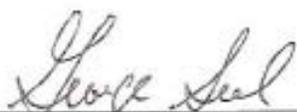


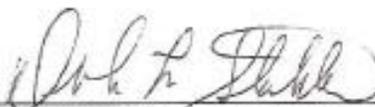
QUALITY ASSURANCE PLAN
FOR
MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION'S
LEAKING UNDERGROUND STORAGE TANKS PROGRAM

Revision Number: 5

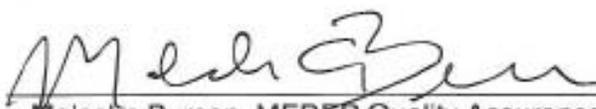
Date: September 1, 2010

 12/2/10

George Seel, MEDEP LUST Program Manager

 12/2/2010

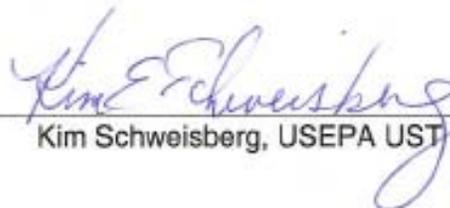
Deb Stahler, Project QA Chemist, Agency Author



Malcolm Burson, MEDEP Quality Assurance Officer

 12/07/10

Steven DiMattei, USEPA Quality Assurance Chemist

 12/9/10

Kim Schweisberg, USEPA UST State Coordinator

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LIST OF APPENDICIES

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Appendix B	MEDEP/LUST Program Standard Operating Procedures and List of Available Equipment
Appendix C	Analytical Methods for Volatile Petroleum Hydrocarbons (VPH) and Extractable Petroleum Hydrocarbons (EPH) http://www.mass.gov/dep/cleanup/laws/gaqcdocs.htm#IV
Appendix D	Remediation Guidelines for Petroleum Contaminated Sites in Maine, November 20, 2009
Appendix E	QAP Log Sheet (signed log sheets are kept in a file by the program QA Chemist)
Appendix F	List of Laboratories currently certified by the Maine Laboratory Certification Program
Appendix G	<u>Vapor Intrusion Guidance</u> : Dated January 13, 2010 Investigation procedures to determine if petroleum products have volatilized from soil or water into indoor air, & associated risk-based evaluation guidance
Appendix H	Chapter 691- Rules for Underground Oil Storage Facilities amended April 3, 2007 and Oil Discharge Notification interim guidance, June, 2010
Appendix I	Crosswalk Between USEPA Document QA/R-5, "EPA Requirements for Quality Assurance Project Plans for Environmental Data Operations" and MEDEP/LUST Program QAP

1.0 INTRODUCTION

Project Description

Under the RCRA, Subtitle I, a number of Cooperative LUST Trust Fund Agreements have existed between the U.S. Environmental Protection Agency (EPA Region 1) and the Maine Department of Environmental Protection (MEDEP), since 1988. The purpose of the agreements has been to assist in the development and maintenance of a statewide remediation Program pertaining to leaking motor fuel underground storage facilities. This is accomplished through a grant to Maine to investigate and effectively remediate leaking underground motor fuel storage tank sites. Maine's petroleum remediation program is broader in scope than EPA's also addressing oil releases from other USTs (e.g. heating oil) and other sources (e.g. above ground tank facilities). Several divisions of the MEDEP Bureau of Remediation and Waste Management (BRWM) are involved in the LUST Program: Response Services (RS), Technical Services (TS), and Remediation (DR). Response Services will be the first MEDEP responders to a reported spill. If the site requires long-term corrective action it will be referred to Technical Services for follow-up investigation. Technical Services may request help from the Division of Remediation for project management.

Under the LUST program UST Facility owners and operators are responsible to report any evidence of a spill to the Maine DEP. Such reports are initially forwarded to the Response Services Division, MEDEP/BRWM. Many reported releases are resolved quickly, and do not require long term corrective actions. These sites will be closed by Response Services, and will not require formal, written site work plans. When a release cannot be resolved quickly, Response Services will pass along the site assessment and all pertinent information to the Technical Services Division, MEDEP/BRWM. Sites involving complicated long-term corrective action will be assigned a project manager from the Tanks Planning Unit of the Division of Remediation, MEDEP/BRWM. These sites will require more planning and hence require more detailed work plans and documentation.

Environmental and released-product samples may be taken for chemical analysis to detect the presence of gasoline or fuel oil, and for determination of concentration, in connection with enforcement- and remediation-related activities. Program staff is responsible for the collection, documentation and maintenance of chain-of-custody of such samples until they have been relinquished to the laboratory. The laboratory analyzes the samples. The laboratory reports data generated to the MEDEP for evaluation and possible use in remediation and/or enforcement actions.

QAP Implementation

The United States Environmental Protection Agency (EPA) requires that all environmental monitoring and measurement efforts mandated or supported financially 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 minimum 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 MEDEP/LUST Program QAP. This document will describe, or reference attached documents that describe:

- The MEDEP/LUST Program organization;
- Personnel responsible for assuring the standards set in the QAP are met;
- Quality standards goals;
- The basic flow of project activities;
- Equipment available to MEDEP/LUST Program;
- Standard Operating Procedures for conducting field work; and
- MEDEP/LUST Program procedures for obtaining analytical support.

2.0 QUALITY ASSURANCE STATEMENT

It is the goal of the MEDEP/LUST Program to implement a Quality Assurance Plan (QAP) for all environmental activities that generate analytical 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 MEDEP/LUST Program ORGANIZATION

3.1 Organizational Hierarchy

The MEDEP/LUST Program 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 QAP ... begins with the commissioner and continues through all levels of management and staff." As such, division and program-level managers, as outlined in the LUST Organizational Chart, bear primary responsibility for ensuring that the QA standards specified in this QAP are met.

Program Manager

Name: George Seel

Title: Division Director, MEDEP, Bureau of Remediation and Waste Management, Division of Technical Services

Phone: (207) 287-2651

Responsibilities: Grant administration and semi-annual report submission, fund tracking, journaling state match requirements and allotments, policy and regulation development, establishment of priorities and general program management.

Department Quality Assurance Officer

Name: Malcolm Burson

Title: Quality Assurance Manager, MEDEP, Office of Commissioner

Phone: (207) 287-7755

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

Project Quality Assurance Chemist

Name: Deb Stahler

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

Phone: (207) 287-7878

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; report any unresolved laboratory issues to the Maine Laboratory Certification Officer and provide technical guidance to project staff as requested.

Quality Assurance Team

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

Name, Office	Title	Phone Number
Bruce Hunter, CMRO	Environmental Hydrogeology Manager	(207) 287-7672
Cheryl Fontaine, CMRO	Senior Environmental Hydrogeologist	(207) 287-7699
Paul Blood, EMRO	Senior Environmental Hydrogeologist	(207) 941-4438
Brad Hahn, SMRO	Senior Environmental Hydrogeologist	(207) 822-6363
John Beane, CMRO	Senior Environmental Hydrogeologist	(207) 287-7635
Fred Lavallee, CMRO	Environmental Engineering Services Manager	(207) 287-7677
Juanita Ehiorobo, CMRO	Environmental Engineer	(207) 287-7041
Robert Sypitkowski, EMRO	Environmental Engineer	(207) 941-4564
Peter Eremita	Environmental Engineer	(207) 822-6364
Jon Woodard, SMRO	Oil and Hazardous Materials Specialist III	(207) 822-6300
Peter Blanchard, CMRO	Oil and Hazardous Materials Specialist III	(207) 287-7800
Thomas Smith, EMRO	Oil and Hazardous Materials Specialist III	(207) 941-4570
Frank Wezner, NMRO	Oil and Hazardous Materials Specialist II	(207) 764-0477

Responsibilities: Perform [or delegate] periodic observation of sampling and sample handling techniques for conformity with MEDEP/LUST Program guidance documents; provide technical guidance to Project Manager and project staff as requested.

4.0 ASSESSMENT

4.1 Laboratory Services Evaluation

All analyses used to assess petroleum contamination must conform to methods listed in the Remediation Guidelines for Petroleum Contaminated Sites in Maine, November 20, 2009 or Appendix S of Chapter 691 *Rules for Underground Oil Storage Facilities*¹. The LUST Program will only accept Volatile Petroleum Hydrocarbons (VPH) and Extractable Petroleum Hydrocarbons (EPH) results from a Maine certified laboratory. The Maine Laboratory Certification Program maintains a list of laboratories certified to perform these analyses in water and soil. Under the ME Laboratory Certification Program, certified laboratories must annually pass performance evaluation samples for each certified analysis.

When new water supply wells are evaluated for drinking water standards, only results from Maine Certified Drinking Water laboratories will be accepted. Maine Certified Drinking Water laboratories must annually pass performance evaluation samples for each certified analysis.

4.2 Internal Assessment

Personnel responsible for performing field and laboratory activities are responsible for continually monitoring individual compliance with the QAP. The Quality Assurance Team will perform [or delegate] periodic observation of sampling and sample handling techniques for conformity with Maine LUST Program guidance documents. The results of this internal assessment are discussed with appropriate staff with suggestions and/or recommended requirements for a plan to correct observed deficiencies.

4.3 External Evaluation

Field activities may be reviewed by personnel external to the MEDEP/LUST Program, such as the Department QMP Audit Team or EPA. Such an assessment is an extremely valuable method for identifying overlooked problems. The results of an external assessment will be submitted to the

¹ These rules and their amendments have been submitted to and approved by EPA's Office of Underground Storage Tanks.

LUST Program Manager. The Program Manger, with input from staff will respond to the audit report with a plan to correct observed deficiencies. Appropriate corrective actions will be communicated to all program staff.

4.4 Yearly Review:

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. QAP revisions will be sent to the Quality Management Team as outlined in section 3.2.

A meeting of project personnel responsible for environmental sampling will be scheduled annually to review sampling procedures and QAP updates.

5.0 DATA QUALITY OBJECTIVES

The Quality Assurance objective of this program is to assure valid and reproducible data. All tests performed for the LUST program must be in accordance with Appendix S of Chapter 691. The laboratories performing VPH/EPH analyses must be Maine certified, and are required to adhere to established standard operating procedures (Appendix C) for measurement of concentrations of petroleum analytes. Laboratories performing new drinking water supply analyses must also be Maine certified, and are required to adhere to EPA approved drinking water methods. The sampling and analytical procedures outlined in this QAP are intended to produce data which are of appropriate accuracy for assessing public health risks, remediation decision making, and defensible for any required enforcement and litigation purposes.

Some analyses, as an exception to the above requirement, may be performed using formerly standard methods should this be found necessary to maintain consistency for litigation or enforcement purposes in a specific instance.

Sample Collection and Preservation

Samples are taken as needed for the purposes of establishing site-specific compliance or non-compliance with existing regulations and to support remediation decisions. The number and type of samples to be collected is governed by the project quality objectives. Initial hydrogeological investigations must conform to requirements in Section 12 of Chapter 691, Discharge and Leak Investigation, Response and Corrective Action Requirements and , Oil Discharge Notification interim guidance, June, 2010.

Normally, all ground and surface water samples will be collected and handled as described in Appendix B, MEDEP/LUST Program Standard Operating

Procedures. Appendix B SOP TS003 Field Quality Control Guidance Attachment 1 outlines basic sample collection/ preservation parameters.

Sample Custody

Samples are maintained under documented custody, as described below, until accepted by the analytical laboratory. The laboratory is responsible for subsequent custody control and documentation.

Chain-of-custody provides defensible documentation of sample integrity from the point of collection to analysis. Chain-of-custody consists of two components: documentation and actual physical custody. It includes custody in the field and in the laboratory. When handling samples from the point of collection until delivery to the laboratory, the custodian will keep the containerized sample in his or her physical possession, or in his or her view, or secured to prevent tampering or inadvertent contamination in a locked storage area.

Using an appropriate chain of custody form, all applicable information will be completed by the person(s) collecting the sample. Any person(s) assuming custody prior to delivery to the laboratory will adhere to these custody procedures and will document transfer of custody by entering signature, date and time on the chain of custody form.

Upon receipt of the sample by the laboratory, documented by signature, date and time on the chain of custody form, the laboratory is responsible for following equivalent internal SOPs regarding maintenance of custody to ensure sample and data integrity. Sample handling procedures for laboratories utilized by this program must be documented in the Laboratory Quality Assurance Manual.

5.1 Data Use

The data use(s) will be identified. Data collected for the MEDEP's LUST Program may be used to meet any of the following objectives:

- 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 needs for further action or no further action.

Data use can be broken down into three basic categories: initial investigation of a problem, routine monitoring of a site, and site closure. Data collected for milestone remediation decisions and site closure generally requires the highest level of quality. Samplers must strictly adhere to appropriate

sampling standard operating procedures, and analytical data must adhere strictly to the quality control requirements of the appropriate methods.

5.2 Data Quality Necessary for Project

Data quality needs depend on several factors: data use, and analytical requirements of the site. Analytical requirements, and hence data quality goals for site investigations are based on the Remediation Guidelines for Petroleum Contaminated Sites in Maine, November 20, 2009, Oil Discharge Notification interim guidance, June, 2010 and the Vapor Intrusion Evaluation Guidance 1/14/2010.

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

6.0 PROCEDURAL REQUIREMENTS FOR MEETING QAP

In order to assure the generation of quality data, procedural steps described in the QAP and Chapter 691, Rules for Underground Oil Storage Facilities, Section 12, Discharge and Leak Investigation, Response and Corrective Action Requirements and , Oil Discharge Notification interim guidance, June, 2010 must be followed. These steps include:

- Site assessments are conducted by facilities in accordance with procedures outlined in Appendix P of Chapter 691 (QAPP Appendix H);
- Field determination of soil hydrocarbon content will be conducted according to Standard Operating Procedure: TS004, Field Testing of Soil Samples for Gasoline Utilizing Photoionization Detectors, August 1, 2010 and TS005 Field Testing of Soil Samples for Fuel Oils Utilizing Oleophilic Dye Shake Test, August 1, 2010 (included in Appendix B);
- Laboratory methods and performance standards found in Appendix S of Chapter 691 will be used (QAPP Appendix H);
- Field notes will be taken either in bound field books or on appropriate field note forms. Notes should be signed and contain at a minimum:
 1. date, site name and location;
 2. weather conditions;
 3. personnel present;
 4. purpose of the visit;
 5. field measurements [if taken];
 6. sample locations [if taken]; and
 7. any information the field staff believes may be useful or pertinent at a later date.

- Field quality control samples will be collected during sampling events in accordance with guidance in the Field Quality Control SOP included in appendix B.
- Written work plans must be developed for sites requiring long term corrective action if a) a non-transient public water supply is contaminated or threatened, b) two or more wells are contaminated, or c) long term corrective action costs are expected to exceed \$100,000. The work plan will include at a minimum:
 1. Personnel responsible for site work, including DEP team and any contractors responsible for environmental sampling
 2. Objectives established in accordance with the Remediation Guidelines for Petroleum Contaminated Sites in Maine, November 20, 2009 and Vapor Intrusion Evaluation Guideline, January 14, 2010.
 3. Modifications and limitations to objectives, and/or site specific objectives
 4. Site map
 5. Sampling locations and methods
 6. Field QC samples
 7. Analytical methods
 8. Any special training required
- Work plans for sites directly managed by MEDEP staff shall be reviewed for the 8 elements described above and a page carrying the approval signature of the MEDEP project manager, and date be included in the Project File. Work plans developed by external contractors shall be reviewed and approved by the MEDEP project manager, signed and filed as above. All active work plans shall be reviewed annually by the MEDEP project manager, and documentation of this review, including any changes to the work plan, shall be filed as above. Any review of workplans (*e.g., for technical validation*) by a person other than the MEDEP project manager shall likewise be documented.
- Project managers and/ or project scientists will maintain communication with remediation personnel during remediation activities and will periodically visit the site to monitor cleanup progress. All site visits will be documented in field notes.
- Data will be assessed to determine if the DQOs are met in accordance with section 10 of this QAP.
- Findings and conclusions of the initial hydrogeological investigation will be reported to the Department for review and approval;

7.0 EQUIPMENT and SUPPLIES

7.1 Equipment:

A variety of equipment is available to the MEDEP/LUST Program for conducting soil and groundwater investigations. A list of the available equipment can be seen in Appendix B. All equipment is maintained and

calibrated according to the manufacturers' instructions and in accordance with the appropriate analytical methods. Manufacturers' instructions and other instructional documentation will be kept in the equipment logbook maintained by support staff in MEDEP/TS. As new equipment is purchased or otherwise made available to MEDEP/LUST Program, the equipment list and SOPs will be updated, as needed.

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, as required by SOP 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 maintained by designated MEDEP/TS staff. Documentation of calibration of equipment prior to and during its use in the field will be noted in the field notes of the person conducting the calibration.

7.2 Supplies

Supplies needed to perform sampling under this program are ordered and managed by the Geologist or support staff in MEDEP/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 MEDEP staff. All water is tested for VOC content prior to use.

Sample bottles, preservatives, and chain of custody forms are supplied by Maine certified laboratories for appropriate analyses. Unused VOC sample bottles taken into the field will not be returned to clean bottle storage unless proven to be free of contamination.

8.0 LABORATORY SERVICES

The Maine Health and Environmental Health Laboratory and Maine certified commercial analytical laboratories provide laboratory services. These laboratories have been contracted to perform analyses for which they are certified by the Maine Certification Program. A listing of these laboratories, and tests for which they are certified, is included in Appendix F.

The LUST Program will only accept drinking water supply well analytical results from Maine Certified Drinking Water laboratories using approved methods. The Maine Laboratory Certification Program maintains a list of laboratories certified to perform these analyses.

The LUST Program will only accept Volatile Petroleum Hydrocarbons (VPH) and Extractable Petroleum Hydrocarbons (EPH) results from a Maine certified laboratory. The Maine Laboratory Certification Program maintains a list of laboratories certified to perform these analyses in water and soil. A list of currently certified laboratories is included in Appendix F.

For some large remediation sites a non-certified on-site laboratory may be employed for quick turn around analyses to guide clean-up. 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. In these cases confirmation samples must be analyzed by a certified laboratory.

Laboratories must submit electronic data formatted to the MEDEP electronic data deliverable as outlined on the Environmental and Geographic Analysis Database (EGAD) webpage: <http://www.maine.gov/dep/maps-data/egad/index.html>. Data from Oil Program Sites are currently being collected, stored in EGAD and shared with staff and the public. Public access is offered through DEP Google Earth interactive maps at the Maine Geographic Information System (MEGIS) link: http://www.maine.gov/dep/gis/datamaps/index.htm#Google_Earth_Maps.

9.0 STANDARD OPERATING PROCEDURES (SOP)

MEDEP/LUST Program's standard operating procedures for conducting sampling and other data collection activities can be found in Appendix B MEDEP/LUST Program Standard Operating Procedures Manual. Additional sampling methods for vapor intrusion investigations are found on the Vapor Intrusion Evaluation Guidance 1/14/2010 webpage.

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 field notes.

The MEDEP Program Manager must approve any changes in MEDEP/LUST Program SOPs. The SOPs are controlled documents and revisions should be indicated on each page in the right hand corner along with the revision date.

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 error may be assessed with field QC samples [including field duplicates and trip blanks], and will be minimized by following standardized sampling protocol. The potential magnitude of analytical error may be assessed by evaluating 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 scientist [Geologist or Environmental Engineer], with input from the Project QA Chemist as needed, will determine the usefulness of data that may be of poor quality.

All data generated will be reviewed by the project scientist for precision, accuracy, representativeness, completeness, and comparability as described below. Additionally, field notes, custody forms, and sample extraction and analysis dates will be reviewed by the project scientist to assure holding times and other standard procedures are met. The project scientist may also review QC sample results to assure that recoveries are within acceptable ranges, as well as blank, spike, and duplicate samples are also within acceptance criteria.

If data of questionable quality are reported (i.e., outside the acceptance criteria presented in Section 10 of this QAP) or other quality control issues uncovered, the project scientist will be notified. At a minimum, any data quality issues 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 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 formula will be used for precision measured from duplicative samples, as defined by relative percent difference (%RPD).

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

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 30% for water unless specified otherwise in the analytical method. RPDs outside these criteria shall at a minimum 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 surrogate recovery and known concentrations in Laboratory Control Samples should be within the recovery range listed in the referenced analytical method. Recovery outside appropriate criteria shall at a minimum be noted in the final report for the data.

10.3 Representativeness

Representativeness is the ability to collect a sample that reflects 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.

10.4 Completeness

Completeness is the number of valid measurements divided by the number of samples taken. The project scientist 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. All laboratory samples for EPH and VPH must be analyzed by the approved method.

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 QA Chemist, Senior Geologist or Environmental Engineer. 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.

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 conform to DEP QMS R-1, "Control of Department Documents and Records" and encompass document inventory and assignment record, and document file repository.

The term document control, as it applies to MEDEP/LUST Program inspections and investigations, refers to the maintenance of inspection, investigation and report project files. All project files shall be maintained by the appropriate project manager, and may be kept with the project manager's files or in the Regional Central Files. When sites are closed, project files shall be placed in the Regional Central Files, and a copy of the closure report sent to the MEDEP Bureau of Remediation and Waste Management's Central File, located at the Augusta Office of MEDEP. The following documents shall be placed in the project file:

- Original Chain of Custody Records and analytical data sheets;
- A copy of field notes;
- A complete copy of investigative reports and memorandums transmitting analytical or other data obtained during investigations;
- Work Plans, Health and Safety Plans (HASPs);

- All official correspondence received by or issued by the MEDEP/LUST Program relating to the investigation including records of telephone calls;
- Applicable forms such as field worksheets and the Petroleum Remediation Guidelines Check List for Long – Term Remediation Sites
- Contracts and contract amendments for site work,
- Any relevant permits; and
- Any other relevant documents related to the original investigation/inspection or follow-up activities related to the investigation/inspection.

Under no circumstances is any personal observation 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 ensure 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 MEDEP/LUST Program. 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 MEDEP/LUST Program 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;
- 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 re-conducting an entire field investigation. Any suspected

problems will be brought to the attention of the Project QA Chemist, Senior Geologist or Environmental Engineer.

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 Senior Geologist or Environmental Engineer is responsible for ensuring effective corrective actions have been taken regarding sampling activities and other field work. The Project QA Chemist is responsible for ensuring effective corrective actions have been taken regarding laboratory activities.

13.0 IMPLEMENTATION SCHEDULE

This QAP will be implemented by MEDEP/LUST Program 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.

14.0 DISTRIBUTION LIST

Upon approval and implementation of this QAP, the original shall be kept with the MEDEP/LUST Quality Assurance Chemist, and copies sent to the MEDEP/LUST Program Manager, MEDEP Quality Assurance Officer and USEPA-NE. Copies will also be made available to all personnel responsible for implementing the QAP (section 3.2) who will be required to review this QAP within 120 days of implementation of the report and sign the “QAP Log Sheet” found in Appendix E of the original QAP. The remaining MEDEP/LUST Program staff will be required to review and sign within 360 days of implementation. As new staff is hired by MEDEP/LUST Program, s/he will be required to review the QAP within 90 days of the hiring date and sign the “QAP Log Sheet” found in Appendix E of the original QAP (kept by the Quality Assurance Chemist).

A copy of the approved QAP is available on the MEDEP internet website <http://www.maine.gov/dep/spills/petroleum/lustqaplan.html>.

15.0 LIST OF ACRONYMS

Acronym	Description
DD	Division Director
DQ	Data Quality
DQO	Data Quality Objectives
DR	Division of Remediation
DRO	Diesel Range Organics
EE	Environmental Engineer
EPA	United States Environmental Protection Agency, Region I
EPH	Extractable Petroleum Hydrocarbons
ES	Environmental Specialist
FID	Flame Ionization Detector
GRO	Gasoline Range Organics
HASP	Health and Safety Plan
HETL	State of Maine Health and Environmental Testing Laboratory
LTCAP	Long Term Corrective Action Plan
LUST	Leaking Underground Storage Tank
MEDEP	Maine Department of Environmental Protection
MEGIS	Maine Geographic Information System
OHMS	Oil and Hazardous Materials Specialist
PA	Preliminary Assessment
PID	Photo-ionization Detector
QA	Quality Assurance
QC	Quality Control
QAP	Quality Assurance Plan
RPD	Relative Percent Difference
RS	Division of Response Services
SAP	Sampling and Analysis Plan
project scientist	Environmental hydrogeologist, quality assurance chemist or environmental engineer assigned to the project
SI	Site Inspection
SOP	Standard Operating Procedure
TS	Division of Technical Services
USEPA	United States Environmental Protection Agency, Region I
UST	Underground Storage Tank
VPH	Volatile Petroleum Hydrocarbons