American Institute of Hydrology

The Society for Certification of Hydrology Professionals

Request for Proposals – Amendment 1

Certification Examination Support Services

Closing Date & Time: ~~April 12~~ April 19, 2022, 8:00 a.m. (Pacific)

Key Dates

Events	Date
Release of Request for Proposal (RFP)	March 4, 2022
Due date for responses to RFP deadline	~~April 12, 2022~~ April 19, 2022 (8:00 a.m. Pacific Time)
Anticipated contractor selection	~~April 29, 2022~~ May 6, 2022

American Institute of Hydrology Contact for Questions and Submittals:

admin@aihydro.org (*Please use subject line "AIH – Certification Exam Support"*)

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OVERVIEW

The American Institute of Hydrology (hereinafter 'AIH') is issuing this Request for Proposals (RFP) to invite entities with specialized hydrology experience in hydrology and qualifications related to development of and training to support hydrology-related examination preparation.

AIH intends to enter a multi-year contract with a single entity to provide certification exam support services. Note that the single contracted entity may enter into agreements with other entities or individuals to propose on services in responses to the RFP and for performance of services.

BACKGROUND

The American Institute of Hydrology (AIH) was founded in 1981 as a non-profit scientific and educational organization dedicated to the certification and registration of professionals in all fields of hydrology. AIH is the only nationwide organization that offers certification to qualified hydrologic professionals. AIH's goal is to promote hydrology as a science and profession and to help protect public interest from non-professional practices. Respondents are encouraged to learn more about AIH by visiting its website at https://www.aihydrology.org/.

The purpose of AIH is to enhance and strengthen the standing of hydrology as a science and profession by:

- Establishing standards and procedures to certify individuals qualified to practice hydrology
- Establishing and maintaining ethical standards to protect the public from irresponsible work
- Providing education, public advice, and training in hydrology

Membership in AIH consists of more than 500 professional hydrologists, hydrologic technicians, hydrologists-in-training, students, and water resource businesses – both in the United States and abroad. Certified members, also referred to as ‘professional members’, are individuals holding valid certification from AIH as either: Professional Hydrologist (PH), Hydrologist in Training (HIT), or Hydrologic Technician (HT). Affiliated members are individuals or organizations who are affiliated with but not certified by AIH. All AIH members must pledge to uphold the Code of Ethics and Constitution of the institute.

Below sections briefly describe AIH’s certification requirements for professional members and examinations.

Certification Requirements for Hydrologists, Hydrologists-in-Training, and Hydrologic Technicians

Applications from professionals interested in certification as professional members of AIH are evaluated by the AIH Board of Registration. AIH’s Board of Registration reviews and evaluates the applicant’s education, professional experience, professional conduct, and references. Upon review and recommendation by AIH’ Board of Registration, qualified applicants are administered certification examinations by AIH to demonstrate their competency in hydrology. After administration of certification examinations, AIH’s Board of Registration reviews certification exam results and provides recommendations for either certification of members or retake of examination.

Recertification of professional members is required every five years. Certified members recertify through providing evidence of continuing education (with minimum professional development hours) and providing a current resume with requested qualifications and achievements over the previous five (5) years.

Examinations

Examinations are administered by AIH for Hydrologist-in-Training (HIT), Professional Hydrologist (PH), and Hydrologic Technician (HT) certification. Examinations are either administered in-person (paper examination) or virtual via video conference. Under current practices, in-person examinations are proctored by a volunteer PH at volunteer's office location near applicant, and virtual examinations are proctored through video conference. Unlike certification examinations for other organizations, AIH examinations focus solely on knowledge and understanding of hydrology.

There are two certification examination categories administered by AIH: Professional Hydrologist certification examinations and Hydrologic Technician certification examinations.

The Professional Hydrologist Examination consists of two parts:

- The Fundamentals Exam tests the applicant's understanding of surface water and groundwater hydrology, including the principles of mathematics, physics, chemistry, geology, meteorology and engineering. Passing this examination qualifies candidates for certification as a HIT. This examination must be passed to be eligible to take the Principles and Practice Exam.
- The Principles and Practice Exam tests the applicant's ability to apply hydrological analysis to practical problems of engineering design, water resource management, planning, or research. Passing this examination qualifies candidates for certification as an PH.

The Hydrologic Technician Examination tests the applicant's practical knowledge of Surface Water, Water Quality or Groundwater, at three levels of proficiency: General (Level I), Intermediate (Level II), or Advanced (Level III). Passing this examination qualifies candidates for certification as either Level I, Level II, or Level III HT.

All examinations are composed of multiple-choice questions and are graded by AIH's association management company.

The AIH has been providing examinations since its founding in 1983, and the set of examination questions has evolved over the years. AIH's leadership team, or Executive Committee, has given direction to develop a comprehensive database of examination questions for each of the certification examinations administered by AIH and updates to list of recommended references and training materials to support applicant preparation for AIH's certification examinations.

DESIGNATED SCOPE OF SERVICES

Specified tasks under the scope of services include tasks 1 and 2 as detailed below.

Task 1. Development of Certification Examination Questions Database

Contractor will develop a database or repository for questions and their respective answers that may be utilized by AIH for AIH's certification examinations. Examination questions should be classified by their level of difficulty and applicable AIH certification examination:

- Hydrologist-in-Training

- Professional Hydrologist
    - Groundwater
    - Surface Water
    - Water Quality
- Hydrologic Technician
    - Levels I,
    - Level II, and
    - Level III

The Hydrologist-in-Training examination is the general exam for the first step in certification as a professional hydrologist. It is an exam that would be on par with the fundamental's examination taken as the first step in becoming a professional engineer. The questions on the HIT examination cover all topics in hydrology including surface water, groundwater, and water quality, as well as related topics on meteorology, uncertainty analysis, and frequency analysis.

The Professional Hydrologist (PH) questions are more specific to the areas of surface water, groundwater and water quality, and are much more in depth regarding the application of the principles and practices to solving problems related to real-life situations.

The questions for the Hydrologic Technician certification fall within the three category levels listed above. See Attachment B for overview of HT examination structure and topics.

Currently the AIH Board of Examinations has a small set of examination questions for each of the certification levels including the HIT and the PH. Questions do not currently exist for any of the Hydrologic Technician levels. A summary of the number of questions currently on file for each of the certification levels is given in Table 1. Anticipated level of difficulty for questions comprising each examination are also provided in Table 1.

Sample questions from the HIT and PH examination repository accompany this RFP in Attachment A. The sample questions are given for each of the certification levels and include questions representing different levels of difficulty.

TABLE 1. SUMMARY OF AMERICAN INSTITUTE OF HYDROLOGY EXAMINATION QUESTIONS CURRENTLY ON FILE AND REQUIRED LEVEL OF DIFFICULTY FOR EXAMINATION QUESTIONS

Examination	No. of Questions in Existing Database	Level of Difficulty			
		Fundamentals	Medium	In-Depth	Difficult/ Challenging
Part I – Fundamentals Exam	100	50%	30%	20%	NA
Part II – Groundwater	100	25%	30%	30%	15%
Part II – Surface Water	100				
Part II – Water Quality	100				
Hydrologic Technician Level I	See note*	To be determined**			
Hydrologic Technician Level II	See note*	To be determined**			
Hydrologic Technician Level III	See note*	To be determined**			

** New examinations questions database for Hydrologic Technician examinations are required, however, some examination questions for Hydrologic Technician level I, II, and/or III examinations may be extracted from either the Part I (Fundamentals Exam) and/or the Part II examinations for Professional Hydrologist certification.*

*** Where not indicated, the Contractor shall coordinate with the Board of Examinations to determine appropriate proportional level of difficulty for range of questions within the database.*

Subtask 1.1. Examinations Questions Database

The Contractor shall develop new potential AIH examination questions for AIH examinations that will be administered during November 2022. The potential examination questions for each of the AIH examination categories will be incorporated into a database for use by AIH. Table 2 provides a summary of the deliverable requirements for this subtask. The anticipated level of difficulty for questions comprising each examination is provided in Table 1 above. Where not provided, the Contractor shall coordinate with the BOE to determine appropriate proportion of questions within the database for a range in level of difficulty.

TABLE 2. SUBTASK 1.1 NEW EXAMINATION QUESTIONS DATABASE DELIVERABLES

Item	Item No.	Version	Due Date
• At least one hundred (100) draft examination questions for each of the AIH certification examinations: • Part I, Fundamentals – At least 100 new questions • Part II – At least 100 new questions each for Surface Water, Groundwater, and Water Quality examinations. • Hydrologic Technician – At least 100 new questions each for HT levels I, II, and III.	1.1.1	Draft	September 15, 2022
	1.1.2	Final	October 15, 2022
• Coordination with Board of Examinations for new examinations questions database.	1.1.3	NA	October 15, 2022

Key:
AIH = American Institute of Hydrology
HT = Hydrologic Technician

During execution of this task, the Contractor shall coordinate with the BOE throughout the preparation of examination questions process under Subtask 1.1. The steps to the process include:

- Meet with the BOE to discuss the scope of the examinations to ensure that the content of the examinations is appropriate and well-understood.
- Contractor prepares a set of 20 questions for each of the certification levels and shares those with the BOE to get feedback from the BOE; this step is intended to make sure that the examination questions are on track with the vision of the BOE.
- Contractor prepares the minimum of questions specified in Table 1 for each examination category. Contractor meets with the BOE on or before September 15, 2022 to review the draft questions specified in Table 2, then prepare updates/edits to questions no later than October 15, 2022.

Coordination activities are presumed to occur through virtual video conferences.

Subtask 1.2. List of References and Training Materials

Contractor will compile lists of suggested references and training materials to support applicant preparation for AIH's certification examinations. Recommended references and training materials should be based on certification examinations questions database developed under Subtask 1.1 that are specific for each examination. Table 3 provides a summary of the deliverable requirements for this subtask.

TABLE 3. DELIVERABLES FOR SUBTASK 1.2, LIST OF REFERENCES AND TRAINING MATERIALS

Item	Item No.	Due Date
• Compiled list of suggested references and training materials to support applicant preparation for certification examinations. List of references and training materials shall be based on certification examinations questions database developed under tasks 1 and 2.	1.2	September 1, 2022

Task 2. Year 2023 Additions to Certification Examination Questions Database

Subtasks provided below require Contractor development of additional questions for AIH's certification examination questions database.

Subtask 2.1. Additions to Examinations Questions Database

The Contractor shall develop new potential AIH examination questions for AIH examinations. The potential examination questions for each of the AIH examination categories will be incorporated into the database developed for AIH by Contractor under task 1. Table 2 provides a summary of the deliverable requirements for this subtask. The anticipated level of difficulty for questions comprising each examination is provided in Table 1 above. Where not provided, the Contractor shall coordinate with the BOE to determine appropriate proportion of questions within the database for a range in level of difficulty.

TABLE 4. SUBTASK 2.1 YEAR 2023 ADDITIONS TO EXAMINATION QUESTIONS DATABASE DELIVERABLES

Item	Item No.	Version	Due Date
• At least three hundred (300) examination questions for each of the AIH certification examinations • Part I, Fundamentals – At least 300 new questions • Part II – At least 300 new questions each for Surface Water, Groundwater, and Water Quality examinations. • Hydrologic Technician – At least 300 new questions each for HT levels I, II, and III.	2.1.1	Draft	March 15, 2023
	2.1.2	Final	April 15, 2023
• Coordination with Board of Examinations for 2023 additions to examinations questions database.	2.1.3	NA	April 15, 2023

Key:
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During execution of this task, the Contractor shall coordinate with the BOE throughout the preparation of examination questions process under Subtask 2.1. Coordination activities should, at the least, include meeting with the BOE by March 15, 2023 to review the draft questions specified in Table 4, then prepare updates/edits to questions no later than April 15, 2023. Coordination activities are presumed to occur through virtual video conferences.

Subtask 2.2. List of References and Training Materials for Additional Examination Questions

Based on additional examinations questions developed by Contractor and approved by AIH under Subtask 2.1, Contractor will compile lists of suggested references and training materials to support applicant preparation for AIH's certification examinations. Recommended references and training materials should be based on certification examinations questions database developed and/or updated under tasks 1 and 2. Table 5 provides a summary of the deliverable requirements for this subtask.

TABLE 5. DELIVERABLES FOR SUBTASK 2.2, LIST OF REFERENCES AND TRAINING MATERIALS FOR ADDITIONAL EXAMINATION QUESTIONS

Item	Item No.	Due Date
• Compiled list of suggested references and training materials to support applicant preparation for certification examinations. List of references and training materials shall be based on certification examinations questions database developed and/or updated under tasks 1 and 2.	2.2	April 15, 2023

Optional Task 3. Coordination and Engagement with Board of Examinations for Annual Updates to Certification Examination Questions Database

The optional subtasks below require Contractor development of additional questions for AIH's certification examination questions database and updates to list of references and training materials.

Optional Subtask 3.1. 2024 Updates to Examination Questions Database and List of References and Training Materials

The Contractor shall develop new potential AIH examination questions for 2024 AIH examinations. The potential examination questions for each of the AIH examination categories will be incorporated into the database developed for AIH by Contractor under task 1. Table 6 provides a summary of the deliverable requirements for this subtask. The anticipated level of difficulty for questions comprising each examination is provided in Table 1 above. Where not provided, the Contractor shall coordinate with the BOE to determine appropriate proportion of questions within the database for a range in level of difficulty.

The Contractor shall meet with the BOE by March 15, 2024 to review the draft questions specified in Table 6, then prepare updates/edits to questions no later than April 15, 2024. Coordination activities are presumed to occur through virtual video conferences.

Based on additional examinations questions developed by Contractor and approved by AIH under Subtask 3.1, Contractor will compile lists of any new/suggested references and training materials to support applicant preparation for AIH's certification examinations.

TABLE 6. SUBTASK 3.1, 2024 UPDATES TO EXAMINATION QUESTIONS DATABASE DELIVERABLES

Item	Item No.	Version	Due Date
• At least one hundred (100) examination questions for each of the AIH certification examinations • Part I, Fundamentals – At least 100 new questions • Part II – At least 100 new questions each for Surface Water, Groundwater, and Water Quality examinations. • Hydrologic Technician – At least 100 new questions each for HT levels I, II, and III.	3.1.1	Draft	March 15, 2024
	3.1.2	Final	April 15, 2024
• Compiled list of additional suggested references and training materials to support applicant preparation for AIH's certification examinations. List of references and training materials shall be based on certification examinations questions database developed under subtask 3.1.	3.1.3	NA	April 15, 2024
• Coordination with Board of Examinations for 2024 additions to examinations questions database.	3.1.4	NA	April 15, 2024

Key:
AIH = American Institute of Hydrology
HT = Hydrologic Technician
NA = not applicable

Optional Subtask 3.2. 2025 Updates to Examination Questions Database and List of References and Training Materials

The Contractor shall develop new potential AIH examination questions for 2025 AIH examinations. The potential examination questions for each of the AIH examination categories will be incorporated into the database developed for AIH by Contractor under Task 1. Table 7 provides a summary of the deliverable requirements for this subtask. The anticipated level of difficulty for questions comprising each examination is provided in Table 1 above. Where not provided, the Contractor shall coordinate with the BOE to determine appropriate proportion of questions within the database for a range in level of difficulty.

The Contractor shall meet with the BOE by March 15, 2025 to review the draft questions specified in Table 6, then prepare updates/edits to questions no later than April 15, 2025. Coordination activities are presumed to occur through virtual video conferences.

Based on additional examinations questions developed by Contractor and approved by AIH under Subtask 3.2, Contractor will compile lists of any new/suggested references and training materials to support applicant preparation for AIH's certification examinations.

TABLE 7. SUBTASK 3.2, 2025 UPDATES TO EXAMINATION QUESTIONS DATABASE DELIVERABLES

Item	Item No.	Version	Due Date
• At least one hundred (100) examination questions for each of the AIH certification examinations • Part I, Fundamentals – At least 100 new questions • Part II – At least 100 new questions each for Surface Water, Groundwater, and Water Quality examinations. • Hydrologic Technician – At least 100 new questions each for HT levels I, II, and III.	3.2.1	Draft	March 15, 2025
	3.2.2	Final	April 15, 2025
• Compiled list of additional suggested references and training materials to support applicant preparation for AIH's certification examinations. List of references and training materials shall be based on certification examinations questions database developed under subtask 3.2.	3.2.3	NA	April 15, 2025
• Coordination with Board of Examinations for 2025 additions to examinations questions database.	3.2.4	NA	April 15, 2025

Key:
AIH = American Institute of Hydrology
HT = Hydrologic Technician
NA = not applicable

Optional Subtask 3.3. 2026 Updates to Examination Questions Database and List of References and Training Materials

The Contractor shall develop new potential AIH examination questions for 2026 AIH examinations. The potential examination questions for each of the AIH examination categories will be incorporated into the database developed for AIH by Contractor under Task 1. Table 8 provides a summary of the deliverable requirements for this subtask. The anticipated level of difficulty for questions comprising each examination is provided in Table 1 above. Where not provided, the Contractor shall coordinate with the BOE to determine appropriate proportion of questions within the database for a range in level of difficulty.

The Contractor shall meet with the BOE by March 15, 2026 to review the draft questions specified in Table 6, then prepare updates/edits to questions no later than April 15, 2026. Coordination activities are presumed to occur through virtual video conferences.

Based on additional examinations questions developed by Contractor and approved by AIH under Subtask 3.3, Contractor will compile lists of any new/suggested references and training materials to support applicant preparation for AIH's certification examinations.

TABLE 8. SUBTASK 3.3, 2026 UPDATES TO EXAMINATION QUESTIONS DATABASE DELIVERABLES

Item	Item No.	Version	Due Date
• At least fifty (50) examination questions for each of the AIH certification examinations • Part I, Fundamentals – At least 50 new questions • Part II – At least 50 new questions each for Surface Water, Groundwater, and Water Quality examinations. • Hydrologic Technician – At least 50 new questions each for HT levels I, II, and III.	3.3.1	Draft	March 15, 2026
	3.3.2	Final	April 15, 2026
• Compiled list of additional suggested references and training materials to support applicant preparation for AIH's certification examinations. List of references and training materials shall be based on certification examinations questions database developed under subtask 3.3.	3.3.3	NA	April 15, 2026
• Coordination with Board of Examinations for 2026 additions to examinations questions database.	3.3.4	NA	April 15, 2026

Key:
AIH = American Institute of Hydrology
HT = Hydrologic Technician
NA = not applicable

Optional Subtask 3.4. 2027 Updates to Examination Questions Database and List of References and Training Materials

The Contractor shall develop new potential AIH examination questions for 2027 AIH examinations. The potential examination questions for each of the AIH examination categories will be incorporated into the database developed for AIH by Contractor under Task 1. Table 9 provides a summary of the deliverable requirements for this subtask. The anticipated level of difficulty for questions comprising each examination is provided in Table 1 above. Where not provided, the Contractor shall coordinate with the BOE to determine appropriate proportion of questions within the database for a range in level of difficulty.

The Contractor shall meet with the BOE by March 15, 2027 to review the draft questions specified in Table 6, then prepare updates/edits to questions no later than April 15, 2027. Coordination activities are presumed to occur through virtual video conferences.

Based on additional examinations questions developed by Contractor and approved by AIH under Subtask 3.4, Contractor will compile lists of any new/suggested references and training materials to support applicant preparation for AIH's certification examinations.

TABLE 9. SUBTASK 3.4, 2027 UPDATES TO EXAMINATION QUESTIONS DATABASE DELIVERABLES

Item	Item No.	Version	Due Date
• At least fifty (50) examination questions for each of the AIH certification examinations • Part I, Fundamentals – At least 50 new questions • Part II – At least 50 new questions each for Surface Water, Groundwater, and Water Quality examinations. • Hydrologic Technician – At least 50 new questions each for HT levels I, II, and III.	3.4.1	Draft	March 15, 2027
	3.4.2	Final	April 15, 2027
• Compiled list of additional suggested references and training materials to support applicant preparation for AIH's certification examinations. List of references and training materials shall be based on certification examinations questions database developed under subtask 3.4.	3.4.3	NA	April 15, 2027
• Coordination with Board of Examinations for 2027 additions to examinations questions database.	3.4.4	NA	April 15, 2027

Key:
AIH = American Institute of Hydrology
HT = Hydrologic Technician
NA = not applicable

ANTICIPATED EVALUATION CRITERIA

Numeric evaluations will be used to score the submitted proposals to establish a ranking based on the following criteria:

1. Experience of entity in providing similar services.
2. Demonstrated staff or team member capabilities and experience in development of hydrology-related examinations and/or training materials.
3. Proposed fees for the services and deliverables identified in the Scope of Services, including any additional anticipated costs.
4. Sound past performance of entity as demonstrated through references.

INSTRUCTIONS FOR SUBMITTING RESPONSES

Contents of a response

In order to effectively review responses from multiple entities, AIH requests responses to contain the following sections, at least. It is not necessary that the sections follow the order below but should clearly delineate how content sections address RFP content requirements outlined below.

Entity/Firm Qualifications

1. Entity information including legal name of Contractor, primary address and contact information, state of incorporation, and state in which doing business.
2. Entity qualifications demonstrating that Contractor is qualified to provide certification examination support services to AIH.
3. Staff qualifications demonstrating that the Contractor employs qualified and experienced staff. For each staff member presented, the Proposal must clearly state whether the individual is an employee or a contractor of the firm.
4. Firm reliability and credibility, which should be demonstrated by providing statements and/or evidence for the following:
    a. Length of time that the proposing firm has provided similar services.
    b. Number of staff employed by firm (provide answer in terms of Full-Time Equivalent or FTE).
    c. How long has firm been operating from its existing principal place of business? (While not mandatory, information volunteered about period of lease or nature of ownership will assist evaluation)
    d. Contact information for at least 3 references from other entities that Contractor currently or has recently provided similar services to.

Brief approach for addressing scope of services

Entity/firm's proposal should concisely describe approach for addressing the tasks/subtasks outlined above in Scope of Services. Deviations from the described tasks/subtasks may be considered if respondent's approach demonstrates improved effectiveness and/or efficiency for the requested examination support services and meets requirements for development of and updates to examination questions database for each of AIH's certification examinations.

Proposed fee

The proposed annual fee should be presented for base tasks and each subtask under optional Task 3. Note that the AIH reserves the right to exercise none, one, some, or all of the optional subtasks under Optional Task 3. Proposed annual fees for the base and optional tasks/subtasks in the Scope of Services should be provided using a summary table format like example provided below (Table 10).

TABLE 10. EXAMPLE SUMMARY TABLE FOR RESPONDENT'S PROPOSED ANNUAL FEES FOR SCOPE OF SERVICES

Year	Task/Subtask	Proposed Annual Fee ($)
2022	Task 1. Development of Certification Examination Questions Database and List of References and Training Materials	
2023	Task 2. Year 2023 Additions to Certification Examination Questions Database and List of References and Training Materials	
	Optional Task 3. Coordination and Engagement with Board of Examinations for Annual Updates to Certification Examination Questions Database	
2024	Optional Subtask 3.1. 2024 Updates to Examination Questions Database and List of References and Training Materials	
2025	Optional Subtask 3.2. 2025 Updates to Examination Questions Database and List of References and Training Materials	
2026	Optional Subtask 3.3. 2026 Updates to Examination Questions Database and List of References and Training Materials	
2027	Optional Subtask 3.4. 2027 Updates to Examination Questions Database and List of References and Training Materials	

Table 11 and Table 12 provide detailed breakdown of annual activities that should be associated to estimated annual fees for base and optional tasks/subtasks, respectively.

TABLE 11. DETAILED BREAKDOWN OF ANNUAL ACTIVITIES ASSOCIATED TO ESTIMATED ANNUAL FEES FOR BASE TASKS IN SCOPE OF SERVICES

Item No.	**Item**	**Year**	**Estimated Annual Fee**
1.1.1 and 1.1.2	• At least one hundred (100) draft examination questions for each of the AIH certification examinations: • Part I, Fundamentals – At least 100 new questions • Part II – At least 100 new questions each for Surface Water, Groundwater, and Water Quality examinations. • Hydrologic Technician – At least 100 new questions each for HT levels I, II, and III.	2022	Fee Amount ($)
1.1.3	• Coordination with Board of Examinations for new examinations questions database.		
1.2	• Compiled list of suggested references and training materials to support applicant preparation for certification examinations. List of references and training materials shall be based on certification examinations questions database developed under tasks 1 and 2.		
2.1.1 and 2.1.2	• At least three hundred (300) examination questions for each of the AIH certification examinations • Part I, Fundamentals – At least 300 new questions • Part II – At least 300 new questions each for Surface Water,	2023	Fee Amount ($)

	Groundwater, and Water Quality examinations. • Hydrologic Technician – At least 300 new questions each for HT levels I, II, and III.		
2.1.3	• Coordination with Board of Examinations for 2023 additions to examinations questions database.		
2.2	• Compiled list of suggested references and training materials to support applicant preparation for certification examinations. List of references and training materials shall be based on certification examinations questions database developed and/or updated under tasks 1 and 2.		

TABLE 12. DETAILED BREAKDOWN OF ANNUAL ACTIVITIES ASSOCIATED TO ESTIMATED ANNUAL FEES FOR OPTIONAL SUBTASKS IN SCOPE OF SERVICES

Item No.	Item	Year	Estimated Annual Fee
3.1.1 and 3.1.2	• At least one hundred (100) examination questions for each of the AIH certification examinations • Part I, Fundamentals – At least 100 new questions • Part II – At least 100 new questions each for Surface Water, Groundwater, and Water Quality examinations. • Hydrologic Technician – At least 100 new questions each for HT levels I, II, and III.	Optional 2024	Fee Amount ($)
3.1.3	• Compiled list of additional suggested references and training materials to support applicant preparation for AIH's certification examinations. List of references and training materials shall be based on certification examinations questions database developed under subtask 3.1.		
3.1.4	• Coordination with Board of Examinations for 2024 additions to examinations questions database.		
3.2.1 and 3.2.2	• At least one hundred (100) examination questions for each of the AIH certification examinations • Part I, Fundamentals – At least 100 new questions • Part II – At least 100 new questions each for Surface Water, Groundwater, and Water Quality examinations. • Hydrologic Technician – At least 100 new questions each for HT levels I, II, and III.	Optional 2025	Fee Amount ($)
3.2.3	• Compiled list of additional suggested references and training materials to support applicant preparation for AIH's certification examinations. List of references and training materials shall be based on certification examinations questions database developed under subtask 3.2.		
3.2.4	• Coordination with Board of Examinations for 2025 additions to examinations questions database.		
3.3.1 and 3.3.2	• At least fifty (50) examination questions for each of the AIH certification examinations • Part I, Fundamentals – At least 50 new questions • Part II – At least 50 new questions each for Surface Water, Groundwater, and Water Quality examinations. • Hydrologic Technician – At least 50 new questions each for HT levels I, II, and III.	Optional 2026	Fee Amount ($)
3.3.3	• Compiled list of additional suggested references and training materials to support applicant preparation for AIH's certification examinations. List of references and training materials shall be based on certification examinations questions database developed under subtask 3.3.		
3.3.4	• Coordination with Board of Examinations for 2026 additions to examinations questions database.		
3.4.1 and 3.4.2	• At least fifty (50) examination questions for each of the AIH certification examinations • Part I, Fundamentals – At least 50 new questions • Part II – At least 50 new questions each for Surface Water, Groundwater, and Water Quality examinations. • Hydrologic Technician – At least 50 new questions each for HT levels I, II, and III.	Optional 2027	Fee Amount ($)

Item No.	Item	Year	Estimated Annual Fee
3.4.3	• Compiled list of additional suggested references and training materials to support applicant preparation for AIH's certification examinations. List of references and training materials shall be based on certification examinations questions database developed under subtask 3.4.		
3.4.4	• Coordination with Board of Examinations for 2027 additions to examinations questions database.		

Format of response

Responses to this RFP are requested to be contained in a single electronic file in PDF format. It is recommended that all pages of the responses to this RFP be formatted for letter-sized paper, to the extent possible. There is no page limit, but respondents are encouraged to submit concise proposals.

Deadline

Responses must be submitted no later than 8:00 a.m. Pacific Time on ~~April 12~~April 19, 2022.

References

The AIH Review Committee will request permission to contact three existing or past clients of the Contractor and may conduct due diligence inquiries within the industry.

How to submit

Proposals to be submitted as a .pdf attachment via email before the proposal deadline to admin@aihydrology.org with subject line, "AIH-Certification Exam Support."

Proposals submitted via email that exceed 10MB will not be received due to file size limitations. Proposals that exceed 10MB should be submitted through a functional download link (e.g., file transfer protocol (FTP) site or other) provided via email. *Respondents are suggested to request receipt confirmation for submittals.*

Questions

All respondent communication concerning this RFP must be directed to AIH via admin@aihydro.org with subject line, "AIH-Certification Exam Support."

RESPONDENT INFORMATION EVALUATION

A Review Committee designated by the EC will evaluate the merits of the proposals submitted in response to this RFP. During the review process the proposer might be contacted by members of the review committee in case of questions regarding the proposal. The AIH reserves the right to reject any and all submitted proposals.

Minority-serving institutions (MSIs), including Historically Black Colleges and Universities (HBCUs), tribal colleges and universities, and other MSIs, along with disadvantaged business types that are at least 51% owned and controlled by a socially and economically disadvantaged individual or individuals, are encouraged to reply.

CONTRACT TERMS AND CONDITIONS

Contract terms and conditions will be negotiated between AIH and the selected Contractor. For reference, AIH has used industry-standard terms and conditions for past contracts, and it is expected that the terms and conditions adopted for the proposed contract will not be out of the ordinary.

The initial contract will be let for a base period of two (2) years – through 2023. Per Task 3, there will then be options to extend the contract for up to four (4) additional one-year periods.

Request for Proposals

Certification Examination Support Services

ATTACHMENT A:
SAMPLE QUESTIONS FOR HYDROLOGIST-IN-TRAINING AND PROFESSIONAL HYDROLOGIST CERTIFICATION EXAMINATIONS

Sample Questions for Part I, Fundamentals Examination

The infiltration capacity of a soil is not a function of which of the following?

A. soil texture.
B. soil structure.
C. ground surface slope.
D. ground surface cover.

For an annual hydrograph, base flow or base runoff is the flow:

A. caused by groundwater inflow.
B. equal to the mean annual flow.
C. C. caused by rainfall excess.
D. D. below bankfull stage.

The Universal Soil Loss Equation (USLE) and the revised USLE (RUSLE) were developed to model:

A. sediment transport.
B. channel bank erosion.
C. surface soil erosion.
D. sediment yield.

What is the return period in years of a peak flood discharge for which the annual exceedance probability is 1 percent?

A. 1 years
B. 10 years
C. 100 years
D. 1000 years

A 50-year frequency flood

A. Happens once in every 50 years
B. Has a 2% probability of being equaled or exceeded in any given year
C. Is the flood event that is used by FEMA to determine flood hazard maps (FIRMs)
D. Is the Standard Project Flood

Sample Questions for Part II, Surface Water Examination

Which of the following is used by FEMA for delineating flood hazards?

E. 10-year flood

F. 50-year flood

G. 100-year flood

H. 500-year flood

In the measurement of stream discharge by the current-meter method, average velocity in a vertical from a single point is obtained at _____ of the depth.

A. 0.2

B. 0.5

C. 0.6

D. 0.8

A flow-duration curve for a stream is used to

A. describe the travel time in a stream channel.

B. define the shape of a storm event hydrograph.

C. establish a stage-discharge relationship.

D. define the frequency of a flow rate.

When computing the composite curve number for a basin if using the SCS curve number technique, what number is assigned as the curve number for the water surfaces?

A. 100

B. 80

C. 50

D. 0

If a 100-square mile watershed has a long-term precipitation rate of 40 inches/year and a long-term streamflow of 80 cfs, the long-term evapotranspiration rate is _____ inches, assuming no net groundwater flow.

A. 32

B. 29

C. 27

D. 24

Sample Questions for Part II, Groundwater Examination

Which of the following is the most significant factor in determining the rate of contaminated groundwater movement?

A. hydraulic conductivity
B. water table
C. boundaries
D. D. porosity

Which of the following cannot be used to map recharge and discharge areas?

A. aquifer permeability data
B. groundwater chemistry
C. vertical hydraulic head data
D. oil and land use features

What type of geophysical method would be the most useful for determining depth to bedrock, depth to the water table, and the slope of the bedrock in a basin filled with unconsolidated deposits between 200 and 1,000 feet thick, and with groundwater 100 feet below the surface?

A. seismic
B. resistivity
C. fracture-trace analysis
D. ground penetrating radar

What is the transmissivity of an aquifer where K = 1 x 10-5 cm/sec and b = 40 ft?

A. 8.5 gpd/ft
B. 8.5 cm3/d
C. 8.5 ft2/d
D. 1.1 gpd/ft

When designing a well screen for a high capacity industrial well, the groundwater entrance velocity should not exceed _____ ft/sec.

A. 1
B. 0.1
C. 0.01
D. 0.001

Sample Questions for Part II, Water Quality Examination

The pH of natural rainfall is

A. 3.7

B. 5.7

C. 7.7

D. 9.7

When collecting stream samples during a flood for analyses of selected suspended-solids or suspended-sediment characteristics, it is particularly important to

A. collect a sample as quickly as possible.

B. get the sample on ice and to the lab as soon as possible.

C. collect depth- and width-integrated samples weighted for local variations in stream velocities

D. determine the water temperature at the time of sampling.

If the decay rate of BOD at 200 C is 0.5/day, what is the decay rate at 250 C?

A. 0.70/day

B. 0.68/day

C. 0.63/day

D. 0.55/day

Which holds more dissolved oxygen?

A. water at 5º C

B. water at 10º C

C. water at 15º C

D. water at 20º C

Release from bottom sediments can be a significant source of phosphorus to lake systems. Assuming the concentration of phosphorus is the same, which physical or biological condition will have the greatest influence on increasing phosphorus levels in corresponding water?

A. anaerobic bacteria

B. aerobic bacteria

C. anoxic

D. oxic

Request for Proposals

Certification Examination Support Services

ATTACHMENT B:
HYDROLOGIC TECHNICIAN EXAMINATIONS STRUCTURE AND TOPICS

Level I

Examination is a 100-question multiple choice examination with composing the following topic areas:

- General Surface Water Techniques 30%
- General Groundwater Techniques 30%
- General Water Quality Techniques 30%
- Basic Electronics 5%
- Field Safety 5%

HT Level I examinations questions in the General Surface Water Techniques section cover the following items outlined in Table B-1.

TABLE B-1. COMPOSITION OF HYDROLOGIC TECHNICAL LEVEL I EXAMINATION

General Surface Water Techniques - 30%	
Streamflow	• Streamflow measurement • Current meter types and care • Measurement error • Role of the Stage-Discharge relation • Depth measurement rules • Topographic map navigation
Data collection	• Interrogating /servicing data loggers • Downloading data from logger • Gage maintenance
Gage construction and operation	• Locating stream gages • Types of stage sensing instruments • Power considerations
Limnology	• Stratification Principles (Thermal and oxygen) • Sampling equipment and operation • Lake data collection techniques
Channel characteristics -open channel hydraulics	• Gage station control characteristics • Correction (shifts) for damaged, changed, or obstructed controls • Measurement cross sections • Channel bottom characteristics • Flow considerations -low flow, channel losses
General Groundwater Techniques -30%	
Well types	• Drilled wells -no casing • Drilled and cased wells -screens
Well logging	• Locating and plotting -water table maps • Seismology
Water level measurement	• Tapes • In-situ probes and floats • Collection methods • Maintenance • Record keeping
General Water Quality Technique – 30%	
Surface water samplers	• Types • Use • Maintenance

Groundwater samplers	• Types • Uses • Maintenance
Field measurement	• pH • specific conductance • dissolved oxygen • temperature
General sampling procedure	• ensuring representativeness • equal width increment sample • equal discharge increment sample • preservation • recordkeeping
Basic electronics – 5%	• AC/DC circuits • Ground fault circuits • Repairing and splicing wires • Testing battery voltages • Other questions related to HIF basics
Safety – 5%	• Proper floatation equipment • Waders and wading belts • Electronic equipment around water • Traffic control • Bridge measurements • Wading measurements • Cableway measurements • Hot and Cold weather survival • First aid equipment

Level II

HT Level II examinations are specific to surface water, groundwater, or water quality areas of specialization. The following proportion of topics should be covered in the HT Level II Surface Water, Groundwater, and Water Quality examinations:

- Surface Water
    - Surface Water Techniques – 50%
    - Specialized Techniques Not Related to In-stream Flow – 20%
    - Electronics/Field Repair – 10%
    - Safety – 20%
- Groundwater
    - Groundwater Field Techniques – 50%
    - Groundwater Data Review – 15%
    - Groundwater Measurement Equipment – 20%
    - Safety – 15%
- Water Quality
    - Water Quality Field Techniques – 50%
    - Water Quality Data Review and Validation – 15%

- Field Measurement Equipment – 25%
- Safety – 10%

See Table B-2 for overview of types of questions that should be covered for each topic.

TABLE B-2. COMPOSITION OF HYDROLOGIC TECHNICIAN LEVEL II EXAMINATIONS

SURFACE WATER	GROUNDWATER	WATER QUALITY
Surface Water Techniques - 50%	**Groundwater Techniques - 50%**	**Water Quality Techniques - 50%**
• Advanced Measurement of Streamflow o Types of measurement devices and their application o Price meter o Pygmy meter o Doppler meter o Weir and flume measurements o Volumetric measurement o Dye injection techniques o Other techniques – Flood measurement techniques and rules – Low-flow measurement techniques and rules – Very-slow flow measurement with weighted floats and rods – Measurement under ice • Stage Data Collection o Interrogating /servicing data logger o Downloading data from logger o Measurement of stage o Devices for transmission of data o Overall gage maintenance o Checking data transmissions from field and office o Proper logging configuration to collect and transmit data o Obtaining peak- stage information • Data Analysis and Review o Measurement errors o Rating curve development o Shifts o Backwater o Analysis of station record	• Protocols o Water level measurement o Data collection and processing o Sensor accuracy o Site identification o Field computers- laptop, PDA o Well drilling, installation and development o Surveying-latitude, longitude, elevation, datum, coordinate systems • Instruments o Electric tapes, steel tapes, casing indicators, interface probes o Data recorders o Surveying-GPS, total station, etc. o Geophysical logging equipment- caliper, temperature, down hole cameras, etc. o Instrument record keeping and field notes o Trouble shooting and calibration o Piezometers o Pumps-well development, sampling • Sensors o Water level – Continuous· transducer, float, encoder – Manual- electric tape, steel tape, etc. o Cleaning and decontamination o Calibration o Range o Installation	• Protocols o Concept of Representative Sampling o Bacteria collection and Processing o Alkalinity Processing o Sample Preservation o Representative Sampling -Equal Discharge Increment and Equal Width Increment o Sediment and bed material o Pesticide and other organics o Carbon and chlorophyll o NPDES Federal storm water o USGS Parts Per Billion • Instrument calibration o pH, specific conductance, dissolved oxygen, temperature, turbidity procedures o Frequency of calibration o Instrument Record keeping and Field Notes o Trouble shooting calibration problems • Samplers o Surface water samplers – Types – Calibration – Sampler specific uses- pesticide and other organics, sediment, inorganic, storm water, lake or pond o Sampler prep and cleaning – Organic Sampling – Inorganic Sampling – Microbiological Sampling

SURFACE WATER	**GROUNDWATER**	**WATER QUALITY**
○ Correlation of data • Gage Construction and Operation ○ Choosing the location of a stream gage ○ Choosing the type of stage sensing instruments ○ Determining the need for a velocity sensor ○ Use of solar panels ○ Locating a satellite antenna	– Domestic and monitoring wells – Power systems – Safety procedures for sensor installation – Equipment shelters	○ Sampler Deployment – Bridge and Boat Cranes – Reels, cables, and maintenance – Power systems ○ Ground Water Sampling – Pumps, bailers, and dedicated samplers – Procedures for representative sampling – Sampling potentially hazardous groundwate – Waste considerations
Specialized Techniques Not Related to In-stream Flow - 20%	**Groundwater Data Review – 15%**	**Water Quality Data Review and Validation – 15%**
• Use of Climatologic equipment ○ Rain gauges ○ Anemometers, solar radiation, relative humidity, temperature • Measurement of evaporation and evapotranspiration • Water temperature • Use of piezometers for groundwater flow • Snow hydrology equipment ○ Snow pillow and snow depth measurement ○ Snow moisture measurement • Soil moisture lysimeter measurement	• Field notes ○ Data entry ○ Calibration records ○ Water level calculation review ○ Units of measurement • Data corrections • Datum shifts • Data bases • Comparison of continuous data with instantaneous measurements • Data archiving	• Field notes ○ Data entry ○ Calibration records ○ Discharge measurement review ○ Units of measurement • Cation-Anion balance • Chain-of-custody • Comparison with standards – State vs federal – CWA 303(d) stream reaches
Electronics field repair – 10%	**Groundwater Measurement Equipment**	**Field Measurement Equipment – 25%**
• AC/DC circuits • Ground fault circuits • Satellite and radio telemetry • Cellular telemetry • Other related to hydrologic instrumentation electronics	• Analog vs digital • Continuous monitoring theory, uses, calibration, and record keeping • Electronic equipment care and shelters • Programing • Unit conversions (e.g., psi to feet H_2O) • Seismology	• Analog vs digital • Ion specific electrodes • Continuous monitoring theory, uses, calibration, and record keeping • Specific ion or compound testing methods

SURFACE WATER	**GROUNDWATER**	**WATER QUALITY**
Safety – 20%	**Safety**	**Safety – 5%**
• Proper floatation equipment • Waders and wading belts • Electronic equipment around water • Traffic control • Bridge measurements • Wading measurements • Cableway measurements • Boat safety • Hot and Cold weather survival • First aid	• Proper floatation equipment • Waders and wading belts • Electronic equipment around water • Traffic control • Bridge measurements • Wading measurements • Cableway measurements • Boat safety • Hot and Cold weather survival • First aid	• Traffic control plans • Boat operations and safety • Vehicular safety • First aid • River and dam safety • Wading below dams • HAZWOPER certification

Level III

HT Level III examinations are specific to surface water, groundwater, or water quality areas of specialization. The following proportion of topics should be covered in the HT Level III Surface Water, Groundwater, and Water Quality examinations:

- Surface Water
    - Advanced surface water techniques – 60%
    - Specialized techniques not related to instream flow – 10%
    - Electronic/field repair – 10%
    - Safety – 15%
    - Public relations – 5%
- Groundwater
    - Groundwater Techniques – 60%
    - Resource Knowledge – 15%
    - Network design and decision-making – 5%
    - Safety – 15%
    - Public Relations – 5%
- Water Quality
    - Water Quality Concepts– 60%
    - Resource Knowledge – 15%
    - Network Design and Decision-Making – 10%
    - Safety – 10%
    - Public Relations – 5%

See Table B-3 for overview of types of questions that should be covered for each topic.

TABLE B-3. COMPOSITION OF HYDROLOGIC TECHNICIAN LEVEL III EXAMINATIONS

SURFACE WATER	GROUNDWATER	WATER QUALITY
Surface Water Techniques - 50%	**Groundwater Techniques - 60%**	**Water Quality Techniques - 50%**

• Advanced Measurement of Streamflow
  ○ Collection of velocity and discharge in complex situations
  ○ Definitions and terms
  ○ Artificial stream channel controls
  ○ Complex hydraulic measurements and computations
  ○ Open channel hydraulics – basic principles
  ○ Gage construction and operation
  ○ Cableway design and construction
  ○ Alternatives to cableways
  ○ Gaging station location reconnaissance and determination
  ○ Data analysis and review
	• Hydrology
	  ○ Hydrologic cycle
	  ○ Aquifer properties – porosity, hydraulic conductivity, etc.
	  ○ Potentiometric surface maps
	  ○ Groundwater/surface water interactions
	• Geology
	  ○ Geologic formations
	  ○ Confined and unconfined aquifers
	  ○ Well logs
	  ○ Geophysical logs
	• Field program operation and maintenance
	  ○ Vehicles
	  ○ Sensors, pumps, note sheets
	  ○ Scheduling field duties and personnel
	  ○ Site selection
	  ○ Well completion and development
	  ○ Record keeping and review
	  ○ Data preparation and analysis
	  ○ Data quality assurance
	  ○ Equipment inventory
	  ○ Aquifer tests and slug tests
		• Chemistry
		  ○ Rock-water interactions
		  ○ Solubility
		  ○ Cations and anions
		  ○ Organic compounds
		  ○ Isotope hydrology
		  ○ Redox potential and equilibrium
		  ○ Analysis considerations
		  ○ Preservatives
		  ○ Hydrologic cycle
		  ○ Soil water chemistry
		• Biology
		  ○ Indicator bacteria
		  ○ Macro invertebrates
		  ○ Tissue sampling
		  ○ Bio samplers
		  ○ Quality assurance
		  ○ Reporting and publication
		• Field program operation and maintenance
		  ○ Vehicles
		  ○ Filters, pumps, tubing, note sheets
		  ○ Scheduling field duties
		  ○ Record keeping and review
		• Limnology
		  ○ Bathymetric data analysis
		  ○ Sampling system design
		  ○ Data presentation
		  ○ Tropic status
		  ○ Reservoirs versus natural lakes

SURFACE WATER	**GROUNDWATER**	**WATER QUALITY**
Specialized Techniques Not Related to In-stream Flow - 10%	**Resource Knowledge – 15%**	**Resource Knowledge – 15%**

• Limnology
• Bathymetric data collection and analysis
• Sonar, GPS, and other limnology physical monitoring equipment
• Turbidity – instrumentation and sample collection
• Use of climatological/meteorological equipment
• Measurement of evaporation and evapotranspiration
• Water temperature
• Use of piezometers for groundwater flow
• Snow hydrology equipment and measurement
• Soil moisture lysimeter measurement
	• Federal agency technical publications – protocols and methods
	• State agency technical publications
	  ○ Statutory regulations
	  ○ Geology and natural resources agency methods
		• Federal agency technical publications – protocols and methods
		• State agency technical publications
		  ○ Statutory regulations
		  ○ Geology and natural resources agency methods

Electronics field repair – 10% *Relates to instructing personnel on troubleshooting faulty instrumentation in the field*	**Decision making and leadership – 10%**	**Decision making and leadership – 10%**
• Electrical hazards (GFI circuits) • Calibration of electromagnetic current meters • Repair to water level measuring devices • Battery testing and replacement • What should be fixed in the field and what should not • Computer hardware and software as it relates to data collection and instrument calibration • Satellite antennas • Solar panels • Other power sources	• Network design • Selecting monitoring sites • Routine and synoptic sites • Personnel training • Unit conversions (e.g., psi to feet H_2O) • Seismology	• Network design • Selecting monitoring sites • Routine and synoptic sites • Personnel training

SURFACE WATER	**GROUNDWATER**	**WATER QUALITY**
Safety – 15%	**Safety – 15%**	**Safety – 10%**
• Facilitating safety meetings • Identifying unsafe conditions/safety hazards • Developing traffic control plans • Advanced first aid	• Facilitating safety meetings • Identifying unsafe conditions/safety hazards • Developing traffic control plans • First aid	• Traffic control plans • Boat operations and safety • Vehicular safety • First aid • River and dam safety • Wading below dams • HAZWPOPWER certification
Public Relations – 5%	**Public Relations – 5%**	**Public Relations – 5%**
• Presentations • Public speaking • interviews	• Presentations • Public speaking • interviews	• Presentations • Public speaking • interviews