GLOSSARY OF TERMS

Accuracy A measure of the closeness of an individual measurement or the average of a number of measurements to the true value. Accuracy is influenced by a combination of random error (precision) and systematic error (bias) components, which are due to sampling and analytical operations. USEPA recommends that this term not be used and that precision and bias be used to convey the information usually associated with accuracy.

Analyte The chemical for which a sample is analyzed.

American Society for Testing and Materials (**ASTM)** An organization that develops and publishes standard methods of analysis and standards for materials and procedures.

Background A level of hazardous substances that approximates the level that would be present in the medium of concern if the source of contamination under analysis did not exist.

Bias The systematic or persistent distortion of a measurement process which causes errors in one direction (i.e., the expected sample measurement is different from the sample's true value). Bias can result from improper data collection, poorly calibrated analytical or sampling equipment, or limitations or errors in analytical methods and techniques.

Blank A sample that has not been exposed to the analyzed sample stream in order to monitor contamination during sampling, transport, storage, or analysis. The blank is subjected to the same analytical or measurement process as other samples to establish a zero baseline value and is sometimes used to adjust or correct routine analytical results.

Calibration Comparison of a measurement standard, instrument, or item with a standard or instrument of higher accuracy to detect and quantify inaccuracies and to report or eliminate those inaccuracies by adjustments.

Calibration Standard Standards prepared by successive dilution of a standard solution covering the full concentration range required and expected to be seen in the samples, for the organic or inorganic analytical method. The calibration standard must be prepared using the same type of acid or solvent used to prepare samples for analysis.

CERCLA Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended.

Chain of Custody (COC) An unbroken trail of accountability that ensures the physical security of samples, data, and records.

Comparability The confidence with which one data set can be compared to another.

Completeness A measure of the amount of valid data obtained from a measurement system compared to the amount that was expected to be obtained under correct, normal conditions.
Composite sample Non-discrete samples composed of one or more individual samples taken at different locations at a site. Composite samples are representative of the average concentrations of contaminants across a large area.

Control Sample A QC sample introduced into a data collection process to monitor the performance of the system.

Data Quality Objectives (DQOs) Qualitative and quantitative statements (derived from the DQO Process) that clarify the objectives of studies, technical processes and quality assurance programs, define the appropriate type of data, and specify tolerable levels of potential decision errors that will be used as the basis for establishing the quality and quantity of data needed to support decisions.

Data Validation Confirmation through examination and provision of objective evidence that requirements for a specific intended use have been met. The process of examining the analytical data to determine conformance to user needs Data Verification Confirmation through examination and provision of objective evidence that predefined requirements for a specific intended use have been met. The process of examining the result of a given activity to verify conformance to stated requirements for that activity.

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Detection Limit (**DL)** The lowest concentration or amount of the target analyte that can be determined to be different from zero by a single measurement at a stated level of probability.

Duplicate Sample An independent sample collected from the same location or source, as close as possible to the same point in space and time. Duplicates are representative of the same sample population and carried through all steps of the sampling and/or analytical procedures for the purpose of documenting the precision of the sampling process.

Equipment Blank A sample of analyte-free reagent taken after completion of decontamination and prior to sampling at the next sample location. It is used to check field decontamination procedures to ensure that analytes from one sample location have not contaminated a sample from the next location.

ESA Environmental Site Assessment.

Field Blank A blank used to provide information about contaminants that may be introduced during sample collection, storage, and transport. A clean sample, carried to the

sampling site, exposed to sampling conditions, and returned to the laboratory and treated as an environmental sample.

Field Duplicate An independent sample collected from the same location or source, as close as possible to the same point in space and time. Duplicates are stored in separate containers and analyzed separately for the purpose of documenting the precision of the sampling process.

Grab Samples Discrete samples that are representative of a specific area and a specific time.

Hazardous Substances CERCLA hazardous substances, pollutants, and contaminants, as defined in CERCLA Sections 101(14) and 101(33).

Holding Time The period a sample may be stored prior to its required analysis. Although exceeding the holding time does not necessarily negate the authenticity of analytical results, it causes the qualifying or "flagging" of the data for not meeting all of the specified acceptance criteria.

Interference An element, compound, or other matrix effect present in a sample which interferes with detection of a target analyte leading to inaccurate concentration results for the target analyte.

Low Flow Sampling (LFS) LFS is designed to collect a sample that most truly represents the water in the screened section of the aquifer surrounding the monitor well. In-line water quality parameters should be monitored continuously during purging.

Matrix The substrate containing the analyte of interest, such as soil, water, sediments, and air.

Matrix Spike (MS) A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. Spiked samples are used, for example, to determine the effect of the matrix on a method's recovery efficiency.

Matrix Spike Duplicate (MSD) A split sample, both portions of which are spiked with identical concentrations of target analytes, for the purpose of determining the bias and precision of a method in a particular sample matrix.

Maximum Exposure Guidelines (MEG) Maine Bureau of Health's most recent recommendations for concentrations of chemical constituents in drinking water below which there is a minimal risk of a deleterious effect resulting from long-term ingestion of water.

Maximum Contaminant Level (MCL) Maximum concentration of a contaminant allowed in drinking water systems by the National Primary Drinking Water regulations 40 CFR 141.11 (inorganic chemicals) and 141.12 (organic chemicals).

Method Blank A clean sample processed simultaneously with and under the same conditions as samples containing an analyte of interest through all steps of the analytical procedure.

MDEP Maine Department of Environmental Protection.

Method Detection Limit (MDL) The minimum concentration of an analyte that can be measured and reported with 99% confidence. It is determined by analysis of samples with known concentrations at various dilutions. This limit is matrix-specific (e.g., soils vs. waters).

PAH Polyaromatic Hydrocarbons

Parts per billion (ppb) micrograms per kilogram (ug/kg) or micrograms per liter (ug/l).

Parts per million (ppm) milligrams per kilogram (mg/kg) or milligrams per liter (mg/l).

PCBs Polychlorinated Biphenyls.

PID Photoionization Detector.

PPE Personal Protective Equipment.

Precision A measure of mutual agreement among individual measurements of the same property, usually under prescribed similar conditions, expressed generally in terms of the standard deviation.

Quality Assurance (QA) An integrated system of management activities involving planning, implementation, assessment, reporting, and quality improvement to ensure that a process, item, or service is of the type and quality needed and expected.

Quality Assurance Project Plan (QAPP) A formal document describing in comprehensive detail the necessary QA, QC, and other technical activities that must be implemented to ensure that the results of the work performed will satisfy the stated performance criteria.

Quality Control (QC) The overall system of technical activities that measures the attributes and performance of a process, item, or service against defined standards to verify that they meet the stated requirements established by the customer; operational techniques and activities that are used to fulfill requirements for quality.

Quantitation Limit (QL) The level above which quantitative results may be obtained with a specified degree of confidence.

Release Any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping or disposing into the environment including the abandonment or discharging of barrels, containers, and other closed receptacles containing any hazardous substance or pollutant or contaminant.

Remedial Action Guidelines (RAG) Risk-based guidelines that were developed by the MDEP to assist in the determination of appropriate clean-up standards. The RAGs establish direct contact guidelines for three exposure scenarios (i.e., residential, trespasser, and adult worker).

Reportable Limit (RL) The lowest level that can be reasonably achieved within specified limits of precision and accuracy during routine laboratory operating conditions.

Resource Conservation and Recovery Act (RCRA) The Resource Conservation and Recovery Act of 1976, as amended.

Representativeness A measure of the degree to which the measured results accurately reflect the medium being sampled. It is a qualitative parameter that is addressed through the design of the sampling program in terms of sample location, number of samples, and actual material collected as a "sample" of the whole.

RPD Relative Percent Difference.

Sampling and Analysis Plan — Site- and event- specific plan detailing sampling rationale, protocols, and analyses planned per sample type. A part of the QAPP.

Screening Data Data that are appropriate for applications that only require determination of gross contamination areas and/or for site characterization decisions that do not require quantitative data. Screening data are often used to specify which areas to sample to collect definitive data.

Source Area An area of contamination from which substances may have migrated to other media. Several source areas can be located within a site.

Spike A known quantity of a chemical that is added to a sample for the purpose of determining (1) the concentration of an analyte by the method of standard additions, or (2) analytical recovery efficiency, based on sample matrix effects and analytical methodology. Also called analytical spike.

Standard Operating Procedure (SOP) A written document that details the method for an operation, analysis, or action with thoroughly prescribed techniques and steps, and that is officially approved as the method for performing certain routine or repetitive tasks.

SVOC Semi-Volatile Organic Compound.

Trip Blank A clean sample of matrix that is carried to the sampling site and transported to the laboratory for analysis without having been exposed to sampling procedures.

USEPA United States Environmental Protection Agency.

UST Underground Storage Tank.

VOC Volatile Organic Compound.