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Integral Uses EPA's Scribe to Streamline Data Collection

By Carolyn Huynh, *Senior Scientist, Integral*
Adam Pomeroy, *Assistant Scientist, Integral*

Under typical sampling scenarios, key sample identification information is handwritten in multiple places: on sample labels and containers, in field notebooks and logging sheets, and on chain-of-custody forms delivered to the analytical laboratory. This manual process is time-consuming, is prone to transcription error, and presents handwriting legibility issues.

In summer 2021, Integral field staff successfully completed two large-scale river sediment and sampling events for remedial design, accompanied by collection of soil and groundwater data for source control evaluations. Overall, Integral collected more than 7,000 samples. A customized version of the U.S. Environmental Protection Agency's (EPA) Scribe software was used to manage environmental data from planning to laboratory delivery, generating container labels and chain-of-custody forms for multiple laboratories. Scribe is a database developed by EPA's Environmental Response Team to assist in the management of environmental data. It is free to download from EPA's website and can be run locally on any field laptop, allowing for remote use where an internet connection may not be available. Through the use of Scribe, Integral's workflow is automated, and the potential for errors is greatly reduced.

Integral's in-field Scribe set up includes the usage of a ruggedized laptop and label printer with waterproof labels.

Prior to field deployment, Integral staff uploaded planned sample IDs and associated analyses for each sample into Scribe. Field staff are able to maintain and keep the Scribe file up to date as they collect and process samples. In the field, staff entered sample coordinates, collection times, and other information into the office-prepared tables. Sample container labels were printed in the field as sample jars were filled: on the boat for surface sediment grabs or in the processing facility for sediment cores, soil samples, and groundwater samples. Integral's Scribe database was backed up nightly to a centralized location available to in-office staff for metadata quality review.

Scribe outputs useful for Integral's field efforts include printing sample container labels, creating automated chain-of-custody forms, and storing streamlined sample information in a centralized database. Printable labels were more durable and easier to generate and read than traditional handwritten labels, especially for thousands of samples.

Building upon its strong quality management program, Integral continues to employ Scribe in its field programs. Automating sample collection reduces the need for certain manual quality assurance checks and reduces transcription errors, saving our clients time and money. Field data management procedures, as detailed in the field sampling work plans, are transcribed into the Scribe database to ensure that all samples are given a unique identifier and are associated with the correct analyses, that field quality assurance and quality control samples are identified for collection, and that all samples collected are transported under chain of custody control.

Integral selected Scribe for field sampling software because it is an open-source software that can be customized to our needs. Integral added additional data fields to the Scribe Access database to fit Integral's database model. The flexibility of Scribe made these fields easy to add and available for use by Integral's data management team. A customized script translates the Scribe database for import into Integral databases for reporting and data analysis.

Integral's use of Scribe minimized field data entry inconsistences and has saved field staff hundreds of hours of hand labeling and completing chain-of-custody forms. In 2021 alone, the generation of more than 7,000 sample labels and associated chain-of-custody forms was automated. It provided a sample management solution enabling field and office staff to easily plan, track, and coordinate sample collection.

Integral has continued to use Scribe successfully through 2022 and looks forward to realizing further efficiencies in the coming field seasons.

Hundreds of samples collected each day. Scribe outputs include the sample labels associated with each sample and then the generation of chain of custody forms.