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Brownfields Resources

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Quality Assurance Project Plans

An investigation of potentially contaminated property generally includes collection and analysis of soil and groundwater samples to determine the type and concentration of any contaminants present. Collecting and analyzing environmental data is a complex and sometimes expensive process. Careful planning and paying attention to data quality can help reduce costs of the investigation and subsequent cleanup. Making sure the data collected is of adequate quality to make necessary decisions ensures the data will only need to be collected once resulting in lower costs and time savings. A Quality Assurance Project Plan (QAPP) is an important part of any environmental site assessment or cleanup plan. An effective QAPP, and documentation showing that the QAPP was followed, will enable you to make decisions about further action with confidence in the quality of the information you are using to support and guide your actions.

QAPPs

QAPPs are a key component of a systematic planning process The QAPP provides a framework for how environmental data will be collected to achieve specific project objectives, and describes the procedures that will be implemented to obtain data of known and adequate quality. A well-planned QAPP helps ensure that collected data can be used in the environmental decision making. The purpose of a QAPP is to document planning efforts for the collection and analysis of environmental data, and to provide a guide for the type and quality of data needed for a specific decision or use. QAPPs are required for all projects funded by the U.S. Environmental Protection Agency (EPA) that involve environmental data generation, such as sampling, or environmental data use. A QAPP must be approved by the EPA before sampling activities can commence.

It is important to include stakeholder input in creating a QAPP to ensure that the plan addresses specific objectives of the project. Stakeholders may include regulatory agencies, property owners, city officials, developers, bankers, and concerned citizens. Time spent in communicating and planning may reduce costs later. It is expensive to have to remobilize and repeat sampling or analysis activities.

Two terms associated with QAPPs are quality assurance and quality control, often called QA and QC. The QAPP should make sure that some basic QA/QC elements are addressed such as precision, accuracy, sensitivity, representativeness, completeness, and comparability. Following quality assurance and quality control procedures helps ensure representative samples are obtained and analyzed for appropriate constituents using the correct analytical methods. The sampling plan should be designed to meet the goals of the project and analytical results should accurately reflect actual concentrations of contaminants as they exist in the field.

QAPP Key Elements

Quality assurance and quality control are integral components of a Quality Assurance Project Plan. There are four key elements of a QAPP: project management, measurement/data acquisition, assessment and oversight, and data validation and usability.

The elements of *project management* include documenting the process used to identify the problem and collecting background information; establishing task descriptions, timelines, and quality objectives; creating staff organization charts and responsibilities, including training and certification requirements; and keeping necessary documentation of the project. These elements ensure the project has a well-defined goal and approach understood by the participants, and that the planning outputs have been documented.

Measurement/data acquisition includes all aspects of designing and implementing measurement systems. Measurement systems ensure that sampling, analysis, data handling, and quality control methods are used and well documented. Key measurement/data acquisition elements include the following:

- sampling design and rationale
- sampling and analytical methods
- sample handling and custody requirements
- QA/QC requirements for field and laboratory equipment
- data documentation and management

Assessment and oversight elements address activities for assessing the effectiveness of implementation of the project and associated QA/QC. The purpose is to ensure the QAPP is implemented as planned. Activities associated with this element are assessment and response actions, which include procedures for identifying and correcting problems; and submitting reports to the appropriate management entity at specified intervals.

The final QAPP elements are *data validation and usability*. These elements relate to quality assurance activities that take place after the data collection phase of a project is completed. This phase determines whether or not the data meet specified criteria and satisfy project objectives. Activities occurring during this phase include verification of sampling procedures, data verification and validation, and determination of data usability for its intended purpose.

In reviewing a QAPP, you should make certain the information presented in it has been adequately expressed and is in line with overall project goals as well as EPA grant requirements.

Benefits of a QAPP

Quality Assurance Project Plans are an essential element of environmental project planning. Well-developed QAPPs help ensure project goals will be met and a high level of confidence can be placed in the results. They also provide documentation of the project planning process and produce data of known quality. Time spent in developing and using a QAPP may result in lower project costs by reducing the possibility of expensive errors and additional field work.

References

Links to EPA Quality regulations, policy and guidance documents can be found at –

https://www.epa.gov/quality

EPA Guidance for Quality Assurance Project Plans – EPA QA/G-5, EPA 240/R-02/009, December 2002: https://www.epa.gov/sites/production/files/2016-06/documents/r5-final_0.pdf

Guidance on Systematic Planning Using the Data Quality Objectives Process, EPA QA/G-4, EPA/240/B-06/001, February 2006: https://www.epa.gov/sites/production/files/2015-06/documents/g4-final.pdf

QAPP Development Tool: https://www.epa.gov/quality/quality-assurance-project-plan-development-tool

Brownfields Grant Recipients' Road Map to Understanding Quality Assurance Project Plans, EPA/542-R-12-005, November 2012: https://www.epa.gov/sites/production/files/2015-08/documents/brownfieldsqapproadmap_nov2012.pdfThe Volunteer Monitor's Guide to Quality Assurance Project Plans, EPA 841-B-96-003, September 1996

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