

QUALITY ASSURANCE PLAN

FOR

MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION'S RCRA PROGRAM

Revision Number: 5
Date: May 30, 2008

Scott D. Whittier

7/16/2008

Scott Whittier, Director, Division of Oil and Hazardous Waste Facilities Regulation,
Licensing and Enforcement

Malcolm Burson

2/16/08

Malcolm Burson, MDEP Quality Assurance Officer

Deborah L. Stahler

7/14/08

Deborah Stahler, MDEP/RCRA Quality Assurance Chemist

Steve DiMattei

07-21-08

Steve DiMattei, USEPA Quality Assurance Chemist

Dave Lim

7/25/08

Dave Lim, USEPA RCRA Program Liaison



TABLE OF CONTENTS

Title	Page
1.0 Introduction	3
1.1 Project Description	4
1.2 QAP Implementation	4
2.0 Quality Assurance Statement	5
3.0 MDEP/RCRA Program Organization	5
3.1 Organizational Hierarchy	5
3.2 Personnel Responsible for QAP Implementation	5
4.0 Assessment	6
4.1 Laboratory Services Evaluation	7
4.2 Internal Assessment	7
4.3 External Evaluation	7
4.4 Yearly QAP Reviews	7
5.0 Data Quality Objectives	8
5.1 Goal of the Site Assessment	8
5.2 Data Use	8
5.3 Data Quality Necessary for Project	8
6.0 Procedural Requirements for Meeting QAP	8
6.1 Sampling and Analysis Plan [SAP]	9
6.2 Site Specific QAPP	9
6.3 Implementation of SAP and Generation of Sampling Event Trip Reports [SETR]	10
7.0 Equipment and Supplies	10
8.0 Laboratory Services	11
9.0 Standard Operating Procedures	12
10.0 Data Quality Assessment	13
10.1 Precision	14
10.2 Accuracy	14
10.3 Representativeness	14
10.4 Completeness	15
10.5 Comparability	15
10.6 Sensitivity	15
11.0 Document Control	16
12.0 Corrective Action	17
13.0 Implementation Schedule	18
14.0 Distribution List	18
15.0 List of Acronyms	19



LIST OF APPENDICES

Appendix	Title
A	Organizational Hierarchy of MDEP/RCRA
B	MDEP/RCRA Standard Operating Procedure Manual And List of Available Equipment
C	Maine Health and Environmental Testing Laboratory Quality Assurance Manual, Revision 9, February 2006.
D	QAP Log Sheet
E	Maine Certified Laboratories
F	Crosswalk Between USEPA Document QA/R-5, "EPA Requirements for Quality Assurance Project Plans for Environmental Data Operations" and MDEP/RCRA QAP



1.0 INTRODUCTION

1.1 PROJECT DESCRIPTION

Under the Federal Resource Conservation and Recovery Act (RCRA) as amended, cooperative enforcement, corrective actions, closures and inspection agreements have been developed between the U.S. Environmental Protection Agency (EPA) and the Maine Department of Environmental Protection (MDEP). The MDEP is the state lead agency for RCRA regulatory programs and is authorized under the Maine Hazardous Waste Management Rules, as amended, to conduct RCRA enforcement, compliance, inspection, corrective action, closures and licensing programs. Examples of activities within these programs include the inspection of hazardous waste generators, complaint investigations for hazardous waste dumping (illegal disposal) and licensing of proposed hazardous waste storage and disposal facilities. Many of these activities include the sampling and analysis of various media to verify possible violations for enforcement purposes or to establish site conditions during the operation or closure of regulated facilities. Monitoring programs for groundwater protection are established by the MDEP at licensed RCRA facilities, and at facilities undergoing corrective actions for the purpose of site characterization and remediation.

Samples may be taken during enforcement actions in an attempt to verify and or locate illegal disposal areas or to verify a complaint of illegal operations. The results of the analysis of such samples might be used as evidence if legal proceedings were to ensue.

To support the activities of the RCRA program such as those mentioned above, and others, media and waste samples are submitted to the Maine Department of Human Services Health and Environmental Testing Laboratory (HETL) for chemical analysis. Commercial analytical laboratories also provide laboratory services. The MDEP designates field personnel (e.g. inspectors, environmental specialists, oil and hazardous materials specialists) who are responsible for collecting such samples and/or documenting field collection activities.

Field personnel are responsible for maintaining the chain of custody by following appropriate procedures, until the samples are relinquished to appropriate laboratory personnel. The laboratory is responsible for maintaining verifiable custody and for analyzing the samples using analytical methods as requested by field personnel, following appropriate quality assurance protocols, and for



transmitting analytical results and associated quality assurance/quality control data to the appropriate person(s).

1.2 QAP Implementation

The United States Environmental Protection Agency (EPA) requires that all environmental monitoring and measurement efforts mandated or supported by U.S. EPA participate in a centrally managed Quality Assurance Plan (QAP).

Any party generating data under this program has the responsibility to implement nominal procedures to assure that the precision, accuracy, completeness, and representativeness of its data are known and documented.

As stated in USEPA Executive order 5360.1 "Policy and Program Requirements to Implement the Mandatory Quality Assurance (QA) Plan", the primary goal of the QAP is to ensure that all environmentally related measurements performed or supported by USEPA produce data of known quality. The quality of the data is known when all components associated with its derivation are thoroughly documented, with such documentation being verifiable and defensible.

All Quality Assurance/Quality Control (QA/QC) procedures must be in accordance with applicable professional technical standards, USEPA requirements, government regulations and guidelines, and specific project goals and requirements.

This document serves as the Maine Department of Environmental Protection Division of Oil and Hazardous Waste Facility Regulation (MDEP/RCRA) QAP. This document will describe, or reference attached documents that describe:

- The MDEP/RCRA functional statement and organization;
- Personnel responsible for assuring the standards set in the QAP are met;
- Quality standards goals;
- The basic flow of project activities, including preparation of sampling plans, implementation, report preparation, and document control;
- Equipment available to MDEP/RCRA staff and Standard Operating Procedures for conducting field work; and
- MDEP/RCRA procedures for obtaining analytical support.

2.0 QUALITY ASSURANCE STATEMENT

It is the goal of the MDEP/RCRA to implement a Quality Assurance Program (QAP) for all environmental activities that generate data. The QAP is a management tool that will



help guarantee that data is of sufficient known quality to withstand scientific and legal challenge relative to the use for which the data is obtained.

3.0 MDEP/RCRA ORGANIZATION

3.1 Organizational Hierarchy

The MDEP/RCRA organizational chart can be found in Appendix A.

3.2 Personnel Responsible for QAP Implementation

Maine's Quality Management Plan (Revision 3, August 30, 2006) 1.4 reads, in part, "Commitment to and responsibility for the quality objectives and operations detailed in ... any QAPP ... begins with the commissioner and continues through all levels of management and staff." As such, division and program-level managers bear primary responsibility for ensuring that the QA standards specified in this QAP are met.

Program Manager

Name: Scott Whittier

Title: Director, Division of Oil and Hazardous Waste Facilities Regulation,
Licensing and Enforcement

Phone: (207) 287-7674

Responsibilities: The Director is responsible for the administration of division program assignments, administration of budget, supervision of division personnel and overall programs and ensuring compliance with the MDEP quality assurance program.

Department Quality Assurance Officer

Name: Malcolm Burson

Title: Quality Assurance Manager, MDEP, Office of Commissioner

Phone: (207) 287-7755

Responsibilities: Communicates all QAP updates to EPA, and communicates QMP and EPA requirements to MDEP/ RCRA Program personnel responsible for QAP implementation.



Project Quality Assurance Chemist

Name: Deb Stahler

Title: Chemist III, MDEP, Bureau of Remediation and Waste Management,
Division of Technical Services

Phone: (207) 287-2651

Responsibilities: Review QAP annually, and send review report to Program Manager and Department QA Officer; send all approved QAP Updates to Program personnel responsible for QAP implementation; review Quality Assurance Project Plans for RCRA program contracts where appropriate; and provide technical guidance to project staff as requested.

Quality Assurance Team:

Quality assurance is the responsibility of supervisory and technical staff whose names, titles and phone numbers follow:

Name	Title	Phone Number
Stacy Ladner	RCRA Licensing Unit Manager	(207) 287-7853
Mike Hudson	RCRA Enforcement Unit Manager	(207) 287-7884
Bruce Hunter	TS EHG Unit Manager	(207) 287-7672
Fred Lavallee	TS Engineering Unit Manager	(207) 287-7677

Responsibilities: Perform or designate performance of periodic observation of sampling and sample handling techniques for conformity with MDEP/ RCRA Program guidance documents; provide guidance to Project Manager and project staff as requested.

4.0 ASSESSMENT

Periodic assessments will take place in the following ways:

4.1 Performance Evaluation

The laboratory will conduct standard performance studies as required by the appropriate certifying agency. MDEP accepts certification from USEPA, Maine Certification Program and the National Environmental Laboratory Accreditation Program [NELAP]. The laboratory shall maintain records of all performance evaluation studies. Problems identified in performance evaluation studies shall be immediately investigated and corrected.



4.2 Internal Assessment

Personnel responsible for performing field and laboratory activities are responsible for continually monitoring individual compliance with the QAP, SAP, and QAPP (if applicable). The Quality Assurance Team will periodically review procedures, results, and calculations to determine compliance with the QAP. The results of this internal assessment are discussed with appropriate staff and supervisors [as necessary] with suggestions and/or recommended requirements for a plan to correct observed deficiencies.

4.3 External Evaluation

The field and laboratory activities may be reviewed by personnel external to the MDEP/RCRA, such as the Department QMP Audit Team. The results of any external assessment will be submitted to the RCRA Program manager with suggestions and requirements for a plan to correct observed deficiencies.

4.4 Yearly QAP Reviews

The Project QA Chemist will conduct an annual review of the QAP, and a review report will be sent to Program Manager and Department QA Officer.

5.0 DATA QUALITY OBJECTIVES

Data Quality Objectives (DQOs) are qualitative and quantitative statements that specify the quality of the data required to support decisions during site assessments. DQOs are dependent on the end uses of the data that is collected. Site specific DQOs will be established prior to collecting data and incorporated into the SAP or the QAPP. Three steps will be followed in developing DQOs. 1) Identify the goal of the site assessment. 2) Identify the use of the data. 3) Identify the data quality needed to meet the site assessment goal and data use.

5.1 Goal of the Site Assessment

The project manager will identify the goal of the site assessment and state it in the SAP or QAPP. The goal will be based on a review of the available data and site specific conditions.

Data will be evaluated based on such factors as: age, method, QA/QC, SOPs used by the collectors and laboratory, source of data (RP vs. State agency) and detection limits. The project manager will also identify site specific factors important to developing a site goal such as: likely contaminants, routes of



exposure, sources, nearby resources and targets that may be impacted by contamination from the site.

5.2 Data Use

The data use(s) will be identified. Prior to collecting data the end use for that data should be identified. Data collected for the MDEP's RCRA site assessment may be used but not limited to any or all of the following:

- To determine the need for emergency action.
- To identify any waste materials and contaminants.
- To determine the quantity and levels of contamination.
- To identify impacted targets/receptors and natural resources.
- To document the need for further action or no further action.

5.3 Data Quality Necessary for Project

The quality and quantity of data needed to meet the decisions made above will be identified. Factors that are considered in determining quality are: appropriate analytical levels (e.g. field screening, portable laboratory or fixed laboratory), contaminants of concern, levels of concern, required detection limit and critical samples. Additional data quality indicators that should be considered are precision, accuracy, representativeness, completeness and comparability (see Section 10 - Data Quality Assessment).

The quantity of data needed will vary based on available usable data, data use and analytical methods used.

The DQOs will be an intricate part of developing the SAP or QAPP. Analytical methods, compound analysis lists, method performance criteria, method detection limits, etc, for routine analytical analysis can be found in Appendix C - HETL Quality Assurance Manual, Section 3. In instances of non-routine analysis, these issues will be outlined in the project specific QAPP developed for the event.

6.0 PROCEDURAL REQUIREMENTS FOR MEETING QAP

In order to assure the generation of quality data, several procedural steps must be followed prior to and following environmental data collection activities. These steps include:

- The generation of a Site specific QAPP (if determined necessary);-- The generation of a site-specific Sampling and Analysis Plan (if determined necessary);



- Implementation of the Sampling and Analysis Plan (SAP); and generation of a Sampling Event Trip Report (SETR);
- Assessment of the Data to determine if the DQOs are met.

6.1 Sampling and Analysis Plan

A Sampling and Analysis Plan (SAP) will be developed for sampling events requiring pre-project planning. The specific requirements for a MDEP/RCRA SAP can be found in SOP DR#014 in Appendix B. The SAP will define the proper procedures to be followed in the collection, preservation, identification and documentation of environmental samples and field data. The SAP shall outline the data quality objectives (DQOs) and protocols for data collection activities to ensure that the data generated by these activities are of a quality commensurate with their intended use. The SAP will include reference to the SOPs to be followed. Any planned deviation from the referenced SOP shall be described and an evaluation of the deviation's impact on the DQOs shall be included in the final report. The project manager will have overall responsibility for approving the site SAP with input from Technical Services personnel as necessary.

SAPs will be reviewed for the elements described in SOP DR#014, approved by the Project Manager and kept with the project file.

A SAP will not be required for incidental samples taken during inspection and licensing activities. Incidental samples may be taken for a variety of reasons related to checking sampling/ analysis activities of RCRA facilities and may include split sampling, emergency/rapid response sampling, routine sampling performed on a semi-annual or annual basis. Any such activities must be sampled according to appropriate sampling SOP, documented in field notes, and analyzed by approved methods at an appropriately certified laboratory.

6.2 Site Specific QAPP

The majority of sampling activities performed by MDEP/RCRA will not require the development of a site specific QAPP. However, for those projects requiring the strictest QA/QC guidelines, a site specific QAPP will be generated. A QAPP may be generated for a specific site if the MDEP/RCRA project manager and supervisor, and the appropriate Technical Services personnel determine one is necessary. An example in which a site specific QAPP may be generated would be a Site where there is a high probability of litigation.

If a QAPP is necessary, it will include the elements listed in SOP DR#016 - Development of a Site Specific QAPP found in Appendix B.



QAPPs originating at MDEP will be reviewed for the elements described in SOP DR#016 and a page carrying the approval signature of the MDEP project manager, project QA reviewer [project hydrogeologist, engineer, or chemist] and date, will be kept with the project file. QAPPs developed by outside contractors shall be reviewed and approved by the MDEP project manager, signed and filed as above. All active QAPPs shall be reviewed periodically as necessary by the responsible project manager, and documentation of this review, including any changes to the work plan, shall be filed as above. Any QAPP review (*e.g., for technical validation*) by a person other than the MDEP project manager shall likewise be documented.

6.3 Implementation of SAP and Generation of a Sampling Event Trip Report

It is expected that field samplers and analytical laboratories will follow standard operating procedures and adhere to generally accepted “good field and laboratory practices”. Appendix B contains standard operating procedures (SOP) for the MDEP RCRA Program. With that stated, the sampling event trip report [SETR] will provide documentation of the actual sampling event. Requirements for generation of a SETR can be found in SOP DR#013 – Documentation of Field Notes and Development of a SETR found in Appendix B. Generally, the SETR will describe actual sampling locations, field conditions, sample container numbers, deviations from the SAP and SOPs, copies of chains of custody, and any information that the field personnel deem relevant to the field activities for that sampling event. The person responsible for developing the SETR will be stated in the SAP for that activity.

Occasionally certain quality assurance requirements cannot be met, and deviations from SAPs and SOPs are needed to overcome “real life conditions”. In such cases, the reason for the deviation should be stated in the SAP or the SETR along with the expected or observed impact on the data.

7.0 EQUIPMENT & SUPPLIES

7.1 Equipment

A variety of equipment is available to MDEP/RCRA for conducting soil and groundwater investigations. This includes equipment that is owned by MDEP/RCRA directly, and equipment that is owned by MDEP/TS and is available through interdepartmental loan. A list of the available equipment and SOP for operating this equipment can be seen in Appendix B. With this equipment available to MDEP/RCRA and the available personnel expertise, substantial investigations into hazardous substance contamination can be conducted. All equipment shall be maintained and calibrated according to the manufacturer's instructions and in accordance with the appropriate analytical methods.



Manufacturers' instructions and other instructional documentation will be kept with the field staff of the MDEP/RCRA, if MDEP/RCRA owned, or with designated Technical Services staff, if owned by MDEP/TS. As new equipment is purchased or otherwise made available to MDEP/RCRA, the equipment list and SOPs will be updated, as needed. All equipment and supplies are inspected and accepted when received.

Equipment that requires calibration for use, such as PIDs, pH meters, etc., shall be calibrated routinely on a monthly basis, or as directed by the manufacturer, and prior to its use in the field at the beginning of each working day. Additional calibration may also be conducted throughout the work day as directed by the manufacturer, or as deemed necessary by the field personnel when equipment appears to be reporting suspect results. Documentation of routine calibration and maintenance shall be kept in the equipment calibration and maintenance logbook, which is kept with the equipment at the storage warehouse. Documentation of equipment calibration prior to and during its use in the field will be noted in the field logbook of the person conducting the calibration.

7.2.1 Supplies

Supplies needed to perform sampling under this program are ordered and managed by the Geology Technician or support staff in MDEP/TS, and stored in a clean secure room. Stocks are continually checked to ensure that an adequate supply is maintained.

Organic free water used for trip blanks and field blanks is either purchased or supplied from home drinking water wells by MDEP staff. All water is tested for VOC content prior to use.

Sample bottles, preservatives, and chain of custody forms are supplied by the Maine Health and Environmental Testing Laboratory (HETL) and other laboratories certified for appropriate analyses.

8.0 LABORATORY SERVICES

The Maine Health and Environmental Testing Laboratory (HETL) provides routine analytical services to MDEP. The HETL is a Division of the Bureau of Health within the Maine Department of Health and Human Services. It provides testing in public health microbiology, environmental chemistry, and forensic chemistry. A copy of the HETL Quality Assurance Manual, which describes the Laboratory's personnel, analytical SOPs, and Quality Assurance Plan can be found in Appendix C. If it is necessary to utilize another laboratory other than HETL for routine analysis, only laboratories



competent in the requested analyses will be used. Competency will be assessed using one of the following criteria:

1. Maine Certification [applicable for Drinking Water, Non-potable water, Solid Wastes and Wastewater];
2. NELAP Certification for the applicable analyses;
3. Successful analysis of a Performance Evaluation sample; or
4. Suitable project specific laboratory quality assurance practice and documentation.

A Maine certified laboratory is the first choice for all analyses. Laboratories certified by the ME Laboratory Certification Program must annually pass performance evaluation samples for each certified analysis. A list of Maine Certified Laboratories is found in Appendix E.

When alternate laboratories are used by MDEP/RCRA personnel, MDEP/RCRA will work with the specific lab(s) to assure that quality control measures meet the DQOs stated in the QAPP for the project. At a minimum, the laboratory conducting the analysis will conform to 2003 Department Laboratory Performance Standards and meet the minimum requirements of facilities, equipment, and personnel that a laboratory must meet in order to conduct the same analysis as part of USEPA's CLP program. Guidelines for Development of a QAPP can be seen in MDEP/RCRA Standard Operating Procedure #DR016 - Requirements for the Development of a Site Specific Quality Assurance Project Plan.

For projects that require a field laboratory, the project manager and project scientist will work with the specified laboratory to assure that quality control measures meet the DQOs stated in the SAP or QAPP for the particular project or event. It is standard practice to send replicates of 10% of such samples to a certified laboratory as a check for accuracy of the on-site analyses.

9.0 STANDARD OPERATING PROCEDURES

MDEP/RCRA's standard operating procedures for conducting sampling and other data collection activities can be found in Appendix B - MDEP/RCRA Standard Operating Procedures Manual.

Depending on circumstances and needs, it may not be possible or appropriate to follow these procedures exactly in all situations due to site conditions, equipment limitations, and limitations of the standard procedures. In some instances it may be necessary to perform an activity that does not have a specific SOP. Whenever SOPs cannot be followed, they may be used as general guidance with any and all modifications fully documented in either the SAP or the SETR.



The program manager must approve any changes in MDEP/RCRA SOPs. The SOPs are controlled documents and revisions along with the revision date are indicated on the title page of the SOP.

10.0 DATA QUALITY ASSESSMENT

Given that sampling and analytical procedures are not perfect, it is commonplace to find that the reported concentration and actual concentration are not identical. The difference between the reported concentration and the actual concentration of a sample is a function of both the sampling and analytical error. Sampling may be assessed using field QC samples such as field duplicates and trip blanks, and will be minimized by adherence to standard sampling protocol. The potential magnitude of analytical error may be assessed by evaluation laboratory quality control samples, and will help determine the significance of a reported concentration.

The level of assurance will vary depending on the use of the data. Even data of poor precision and/or accuracy may still be useful. The project manager, with input from the project chemist as needed, will determine the usefulness of data that may be of poor quality.

All routine data generated will be reviewed by the project manager or project scientist [project hydrogeologist, project engineer or project chemist]. Data review will include the following:

- **Completeness:** Were results received for all samples collected/ documented on the Chain of Custody form, and were they analyzed by the appropriate method?
- **Accuracy/ Bias:** Are the results of any trip or field blank below the reporting limit of the test? Are results of any surrogate spiking compounds within range?
- **Precision:** Were results of field duplicates within acceptable limits?
- **Sensitivity:** Was the sample quantitation limit lower than the level of concern?

Additionally, field notes, custody forms, and sample extraction and analysis dates will be reviewed by the project manager to assure holding times and other standard procedures are met. A record of data quality review will be kept with the project file.

For data generated for a site specific QAPP, precision, accuracy, representativeness, completeness, comparability and sensitivity will be evaluated by the project manager or project scientist as described below. A site specific QAPP may require data validation. In these cases data will be validated and evaluated according to the requirements of the QAPP. All evaluations of data generated for site specific QAPPs will be documented in the final report for which the data was generated and kept with the project file.

If data of questionable quality is reported (i.e., outside the acceptance criteria presented in Section 10 of this QAP) or other quality control issues uncovered, the project manager will report the issues to the project scientist. At a minimum, the individual concerns of the data will be mentioned in the final report for which the data was generated. Need for additional corrective action, including the collection of new or



additional samples will be determined after review of the DQOs for the project on a case by case basis with input from the project manager, the project scientist, and any other appropriate personnel. If additional corrective action is necessary, it will be carried as described in Section 12.0 - Corrective Action.

10.1 Precision

The precision required for a particular study will depend upon the difference between background levels and the action level. Laboratory precision is only one part of the total precision of the measurement process leading from sample collection through data reporting. Selection of an acceptable precision level should not be based solely on what is attainable in the laboratory. Once the sample has been submitted to the laboratory much of the sample to sample variation has already been introduced into the sample by activities in the field.

Replicate or duplicate QC samples are submitted from the field to provide a means of determining the precision of the measurement process. The following formulas will be used for precision measured from duplicative samples, as defined by relative percent difference (%RPD) or relative standard deviation (%RSD):

$$\% \text{ RPD} = 100 \times 2(|X1 - X2| / (X1 + X2));$$

$$\% \text{ RSD} = (100/\sqrt{2}) \times (2 |X1 - X2| / (X1 + X2));$$

where: X1 is the concentration of duplicate #1; and
X2 is the concentration of duplicate #2.

The RPD should be less than 50% for soil and 35% for water unless specified otherwise in the analytical method. If the RPD is greater than 50% and 35%, this shall be noted in the final report for the data.

10.2 Accuracy

Accuracy is controlled primarily by the laboratory and usually reported as percent recovery. Analysis of known concentrations should be within 80 - 120% for water and 70 - 130% for solids unless specified otherwise in the QAPP, SAP or analytical method. If recovery is not within the specified range, it shall be noted in the analytical data sheets, and in the final report of the data.

10.3 Representativeness

Representativeness reflects the ability to collect a sample reflecting the conditions of a particular site. Representativeness is measured by how well the



sampling followed the proposed SAP so as to provide results that accurately depict the media and environmental conditions being evaluated.

Documentation of field events confirms that proper protocols were followed and all planned samples were collected and analyzed. The SETR will outline any deviations from the SAP, and include a discussion into the possible impact to the data from the deviation.

10.4 Completeness

Completeness is the number of valid measurements divided by the number of samples taken. The project manager will be responsible for determining the completeness of the data; if completeness falls below 90%, it will be noted in the final report for the data.

10.5 Comparability

Comparability is a qualitative parameter expressing the confidence with which one data set can be compared with another. Sample data should be comparable with other measurement data for similar samples and sample conditions. This goal is achieved through the use of standard techniques to collect and analyze representative samples and reporting analytical results in appropriate units.

When available, analytical data will be compared to data collected from previous sampling events and other secondary source data. If currently collected data differs from previously collected data, it shall be evaluated to determine if the current data reflects a data quality issue or a change in water quality. Unresolved data quality issues shall be, at a minimum, reported to the project scientist. Need for corrective action will be determined after review of the DQOs for the project, and follow the procedures listed in Section 12.0 - Corrective Action - of this QAP.

10.6 Sensitivity

Sensitivity reflects the ability of the analytical method to detect analytes of interest below the level of concern. This goal is achieved by identifying the level of concern, choosing a method with appropriate method detection limit, and ensuring that the laboratory analyzes calibration standards at or below the level of concern. Occasionally the level of concern for an analyte may be so low that even the best method cannot attain the desired detection limit. In these cases, the best available method will be chosen and analytical data will be accepted on a qualified basis.



11.0 DOCUMENT CONTROL

Document control is a systematic procedure for ensuring that all sampling/monitoring documents are properly identified and accounted for during and after the completion of investigations and project reports. Document control will encompass the following:

- Document inventory and assignment record; and
- Document file repository.

The term document control, as it applies to MDEP/RCRA inspections and investigations, refers to the maintenance of inspection, investigation and report project files. The appropriate project manager shall maintain all project files. All documents as outlined below shall be kept in project files. All project files shall be kept in the MDEP Bureau of Remediation and Waste Management's Central File, located at the Augusta Office of MDEP. MDEP/RCRA may keep their own files; however, all official and original documents relating to inspections and investigations shall be placed in the official project files. The following documents shall be placed in the project file:

- Original Chain of Custody Records and analytical data reports, which include sample results, surrogate spike recovery, trip and/or field blank results, field duplicate results. Additional QC reports may also be present as specified in a site specific QAPP;
- All records obtained during the investigation;
- A complete copy of investigative reports and memorandums transmitting analytical or other data obtained during investigations;
- QAPPs, Work Plans, Health and Safety Plans (HASPs), and SAPs;
- All official correspondence received by or issued by the MDEP/RCRA relating to the investigation including records of telephone calls;
- One copy of the final report and transmittal memoranda; and
- Any other relevant documents related to the original investigation/inspection or follow-up activities related to the investigation/inspection.

Under no circumstances are any personal observations or irrelevant information to be filed in the official project files. Personal observations should be placed in field notebooks, which are then placed in the project file. The project manager shall review the file at the conclusion of the project to insure that the file is complete.

“Public record” or “public records” shall mean all documents, papers, letters, maps, books, tapes photographs, films, sound recordings, or other material regardless of physical form or characteristics made or received pursuant to law or ordinance or in connection with the transaction of official business by the MDEP/RCRA. The following records shall not be deemed public:



- Trade secrets and commercial or financial information obtained from a person, firm, or corporation, which is of a privileged or confidential nature;
- Preliminary drafts, notes, impressions memoranda, working papers, and work products;
- The contents of real estate appraisals, engineering or feasibility estimates and evaluations made for or by MDEP/RCRA relative to the acquisition of property or to prospective public supply and construction contracts, until such time as all of the property has been acquired or all proceedings or transactions have been terminated or abandoned; provided the law of eminent domain shall not be affected by this provision;
- All investigatory records of public bodies pertaining to possible violations of statute, rule or regulation other than records of final actions taken provided that all records prior to formal notification of violations or noncompliance shall not be deemed public;
- Any HRS scores developed as part of USEPA's pre-remedial assessments that are over 28.5; and
- Records, reports, opinions, information, and statements required to be kept confidential by federal or state law, rule, rule of court, or regulation by state statute.

12.0 CORRECTIVE ACTION

Corrective actions must be taken immediately when data or field procedures are of questionable quality. These corrections may range from modifying certain procedures to reconducting an entire field investigation. Any suspected problems will be brought to the attention of the project scientist.

The need for corrective action may be identified during performance audits, standard QC procedures, or just when data "does not seem right". The steps in the corrective action are:

- Identification and definition of the problem;
- Investigation of the problem;
- Determining the cause of the problem and appropriate corrective action;
- Implementing the corrective action; and
- Verifying the problem has been corrected.

The project scientist is responsible for ensuring effective corrective actions have been taken in regards to sampling activities and other fieldwork. The project chemist is responsible for ensuring effective corrective actions have been taken in regards to laboratory activities.

13.0 IMPLEMENTATION SCHEDULE

This QAP will be implemented by MDEP/RCRA once USEPA has given approval. This QAP is to be considered a "working document". Although the requirements outlined in the QAP will be followed until a new QAP is created, this QAP will be periodically



updated and revised as technology, policy and protocol change. As required by EPA-NE, an updated RCRA QAP will be formally re-submitted for approval every five years. All QAP updates will be distributed according to the distribution list in section 14.

14.0 DISTRIBUTION LIST

Upon approval and implementation of this QAP, the original shall be kept with the program manager, a copy shall be retained by the project chemist, and each regional MDEP/RCRA Unit. A copy will also be placed in the MDEP/RCRA Library. All RCRA personnel responsible for implementation will be required to review this QAP with 120 days of implementation of the report. The remaining MDEP/RCRA staff will be required to review this QAP within 360 days of implementation. All new staff hired by MDEP/RCRA will be required to review this QAP within 90 days of their hiring date and sign the "QAP Log Sheet" found in Appendix D of the original QAP. The log sheet will be kept on file by the project QA Chemist.

A copy of the QAP will be placed under the heading "Additional Information" on the ME DEP website: <http://www.maine.gov/dep/waste/hazardouswaste/index.html>, and updated as above.



15.0 LIST OF ACRONYMS

Acronym	Description
DD	Division Director
DQ	Data Quality
DQO	Data Quality Objectives
EE	Environmental Engineer
EHG	Environmental Hydrogeology
EPA	United States Environmental Protection Agency, Region I
ES	Environmental Specialist
FID	Flame Ionization Detector
HASP	Health and Safety Plan
HETL	State of Maine Health and Environmental Testing Laboratory
MDEP	Maine Department of Environmental Protection
NELAP	National Environmental Laboratory Accreditation Program
OHMS	Oil and Hazardous Materials Specialist
PA	Preliminary Assessment
PID	Photo-ionization Detector
Project scientist	Project hydrogeologist, engineer, or chemist
QA	Quality Assurance
QC	Quality Control
QAP	Quality Assurance Plan
QAPP	Quality Assurance Project Plan
RCRA	Resource Conservation and Recovery Act
RPD	Relative Percent Difference
SAP	Sampling and Analysis Plan
SI	Site Inspection
SOP	Standard Operating Procedure
TS	Division of Technical Services
USEPA	United States Environmental Protection Agency, Region I