

Proposal: Developing the LDM Online Delivery Course for AQUARIUS

Overview: In 2012, the Water Mission Area (WMA) purchased unlimited licenses for the AQUARIUS time-series data software to replace ADAPS, a 30-year-old, internally developed system, to support the Commercial ADAPS Replacement Project (CARP). AQUARIUS will be the central clearinghouse for all continuous time-series data (streamflow, water-quality monitors, precipitation, groundwater levels) when it is deployed in 2015. Because of the WMA's dependence on time-series software to produce its published record, training in the use of AQUARIUS is mandatory for all time-series data producers, users, and managers.

WMA has about 2,000 hydrographers using time-series data, including 1,500 core users (producers) and 500 "Lite" users (mostly hydrologists who use the data). Local data managers (LDMs) number about 200 and are among the 1,500 core users. All of these users must be trained on the use of AQUARIUS.

The training plan¹ calls for (a) two weeks of classroom instruction for the core users, including LDMs; (b) TEL prerequisites for all core users and LDMs; (c) TEL-only training for Lite users; and (d) TEL post-core instruction for LDM-specific tasks in AQUARIUS. *Part (d), the LDM-specific tasks in AQUARIUS, is the focus of this proposal.* TEL content related to parts (b) and (c) probably cannot be completed by mid-FY15 due to ongoing development of the core AQUARIUS software, but all LDM-specific AQUARIUS development should be done well before mid-FY15.

LDM TEL post-core (mandatory). Participants: about 200 LDMs. Duration: 8 hours. Content: Eight (8) modules, including (1) establishing sites; (2) creating datasets and their computation types; (3) establishing thresholds, notifications, and user access; (4) functions in the AQUARIUS Manager toolbox; (5) telemetry and data input; (6) everything about NWISWeb and AQUARIUS; (7) scripts and troubleshooting; and (8) details about the data migration.

Note that all LDM TEL will remain in use for training of new LDMs.

Short course title: AQUARIUS TEL for LDMs

Descriptive course title: Developing the LDM Online Delivery Course for AQUARIUS

Lead SME:

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Expertise: Groundwater measurement, data, and management

Roles: CARP coordinator for training; LDM TEL modules 1, 4, 7

¹ [This link](#) provides a summary of the AQUARIUS training plan.

Additional SMEs:

Anthony Gotvald – *agreed to participate*
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Expertise: Surface-water measurement and data
Role: LDM TEL modules 2, 5

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Expertise: Continuous water-quality monitoring and data
Role: LDM TEL modules 2, 4, 8

Return on Investment: With respect to the highlights of the AQUARIUS LDM training plan described in the Overview, LDM TEL alleviates the need for classroom instruction in a central location for up to 200 students, thereby saving \$300,000 during deployment. LDM TEL should save \$15,000 per year in the training of new LDMs as the course content is updated and reused.

CV and letters of concurrence for SMEs – See attached documents.

Problem statement – See Overview.

Course summary and description – See Overview. A condensed version can be drafted suitable for the DOI Learn catalog.

Previous use of course content: This course has not been taught before.

Existing course materials: None.

Intended audience: See Overview.

Student assessments: The primary assessment of the success of the course is proof that an LDM can do everything in the prescribed workflow; this real-life assessment is outside the scope of TEL. Assessments will be provided at the end of each module in a troubleshooting format, e.g., “If you know that you have

established a station in NWIS and it is not appearing in AQUARIUS, what steps can you follow?" A troubleshooting approach will help the LDMs address the types of issues that they will face in their jobs.

Video clips: Software-specific demonstrations, which can change as software is updated, will be available to the TEL material as links; they will not be embedded in the software. This will allow course updates to be synchronized with software updates while minimizing change to the course itself. **Student exercises:** Some exercises will probably be included in the course, but the primary exercise will be a post-verification that the LDM knows how to do his work in AQUARIUS.

Anticipated results and benefits: The immediate benefits are in support of AQUARIUS deployment. TEL content for the LDMs is essential to the flow of data from the gage to the page, as LDMs are responsible for most of the configurations of all the systems. This TEL course eliminates travel costs for LDM-specific instruction (which otherwise would be in a central location) and allows the LDMs to plug into the training immediately after receiving the core AQUARIUS training. Support for the LDMs in addition to the TEL training will be provided by the AQUARIUS deployment support team. The long-term benefits are that much of the LDM TEL content will be reused for new LDMs as they move into these tasks.

Multiple mission areas: The AQUARIUS contract is for the entire USGS. Other USGS mission areas have already been inquiring about the use of AQUARIUS under the WMA contract, and some other DOI agencies have been inquiring about our training efforts and resources. We anticipate that the TEL courses for LDMs and other users can benefit those other mission areas and agencies as well as WMA.

USGS Science Strategy: Streamgaging and other hydrologic monitoring are core components of USGS science, and these monitoring efforts would fail catastrophically without the training needed for AQUARIUS deployment. In particular, the LDMs tasks include establishing the beginning of the data flow, troubleshooting any issues that arise, and ensuring that the data are available to the public on NWISWeb.

Timetable: The SME team listed above is in place for immediate work on TEL content through fiscal years 2014-15. Deployment of AQUARIUS is scheduled to begin in August 2015. LDM TEL will be vetted and proven before deployment begins. Ongoing development of AQUARIUS will push some of the finalization of TEL into spring of 2015, but the team is committed to finalizing the TEL in time for deployment.

Estimated budget:

20 days per SME (4x) at roughly \$250 per day (half provided by proposal funding):	\$10,000
Software licenses	Included?
Travel to and certification training in Denver for 4 people	\$8,000
<u>Up to 2 more trips to Denver by Chuck or Norm to get help from Tj as needed</u>	<u>\$4,000</u>
Total:	\$22,000

Number of modules: See Overview.

Course updates: AQUARIUS software is released quarterly by the vendor, but the WMA is not obligated to deploy any given release. It is anticipated that the WMA will deploy AQUARIUS updates semiannually and will keep TEL content in synch with AQUARIUS annually.