense.

8. **PRODUCTS**—Describe the planned information product(s) as well as data types to be produced by the project. Identify any planned publications by series, for example journal article, USGS Scientific Investigations Report, etc. For data projects, also identify the types of data to be produced. A description of USGS report series is available at http://www.usgs.gov/usgs-manual/1100/1100-3appendixa.pdf.

9. **REFERENCES**—A list of references cited in the proposal is a beneficial component of the proposed study. Follow accepted USGS style suggestions for formatting citations in the text and the references in this section. Provide links to references with persistent URLs.

10. **TIMELINE**—List major study tasks and major elements of tasks identified in the body of the proposal and indicate starting dates, periods of activity, and ending dates. The timeline is critical to assessing the technical and programmatic feasibility of the project as it provides the basis to evaluate the sequencing of activities and planned duration of the project. A timeline is most often presented in a table or spreadsheet format.

11. **PERSONNEL**—List personnel needs by required skill (QW specialist, technical specialist, hydrogeologist, hydrologic modeler, etc). Identify location of staff (other WSCs, other Mission Areas, other agencies) as well as collaborative work to be accomplished by cooperator staff. Planned contract work should also be described.

12. **BUDGET SUMMARY**—Compile a table of estimated costs for the duration of the project but not to exceed 5 years. The cost estimate in the proposal budget and on the Project Proposal Cover Sheet must agree. Costs can be itemized by task (for example, sampling, laboratory analyses, QA/QC documentation, data analysis, simulation,

example, salary, equipment purchases, travel, contracts).

C. **Job Hazard Analysis (JHA) for New Projects** The JHA should concisely state any safety concerns/elements of the project and the requirements needed to address these safety concerns/elements, such as safety training and equipment needed to allow an employee to perform the work in a safe manner and to ensure that unnecessary liabilities are not incurred by the U.S. Government. All work on hazardous waste sites or work in confined spaces, etc., which would require specialized training and perhaps medical examinations, must be considered when planning the project. A JHA template is located at (http://water.usgs.gov/usgs/wsft/proposals/JHA-template.pdf). The JHA must be signed by the Collateral Duty Safety Officer and the Science Center Director. The Regional Safety Officer is responsible for reviewing the proposal JHA. Safety and the requirements to maintain a safe work environment are discussed in a number of Department, Bureau, and Discipline memoranda. A listing of safety memos by category can be found on the web at http://1stop.usgs.gov/safety/memos/memo-category.shtml

Attachment 2

STRENGTHENING THE RELEVANCE AND BENEFITS SECTION OF PROPOSALS

It is important that the USGS conduct business that clearly is within our mission, and to the extent possible, does not overtly compete with private entities. Water Mission Area Policy Memorandum No. 2012.01 http://water.usgs.gov/coop/about/avoiding_competition.pdf discusses the importance of demonstrating that proposed work is USGS-mission relevant and that it is beneficial to Federal science interests as well as the needs of stakeholders and the public. In this regard, the Water Science Field Team (WSFT) suggests that one way to demonstrate the relevance of our work to the public and the priorities and directions for USGS activities is to include a comprehensive, strong, and supportive Relevance and Benefits section in USGS proposals. By way of example, the following provides some generic statements/areas that should be addressed in the Relevance and Benefits section of proposals.

1. Include benefits that relate to the USGS as a leader in collecting, maintaining, and providing long-term, earth-science data and conducting long-term, broad-scale, multidisciplinary studies that also relate to our investment in core competencies, including fundamental science research. Of necessity, this benefit also relates to our commitment to the Federal Government and the citizens of the United States. For example:

   "Completion of the proposed work will provide the USGS with additional water-quality information on multi-reservoirs in mixed land-use settings. These data will add to the USGS national database and will assist in understanding and describing the Nation's water resources."

   "The USGS would benefit by keeping current on hydrologic data, analyses, and interpretations of the resources in the X, and from the increased capability of MODFLOW, which would allow it to be applied in a variety of new situations for which integrated modeling tools currently do not exist."

   "The USGS would benefit from a better understanding of the mechanics of local scour and the hydraulics of open-channel flow at piers and abutments. The existing national database of about 400 scour measurements would be expanded to include data representing some of the varying physiography in X."

   "The study will contribute to the USGS mission by increasing understanding of surface-water/groundwater interactions and their effect on water availability and quality in a common hydrogeologic setting."

2. Include specific benefits that the data collection, results, and interpretations will provide to the customer. For example:

   "The results of this study will provide the cooperator with documentation of baseline water-quality conditions in the reservoir. This information will help the cooperator to evaluate

current and future reservoir management activities with regard to its use as a drinking-water source."

3. Include benefits that might affect other managing parties or agencies involved in hydrologic issues. Stress the high quality of the data and information that will be provided and how it will be used by resource managers. For example:

   "The findings of the study will provide managers with reliable and impartial information for their use in reducing property losses associated with damage to homes and cropland in the study area."

4. Include benefits that relate to the importance of our partnerships and exchange of scientific information. For example:

   "The cooperator will benefit by having the USGS serve as an unbiased third party with extensive technical expertise on many topics related to X. If the identified approaches herein prove successful, agencies such as USGS, FEMA, USCOE, and others, along with consulting firms, will benefit greatly by having statistically quantifiable, consistent, reproducible, and defensible estimates of peak-flow frequency for regulated streams in X."

5. Include benefits that might relate to the general public or private individuals and companies. For example:

   "The public will gain an improved understanding of the source of their water supply."

   "The data will be useful to private individuals and companies examining the potential to develop the X aquifers."

The WSFT reviews the Relevance and Benefits section of Science Center proposals with an eye toward attempting to satisfy any inquiries that might arise from our involvement in the study and to ensure that the benefits are appropriately described. References that may prove helpful in writing the Relevance and Benefits section include the USGS Science Strategy (http://internal.usgs.gov/director/science_strategy/) and the USGS Water Resources 5-Year Program Plans (http://water.usgs.gov/usgs/prgmplans/).

William H. Werkheiser
Associate Director for Water
12201 Sunrise Valley Drive, MS 150
Reston, VA 20192
703-648-4557