Quality Assurance Program Plan
for the
West Virginia Department of Environmental Protection
Division of Water and Waste Management
Office of Environmental Enforcement
Hazardous Waste Unit

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Regulated Community (via web page - https://dep.wv.gov/WWE/ee/hw/Pages/default.aspx)

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ACRONYMS

AST	Aboveground Storage Tank
AX	Opentext ApplicationXtender
DQOs	Data Quality Objectives
DWWM	Division of Water and Waste Management
EE	Office of Environmental Enforcement
HAZWOPER	Hazardous Waste Operations and Emergency Response
HW	Hazardous Waste
MQOs	Measurement Quality Objectives
NIMS	National Incident Management System
NOV	Notice of Violation
OLS	Office of Legal Services
PARCCS	Precision, Accuracy, Representativeness, Completeness, Comparability and Sensitivity
QA	Quality Assurance
QAPrP	Quality Assurance Program Plan
QA/QC	Quality Assurance/Quality Control
RCRA	Resource Conservation Recovery Act
SAP	Sampling and Analysis Plan
SOPs	Standard Operating Procedures
US EPA	United States Environmental Protection Agency
UST	Underground Storage Tank
WV DEP	West Virginia Department of Environmental Protection

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1.0 INTRODUCTION

This Quality Assurance Program Plan (QAPrP) is intended for use by the West Virginia Department of Environmental Protection (WV DEP), Division of Water and Waste Management (DWWM), Office of Environmental Enforcement (EE), Hazardous Waste (HW) Program. The relevant statute for this Program is the WV State Code Chapter 22 Article 18 (WVSC §22-18), the Hazardous Waste Management Act and WV Code of State Rules Title 33 Article 20 (33 CSR 20), the Hazardous Waste Management Rule promulgated to enforce this Act. Federal hazardous waste regulations are incorporated by reference into the WV Hazardous Waste Management System. The primary beneficiaries of this plan will be the Hazardous Waste inspection staff. The QAPrP will be reviewed and updated, at a minimum, once every five (5) years minimum.

This QAPrP is intended as a Program-specific supplement to the WVDEP Quality Management Plan (QMP) 2021 revision. As such, this QAPrP encompasses the activities of EE/HW as a whole, and is applicable to individual activities and projects including inspection, sampling, emergency response, enforcement actions, remediation oversight and data entry. When the need for a Sampling and Analysis Plan (SAP) for a project is determined, a brief site-specific SAP will be generated in accordance with this QAPrP. Sampling is generally biased, and factors determining the need for a SAP may vary, and include scope, scale and complexity of the project.

United States Environmental Protection Agency (US EPA) Region 9 QAPP guidance was used in the development of this plan, including Project Plan Elements for Sampling and Analysis Plan (SAP) designs.

1.1 Hazardous Waste Program

The Hazardous Waste Program governs regulatory requirements intended to ensure proper cradle-to-grave management of hazardous waste. Activities performed by EE/HW personnel include, but are not limited to, the following:

- Compliance Evaluation Inspections of regulated Hazardous Waste facilities.
- Groundwater Monitoring Evaluations and Operation & Maintenance Inspections at Hazardous Waste facilities holding RCRA Subtitle C Permits.
- Complaint Investigations of potential RCRA Hazardous Waste violations.
- Sampling of known and suspected hazardous wastes.

- Regulatory review of RCRA Permits and Plans of Corrective Action.
- Emergency Response activities involving release or potential release of hazardous materials or hazardous waste.
- Administrative, civil and criminal enforcement actions for non-compliance with Hazardous Waste regulations.

The Hazardous Waste Program is designed as a regulatory program for ensuring regulated facilities are in compliance with applicable RCRA Subtitle C standards.

1.2 Hazardous Waste Stakeholders

EE/HW maintains a direct relationship with various primary and secondary Hazardous Waste stakeholders, such as, but not limited to:

- Citizens of West Virginia
- Hazardous Waste management facility owners and operators
- US EPA and other Federal Regulatory Agencies
- State, County, and Municipal agencies
- Emergency Response agencies
- Trade Organizations, Environmental Groups, and Consultants

2.0 PROGRAM MANAGEMENT

2.1 Program Organization and Responsibility

The organizational chart provided in Figure 1 identifies the individuals responsible for activities associated with the Hazardous Waste Program that are appropriate to accomplish the quality assurance (QA) objectives specific to EE/HW. Certain individuals may be responsible for more than one function. The figure shows lines of authority from the Cabinet Secretary down to the Hazardous Waste Inspector, and shows the association to the EE/Administrative Enforcement Program and the DWWM Program Support Branch.

The Assistant Chief Inspector oversees the Hazardous Waste, Underground Storage Tank (UST) and Storage Tank Programs. The Assistant Chief Inspector also serves as the EE/HW Program Manager, directly administering daily operations for the Hazardous Waste Program and reporting directly to the Chief Inspector as well as overall responsibility for ensuring maintenance of the QAPrP working in consultation with related WVDEP staff. The remaining EE/HW staff consists of one Inspector Supervisor, two Inspector Specialists, and eight Inspectors. The Hazardous Waste Program utilizes the services of the EE/Administrative Enforcement Program and the DWWM Program Support Branch, as shown in Figure 1.

The Supervisor has direct oversight of the Specialists and Inspectors, serves as a technical resource for the staff, assists with inspections and enforcement actions, performs QA/QC review of reports, and forwards approved reports with enforcement action being taken to the Assistant Chief Inspector.

The Specialists may conduct an initial review of inspection reports prepared by Inspectors, serve as technical resources for the staff, lead special projects or assignments, coordinate field equipment and supply maintenance, organize training, assist with inspections and enforcement actions, and other duties as assigned.

The Inspectors perform various functions associated with the sites for which they have regulatory oversight. Depending upon the specific situation for a given site, an Inspector may perform duties related to regulation of Hazardous Wastes including, but not limited to:

- Compliance Evaluation Inspections,
- Groundwater Monitoring and Operation & Maintenance Inspections,
- Complaint investigations, Sampling and other Focused Compliance Inspections,
- Closure inspections,
- Emergency response, and
- Initiation of Enforcement Actions

After collaboration with their Specialist, Inspector Supervisor and Assistant Chief Inspector, Inspectors may initiate Civil administrative actions against non-compliant facilities. These actions include Civil Administrative Penalties, Consent Orders and Unilateral Orders. The draft administrative action passes up the chain of command from the Inspector to the Inspector Supervisor, the EE/HW Assistant Chief Inspector, the EE/Administrative Enforcement Assistant Chief Inspector, the Chief Inspector, and the Director of DWWM.

DWWM Program Support Branch administrative staff enter data into the US EPA RCRAInfo database collected from notifications, biennial reports, annual certifications, inspections and enforcement actions. Program Support staff review all forms and inspections before they are entered into RCRAInfo. Also, Program Support staff continually takes various actions to ensure data accuracy. DWWM Program Support Branch administrative staff generates RCRAInfo reports, for EE/HW review, including, “Facilities Never Inspected” and “Timely and Appropriate Enforcement”. All information that is tracked in RCRAInfo can be made into a report upon request.

The Agency has an approved Quality Management Plan valid until August 31, 2026 and an Agency Quality Manager who resides in the Business Office to oversee the Quality Program within the Agency and assist with QA issues, provide training, and oversee records management at the Agency.

2.2 Program Strategy

Quality Assurance is a system of management activities that involves planning, implementation, assessment, reporting, and quality improvement. EE/HW strives to ensure the quality of the information collected (whether collected by our personnel, or supplied to us by owners/operators, or their contractors) will support informed, defensible Program-level outcomes.

The purpose of the Quality Assurance Program Plan (QAPrP) is to serve as a guidance document describing how the Hazardous Waste Program will identify the data needed to conduct operations. A QAPrP, as defined within WVDEP's Quality Management Plan, is a document establishing policies that define and document the type and quality of data needed for program level environmental decisions and to describe the methods required for collecting, analyzing and assessing data to support those decisions. EE/HW staff will utilize the Data Quality Objectives (DQOs) Process to identify the type, quantity and quality of environmental data needed for management, enforcement and remedial decisions at inspection, sampling and emergency response locations throughout the State. The process is similar to the Scientific Method. As statements of decision error, DQOs allow the user to:

- Clarify the intended use(s) of the data to be collected,
- Define the type(s) of data needed to support the evaluation,
- Identify the conditions under which the required data should be collected, and
- Specify acceptable limits for uncertainty in the data to reduce the probability of making a decision error and increase level of confidence in conclusions drawn from the data.

When possible, the seven steps of the DQO are used during the planning of field activities and data collection operations to ensure the resulting data meet the overall project objectives. A summary of the DQO Process is provided below:

Step 1 – State the Problem – *Define the problem, issue, question or circumstance that requires new data so that the focus of the study will be clear. This step includes identification of team members and available resources.*

Step 2 – Identify the Decision – *State the decision(s) that will be made using the data to be collected. Categorize multiple decision points or objectives.*

Step 3 – Identify Inputs to the Decision – *Identify the information inputs needed to make informed, defensible decision(s), and the sources thereof. Determine which inputs require environmental measurements. Identify possible outcomes for each input.*

Step 4 – Define the Boundaries of the Study – *Specify the geographical and time limits of the evaluation. List practical constraints, including budgetary, that may interfere.*

Step 5 – Develop a Decision Rule – *Combine outputs of previous DQO steps into an "if...then..." sentence defining the conditions that would result in choosing alternate action(s).*

Step 6 – Specify Limits on Decision Errors – *Establish limits for acceptance of data uncertainty. Evaluating both SAP error and measurement error likelihood, weigh consequences of a decision error against the cost of limiting the possibility of that error to determine the level of confidence needed for conclusions drawn from the data.*

Step 7 – Optimize the Design for Obtaining Data – *Evaluate information from previous steps and generate data collection plans to meet and satisfy the DQOs in the most efficient and cost-effective manner while ensuring the resulting data meets the decision objectives.*

2.3 Data Quality Objectives and Measurement Criteria

DQOs are established in accordance with anticipated end uses of the data being collected. DQOs help ensure adequate quality field measurements, observations, photographs, and laboratory characterizations are such that the results are reflective of site conditions and items being measured. The level of detail and data quality needed will vary with intended use(s) of the data.

DQOs are applicable to various phases and aspects of the data collection process including the following:

- Determine facility compliance with applicable State and Federal regulatory requirements.
- Locate, identify and characterize potential sources of contamination.
- Establish location, quantity, type and procedures for collection of samples.
- Selection of laboratory analysis to be performed.
- Determine if there is a potential or imminent threat to human health or the environment.
- Determine the need for administrative, civil or criminal enforcement action.
- Determine level of enforcement action applicable to violation(s).
- Determine and/or approve potential remediation strategies for contaminated sites.
- Maintain an industry-wide consistent approach to any actions taken by the agency.
- Report to stakeholders.

Data quality indicators are typically assessed by evaluating the Precision, Accuracy, Representativeness, Completeness, Comparability and Sensitivity (PARCCS) of all aspects of the data collection process, defined as follows:

- Precision: A measure of the degree of reproducibility of data.
- Accuracy: Degree to which a measurement agrees with the actual value.
- Representativeness: Degree to which the data represents the universe or whole.
- Completeness: A measure of the amount of data obtained compared to the amount expected to be obtained under normal conditions.
- Comparability: Confidence with which one data set can be compared with another.
- Sensitivity: the ability of an analytical procedure to detect and quantify an analyte at a given concentration.

To assess whether data is of an appropriate quality, PARCCS parameters, as applicable, will be compared to the site-specific DQOs and measurement performance criteria. To achieve comparability, standard environmental methodologies will be employed in the field and in the laboratory. PARCCS for laboratories is regulated separately under Title 47 CSR Series 32: "Environmental Laboratories Certification and Standards of Performance."

Although important, the statistical aspects of the DQO Process may not apply to every hazardous waste site. The media being investigated may also limit the use of statistical methods.

2.4 Special Training/Certification

Specialized training or certification requirements may be necessary for performing work at a given project location. As appropriate, Hazardous Waste personnel working at project locations must have specialized training. Specialized training/certification may include, but is not limited to, the following:

- OSHA Hazardous Waste Operations and Emergency Response (HAZWOPER) training (29 CFR 1910.120)
- OSHA Annual Refresher Training (29 CFR 1910.120)
- Basic RCRA Inspector Course
- National Incident Management System (NIMS): IS-100.b Introduction to Incident Command System
- NIMS: IS-700.a National Incident Management System, an Introduction
- NIMS: IS-800.b National Response Framework, an Introduction
- Air Monitoring for Hazardous Materials
- Air Monitoring for Emergency Responses
- Hazardous Waste Generator Improvements Rule Training
- Hazardous Waste Pharmaceutical Training (40 CFR 266 subpart P)
- Sampling for Hazardous Materials
- Introduction to Groundwater Investigations
- Chemistry for Environmental Professionals (Fundamentals and Applied)
- Used Oil Training
- Universal Waste Training
- On the job Hazardous Waste training

In accordance with Chapter 4 of the QMP, the Assistant Chief Inspector, as the Hazardous Waste Program Manager, is responsible for ensuring that each staff member involved with collecting environmental data has the necessary technical, quality assurance, and project management training and certifications or documentation required for their assigned tasks and functions. The Assistant Chief Inspector is also responsible for ensuring that technical staff maintain the necessary level of proficiency to effectively meet QA responsibilities. QA training and additional development needs will be identified as part of regular performance discussions.

Maintaining staff proficiency is the joint responsibility of individuals filling those positions, inspector specialists, and their Supervisor with oversight provided by the Assistant Chief Inspector, Chief Inspector, and Division Director.

3.0 DATA GENERATION AND ACQUISITION

QA/QC is important to all aspects of data generation and acquisition to ensure that appropriate methods for sampling, measurement and analysis, data collection or generation, and data handling are used and documented. This QAPrP applies to:

- collection and handling of samples,
- processing and using data
    - from other sources (other agencies, permittees, responsible parties, etc.),
    - generated by a contractor,
    - contained in alternate formats (audio, video or other electronic programs), and
- management, compilation, handling and storage of data.

Examples of types of measurement activities conducted are found in Section 2.3. Measurement Quality Objectives (MQOs) are performance requirement goals which allow the user to determine whether a particular set of analytical results or monitoring data can be reliably used in the decision process. MQOs are established for precision, accuracy and completeness for each parameter being measured.

Prior to an inspection or site investigation, the Inspector will review the facility information maintained by EE/HW, US EPA and other sources. The review may focus on the most recent applicable inspection and Notification information, a complete review of facility compliance history and relevant submissions, or other historical data relevant to the inspection or investigation. A consistent approach with environmental regulation and enforcement is stressed throughout the training of inspection and administrative staff, during subsequent staff meetings, and in everyday operations. Standard Operating Procedures (SOPs) have been developed for several activities performed by the EE/HW staff. Current versions of all SOPs are housed in Opentext ApplicationXtender (AX). AX is a web based document management system that includes internal functionality as well as a public portal. Only the most current, approved version of SOPs and other planning docs are available in AX. Staff are aware of the location of these documents. Current approved versions of planning documents are also stored in internal, shared, web-based Google Drives.

3.1 Sample Collection

The goals of SAP design for the Hazardous Waste Program, and the basis for all MQOs, are to:

- Determine if a hazardous waste has been generated, stored, treated or disposed at a site.
- Identify areas where hazardous waste has been generated, stored, treated or disposed.
- Characterize the nature and extent of contamination at a site.
- Determine if risk-based concentrations for contaminants have been exceeded.
- Delineate plumes and pathways of contaminants.
- Determine whether enforcement action is warranted and if so, the level necessary.

Physical samples must be representative of a waste in a container, tank or a homogeneous waste

pile. Contaminated soils, landfills, heterogeneous waste piles, impoundments or other large-scale sample areas may be evaluated by Inspectors to locate areas of unacceptably high chemical concentration to determine if a disposal of a hazardous waste has taken place. EE/HW does not perform complete extent of contamination studies on large-scale disposal sites, but instead, requires the responsible party to perform the evaluations, under supervision of Program staff. This method of handling large-scale contamination areas more efficiently uses agency personnel, time and monetary resources.

Contractors / consultants must adhere to established and appropriate practices, which may include standard operating procedures, sampling analysis plans and / or site assessment work plans, pertaining to sampling methods. The Sampling Plan Design information found below may be utilized as applicable. Alternate procedures may be utilized as long as relevant quality requirements are met and are approved by the agency.

3.1.1 Sampling Plan Design

3.1.1.1 Sampling Plan Design Category

Judgmental sampling is used almost exclusively for the types of sampling performed by Hazardous Waste Inspectors. Judgmental sampling involves selection and collection of biased samples on the basis of expert knowledge or professional judgment rather than on statistical theory. This method of sampling is less expensive than probability-based sampling and is efficient and easy to implement. It relies on expert knowledge of highly trained Inspectors.

3.1.1.2 Sampling and Analysis Plan Elements

The following elements are included in a SAP when applicable:

- Number of samples to be taken
- Number of sample locations and their descriptions
- Number of samples at each location
- Type of sample(s) (grab, composite or both) and type of media
- Explanation and justification for the number and locations of samples
- Analytical parameters and rationale
- Field-testing and direct-read instrument requirements
- MQOs (typically regulatory or permit limits) for all parameters to be measured
- Identification of Field QC and Lab QC samples, if applicable
- GPS coordinates - to pinpoint locations of facilities, disposal areas, sampling areas, etc.
- Sampling equipment needed (sample jars, scoops, bailers, COLIWASA's, etc.)
- Sampling team and duty assignments
- PPE requirements (Chemical protective clothing, respirators, etc.)
- Decontamination procedures and disposal of sampling-generated waste.
- Site background information & any known or expected hazards
- Chemical information (SDSs, NIOSH, EPA, etc.) if available or applicable

- Site-specific Health and Safety Plan (HASP) submitted as a separate document.

3.1.1.3 Personnel Organization

3.1.1.3.1 Sampling and Analysis Plan Preparer

When determined necessary by the individual in charge of the project, a brief but comprehensive SAP will be prepared by a member of the sampling team. The preparer may consult with or be assisted by other WVDEP personnel who have advanced technical experience in a particular area (e.g., refineries, body shops, chemical manufacturers, steel manufacturers, aluminum smelters, etc.). The SAP will be prepared prior to the sampling event and reviewed and approved by a Supervisor prior to sampling. Each SAP will outline the event's organizational structure, team member responsibilities, levels of authority, job descriptions and lines of communication. In some instances, the SAP and HASP may be combined into a single document.

3.1.1.3.2 Sampling Teams

Sampling teams are organized so each team member clearly understands their duties and responsibilities during a sampling event. One person may perform more than one job function (e.g., sampler and air monitoring specialist) during a sampling event. The sampling team leader, whether an Inspector, Specialist or Supervisor, is responsible for establishing organizational, operational, health and safety and QA policies. The team leader will ensure that the following requirements are met:

- Appropriate sampling, monitoring and measurement methodologies are followed
- Personnel clearly understand their duties and responsibilities
- Each team member has access to all background and sampling project documents
- Any deviations from the SAP are clearly communicated to all team members
- Communication occurs between the team leader, the laboratory and sampling team
- All aspects of the Site HASP are reviewed and signed by the team
- Importance of the DQOs, MQOs and SAP are communicated to sampling team members.

3.1.1.3.3 Personnel Qualifications

EE/HW personnel on a sampling team will possess the education, training, technical knowledge, or experience to enable the individuals to perform their assigned functions within the team. WV DEP documents the educational background and the subsequent training received by each employee in their personnel file. Additional specialized training is provided as necessary.

3.1.2 Sampling Methods

Physical sampling method and related information will be briefly described or referenced in each SAP. No SAP is required for use of monitoring equipment, but MQOs are evaluated during post-monitoring review. Sampling is generally biased, not random. In addition to ASTM and SW-846 methods, Inspectors may also use the following documents to determine acceptable sampling protocols.

- "Samplers and Sampling Procedures for Hazardous Waste Streams", EPA 600/2-80-018, January 1980.
- "RCRA Waste Sampling Draft Technical Guidance, Planning, Implementation, and Assessment", EPA 530-D-02-002, August 2002.
- "RCRA Ground-Water Monitoring Technical Enforcement Guidance Document", USEPA, EC-G-2002-130, September 1986.
- "RCRA Ground-Water Monitoring Draft Technical Guidance", USEPA, November 1992.
- "Guidelines Establishing Test Procedures for the Analysis of Pollutants Under the Clean Water Act; National Primary Drinking Water Regulations; National Secondary Drinking Water Regulations; Analysis and Sampling Procedures"; Final Rule, Federal Register, Volume 72, No. 47, Monday, March 12, 2007, Pages 11200-11249.
- "Quality Assurance/Quality Control Plan & Standard Operating Procedures for Groundwater Sampling", WV DEP, DWWM, August 2009.

The "Waste Management System; Testing and Monitoring Activities; Final Rule: Methods Innovation Rule and SW-846 Final Update IIIB", finalized June 14, 2005 by US EPA and commonly known as the Methods Innovation Rule (MIR), included amendments to RCRA and the CAA to allow more flexibility in sampling and analysis. The amendments removed from the regulations the requirement to use SW-846 methods, except where the defined method is the only one capable of measuring a method-defined parameter (e.g., a RCRA ignitable liquid). For all other analyses, any appropriate sampling and analysis methods may be utilized.

3.1.3 QA-Program Defined Requirements

3.1.3.1 Quality Assurance Review

The quality assurance review consists of internal and external assessments to ensure both QA and QC procedures are in use and field staff conform to these procedures. QA review will be conducted when a sampling event has perceived deficiencies or is deemed inadequate with regard to sample collection or quality of the analytical results.

3.1.3.2 Internal Assessment

Personnel who perform field duties (aka field staff) are responsible for continually monitoring individual compliance with QA/QC programs and planning documents. The Program Manager, Environmental Inspector Supervisor and Inspector Specialists may periodically review field results and findings for compliance with the QA/QC programs and planning documents. The results of these internal assessments will be reported to Supervisors and the Assistant Chief Inspector with requirements for a plan to correct the observed deficiencies. Also, Specific Hazardous Waste Program employee responsibilities are outlined and evaluated in an annual Employee Performance Appraisal midway and at the end of each calendar year (section 4.3)

3.1.3.3 External Assessment

Field staff activities may be reviewed by personnel external to the organization (US EPA, etc.). The results of any external assessment should be submitted to the Assistant Chief Inspector with the expectation of a plan to correct the observed deficiencies.

3.1.3.4 On-Site Evaluation

On-site evaluations may be conducted as part of both internal and external assessments. On-site evaluations may include, but are not limited to, a complete review of the facility, staff, training, instrumentation, SOP's, sampling methods, field analysis, sample collection, QA/QC policies and procedures related to the generation of environmental data. Records of each evaluation shall be maintained until superseded or according to policy. These records will include the date of the evaluation, area or site, areas reviewed, person performing the evaluation, findings and problems, actions recommended and taken to resolve the problems and scheduled date for re-inspection. Any problems identified that are likely to affect data integrity shall be brought to the attention of management immediately.

3.1.4 Failure and Correction of Sampling or Measurement System

Errors, deficiencies, deviations, certain field events, or data that fall outside established acceptance criteria should be thoroughly investigated by Supervisors or Specialists and reported to the Assistant Chief Inspector. In some instances, corrective actions (e.g., retraining, modification of QA/QC procedures, equipment replacement, preservative replacement, sample container replacement, etc.) may be needed to resolve the problem and restore proper functioning to the system. The investigation of the problem and any subsequent corrective action taken should be documented. Any changes to the QA/QC program will be instituted by the Assistant Chief Inspector, Supervisors or Specialists. When possible, the sampling or measurement event will be repeated to obtain the correct data.

3.1.5 Sampling Procedures

3.1.5.1 Sampling & Monitoring Equipment

Whenever possible, disposable sampling equipment and PPE are used to limit generation of wastewater from decontamination. Disposable sampling equipment is kept in the closed original packaging until collection of the sample. Non-disposable sampling equipment is stored in new bags between uses; it is kept in the bags until collection of the sample. Prior to collecting a sample, the equipment is unwrapped and inspected for cracks, missing parts or other abnormalities that could interfere with sample collection or compromise the sample.

After sampling, disposable equipment used for collection of known hazardous waste or obviously contaminated environmental media is generally left on-site, to be disposed of with the contaminated material. Disposable sampling equipment used for collection of non-hazardous environmental media is collected in trash bags, removed from the site to be disposed of as non-hazardous solid waste.

Decontamination of non-disposable equipment complies with the procedures outlined in 29 CFR 1910.120(k). At small or remote sampling events where water is not available, non-disposable equipment is typically collected in double-bagged trash bags and sealed with an appropriate chemically resistant tape. Decontamination is then conducted off-site following standard procedures as soon as possible. At large sampling events, where water and equipment are available, non-disposable equipment is typically decontaminated on-site. After decontamination and drying, non-disposable sampling equipment is placed in new zippered storage bags; monitoring equipment and PPE are returned to storage cases.

All field equipment is maintained in accordance with each respective instrument manufacturer's operating instructions.

3.1.5.2 Sample Containers

New, certified clean, sample containers of size, type and number appropriate to the material being collected are used. Air samples are not collected. Barcodes placed on the containers by manufacturer document the manufacturing lot and certification information. Prior to use, each container is visually inspected for defects such as cracks, damaged septum or other abnormality that could compromise the sample. Lids are left on the containers until sample collection occurs.

3.1.5.3 Sample Handling and Custody

3.1.5.3.1 Sample Handling

Sample handling consists of sample collection, packaging, labeling, preservation, storage and transportation. QA/QC methods are applied to sample handling to ensure sample integrity and ensure the safety of personnel packaging and transporting the sample. Physical samples are collected and packaged in compliance with methods referenced in SW-846 or alternate equivalent method allowed by the Method Innovation Rule.

Samples are labeled with the following information:

- Agency name (WV DEP)
- Site name or unique site code
- Unique sample number
- Analysis requested
- Indication of sample type (grab or composite)
- Sample date and time
- Preservative (even if cooling only)
- Initials of sampler

All samples will be protected from sunlight and excess heat which could degrade the sample. All samples will be preserved in accordance with the laboratory analytical method(s) chosen, with the following exceptions:

- Samples of concentrated wastes will not be preserved, except for cooling, because of the possibility of chemical reaction between the waste sample and the preservative. Concentrated waste samples will instead be placed into an insulated cooler dedicated for holding samples and cooled to ≤6 °C (42.8° F), but not frozen.
- Samples of soils and other solid or semi-solid materials will not be preserved, other than for total volatile organics under SW-846 Methods 5021, 5031, 5032 or 5035 (e.g., TCLP Volatile Organics). All soil and environmental media samples will be placed into an insulated cooler dedicated for holding samples, and cooled to ≤6 °C (42.8° F), but not frozen.
- EE/HW personnel may, at their discretion, elect to not preserve samples of unknown liquid wastes or other materials with chemical reagents, if uncertain whether a chemical reaction may occur. Those samples to which no chemical preservative is added, will be placed into an insulated cooler dedicated for holding samples, and cooled to ≤6 °C (42.8° F), but not frozen.
- Any aqueous, solid, semi-solid, media or waste which is sampled in a frozen or semi-frozen state will be placed into an insulated cooler dedicated for holding samples and maintained at a temperature ≤6 °C (42.8° F). The frozen or semi-frozen state of the sample will be noted on the Chain of Custody.

Samples are typically transported directly to either a WV certified laboratory for analysis by the sampler or by a designee of the sampler who signs the Chain of Custody (COC) form, or a WVDEP office in a WV State vehicle, under a chain of custody. Samples stored at WV DEP offices will be kept in a cooler with bagged ice or in a refrigerator; either of which must be in a locked area, under the direct supervision of the last person to sign the COC form. Samples stored at DEP offices may then be transported in coolers with bagged ice to a certified laboratory by WV DEP employees or by laboratory employees, who have signed the COC form.

Holding times for specific laboratory analysis method will not be exceeded. Direct-read field measurements (such as pH) will be taken where the analytical method states the sample must be analyzed as soon as possible or where no holding time is allowed.

3.1.5.3.2 Sample Custody

Due to the evidentiary nature of samples, documented possession of the samples must be traceable from collection until the analytical data is introduced as evidence in inspection reports, enforcement hearings and legal proceedings. To maintain and document sample possession, chain of custody procedures are followed. A sample is legally under custody of an Inspector if:

- The sample is in the Inspector's physical possession, or
- The sample is in the Inspector's view, after being in the Inspector's possession, or
- The sample was in the Inspector's possession, then locked up to prevent tampering, or
- The sample is in a designated secure area. A designated secure area is defined as any WVDEP office or WVDEP state vehicle under the control of one of the signatories

listed on the COC form, and which is locked when not occupied by, or in sight of, a signatory on the COC form.

The initial sampler is personally responsible for the care and custody of the samples collected until they are transferred to another WVDEP employee or an analytical laboratory. As few people as possible should handle the samples prior to analysis. All samples will be accompanied by a COC form which includes the following information:

- Project number, and/or
- Project name or code
- Sampler's signature
- Sample numbers
- Dates and Times of sample collection
- Sample type (grab or composite)
- Sample location(s)
- Number of containers
- "Relinquished by" signature columns
- "Received by" signature columns
- Agency name
- EE/HW contact person's address or email to which results should be sent

A COC form is used for all samples in which sample custody changes from the original sampler. When the samples are transferred to another WVDEP employee or to an employee of an analytical laboratory, both the individual transferring the samples and the individual receiving the samples will sign, date and note the time on the COC form. Any comments or remarks concerning the samples that are needed by the laboratory should be noted in the remarks section of the document. The white (top) copy of the COC form will always accompany the sample shipment. The yellow (middle) copy will be given to the laboratory to follow the samples throughout the analytical process. The pink (bottom) copy will be retained by the initial sampler for his/her records.

3.1.5.3.3 Sample Receipts

In addition to the COC form, EE/HW personnel are required by WVSC §22-18-13d to provide documentation to the owner, operator, or agent in charge of a sampling site as follows:

> "If the representative, employee, or agent obtains any such samples, prior to leaving the premises, he or she shall give to the owner, operator or agent in charge a receipt describing the sample obtained and, if requested, a portion of each such sample equal in volume or weight to the portion retained. The division shall promptly provide a copy of any analysis made to the owner, operator or agent in charge."

This documentation, referred to as a Sample Receipt form, ties the sample custody back to the generator of the material, establishing a line of custody from the generator to the sampler to the laboratory. The white (top) copy of the Sample Receipt form will be given to the facility

representative. The yellow (middle) copy will be included in the report. The pink (bottom) copy will be retained by the initial sampler for his/her records.

3.1.5.4 QA Program-Defined Requirements

For samples requiring field preservation other than ice, containers with pre-measured preservative are obtained from the laboratory prior to the sampling event. To minimize potential contact with hazardous materials on the exterior of filled sample containers, container labels are completed immediately *prior* to collection of each sample. In all instances where containers will be transported to the laboratory by someone other than the sampler, chain of custody seals signed by the sampler will be placed over the closure on each container.

Sample containers that are not decontaminated in the field are placed in new zipper-closure bags prior to being placed in a cooler. For samples where the label information has been obscured or removed by the sampled material, and for samples where the chain of custody seal will not adhere to the container, new labels and/or seals may be prepared and placed on the exterior of the zipper-closure bag the sample container is in. Samples are cooled to ≤6 °C (42.8° F) using bagged ice. Reusable ice packs are for single use only. Samples are not frozen.

Standard COC and Sample Receipt forms are completed in the field; a receipt for samples is given to the facility representative, if present, or left on-site if no one is present. Examples of COC and Sample Receipt forms are found in Appendix A.

If samples must be shipped to a laboratory, samples will be packaged according to the laboratory's instructions and US Department of Transportation regulations. A copy of the chain of custody will be retained, and the original will accompany the shipment. Laboratories are responsible for following their established custody protocols.

3.2 Analytical Methods

WV DEP certified laboratories analyzing hazardous waste samples are expected to follow US EPA sample preparation and analysis protocols under SW-846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods" unless other methodology allowed by the MIR is specified. "Standard Guide for Demonstrating and Assessing Whether a Chemical Analytical Measurement System Provides Analytical Results Consistent with Their Intended Use", ASTM D6956 – 11, should be followed for any test method not included in SW-846.

3.3 Quality Control

3.3.1 Quality Control Program Policy

Field duplicates and field blanks are used for QC measures associated with samples collected in the field, but analyzed in a fixed laboratory, while field duplicates and known standards are used for QC measures associated with field measurements themselves (pH, conductivity, etc). Screening analyses performed on-site are considered field measurements. Field measurement of pH and conductivity are considered definitive analyses since no sample holding time is allowed. Definitive analyses should be treated as they would be if performed in a fixed laboratory, since

the results may be used in decision making. Field measurements other than pH and conductivity, are used in determining sample locations and methods, and are not considered definitive. These requirements also might apply to the evaluation of data from secondary sources.

3.3.2 Deferral of Quality Control Requirements

Individual projects may elect to have specifications for QC samples described in project-specific documents. When this approach is used, the types of QC samples, frequency at which they will be run and acceptance criteria should be provided in project-specific documents.

3.3.3 Program-Defined Quality Control Requirements

QC checks are based on Data Quality Indicator (DQI) information and are used by EE/HW to assess the acceptability and quality of the data used for decision making. Methods providing results with either an unacceptable margin of error as determined by the project goals, or providing non-reproducible results, will be considered unreliable and will not be used as the sole source of decision making.

A combination of checks, blanks, splits and duplicate samples are used by Hazardous Waste field personnel. Examples of possible analytical QC checks used are included in Table 1 below. The frequency with which these field QC measurements are performed and the frequency with which field QC samples are collected is determined by factors including the overall number of samples being collected, purpose of sample collection, decontamination method, use of preservatives other than ice, request or recommendation of the laboratory or regulated facility. Generally, for ten or more samples and for overall site characterization sampling, field duplicates are collected at a rate of one per ten samples, as are field split samples. Additional field split samples may be collected at the Inspector's discretion. Where the same laboratory is likely to be used by both EE/HW Personnel and a facility or their contractor, at least one laboratory split is recommended. Like other samples, laboratory split samples must be analyzed by a WV Certified Laboratory, unless the requirement is waived by the Director.

Table 1: Examples of Possible Analytical QC Checks

QC Check	Information Provided
Blanks	
field blank	transport and field handling bias and laboratory analytical system
reagent blank	contaminated reagent
rinsate blank	contaminated equipment and laboratory analytical system
method or matrix blank	response of entire laboratory analytical system
Calibration Check Samples	
detection limit verification check	sensitivity below lowest calibration point
mid-range check	calibration drift and memory effects
standard verification	independent calibration verification using a NIST national standard or other external source of a certified standard

Duplicates, splits, etc.	
field duplicates	precision of all steps after acquisition
field splits	shipping + interlaboratory precision
laboratory splits	interlaboratory precision
analysis duplicate/replicates	instrument precision

3.4 Field Instrument/Equipment Testing, Inspection, and Maintenance

Equipment testing, inspection, maintenance and repair is an integral part of an Inspector's job description. Electronic field instruments and equipment are to be tested, calibrated, and maintained for optimal operation during field inspection and sampling activities. Each instrument is examined and calibrated by the Inspector to which it is assigned, following the manufacturer's operating instructions and calibration schedule. Certified calibration standards are used. Equipment is kept charged or has a fresh supply of batteries available. Electronic field instruments and equipment are also calibrated on-site prior to collection of field measurements or samples. Field equipment which does not have an internal calibration log should have inspections, calibrations, maintenance, and usage documented in ink in a logbook kept with that piece of equipment. Malfunctioning equipment will be repaired when possible; or replaced as deemed necessary by the Assistant Chief Inspector.

Minor equipment maintenance, such as replacement of sensors and pre-filters, can be performed by Inspectors, Specialists or Supervisors. Spare parts will only be provided by the manufacturer of the unit or a manufacturer-certified vendor. Major repairs that could compromise the intrinsic safety rating and guarantee of the instrument will only be performed by factory-certified and approved vendors. The manufacturers recommendations for factory-calibration required for some instruments, such as radiation meters, will be followed. Instruments will be returned to the manufacturer or manufacturer-certified vendor for updates of electronics or internal programming unless downloadable updates are made available.

Other field equipment and disposable sampling equipment are periodically inspected to ensure availability and sufficiency in number. This occurs annually at a minimum, and preferably at least two weeks prior to any sampling for which the equipment will be required. Absence of necessary equipment or deficiency in quantity will be resolved by re-ordering of supplies as soon as the deficiency is documented.

3.5 Laboratory Equipment and Certification Data

3.5.1 Laboratory Equipment

The contract laboratory will be responsible for ensuring that their personnel adhere to the instrument/equipment maintenance requirements and instrument calibration procedures outlined in their Quality Assurance Plan. The instrument/equipment maintenance requirements and instrument calibration procedures shall conform to the manufacturer's specifications for each instrument and shall comply with all requirements of the State of West Virginia's Laboratory Certification program.

3.5.2 Laboratory Certification Data

Title 47 CSR Series 32 – Environmental Laboratories Certification and Standards of Performance requires the annual certification of all analytical laboratories to ensure the agency receives accurate and reliable analytical data. This includes laboratories performing analysis for hazardous waste parameters. Certified laboratories are evaluated for use of equipment and instrumentation suited to the work performed, employment of well-trained capable staff and following approved methodology. Inspection, certification and data collection pertaining to the laboratories is conducted by the Laboratory Quality Assurance Program. A more detailed description of the Laboratory Quality Assurance Program and links to the list of WV certified laboratories is available at http://www.dep.wv.gov/WWE/Programs/lab/Pages/default.aspx. WV certified laboratories will be used by EE/HW, unless the requirement is waived by the Director.

3.6 Inspection/Acceptance of Supplies and Consumables

3.6.1 Program Policies

Standard durable sampling supplies and disposable equipment are generally purchased from suppliers under current state contract. Non-standard durable goods and consumables are purchased as-needed from suppliers under current state contract where possible.

3.6.2 Program Defined Inspection/Acceptance

The EE/HW Kanawha City Office and each EE/HW field office maintains an adequate number of critical sampling supplies and consumables shown in Table 2 as needed. The supplies are stored in a cool, dry and clean secure area. Annual inventory shall be conducted on all supplies and consumables by the Inspectors to whom they are assigned, in order to assure their quality, cleanliness and adequate supply.

Performance specifications for equipment are determined by its intended use and any requirements of the sampling method. Performance specifications are reviewed by the environmental inspector supervisor and specialists prior to purchases of equipment. If equipment or consumables meeting the performance specifications are not available on contract, off-contract purchase may be made. Specification documentation accompanying the equipment is kept on file by the Inspector to which the equipment is assigned; a copy may be kept by the Specialist and/or Supervisor. A copy of the certification documentation is kept in a paper and/or electronic file by the Inspector; the original is kept with the material. For QA/QC purposes, documentation for consumable sampling materials (jars, bailers, scoops, etc.) should be kept until all of the particular items have been used and any legal issues resolved. For OSHA compliance, documentation for both consumable and non-consumable PPE and safety equipment should be kept on file until the items have been used up or are no longer used.

Table 2 - Critical Supplies and assessment		
Item	**Specification(s)**	**Documentation**

Calibration gases	gas mixtures recommended or supplied by instrument manufacturer	Vendor's certificate of purity and Safety Data Sheet (SDS).
pH buffers (Standards)	4, 7 and 10 Standard Units	Expiration date printed on package
pH paper	full range (0-14)	Traceable QA/QC lot number printed on package.
Sample bottles	Unused, pre-cleaned, batch analyzed. Glass bottles with Teflon®-lined plastic lids. Plastic bottles made of high-density polyethylene (HDPE) with polypropylene closures (screw caps).	Batch analysis certification supplied with the bottles. Bar code sticker on each bottle corresponds with certification.
Disposable Sampling Equipment - Scoops, COLIWASA's, etc.	Glass, Teflon® or Plastic - new, individually packaged by manufacturer.	Periodic equipment blank analysis.
Durable & Reusable Sampling Equipment - Stainless Steel Bailers, Scoops, Shovels, Augers, Triers, Dredges, Pumps, etc	Manufactured with food-grade stainless steel, Teflon® or other easily-decontaminated materials. Chrome-plated metal sampling devices are not acceptable.	Cleaned by appropriate decontamination method, air dried, individually stored in zipper-closed baggies. Periodic rinsate blanks.
Personal Protective Equipment (PPE) - Gloves, booties, etc.	Selected by trained employees for specific activities	Performance standard documentation provided by manufacturer.
Durable Personal Protective Equipment - APRs and SCBAs	Governed by WV DEP Respiratory Protection Policy and by OSHA 29 CFR §1910.134	OSHA compliance documentation from manufacturer
Respirator Cartridges	Standard protection against: Cl, ClO_2, HCl, HF, H_2S, SO_2, NH_3, methylamine, formaldehyde, organic vapors and 99.97% efficient removal of solid/liquid particles (including oil-based). Specialty respirator cartridges for other contaminants (e.g., Hg).	Manufacturer's certification should accompany each lot of cartridges.
Deionized (DI) Water	Reagent-grade for cleaning pH probes and rinsing sampling equipment	Analytical certification from manufacturer.
Decontamination supplies - Detergent, brushes, pans, etc.	Chosen for durability, utility and purity (rinsates). Detergents must adequately remove contaminants. High-purity nitric acid and pesticide-grade hexane.	Analytical certification from manufacturer for nitric acid and hexane.

3.7 Inspection, Complaint, and Emergency Response Data

EE/HW uses field notes to supplement collected field data. Handwritten field notes are considered a tool for data collection, rather than the data itself. Types of information collected in field notes include, but are not limited to:

- Site name, mailing address, physical location, and GPS coordinates
- Names of personnel on site, their titles and telephone numbers
- Descriptions of all relevant site activities, including site entry
- Site observations, noteworthy events, and discussions

- Relevant weather conditions
- Identification and description of samples and locations
- Site sketches

Data collection in the field may also take the form of checklists, forms, photographs, video, photocopies, etc. Regulatory checklists are provided as an optional tool and training aid for personnel collecting data in the field. Use of the checklists is not mandatory since they are not all-inclusive; inclusion in the final report is also optional for the same reason.

The report is prepared by the lead Inspector and is used to document data collected at the particular point in time when the inspection occurred. EE/HW uses standardized report forms to record finalized inspection data. Not all items recorded in field notes need be included in the report, only pertinent data as determined by the Inspector. Copies of laboratory analyses, Chain of Custody and Sample Receipt forms, maps, copies of any relevant documents such as manifests, training records, Safety Data Sheets (SDSs), may be included as attachments to reports. Information submitted by a facility shortly after an inspection, typically via email, may also be included in the report. A select number of pertinent photographs taken during the inspection that clearly document compliance or non-compliance may be included in the report.

3.8 Enforcement Referral Process and Documentation

Violations may be cited as a result of an inspection or reporting review. Initial informal enforcement actions are generally at the discretion of the Inspector with guidance from his/her Supervisor; additional formal enforcement action requires approval from the Assistant Chief Inspector before proceeding. The following enforcement actions are used by the Hazardous Waste Program.

- **Verbal Notice of Violation:** Non-written notice given to the regulated facility by the Inspector at the time a violation is discovered. The violation can generally be corrected immediately and easily by the facility in the presence of the Inspector. A notation is included in the ensuing report that the violation was returned to compliance during the inspection. Verbal Notice of Violation is not acceptable for on-going or repeat violations. Verbal Notices of Violation are informal enforcement.
- **Notice of Violation (NOV):** A Notice of Violation (NOV) is a written enforcement action that occurs when an Inspector finds a violation at a regulated facility. The violations cited in the NOV generally are not or cannot be corrected in the presence of the Inspector, during the inspection. NOV data is reported as part of the inspection via various RCRAInfo forms and is entered into the RCRAInfo database by Program Support personnel for tracking and data storage purposes. Written Notices of Violation are informal enforcement.
- **Civil Administrative Penalty (CAP):** The administrative rules for the CAP program, promulgated under the provisions of WVSC §22-18-17(a)(1), appear in 33 CSR 22 "Assessment Of Civil Administrative Penalties". Issuance of a CAP must be preceded by issuance of a NOV. As with all enforcement actions, CAP data is reported on RCRAInfo forms by Administrative Enforcement personnel and entered into the

RCRAInfo database by Program Support personnel for tracking and data storage purposes. CAPs are formal enforcement.

- **Administrative Orders:** EE/HW may initiate the issuance of administrative orders against persons violating the Hazardous Waste regulations. The administrative orders may take the form of a Unilateral or Consent Order. The decision on which form of administrative order is to be used depends on the situation and is determined by the Hazardous Waste Inspector in consultation with their Supervisor and Assistant Chief Inspector. A Unilateral Order is a non-penalty directive from the Director of DWWM to the violator issued to compel compliance with regulatory requirements. A Consent Order is generally a penalty order in which the violator agrees to a penalty for non-compliance in addition to bringing the facility back into compliance. The Administrative Order Program is codified under WVSC §22-18-17(b)(2) and 33 CSR 27. The Hazardous Waste Inspector will initiate the issuance of an administrative order in consultation with his/her Supervisor. Administrative Orders are formal enforcement.
- **Civil Referral:** Potential cases for civil litigation are submitted through the chain of command to the Chief Inspector. The Chief Inspector will determine whether to initiate the appropriate process for referral of the case to the Division Director and ultimately to the WV DEP Office of Legal Services (OLS) in accordance with WV DEP policy. Should the Chief Inspector determine to initiate a referral to OLS, preparation of a Report of Investigation (ROI) referral package is required. After OLS has been assigned a civil case, OLS works with the Chief Inspector and EE/HW staff to develop the case and carry out the civil action. Civil referral data is documented in OLS, EE Administrative files, and Hazardous Waste files. Civil actions are formal enforcement.
- **Federal Referral:** Potential cases for Federal Referral are submitted through the chain of command to the Chief Inspector. All requests for referrals for Federal enforcement must be approved by the Chief Inspector in consultation with the Division Director. As with referrals to the OLS, preparation of a ROI is required. Federal referrals are documented in EE Administrative and Hazardous Waste files.

Any changes in violation conditions or enforcement actions (e.g., corrected violations, completion of enforcement requirements, settlement of enforcement action, etc.) are recorded in facility files and in the RCRAInfo database.

3.9 Non-direct Measurements

Non-direct measurements are data or information not obtained through a sampling process. As with any information system, the quality of the data obtained is only as good as the quality of the initial measurements and accuracy with which the information was placed into the system.

3.9.1 Data from Outside Sources

Non-direct measurements from outside sources includes historical and contemporary reports and other documents from organizations such as US EPA, FBI, ATF, other state, county or municipal government offices, chemical manufacturers and/or suppliers and environmental contractors.

Types of information used to make decisions include, but are not limited to, police reports,

historical maps, public drinking water supply location(s), analytical data related to public water supplies, and user information, construction details and locations of sanitary and storm water drain systems. Many of these may be limited by containing data that is incorrect, incomplete, biased, outdated, or which contains typographical or measurement errors.

Minimum standards for data quality submitted to the program directly by permittees, regulated entities and their contractors include data measurements that are specific, adequate, accurate, relevant, verifiable, and current.

3.9.2 Secondary Data

Secondary data, such as information available through scientific literature, the US Geological Survey, and public media sources may be used as supporting documentation in the decision-making process. When secondary data is used, a citation of the information source is provided.

Secondary information will be evaluated to ensure it is of sufficient quality for the intended use. Secondary data must come from a reliable source, be verifiable, and be as current as possible. Individuals leading a project or preparing a document will have responsibility for defining acceptance criteria for secondary data and any limitations to its use, with guidance from their Supervisor. Secondary data with significant limitations will be documented as such in any document in which it is cited as an information source, so the interpretation of the data remains objective, and the significance of the data is not over-emphasized.

WV DEP adheres to the State of WV Office of Technology Policy: Social Media Access and Use (WVOT-PO1017) to ensure “responsible use of social media to conduct work-related research and evaluations of people, places, or other organizations”, as well as “security measures to protect individuals, sensitive information, and State systems”.

3.9.3 Data Models

The Hazardous Waste Program does not utilize internal data modeling programs currently; however, does accept submission of groundwater modeling data and conceptual site models for the assessment of compliance, delineation of contaminant plumes and accepting/rejecting remediation plans. Such data must use a contemporary modeling program accepted by the scientific community.

3.10 Data Management

3.10.1 Program Data Management Policies

Currently, the Hazardous Waste Program relies on SOPs and written policies to guide staff on procedures for checking accuracy and completeness of reports and forms, procedures on how errors in calculations or data entry will be minimized or corrected and type of computer software that will be used in data management. The Program Support Branch and the EE/Administrative Enforcement Program have their own forms and SOPs for collection of data, generation of reports, penalty, and fee calculations, etc.

Laboratory analyses are received in the form of a report prepared by the laboratory. The laboratory report includes QA/QC data and a copy of the Chain of Custody.

Requirements for data management may also be described in the QA section of project-specific documents.

3.10.2 Program Defined Data Management Requirements

WV DEP developed written data management policies to ensure a consistent approach to handling and storage of data from generation in the field to final use or storage. EE/HW staff observe these policies with respect to data management. The Program Support Branch utilizes grant workplans,and RCRAInfo Quality Assurance Procedures (Appendix C) for entering data into the RCRAInfo database.

3.10.3 Data Retention

The Hazardous Waste Program currently retains paper and electronic files in accordance with the applicable records retention and disposal schedule (Appendix F).

Copies of all field files are maintained either in paper or electronic form at field offices across the state. Retention of paper field files is at the Inspector's discretion when electronic copies are also maintained.

3.10.4 Data Management Procedures

Data collected during inspection activities is reviewed by the Inspector after the inspection. Relevant data is included in the report, along with selected photographs. According to EE policy, reports must be completed within ten (10) working days of completion of a field event, or within seven (7) working days of receipt of all relevant data (such as sample analysis) pertaining to the event. Once the necessary information is incorporated into a report, field notes may be discarded or stored in the field file at the Inspector's discretion. All reports and any supporting documents are submitted electronically to Specialists and the Inspector Supervisor for evaluation of accuracy, completeness, and consistency. The original report is mailed to the facility representative in accordance with the requirements of WVSC §22-18-13(b). Approved reports with Notices of Violation are sent to the facility representative via certified mail. A copy of the inspection report is forwarded to the Program Support Branch staff for entry of inspection related data into the RCRAInfo database.

A copy of the report and any supporting documentation is kept filed in AX.. Reports are filed in accordance with an SOP. Reports are available to the public in accordance with the Freedom of Information Act (FOIA)provisions of WVSC §29B-1-1 et seq. The Inspector retains an electronic copy of all photographs and video taken during an inspection, as well as any electronically submitted information, and a copy of the approved report.

3.10.5 Data Entry into the Database

RCRAInfo is the current Federal database used by the Hazardous Waste Program that allows tracking of information about the regulated universe of Hazardous Waste generators. Inspectors,

Specialists and Supervisors complete RCRAInfo forms that are then submitted to Program Support Branch staff for entry into the RCRAInfo system. While the RCRAInfo database is maintained by US EPA, Hazardous Waste Program personnel use the database to track the WV universe of hazardous waste generators and other RCRA-regulated facilities for timely inspection and enforcement activities. Additional data entered into RCRAInfo by the Program Support Branch staff includes financial certification, fee payment and facility status certification information. Data entry follows US EPA established procedures.

The Program Support staff check data for precision, accuracy, representativeness, completeness, and comparability prior to entering it into RCRAInfo. At the time of discovery, the management staff will discuss any discrepancies in quality data collection and reporting with the staff.

4.0 ASSESSMENT AND OVERSIGHT

4.1 Performance and Systems Audits

Assessments, audits, and evaluations are conducted to ensure that field and other data management activities will provide data that is reflective of the conditions on RCRA-regulated inspection sites. Audits may be used to ensure that activities will provide data reflective of the site and its conditions. Performance audits evaluate the accuracy of a total measurement system or its component(s). System audits evaluate the principal components of a measurement system to determine proper selection and use. Internal and external performance and systems audits may be undertaken to evaluate the capability and performance of the total measurement system during data collection and management activities. Performance, system, and field audits are completed on an "as needed" basis as determined by management and supervisory staff.

4.2 DEP Field Audits

Field audits can be conducted by Inspectors, Inspector Specialists, or the Inspector Supervisor. The two types of field audits conducted by Hazardous Waste personnel include the following:

- **Specialist/Supervisor Field Audit:** Periodically, the Specialist(s) and/or Supervisor may audit an Inspector or a team during inspection, investigation, or emergency response activity. During these audits, field inspection and data collection methods used for compliance with the QA/QC requirements of the agency are evaluated.
- **Peer Field Audit:** Inspectors are highly trained in inspection and data collection activities. Inspectors typically work in a team during complex inspection, investigation, or emergency response activity. During and after these field activities, Inspectors may review and discuss job performance and assigned tasks in a way that maintains consistency.

4.3 Employee Performance Audits

Specific Hazardous Waste Program employee responsibilities are outlined and evaluated in an annual Employee Performance Appraisal midway and at the end of each calendar year. Personnel are critiqued by their immediate Supervisor on performance of job duties and adherence to QA/QC procedures. Employees are monitored for their collection, handling,

reporting and final use of data generated from their activities, as well as training. Individuals are evaluated for their part in maintaining the RCRAInfo database and addressing "Timely and Appropriate" enforcement. The audit allows supervising staff to identify duties where the employee "Exceeds Expectations", "Meets Expectations" or "Needs Improvement".

4.4 US EPA Audits

4.4.1 US EPA Field Audits

Each year, US EPA Region III Inspectors perform oversight inspections at a predetermined number of Hazardous Waste facilities in West Virginia. WVDEP Hazardous Waste personnel may accompany US EPA during these inspections. The Hazardous Waste facility file is made available to US EPA for review in advance. These US EPA inspections, including US EPA file review of previous WV DEP inspections, are done to ensure consistent regulation and enforcement of federal Hazardous Waste regulations. EE/HW is provided with copies of the EPA inspection reports generated from field audits.

4.4.2 US EPA Office Performance Audits

On a monthly basis, EPA Region III personnel conduct a conference with the Assistant Chief Inspector to discuss active RCRA cases in West Virginia that are led by the EPA. The Assistant Chief Inspector also participates in a monthly roundtable conference call with the Region III states and the US EPA to discuss general/common issues.

Mid-Year and End-of-Year reports are a Hazardous Waste grant requirement and must be submitted to US EPA Region III no later than 30 days after mid-year (March 31st) and at the end (September 30th) of each Federal fiscal year. The Hazardous Waste Program reports on a variety of parameters as delineated in our Hazardous Waste Grant Work Plan. Internally, EE/HW reviews this data, comparing the data to data found in RCRAInfo and to the previous report to ensure the precision, accuracy, representativeness, completeness, and comparability of the data being reported to US EPA.

Mid-way and at the end of each fiscal year, US EPA Region III RCRA Programs Branch (RPB) personnel conduct an end-of-year review of the Hazardous Waste Program with EE/HW personnel. The review compares HW Grant Work Plan commitments and goals with actual accomplishments. Findings from the end-of-year review of all DWWM RCRA Programs are compiled by RPB and reported in a summary letter from the Land, Chemicals, and Redevelopment (LCRD) Director to the DWWM Director 30 days after the meeting date.

Once every five years, EPA Region III personnel conduct the State Review Framework (SRF) audit of the Compliance and Enforcement Program. During the SRF, a randomly selected group of facility files are evaluated. The SRF allows EPA to identify recommendations for improvement to ensure fair and consistent enforcement and compliance of hazardous waste requirements across the states. Information related to the SRF Audit Program may be accessed at https://www.epa.gov/compliance/state-review-framework.

4.5 State Reports and Audits

EE/HW provides an annual report to the DWWM Director concerning Hazardous Waste Program activities conducted in the previous State Fiscal Year (July 1 – June 30). Information includes, but is not limited, to the following:

- Receipts and Expenditures (total fines, penalties, and fees)
- Number of initial CEIs, Follow-Ups and Focused Compliance Inspections
- Number of Groundwater Monitoring and/or Operation & Maintenance Inspections
- Emergency Response actions and Complaint Investigations
- Number of NOVs and Administrative Orders issued

The report provided to the Director is used in preparation of WV DEP's annual report to the WV Legislature's Joint Committee on Government and Finance on or before December 31 of each year as required by §22-18-22. The Hazardous Waste Program, partially or in its entirety, is subject to audits at the Legislature's will.

4.6 Reports to Management

Reports to management are made on an as needed basis. Reports may be made verbally at staff meetings or in writing to the Assistant Chief Inspector. Any major concerns are immediately reported to the Assistant Chief Inspector, and necessary actions are taken as required. Any changes in the QAPrP, if needed, will be developed by the Assistant Chief Inspector in cooperation with the EE/HW staff and will be communicated to all applicable parties as soon as possible.

4.7 Corrective Action

Inconsistencies between appropriate field inspection, sampling and data collection methods and approved QA/QC requirements found during a field audit are discussed and corrected in the field or during subsequent meetings between the Supervisor and Inspectors. Inconsistencies between appropriate field inspection, sampling and data collection methods and approved QA/QC requirements found during a peer field audit are discussed and corrected in the field or during subsequent meetings between Inspectors.

Following the annual Employee Performance Audit, Inspectors who have received "Needs Improvement" ratings discuss performance development needs with the Supervisor. When needed, additional training or retraining for the employee may be scheduled to focus on the improvement of skills.

4.8 Dispute Resolution

In accordance with Chapter 2 of the QMP, when a dispute is realized, resolution will be sought at the lowest management level first. All parties involved will make every effort to resolve disputes through discussion and negotiation. If agreement cannot be reached at this level, the discussion will be elevated upward through the chain of command. Some disputes may be referred to the Quality Assurance Manager for review and decision. If agreement is not reached at the QAT level, then the issue will be resolved by the Division Director and the Executive Staff. At all

levels of dispute resolution, the Division Director and program staff will be kept advised of the progress of the dispute resolution. If a dispute cannot be resolved at the Executive level DEP can contract with outside mediators to provide assistance and help the Agency overcome the dispute and reach an agreement.

5.0 DATA VALIDATION AND USABILITY

5.1 Data Review

Data review is an internal evaluation of data to ensure that it has been recorded, transmitted and processed correctly. The review includes checking for data entry, transcription, calculation, reduction and translation errors. Inspectors, Specialists, Supervisor, administrative staff, and the Assistant Chief Inspector are all involved in the data review process at various stages.

5.2 Data Validation and Usability

Data validation is the process of evaluating the completeness, correctness, and conformity of a specific data set against a method, procedure, or contractual requirement. The goal of data validation is to confirm and document that the reported results reflect actual conditions. The WV Certified Laboratories that are used have approved, established validation procedures. Program staff use PARCCS parameters as described in Section 2.3. When deficiencies in the data are identified, then those deficiencies should be documented for the data user's review and, where possible, resolved by corrective action.

To expedite actions, preliminary decisions using non-validated data may be used in certain circumstances, such as during emergency situations. Preliminary decisions based on non-validated data should be re-visited as the situation progresses, since continuing in the absence of validated data represents a "calculated risk".

Documents related to Hazardous Waste Program activities are reviewed by numerous persons as the information is processed for entry into the database or the hard copy files. Reviews are made for technical accuracy, representativeness, completeness of information, and comparability with similar previous documents or actions. Every effort is made to correct technical inaccuracies, typographical or grammatical errors, discrepancies, or incomplete data problems found during the review process prior to final issuance of any documents.

5.3 Reconciliation with Data Quality Indicators

All data generated will be assessed for PARCCS, as appropriate for the type of data that has been collected. Generally, data not meeting the established acceptance criteria will not be used or will be cause for recollection of data. However, in some cases data that does not meet acceptance criteria may be usable within specified limitations, if appropriate, and if the limitation on data usability is clearly defined. Acceptance criteria for EE/HW will be the requirements set forth in the State and Federal regulations.

6.0 REFERENCES

The following reference materials were consulted in compiling this QAPP:

EPA Region 9 Guidance For Quality Assurance Program Plans, US EPA, March 2012

Guidance on Systematic Planning Using the Data Quality Objectives Process, EPA QA/G-4, US EPA, February 2006

Guidance for Quality Assurance Project Plans, EPA QA/G-5, US EPA, December 2002

EPA Requirements for Quality Assurance Project Plans QA/R-5, US EPA, March 2001

Guidance on Systematic Planning Using the Data Quality Objectives Process, QA/G-4, US EPA, February 2006

Quality Management Plan, WV DEP, May 2021 (Appendix E)

WV State Code Chapter 22, Article 18 (WVSC §22-18): The Hazardous Waste Management Act

Code of Federal Regulations 40 CFR 260 through 265 and 266 through 279: The Hazardous Waste Management System.

State of WV Office of Technology Policy: Social Media Access And Use - Policy No.: WVOT-PO1017

Code of State Rules Title 33 Series 20 (33 CSR 20): The Hazardous Waste Management Rule

33 CSR 21: Commercial Hazardous Waste Management Facility Siting Fees

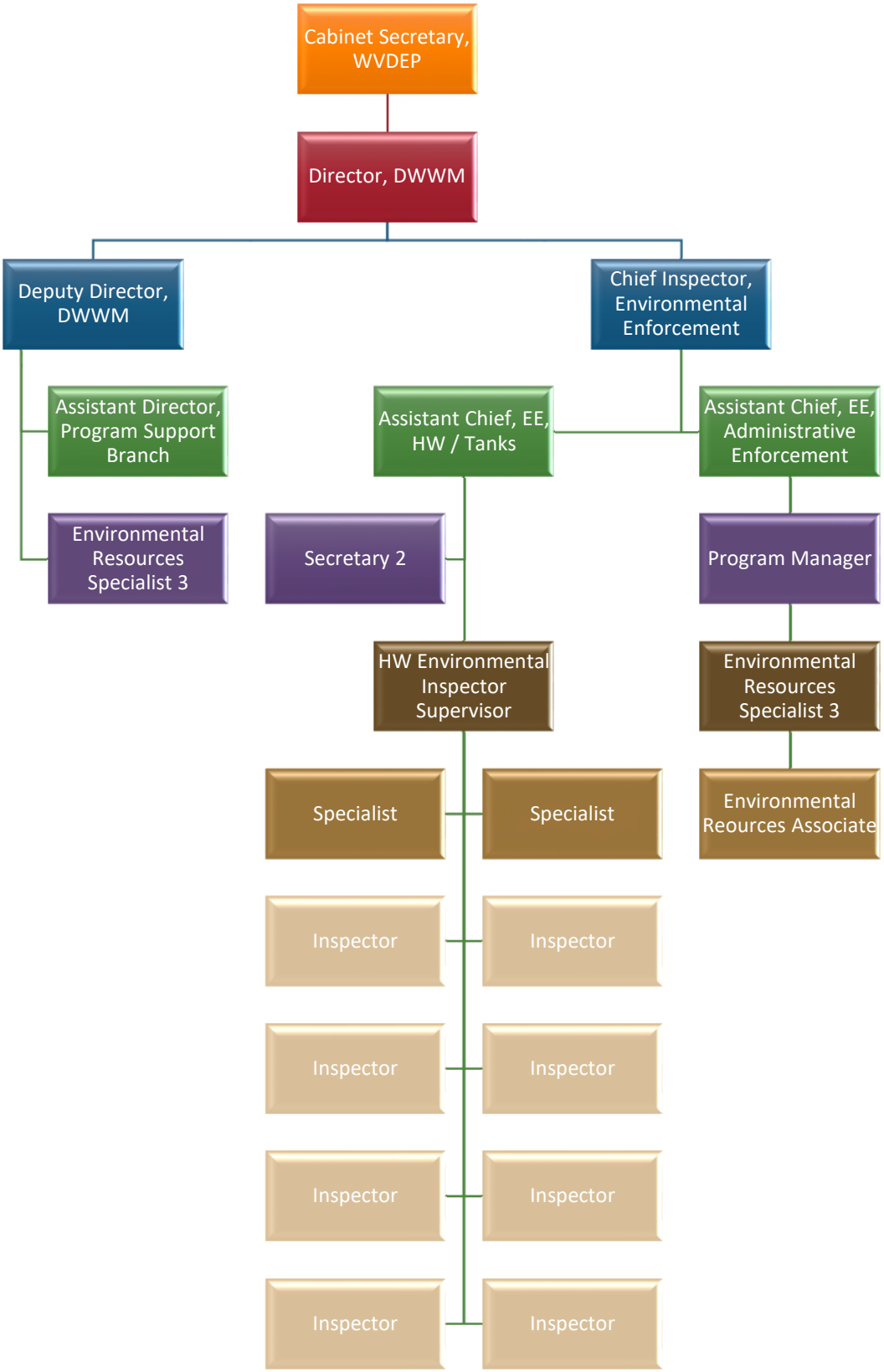
33 CSR 22: Assessment of Civil Administrative Penalties

33 CSR 24: Hazardous Waste Management Fee

33 CSR 26: Hazardous Waste Emergency Response Fund Procedural Rule Concerning Fee Assessment

33 CSR 27: Hazardous Waste Administrative Proceedings and Civil Penalty Assessment

Figure 1 – Organizational Chart


Cabinet Secretary, WVDEP
Director, DWWM
Deputy Director, DWWM
Chief Inspector, Environmental Enforcement
Assistant Director, Program Support Branch
Assistant Chief, EE, HW / Tanks
Assistant Chief, EE, Administrative Enforcement
Environmental Resources Specialist 3
Secretary 2
Program Manager
HW Environmental Inspector Supervisor
Environmental Resources Specialist 3
Specialist
Specialist
Environmental Reources Associate
Inspector
Inspector
Inspector
Inspector
Inspector
Inspector
Inspector
Inspector

APPENDIX A

Example Sample Receipt

and

Chain of Custody Forms

WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION

Receipt for Samples

Sampler's Signature	Name of Facility	
	Facility Location	Facility Address
Split Samples Requested Yes No		

Sample Nos.	Date	Time	Comp.	Grab	Split Sample	Station Description	No. of Con-tainers	Remarks

Agency Representative (Signature)	Telephone	Facility Representative (Signature)	Telephone
Title	Date Time	Title	Date Time

05/09 White - Facility Pink - Sampler's Copy

WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION

Chain of Custody Record

Send Results To: _____

_____

Bill To: _____

_____

Project No. | Project Name or Code _____

Samplers' (Signature)

Sample No.	Date	Time	Comp	Grab	Station Location	No. Of Con-tainers							Remarks

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)

White - Shipment Canary - Laboratory Pink - Sampler's Copy

REV. 05/09

APPENDIX B

Example Report Forms

INSPECTION FACT SHEET

COMPANY NAME: ABC Company, Inc.

EPA ID#: WVD000000123

MAILING ADDRESS: 123 Alphabet Lane
Charleston, WV 25304

COUNTY: Kanawha

LOCATION: Same

FACILITY TYPE: LQG

FACILITY CONTACT: Mr. John Doe, Plant Manager

PHONE: 304-555-9999

PERMITTED FACILITY: No

EMAIL: jdoepm@alphabet.com

HANDLING CODES: S01, S02

PURPOSE: Compliance Evaluation Inspection (CEI)

GPS COORDINATES: 38.1234° -81.5678°

APPLICABLE REGULATIONS: Title 40 Code of Federal Regulation (CFR) Parts 260-279
as adopted and incorporated by reference in
WV Hazardous Waste Management Act (Chapter 22-18), and the
WV Hazardous Waste Management Rule (33CSR20).

LIST OF WASTE TYPES: D001/F003 - Spent cleaning solvents.
D002/D007 - Spent acid solution.

ENFORCEMENT:

- ☐ NOT APPLICABLE
- ☒ NO VIOLATIONS
- ☐ AREA OF CONCERN
- ☐ DETERMINATION PENDING
- ☐ VIOLATION
- ☐ REFERRED FOR ENFORCEMENT

DWWM-EE/Hazardous Waste
601 57th Street, SE
Charleston, WV 25304
Phone: 304-926-0499

Jim Justice, Governor
Austin Caperton, Cabinet Secretary
www.dep.wv.gov

COMPLIANCE EVALUATION INSPECTION

RE: ABC Company, Inc.

EPA ID: WVD000000123

Date/Time Inspected:
January 2, 2017 at 9:00am

Facility Representative(s):
Mr. John Doe, Plant Manager
Ms. Jane Smith, HS&E Coordinator

Inspected By:
Penny Harris, WVDEP-EE/HW
John Killian, WVDEP-EE/HW

Prepared By:
Penny Harris, Environmental Inspector Specialist

On arrival, we met with Mr. Doe , presented credentials and explained the purpose of the inspection. Ms. Smith accompanied us during this inspection.

Facility Description:

[Narrative facility or activity description.]

Hazardous Waste Area 1:

[Narrative unit, process area or activity description.]

Hazardous Waste Area 2:

[Narrative unit, process area or activity description.]

Manifests:

[Documentation of manifests reviewed, any deficiencies, etc, or delete section of not applicable.]

Contingency Plan:

[Documentation of any activations of contingency plan, most recent update, any deficiencies, etc, or delete section of not applicable.]

Preparedness & Prevention:

[Description of preparedness & prevention measures, safety equipment inspections, etc. reviewed, etc, or delete section of not applicable.]

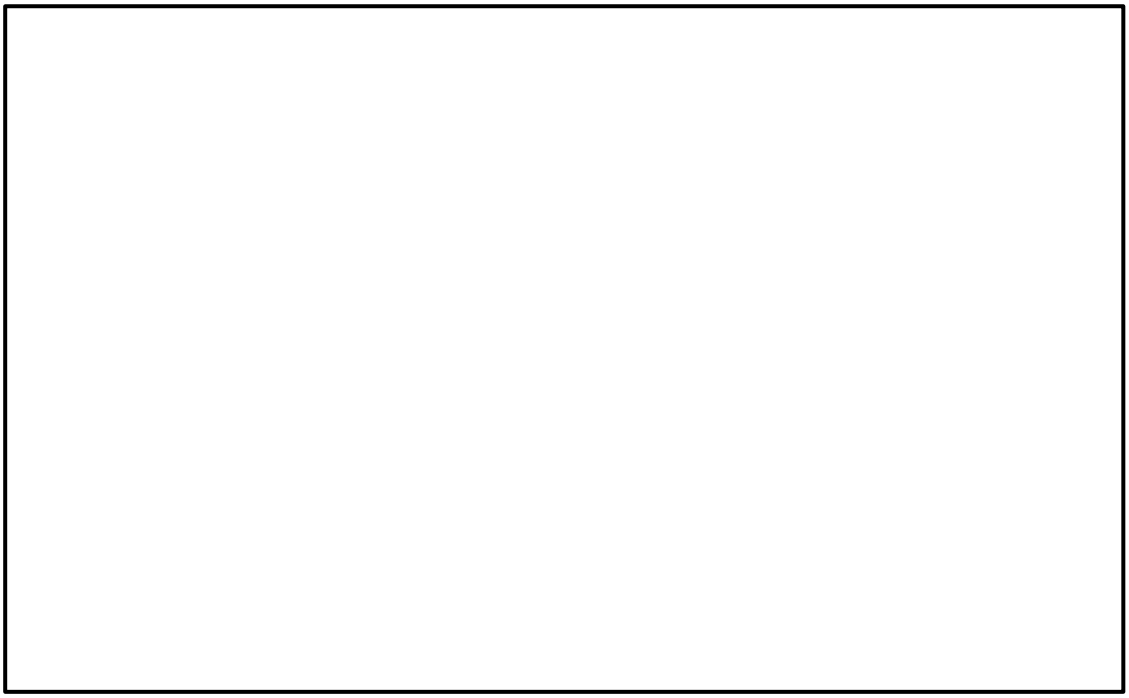
Employee Training:

[Description of training, training documents reviewed, etc, or delete section of not applicable.]

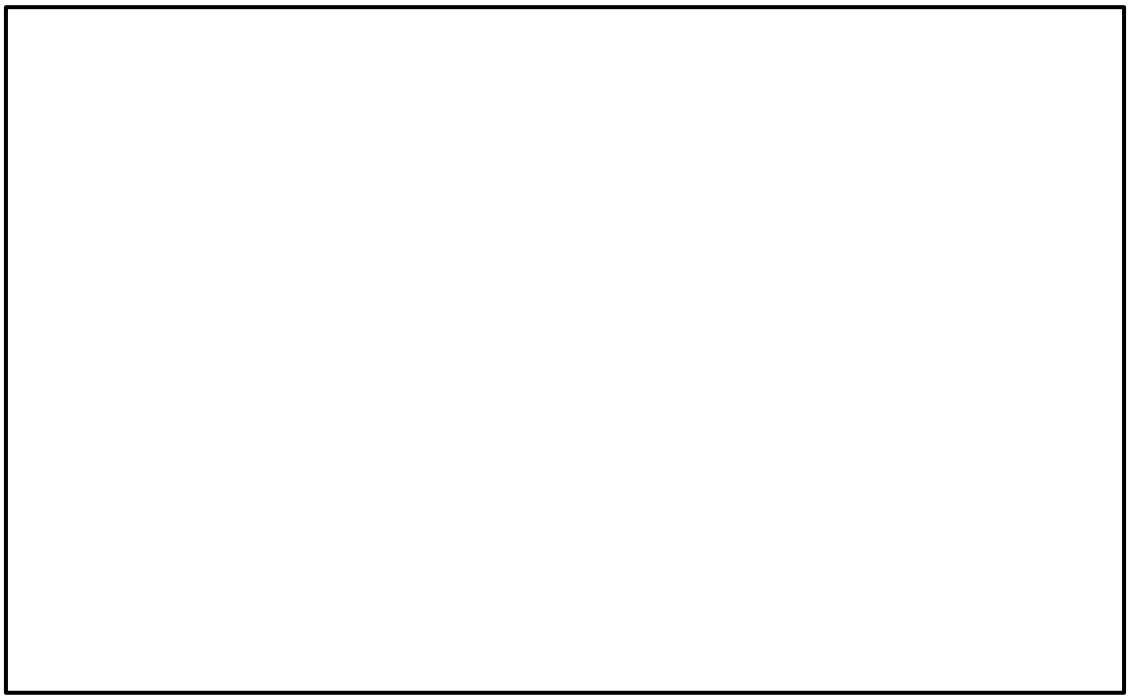
We concluded the inspection, discussed inspection findings with the representatives. We thanked the representatives for their time and cooperation, then departed.

Compliance Evaluation:

No violations of the applicable regulations were noted during this inspection. No Areas of Concern were noted during this inspection.



January 2, 2017 – Photo 1 of 2: [Description of above photo]



January 2, 2017 – Photo 2 of 2: [Description of above photo]

APPENDIX C

Standard Operating Procedures

Environmental Enforcement / Hazardous Waste

Standard Operating Procedure

for

Compliance Evaluation Inspections

Follow-Up Inspections

and

Compliance Schedule Evaluations

3/14/17

By

Penny L. Harris
Environmental Inspector Specialist

APPROVED:

Name

4-6-17
Date

Agency Document ID Number

DWWM-EE-3-0

TABLE OF CONTENTS

Document Revision

The following table contains the revision history of this Standard Operating Procedure (SOP):

Version	Date	Author	Modification Made
1	Click here to enter a date.		
0	3/14/17	PLH	N/A - Original

Compliance Evaluation Inspection SOP

I. SCOPE AND APPLICABILITY

This SOP is intended for the use of inspection personnel in conducting Compliance Evaluation Inspections (CEIs), Focused Compliance Inspections (FCIs), Follow Up Inspections (FUIs) and Compliance Schedule Evaluations (CSEs) of RCRA-regulated facilities under the authority of WVSC §22-18, the WV Hazardous Waste Management Act.

The scope of this SOP is limited to standard RCRA inspections. Refer to individual SOPs for Groundwater Monitoring Evaluations and Emergency Responses.

The overall goal of this SOP is to provide useful procedural and technical information to determine a generator's compliance with RCRA standards. Specific objectives are as follows:

- To provide an overview of the basic elements of RCRA Compliance Evaluation Inspections (CEIs)
- To clearly identify the scope of the WV DEP Inspector's authorities and responsibilities
- To standardize procedures for conducting RCRA CEIs in West Virginia
- To provide general understandable inspection information that may be used in conjunction with more detailed guidance on inspecting particular types of hazardous waste facilities
- To establish a starting point for training new inspection staff in RCRA inspection procedures
- To make locating necessary statutory and regulatory information easier for all Inspectors.

This SOP is a reference guide and supplement to the training received by Inspectors. It is not intended to replace training nor does it address all situations that can arise during an inspection. This SOP is intended as general guidance on procedures to follow; Inspectors should consult with their Supervisor when they are unclear on how to proceed. All topics outlined in this SOP will not be applicable to every field inspection conducted. Likewise, there may potentially be specific actions or activities not fully described herein that will be appropriate during a field inspection.

II. SUMMARY OF METHOD

This SOP addresses basic aspects of a Compliance Evaluation Inspection including preparing for an inspection, introduction and presentation of credentials to representatives, inspection of permitted areas and operating areas, collection of photographs, samples and documents, pollution prevention and waste minimization opportunities, and closing debriefing. Less direct aspects such as program background, enforcement options and priorities, health and safety issues, and work ethics will be briefly addressed.

III. DEFINITIONS

Abbreviations and terms applicable to a CEI may be found in 33 CSR 20 Section 1.5.a; 40 CFR Part 260.10, Parts 261.2 and 261.3, Part 268.2, Part 270.2, Part 271.2, Part 273.9, Part 278.1 and Part 279.1; 49 CFR Part 173.2; McCoy & Associates book RCRA Unraveled, and the RCRA

Orientation Manual 2014 Edition. The Inspector should also be familiar with the following terms:

Annual Fee – The Hazardous Waste Management Fee due October 1 of each calendar year from all Hazardous Waste Facilities in West Virginia, and is based on Generator Universe.

Annual Certification – A signed certification form facilities must submit in conjunction with the Hazardous Waste Management Fee. Regulated facilities are required to complete and submit the 33 CSR 24 Appendix I form by October 1 of each calendar year.

CAO –A Federal Corrective Action Order issued under RCRA Section 3008(h).

CAV – Compliance Assistance Visit. An on-site visit by WV DEP personnel in which regulatory guidance is provided without citing observed minor violations. CAVs only apply to facilities never-before inspected or those initiating a new process not previously inspected at the site. A CAV ends upon observation of major regulatory violations or denial of entry.

CBI – Confidential Business Information. Facilities must petition the Director for designations of confidentiality.

CEI – Compliance Evaluation Inspection. Evaluation of a generator's compliance with Federal and State Hazardous Waste Management Statutes and Regulations.

CERCLA – The Federal Comprehensive Environmental Response, Compensation and Liability Act established in 1979. Also known as "Superfund", this act authorizes and establishes funding for the Federal government to respond to releases or threatened releases of hazardous substances that may endanger human health and the environment.

CFR – Code of Federal Regulations.

Contingency Plan – A written action plan to be followed in the event of fire, explosion or release of hazardous waste or hazardous waste constituents.

CSR – Code of State Regulations

Denial of Entry – Refusal of a person or an authorized representative of a business to allow the Inspector(s) access to the premises, documents, designated areas, samples or photographs in order to evaluate regulatory compliance. Right of entry is established in WVSC §22-18-13.

Disposal Facility – Any site where hazardous waste is intentionally placed and where it will remain after the TSDF ceases operation.

DSW – Definition of Solid Waste. More than a simple definition, the DSW defines how certain regulations are applied to particular wastes, and which wastes are exempted.

Facility - All contiguous land, structures, etc. used for treating, storing, or disposing of hazardous waste, or for managing hazardous secondary materials prior to reclamation. A facility may consist of one or more, or any combination of, treatment, storage, or disposal units.

FCI – Focused Compliance Inspection. An on-site evaluation that addresses only a specific portion or Subpart of the regulations or programs, either a physical or a regulatory aspect, or both.

Freeboard – The vertical distance from the top of a tank or surface impoundment to the waste inside it. Term generally applies to open tanks and impoundments.

Groundwater - Water below the land surface in geological zones of saturation.

Handler – A generator, transporter or TSDF regulated under Subtitle C of RCRA. Term is generally used by US EPA to refer to various types of RCRA-regulated entities. It is a broader term than "Facility" but not as broad as the term "Site". For universal waste, the term should be preceded by the designation "Small Quantity" or "Large Quantity".

HSM - Hazardous Secondary Material. A secondary material (e.g., spent material, by-product, or sludge) that would be a hazardous waste under 40 CFR Part 261 when discarded.

HSWA – The Federal Hazardous and Solid Waste Amendment to RCRA enacted in 1984. Often pronounced "HESS-wa".

HWMA –West Virginia Hazardous Waste Management Act. Found in WVSC §22-18, it establishes primacy and authority of WV DEP in regulating hazardous waste within the state boundaries.

HWMR – The Federal Hazardous Waste Management Regulations. Found in 40 CFR Parts 260-279, these are the primary regulations established by RCRA for hazardous waste facilities.

Landfill - (Subtitle C) A permitted hazardous waste landfill. **(Subtitle D)** A permitted solid waste landfill, whose permit does not include acceptance of hazardous waste.

LDR – Land Disposal Restrictions. Specifically outlined in 40 CFR Part 268, LDRs establish treatment standards for certain hazardous wastes prior to final disposal.

Mercury-containing Equipment - A device or part of a device (including thermostats, but excluding batteries and lamps) that contains elemental mercury integral to its function.

NAICS – North American Industrial Classification Standard. A particular code delineating specific type of business from one of twenty industry sectors. NAICS replaced the SIC (Standard Industrial Classification) code in 1993 so the manufacturing sector is reorganized and re-sequenced to achieve comparability with Canada and Mexico.

NPDES – National Pollution Discharge Elimination System. The WV DEP NPDES permit program addresses water pollution by regulating point sources that discharge pollutants to waters of the State.

NRC – National Response Center. For RCRA purposes, this is the National hotline to be called in the event of a release of hazardous waste that leaves the boundary of the handler's property.

On-site - Geographically contiguous property. Can be divided by public or private right-of-way, provided the entrance and exit between the properties is at a cross-roads intersection where access is by crossing rather than going along the right of way. Non-contiguous properties owned by the same entity but connected by a non-public restricted-access right-of-way, are also considered on-site property.

OSWER – US EPA Office of Solid Waste and Emergency Response, now known as the Office of Land and Emergency Management (OLEM). The source of many guidance documents and manuals.

Outfall – Point source discharge under NPDES permit.

P2 – Pollution Prevention. Sometimes seen as P3 or PPP to represent Pollution Prevention Plan. A source-reduction oriented program to reduce generation of solid wastes and environmental pollutants. Emphasizes changes in procedures or substitution of less-hazardous raw materials.

PII – Personal Identifiable Information. No PII should be included in any report subject to FOIA.

PIO – WV DEP's Public Information Office in Kanawha City, WV.

POCA – Plan of Corrective Action. Often required by and incorporated into administrative enforcement Orders.

PPE – Personal Protective Equipment. Safety equipment that may be required to be worn during inspection activities. PPE is normally defined in Levels from D to A, with Level D being the least protective (safety glasses, hard hat, steel toe boots) and Level A being the most protective (fully-encapsulated suit with supplied air).

RCRA – The Federal Resource Conservation and Recovery Act enacted in 1976.

Site – Broader than the term "Handler". In reference to migration of contaminants, a "site" may extend beyond property boundaries.

VRP – Voluntary Remediation Program. A WVDEP program that encourages and oversees voluntary clean-up of contaminated sites and redevelopment of abandoned and under-utilized properties.

WVSC – West Virginia State Code.

IV. HEALTH & SAFETY WARNINGS

WV DEP has specific safety policies for vehicle use (Policy 30), respirator use (Policy 33) and water safety (Policy 37). The Inspector should be familiar with these policies prior to use of a vehicle, wearing a respirator or participating in activities in or near water.

Inspectors must also be familiar with the OSHA health and safety regulations to ensure compliance with the requirements applicable to the inspection process. No Inspector should participate in a CEI without first receiving a certificate that the initial 45 hour OSHA Hazardous Waste Operations & Emergency Response (HAZWOPER) training has been successfully completed. Unless under direct supervision by their Supervisor or an experienced Inspector, no Inspector should participate in the field activities portion of a CEI who has not received a certificate that the 8-hour HAZWOPER training has been successfully completed.

WV DEP DWWM EE has a medical monitoring program for field employees. Until a baseline physical is conducted, certain aspects of field work may be curtailed on a case-by-case basis per the discretion of the Supervisor. No Inspector should wear either an Air Purifying Respirator or SCBA without first passing an initial physical exam, or subsequent annual exams.

It is very important for Inspectors to:

- understand an industrial site's processes and hazardous waste management practices prior to entering the work area,
- be aware of all potential health and safety issues specific to the site, including potential presence of allergens, high frequency or ultra-high frequency sound, electromagnetic or microwave emissions and follow appropriate procedures during an inspection.
- be able to identify and apply the following principles to the site:
    - Potential exposure routes
    - Hazard assessment
    - Long-term risk
    - Levels of protection
    - Safety equipment (use and maintenance)
    - Personal protective equipment (use and maintenance)
    - Decontamination and disposal of protective clothing
    - Emergency protocol.

During an inspection, the Inspector should make health and safety decisions using sound judgment, common sense and experience. Not every representative is going to be aware of all hazards present at their place of business at any given moment. Inspectors should not take statements made by the representative concerning the safety of an activity or location at the facility at face value, but decide for themselves. If in doubt, err on the side of safety.

Failure to follow safety protocols, wear appropriate PPE, or using non-intrinsically safe equipment in a combustible atmosphere may result in personal injury or loss of life.

V. CAUTIONS

Inspectors should follow training guidelines for use of equipment and PPE. Activities that could result in equipment damage, degradation of sample, or possible invalid results include:

- failure to properly use equipment or PPE
- failure to promptly clean and inspect equipment or PPE after use
- use of incorrect monitoring or sampling equipment or PPE
- failure to properly preserve samples or observe sample holding times

VI. INTERFERENCES

Components of the inspection process that may interfere with the accuracy or completeness of the inspection include:

- failure to understand specific industrial operations or procedures
- failure to ask for specific details or documents regarding actions needing clarification
- unavailable details, documents, sample media or necessary equipment
- unavailable site personnel necessary for the inspection
- failure to listen closely to representatives or operators responses

- reliance on outdated information such as old reports, maps or analytical results
- assuming there have been no changes in operations or processes since the previous inspection
- arriving at conclusions prior to obtaining all available information
- bias against or toward, a particular business, industry or personnel
- distractions created by site activities or personnel

VII. PERSONNEL QUALIFICATIONS/RESPONSIBILITIES

In addition to the initial 45 hour OSHA HAZWOPER training and successful completion of an initial physical exam, an Inspector should complete the appropriate Tier I, Tier II and Tier III "Mandatory Initial Training" and "Program Specific Training" within the specified timeframes included in the EE/HW Field Inspector Training Curriculum. Inspector-in-Training annual pay progression is dependent upon completion of Tier I, Tier II and Tier III training outlined in that document.

After the initial 3-year Inspector-in-Training period, Inspectors are expected to complete Tier IV, V and Expert Level of training in succession.

VIII. EQUIPMENT AND SUPPLIES

The following is a list of the minimal equipment an Inspector should have when conducting an inspection: hardhat, safety glasses, work gloves, steel-toe boots, notebook, pens, permanent marker, camera, appropriate checklists.

The following materials are optional when conducting an inspection: permanent all-purpose marker, assistance handouts, blank notification forms, labels (hazardous waste, used oil, universal waste, pending analysis, etc.), pH strips, other field-test kits, small box cutter or pocket knife (unless it is a safety issue), tape measure.

The Inspector may need the following additional equipment depending on the nature of the inspection, operational processes, site hazards, etc.: fire-retardant coveralls (such as Nomex®), faceshield, more advanced levels of PPE, sampling equipment, wading boots, air monitoring equipment (such as a PID, OVA or CGI), pH meter, machete.

If sampling is pre-planned to coincide with the inspection, the appropriate equipment, preservatives and other materials listed in the applicable parts of the Data Generation and Acquisition Section of the WVDEP-DWWM HW Quality Assurance Program Plan (QAPP) should be gathered ahead of time.

IX. PROCESS

A. PREPARING FOR AN INSPECTION

1. Define the Scope of the Inspection.
    a) Focus and Objectives.
        i. What prompted the inspection?

ii. Is this a single-focus inspection (hazardous waste only) or multi-media inspection (includes NPDES, solid waste, etc.)?
iii. Identify activities or units to be inspected and highlight any specific areas needing greater attention.

b) Number and type of Inspectors.
i. Number needed to complete the task efficiently.
ii. Coordinate with other Regulatory or Enforcement personnel as needed.

c) Rules, Regulations and/or Permits.
i. Which apply directly to this inspection?
ii. Which apply indirectly to this inspection or site?
iii. Note any new Regulations or Permitting requirements that may now apply to the site, which were not previously in effect.
iv. Are applicable Permits up-to-date?

d) Processes and Operating Units
i. Review applicable RCRA Sector Notebook for the type of industry, if available.
ii. Research further any unfamiliar generation processes, chemicals or wastes, methods of accumulation, storage, treatment or disposal units.

e) Sampling. If sampling is anticipated or planned in conjunction with the inspection, refer to the Data Generation and Acquisition Section of the QAPP for exact sampling methods, preservation, handling, custody, analytical and quality control methods and procedures.

f) Accessibility.
i. If Denial of Entry in any form is anticipated, this should be discussed with the Supervisor.
ii. If physical accessibility issues to any portion of the site are anticipated, a plan for addressing them should be created prior to the inspection.

g) Health & Safety. Outline any health and safety issues likely to be encountered and what equipment or PPE will be needed.

2. File Review.

a) Where to locate files.
i. Field files in your respective office.
ii. Main file in Kanawha City and / or in Document Manager / Application Extender.
iii. The absence of a file does not indicate the facility has not had a previous inspection.
(1). Older files may have been archived; see DWWM Program Support Group Secretary
(2). File may have been checked out and not returned.
iv. RCRAInfo found at https://rcrainfo.epa.gov/.
(1). Generator universe.

(2). Previous inspection dates.
(3). Previous enforcement.
(4). Biennial Reports (if applicable).
(5). Waste Codes & Activities.
(6). Outstanding violations and un-resolved enforcement actions.

b) What to review.
   i. Most recent inspection report.
   ii. Site maps and / or aerial photos.
   iii. Process descriptions, list of operating units and hazardous waste areas.
   iv. Previously-cited violations and active Orders.
      (1). Any outstanding violations or Orders.
      (2). Any previously repeated violations you may expect to find again.
   v. Documents associated with hazardous waste management at the facility. These may include but are not limited to Waste Minimization Plan, Emergency Response Plan, Contingency Plan, and Waste analyses
   vi. Current permit and permit modifications since last inspection if applicable.

3. Review Applicable Regulations.

   a) Use only the State and Federal Regulations currently in effect at the time of the inspection.

   b) Be familiar with up-coming Rule and Regulatory changes or additions potentially applicable to site operations.

4. Copy or Print Applicable Checklists and Forms.

   a) Applicable hazardous waste checklists found in the network folder entitled *ENVIRONMENTAL ENFORCEMENT WANSHARE\Staff Access\Inspection Report Forms & Templates\Hazardous Waste Forms* include:
      i. SQG or LQG
      ii. 40 CFR Part 265 Subpart I (Containers)
      iii. 40 CFR Part 265 Subpart J (Tanks)
      iv. 40 CFR Part 265 Selected Subpart J Standards (for SQG Tanks)
      v. 40 CFR Part 265 Subpart W (Drip Pads)
      vi. Universal Waste Handlers
      vii. Used Oil Generators / Marketers
      viii. Permit-Specific Checklist
         (1). See Example Permit-Specific Checklist.pdf
         (2). Inspector created based on specific individual facility permit
      ix. EPA Commercial Chemical Product Checklist

   b) Assistance Handouts.
      i. 8700-12 Notification Form
      ii. Industry-specific guidance such as:
         (1). List of websites
         (2). List of books or online documents

(3). Sector notebooks (EPA)
(4). DEP handouts
(5). EPA handouts

iii. WV Materials Exchange pamphlet

5. Coordinate with Other Inspectors - If necessary, establish date, time and place for Inspectors to meet on the day of the inspection. If inspecting alone, add the activity to your Outlook Calendar or notify your Supervisor where you will be and when you expect to finish.

6. Identify Necessary Equipment - Locate any equipment specific to this inspection and load into vehicle(s).

7. Scheduling the Inspection with the Facility

   a) Under normal circumstances, businesses are not informed in advance of an inspection. This allows evaluation of normal operating conditions.

   b) For sites normally unattended, or where a particular individual needs to be present, contact the contractor or individual and schedule an acceptable date and time for the inspection.

B. CONDUCTING THE INSPECTION

1. Arrival at the Site.

   a) Whether entering by security gate or at front office, access to the site is generally the same.
      i. Present credentials if requested. State whom you are there to see, if known.
      ii. If you do not have the name of a specific person there, state that you need to see the environmental contact for the site.
      iii. If asked, state the purpose of your visit.
      iv. If you are asked to sign in, do so only if the log in sheet does not contain any restrictive language, or the issue is resolved before signing.

   b) Presentation of Credentials.
      i. Present your DEP identification or have it prominently displayed on your uniform or jacket.
      ii. Introduce yourself and state your position and office.
      iii. Offer your business card to the individual(s).
      iv. Explain the purpose of the inspection.

   c) On-Site Vehicle Usage.
      i. Walking is preferred since it allows you to see areas you may miss if driving or riding with someone.
      ii. Submit to vehicle safety inspection. This may be required to ensure contraband items are not brought on to plant property.
      iii. If special vehicle equipment is required, such as yellow safety light or CB radio, the facility may be able to provide you with one to use while you are on their site.

iv. Obey company driving rules including speed limits, roadways and designated parking areas.

d) Equipment and Camera Policies.

i. Follow site safety policies for basic safety gear.

ii. Areas with potentially combustible atmospheres may be restricted to prevent the use of equipment that is not intrinsically safe.

iii. Many companies have "no camera", "no cellphone", or "no recording devices" policies.

(1). Advise you have a camera or cellphone for inspection purposes only.

(2). Use of a camera during inspections is authorized by WVSC §22-18-13(d). Generalized prohibition of camera use without safety justification may be considered denial of entry.

(3). If use of a cellphone camera is prohibited for safety reasons, be prepared to use a stand-alone camera.

(4). Facilities will generally allow photographs if you respect proprietary processes. If such areas area an issue, you may:

1. Offer to take close-up photos of specific violations or areas of concern, not overview photos of the process.
2. Offer to let the representative see the pre-photo image area before taking the photo.
3. Show the representative the photo on your camera screen after you have taken it.

(5). Some companies request a copy of your photos prior to your leaving. Cellphone cameras generally allow you to send the photos to the representative via email or text message. This eliminates the need for anyone to access your cellphone or camera card.

iv. Even if there is no cell phone use policy at a company, put your cell phone on silent mode or do-not-disturb mode as a courtesy.

2. Physical Inspection.

a) Escorts.

i. A representative familiar with the facility who can accompany you during the inspection is preferred.

(1). This person can direct you in proper site safety and emergency procedures necessary, and can generally answer questions about waste handling in any given area.

(2). Do not allow the representative to "steer" the inspection away from a particular area.

ii. Occasionally a qualified individual is not available to escort an Inspector, or declines to do so. In that event, with the facility's consent or direction to do so, you may inspect a small site un-accompanied if safety is not an issue, or elect to conduct the inspection another day when someone will be available.

b) The Walkthrough.

i. May occur before or after reviewing paperwork.
ii. Use appropriate checklists as reminders of what to look for.
iii. At a minimum, you should inspect the following:
    (1). Generation points for hazardous waste.
    (2). Accumulation areas for hazardous waste, used oil and universal waste.
    (3). Storage, treatment or disposal areas for hazardous waste, used oil and universal waste.
    (4). Evidence of an active waste minimization program
iv. Identify the following at generating sites:
    (1). Individual hazardous wastes (waste codes and description), used oil and universal wastes.
    (2). Volume of each hazardous waste generated in a calendar month.
    (3). Where each of those wastes is generated, accumulated, stored, treated or disposed.
    (4). The management and route of each regulated waste stream from the generation point through the accumulation or permitted storage to its final disposal. This may include containers, tanks, piping and vehicles.
    (5). Waste minimization measures currently being employed.
    (6). Waste minimization measures the facility may want to explore.
v. In addition to the above items, identify the following for sites treating, storing or disposing of hazardous waste, used oil or universal waste:
    (1). Does the facility receive shipments of waste from off-site for treatment, storage or disposal?.
    (2). Length of storage time for each waste.
    (3). Frequency of treatment or disposal activity.
    (4). Exact location of treatment, storage or disposal activity.
    (5). Description of the treatment, storage or disposal process.
vi. Optional areas to inspect include, but are not limited to:
    (1). Production areas or temporary activities that may be generating unidentified wastes
    (2). Outside bulk storage or container storage areas where groundwater protection regulations may apply
    (3). SWMU's, CAMU's or remediation activities not in the VRP.
    (4). Areas the facility has questions or concerns about.

3. Document Inspection. Where applicable, the following should be inspected while on-site:

    a) Manifests

    b) Land Disposal Restriction Forms

    c) Waste Analysis Plans (if treating waste to meet LDR limits)

    d) Biennial & Waste Minimization Reports

    e) Emergency Equipment List

f) Contingency Plan

g) Training Records

h) Inspection Records including but not limited to:
   i. HW Storage Tank inspections
   ii. Container Storage Area inspections
   iii. Drip Pad inspections

i) Sample Results related to waste determinations or remedial activities.

j) Other Documents related to waste generation and management

4. Collection of Photographs, Document Copies and Samples.

   a) Make sure you have taken all necessary photographs and recorded the area and subject of each photo.

   b) It is preferable to obtain copies of documents while on-site, but it is also acceptable to request copies be emailed or sent by U. S. mail (certified preferred) within a reasonable timeframe if the facility can not readily copy or produce the documents.

   c) Ensure you have sampled any materials in question, or make arrangements to return to the site to collect samples. Ensure all sample receipts have been signed, and samples properly preserved following procedures outlined in the Data Generation and Acquisition Section of the QAPP.

5. Documenting Violations and Areas of Concern.

   a) Physical violations and areas of concern should be photographed if there is any chance of dispute.

   b) If the violation can be quickly remedied, such as closing, marking or labeling a drum, offer the appropriate individuals the opportunity to do so while you are present, and document the return to compliance.

   c) For paperwork violations, obtain a photocopy of the document if necessary.

6. Exit Interview.

   a) Hold a short closing meeting with appropriate individuals to discuss preliminary inspection findings, answer questions, and provide information for follow up procedures, if appropriate.
      i. Review definite, obvious, documented violations and review areas of concern.
      ii. Do not speculate on inconclusive violations, but advise representatives you will address them in your report after you have consulted the regulations.
      iii. Answer questions as clearly as possible without guessing. If you have access to additional information you may offer to forward it to them.
      iv. If a NOV will be issued, you may say so, explaining that it is a notice. Do not discuss or speculate on any further enforcement proceedings.

   b) Thank the representative(s) for their time and cooperation.

C. DOCUMENTING THE INSPECTION

1. Collect and review data such as sample results and documents sent from the facility after the inspection.
2. Your completed report should include the following:
    a) RCRAInfo forms
    b) Inspection Fact Sheet (except for CESQGs and non-handlers)
    c) Report Form, including photos where applicable
    d) Notice of Violation
    e) Topographical Map and/or Aerial Photo (optional)
    f) Attachments such as sample analysis, Safety Data Sheets, photo logs, etc.
3. No written process description is necessary if included in previous reports and no change in process has occurred.
4. Checklists may be included in the report at the discretion of the Inspector.
5. What to Cover. Specific areas should be addressed depending on what type of report is being written. The following are some examples.
    a) For Compliance Evaluation Inspections, address appropriate categories based on requirements for the facility's Generator Universe (accumulation times, labeling, training, Contingency Plan, etc.).
    b) For Follow-Up Inspections related to previously issued NOVs, document whether the facility has provided sufficient evidence of corrective action and abatement.
    c) For Compliance Schedule Evaluations, document the Order number.
6. Include a short discussion of Pollution Prevention and Waste Minimization at the site, what efforts are being made or if no such program exists at the location.
7. Clearly identify all violations and include the correct regulatory citation. Do not paraphrase regulatory citations.
8. Clearly identify all areas of concern and explain why or how they could lead to future violations.
9. Contact your Supervisor or Specialist for assistance if needed.
10. Within seven (7) working days of receipt of all pending data, complete your inspection report and all appropriate forms, and submit to your Supervisor.
11. NOV Tracking.
    a) It is the responsibility of the Inspector to track NOV response due dates, follow-up, and make inquiries within reasonable time frames.
    b) If the facility promptly responds to the NOV and provides documentation of compliance, the Inspector must complete and submit appropriate Return To

Compliance (RTC) documents to the Supervisor in a timely manner. Ensure copies of all correspondence are forwarded to your Supervisor. Copies of all correspondence must be placed in the main RCRA file at WVDEP HQ.

c) A Follow-Up Inspection is recommended within 60 days of the due date when the company fails to respond to the NOV.

X. DATA AND RECORDS MANAGEMENT

A. LOCATION AND ACCESS

1. Facility files are maintained at the WVDEP Kanawha City Office, 601 57th Street SE, Charleston, WV in the Hazardous Waste file room. Direct access is limited to WVDEP personnel, and is not made available to the public without a FOIA request. Copies of all relevant correspondence with a facility must be forwarded to Charleston and placed in this file.

2. A working "field file" is often kept at the field office in the region where the site is located. Files are typically in possession of the Hazardous Waste Inspectors and are not made available to the public without a FOIA request.

3. In lieu of a hard-copy field file, Inspectors may maintain electronic files. These are also not made available to the public without a FOIA request.

4. While not all photos taken during an inspection may be included in the report, all photographs should be kept in the electronic field file. These are to be stored indefinitely in the Inspector's office.

    a) All photos shall be copied from the camera / phone to an external hard drive managed by each Inspector. This shall include all photographs taken during the course of the inspection, not limited to just those used in the written inspection report. Blurred, mis-shot and other undesirable photos must not be deleted; successive photo numbering must be maintained for each camera used during an inspection.

    b) The hard drive shall be organized with folders for each facility, subfolders named with the date that the photographs were taken, and subfolders for re-named, re-numbered or otherwise altered photos.

5. Where the report or investigation is not yet complete, the entire working file should be backed up using a flash-drive or external hard drive.

B. RETENTION

Hard copies of inspection reports and other facility information are typically maintained at WVDEP Kanawha City Office for a period of ten (10) years, then archived for indefinite storage.

XI. RESOURCES

A. WV STATE CODE - Chapter 22, Article 18: The Hazardous Waste Management Act

B. **US CODE OF FEDERAL REGULATIONS (CFR)** – 40 CFR PARTS 260-279

C. **WV CODE OF STATE RULES** - Title 33 Series 20: The Hazardous Waste Management Rule

D. **RCRAinfo DATABASE** accessed at: https://rcrainfo.epa.gov/

E. **REPORT TEMPLATES** are located on the network drive at: environmental enforcement wanshare\staff access\inspection report forms & templates\hazardous waste forms *ENVIRONMENTAL ENFORCEMENT WANSHARE\Staff Access\Inspection Report Forms & Templates\Hazardous Waste Forms*

XII. FREQUENCY

A. **INSPECTIONS AND REPORT REVIEWS** are an on-going activity.

B. **EPA GRANT COMMITMENT** requires inspections frequencies in accordance with the RCRA C Compliance Monitoring Strategy. This includes but is not limited to the annual inspection of all Federal permitted TSDs, the biennial inspection of all privately owned permitted TSDs and 20% of the total universe of all LQGs. .

C. **SQGs, CESQGs, Non-Handlers, Used Oil Only and Universal Waste Only** facilities are inspected on an as-needed basis or at the discretion of the Program Manager, Supervisor or Inspector.

D. **FACILITIES OF UNKNOWN STATUS** which have never been inspected are inspected as time allows.

E. **FUIs** should be conducted within a calendar year of a facility's documentation of their violations return to compliance, or within 60 days of the passing of the NOV due date when no reply is received.

F. **CSEs** should be conducted within a calendar year of a facility's documentation of their completion of the requirements of the order, or within 60 days of the passing of any due date specified in the Order or POCA when no required documentation is received.

XIII. QUALITY CONTROL AND QUALITY ASSURANCE

A. **COMPARE PROCESSES AND/OR CONDITIONS:** Compare descriptions in previous inspection reports to determine significant changes in process or site conditions.

B. **PROOF-READ AND SPELL CHECK:** Double check each report for accuracy, completeness, spelling and grammatical errors. Ensure all attachments are noted in the body of the report and are included with the report along with divider pages if there is more than one attachment.

C. **REPORT REVIEW BY INSPECTOR SUPERVISOR:** Reports are reviewed for completeness, ease of understanding and accuracy to ensure technical issues are properly addressed, regulations are correctly applied and violations are correctly cited.

D. REPORT REVIEW BY THE PROGRAM MANAGER: Reports where enforcement actions are being taken are reviewed by the Program Manager to ensure the actions are relevant and appropriate.

E. ANNUAL FEDERAL REVIEW: EPA Region III and EPA Headquarters conducts periodic review of selected program elements to assess the success and accuracy of West Virginia's hazardous waste inspection and enforcement program. This process is known as the State Review Framework (SRF).

XIV. REFERENCES

The following quick reference guide is a sampling of frequently used documents and their locations:

40 CFR Parts 260-279: http://www.ecfr.gov/cgi-bin/text-idx?SID=9e5dfef3ccc4aa440821d129fc21bdcc&mc=true&tpl=/ecfrbrowse/Title40/40tab_02.tpl

WVSC §22-18: http://www.legis.state.wv.us/WVCODE/Code.cfm?chap=22&art=18#18

33 CSR 20 – The Hazardous Waste Management Regulations: http://apps.sos.wv.gov/adlaw/csr/ruleview.aspx?document=9501

RCRAinfo database accessed at: https://rcrainfo.epa.gov/

RCRA Orientation Manual (2014 Edition) accessed at: https://www.epa.gov/sites/production/files/2015-07/documents/rom.pdf

29 CFR Part 1910.120 OSHA Standards for Hazardous Waste Operations and Emergency Response: https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=standards&p_id=9765

29 CFR Part 1910.1200 OSHA Standards for Hazard Communications: https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=10099

WV DEP Vehicle Policy: http://depintranet.wv.gov/Depdocs/policies/dep_policies/signed%20Vehicle%20Policy%202012.pdf

WV DEP Respiratory Protection Policy: http://depintranet.wv.gov/Depdocs/policies/dep_policies/RespiratoryProtectionPolicy_January24-2008.pdf

WV DEP Water Safety Policy: http://depintranet.wv.gov/Depdocs/policies/dep_policies/WaterSafetyPolicy7.1.08.pdf

US EPA Wastes Generated by Sectors: http://www.epa.gov/hwgenerators/typical-wastes-generated-industry-sectors

US EPA Sector Notebooks:
http://webharvest.gov/peth04/20041024151734/http://www.epa.gov/compliance/resources/publications/assistance/sectors/notebooks/index.html and on network drive at: *ENVIRONMENTAL ENFORCEMENT WANSHARE\Staff Access\HW Guidance by Topic\EPA Sector Notebooks*

Report Templates on network drive at: *ENVIRONMENTAL ENFORCEMENT WANSHARE\Staff Access\Inspection Report Forms & Templates\Hazardous Waste Forms*

McCoy's RCRA Unraveled, Current Edition, McCoy and Associates, Inc., Lakewood, Colorado.
http://www.mccoyseminars.com/pubs.rcra.cfm

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Manager/Supervisor	DWWM/EE-HW Division/Section/Unit	4/4/2017 Date

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Environmental Enforcement / Hazardous Waste

Standard Operating Procedure

for

Emergency Response

3/14/17

By

Penny L. Harris

Environmental Inspector Specialist

APPROVED:

Name

4-3-17

Date

Agency Document ID Number

DWWM-EE-1-0

TABLE OF CONTENTS

Document Revision

The following table contains the revision history of this Standard Operating Procedure (SOP):

Version	Date	Author	Modification Made
1	Click here to enter a date.		
0	3/21/17	PLH	N/A - Original

Emergency Response SOP

I. SCOPE AND APPLICABILITY

This SOP is intended for the use of Environmental Enforcement (EE) personnel responding to transportation or fixed-facility emergencies involving hazardous materials, under the authority of WVSC §22-18, the WV Hazardous Waste Management Act.

The scope of this SOP is limited to Emergency Responses. Refer to individual SOPs for Compliance Evaluation Inspections, Groundwater Monitoring Evaluations and Operation & Maintenance Inspections.

The overall goal of this SOP is to provide useful procedural and technical information to ensure the safety of WV DEP personnel during emergency responses as well as adequate observation and documentation of the incident. Specific objectives are as follows:

- To define what constitutes an Emergency Event.
- To clearly identify the specific components of emergency response operations
- To clearly identify the scope of the WV DEP Inspector's authorities and responsibilities in relation to the Incident Command System (ICS)
- To standardize procedures for responding to hazardous materials emergencies in West Virginia
- To provide general information to be used in conjunction with more detailed guidance on specific emergency response situations
- To establish a starting point for training new inspection staff in emergency response procedures
- To make locating necessary reference and regulatory information easier for all Inspectors

This SOP is a reference guide and supplement to the training received by Inspectors. It is not intended to replace training nor does it address all situations that can arise during an emergency response. This SOP is intended as general guidance on procedures to follow; Inspectors should consult with their Supervisor when they are unclear on how to proceed. All topics outlined in this SOP may not be applicable to every emergency response. Likewise, there are specific actions and activities that will be appropriate during an emergency response but are not fully described herein.

II. SUMMARY OF METHOD

This SOP addresses basic aspects of an emergency response including but not limited to collection and management of samples, documents and photographs, data evaluation, regulatory concerns, and coordination with other responding agencies. Less direct aspects such as program background, potential enforcement actions, health and safety issues, and work ethics will be briefly addressed.

Traditionally, EE personnel act primarily as technical and regulatory advisors to the Incident Commander (IC) during the emergency response, as opposed to engaging in hands on remedial / mitigation activities.

Emergency responses occasionally involve identifying the Responsible Party (RP) and initiating contact with the RP. This contact often includes explaining to the RP their responsibilities for reporting the incident (if not already done) to the WVDEP Spill Line, and designating and/or identifying their response contractor. It also often involves conveying the scope or magnitude of the release to the RP.

III. DEFINITIONS

The Inspector should be familiar with the following terms:

ACGIH - American Conference of Governmental Industrial Hygienists, Inc. It is an organization open to practitioners in industrial hygiene, occupational health, environmental health and safety. The ACGIH is known for establishing the Threshold Limit Values publication which lists the TLVs® for over 700 chemical substances and physical agents, as well as 50 Biological Exposure Indices (BEIs®) for selected chemicals.

Background Concentrations – Water and/or soil quality occurring up-gradient of a site or unit, or air quality occurring up-wind of a site or unit. Generally used to establish a base-line for additional monitoring.

CERCLA – The U.S. Comprehensive Environmental Response, Compensation & Liability Act of 1980, better known as "Super Fund". This law provided liability for those responsible for illegal waste dumping as well as a trust fund to clean up sites when the responsible parties could not be found or determined. In 1986 this act was amended by the Superfund Amendments and Reauthorization Act (SARA).

Command Post – An established base point where the IC and support services are located.

Contamination Reduction Zone - Also known as the "Warm Zone", this is a transition corridor where responders enter and exit the Exclusion Zone from the Support Zone and where decontamination activities take place.

Emergency Event – Defined in 170 CSR 2 as an unplanned event including, but not limited to: explosion, fire that cannot be contained within fifteen minutes of discovery, release of a Reportable Quantity (RQ) of an extremely hazardous substance listed in 40 CFR Part 355, loss of life or serious personal injury as defined by 29 CFR 1910 at an industrial facility.

Exclusion Zone – Also known as the "Hot Zone", this is the central work safety zone where an immediate threat and the highest potential for exposure to hazardous substances exists. Typically where the highest level of PPE necessary for responding to the situation is required. The Exclusion Zone boundary is dynamic and is determined by complexity and circumstances of the incident.

FEMA – Federal Emergency Management Agency. A branch of the US Department of Homeland Security responsible for responding to national emergencies.

GHS - Globally Harmonized System of Classification and Labeling of Chemicals. An international consensus system developed by the United Nations for classifying and labeling hazardous chemicals. Designed to streamline hazard assessment, labeling, and hazard communication requirements within and between the countries and to develop compatible labeling, Safety Data Sheets and other information. OSHA adopted many GHS principles in its most recent update to 29 CFR 1910.1200, the OSHA Hazard Communication Standard, and most of the major changes of HCS 2012 are now in effect.

HWMA –West Virginia Hazardous Waste Management Act. Found in WVSC §22-18, it establishes primacy and authority of WV DEP in regulating hazardous waste within the state boundaries.

ICS – Incident Command System. Established order for Chain of Command during emergency response operations on local, municipal, county and state level.

NIMS – National Incident Management System. Similar to ICS, but on a Federal level.

NRC – National Response Center. For RCRA purposes, this is the National hotline (1-800-424-8802) to be called in the event of a release of hazardous waste that leaves the boundary of the handler's property.

OSHA – U.S. Occupational Safety and Health Administration. A federal government agency under the U.S. Department of Labor, OSHA establishes workplace regulations covering a broad range of occupational hazards.

PPE – Personal Protective Equipment. Safety equipment that may be required to be worn during inspection activities. PPE is normally defined in Levels from D to A, with Level D being the least protective (safety glasses, hard hat, steel toe boots) and Level A being the most protective (fully-encapsulated suit with supplied air).

RP – Responsible Party. Broadly defined as an individual or group of people legally responsible or liable for a decision or action and therefore liable for the outcome. Pertaining to an Emergency Event, it is a party or parties responsible for hazardous substances released to the environment.

SARA - The U.S. Superfund Amendments and Reauthorization Act of 1986. SARA amended and reauthorized CERCLA, better known as the SuperFund Act. The goals of both CERCLA and SARA are identification, remediation and prevention of the release of hazardous substances to the environment. SARA also resulted in a revision of the U.S. EPA Hazard Ranking System (HRS) to assess the degree of hazard to human health and the environment.

Safety Zones - Work zones established primarily to reduce the accidental spread of hazardous substances from contaminated areas to clean areas. Safety zones specify the type of operations occurring in each zone, degree of hazard at different points within the site, and areas to be avoided by unauthorized or unprotected persons. The three most frequently identified zones are the Exclusion Zone (Hot Zone), Contamination Reduction Zone (Warm Zone) and the Support Zone (Cold Zone).

Site – Geographically contiguous property affected by the Emergency Event. Can be divided by or include public or private right-of-ways. In reference to migration of contaminants, a "site" may extend beyond property boundaries.

STEL – Short Term Exposure Limit. The concentration to which workers can be exposed continuously for a short period of time without suffering from irritation, chronic or irreversible tissue damage or narcosis. A worker cannot be exposed to a STEL concentration if the TLV-TWA would be exceeded. Workers can be exposed to a maximum of four STEL periods per 8 hour shift, with at least 60 minutes between exposure periods.

Support Zone – Also known as the "Cold Zone", this is an area of the emergency response site that is free from contamination and may be safely used as a planning, observation and staging area. The Command Post is always located in the Support Zone.

TLV® – Threshold Limit Value. Guidelines prepared by the ACGIH to assist industrial hygienists in making decisions regarding safe levels of exposure to various hazards found in the workplace. Reflects level of exposure the typical worker can experience without unreasonable risk of disease or injury. TLVs® are not quantitative estimates of risk at different exposure levels or by different routes of exposure.

TRI – Toxic Release Inventory. Part of SARA Title III, the TRI contains information on over 600 toxic chemicals by facilities that manufacture, process, or otherwise use them.

IV. HEALTH & SAFETY WARNINGS

WV DEP has specific safety policies for vehicle use (Policy 30), respirator use (Policy 33) and water safety (Policy 37). The Inspector should be familiar with these policies prior to use of a vehicle, wearing a respirator or participating in activities in or near water.

Inspectors must also be familiar with the OSHA health and safety regulations to ensure compliance with the requirements applicable to the Emergency Response process.

No Inspector should actively participate in on-site Emergency Response operations without first receiving a certificate that the initial 45 hour OSHA Hazardous Waste Operations & Emergency Response (HAZWOPER) training has been successfully completed. Unless under direct supervision by their Supervisor or an experienced Inspector, no Inspector should participate in the field activities portion of an Emergency Response who has not received a certificate that the 8-hour HAZWOPER training has been successfully completed.

WV DEP DWWM EE has a medical monitoring program for field employees. Until a baseline physical is conducted, certain aspects of field work may be curtailed on a case-by-case basis per the discretion of the Supervisor. No Inspector should wear either an Air Purifying Respirator or SCBA without first passing an initial physical exam, or subsequent annual exams.

It is very important for Emergency Responders to:

- use the buddy system when entering the work area,
- not enter the Exclusion Zone, or use levels of PPE higher than Level D without the established adequate number of personnel present
- be aware they are entering an un-controlled environment

- be aware of all potential health and safety issues specific to the site, including but not limited to physical hazards, potential presence of allergens, loud noises, high frequency or ultra-high frequency sound, gas or radioactive emissions and follow appropriate procedures
- be able to identify and apply the following principles to the site:
    - Potential exposure routes
    - Hazard assessment
    - Long-term risk
    - Levels of protection
    - Safety equipment (use and maintenance)
    - Personal protective equipment (use and maintenance)
    - Decontamination and disposal of protective clothing
    - Emergency protocols.

During an Emergency Response, the inspector should make health and safety decisions using sound judgment, common sense and experience. Inspectors should not take statements concerning the safety of an activity or location at the facility at face value, but decide for themselves. If in doubt, err on the side of safety.

Failure to follow safety protocols, wear appropriate PPE, or use intrinsically safe equipment in a combustible atmosphere may result in personal injury or loss of life.

V. CAUTIONS

Inspectors should follow training guidelines for selection and use of equipment and PPE. Activities that could result in personal harm, equipment damage or incorrect monitoring results include:

- failure to select and use the correct equipment and PPE
- failure to properly use equipment or PPE
- failure to promptly clean and inspect equipment and PPE after use
- failure to properly and promptly communicate results of monitoring and observations

VI. INTERFERENCES

Factors that may interfere with an emergency response include:

- failure to understand and follow the ICS
- failure to follow established emergency response procedures
- failure to use available resources to determine precise hazards presented by the emergency
- unavailable or inadequate documents or information
- inadequate monitoring of the site and/or failure to identify all constituents/contaminants and their concentrations on-site

- inadequate, overly complex or un-clear communications between responders
- reliance solely on "witness" information

VII. PERSONNEL QUALIFICATIONS/RESPONSIBILITIES

Emergency Response training is not based on a minimum number of instructional hours, but on expected duties and potential risks. Workers responding to an emergency must be trained to a level where they can do their job competently and safely.

In addition to the initial 45 hour OSHA HAZWOPER training and successful completion of an initial physical exam, an inspector should have also completed the NIMS course ICS-100: Introduction to the Incident Command System.

The following additional training courses are also recommended:

- ICS-200: ICS for Single Resources and Initial Action Incidents
- ICS-300: Intermediate ICS for Expanding Incidents
- ICS-400: Advanced ICS for Command and General Staff
- IS-700: National Incident Management System, An Introduction
- IS-701: NIMS Multiagency Coordination System (MACS)
- IS-702: NIMS Publication Information Systems
- IS-703: NIMS Resource Management
- IS-706: NIMS Intrastate Mutual Aid – An Introduction
- IS-800: National Response Framework, An Introduction
- Air Monitoring for Emergency Responses (ERTP) ERT - OSRTI
- Chemistry for Environmental Professionals (Fundamentals) (ERTP) ERT - OSRTI
- Hazardous Materials Technician (ERTP) ERT - OSRTI
- IS-3: Radiological Emergency Management
- IS-393.a: Introduction to Hazard Mitigation
- Contaminant Vapor Migration and Intrusion
- Contaminant Chemistry and Transport in Soil and Groundwater

VIII. EQUIPMENT AND SUPPLIES

The following is a list of the minimal field equipment an inspector should have when conducting an emergency response: hardhat, safety glasses, chemical resistant goggles, various types of chemical resistant gloves, steel-toe neoprene boots, appropriate chemical-resistant suits, appropriate respiratory protection (APR and SCBA), monitoring instruments appropriate to the emergency (such as a PID, FID, CGI, Radiation Meter, pH strips or meter), tape measure, communication devices including cell phone, UHF and VHF two-way radios, GPS device,

compass, binoculars, notebook, pens, permanent marker, camera, appropriate reference books, cell phone apps and/or other electronic resources.

The following list of materials may be needed on a case by case basis: sample containers with labels and preservatives, cooler with ice, chain of custody forms, sample receipt forms, small box cutter or pocket knife, machete, one or more changes of clothing.

IX. PROCESS

A. PREPARING FOR AN EMERGENCY RESPONSE

1. Scope of an Emergency Response.

a. Focus and Objectives.

1) The focus of an Emergency Response is containment of hazardous materials, hazardous waste or hazardous constituents released, and minimization of threat to public health and safety and the environment

2) The objective of an Emergency Response is protection of public health and safety and the environment.

b. Components of an Emergency Response.

1) Pre-planning and training.

2) Equipment assembly and calibration of instruments.

3) Arrival at the incident.

4) Reporting to the IC.

5) Staging Safety Zones.

6) Coordinating with other agencies through the ICS and IC.

5) Site reconnaissance and monitoring.

6) Active, technical intervention.

7) Post-emergency event review.

2. Number and Type of Personnel.

a. The over-all number of necessary emergency response personnel often increases in proportion to the size of the area impacted by the emergency.

b. The number of DEP personnel varies by the type and extent of the emergency.

c. The type of emergency response personnel necessary is dependent on the type and size of the emergency.

d. Safety Zones and minimum corresponding number of personnel in PPE Levels per Team are shown in the table below:

Highest PPE Level On Site	Exclusion Zone Workers	Contamination Reduction Zone Workers	Exclusion Zone Backup Workers waiting in Support Zone	Support Zone Workers
Level A	2 in A	2 in B	2 in A	Unlimited
Level B	2 in B	2 in C	2 in B	Unlimited
Level C	2 in C	2 in D	2 in C	Unlimited
Level D	Unlimited	NA	NA	Unlimited

3. Rules, Regulations and/or Permits.

a. 40 CFR Parts 260 through 270 may apply to an Emergency Response.

b. The following portions of the WV State Code apply to all portions of an Emergency Response:

1) WVSC §22-18 (WV Hazardous Waste Management Act)

i. §22-18-4 designates WV DEP as the hazardous waste management lead agency for the state for purposes RCRA Subtitle C, and authorizes the agency to take all action necessary or appropriate.

ii. §22-18-5(a) provides regulatory authority for WV DEP personnel to perform any and all acts necessary to carry out the purposes and requirements of RCRA Subtitle C.

iii. §22-18-13 provides regulatory authority for right of entry of DEP personnel.

2) WVSC §22-12 (WV Groundwater Protection Act)

3) WVSC §22-11 (WV Water Pollution Control Act) may also apply

c. The following portions of the WV Code of State Rules apply to an Emergency Response:

1) 33 CSR 20 (WV Hazardous Waste Management Rule)

2) 47 CSR 58 (WV Groundwater Protection Rule)

3) 47 CSR 12 (WV Requirements Governing Groundwater Standards)

d. RCRA-regulated fixed facilities - Large Quantity Generators of hazardous waste and Permitted Treatment, Storage and Disposal Facilities have Contingency Plans to address emergency procedures at their site. A post-emergency follow-up inspection should confirm the facility has reviewed and evaluated the Contingency Plan for effectiveness after the emergency.

e. Non-RCRA fixed facilities - Many have SPCC Plans or other emergency plans they follow in the event of an emergency. Many participate in pre-planning and county or municipal emergency response drills.

f. Transport companies - Some do not have an emergency response plan and rely on first responders and US Department of Transportation guidelines for emergency response.

g. Emergency Permits - WV DEP occasionally issues an "Emergency Permit" under §270.61 for on-site treatment and containment of hazardous materials deemed too dangerous to transport.

4. Emergency Response Locations

a. Fixed facilities - such as chemical plants, laboratories, warehouses, retail outlets and some commercial service locations.

b. Transportation – such as accidents and releases involving air, water, highway, pipeline or rail. Majority of emergency events DEP responds to are transportation-related.

5. Types of Emergency Events

a. Fire and/or Explosion – with release, or threat of release, of hazardous material

b. Release of hazardous material to the environment.

c. Threat of fire, explosion and/or release of hazardous material.

6. Sampling during an Emergency Response.

a. Purpose.

1) To document presence of hazardous waste or hazardous constituents.

2) To determine extent of contamination.

b. Collection and management. Follow the WVDEP-DWWM-EE/HW QAPP procedures for collection and management of samples.

7. Accessibility.

a. Dependent on:

1) Nature of the hazard.

2) Location of the emergency.

3) Extent of the impacted area.

b. May impair or limit response actions.

c. May increase response time, area impacted and overall cost.

8. **Health & Safety.**

   a. Dependent on:

      1) Nature of the hazard.

      2) Location of the emergency.

      3) Extent of the impacted area.

   b. Refer to Safety Data Sheets (SDS), US Department Of Transportation (US DOT) Emergency Response Guidebook and the WISER app for chemical hazards.

   c. Follow OSHA guidelines for initial selection of PPE.

      1) Start with the highest necessary level of PPE.

      2) You may later downgrade to a lower level of PPE based on information collected.

      3) Where insufficient information about the hazards is available, the highest level of PPE must be used, or no entry into the Exclusion Zone will be made by inspectors.

      4) Where insufficient number of personnel, or insufficient quantity or level of PPE is available, no entry into the Exclusion Zone will be made by inspectors.

   d. Shorten work periods during very hot or very cold weather.

   e. Be alert for snakes and poisonous plants.

9. **Training Exercises.**

   a. Through WV DEP.

      1) Respirator inspection, maintenance and use.

      2) PPE selection.

      3) Calibration, maintenance and use of monitoring equipment.

      4) Sampling.

   b. Through optional attendance at Local Emergency Planning Committee (LEPC) meetings and participation in drills and exercises for each county within an inspector's jurisdiction.

      1) Periodic simulated emergencies.

      2) Periodic supplemental training exercises.

B. RESPONDING TO AN EMERGENCY

1. **Getting to the Site.**

   a. No emergency lights or sirens are authorized for use on WV DEP vehicles.

b. Observe safe driving practices.

c. Obey all traffic laws unless specifically instructed otherwise by other emergency personnel.

2. Arrival at the Site.

a. Report to the IC at the Command Post.

b. On-Site Vehicle Usage.

1) Personnel may be instructed where to park or to proceed to another area.

2) Personnel may be instructed which 2-way radio channel to use, or to turn them off if there is an associated hazard.

3) Use of more than one vehicle to transport personnel and/or equipment may be necessary.

4) Use of more than one vehicle type or mode of travel may be necessary.

c. Monitoring Equipment, Cell Phones and Cameras.

1) Use of non-intrinsically safe monitoring equipment, cell phones and cameras is prohibited in areas where there is a potentially combustible atmosphere.

2) Use of State-issued equipment shall be in accordance with the user manuals and training.

3) Use of cameras at a fixed facility may be limited by the facility during an emergency.

4) Use of cell phones should be limited to the Support Zone, unless otherwise noted.

3. Site Activities.

a. Risk Assessment.

1) Purpose.

i. To assess health and ecological hazards.

ii. To determine possible exposure pathways.

2) Components.

i. Visual inspection. Make one or more site sketches while on site, in addition to multiple overview photos from various angles. Include in notes and drawings such surface features such as streams and roadways, movement direction of contaminants, Safety Zones, sample locations, residences and buildings.

ii. Environmental monitoring. DEP personnel may be requested to check site conditions using monitoring equipment.

iii. Communication. Keep communications between work teams simple, clear and accurate, and provide frequent up-dates to the Command Post.

b. Protective Actions.

1) Purpose.

i. Immediate protection of human health and safety.

ii. Protection of environment.

iii. Protection of property.

2) Components.

i. Evacuation. Depending on availability of emergency responders, WV DEP personnel may be requested by IC to assist with identifying potential areas for site evacuation of businesses or residences.

ii. Decontamination. Typically set up by other emergency responders, WV DEP personnel may be requested by the IC to assist in setting up and/or operating a decontamination area or assist in the Contamination Reduction Zone.

iii. Communications. Provide frequent up-dates to the Command Post. WV DEP personnel may be requested by the IC to assist in relaying information between different response teams.

c. Incident Mitigation and Stabilization.

1) Purpose

i. Stopping the immediate source of release (fire, spill, etc.)

ii. Minimizing potential for harm

2) Components

i. First Responder Actions.

Standard Role: DEP is normally present in an advisory and regulatory capacity.

Non-Standard Role: DEP personnel assist or complete additional tasks at the request of the IC, such as:

- Deployment of sorbent pads and booms.
- Stopping the release. WV DEP personnel continue environmental monitoring during this procedure.
- Qualified DEP personnel may assist with on-site render-safe procedures, treatment or destruction of the hazardous material.
- DEP personnel may provide an emergency escort during transport of the hazardous material or contaminated materials to another location to be rendered safe, treated, or destroyed.

ii. Collection of samples, photographs, documents and/or assisting in collection of potential evidence.

- Take all necessary photographs and record the area and subject of each photo.

- Ensure all sample receipts have been signed, and samples properly preserved following procedures outlined in the WVDEP-DWWM HW Quality Assurance Program Plan (QAPP).
- Continually monitor environmental site conditions to note any change in conditions.

iii. Property Conservation.

- To the extent possible, make every effort to avoid any damage to personal and/or real property.
- If necessary to obtain access to the Site, gain verbal permission from the landowner or tenant prior to entering private property.
- If necessary to use private property as a staging area during the response to an emergency event or during remediation, gain written permission from the landowner.

3) Communications.

i. Maintain communication between teams in all Safety Zones; be alert to potential changes in site conditions at any time during this phase.

ii. Periodically provide updates to the Command Post.

iii. WV DEP Personnel establish and maintain contact with the DEP Public Information Office (PIO) and the Charleston Office (Assistant Chief Inspector). These contacts can be established via actual phone conversations, emails, or text messages.

iv. DEP personnel may also be requested to provide a statement or interview with the press on some responses.

- If possible refer all media inquiries directly to PIO
- Document the reporter's questions and your statements as exact as possible. Afterward, relay these to your supervisor, PIO contact and the Assistant Chief Inspector.
- Do not speculate or exaggerate in any of your responses.
- Do not discuss violations or make statements indicative of potentially liable parties.

d. RCRA Mitigation Exemptions and Requirements.

1) 40 CFR Parts 264.1(g)(8) and 265.1(c)(11) provide a regulatory exemption from interim status and permitting standards for treatment and containment activities, hazardous waste discharges and imminent and substantial threats of both accidental and deliberate discharges. Under the exemption, treatment, storage and disposal facilities regulated under RCRA must continue to meet the applicable requirements of Subparts C and D of Parts 264 and 265.

2) 40 CFR Part 263.30 requires hazardous waste transporters to take appropriate, immediate action to protect human health and the environment.

3) 40 CFR Part 263.30(b) allows an authorized official to authorize removal of the spill by transporters without an EPA ID number or manifest in an emergency.

4) Accidental spills should be addressed immediately and in accordance with a facility's Contingency Plan (where applicable).

5) 40 CFR Parts Sections 264.51 and 265.51 require hazardous waste Treatment, Storage, and Disposal Facilities (TSDFs) to have a Contingency Plan describing actions facility personnel must take in response to any unplanned sudden or non-sudden releases.

6) 40 CFR Part 262.34(a)(4) requires Large Quantity Generators of hazardous waste to have Contingency Plans as a condition of obtaining a permit exemption for on-site accumulation for 90 days or less .

e. Documenting Violations and Areas of Concern.

1) Citation of hazardous waste and groundwater violations during an emergency response is not common practice, but does occasionally take place after the incident.

2) If violations of the applicable regulations are discovered:

i. Physical violations and areas of concern should be photographed.

ii. For paperwork violations, photograph or obtain a photocopy of the document.

3) Any reasonable delay in the completion of an emergency response or mitigation effort by an RP that is caused by a necessary, unforeseen, or uncontrollable circumstance will not constitute a violation for failure to respond promptly to the emergency.

4) Failure to properly respond to fires, explosions or releases of hazardous waste or hazardous waste constituents is a valid regulatory violation.

4. When the Emergency Response Ends.

a. The “Emergency” phase of a response is generally considered ended when the Command Post is no longer operational and the first response agencies (fire, police, and EMS) leave the scene.

b. Long-term mitigation may continue after the initial response to an emergency event ends.

c. Site assessment and remediation should begin when the emergency response ends.

d. Site monitoring may continue after the initial response to an emergency event.

e. Hazardous waste containment, treatment, storage, disposal and transportation activities conducted after the initial response period are subject to all applicable RCRA requirements.

f. Change in site conditions or circumstances may prompt re-evaluation and/or re-activation of the emergency response phase.

C. DOCUMENTING THE RESPONSE TO AN EMERGENCY EVENT

1. Evaluation.

a. WV DEP personnel may participate in a post-emergency review with other responding agencies or with a fixed facility. The review may include, but is not limited to these actions:

1) Evaluation of the response actions and preparation for similar future responses.

2) Review of the facility's response actions and/or Contingency Plan to determine whether any significant changes should be made.

i. Request any additional documentation from the facility.

ii. Refrain from discussing or speculating on any non-compliance issues. Advise representatives you will address them in your report after you have consulted the regulations.

iii. Review areas of concern.

iv. Answer questions as clearly as possible without guessing. If you have access to additional information you may offer to forward it to them.

v. Do not discuss or speculate on any potential enforcement proceedings.

vi. Thank the representative(s) for their time and cooperation.

b. Collect and review any data such as sample results, copies of shipping or facility documents after the inspection, along with field notes, checklist and site sketches.

2. Reports.

a. Your completed report should include the following:

1) RCRAInfo forms

2) Inspection Fact Sheet

3) Report Form - The report narrative should include a brief description of:

i. Type of facility or transportation mode,

ii. Nature of the chemical (non-RCRA, RCRA characteristic RCRA listed or RCRA hazardous constituent),

iii. Description of affected area, including facility, streets, streams, etc.

iv. Local geology and groundwater flow rate and direction, if known,

ROUTING SLIP:

Author	DWWM/EE-HW Division/Section/Unit	4/3/2017 Date
Peer Reviewer	DWWM/EE-HW Division/Section/Unit	4/3/2017 Date
(Optional) Peer Reviewer	Division/Section/Unit	Date
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Manager/Supervisor	DWWM/EE-HW Division/Section/Unit	Click here to enter a date. Date

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Environmental Enforcement / Hazardous Waste

Standard Operating Procedure

for

Groundwater Monitoring Evaluations

And

Operation & Maintenance Inspections

3/14/17

By

Penny L. Harris
Environmental Inspector Specialist

APPROVED:

Name

3-28-17
Date

Agency Document ID Number

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TABLE OF CONTENTS

Document Revision

The following table contains the revision history of this Standard Operating Procedure (SOP):

Version	Date	Author	Modification Made
1	Click here to enter a date.		
0	3/14/17	PLH	N/A - Original

Groundwater Monitoring Evaluation and Operation & Maintenance SOP

I. SCOPE AND APPLICABILITY

This SOP is intended for the use of inspection personnel in conducting Groundwater Monitoring Evaluations (GMEs) and/or Operation & Maintenance Inspections (O&M) of RCRA-regulated facilities under the authority of WVSC §22-18, the WV Hazardous Waste Management Act.

The scope of this SOP is limited to RCRA Groundwater Monitoring Evaluations and Operation & Maintenance Inspections. Refer to individual SOPs for Compliance Evaluation Inspections, Complaint Investigations, and Emergency Responses.

The overall goal of this SOP is to provide useful procedural and technical information to determine a generator's compliance with Federal and State Hazardous Waste and Groundwater Rules and Regulations. Specific objectives are as follows:

- To distinguish between RCRA Groundwater Monitoring Evaluations (GMEs) and RCRA Operation & Maintenance Inspections (O&Ms)
- To clearly identify the specific components of GMEs and O&Ms
- To clearly identify the scope of the WV DEP Inspector's authorities and responsibilities in relation to GMEs & O&Ms
- To standardize procedures for conducting RCRA GMEs and O&Ms in West Virginia
- To provide general understandable information that may be used in conjunction with more detailed guidance on groundwater monitoring
- To establish a starting point for training new inspection staff in GME and O&M procedures
- To make locating necessary reference and regulatory information easier for all Inspectors

This SOP is a reference guide and supplement to the training received by Inspectors. It is not intended to replace training nor does it address all situations that can arise during a GME or O&M. This SOP is intended as general guidance on procedures to follow; Inspectors should consult with their Supervisor when they are unclear on how to proceed. All topics outlined in this SOP will not be applicable to every GME or O&M conducted. Likewise, there are specific actions and activities that will be appropriate during a GME or O&M but are not fully described herein.

II. SUMMARY OF METHOD

This SOP addresses basic aspects of GMEs and O&Ms including preparation, collection and management of samples, documents and photographs, data evaluation and regulatory concerns, and coordination with the DWWM Permitting Program / Waste Permitting Unit. Less direct aspects such as program background, enforcement options and priorities, health and safety issues, and work ethics will be briefly addressed.

III. DEFINITIONS

Abbreviations and terms applicable to a GME may be found in 33 CSR 20 Section 1.5.a; 40 CFR Part 260.10, Parts 265 Subpart F and Part 270; McCoy & Associates RCRA Unraveled, USEPA RCRA Orientation Manual 2014 Edition, USEPA Final RCRA Comprehensive Ground-Water Monitoring Evaluation Guidance Document (1986), USEPA RCRA Ground-Water Monitoring Technical Enforcement Guidance Document (1986) and the USEPA RCRA O&M Inspection Guide (1988). The Inspector should also be familiar with the following terms:

ACLs – Alternate Concentration Levels. Groundwater contaminant limits established by the regulating authority in lieu of using background levels or MCLs.

Background Levels – Water quality occurring up-gradient of a site or unit, in which contaminants cannot be attributed to a particular down-gradient unit or site for which a groundwater monitoring program is being or has been established. May be used to establish a base-line for compliance monitoring or corrective action.

CAMU – Corrective Action Management Unit. An area within a facility that is designated by the EPA Regional Administrator under part 40 CFR 264 Subpart S, or the Secretary of the WV DEP under 33 CSR 20 Section 7.2, for the management of remediation wastes from specific corrective action at the facility.

Compliance Monitoring – Outlined in 40 CFR §264.99, this is the second phase in the sequence of groundwater monitoring required for permitted facilities. Designed to determine whether regulated units are in compliance with the GWPS by examination of SSIs in contaminant levels specified in the permit. The GWPS, sampling procedures and statistical methods appropriate for the constituents, sampling frequency, point of compliance and period of compliance are specified in the facility permit.

Corrective Action Monitoring – Outlined in 40 CFR §264.100, this is the third phase in the sequence of groundwater monitoring required for permitted facilities. Triggered by SSI exceeding the GWPS, and requires a permit modification. Requires facility begin a) removing the hazardous waste constituents or treating them in place as specified in the facility permit, and b) treating groundwater between the point of compliance and the down-gradient property boundary. The GWPS, list of hazardous constituents and their concentration limits, point of compliance and period of compliance are specified in the facility permit. Once monitoring demonstrates the GWPS has not been exceeded for three consecutive years, the facility may be allowed to return to compliance monitoring.

Detection Monitoring – Outlined in 40 CFR §264.98, this is the initial phase of groundwater monitoring required for permitted facilities. It is designed to monitor for indicator parameters (e.g., specific conductance, total organic carbon, or total organic halogen), waste constituents, or reaction products that provide a reliable indication of the presence of hazardous constituents in ground water. Parameters or constituents to be monitored are specified in the facility permit.

Disposal Facility – Any site where hazardous waste is intentionally placed and where it will remain after the TSDF ceases operation.

Facility - All contiguous land, structures, etc. used for treating, storing, or disposing of hazardous waste, or for managing hazardous secondary materials prior to reclamation. A facility may consist of one or more, or any combination of, treatment, storage, or disposal units.

GME – Groundwater Monitoring Evaluation. An in-depth evaluation of the adequacy of design and operation of a facility's groundwater monitoring system based on EPA's Final RCRA Comprehensive Ground-Water Monitoring Evaluation Guidance Document. The purpose is to ensure the facility has an adequate groundwater monitoring system. A GME includes review of the facility's characterization of the hydrogeology beneath hazardous waste management units, evaluation of monitoring well placement, depth, spacing, screening interval, design and construction, and review of the operation of the groundwater monitoring system through evaluation of both the facility's SAP document and how the SAP is carried out. May include sampling; however, extensive sampling should be considered a separate inspection.

Groundwater - Water below the land surface in geological zones of saturation.

GWPS – Ground-Water Protection Standard. Upon notification by a facility that the presence of hazardous constituents has been determined during the detection monitoring phase, WV DEP will establish a GWPS to outline the list of hazardous constituents from Part 261, Appendix VIII for which to monitor, concentration limits for each constituent based either on background levels, MCLs, or ACLs as determined by the WVDEP, point of compliance and compliance period during which the GWPS applies and compliance monitoring is required.

HWMA –West Virginia Hazardous Waste Management Act. Found in WVSC §22-18, it establishes primacy and authority of WV DEP in regulating hazardous waste within the state boundaries.

Landfill - (Subtitle C) A permitted hazardous waste landfill. **(Subtitle D)** A permitted solid waste landfill, whose permit does not include acceptance of hazardous waste.

LDR – Land Disposal Restrictions. Specifically outlined in 40 CFR Part 268, LDRs establish treatment standards for certain hazardous wastes prior to final disposal.

MCLs – Maximum Contaminant Levels established by the Clean Water Act. May be used to establish an action level at which a facility moves between groundwater monitoring phases.

NRC – National Response Center. For RCRA purposes, this is the National hotline to be called in the event of a release of hazardous waste that leaves the boundary of the handler's property.

O&M – Operation and Maintenance Inspection. In contrast to a GME, which focuses on design review, the O&M focuses on the facility's operation and maintenance of their ground-water monitoring system and the generation of groundwater monitoring data. Includes evaluation of well purging and sampling techniques. Typically includes groundwater sampling.

On-site - Geographically contiguous property. Can be divided by public or private right-of-way, provided the entrance and exit between the properties is at a cross-roads intersection where access is by crossing rather than going along the right of way. Non-contiguous properties owned by the same entity but connected by a non-public restricted-access right-of-way, are also considered on-site property.

Performance Standards – Regulatory requirement that each facility's groundwater monitoring program have a sufficient number of wells installed at the appropriate locations. The wells must be located at depths that can yield representative samples of background conditions and water quality at the point of compliance in the uppermost aquifer, and the wells must be appropriately designed and installed, as well as have consistent sampling and analytical procedures in place to ensure accurate and representative samples are taken.

Period of Compliance / Compliance Period – Timeframe specified in a RCRA permit, Corrective Action Order or other enforcement document, during which groundwater monitoring is required. May apply to active, inactive, or closed facilities.

Point of Compliance / Compliance Point – Groundwater monitoring wells located down-gradient of the waste management unit(s) or specific area being monitored. Also, the vertical surface at which the facility must monitor the uppermost aquifer to determine if the GWPS is being exceeded.

PPE – Personal Protective Equipment. Safety equipment that may be required to be worn during inspection activities. PPE is normally defined in Levels from D to A, with Level D being the least protective (safety glasses, hard hat, steel toe boots) and Level A being the most protective (fully-encapsulated suit with supplied air).

QA/QC – Quality Assurance/Quality Control. Ensures accuracy and consistency of a program, product or procedure.

SAP – Sampling and Analysis Plan. The detailed document for a facility which describes all of the procedures, including QA/QC, that they or their contractor will use to collect, handle, and analyze groundwater samples for detection or assessment of monitoring parameters. Must ensure compliance with the performance standards specified in the permit or enforcement action.

Site – Broader than the term "Handler". In reference to migration of contaminants, a "site" may extend beyond property boundaries.

SSI – Statistically Significant Increase in the levels of any monitored constituents. Unless a facility can demonstrate that detected SSI is due to a sampling, analytical or statistical error or natural variation in the groundwater chemistry, the facility must switch to the compliance monitoring phase of groundwater monitoring.

SWMU – Solid Waste Management Unit. Typically a land disposal unit for either hazardous or non-hazardous wastes. Section 3004(u) of HSWA requires "corrective action" for releases of hazardous wastes or constituents from any SWMU at any facility seeking or subject to a RCRA permit, regardless of when the waste was placed in the unit.

IV. HEALTH & SAFETY WARNINGS

Please refer to Section IV - Health & Safety Warnings in the CEI-SOP

Failure to follow established health and safety protocols may result in personal injury or loss of life.

V. CAUTIONS

Inspectors should follow training guidelines for use of equipment and PPE. Activities that could result in equipment damage, degradation of sample, or possible invalid results include:

- failure to properly use equipment or PPE
- failure to promptly clean and inspect equipment and PPE after use
- use of incorrect monitoring / sampling equipment or PPE
- failure to properly preserve samples or observe sample holding times

VI. INTERFERENCES

Components of the GME and O&M processes that may interfere with the accuracy or completeness of the inspection include:

- failure to understand specific industrial operations, procedures or permit requirements
- failure to ask for specific details or documents regarding actions needing clarification
- unavailable details, documents or necessary equipment
- reliance on outdated information such as old reports, maps or analytical results
- reliance on "snap shot" information for which no duplicate or QA/QC data exists

VII. PERSONNEL QUALIFICATIONS/RESPONSIBILITIES

In addition to the initial 45 hour OSHA HAZWOPER training and successful completion of an initial physical exam, an Inspector should be on track to complete, or have completed, the appropriate Tier I, Tier II and Tier III "Mandatory Initial Training" and "Program Specific Training" within the specified timeframes included in the EE/HW Field Inspector Training Curriculum. Inspectors and Inspectors-In-Training should also review the October 2001 RCRA, Superfund & EPCRA Call Center Training Module "Introduction to Groundwater Monitoring" in order to participate in a GME or O&M.

In addition to the above requirements, to lead an O&M Inspection, the Inspector should have attended at least one training course in groundwater sampling techniques and have participated in at least one prior O&M.

In addition to the above requirements, to lead a GME, the Inspector should have a background in geology/hydrogeology or a minimum of 32.5 Continuing Education Units (CEUs) in groundwater monitoring, and have participated in at least one prior GME.

VIII. EQUIPMENT AND SUPPLIES

The following is a list of the minimal field equipment an Inspector should have when conducting a GME or O&M: hardhat, safety glasses, work gloves, steel-toe boots, notebook, pens, permanent marker, camera, appropriate checklists.

The following materials may be necessary when conducting a GME or O&M: permanent all-purpose marker, sample containers with labels and preservatives, cooler with ice, chain of custody forms, sample receipt forms, air monitoring equipment (such as a PID, OVA or CGI), pH

strips or meter, tape measure, disposable bailers, surface interface probe, small box cutter or pocket knife (unless it is a safety issue), GPS device, more advanced levels of PPE, machete.

Sampling is generally pre-planned to coincide with the inspection, so the appropriate equipment, preservatives and other materials listed in the applicable parts of the Data Generation and Acquisition Section of the WVDEP-DWWM HW Quality Assurance Program Plan (QAPP) should be gathered ahead of time.

IX. PROCESS

A. PREPARING FOR THE INSPECTION

1. Preparing for a GME

a) Scope of the Inspection. Formerly known as a "Comprehensive Groundwater Monitoring Evaluation" or CME, the scope of a GME is significantly broader than an O&M.

i. Focus and Objectives.

(1). The focus of a GME is to ensure the establishment of an adequate groundwater monitoring system and program at permitted RCRA hazardous waste facilities.

(2). The objective of a GME, as stated in US EPA's Final RCRA Comprehensive Ground-Water Monitoring Evaluation Guidance Document, is to "determine whether an owner/operator has, in place, a ground-water monitoring system which is adequately designed and operated to detect releases or to define the rate and extent of contaminant migration from a regulated unit (landfill, land treatment facility, or surface impoundment) as required under 40 CFR Parts 265 and 270". To date, that document is the primary guidance established by US EPA for nationwide consistency in conducting GMEs.

(3). Components of a GME are:

1. Review of geology and hydrogeology above, beneath and down-gradient of hazardous waste management units to assess whether the facility has adequately and correctly characterized the site.

2. Review of the number, placement, depth, and spacing of monitoring wells to assess whether the facility has a sufficient number of wells, that the wells are strategically placed, installed and developed to ensure the vertical and horizontal extent of any plume of contaminants would be detected.

3. Review of overall, as well as individual well design and construction including construction materials, screen interval(s), seal, apron and well development.

ii. Number and type of personnel.

(1). GMEs are generally scheduled to coincide with facility sampling events to allow field evaluation of sampling techniques. The facility will have their personnel or contractor on site, but a sufficient number of Inspectors should be available on site to collect split samples or conduct separate sampling. This number may vary depending on the number of regulated units at a site, as well as the number and location of wells being sampled simultaneously, and the number of days required to observe and/or conduct the sampling. Smaller sites may require as few as one or two Inspectors, while larger sites may require a team of six or eight Inspectors on site at one time to complete the task efficiently.

(2). In addition to Inspectors, the Technical Analyst, Geologist or Environmental Resource Specialist from the DWWM Permitting Program / Waste Permitting Unit who is responsible for the facility's permit may be included as part of the team conducting the evaluation. This individual should be familiar with well information previously provided, and can help target specific wells to be sampled or specific parameters for which analysis is needed.

(3). If the facility is under an enforcement action such as a Consent Order or Corrective Action Order (CAO), coordination with other Regulatory or Enforcement personnel may be needed.

iii. Rules, Regulations and/or Permits.

(1). 40 CFR Parts 264, 265 and 270, apply to all portions of a GME.

(2). The following portions of the WV State Code apply to all portions of a GME:

1. WVSC §22-18 (WV Hazardous Waste Management Act)
2. WVSC §22-12 (WV Groundwater Protection Act)
3. WVSC §22-11 (WV Water Pollution Control Act) may also apply

(3). The following portions of the WV Code of State Rules apply to all portions of a GME:

1. 33 CSR 20 (WV Hazardous Waste Management Rule)2. 47 CSR 58 (WV Groundwater Protection Rule)

(4). The facility's Hazardous Waste Permit and modifications should be reviewed prior to the GME. The Permit establishes the parameters or constituents to be monitored and the EPA analytical methods to be used. Permit modifications often change parameters, constituents, frequency and other elements of groundwater monitoring.

(5). A review of the facility's Sampling and Analysis Plan (SAP) as submitted to WVDEP should be conducted prior to the GME, and an evaluation of how it is implemented on site should be included during the GME.

iv. Processes and Operating Units

(1). Regulated units typically having monitoring wells associated with them include RCRA Subtitle C Landfills, land treatment facilities, and surface impoundments. A facility may have a system of monitoring wells for each unit, and/or a system of monitoring wells monitoring the perimeter of the area in which all of the units are contained.

(2). Other types of units including tanks, sump and trench systems, and un-permitted disposal areas may have monitoring wells associated with them in conjunction with a CAO or other enforcement action.

(3). Solid Waste Management Units or Corrective Action Management Units may also have monitoring wells associated with them.

v. Sampling.

(1). Refer to any procedures and/or methods outlined in the facility's RCRA Permit regarding purging and sampling facility is to follow.

(2). Refer to the Data Generation and Acquisition Section of the QAPP for exact sampling methods, preservation, handling, custody, analytical and quality control methods and procedures Inspectors are to follow.

(3). Refer to the Sampling Inspection SOP for additional information on collection and management of samples.

vi. Accessibility.

(1). Since GMEs are typically pre-scheduled, Denial of Entry is rare. Inspectors denied entry for the purpose of conducting a GME should consult with their Supervisor on how to proceed.

(2). Some monitoring wells may be located in remote portions of a facility. If physical accessibility issues to any portion of the site are anticipated, a plan for addressing them should be created prior to the inspection.

vii. Health & Safety. Outline any health and safety issues likely to be encountered and what equipment or PPE will be needed. The most common health & safety issues encountered during a GME include very hot or very cold weather, snakes and poisonous plants.

b) File Review. The office evaluation portion may identify deficiencies in the design of groundwater monitoring systems.

i. Where to locate files.

(1). Field files in your respective office.

(2). Main file in Kanawha City and or Document Manager / Application Extender.

(3). Permitting file in Kanawha City.

(4). The absence of a file does not indicate the facility has not had a previous inspection.

1. Older files may have been archived; see DWWM Program Support Group Secretary

2. File may have been checked out and not returned.

(5). RCRAInfo.

1. Biennial Reports (if applicable).
2. Waste Codes & Activities.
3. Outstanding violations and un-resolved enforcement actions.

ii. What to review.

(1). Any prior GME reports or previous groundwater analytical data.

(2). Site maps, geologic, hydrogeologic and topographic maps and aerial photos.

(3). Process descriptions, list of operating units and hazardous waste areas.

(4). Previously-cited violations and active Orders.

1. Any outstanding violations or Orders.
2. Any previously repeated violations you may expect to find again.

(5). Documents associated with hazardous waste management at the facility. These may include but are not limited to Contingency Plan, waste analyses, soil boring logs, Groundwater Assessment Program outline and/or Sampling and Analysis Plan (SAP).

(6). Current permit and permit modifications since last inspection if applicable.

(7). Any other documents referenced by the above documents or by the Technical Analyst, Geologist or Environmental Resource Specialist from the DWWM Permitting Program / Waste Permitting Unit who is responsible for the facility's permit.

c) Review Applicable Regulations and Other Documents.

i. Use the State and Federal Regulations currently in effect at the time of the inspection.

ii. Be familiar with up-coming Rule and Regulatory changes or additions potentially applicable to site operations.

iii. Additional EPA documents such as the Final RCRA Comprehensive Ground-Water Monitoring Evaluation Guidance Document and RCRA Ground-Water Monitoring Technical Enforcement Guidance Document generally include discussion of how the guidance applies to enforcement of the regulations.

iv. In addition to any maps or charts necessary, the "Comprehensive Ground-Water Monitoring Evaluation Worksheet" found in Appendix A of EPA's Final RCRA Comprehensive Ground-Water Monitoring Evaluation Guidance Document should be completed and included in the final report.

d) Schedule the Inspection with the Facility.

i. They can provide you with up-coming sampling dates

ii. They may defer you to their contractor who will be conducting the sampling. If so, coordinate with the contractor.

e) Identify Necessary Equipment - Locate any equipment specific to this inspection.

f) Coordinate with Other Inspectors - If necessary, establish date, time and place to meet, along with who is to bring which equipment (coolers, sample containers, etc).

2. Preparing for an O&M Inspection.

a) Scope of the Inspection. Although conducted more frequently, the scope of an O&M Inspection is less detailed and less resource-intensive than a GME. An O&M Inspection encompasses activities and procedures that ensure the collection of representative ground water samples from an established groundwater monitoring system.

i. Focus and Objectives.

(1). The focus of an O&M Inspection is to ensure the facility's groundwater monitoring system is operated and maintained to established standards.

(2). The objective of an O&M Inspection, as stated in US EPA's Operation and Maintenance Inspection Guide , is to determine:

1. Whether the facility's personnel who collect groundwater samples are collecting them in accordance with the facility's SAP and applicable sections of the facility's RCRA Permit, and
2. Whether information provided by the facility's groundwater monitoring program is reliable.

(3). Components of an O&M Inspection are:

1. Office Review and Preparation (using Part One of Appendix B in the Operation and Maintenance Inspection Guide):
   a. Review and summarize enforcement and permitting actions that may affect the field inspection.
   b. Review Facility's SAP. Specifically identify:
      i. Number and location of monitoring wells and piezometers,
      ii. Procedures and techniques the facility uses to collect groundwater samples.
   c. Review Facility's O&M Program for details in place at the facility.
   d. Preparation of site-specific inspection objectives.
2. Field Inspection (using Part Two of Appendix B in the Operation and Maintenance Inspection Guide):
   a. Review operating record and identify deficiencies in the facility's sampling or O&M program.
   b. Visually inspect each well and piezometer for damage or deterioration and identify deficiencies in the facility's O&M program.

c. Obtain site data (depth to water, depth to bottom of well, etc.) for each well and piezometer and assess viability of individual wells.

d. Observe facility's personnel collect groundwater samples and assess whether sampling crew followed or deviated from the facility's written SAP.

3. Compliance Decision-Making (using Part Three of Appendix C in the Operation and Maintenance Inspection Guide):

a. Use field data collected during the inspection to determine whether the potentiometric map showing groundwater flow direction(s) generated by the facility is correct.

b. Identify violations in the facility's sampling program and/or O&M program.

c. Identify monitoring wells with problems which may compromise the integrity of the wells and/or data.

ii. Number and type of personnel. Same as Section IX.A.1.(a)(ii)(1) and (3) above

iii. Rules, Regulations and/or Permits. Same as Section IX.A.1.(a)(iii) above

iv. Sampling. Same as Section IX.A.1.(a)(v) above

v. Accessibility. Same as Section IX.A.1.(a)(vi) above

vi. Health & Safety. Same as Section IX.A.1.(a)(vii) above

b) File Review. The office evaluation portion identifies deficiencies in the design of groundwater monitoring systems.

i. Where to locate files. Same as Section IX.A.1.(b)(i) above

ii. What to review.

(1). Prior GME or O&M reports or previous groundwater analytical data.

(2). Site maps, geologic, hydrogeologic and topographic maps and aerial photos.

(3). Previously-cited violations and active Orders.
1. Any outstanding violations or Orders.
2. Any previously repeated violations you may expect to find again.

(4). The facility's Groundwater Assessment Program outline and/or Sampling and Analysis Plan (SAP).

(5). Current permit and permit modifications since last inspection if applicable.

(6). Note which phase the groundwater monitoring system is in: Detection, Compliance Monitoring or Corrective Action.

(7). Any other documents referenced by the above documents.

c) Review Applicable Regulations and Other Documents.

i. Same as Section IX.A.1.(c)(i) above

ii. Same as Section IX.A.1.(c)(ii) above

iii. Additional EPA documents such as the Operation and Maintenance Inspection Guide and RCRA Ground-Water Monitoring Technical Enforcement Guidance Document generally include discussion of how the guidance applies to enforcement of the regulations.

d) Schedule the Inspection with the Facility. Same as Section IX.A.1.(d) above

e) Identify Necessary Equipment Same as Section IX.A.1.(e) above

f) Coordinate with Other Inspectors - Same as Section IX.A.1.(f) above

B. CONDUCTING THE INSPECTION

1. Conducting the GME.

a) Arrival at the Site.

i. Follow the protocol for entering and presenting credentials outlined in Section IX-B-a) and b) of the CEI-SOP.

ii. On-Site Vehicle Usage.

(1). Use of one or more vehicles may be necessary in order to carry personnel and equipment to the well locations.

(2). Submit to vehicle safety inspection. This may be required to ensure contraband items are not brought on to plant property.

(3). If special vehicle equipment is required, such as yellow safety light or CB radio, the facility may be able to provide you with one to use while you are on their site.

(4). Obey company driving rules including speed limits, roadways and designated parking areas.

iii. Equipment and Camera Policies. Follow the protocol for entering and presenting credentials outlined in Section IX-B-d) of the CEI-SOP.

b) Physical Inspection. The field evaluation is two-fold: it first identifies discrepancies between system design as presented and as constructed, and second is an evaluation of the actual monitoring system's operation and is an opportunity to collect data necessary to determine the adequacy of the groundwater monitoring program (detection and assessment).

i. Escorts. Typically the contractor conducting the groundwater monitoring will be your escort. If the contractor is already at the well area when you arrive, the facility may assign someone to escort you there, or simply provide directions.

ii. Well Inspection. A site sketch including well locations, surface features and rough surface drainage pattern should be made on site. Additionally,

observations of the following items should be noted for each well and/or well cluster inspected:

(1). Number of wells and their locations.

(2). Distance and direction of the monitoring wells from the waste management area and from each other. Identify whether each well is up-gradient, down-gradient or side-gradient. For well clusters, note whether each well is clearly identifiable from the others in the cluster.

(3). Proximity and relation to any surface water or land features (streams, hillside, seeps, etc.)

(4). Primary and Secondary well casing construction materials, height above ground or flush mount, inner and outer diameter, cover, locks, and bumper guards, and the condition of each.

(5). Apron presence, condition, construction material and radius from outer well casing.

iii. Well Monitoring. Observations of the following items should be noted for each well inspected:

(1). Whether well is part of a cluster or compound well, and if so, order of purging and sampling.

(2). Depth to water, depth to well bottom, and elevation of each well. Note the device used, whether decontamination procedures were followed, and the location of any surveyor marks used as reference points.

(3). Presence or absence of immiscible layers (LNAPL or DNAPL) in the well, or whether this was measured.

(4). Well purge method, purge volume and recovery time.

(5). Sampling method (bailer, pump, etc.)

(6). Whether dedicated equipment is used or non-dedicated equipment is cleaned between wells. If equipment is cleaned, note what decontamination procedures and solutions were used.

(7). Method used, if any, to avoid contact with the ground or other contaminated surfaces prior to insertion of equipment into well.

(8). Appearance (turbidity, color, etc.) and order of samples collected (volatiles, pH, Red-Ox, inorganics, etc.)

(9). Method of field-filtering if performed.

(10). Method of field measurements if taken, and brief calibration description if monitoring equipment is used.

(11). Method of transferring sample to container.

(12). Number of containers used for each sample, preservative if any, and types of blanks used by contractor and by DEP.

c) Document Inspection. Where applicable, the following should be inspected while on-site:

i. Contractor's field log book should be reviewed to ensure all measurements, including equipment malfunctions or errors, are recorded.

ii. Contractor's sample container labels, seals, chain of custody form and sample analysis request sheet.

iii. Verification the facility is using a state-approved contract laboratory (or laboratories) for sample analyses.

d) Collection of Photographs, Document Copies and Samples.

i. Make sure you have taken all necessary photographs and recorded the area and subject of each photo.

ii. Request a copy of the contractor's monitoring report be emailed or sent by U.S. mail (certified preferred) within a reasonable timeframe once the samples have been analyzed.

iii. Ensure all sample receipts have been signed, and samples properly preserved following procedures outlined in the WVDEP-DWWM HW Quality Assurance Program Plan (QAPP).

iv. Obtain a copy of each well log where samples were split and a copy of the contractor's most recent field monitoring equipment calibration log.

e) Documenting Violations and Areas of Concern.

i. Physical violations and areas of concern should be photographed if there is any chance of dispute.

ii. For paperwork violations, photograph or obtain a photocopy of the document.

f) Exit Interview.

i. Hold a short closing meeting with appropriate individuals to discuss preliminary inspection findings, answer questions, and provide information for follow up procedures, if appropriate.

(1). Since not all violations may be determined during the on-site portion of the inspection, refrain from discussing or speculating on any non-compliance issues. Advise representatives you will address them in your report after you have viewed the contractor's report and consulted the regulations.

(2). Review areas of concern.

(3). Answer questions as clearly as possible without guessing. If you have access to additional information you may offer to forward it to them.

(4). Do not discuss or speculate on any potential enforcement proceedings.

ii. Thank the representative(s) for their time and cooperation.

2. Conducting the O&M Inspection.

a) Arrival at the Site. Same as Section IX.B.1.(a) above

b) Physical Inspection. The field evaluation is an evaluation of the actual monitoring system's operation and is an opportunity to collect data necessary to determine the adequacy of the groundwater monitoring program (detection and assessment).

i. Escorts. Same as Section IX.B.1.(b)(i) above

ii. Well Inspection. A site sketch including well locations, surface features and rough surface drainage pattern is optional. Observations of the following items should be noted for each well and/or well cluster inspected:

(1). Number of wells and their locations.

(2). Note how each well is identified in previous facility documents (up-gradient, down-gradient or side-gradient).

(3). For well clusters, note whether each well is clearly identifiable from the others in the cluster.

(4). Primary and Secondary well casing construction materials, height above ground or flush mount, inner and outer diameter, cover, locks, and bumper guards, and the condition of each.

(5). Apron presence, condition, construction material and radius from outer well casing.

iii. Well Monitoring. Same as Section IX.B.1.(b)(iii) above

c) Document Inspection. Same as Section IX.B.1.(c) above

d) Collection of Photographs, Document Copies and Samples. Same as Section IX.B.1.(d) above

e) Documenting Violations and Areas of Concern. Same as Section IX.B.1.(e) above

f) Exit Interview. Same as Section IX.B.1.(f) above

C. DOCUMENTING THE INSPECTION

1. Documenting the GME.

a) Collect and review data such as sample results and documents sent from the facility after the inspection, along with field notes, checklist and site sketches.

b) Your completed report should include the following:

i. RCRAInfo forms

ii. Inspection Fact Sheet

iii. Report Form

iv. Notice of Violation (if applicable)

v. Topographical Map and/or Aerial Photo (optional)

vi. The completed "Comprehensive Ground-Water Monitoring Evaluation Worksheet" found in Appendix A of EPA's Final RCRA Comprehensive

Ground-Water Monitoring Evaluation Guidance Document, site sketch(es), sample analysis, etc. Portions of the contractor's monitoring report may be included if necessary for comparison, or may be referenced in the body of the report.

c) The body of the report should include the following:
   i. An overview of the type of industry (refinery, chemical manufacturing, wood treater, etc.) and whether the facility is operating or closed, relevant processes, and current and/or past disposal practices,
   ii. A brief history of the disposal unit the wells are associated with, whether the specific unit (landfill, impoundment, etc.) is operating or closed, any notable releases related to the disposal unit,
   iii. A physical description of the disposal unit (type of liners, cap, leachate management system, etc.)
   iv. A brief discussion of the local geology, hydrogeology, groundwater flow rate and direction, any seasonal variations that may affect groundwater. A discussion of any changes in these from previous monitoring events.
   v. A brief description of the well placement including proximity to Point of Compliance, and construction, including screening, and an assessment of whether the wells are adequate. This should include a detailed explanation for any "no" answer given on the last three questions of the "Comprehensive Ground-Water Monitoring Evaluation Worksheet". While not offering specific corrective remedies, the discussion should indicate what specifically is inadequate and why.
      (1). "Is the facility currently operating under the correct monitoring program according to the statistical analyses performed by the current operator?"
      (2). "Does the groundwater monitoring system, as designed and operated, allow for detection or assessment of any possible groundwater contamination caused by the facility?"
      (3). "Does the sampling and analysis procedure permit the facility to detect and, where possible, assess the nature and extent of a release of hazardous constituents to groundwater from the monitored hazardous waste management facility?"

d) Clearly identify all violations and include the correct regulatory citation. Do not paraphrase regulatory citations.

e) Clearly identify all areas of concern and explain why or how they could lead to future violations.

f) Contact your Supervisor or Specialist for assistance if needed.

g) Within seven (7) working days of receipt of all pending data, complete your inspection report and all appropriate forms, and submit to your Supervisor.

h) Include the Technical Analyst, Geologist or Environmental Resource Specialist from the DWWM Permitting Program / Waste Permitting Unit who is responsible for the facility's permit on the list of people to receive a copy of the finished report.

i) NOV Tracking. Follow the protocol outlined in Section IX-C-11 of the CEI-SOP.

2. Documenting the O&M Inspection.

a) Collect and review data such as sample results and documents sent from the facility after the inspection, along with field notes, checklist and site sketches.

b) Your completed report should include the following:

i. RCRAInfo forms

ii. Inspection Fact Sheet

iii. Report Form

iv. Notice of Violation (if applicable)

v. Topographical Map and/or Aerial Photo (optional)

vi. The completed Appendix B of EPA's Operation & Maintenance Inspection Guide, site sketch(es), sample analysis, etc. Portions of the contractor's monitoring report may be included if necessary for comparison, or may be referenced in the body of the report.

c) The body of the report should include the following:

i. An overview of the type of industry (refinery, chemical manufacturing, wood treater, etc.) and whether the facility is operating or closed, relevant processes, and current and/or past disposal practices,

ii. A brief history of the disposal unit the wells are associated with, whether the specific unit (landfill, impoundment, etc.) is operating or closed, any notable releases related to the disposal unit,

iii. A physical description of the disposal unit (type of liners, cap, leachate management system, etc.)

iv. A brief discussion of any changes in the local geology, hydrogeology, groundwater flow rate and direction, any seasonal variations from previous monitoring events.

v. A brief description of the well placement and construction, including the outer casing and apron.

vi. A description of any statistically significant changes in the groundwater data from the previous time the same wells were sampled.

vii. Answer the following questions:

(1). Are the facility's personnel collecting groundwater samples in accordance with the facility's SAP and applicable sections of the facility's RCRA Permit?

(2). Is the facility's groundwater monitoring program providing reliable data?

(3). Is the groundwater monitoring system in the correct phase of monitoring?

d) In addition to any maps or charts necessary, all three parts of Appendix B of the Operation and Maintenance Inspection Guide should be completed and included in the final report.

e) Same as steps d) through i) of Section IX.C.1 above

X. DATA AND RECORDS MANAGEMENT

Follow the protocol outlined in Section X-A and B of the CEI-SOP.

XI. RESOURCES

A. WV STATE CODE - Chapter 22, Article 18: The Hazardous Waste Management Act
Chapter 22, Article 12: The WV Groundwater Protection Act
Chapter 22, Article 11: The WV Water Pollution Control Act

B. US CODE OF FEDERAL REGULATIONS (CFR) – 40 CFR Parts 264, 265 and 270

C. WV CODE OF STATE RULES - Title 33 Series 20: Hazardous Waste Management Rule
Title 47 Series 58: Groundwater Protection Rule

D. RCRAinfo DATABASE accessed at: https://rcrainfo.epa.gov/

E. REPORT TEMPLATES are located on the network drive at: ENVIRONMENTAL ENFORCEMENT WANSHARE\Staff Access\Inspection Report Forms & Templates\Hazardous Waste Forms

F. EPA CHECKLIST AND GUIDANCE DOCUMENTS are located on the network drive at: ENVIRONMENTAL ENFORCEMENT WANSHARE\Staff Access\HW Guidance by Topic\Groundwater.

XII. FREQUENCY

A. INSPECTIONS AND REPORT REVIEWS are an on-going activity.

B. EPA GRANT COMMITMENT requires inspections frequencies in accordance with the RCRA C Compliance Monitoring Strategy. This includes but is not limited to the annual inspection of all Federal permitted TSDs, the biennial inspection of all privately owned permitted TSDs.

C. GMEs should be conducted until it is determined that the groundwater monitoring system at the facility is adequately designed and operated to detect releases or to define the rate and extent of contaminant migration from all regulated units. More frequent GMEs should be

conducted in certain situations, such as facilities having complex compliance or corrective action requirements, inadequate groundwater monitoring systems, significant changes to groundwater monitoring systems, or changes in localized groundwater systems.

D. **O&M INSPECTIONS** are conducted starting from the time a facility's groundwater monitoring system is deemed adequate. O&M inspections may continue through the phases of Detection Monitoring, Compliance Monitoring and Corrective Action, unless circumstances dictate return to GMEs.

XIII. QUALITY CONTROL AND QUALITY ASSURANCE (QC/QA)

A. **COMPARE PROCESSES AND/OR CONDITIONS:** Compare descriptions of well location and design, groundwater flow rates and direction, as well as purge and sample methods in previous inspection reports to determine significant changes or potential errors.

B. **PERMIT STAFF DATA REVIEW:** If possible, have the Technical Analyst, Geologist or Environmental Resource Specialist from the DWWM Permitting Program / Waste Permitting Unit who is responsible for the facility's permit, or other Geologist within DWWM, review the data collected from the groundwater monitoring event, including sample results, and provide comments on any significant findings.

C. **PROOF-READ AND SPELL CHECK:** Double check each report for accuracy, completeness, spelling and grammatical errors. Ensure all attachments are noted in the body of the report and are included with the report along with divider pages if there is more than one attachment.

D. **REPORT REVIEW BY INSPECTOR SUPERVISOR:** Reports are reviewed for completeness, ease of understanding and accuracy to ensure technical issues are properly addressed, regulations are correctly applied and violations are correctly cited.

E. **REPORT REVIEW BY THE PROGRAM MANAGER:** Reports where enforcement actions are being taken are reviewed by the Program Manager to ensure the actions are relevant and appropriate.

F. **PERIODIC FEDERAL REVIEW:** EPA Region III and EPA Headquarters receives semi-annual grant commitment reports. EPA also conducts a more comprehensive periodic review through the state review framework process (SRF) to assess the success and accuracy of West Virginia's hazardous waste inspection and enforcement program.

XIV. REFERENCES

The following quick reference guide is a sampling of frequently used documents and their locations:

40 CFR Parts 264, 265 and 270: http://www.ecfr.gov/cgi-bin/text-idx?SID=9e5dfef3ccc4aa440821d129fc21bdcc&mc=true&tpl=/ecfrbrowse/Title40/40tab_02.tpl

33 CSR 20 –Hazardous Waste Management Rule: http://apps.sos.wv.gov/adlaw/csr/rule.aspx?rule=33-20

47 CSR 58 –Groundwater Protection Rule: http://apps.sos.wv.gov/adlaw/csr/rule.aspx?rule=47-58

Compliance Monitoring Strategy for the Resource Conservation and Recovery Act (Core Program): https://www.epa.gov/sites/production/files/2013-11/documents/rcracms.pdf

Compliance Monitoring Strategy for the Resource Conservation and Recovery Act (Appendices): https://www.epa.gov/sites/production/files/2013-11/documents/rcracms-appendices.pdf

Final RCRA Comprehensive Ground-Water Monitoring Evaluation Guidance Document: https://www.epa.gov/sites/production/files/2013-10/documents/frcracmedoc-rpt.pdf

Ground-Water Sampling Guidelines For Superfund And RCRA Project Managers: https://www.epa.gov/sites/production/files/2015-06/documents/finalgroundwatersamplingguidelines.pdf

Ground Water Monitoring Requirements for Hazardous Waste Treatment, Storage and Disposal Facilities: https://www.epa.gov/hwpermitting/ground-water-monitoring-requirements-hazardous-waste-treatment-storage-and-disposal

Handbook of Groundwater Protection and Cleanup Policies for the Resource Conservation and Recovery Act Corrective Action: https://www.epa.gov/sites/production/files/2015-08/documents/gwhb041404.pdf

McCoy's RCRA Unraveled, Current Edition, McCoy and Associates, Inc., Lakewood, Colorado. http://www.mccoyseminars.com/pubs.rcra.cfm

Operation And Maintenance Inspection Guide: https://www.epa.gov/sites/production/files/documents/rcrainspecguid-rpt.pdf

Optimal Well Locator (OWL) A Screening Tool for Evaluating Locations of Monitoring Wells: https://www.epa.gov/water-research/optimal-well-locator-owl

RCRAinfo database accessed at: https://rcrainfo.epa.gov/

RCRA Comprehensive Ground Water Monitoring Evaluations and Operation & Maintenance Inspections (pamphlet): http://nepis.epa.gov/Exe/ZyNET.exe/91011BJ2.TXT?ZyActionD=ZyDocument&Client=EPA&Index=1991+Thru+1994&Docs=&Query=&Time=&EndTime=&SearchMethod=1&TocRestrict=n&Toc=&TocEntry=&QField=&QFieldYear=&QFieldMonth=&QFieldDay=&IntQFieldOp=0&ExtQFieldOp=0&XmlQuery=&File=D%3A%5Czyfiles%5CIndex%20Data%5C91thru94%5CTxt%5C00000027%5C91011BJ2.txt&User=ANONYMOUS&Password=anonymous&SortMethod=h%7C-&MaximumDocuments=1&FuzzyDegree=0&ImageQuality=r75g8/r75g8/x150y150g16/i425&Display=p%7Cf&DefSeekPage=x&SearchBack=ZyActionL&Back=ZyActionS&BackDesc=Results%20page&MaximumPages=1&ZyEntry=1&SeekPage=x&ZyPURL

RCRA Ground-Water Monitoring: Draft Technical Guidance: https://www.epa.gov/sites/production/files/2015-06/documents/rcra_gwm92.pdf

RCRA Ground Water Monitoring Technical Enforcement Guidance Document (TEGD): https://www.epa.gov/sites/production/files/documents/rcragwguiddoc-rpt_0.pdf

RCRA Orientation Manual (2014 Edition): https://www.epa.gov/sites/production/files/2015-07/documents/rom.pdf

Report Templates on network drive at: ENVIRONMENTAL ENFORCEMENT WANSHARE\Staff Access\Inspection Report Forms & Templates\Hazardous Waste Forms

Resource Conservation and Recovery Act Training Module about Groundwater Monitoring: https://www.epa.gov/sites/production/files/2015-07/documents/gwm.pdf

Subpart E-Groundwater Monitoring and Corrective Action: https://www.epa.gov/sites/production/files/2016-03/documents/subparte_0.pdf

WVSC §22-18: http://www.legis.state.wv.us/WVCODE/Code.cfm?chap=22&art=18#18

WVSC §22-12: 2http://www.legis.state.wv.us/WVCODE/Code.cfm?chap=22&art=12#12

WVSC §22-11: http://www.legis.state.wv.us/WVCODE/Code.cfm?chap=22&art=11#11

ROUTING SLIP:

Penny Harris	DWWM/EE-HW	3/24/2017
Author	Division/Section/Unit	Date
Kevin Campbell	DWWM/EE-HW	3/24/2017
Peer Reviewer	Division/Section/Unit	Date
		Click here to enter a date.
(Optional) Peer Reviewer	Division/Section/Unit	Date
		Click here to enter a date.
(Optional) Peer Reviewer	Division/Section/Unit	Date
		Click here to enter a date.
(Optional) Peer Reviewer	Division/Section/Unit	Date
Joseph M. Sizemore	DWWM – EE – HW	3/24/2017
Manager/Supervisor	Division/Section/Unit	Date

For Internal Use Only

West Virginia Department of Environmental Protection
RCRA Subtitle C -- Hazardous Waste Management Program
RCRAInfo Quality Assurance Procedures

The West Virginia Department of Environmental Protection (WVDEP) has a Quality Management Plan, dated August 31, 2021, which documents the policies, procedures, roles, and responsibilities associated with the DEPs Quality System with respect to environmental measurements gathered by the DEP, or its contractors. The plan has been reviewed and approved by US EPA in accordance with QA/R-2, EPA Requirements for Quality Management Plans, August 31, 2021. The following procedures are specific to the hazardous waste management program and are intended to be used as guidance in addition to the WVDEP QMP.

The department's Division of Water and Waste Management Program Support Branch utilizes the RCRAInfo quality assurance procedures for Handler; Compliance, Monitoring and Enforcement (CM&E); Permitting; Financial Assurance (FA); Corrective Action (CA); and Biennial Reporting (BR) data. The process is continually reviewed and revised in an effort to ensure that accurate data is captured and entered into RCRAInfo on a routine basis.

In addition to performing regular quality assurance checks, the Program Support Branch team participates in RCRAInfo National conference calls, attends the National Conference, trains program staff on proper data management practices, and provides many types of reports to program staff for data verification and for reporting grant accomplishments to US EPA. Program Support Branch initiates data cleanup efforts in areas where problems seem prevalent (e.g., penalties collected in the enforcement module, missing information such as NAICS codes and owner/operator in the handler module, and unlinked units and events in the permitting module). One member of the Program Support Branch, System Administrator, updates information regarding staffing changes. System Administrator serves as the liaison with EPA Region III for RCRAInfo technical support. Program Support staff serves as liaison for current permitting, financial assurance, and corrective action data as well as historical data.

The following outlines the Program Support Branch's existing internal quality assurance process for RCRAInfo data. For each module, System Administrator performs pre-entry and post-entry QA/QC, which includes contacting applicants, hazardous waste inspectors or enforcement staff to correct or supply omitted information and reviewing/verifying data in RCRAInfo. Program Support staff, under the direct supervision of System Administrator, inputs data and adjusts incorrectly entered information in RCRAInfo.

Handler Data

Permanent EPA ID Numbers - Initial 8700-12 applications and subsequent applications are entered within three to four days upon determining that information in the RCRA Site ID Form is complete and accurate. When all information is available and correct, a search is performed in RCRAInfo to determine if the facility already has an EPA ID number. If a facility already has an EPA ID number, the contact person for the application is reached to see if the facility moved from one location to another and if the previous location was closed. If that is the case, documentation is requested to close out the old facility. If the facility does not have an ID number and the application is correct and complete, the data is entered into RCRAInfo and a letter is sent to the facility acknowledging receipt of the form and providing them with their assigned EPA ID number. Finally, all hard copy forms and letters are uploaded and indexed into the Application Extender filing database that will contain all future forms, reports, and correspondence.

Short-Term EPA ID Numbers – 30-day request forms are researched and entered in RCRAInfo no longer than 48 hours after receipt. When all information is available and correct, a search is performed in RCRAInfo to determine if the facility already has an EPA ID number. If a facility already has a short-term EPA ID number, if the waste being generated is the same, another number can't be issued. They will have to follow the same process of completing the 8700-12 application.

CM&E Data

Data shall be entered into RCRAInfo within three days of receipt of document (e.g., inspection report). System Administrator ensures the completeness and accuracy of the document by analyzing it (the inspection report or enforcement action) and resolves questions by corresponding with the inspector or enforcement staff. After Program Support staff enters the data, she completes an item-by-item check to confirm that all information has been inputted into RCRAInfo.

Program Support staff generates the Timely and Appropriate Enforcement Report once monthly for CM&E inspectors, unit supervisors and the field operations manager. The report highlights violations out of compliance for more than 150 days. The majority of these violations have pending enforcement actions; therefore, the CM&E inspectors provide an update of the status of the enforcement action. If a facility listed on the Timely and Appropriate Enforcement Report has been returned to compliance, the inspector then submits a RCRAInfo data entry form to the Program Support Branch to update the information in RCRAInfo. Program Support staff also provides CM& E staff with Significant Non-compliers information.

The Program Support staff works closely with CM&E program managers and staff to provide accurate data to assist in setting and reporting grant commitments.

Program Support staff collaborates with CM&E program managers and EPA during the State Review Framework (SRF) reviews and to draft responses to reviews.

System Administrator is the contact for the Enforcement and Compliance History Online (ECHO) Error Tracker System. When notified through Error Tracker of a potential data error, System Administrator researches the data in ECHO and RCRAInfo, reviews the facility file and may contact appropriate CM&E staff to determine if an error truly exists. If it is determined an error exists, the data is rectified. Within 48 hours of receiving the Error Tracker message, a response is provided detailing the results of the research.

Permitting Data

HW Permitting staff will complete all data entry forms for permit data cleanup and current permitting activities for the unit and forwards them to the Program Support Branch for review and data entry. Data entry by Program Support staff occurs within three days of receipt of valid RCRAInfo data entry form. Once permitting data has been entered, System Administrator reviews the information for accuracy.

Financial Assurance Data

FA data is placed into RCRAInfo within three days of receipt of the data entry form. The Permitting staff is responsible for FA for operating and post-closure permits. Utilizing the RCRAInfo data entry form, they ensure that facilities have financial assurance measures in place and provide the information to the Program Support Branch. Corrective action sites with a final remedy in place will have financial assurance measures required under the corrective action order and, therefore, the RCRAInfo data entry form will be provided to the Program Support Branch.

Corrective Action Data

The CA staff also provides oversight regarding facilities with CA. After receiving data entry forms from the Permitting staff, the Program Support Branch reviews it to ensure that the forms are complete with all information pertinent to the activity. The CA data is then placed in RCRAInfo by Program Support staff within three days of receipt of data entry forms. Once the information has been placed into RCRAInfo, System Administrator performs post-entry QA/QC.

Biennial Reporting

In a BR year, Program Support staff generates a list showing all the permanent and short-term facilities that generated as an LQG or TSD in the BR year. Program Support then sends letters to all facilities giving them instructions to complete the BR in the EPA database RCRAInfo V6. Once reporting information is received in RCRAInfo or by mail, it is validated by System Administrator who notifies facilities of missing and or incorrect information. If needed, Hazardous Waste field staff is contacted to ensure correct information has been filed. Once corrected, the e-manfiest system is checked, then several national validation reports are generated in RCRAInfo for review at the state level, and then the data is sent to EPA for further evaluation. If a problem occurs, EPA will notify state of corrections or questions and System Administrator is responsible for amending and notifying EPA of the final data submittal.

STEPS FOR HAZARDOUS WASTE CERTIFICATION FEES

- System Administrator pulls facility information, including generating status, from RCRAInfo and uploads to an excel spreadsheet.

- System Administrator adds current fee information, based on the generating status, and adds past due fees, late fees from a spreadsheet kept throughout the previous year's billing cycle.

- Once completed and correct, the spreadsheet is emailed to Bugzilla for processing and is uploaded into ERIS, invoices are generated, and then reviewed by System Administrator.

- Once the upload is correct and is in ERIS, System Administrator emails Fiscal Services to give a start date to generate, print and mail the certification fee invoices and appendix forms.

- Most payments are received at the State Treasury Office. An upload from Treasury to Fiscal Services is sent by email stating the amount of money that was received for that day. Checks may also be received in Fiscal Services office or facilities may call and pay by credit card.

- Fiscal Services uploads the payments into ERIS.

- Any phone call/letter/email from a facility questioning their generating status, or other program-specific questions is sent to System Administrator. All billing/payment questions are answered by Fiscal Services.

- If a facility representative informs the System Administrator that they are closed, moved, or sold, the System Administrator gets the information in writing for the file and then request approval to email Fiscal Services to adjust the invoice.

- When adjustments are approved, the System Administrator sends an email to Fiscal Services stating the invoice and reason for the adjustment. Fiscal Services makes all adjustments in ERIS customer account. Once completed, Fiscal Services will email System Administrator which saves all emails in folder for current billing years files.

- Any checks received in the Charleston office are taken to the Fiscal Services office by Program Support Staff or sent by interdepartmental mail within 24 hours of receipt.

REASONS TO ADJUST INVOICES

- Facility closure
- Facility became a non-handler
- Changes in status (higher or lower – CESQG, SQG and/or LQG)
- Paid under a different invoice number
- Ownership change

HAZARDOUS WASTE CERTIFICATION FEE PROCESS

- 1ST Invoice – sent around September 1 of each calendar year
- 2nd Invoice – sent on November 16th of each calendar year with a late fee
- January of following year, Program Support Staff contacts facilities regarding missing fees/Appendix I forms by email/phone
- Final notice letter is created and signed by System Administrator and sent by mail
- NOV letter is created by System Administrator and signed by Environmental Enforcement and sent by certified mail
- Unilateral Order, cover letter, and tracking slip created and signed by Environmental Enforcement and sent by certified mail
- Refer to the Office of Legal Services

APPENDIX D

Hazardous Waste Work Plan

FY2023 - 2025 RCRA SUBTITLE C HAZARDOUS WASTE GRANT WORK PLAN

Name of State Environmental Agency

FY23 Revision: ____

<table>
<tr><td colspan="4">EPA Strategic Plan Alignment
Goal 3: Enforce Environmental Laws and Ensure Compliance
Goal 2: Take Decisive Action to Advance Environmental Justice and Civil Rights
Goal 1: Tackle the Climate Crisis</td></tr>
<tr><td colspan="4">Objective 3.1: Hold Environmental Violators and Responsible Parties Accountable
Objective 3.2: Detect Violations and Promote Compliance
Objective 2.1: Promote Environmental Justice and Civil Rights at the Federal, Tribal, State, and Local Levels
Objective 2.3: Strengthen Civil Rights Enforcement in Communities with Environmental Justice Concerns
Objective 1.2: Accelerate Resilience and Adaptation to Climate Change Impacts</td></tr>
<tr><td>Work Plan Component:
Compliance and Enforcement</td><td>Work Year (FTE Covered Under the Federal Portion of the Grant):
% of Federal Funding Allocated:</td><td>Fiscal Year: 2023
EPA Contact (s): Designated State Program Manager Prentiss Ward
State Contact (s): Joseph Sizemore</td><td>FY24 commitments will be negotiated in the fourth quarter of FY23.</td></tr>
<tr><td>Measures</td><td colspan="2">Planned Accomplishments</td><td>Midyear/ End of Year /Comments</td></tr>
<tr><td>State Level Results:

TSDs – Inspect at least 50% of the universe RCRA01.s

LQGs - Inspect at least 20% of the universe RCRA02.s

In lieu of LQG inspections, States may substitute inspections of SQGs, VSQG/CESQGs, Non-notifiers, and/or Other RCRA Handlers or target LQG inspections with the greatest potential for environmental impact under an approved</td><td colspan="2">Outcomes/Outputs/Commitments

E.1 Number of Federal TSDs Inspected (Goal: Inspect all facilities every year) – _1_
Total number of Federal TSDs – _1_

E.2 Number of Private TSDs inspected (Goal: Inspect all facilities at least once every 2 years) – _6__
Total number of Private TSDs – _12__

E.3 Number of State & Local TSDs Inspected (Goal: Inspect all facilities at least once every 2 years) – _1____
Total number of State & Local TSDs – __1____</td><td></td></tr>
</table>

Alternate Plan. Alternate Plans should be submitted with the State's Draft Workplan and approved by EPA before implementation.	**E.4** Number of LQGs Inspected (Goal: Inspect every LQG and reverse distributor once every 5 years and 20% of the combined LQG and pharmaceutical reverse distributor universes every year.) – __27_ Total number of LQGs – _134_____ **E.5** Number of LDF/Post Closure Facilities Inspected *(report out, no specific commitment needed)* – _____ **E.6** Number of SQGs and VSQG/CESQGs Inspected – _____ (Total # of SQGs_____, Total # of VSQG/CESQGs_____) **E.7** SNCs Activity (*report out, no specific commitment needed)* Number of new SNCs Identified _____ Number of SNCs Resolved _____ **E.8** Enter all required data obtained from compliance inspections into RCRAInfo no later than 30 days following the inspection. This includes violations, enforcement response, etc. Inspections will identify SNCs, and the appropriate SNC data will be entered into RCRAInfo within 30 days. **E.9** Ensure any enforcement actions are taken in accordance with the "timely and appropriate" criteria established in EPA's December 2003 "Enforcement Response Policy (ERP)." **E.10** Provide EPA, upon request, with copies of reports or data resulting from any compliance inspection and subsequent enforcement actions. **E.11** Use all appropriate injunctive relief tools in civil enforcement settlements.	

	E.12 Strengthen environmental justice to create a robust enforcement program through training, participation, and use of tools and guidance. **E.13** Improve compliance assurance through data management and enforcement targeting capabilities, where appropriate.	
	E.14 Miscellaneous FCI inspections (*report out, no specific commitment needed)* Complaints (COM) Emergency Responses (EMR & SPL)	
	E.15 Air Quality - Number of inspections of private TSD facilities, boilers, incinerators, thermal treatment units and other TSD air- emitting permitted facilities. _7_	
	E.16 Air Quality - Number of inspections of LQG facilities under air emission standards for process vents, equipment leaks, tanks, surface impoundments and containers. ___35____	
	E.17 Air Quality – Number of Used Oil Burner inspections. _5_	

APPENDIX E

Quality Management Plan

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029

DATE: August 31, 2021

SUBJECT: West Virginia Department of Environmental Protection – Quality Management Plan

FROM: Kia Long, Region 3 Quality Assurance Manager
Applied Science & Quality Assurance Branch (3LS10)

TO: Christina L. Richmond
West Virginia Department of Environmental Protection – Business Operations

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Thank you for submitting the revised *West Virginia Department of Environmental Protection - Quality Management Plan* (EPA QA # 210162) for approval. The QMP satisfies the minimum criteria contained in EPA QA/R-2, Requirements for Quality Management Plans, 3/2001 and is hereby approved for five years (**valid until August 31, 2026**).

In accordance to EPA's QA policy, this QMP shall be reviewed annually by WVDEP to reconfirm the suitability and effectiveness of the approved quality management practices. WVDEP shall submit a revised QMP to EPA for approval for any material changes made to the quality system.

The QMP has been digitally signed by the EPA Region 3 Quality Assurance Manager. Should you have any questions, please feel free to contact me at (215) 814-2111 or long.kia@epa.gov

QUALITY MANAGEMENT PLAN

FOR THE

WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION

2021

Document Control Number:

DEP-QMP-2021

Prepared for: U. S. Environmental Protection Agency
Region III
Various Programs
701 Mapes Road
Ft. Meade, MD 20755-5350

Prepared by: West Virginia Department of Environmental Protection
601 57th Street, SE
Charleston, WV 25304-2345
Christina Richmond – Designated Quality Assurance Manager
304-926-0499

Quality Assurance Management Plan Approvals

Name: Harold Ward

Title: WV DEP Cabinet Secretary

Signature and Date: Harold D. Ward 8/19/21

Name: Scott Mandirola

Title: Deputy Cabinet Secretary

Signature and Date: Scott G Mandirola Digitally signed by Scott G Mandirola Date: 2021.08.31 10:52:34 -04'00'

Name: Laura Crowder

Title: Director, Division of Air Quality

Signature and Date: Laura M. Crowder Digitally signed by: Laura M. Crowder DN: CN = Laura M. Crowder email = Laura.M.Crowder@wv.gov C = US O = West Virginia Department of Environmental Protection OU = Division of Air Quality Date: 2021.08.19 08:44:21 -04'00'

Name: Katheryn Emery

Title: Acting Director, Division of Water and Waste Management

Signature and Date: Katheryn Emery Digitally signed by: Katheryn Emery DN: CN = Katheryn Emery email = katheryn.d.emery@wv.gov C = US Date: 2021.08.18 21:37:26 -04'00'

Name: Jonathan Rorrer

Title: Director, Division of Mining and Reclamation

Signature and Date: August 19, 2021

Name: Michael Sheehan

Title: Acting Director, Division of Land Restoration

Signature and Date: Mike Sheehan Digitally signed by: Mike Sheehan DN: CN = Mike Sheehan email = michael.p.sheehan@wv.gov C = US O = DEP OU = DLR Date: 2021.08.18 13:54:24 -04'00'

Name: Christina Richmond

Title: Designated Quality Assurance Manager

Signature and Date: Christina L Richmond Digitally signed by: Christina L Richmond DN: CN = Christina L Richmond email = christina.l.richmond@wv.gov C = AD O = WV DEP OU = Business Operations Date: 2021.08.31 10:59:55 -04'00'

Name: Kia Long

Title: EPA Region 3 Quality Assurance Manager

Signature and Date: Long, Kia Digitally signed by Long, Kia Date: 2021.08.31 13:51:14 -04'00'

Table of Contents

List of Key Acronyms

BMP Best Management Practice

CBP Chesapeake Bay Program

CEDS Comprehensive Environmental Data System

DQA Data Quality Assessment

DQI Data Quality Indicators, such as PARCCS

DQO Data Quality Objective

NPS Nonpoint Source

PARCCS Precision, Accuracy, Representativeness, Completeness, Comparability, and Sensitivity

QA Quality Assurance

QAM Quality Assurance Manager

QAPP Quality Assurance Project Plan

QAPrP Quality Assurance Program Plan

QC Quality Control

QMP Quality Management Plan

QMS Quality Management System

SAP Sampling and Analysis Plan, or equivalent document (e.g., Site Assessment Work Plan)

SOP Standard Operating Procedure

TSA Technical System Audit

EPA United States Environmental Protection Agency

DEP Department of Environmental Protection

DWWM – Division of Water and Waste Management

DLR – Division of Land Restoration

DAQ-Division of Air Quality

DMR- Division of Mining and Reclamation

CHAPTER 1: POLICY, SCOPE AND OBJECTIVES OF DEP'S QUALITY MANAGEMENT PLAN

DEP QUALITY ASSURANCE POLICY

Background and Purpose

The Quality Management Plan (QMP) describes the processes the Department of Environmental Protection (DEP) uses to maintain a Quality Management System (QMS) consistent with the Environmental Protection Agency (EPA) requirements. The Quality Management System supporting DEP programs involving environmental data or technology shall be covered by this QMP. The QMP is an "umbrella" document which describes policies and, procedures, and management systems within the organization that govern quality control activities of environmental information collection and use with the DEP. Implementation of this plan within the DEP programs ensures that decisions made by the agency are based upon sound professional principles and environmental data of known and acceptable quality. The QMP is intended to provide overarching structure and guidance to DEP's EPA funded programs.

Environmental data are defined as information or measurements resulting from field data collection activities, laboratory analyses, or models involving the assessment of chemical, physical, or biological factors relating to the environment. Programs and activities that generate such data and are funded by the EPA are required to comply with the requirements of this QMP.

Policy Statement

The DEP is committed to implementing a Quality Management System that will ensure that data and decisions made are technically correct and defensible. This document links the management policies, objectives, and principles of the program with the procedures described in associated Quality Assurance Program Plans (QAPrP), Quality Assurance Project Plans (QAPPs) and Standard Operating Procedures (SOPs), which are designed to produce data of known quality.

The DEP is committed to continuously evaluating and improving Quality Management Systems described in this QMP. The QMP establishes the foundation for implementing an effective Quality System and applies to all DEP program activities, grants, contracts, and interagency agreements that collect, evaluate, or use environmental data and information governed by EPA.

General Goals and Objectives of the Quality Management System

The DEP's Quality Management System is designed to reduce the possibility that environmental data collected do not meet the quality requirements established by law;

or are suspect or unusable. The primary goal is to ensure that all environmentally related data collection and processing activities result in data that have documented quality at an acceptable level for the intended use. The data should support specific decisions or actions with a high degree of certainty to help ensure that the final product is correct. This includes actions or decisions made by monitoring or measurement activities supported through EPA grants, other state and federal grants, or interagency agreements. This goal is achieved by ensuring that adequate resources are made available and proper procedures are followed throughout the process of planning, collection, analyzing and interpreting environmental data.

Specifically, the following items are considered priorities:

- Ensure that all environmental data generated by or for the agency are scientifically valid, defensible, and of documented and adequate quality
- Maintain communication on QA issues and activities among management and staff
- Accomplish the QA process in the most cost-effective manner without compromising data quality
- Encourage the use of QA/QC in the management of environmental projects
- Assure the quality objectives for generating new environmental data will be determined prior to collection activities. This predetermination ensures that appropriate resources and QA/QC methods can be applied to generate a level of data quality that meets the intended use.
- Programs that create or support externally generated environmental data through contracts, subgrants, or interagency agreements will ensure that data collection complies with DEP policy. Contracts, subgrants, or agreements must require the external parties to develop and follow acceptable Quality Management practices.
- There will be an ongoing system of evaluation for QA efforts to ensure that the Quality Management System is meeting the needs and expectations of data users as well as QA requirements.
- Programs or activities that accept externally generated environmental data used in decision making are to ensure that the supplying entity has followed acceptable Quality Management practices.

Resources for the Quality Assurance System

Quality Assurance (QA) is viewed as an integral part of any program and activity within the agency that deals with environmental measurements, monitoring and data generation. The level of QA resources needed for any given program or project is determined by the relevant Division Director, Program or Project Manager.

The Agency Quality Assurance Manager (QAM) is responsible for ensuring quality data is produced in the WVDEP. The QAM position resides within the Business Office and is

independent from the other offices and divisions in the DEP. The Quality Assurance Manager is provided with resources to help develop and implement associated program activities and work with Programs, where necessary. The DEP QAM operates independently from programs that generate data and works directly with Managers to ensure that QA responsibilities are conducted without conflict of interest and any necessary corrective actions are completed.

CHAPTER 2: DEP ORGANIZATION/MANAGEMENT AND QMP IMPLEMENTATION

ORGANIZATIONAL STRUCTURE

The DEP is the primary state agency in West Virginia with regulatory authority and responsibility for air and water pollution control programs, regulation of mining and reclamation as well as oil and gas extraction, solid and hazardous waste management programs, and environmental remediation. Currently the agency employs a decentralized approach to QA management, whereby each division or office is responsible for deciding how it will specifically implement the general policies and procedures of the QMP.

While the day-to-day oversight of QA management falls to the individual divisions and offices, the Agency has an appointed Quality Assurance Manager to assist with a centralized oversight of Agency Quality Systems.

The DEP secretary has delegated the day-to-day responsibility of overseeing the QMP to the Agency Quality Assurance Manager (QAM). The Agency Quality Assurance Manager works to address quality issues through regular interaction with programs as well as through workgroups formed when needed to address specific issues and provide recommendations for solutions. Each Division and major office shall ensure adequate resources are available to successfully implement QA requirements for their environmental programs and data.

ROLES AND RESPONSIBILITIES

All employees within the DEP are covered by the QMP when directly or indirectly involved with environmental data collection or with ensuring data quality.

Through the formation of the enterprise model, employees at all levels of the agency are providing input and reviewing quality concerns within the agency. These groups also work together to make recommendations to ensure that quality issues are recorded and addressed, as priorities or when immediate needs arise.

DEP Cabinet Secretary:

The Cabinet Secretary has overall responsibility for the DEP QA Program as outlined in EPA Order 5360.1 A2. More specifically, the Cabinet Secretary is responsible for ensuring that QA is an identifiable activity that has adequate resources allocated to accomplish the agency's mission and goals. These goals include providing the resources for the collection of the correct type, quantity, and quality of data for all in-house and external projects.

Division Directors:

The Division Directors have the overall responsibility for managing the QA program within their assigned oversight in accordance with the QMP and EPA approved program QAPrPs, where applicable. Each Director has the authority to ensure that adequate resources are provided to support necessary QA Program responsibilities.

Program Managers:

The Program Managers coordinate staff to ensure implementation of the Quality Management System where environmental measurements are to occur. The Program Managers

- Ensure Program-specific QA-related training needs are identified.
- Confirm that all individuals working with environmental data and information have the appropriate QA training commensurate with those responsibilities.
- Ensure environmental data collection activities are covered by appropriate planning and documentation including Data Quality Objectives (DQO), QAPPs, QAPrPs, SOPs, etc.
- Ensure QAPPs are written, signed, and effectively implemented for projects that generate environmental data. (QAPPs may be developed by contractors or other responsible parties outside the agency. QAPP components may be incorporated into a Sampling and Analysis Plan (SAP) or equivalent work plan document. Final approval, must come from authorized personnel. Authorized personnel can include EPA or DEP, whichever authority is required for program oversight.
- Ensure effective implementation for projects that generate environmental data by overseeing approval of DEP site-specific QAPPs, written by program personnel, contractors, or other responsible parties by appropriate program personnel.
- Ensure an adequate degree of data auditing is performed to determine and achieve compliance with QA requirements.
- Cooperate with QA assessments and audits, and implement appropriate corrective actions recommended, if there are program findings.
- Address deficiencies identified in audits and ensure any quality issues are corrected expeditiously.
- Work with their program to ensure that QA requirements, data quality issues, and disputes are addressed, and request the appropriate resources needed from management.

Agency QA Manager:

- Ensures the QMP is developed, updated, and effectively implemented;

- Encourages a culture of quality within the DEP.
- Leads and facilitates communication between and among staff across the Agency and disseminates QA guidance documents, policies and procedures as needed.
- Ensures members from program offices who are designated to assist with QA implementation are reporting information back to all employees of the program.
- Helps develop training related to QA and works with HR to maintain training records for staff.
- Coordinates review of DEP's QA procedures and documentation in the QMP at least annually or per the prescribed schedule

Project Managers and Program Staff

- Ensure environmental data collection activities are covered by appropriate planning and documentation including Data Quality Objectives (DQO), QAPPs, QAPrPs, SAPs, SOPs, etc.
- Ensure QAPPs and QAPrPs are written, signed, and effectively implemented for all projects that generate environmental data. (QAPPs and QAPrPs may be developed by contractors or others outside the agency. QAPP components may be incorporated into a SAP. Final approval, however, must come from authorized personnel in the DEP or EPA.)
- Ensure an adequate degree of data auditing is performed to determine and achieve compliance with QA requirements.
- Address deficiencies highlighted in audits and ensure any quality issues are corrected expeditiously.
- Ensure project-specific QA-related training needs are identified and provided.

Program QA leads (where appointed):

- Assist in maintaining and updating the QMP.
- Distribute QA documents, policies, and procedures to all employees who need the information.
- Routinely review the QA procedures and keep Division Directors and senior managers apprised of issues.
- Conduct reviews and assessments of QA and QC activities and prepare recommendations as needed.
- Assess training needs and report such needs to the Division Directors and senior managers.
- Assist in the provision and implementation of QA training to staff within their respective program.
- Actively participate in QMS and other quality activities within the agency and regularly disseminate information to other employees in their respective offices/divisions.

DISPUTE RESOLUTION

In order to resolve disputes related to QA activities, the DEP will first utilize informal procedures by elevation through the management chain. The QAM, Division Directors and appropriate Senior Management will be notified of any Quality System related disputes that cannot be resolved at the program level and the QAM will document the resolution. If a resolution cannot be obtained at the program level, the dispute will be taken to the Division Director and Executive Staff for resolution. At all levels of dispute resolution, the Division Directors and the program staff will be kept advised of the progress of the dispute resolution. If a dispute cannot be resolved at the Executive level DEP can contract with outside mediators to provide assistance and help the Agency overcome the dispute and reach an agreement.

COMMUNCATIONS

Formal lines of communication regarding the QA program status and needs are essential to ensure that an effective QA program is implemented within the DEP. Lines of communication among the Quality Assurance Manager, directors and others will keep all persons informed of new developments, policies, and other QA procedures. The Agency Quality Assurance Manager or designee will have direct access to the DEP Executive Staff on QA matters. The DEP will also provide appropriate training on an on-going basis in order to ensure that the DEP personnel responsible for QA functions understand the QA requirements and practices related to their responsibilities.

The QMP will be accessible to all employees through the Agency Intranet and through the Electronic Document Management System. SOPs are numbered and stored in the document management system or maintained in a consolidated location on the shared network drive.

Quality Assurance Training

Core QA training, as needed, will be offered on an ongoing basis to ensure that persons responsible for QA functions will understand requirements and practices related to their responsibilities. The Quality Assurance Manager, Program Managers and Division Directors will be responsible for ensuring that adequate training is provided and that staff members who need to receive the training will be given the time to do so. Staff involved in activities covered by this QMP will receive training to ensure that all aspects of the QMP are followed. The agency can request and rely upon training by qualified personnel including EPA personnel.

IMPLEMENTATION

The procedures outlined in the QMP will be implemented by each division within a reasonable period of time upon approval of the document by the EPA. Staff are encouraged by supervisors to draw upon their educational background, experience, technical training, and on-the-job training to enhance their understanding and performance of QA-related procedures. Data collection activities will be associated with specific QAPPs developed and implemented in accordance with the EPA-approved QMP.

Organizational Quality Components at the WV DEP

Divisions and Offices that perform QA-related activities through their management of environmental data and information shall develop and maintain QA documentation (e.g., SOPs,QAPPs, QAPrPs, program guidance).

The organization's QA requirements may be more, but not less, stringent than those presented in this QMP. However, no additional requirements, procedures or practices not otherwise required by specific federal rules and guidelines are created in this document. DEP's QA documentation shall be approved by appropriate authorities and documented as detailed in Appendix 1.

CHAPTER 3: DEP'S QUALITY MANAGEMENT SYSTEM

PRINCIPAL COMPONENTS OF THE SYSTEM

The DEP's Quality Management System consists of staff, defined functions, tools, and QA procedures. These components are used to ensure that environmental data generated by the DEP are of an appropriate quality for their intended purpose.

PRINCIPAL TOOLS AND PRACTICES

Successful implementation of a Quality Management System requires a consistent approach for QA practices, commensurate with the intended uses of the data and degree of confidence needed in the results. A variety of tools and procedures are employed for planning, implementing, and evaluating the Quality Management System. Managers and staff members are informed of the availability and use of these tools through training and interaction of all persons involved with the Quality Management System.

Primary QA planning and implementation tools include QMPs, establishment of DQOs, QAPPs, QAPrPs and SOPs. Agency QMPs, QAPrPs and QAPPs are valid for up to 5 years.

Primary QA evaluation and assessment tools include Management System Review (MSRs), Technical Systems Audit (TSAs), Performance Audits, and DQAs. Most of these activities are arranged and performed by the QA members or other designated personnel.

Quality Management Plan

This QMP describes the policies, procedures, and systems governing DEP data collection activities.

Future revisions and updates of this QMP will be drafted by the QMP Workgroup with assistance from other staff and will be reviewed by the Division Directors, assistant directors and the Cabinet Secretary of the DEP. After all appropriate levels of DEP management have approved the revisions; the revised portions of the QMP will be submitted to EPA Region III's regional QA officer for comments and approval. The QMP Workgroup is responsible for responding to EPA's comments. The response to comments and the revised QMP will then be reviewed by appropriate levels of DEP management and resubmitted to EPA for approval.

QMP Updates

In accordance with the requirements set forth in EPA document QA/R2-EPA Requirements for Quality Management Plans, EPA approval of the QMP is valid for 5 years. The QMP shall be reviewed at least annually to reconfirm the suitability and

effectiveness of the approved quality management practices. More frequent revisions may be necessary if substantive modifications occur. The last approved version of a QMP shall remain in effect (i.e., shall not expire) until a revised version has been approved by the DEP and EPA, as appropriate. However, if significant changes have been made to the Quality Management System that affect the performance of work for the agency, the QMP shall be submitted to EPA for re-approval.

Data Quality Objectives (DQO)

Data Quality Objectives (DQOs) are statements of the quality of environmental data required to support program decisions or actions. DQOs establish the level of risk or uncertainty that a program is willing to accept in the environmental data in order to make a defensible decision. The DQOs are updated as needed to reflect changes in environmental policies as defined by management. DQOs are intended to accomplish the following: 1) clarify the project objectives, 2) define the most appropriate types of data to collect, 3) determine the most appropriate conditions under which to collect the data, and 4) specify the level of uncertainty that is acceptable as the basis for establishing the quantity and quality of data needed. DQOs may establish the minimum data validation requirements and Data Quality Indicators (DQIs), such as Precision, Accuracy, Representativeness, Completeness, Comparability, and Sensitivity (aka PARCCS).

Quality Assurance Project Plan (QAPP)

If a program is required by EPA, QAPPs may be developed as specified in EPA QA/R-5, *EPA Requirements for Quality Assurance Project Plans for Environmental Data Operations, or other applicable EPA QAPP guidance documents*.

The QAPP shall ensure that:

a) The level of data quality needed is determined and stated prior to data collection;
b) All environmental data generated and processed will reflect the quality and integrity established by the QAPP.

QAPPs should be approved prior to any data collection work or use, except under circumstances requiring immediate action to protect human health and the environment or operations conducted under police powers.

Grant recipients, IA participants, and contractors conducting projects that involve environmental data operations should submit a QMP documenting their Quality System, as appropriate, and/or a QAPP for each project. The terms and conditions may require submittal of the QMP and QAPP within a specified timeframe. Environmental data operations funded by EPA programs may not commence until the QMP, QAPP and other

equivalent QA documents have been approved by EPA Region 3. A copy of approved documents shall be stored in the Agency Document Management System.

QAPP Preparation

Program Managers should ensure QAPPs are developed and approved for data-related projects under their purview for projects within or funded by their programs. QAPPs shall be prepared in accordance with a "graded approach" as defined in Section 2.4.2 of *EPA Requirements for Quality Assurance Project Plans for Environmental Data Operations, EPA QA/R-5.* The level of detail found in the QAPP should be commensurate with the nature of the work being performed and intended use of the data.

Quality Assurance Program Plan (QAPrP)

Work under a regulatory program funded by EPA that involves the acquisition of environmental data generated through direct measurements, collected from or submitted by other sources, or compiled from computerized data bases and information systems should be implemented in accordance with an approved programmatic QAPrP. The QAPrP establishes policies that define and document the methods and procedures for collecting, analyzing, and assessing data to support program decisions. Data generated as part of a standalone project that is funded by EPA should be gathered using an approved project QAPP or Sampling and Analysis Plan (SAP). EPA's Quality System requires extramural organizations, conducting environmental data operations and receiving financial assistance from EPA to submit a QMP, QAPrPs, QAPPs, FSPs or other appropriate QA documentation for EPA R3's approval. A QAPrP should describe the guidance, requirements, and approval procedures that have been established for internally generated project QAPPs.

A QAPrP should be developed, wherever possible and appropriate, based on a graded approach. No work covered by this requirement shall be implemented without a QAPrP being approved prior to the start of the work except under circumstances requiring immediate action to protect human health and the environment or operations conducted under police powers.

Each QAPrP is to be reviewed and approved by authorized WVDEP employees to ensure that it contains the appropriate content and level of detail. Authorized reviewers are the Program Managers and Quality Assurance Managers, who review the document from a program perspective. Each QAPrP must be reviewed and approved by the USEPA before it can be implemented. Project Managers will ensure that individual project QAPPs are reviewed and approved prior to sampling or data collection, and signed by the appropriate personnel.

A QAPrP and/or SOP will be developed for activities that are conducted continuously or routinely throughout the project; therefore, a site-specific QAPP will be prepared only for sampling events not classified as continuous or routine. QAPrPs will be revised as needed in response to audits conducted by the DEP or as a result of input from management or staff responsible for implementing the QAPrP. QAPrPs will be reviewed annually by the Program Managers and/or Quality Assurance Managers and updated as necessary or on a timeline specified within the QAPrP itself.

QAPrPs will use a document control format that provides a version number and effective date. These documents will be stored in a central location using the Agency Electronic Document Management System.

Updated QAPrP guidance will be implemented as it becomes available.

QA Reports

Where necessary, a QAPrP, QAPP or SAP will include information on the frequency, content, and format of any required QA reports. Any QA reports required by a QAPrP, QAPP or SAP will be placed in the project file and will be used to help track project progress. Each report should address, at a minimum, the following elements:

- Changes that occurred in program activities (sampling, QC control measures, analytical methods).
- A summary of performance and system audits, as they apply.
- Any corrective actions taken.
- Any organizational changes.
- Reports of the assessment of DQIs (PARCCS)

For some programs, rules or policies supersede these QA reports. The policies or rules establish requirements similar to status reports and can function as an alternative. The alternative should be referenced in the plan, and may, if necessary, discuss elements in addition to those listed above.

Standard Operating Procedures (SOPs)

The use of Standard Operating Procedures (SOPs) serves as a mechanism to ensure comparability across individual environmental data collection projects. SOPs are incorporated in full or by reference in the QMP and relevant QAPrP or QAPP. SOPs will be maintained and developed by the unit or section managers as needed. SOPs detail the work processes conducted or followed within the program. The SOPs document the way activities are to be performed to facilitate consistent conformance to technical and quality system requirements and to support data quality. SOPs are intended to be specific to the program whose activities are described and assist the program to maintain its QA/QC processes.

SOPs developed by DEP are peer reviewed and approved by the Division Directors or their designees, and may also be approved by EPA. SOPs and templates are available for reference and are centrally stored in the DEP Electronic Document Management System or maintained in a consolidated location on the shared network.

Technical Systems Audits (TSAs)

A TSA assesses the sampling and analytical quality control procedures used to generate environmental data. Programs will use TSAs to evaluate the procedures used by field monitoring staff and laboratory contractors. TSAs may entail a comprehensive on-site evaluation of field equipment and laboratory instrument calibration; record keeping procedures; and data validation, data management, and reporting, or may be a focused evaluation depending upon the needs of the project.

Corrective Actions

In the normal case, if deficiencies are identified during a review or audit, corrective actions will be developed. However, there can be cases when deficiencies are identified during regular work routines that are not part of a review or audit. In these situations, a corrective action memo or appropriate documentation is generated to document and communicate the deficiency. The documentation, at a minimum, should explain the problem and document procedural changes and actions to correct the problem and minimize the chance for repeat problems and deficiencies. In some situations, no corrective action is required; however, it is necessary to document the occurrence. For these situations, the corrective actions can be referred to as non-conformances.

CHAPTER 4: PERSONNEL QUALIFICATIONS AND TRAINING

POLICY FOR QUALITY ASSURANCE-RELATED TRAINING

All DEP employees who generate data covered by the QMP must have adequate knowledge and skills in their technical specialties and applicable QA practices to ensure quality data are generated. DEP utilizes class and compensation specifications for employees to confirm they meet minimum experience and educational requirements for job postings and candidate selection.

A written position description and register for each job is utilized to hire competent employees. The position descriptions include the knowledge, skills, abilities, and duties required of the position. A performance appraisal is prepared annually for each employee, and their performance is evaluated via one interim and one final evaluation. Training is conducted at the division and group level. Individual performance appraisals can be used to specify appropriate general or specific responsibilities for ensuring QA. Managers and supervisors can be evaluated for their implementation of quality responsibilities if their program requires. It is the responsibility of the supervising manager to ensure QA orientation for new employees.

Responsibilities

Program Managers are responsible for ensuring that each staff member involved with collecting environmental data has the necessary technical, QA, and project management training and certifications or documentation required for his/her assigned tasks and functions. Managers are also responsible for ensuring that technical staff maintains the necessary level of proficiency to effectively meet QA responsibilities. QA training and additional development needs will be identified as part of regular performance discussions.

Maintaining staff proficiency is the joint responsibility of the individuals filling those positions and the managers. Program and/or Project Managers are to have a working knowledge, through appropriate training, of the DEP planning process and the EPA QAPrP/QAPP requirements.

Program Managers should know and understand the components of the EPA Quality Management System and the EPA QMP, QAPrP and QAPP requirements for their area(s) of responsibility. Training, if needed, will be based on resources available from the EPA. Program Managers are responsible for identifying any training needs related directly to implementing the QMP.

Identification of Training Needs

QA-related training needs are assessed by first determining which personnel have QA-related responsibilities, what specific types of QA functions they perform, and with what frequency. These assessments are conveyed by Program Managers to the Division Directors and appropriate training is provided for the personnel.

The QAM, in conjunction with program managers, will identify continuing professional training requirements and address those requirements utilizing external resources for the latest technological advances and evolutions in industry standards. This will ensure that program staff that can benefit from training will have an opportunity to participate and learn from other DEP offices.

New employees involved in an environmental data generation or collection activity will be provided training in QA-related topics to supplement other training determined necessary by each division. Training milestones include training in QA-related topics.

Implementation of Training Requirements

Staff members are encouraged to draw upon their educational background, experience, professional background, and on-the-job training to enhance their understanding and performance of QA-related activities. Appropriate documentation and guidance manuals will be distributed to new employees and adequate time and supervision will be provided or made available to the employees to ensure their complete understanding of the QA material and requirements.

The QAM and the Division Directors will discuss the training needs of QA personnel and provide training, as appropriate, to ensure that environmental data collection requirements are met. QA training can be offered by internal groups within the agency or by third-party vendors to address QA training needs.

Assurance for Grants and Contracts

Program Managers or their designated personnel are responsible for ensuring that grant recipients or contract personnel involved with environmental data generation have the necessary QA training to successfully complete their grant or contract tasks and functions. Minimum QA training should be described in Requests for Proposals (RFPs) and Requests for Bids (RFBs) and in grant applications and/or conditions.

Documentation of Training

Personnel training files can be used to keep a record of QA training taken by staff and managers responsible for environmental data generation.

CHAPTER 5: PROCUREMENT OF ITEMS AND SERVICES

The DEP procures items such as sampling equipment, instrumentation, field equipment, laboratory services, and consulting services. Items and services for environmental data collection and generation may be obtained through the procurement process. The DEP procurement process is guided by the West Virginia Procurement WV Code 148/Rules administrated by the West Virginia Purchasing Division.

When appropriate, it is DEP's policy that procurement involving data collection or generation requires suppliers and/or contractors to have a Quality Management System in accordance with EPA requirements (EPA QA/R-2). Laboratory contracts and other procurement items are covered by this policy. In general, a QMP will be reviewed and approved by the DEP *before* the formal execution of any agreement or related action.

DEP Procurement ensures that purchases and contracts for commodities and services are based on competitive bid whenever possible. Procurement documents will contain technical specifications and evaluation criteria for all deliverables.

Where QA requirements apply, the Project Manager submitting the purchase/bid paperwork will assure that QA terms and conditions are included in contract statements of work. The QA terms and conditions require contractors to document its Quality System in a QMP and submit QAPPs or appropriate planning documents that meet program-specific project goals and objectives.

The PM will assure that the contractor complies with the conditions and deliverables. The QMP shall be reviewed by the DPM as a condition for award of any contract involving environmental data operations. The QMP shall be submitted as part of the contract proposal.

If the QAPP (or QAPrP) is not submitted as part of the contract proposal and DEP decides to award the contract, DEP will include terms and conditions requiring the contractor to submit the QMP, QAPP, or QAPrP within a specified timeframe after award of the contract. The contractor may not begin work involving environmental data operations until the Program Manger has granted approval.

Prior to undertaking any work involving environmental data collection or use, the contractor shall also be required to submit QAPPs, QAPrPs, and/or SOPs to DEP for review and approval by the Project Manager

CONTRACTS

DEP divisions may require the services of commercial analytical laboratories. The primary procurement item covered by this QMP is the award and utilization of these laboratory contracts.

The procurement and contracting procedures involve an evaluation of the QMP of the prospective contract laboratories. Laboratories without state certification or without Quality Management Systems and QAPPs that meet the minimum standards provided by EPA and DEP will not be considered for contract award.

DEP personnel will employ the following steps in procuring laboratory or other contract support involving the generation or compilation of environmental data:

Statement of Work:

Program Managers review statement of work and provide QA tasks where required.

Acquisition Plan:

Division Directors or their designees define QA oversight roles in the acquisition process. This information is included in the Request for Bid or Request for Proposal (RFB or RFP).

RFP/RFB Development:

Project Managers incorporate QA activities into the evaluation as needed, including QA in sample work assignments, QMPs, QAPrPs and QAPPs.

RFP/RFB Evaluation:

The Division Directors or their designees may serve on selection panels to score specified submissions.

Contract Award:

The designated personnel may provide recommendations for contract awards.

STANDARDS FOR REQUISITION

In accordance with 155CSR 1, all procurement activities are governed by regulations promulgated to support W.Va. Code § 12-3-10. These regulations are included as Appendix E. The rule is further augmented by the West Virginia Purchasing Procedures Handbook Quality Assurance Procedures, which include:

- Determination that the commodity was needed
- Determination that the quantity, the quality level, the delivery location and timeframe are specifically addressed in requests for bids

- Requirements for the evaluation process, which are to include documented comparison of the standards established in the specifications for award to the specifications of the received items or services
- Description of procedures for documenting closure of purchase orders
- Procedures for adding reportable fixed property to the West Virginia Fixed Assets System
- Procedures for documenting vendor performance and product quality
- Procedures for complaint resolutions and corrective actions

CHAPTER 6: DOCUMENTATION AND RECORDS MANAGEMENT

Maintaining quality related documents and records is a continuous process for the DEP. This process serves as a vehicle for identifying quality-related documents and records requiring management control. DEP manages records in accordance with WV Code 5A-8-1 Records Management and Preservation of Essential Records Act. Approved record retention polices are developed by individual programs and approved by the Agency Record Retention Manager, the Agency Head and the State Director of Archives and History and State Records Manager. Moreover, this process ensures that QA documents and records are accessible and protected in storage from damage and deterioration. Finally, the process ensures compliance with all statutory, contractual, and assistance requirements for records for environmental programs, while providing adequate preservation of key records necessary to support the mission of the program. QA documents and records are maintained as follows:

ROUTINE QUALITY ASSURANCE OPERATING DOCUMENTS

Project or site-specific QA documents generated as part of the program are used and stored at the DEP headquarters while transitioning the entire agency to an Electronic Document Management System. The DEP has made the decision to utilize ApplicationXtender as the central Electronic Document Storage System and the offices and divisions are in various stages of transition at this time. Project or site-specific QA documents generated as part of the program will be stored in ApplicationXtender or transferred to the system when finalized. Records will be maintained according to each programs record retention policy or program requirements.

Official records and documents associated with a given project are the responsibility of the specific office. Copies may be maintained in duplicate by an office, however official records will be stored in one file location. These records provide support to the validity of the environmental data for making decisions. Projects involving the generation of environmental data will frequently include a QAPP or SAP and final report. These documents should be stored together, allowing a subsequent analyzer or investigator to understand the full context of the data produced and the conclusions reached.

IN-HOUSE QUALITY ASSURANCE GUIDANCE DOCUMENTS

Each Division and Office is responsible for establishing and implementing procedures for ensuring consistency and technical accuracy of its work outputs and products. Senior Leadership has responsibility to ensure that each organization uses established procedures to ensure that disseminated information products are of adequate quality for their intended use. QA guidance documents developed in-house will be reviewed by their Office or Division and the appropriate level of management. However, many

guidance documents will be those generated by the EPA, which will be appropriately disseminated, reviewed, and utilized by program staff.

DISPOSITION OF DOCUMENTS AND RECORDS

The Program Managers ensure that the QA documents for their respective office are current. In the event that a QA document becomes outdated, the Program Manager will determine the status of the document, make recommendations, and initiate appropriate actions.

Final documents will be maintained by responsible staff in accordance with file retention procedures specific to each Division. Following all appropriate actions, those persons with document management responsibilities will take special care to preserve the integrity of the documents such as audit reports, PE reports and environmental data.

CHAPTER 7: COMPUTER HARDWARE AND SOFTWARE

Data management serves a critical function in both preserving information and making that information available. Data management necessarily encompasses a variety of activities related to Permits, Inspections, Violations, Reclamation projects and planning environmental monitoring, collecting samples from different media, laboratory and in-situ analysis of samples, organizing and storing resulting data, analyzing and interpreting data, disseminating data, and communicating the monitoring results and knowledge gained.

In order to ensure effective and efficient use of the DEP data management systems, including hardware and software system design, development, implementation, and maintenance, DEP's IT Support complies with all applicable state & federal standards including legislative requirements, regulatory requirements, and audit recommendations of WV IT Security State Law, FISMA pertaining to hardware, software system development, and data. Hardware purchases using federal grant funds are included in the specific grant work-plan or are specifically approved by EPA or the federal agency involved.

In addition, DEP computer systems conform, to the extent possible, to all policies and guidance provided by the Governor's Office of Technology and the Information Agency Council (ITAC), of which the DEP's IT Support CTO is a voting member, as those policies and guidance relate to the procurement and development of information systems for DEP.

Pages 13-15 (in hardcopy format, pages 18-20 in .pdf) of Attachment C describe in detail the mission statement, description and some specific accomplishments of IT Support related to hardware and software within the DEP.

AGENCY STANDARDS

The IT Support group develops DEP minimum standards for hardware and software based on the state standard. The IT Support technical staff establishes and updates these minimum standards as required. A constant evaluation of current and future needs and available products are conducted to meet these needs. A life cycle concept is used to evaluate options based on the life cycle of the hardware and software. The IT Support group works in conjunction with the Steering Committee to prioritize information technology projects within the agency to ensure efficient development of projects.

SOFTWARE DEVELOPMENT

The program office is responsible for developing or procuring software for DEP through the assistance of the IT Support group. The scope of IT Support assistance is to provide uniformity and the benefit of experiences to the purchase process. We are currently guided by the contracting software document and supporting templates. The Agency contracts with vendors for additional contract programming support for projects that have manpower requirements beyond current staffing. The procurement of these services is accomplished through contracts with vendors. These procurement services will also follow established agency, state and federal contracting guidelines. DEP maintains and extends internal client/server technology. DEP maintains and extends internal and external web applications and content.

PROCUREMENT

Hardware and application software procurement requests are routed through the IT Support staff to ensure compatibility and usability prior to purchase and to ensure the requested hardware or software is appropriate for the intended use. Non-agency standard software and hardware requests are evaluated to ensure compatibility with standards. However, selection and validation of the software remains the responsibility of the user. IT Support, as a rule, does not provide technical support for non-standard hardware and software.

VALIDATION OF DEP STANDARD HARDWARE AND SOFTWARE

All DEP system development, enhancement, and modernization efforts will comply with agency standards. The standards include a systematic and comprehensive dialogue between the data providers, data/system users, and system developers. The majority of the dialogue occurs prior to the design of the system in order to ensure extensive and successful user participation, and a systematic approach to the design. Systems will be designed and built to integrate with core DEP data in such a manner that re-use of code, and its associated cost savings, is maximized.

STANDARD SOFTWARE VALIDATION

Purchased application software is validated prior to purchase through a technical test and evaluation period. After purchase, the user will use the software without prejudice. Non-standard application software is the responsibility of the user in the category "user beware." DEP will utilize data management applications with integrated QA/QC components. Some examples of such trademark applications to be utilized containing built-in QA/QC components are Earthsoft, AIRTRAX, ERIS, and many others.

CHAPTER 8: QUALITY ASSURANCE PLANNING

The major goal of the DEP's Quality Management System is to promote effective planning for the collection, analyses, and processing of environmental data. Quality planning occurs at three levels for data to meet DEP programmatic and quality goals:

- Agency-wide requirements
- Division/program-specific and
- Project level

AGENCY-WIDE PLANNING

Internal Strategic Planning

Work plans developed annually with EPA for each division forms the basis for programmatic priorities and corresponding environmentally related data collection and use activities. Using the projected annual budget, the Executive Committee and other designated staff set priorities for the agency. These priorities are reflected in the DEP grant work plan processes, documenting and establishing goals, directions, resource utilization policies and budget allocations. Yearly plans are developed to describe the work plan and budget process and specify the types of environmentally related data generation activities that are projected. These yearly plans incorporate or involve decisions to be supported by planned environmental data collection activities.

DIVISION/PROGRAM-SPECIFIC PLANNING

DEP divisions/programs are functional areas of work authorized by statutory reference or by agency direction. Any DEP environmental programs that generate environmental data are covered by the QMP though it is acknowledged that not all programs or projects require the same level of QA. Generally, managers are responsible for program-level planning which includes the responsibility to ensure expected data quality.

PROJECT LEVEL PLANNING

Project level planning ensures efficient use of resources and emphasis on quality, objectivity, utility and integrity of data.

Quality Assurance Requirements for External Organizations

External organizations are required to conform to applicable QA requirements: "If the grantee's project involves environmentally related measurements or data generation, the grantee shall develop and implement quality assurance practices consisting of policies, procedures, specifications, standards, and documentation sufficient to produce data of quality adequate to meet project objectives and to minimize loss of data due to out-of-control conditions or malfunctions." External organizations, which conduct

environmental data operations and receive financial assistance from DEP and EPA, shall submit a QMP, QAPP, or other appropriate QA documentation for DEP's internal review and EPA final approval.

CHAPTER 9: IMPLEMENTING QA PROCEDURES

This chapter of the QMP describes the processes used by DEP for facilitating the effective implementation of QA plans and procedures which comprise DEP's Quality Management System. Substantial changes to the QMP will be documented in revisions and will receive Executive Committee-level approval. As with the QA planning described in Chapter 8, implementation of QA procedures takes place at the agency, program, and project levels.

AGENCY-WIDE IMPLEMENTATION

The QA/QC program for each Division or Program may be a centralized or de-centralized function but will be structured so as to ensure that environmental data is of sufficient quality for its intended purpose. This QMP meets the requirements set forth by EPA as outlined in EPA QA/R-2. At a minimum, the QMP workgroup will meet annually to ensure the document is correctly defining what the agency is doing.

DIVISION/PROGRAM-SPECIFIC PLANNING

Any DEP program that generates, or uses, environmental data will document its QA policies and procedures, and will develop and/or use appropriate policy and procedure manuals for its programs. The QAM can provide support and oversight in the generation of such documents. The EPA quality staff issues documents to provide information on satisfying federal regulations. For example, *Guidance for Preparing Standard Operating Procedures, March, 2001 (QA-G6)* is a document that should be referenced by programs when developing procedure manuals for administrative and technical QA operations. Implementation of these procedures will enable program personnel to gain and document procedural knowledge about their operations and will also serve as a training guide for new staff members.

Project Managers, who are qualified technical personnel, will review QA documents for adequacy and appropriateness for each specific project. Exceptions to plans and activities, which are documented by project staff, are jointly implemented and controlled by the division director, the project manager, and project personnel. Project Managers routinely perform oversight and/or audits of field activities to ensure compliance with the approved planning and technical documents.

PROJECT-LEVEL IMPLEMENTATION

QAPP Implementation

Environmental data operations will be implemented in accordance with an approved QAPP. Changes to the approved QAPP will be documented and approved by the program QAMs and/or the EPA as applicable in writing through an amended QAPP.

For contracts involving environmental data generation, the program shall ensure that the applicable assignment includes specific requirements for reports on the QA of products or services to be supplied.

For example, the Watershed Improvement Branch (WIB) within DWWM subgrants federal funding to other state agencies, local governments, nonprofit organizations, colleges, universities, and other groups who carry out educational efforts and water quality improvement projects. WIB requires these subgrantees to prepare QAPPs. QAPPs have been submitted to EPA for review and approval in the past, but WIB is developing (has developed, will have developed) a Standard Operating Procedure for the review of Subgrantee QAPPs. Appendix X contains a list of approved Subgrantee QAPPs

Standard Operating Procedures

The use of Standard Operating Procedures (SOPs) serves as a mechanism to ensure comparability across environmental data collection projects of various programs. A project's SOP may be either standalone document or may be incorporated into the project QAPP. In either case, the SOP is maintained by the Program who developed it. DEP continues to focus on development of SOPs, where needed. A previous Agency-wide workgroup has established policies and procedures for SOP development across the agency.

SOPs detail the work processes conducted or followed within the program. The SOP documents the way activities are to be performed to facilitate consistent conformance to technical and quality system requirements and to support data quality. The SOP is intended to be specific to the program whose activities are described and assist the program in maintaining its QA/QC processes.

The best written SOPs will fail if not followed. Therefore, the use of SOPs needs to be reviewed and reinforced by appropriate personnel. Copies of current SOPs need to be readily accessible for reference by individuals actually performing the activity, either in hard copy or electronic format.

Managers and staff should review SOPs on an annual basis and determine whether the current version is applicable. Whenever field procedures or analytical requirements are

changed, the SOPs should be updated, reviewed, and re-approved as soon as possible rather than waiting for an annual review. Changes or modifications may be exclusively made to the pertinent section of a SOP, but the process should indicate the modification date and/or revision number in the document control notation.

It is the responsibility of the Program Managers to ensure that policies and procedures are current and that any changes are communicated to the program staff to implement in their environmental data operations.

CHAPTER 10: QUALITY ASSESSMENT AND RESPONSE

Assessments are evaluations intended to measure the success of the program or system being examined, and to provide a basis for improving such programs or systems. This section of the QMP describes how and by whom assessments of environmental programs are planned, conducted, or evaluated. Staff members who perform tasks related to the generation, management, and/or use of environmental data should participate in training related to the generation of such data. Because management is ultimately responsible for the quality of data, supervisors also receive the necessary training to ensure their understanding of the importance of the Quality Management System, their responsibilities as supervisors of data collection activities, and specific Quality Management System policies and procedures. Division Directors are responsible for ensuring that their staff members have the qualifications needed to do their jobs, including those related to the Quality Management System. This section also describes the process by which management determines the assessment activities appropriate for a particular project, which assessment tools may be used and the expected frequency of use.

IMPLEMENTATION SCHEDULE

This section describes how DEP will assess the effectiveness of its Quality Management System (QMS). DEP will use a variety of internal management and technical reviews, PEs, and QA audits to ensure that the procedures in this QMP are implemented successfully. DEP will also utilize, as needed, independent reviews of the systems and procedures described in the agency's QMP by personnel from the EPA Region III Quality Assurance Office.

The QMP workgroup will annually review the QMP and report any changes needed for approval to the QAM, or to the Executive staff, if consensus is not reached at the QAM. Once changes are approved, the QMP will be submitted to the Executive staff for signature and resubmission to EPA Region III. The QMP will need full review and revisions completed once every five years and final approval from EPA Region III.

QAPrPs and QAPPs will be implemented upon approval by the responsible person and the appropriate levels of management or EPA. The division director determines the appropriate levels of management review and approval, and the level of detail required for specific types of QAPrPs and QAPPs. Data collection activities should not be conducted without an approved QAPrP and/or QAPP for that activity with the exception of emergencies, in which case SOPs are to be followed.

DATA QUALITY ASSESSMENTS

Data received by the DEP is assessed based on its intended use. Data may include laboratory or other types of submitted data, such as field data or reports. Each program or office establishes the acceptance criteria needed for data assessment. Submitted data is assessed for quality by qualified technical staff in each program using the QAPrP, QAPP or DQA procedure established by that program, or federal regulations and guidelines. Program Managers are responsible for assuring that data received is checked for completeness and assessed for usability in meeting project objectives.

Data submitted by the regulated community pursuant to a license condition is reviewed and verified by DEP technical staff as part of regular inspections. Each program receiving such data establishes and documents its own assessment standards and procedures. Additionally, review of data should be performed in compliance with the EPA document *Policy to Assure the Competency of Organizations Generating Environmental Measurement Data under Agency Funded Assistance Agreements.*

UNIT/PROGRAM ASSESSMENT AND REVIEW

Management at each level is responsible for assuring that functional units and programs are assessed on a regular basis to ensure that identified objectives, such as those delineated in annual work plans, are being met.

Division Directors may request a program review to assess whether program objectives, policies, methods, documents and procedures are up to date and consistent with legislative and department goals and priorities.

Directors will determine the need for and timing of program reviews not otherwise required by federal rules and guidelines. The QAM may also recommend to senior management that a program be reviewed, based on results of a review or audit.

FORMAL AUDITS

The DEP employs an internal auditor who conducts systematic and objective compliance and performance audits and reviews throughout the agency. The objective of internal audits and reviews is to verify compliance with state rules and regulations as well as the agency's rules, policies, and procedures. The timing and nature of internal audits and reviews are based on identified risk, the annual internal audit work schedule and management concerns. The internal auditor is also responsible for following up with sections for any internal or external audit findings on the agency. External audits include federal audits, state legislative audits, independent financial audits, and other audits or reviews performed on the agency. The objective of internal follow-ups is to ensure corrective actions have been, or are planned to be, established to correct compliance issues.

A Program Manager, according to quality objectives and risk, may schedule audits of outside laboratories, contractors or suppliers. Audits are conducted according to the procedure established by the department plus any additional requirements that may be

established by each office or program. Additional requirements are documented as part of a specific audit plan.

Audits are conducted in a rigorous and systematic manner, using objective evidence to make findings regarding nonconformance to requirements and the need for any corrective action. Audit findings are documented and reported in a timely fashion to management. Proposed corrective actions are evaluated and tracked, and the effective implementation of corrective actions is verified before the audit is closed.

The agency may rely on or require third-party audits, such as laboratory certification or ISO 9001 certification, in lieu of conducting its own audits.

EPA ASSESSMENTS

EPA-sponsored programs are subject to review or audit by EPA. Scope and timing of audits may vary depending on the program and its enabling legislation, rules or authorities. Formal assessment of performance under an EPA Performance Partnership Agreement occurs as part of a comprehensive review and evaluation of department programs. The process is governed by EPA's *Policy on Oversight of Delegated Programs*, which states evaluations should focus on overall program performance.

PERFORMANCE EVALUATIONS (PE)

PEs are conducted to assess the ability of a laboratory or field measurement system to provide reliable data. PE samples will be considered for laboratories providing analytical services directly or indirectly for the DEP. The evaluation consists of providing a reference or "blind" sample to the laboratory for analysis. This PE sample contains a known concentration of chemical constituents of interest and will be in the appropriate media (air, water or soil). The analytical results obtained from the laboratory will be compared to the known concentrations in the PE sample as a means of determining whether the laboratory demonstrated its ability to properly identify and quantify contaminants within established, calculated and acceptable limits.

PEs will be scheduled at a frequency as required by program requirements or on an as-needed basis depending on the specific laboratory or program involved. The results of the PEs provide a means for assessing overall data integrity and may be used to evaluate analytical laboratories or sampling techniques.

DATA QUALITY EVALUATIONS

Data quality requirements and evaluation methods are included in this QMP and as specified in the associated QAPrP and/or QAPP. The QMP describes the methods by which data quality evaluations will be conducted and utilized and how these evaluations relate to the Data Quality Assessments (DQAs).

Data Quality Assessments (DQA)

A DQA refers to the process used to determine whether the quality of a given data set is adequate for its intended use, using appropriate statistical tools. DQAs can be performed on all or a subset of projects involving data collection. The purpose of this type of evaluation is to determine whether the data collected is acceptable to decision-makers or users for their intended use since the data is ultimately only meaningful in this context. A DQA will be performed periodically throughout projects, but at the mid-point and end of the data generation phase of a project at a minimum. The Program Manager or project manager will be responsible for the performance of DQAs, as well as responding to the findings. A DQA involves a comparison of the collected data with the DQOs for the project. The intended use of the data is established by the project's DQOs. This evaluation and comparison will result in the determination that the data is useable for its intended purposes. Results of DQAs will be documented in accordance with guidance contained in programmatic QAPrPs and QAPPs for specific projects. Guidance for this procedure is provided in EPA QA/G-9 *Guidance for Data Quality Assessment* (July 2000).

Data Quality Audits

A related evaluation tool involving data review and assessment is the Data Quality Audit used to evaluate the documentation of the quality of data generated for a given project. The assessment primarily involves an evaluation of the completeness of the documentation of field and analytical procedures and QC results. The process usually involves tracing the paper trail accompanying the data from sample collection and custody to analytical results and entry into a database, if available.

Results from both data quality assessments and data quality audits can be used in a number of ways. First, they can be used in making recommendations for changes in the design and performance of the data collection efforts and in the use and documentation of QC procedures. Secondly, they can be used as a guide for planning and acquisition of supplemental data for the project and potentially for other related projects. Program Managers and/or Project Managers are responsible for the performance of these assessments and responding to any findings.

CHAPTER 11: CONTINUOUS QUALITY IMPROVEMENT

The QA procedures and processes described in the previous chapters serve to establish a strong foundation for ensuring that acceptable data quality is provided in the program. By simply raising awareness and focusing attention on these procedures and ensuring that the prescribed QA practices are followed, the program will reinforce QA as an important component in its environmental sampling. The quality management system is designed to identify opportunities for improving the measurement process. Improvement can take the form of preventing quality problems from occurring by adjusting current work processes or seeking out better ways to do the work. The goal is to prevent quality problems from occurring or recurring. Every attempt is made to ensure QA problems are identified and resolved quickly by encouraging open communication between personnel.

APPROACH TO IMPROVEMENT

The program QMP is the first step in the process of implementing a comprehensive and effective Quality Management System. The QMP serves as the framework for applying QA and QC procedures to environmental data operations.

Following reapproval of the QMP by the EPA Region III staff, the DEP program staff members will continue their work to improve and maintain the QMP.

Beyond implementation of the QMP, improvements to the Quality Management System will also occur through the evaluation of the various programs described in Chapter 10. These reviews will provide the opportunity to identify areas of weakness and, thus, opportunities for improving the quality of the system.

IMPROVEMENT LEADERS

Program personnel involved with data collection, analyses, or generation have a responsibility for meeting QA requirements. Beyond meeting these obligations, staff and managers have the opportunity to offer suggestions for improving the Quality Management System through the QAM. The program staff and managers have the responsibility to promote and facilitate Quality Improvement by detecting and correcting underlying problems of the system, raise an awareness of the importance of quality, and to encourage staff to offer suggestions for improvements.

DEFICIENCIES AND NON-CONFORMANCES

Significant deficiencies and non-conformances to QAPrPs, QAPPs, SOPs or department requirements observed outside of a formal audit or assessment process are to be reported by department staff to supervisors.

Each division director or Program Manager is to establish who has the authority to suspend or stop work upon detection and identification of an immediate adverse condition affecting quality or health and safety. Supervisors are to ensure that the deficiency or nonconformance is documented, and forward reports to the appropriate project manager and lead QA staff. A formal Corrective Action Plan may be required, and tracked until closure.

CORRECTIVE ACTIONS

Corrective actions generally are developed on a case-by-case basis. Once a problem has been identified, the problem is documented and individuals involved with the project are notified of the problem. Involved parties meet to discuss the problem. When deficiencies or non-conformances have been identified, Project Managers determine and document the information needed for corrective action.

The project manager forwards copies of corrective action plans to supervisory and lead staff involved in monitoring corrective actions.

Managers and supervisors ensure that corrective action plans are effectively implemented in a timely manner, and that activities necessary to carry out such plans are included in annual work plans or other planning documents as appropriate. Division Directors and lead staff monitor the implementation of corrective action plans. If determined necessary, Managers and supervisors can include completion of corrective actions in employees' performance management plans and annual performance reviews.

Non-conformances and corrective actions are documented in the project or program file to ensure that future individuals involved with the project or activity will be able to trace the evolution of procedural or policy change (including what was done, by whom, and why).

LIST OF REFERENCES

CIO 2105.1 Environmental Information Quality Policy, March 2021

CIO 2105-P-01.1 Environmental Information Quality Procedure, March 2021

EPA Requirements for Quality Management Plans, EPA QA/R-2, USEPA, Quality Assurance Management Staff, March 2001 (Reissued May 2006).

U.S. EPA Acquisition Regulations, U.S. EPA Office of Administration and Resources Management.

U.S. EPA Grant Regulations, QA Requirements, 40 CFR Part 30.54 for Universities and Other Non-Profits, and 40 CFR Part 31.45 for states, tribal, and local governments.

Managing Your Financial Assistance Agreement, U.S. EPA Office of Administration and Resources Managements, EPA 202/8-94/001, May 1994.

TERMS AND DEFINITIONS

Acceptable Quality Level – a limit above which quality is considered satisfactory and below which it is not. In sampling inspection, the maximum percentage of defects or failures that can be considered satisfactory as an average.

Activity – an all-inclusive term describing a specific set of operations or related tasks to be performed, either serially or in parallel (e.g., research and development, field sampling, analytical operations, equipment fabrication), that in total result in a product or service.

Assessment – the evaluation process used to measure the performance or effectiveness of a system and its elements. In this document, assessment is an all-inclusive term used to denote any of the following: audit, performance evaluation, management systems review, peer review, inspection or surveillance.

Audit – a planned and documented investigative evaluation of an item or process to determine the adequacy and effectiveness, as well as compliance with established procedures, instructions, drawings, quality assurance project plans (QAPPs), quality assurance program plans (QAPrPs). Standard Operating Procedures (SOPs) and other applicable documents.

Characteristic – any property or attribute of a datum, item, process, or service that is distinct, describable, and measurable.

Compliance Monitoring Evaluations – a type of inspection conducted at Interim Status land-disposal facilities to ensure compliance with groundwater monitoring requirements. Groundwater split-samples are collected during these inspections.

Computer Program – a sequence of instructions suitable for processing by a computer. Processing may include the use of an assembler, a compiler, an interpreter or a translator to prepare the program for execution. A computer program may be stored on magnetic media, and be referred to as a "software" or may be stored permanently on computer chips, and be referred to as "firmware." Computer programs covered by this document are those used for design analysis, data acquisition, data reduction, data storage (data bases), operation or control, and data base or document control registers when used as the controlled source of quality information.

Contractor – any organization or individual that contracts to furnish services or items or perform work.

Corrective Action – measures taken to rectify conditions adverse to quality and, where necessary, to preclude their recurrence.

Customer – any individual or organization for whom items or services are furnished or work performed in response to defined requirements and expectations.

Data Quality Assessment (DQA) - a process for performing statistical analysis to determine whether the quality of a data set is adequate for its intended use.

Data Quality Objectives (DQO) – qualitative and quantitative statements of the overall level of uncertainty that a decision-maker is willing to accept in results or decisions derived from environmental data. DQOs provide the statistical framework for planning and managing environmental data operations with the data users' needs.

Data Usability - the process of ensuring or determining whether the quality of the data produced meets the intended use of the data.

Design Review – a documented evaluation by a team, including personnel other than the original designers, the responsible designers, the customer for the work or product being designed, and a QA representative to determine if a proposed design will meet the established design criteria and perform as expected when implemented.

Environmental Conditions – the description of a physical medium (e.g., air, water, soil, sediment) or biological system expressed in terms of its physical, chemical or biological characteristics.

Environmental Data – any information or measurements resulting from field data collections activity, laboratory analyses or modeling involving the assessment of chemical, physical or biological factors related to the environment that describe environmental processes or conditions or the performance of engineered environmental systems.

Environmental Data Operations – work performed to obtain, use or report information pertaining to environmental processes and conditions.

Environmental Monitoring – the process of measuring or collecting environmental data.

Environmental Processes – manufactured or natural processes that produce discharges to or impact the ambient environment.

Environmental Programs – an all-inclusive term pertaining to any work or activities involving the environment, including but not limited to: characterization of environmental processes and conditions; environmental monitoring; environmental research and development; the design, construction, and operation of engineered environmental systems; and laboratory operations on environmental samples. In this document, the term also refers to functional areas of work performed by groups or teams of people within the organization.

Environmentally Related Measurements – the data collection or analyses activity or investigation involving the assessment of chemical, physical or biological factors in the environment which affect human health or the quality of life.

Financial Assistance – the process by which funds are provided by one organization (usually government) to another organization for the purpose of performing work or furnishing services or items. Financial assistance mechanisms include grants, cooperative agreements, and government interagency agreements.

Graded Approach – the process of basing the level of application of managerial controls applied to an item or work according to the intended use of results and the degree of confidence needed in the quality of the results.

Hazardous Waste – any waste materials that satisfy the definition of "hazardous waste" as given in 40 CFR Part 261, "Identification and Listing of Hazardous Waste."

Inspection – examination or measurement of an item or activity to verify conformance to specific requirements.

Item – an all-inclusive term used in place of the following: appurtenance, facility, sample assembly, component, equipment, material, module, part, product, structure, subassembly, subsystem, system, unit, documented concepts, or data.

Management – individuals directly responsible and accountable for planning, implementing and assessing work.

Management System – a structured non-technical system describing the policies, objectives, principles, organizational authority, responsibilities, accountability, and implementation plan of an organization for conducting work and producing items and services.

Management System Review (MSR) – the qualitative assessment of a data collection operation and/or organization(s) to establish whether the prevailing quality management structure, policies, practices, and procedures are adequate for ensuring that the type and quality of data needed are obtained.

Method – a body of procedures and techniques for performing activities (e.g., sampling, chemical analysis, quantification) systematically presented in the order in which they are to be executed.

Peer Review – a documented critical review of work generally beyond the state of the art or characterized by the existence of potential uncertainty. The peer review is conducted by qualified individuals (or an organization) who are independent of those who performed the work but are collectively equivalent in technical expertise (i.e., peers). The peer review is conducted to ensure that activities are technically adequate, competently performed, properly documented, and satisfy established technical and quality requirements. The peer review is an in-depth assessment of the assumptions, calculations, extrapolations, alternate interpretations, methodology, acceptance criteria, and conclusions pertaining to specific work and of the documentation that supports that work. Peer reviews provide an evaluation of a subject where quantitative methods of analysis or measures of success are unavailable or undefined, such as in research and development.

Performance Evaluation (PE) – a type of audit in which the quantitative data generated in a measurement system are obtained independently and compared with routinely obtained data to evaluate the proficiency of an analyst or laboratory.

Procedure – a documented set of steps or actions that systematically specifies or describes how an activity is to be performed.

Process – an orderly system of actions that are intended to achieve a desired end or result. Examples of processes include analysis, design, data collection, operation, fabrication, and calculation.

Qualified Data – any data that have been modified or adjusted as part of statistical or mathematical evaluation, data validation, or data verification operations.

Quality – The sum of features and properties/characteristics of process, item, or service that bears on its ability to meet the stated needs and expectations of the user.

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

Quality Assurance Program Plan (QAPrP) – a document establishing policies that **define** and document the type and **quality** of data needed for **program** level environmental decisions and to describe the methods required for collecting, analyzing, and assessing data to support those decisions.

Quality Assurance Project Plan (QAPP) – a formal document describing in comprehensive detail the necessary QA, QC, and other managerial and technical activities implemented to ensure that the results of the work performed will satisfy the stated performance (data quality) objectives at the individual project or program level

Quality Control (QC) – the overall system of technical activities that measures attributes and performance of a process, item, or service against defined standards to verify that it meets the stated requirements established by the customer.

Quality Improvement – a management program of improving the quality of operations. Such management programs generally entail a formal mechanism for encouraging worker recommendations with timely management evaluation and feedback or implementation.

Quality Indicators – measurable attributes of the attainment of the necessary quality for a particular environmental decision. Indicators of quality include precision, accuracy, sensitivity, bids, completeness, representativeness, reproducibility, comparability, and statistical confidence.

Quality Management – that aspect of the overall management system of the organization that determines and implements the quality policy. Quality management includes strategic planning, allocation of resources, and other systematic activities (e.g., planning, implementation, and assessment) pertaining to the Quality Management System.

Quality Management Plan (QMP) – a formal document that describes the Quality Management System in terms of the organizational structure, functional responsibilities

of management and staff, lines of authority, and required interfaces for those planning, implementing, and assessing all QA activities conducted.

Quality Management System – a structured and documented management system describing the policies, objectives, principles, organizational authority, responsibilities, accountability, and implementation plan of an organization for ensuring quality in its work processes, products (items), and services. The Quality Management System provides the framework for planning, implementing, and assessing work performed by the organization and for carrying out required QA and QC procedures.

Remediation – the process of reducing the concentration of a contaminant (or contaminants) in air, water, or soil media to a level that poses an acceptable risk to human health and the environment.

Service – the category of economic activity that does not produce manufactured items. In environmental data operations or engineering projects, such activities include design, inspection, laboratory and/or field analysis, repair, and installation.

Significant Condition – any state, status, incident, or situation of an environmental process or condition of an engineered environmental system in which the work being performed will be adversely affected in a manner sufficiently serious to require corrective action to satisfy quality objectives or specifications and safety requirements.

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

Supplier – any individual or organization furnishing items or services or performing work according to a procurement document or financial assistance agreement. This is an all-inclusive term used in place of any of the following: vendor, seller, contractor, subcontractor, fabricator, or consultant.

Surveillance – the act of monitoring or observing a process or activity to verify conformance to specified requirements.

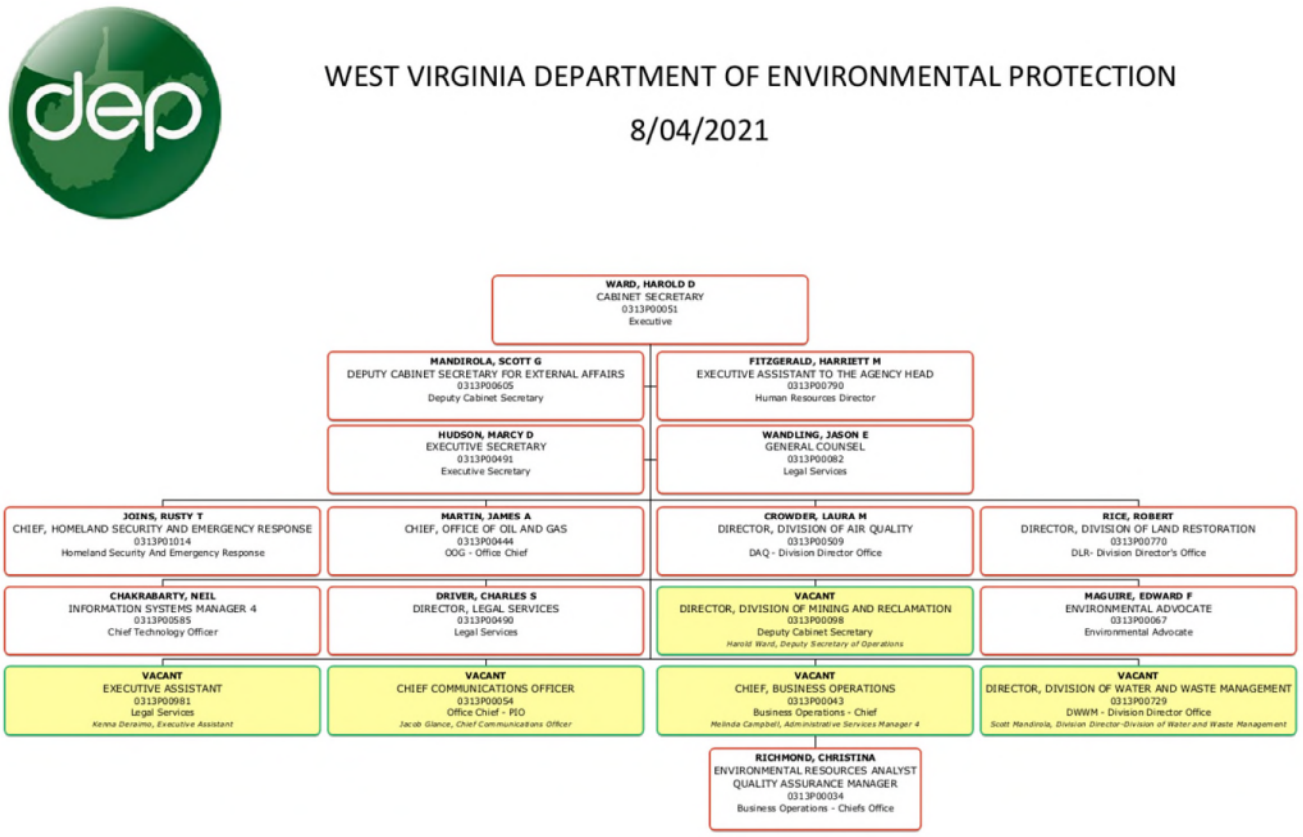
Technical Review – a documented critical review of work. The review is accomplished by one or more qualified reviewers who are independent of those who performed the work, but are collectively equivalent in technical expertise to those who performed the original work. The review consists of an in-depth analysis and evaluation of documents, activities, material, data, or items that require technical verification or validation for applicability, correctness, adequacy, completeness, and assurance that established requirements are satisfied.

Technical Systems Audit (TSA) – a thorough, systematic, on-site qualitative audit of facilities, equipment, personnel, training procedures, record keeping, data validation, data management, and reporting aspects of a system.

Validation – an activity that demonstrates or confirms that a process, item, data sets, or service satisfies the requirements defined by the user.

Verification – the act of authenticating or formally asserting the truth that a process, item, data set, or service is, in fact, that which is claimed.

Appendix 1 – DEP Quality Organizational Chart



Appendix 2 – DEP Programs Impacted by QMP

This section includes major (not all inclusive) program areas/activities for each organization that may include QA responsibilities.

Division of Air Quality

- Ambient Air Monitoring
- Laboratory

Division of Water and Waste Management

- Watershed Assessment Branch
- Permitting
- Environmental Enforcement
- Watershed Improvement Branch
- Laboratory Certification Program
- RCRA

Division of Mining and Reclamation

- HPU Program

Division of Land Restoration

- Brownfields Section
- Superfund Section

Appendix 3 – Current QAPPs and SOPs approved by EPA

Quality Assurance Program Plan for the West Virginia Department of Environmental Protection Division of Land Restoration Office of Environmental Remediation, Revision Number 5, Effective Date September 21, 2016. Renewed every 5 years. This QAPrP is for the Voluntary Remediation Program (VRP) and Uniform Environmental Covenants Act – Leaking Underground Storage Tank (UECA-LUST) program. This QAPrP also contains seven SOPs:

SOP OER-0100 General Decontamination Procedures for Non-Disposable Field Sampling Equipment

SOP OER-0101 PID Field Screening

SOP OER-0102 XRF Field Screening

SOP OER-0110 Groundwater Well Sampling Procedures

SOP OER-0120 Soil Sampling

SOP OER-0121 Soil Sampling Using Direct-Push Drilling

SOP OER-0122 Soil Sampling Method 5035

Quality Assurance Program Plan for the West Virginia Department of Environmental Protection Division of Land Restoration Office of Environmental Remediation CERCLA (Superfund) Program, Revision Number 5, Effective Date September 21, 2016. Renewed every 5 years.

Tanks (UST & LUST)

The LUST Program is currently covered under the Quality Assurance Program Plan for West Virginia Department of Environmental Protection Division of Land Restoration Office of Environmental Remediation referenced above.

The UST program has Quality Assurance Program Plan for the WVDEP DWWM Office of Enforcement Underground Storage Tanks. Approved in 2016. Renewed every 5 years.

SOP Underground Storage Tank Inspections

SOP Underground Storage Tank LUST 4 Reporting

Note: we are currently writing a QAPrP for UST & LUST that will be combined now that the programs are back together after the reorganization. We will plan on submitting to EPA in 2nd quarter 2021.

EPA Approved West Virginia Nonpoint Source Program Section 319 grant subrecipient monitoring QAPPs

Coal River Group – Lower Coal River

Eastern Panhandle Conservation District - Elks Run

Friends of Blackwater – North Fork Blackwater River and Beaver Creek

Friends of Deckers Creek – Deckers Creek

Friends of the Hughes River – North Fork of the Hughes River

Piney Creek Watershed Association – Piney Creek

West Virginia Conservation Agency – Knapp Creek

West Virginia Rivers Coalition and Trout Unlimited – Water quality impacts in cold water streams

Watershed Assessment Branch

Watershed Assessment Branch QAPP – May 2019. WAB is currently updating its QAPrP that will cover all aspects of WAB activities. The current and soon to be completed plans reference our SOPs that are updated regularly - last update 2018: https://dep.wv.gov/WWE/watershed/Pages/WBSOPs.aspx

Division of Air Quality Final QAPPs

PM2.5 Air Monitoring/Laboratory Program - December 5, 2017 EPA Signed/Final Approval

NCore Air Monitoring - February 27, 2020 EPA Signed/Final Approval

Ozone Ambient Air Monitoring -February 25, 2020 EPA Signed/Final Approval

National Air Toxics Trends Station Inductively Coupled Plasma-Mass Spectrometer Laboratory Metals Analysis Program - April 2, 2020 EPA Signed/Final Approval

Sulfur Dioxide Air Monitoring - May 19, 2020 EPA Signed/Final Approval

PM10 Air Monitoring - July 31, 2020 EPA Signed/Final Approval

APPENDIX F

Final Record Retention Schedule (RCRA)

Records Retention And Disposal Schedule	Agency: Department of Environmental Protection	
	Division: Water and Waste Management	
	Final Action Code: 1 Destroy 2 Shred 3 Retain Permanently 4 DEP Archives	Page: 1 of 1 Effective Date: 4-6-17

Series/ Auth Number	Name/Description of Record Series	Retain at Agency (Electronic Only)	Comments	Final Action Code
RCRA Subtitle C	Records related to generators, transporters, and TSD (treatment, storage and disposal) facilities as required by Subtitle C of the Resource Conservation and Recovery Act (RCRA). Includes notification forms, permit applications and modifications, background and supporting documentation, public notices, drafts and final permits, comments and records of public meetings, fact sheets, exception reports, appeals, import and export notifications, closure and post-closure documents, inspection reports, court orders, enforcement actions, manifests, delistings, correspondence, financial assurance documents, records relating to interim status, and other related records.	Permanent (plan to destroy paper files once electronic record copy is successfully developed and verified, which should be no longer than 10 years after a site becomes inactive)	The Resource Conservation and Recovery Act (RCRA) provides authority to track hazardous waste from "cradle-to-grave." This includes the generation, transportation, treatment, storage, and disposal of hazardous waste. Therefore, the State is to maintain permanent files of all sites (plots of land) that have had hazardous waste activities conducted on them.	3
RCRA Subtitle I	Contains records that document the management of the underground storage tank (UST) program. Includes notification forms, release reports, site characterization reports, financial assurance, evaluations, information requests, and inspection and sampling reports and enforcement actions.	Permanent (plan to destroy paper files once electronic record copy is successfully developed and verified, which should be no longer than 10 years after an approved tank closure/removal).		3
Aboveground Storage Tank	Contains records that document the management of the aboveground storage tank program. Includes electronic: • Registrations • registration modifications • transfers • closures • Certified Inspections • Spill prevention response plans paper inspection and enforcement, release reports, and financial assurance that will be scanned to electronic format.	Permanent (plan to destroy any paper activity once electronic record is successfully developed and verified. This is a new program, so there are no historic files to scan)		3

Jeremy W. Bosley 4-6-17