

DIVISION OF ENVIRONMENT
QUALITY MANAGEMENT PLAN

PART III:

SPILL PROGRAM
QUALITY ASSURANCE MANAGEMENT PLAN



Revision 2
April 9, 2011

Kansas Department of Health and Environment
Division of Environment
Bureau of Environmental Remediation
Curtis State Office Building
1000 SW Jackson, Suite 410
Topeka, Kansas 66612-1367

TABLE OF CONTENTS

INTRODUCTION.....	1
1.1 Purpose of Plan	1
1.2 Plan Revisions.....	1
DESCRIPTION OF PLAN	2
2.1 Historical Overview	2
2.2 Mission and Goals.....	2
2.3 Organization and Responsibilities	3
QUALITY ASSURANCE / CONTROL POLICY STATEMENT	4
QUALITY ASSURANCE / CONTROL CRITERIA AND PROCEDURES	5
4.1 Field Station Site Selection.....	5
4.2 Field Equipment Installation.....	5
4.3 Sampling Types.....	5
4.4 Safety Considerations	6
4.5 Requesting Analytical Services.....	6
4.6 Procedures for Assessing Data Precision, Accuracy, Representativeness and Comparability.....	7
4.6.1 Ongoing Quality Assurance Review and Special Audits.....	7
4.6.2 Equipment Calibration and Maintenance.....	7
4.6.3 Quality Control Blanks and Spikes	7
4.7 Corrective Action Procedures	8
4.8 Data Management	9
4.9 Quality Assurance/Control Reporting Procedures	9

ATTACHMENT 1

- * Refer to State Cooperative and State Deferral Programs for the Bureau's Standard Operating Procedures (SOP's) used in this Program Plan.

Section 1

INTRODUCTION

1.1 PURPOSE OF PLAN

This document presents the quality assurance management plan for the Spill Program. The plan describes the mission, developmental history, organizational structure, environmental monitoring protocols, data handling procedures, and quality assurance (QA) and quality control (QC) requirements of these programs. Standard operating procedures (SOPs) and equipment used in the programs are presented in the Appendix A.

1.2 PLAN REVISIONS

To be effective and useable, this document must be maintained in an up-to-date condition. As required by the Division of Environment Quality Management Plan (Part I, section 7), the contents of the plan are reviewed on at least an annual basis. Minor changes in the report's organizational structure or terminology may be approved by the Section Chief. However, major revisions which substantially change the contents of the document, especially in terms of QA policies or procedures, require the added approval of the Bureau QA Representative and the Bureau Director.

Section 2

DESCRIPTION OF PLAN

2.1 HISTORICAL OVERVIEW

The Spill Program was instituted during the early 1970's by KDHE as a method of controlling massive spills of crude oil from oil and gas production, transportation activities, and spills of refined petroleum products from storage vessels. K.S.A. 65-171d provides the authority for the program. Regulations K.A.R 28-48-1&2 requiring notification to KDHE by the spiller were approved in 1986. The spill program was reorganized in 1990 when some of the field staff who responded to oil and gas production lease spills transferred to the Kansas Corporation Commission (KCC) Conservation Division. KDHE and the KCC maintains an MOU where the KCC receives the reports for spills on oil and gas leases and their staff provides clean up oversight on the leases. The KDHE Spill Program must still receive notification if the release escapes the production lease or impacts waters of the state and may respond to those spills as necessary.

The Spill Program serves as the point of contact for the coordination of spill notification and response with the EPA and the National Response Center for spills occurring in Kansas. Also, the Kansas Division of Emergency Management (KDEM) has regulations requiring notification by the spiller. KDEM is required to receive spill and release reports of hazardous substances to the air, soil and water when the quantity of the substances reach reportable amounts as listed in the Code of Federal Regulations. KDHE and the KDEM refer spill notifications to each other. The KDHE Spill Program focuses on all spills or releases that may do harm to the soil and waters of the state.

2.2 MISSION AND GOALS

The mission of the Spill Program is to track spillage of oil and hazardous materials until those materials are cleaned up or treated to the point where they are no longer hazardous to the environment. The manner in which the program operates to accomplish this mission requires (1) immediate notification to the agency by the spiller, (2) responsibility of staff to see that spillage is contained, cleaned up or neutralized and the proper disposal of the waste occurs, and (3) spiller is responsible for cleanup costs.

The goal of the program is to respond to releases of substances, materials, or wastes in such a manner as to contain and remediate the spill to minimize damage to the waters and soils of the state.

The Spill Program is staffed by an Environmental Scientist in the central office, with assistance from several other central office staff and 15 to 18 district office staff whose job duties include spill response and remediation.

2.3 ORGANIZATION AND RESPONSIBILITIES

ORGANIZATIONAL CHART

(See Exhibit 1 in the BER QA Plan Part II)

The Bureau Director's responsibilities are defined in the BER QA management plan presented in Part II of the QMP.

The Section Chief is responsible for supervising the Unit Leader of the Response Unit. The operations and implementation of uniform policies and procedures for the Spill Program is the responsibility of the Section Chief. Additionally, the Section Chief is responsible for planning, organizing, supervising and directing the statewide activities of the Spill Program.

The Unit Leader is the Spill Program Manager and is responsible to ensure the requirements of the program-level QA management plans and SOPs are implemented in a consistent, timely and reliable manner. Working with the Section Chief, the Unit Leader strives to improve the precision, accuracy and reliability of all environmental data collected and products (reports) generated as part of Spill Program activities through the effective allocation of staff and resources.

The Environmental Scientist is responsible for follow up of spill incidents worked by all Central or District Office Staff, working difficult spill incidents personally, and offering assistance and advice to spiller and staff alike on out-of-the ordinary spill incidents. The Environmental Scientist is also responsible for maintaining equipment; maintaining a chemical library for reference purposes; and maintaining a spill database of all the spill incidents in the state. The Environmental Scientist may be called 24 hours a day to receive spill information and to refer spills to District Office Staff for resolution.

The Central Office staff are responsible for notification of spills to the District Office staff for on-site coordination. The District Office Staff are responsible for on-site coordination of spills.

All staff must strive to for precision, accuracy and reliability of all environmental data collected and products (reports) generated as part of Spill Program activities. It is imperative that the information recorded in the spill reports is accurate and the locations are precisely mapped in the spills database.

Section 3

QUALITY ASSURANCE / CONTROL POLICY STATEMENT

Project Managers do not possess a distinct set of Standard Operating Procedures for administration of Quality Assurance/Quality Control for the Spill Program. The Section's role within the program is limited to reviewing and approving work plans and reports for investigative and remedial activities conducted by Potentially Responsible Parties (PRPs) and their contractors. As an element of the review process, the Section requests that the PRP, or PRP's contractor, provide a well-defined Quality Assurance Project Plan, with respect to certain Standard Operating Procedures included in Appendix A. Project Managers review each of these site specific Quality Assurance Project Plans (QAPP's) to determine compliance with KDHE's SOPs and numerous federal regulatory guidance documents for QA/QC.

Project Managers are responsible for the collection of split, duplicate, or collocated environmental samples to ensure the representativeness and general quality of the various samples collected at a site throughout the investigation. All sampling activities conducted by the Project Manager or designated technician comply with the following program policies:

1. The objectives of any environmental monitoring project shall be determined prior to implementation of data collection activities. This determination shall be accomplished during the planning stage of the project so that appropriate procedures will be incorporated into the design of the project and the resulting data will have a reasonable probability of meeting the stated objectives.
2. Sample collection and analysis activities and data management activities shall be subjected to periodic evaluation by supervisory personnel to identify and correct deficiencies and enhance the overall credibility of the environmental monitoring programs.
3. All data collection activities will be accomplished and documented in accordance with a Divisional QA Plan and applicable SOPs.

Section 4

QUALITY ASSURANCE / CONTROL CRITERIA AND PROCEDURES

4.1 FIELD STATION SITE SELECTION

Generally the selection of sampling locations is based on the area where a release, discharge or spill has occurred. Sampling is used to assist in the assessment of environmental damage.

The selection of other sampling locations is based on several factors including type and purpose of the sample, representativeness, accessibility (permission to sample), location of existing wells, location of potential source areas of contamination and location of potential target areas.

4.2 FIELD EQUIPMENT INSTALLATION

Generally field staff will use non-dedicated sampling equipment that is either disposable or reusable. Sampling equipment designated for reuse must be decontaminated as specified in SOP (BER-05).

4.3 SAMPLING TYPES

Program staff primarily provide Quality Assurance/Quality Control management services through the collection of split, duplicate, replicate, and/or collocated environmental samples concurrent with environmental sampling performed by the PRP or the PRP's environmental contractor. In addition, program staff may occasionally be required to collect independent environmental samples.

Surface soil is the most frequent environmental media sampled, followed by subsurface soils, surface water, ground water, sludge, sediment, and air. In addition, program staff may be required to collect special samples including influent and effluent water samples associated with ground water or surface water remedial systems, or remedial performance samples including potentially hazardous wastes or materials which have been stabilized to facilitate handling and transport or to reduce contaminant mobility.

Program staff collecting Quality Assurance/Quality Control environmental samples adhere to the sample collection procedures specified in the KDHE-approved site-specific sampling plan. KDHE's approval of the site-specific sampling plan is dependent upon the plan's compliance with field methods and sampling procedures provided in the KDHE SOP's (BER-01, BER-02, BER-03, BER-04, BER-20, and BER-33). This document is a compilation of demonstrated field techniques that have been used during investigative and remedial activities at solid waste disposal sites. The purpose of the plan is to ensure that sampling data collection activities will be comparable to and compatible with data previously collected.

4.4 SAFETY CONSIDERATIONS

Field and laboratory staff that participate in environmental programs encounter potentially dangerous situations on a frequent basis. In addition to the routine possibility of automobile or equipment accidents, employees may encounter extremely slippery surfaces, toxic or hazardous substances, infectious microorganisms, fire or electrocution hazards, vicious dogs, belligerent persons, or other threatening situations. Injuries or illnesses resulting from such situations may lead to substantial human suffering and, from a QA/QC perspective, deprive programs of the services of a valuable employee for an extended period of time.

Although it is not possible to predict every conceivable risk that may arise during the course of work, supervisors must ensure that those risks faced by staff on a recurring basis are addressed in the SOPs and are discussed during employee training. Staff are expected to abide by the safety protocols contained within the QA management plans and SOPs and to integrate safety considerations into all aspects of their work. Field staff should follow SOPs BER-18, BER-20, BER-21 and the applicable parts of the Division of Environment Safety Manual. BER routinely budgets for ongoing safety training expenses and annual medical physicals for field staff associated with monitoring and/or field inspections of hazardous materials (refer to BER-17).

Project managers are expected to bring potentially unsafe practices or situations to the attention of their Unit Leader. In turn, the Unit Leader shall evaluate the practice or situation and either take the appropriate corrective action or, in complicated circumstances, seek the advice of the Section Chief or higher level supervisor. Major corrective actions warranting changes in a SOP shall be implemented by staff only upon approval of the Section Chief, Bureau QA Representative and Bureau Director.

4.5 REQUESTING ANALYTICAL SERVICES

Program staff can employ several approaches for the submission of environmental samples to a laboratory for analyses. Staff can submit environmental samples directly to the Kansas Health and Environmental Laboratory (KHEL) or contract the services of an outside laboratory.

The selected laboratory must have a specific Quality Assurance and Quality Control Plan approved by the Division Director prior to utilization by the Section. Generally, the KHEL will be used for the majority of the program's analytical service. However, the purpose of the contractual arrangements is to provide additional analytical capacity Quality Assurance and Quality Control (inter-laboratory duplicates) and to provide expanded analytical services.

4.6 PROCEDURES FOR ASSESSING DATA PRECISION, ACCURACY, REPRESENTATIVENESS AND COMPARABILITY

4.6.1 ONGOING QUALITY ASSURANCE REVIEW AND SPECIAL AUDITS

QA/QC aspects of the Spill Program are subject to ongoing review by the Unit Leader. Staff are expected to cooperate fully with administrative requests for information on data precision/accuracy and overall QC performance. The Unit Leader is expected to track the QC performance of Project Managers, assist managers in identifying QC deficiencies within their assigned sites, and facilitate the initiation of necessary corrective actions. The Section Chief is expected to track the QC performance of the program, assist the Unit Leader and Project Managers in identifying QC deficiencies within their programs, and facilitate the initiation of necessary corrective actions. The results are reported to the Bureau Director.

4.6.2 EQUIPMENT CALIBRATION AND MAINTENANCE

All field equipment must be checked out by staff from the Bureau's Equipment and Supply Technicians. The individual users of field equipment are responsible for the maintenance (in accordance with manufacturer's procedural manuals and/or Standard Operating Procedures) of the equipment while being used in field operations. The user should ensure the equipment is checked for proper operation and is current with calibration requirements (if needed) prior to leaving for field. The user should record any malfunctions encountered while in the field in the logbook associated with the equipment. The user should make sure the malfunctions are communicated to the Unit Leader and the Bureau's Equipment and Supply Technicians upon return of the equipment to storage so that appropriate action can be initiated to repair the item of equipment, or initiate actions (e.g., prepare a Purchase Request or Purchase Acquisitions) to have the equipment repaired upon return from the field.

4.6.3 QUALITY CONTROL BLANKS AND SPIKES

Quality control procedures must be taken by field staff to ensure the integrity of the samples collected. Without checks on the sampling and analytical procedures, the potential exists for contradictory or incorrect results. Procedures describing quality control samples are defined in BER-12 or are included in specific SOPs.

4.7 CORRECTIVE ACTION PROCEDURES

In the context of Quality Assurance (QA), Spill Program corrective actions are procedures that may be implemented on environmental samples that do not meet predetermined QA specifications. In general, the corrective action procedures program addresses the analysis of any cause precipitating a negative audit finding and identifies the appropriate corrective action(s) necessary to address it. Program staff, or the appropriate Quality Assurance/Quality Control program designee, are responsible for reviewing data validation reports, audit reports and nonconformance reports to identify significant or repetitious conditions adverse to quality, or deficiencies regarding the implementation or adherence to required Quality Assurance practices. In addition, the program staff, or QA/QC designee, is required to investigate the source(s) of the problem and is responsible for defining and/or implementing the necessary actions to remedy the problem.

The quality characteristics of data generated by sampling, monitoring, or analyzing, is defined in the following terms:

Precision: A measure of mutual agreement among individual measurements of the same property, usually under prescribed similar conditions. Precision is best expressed in terms of the standard deviation. Various measures of precision exist depending on the prescribed similar conditions.

Completeness: A measure of the amount of valid data obtained from a measurement system, compared with the amount needed to obtain the project data quality objectives.

Representativeness: The degree to which data accurately and precisely represents a characteristic of the population, the parameter variations at a sampling point, a process condition, or an environmental condition. It also includes how well the sampling point represents the actual parameter variations that are under study.

Comparability: The confidence with which one data set can be compared with another; a qualitative characteristic that must be assured in terms of sampling, analysis, reporting, etc.

The exact values of the quality characteristics will vary depending upon the analytical processes and procedures employed. Site-specific work plans will detail the recommended field activities and analytical methodologies necessary to establish the appropriate data quality characteristics. Corrective actions may include re-sampling, re-analyzing samples, or auditing laboratory procedures.

4.8 DATA MANAGEMENT

All work plans submitted in association with the Spill Program require a data management system. The system should include field logs, sample management and tracking procedures, and document control and inventory procedures for both laboratory data and field measurements. The system should ensure that the data collected during the investigation are of adequate quality and quantity to support the findings of the investigation, risk assessment (if performed), and corrective action research.

For each measurement, the data reduction scheme planned for collected data, including all equations used to calculate the concentration or value of the measured parameter, should be described. The principal criteria employed to validate the integrity of the data during collection and reporting should be referenced. All data collected should be validated by the appropriate level of laboratory quality control to ascertain whether it is appropriate for its intended use. All task management and quality controls implemented shall be documented within the appropriate report appendix.

4.9 QUALITY ASSURANCE/CONTROL REPORTING PROCEDURES

All reports or deliverables submitted through the Spill Program require a Quality Assurance/Quality Control status summary of the project and any conditions adverse to the quality. The report should contain an assessment of measurement data accuracy, precision and completeness, results of any performance audits, results of system audits, any reported non-conformance, and any Quality Assurance problems, together with recommended solutions or corrective actions.