

<b>STANDARD OPERATING PROCEDURE (SOP)</b>	
<b>Title: SOP for Site Selection, Preparation, and Deployment of Continuous Water Quality Monitoring Stations</b>	
Team Lead: _____	Date: _____
Quality Control Review: _____	Date: _____
Section Manager: _____	Date: _____
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SECTION/TITLE	Page
1.0 PURPOSE .....	1
2.0 SCOPE AND APPLICABILITY .....	2
3.0 METHOD SUMMARY .....	2
4.0 LIMITATIONS .....	3
5.0 SAFETY .....	3
6.0 EQUIPMENT AND REAGENTS.....	3
7.0 PROCEDURES .....	5
8.0 CALCULATIONS .....	11
9.0 QUALITY CONTROL.....	11
10.0 DEFINITIONS .....	12
11.0 REFERENCES .....	12
12.0 POLLUTION PREVENTION AND WASTE MANAGEMENT .....	13
13.0 SHORTHAND PROCEDURE .....	13

The above contents box is required for SOPs with a page count of ten or greater. It is optional for page counts of nine or fewer.

## 1.0 PURPOSE

This SOP establishes a protocol for site selection, preparation, and deployment of continuous water quality monitoring stations. Methods and procedures described within this SOP are carried out by the Network Coordinator, Project Lead, Site Operator, Ambient Monitoring Communications Coordinator; and staff of Ambient Monitoring, Data Management and Quality Assurance, and Water Quality Monitoring and Assessment Sections.

## 2.0 SCOPE AND APPLICABILITY

The scope of this procedure covers site selection, preparation and deployment of continuous water quality monitoring stations established by or for the Monitoring Operations (MOPs) Division of the Texas Commission on Environmental Quality (TCEQ).

## 3.0 METHOD SUMMARY

- 3.1 The United States Geological Survey (USGS) has published a method for the operation of continuous water quality stations (USGS, 2006). The USGS guidance document describes the site selection process and was followed to develop the procedures included in this SOP.
- 3.2 The Project Lead will set up meeting(s) with interested parties to identify an appropriate site representative of ambient or targeted water quality conditions and meeting selection criteria determined in the documented monitoring objective.
- 3.3 The Project Lead will select, procure if necessary, and prepare water quality monitoring equipment for deployment.
- 3.4 The Ambient Monitoring Section will select, procure if necessary, and prepare communications and logistical equipment for deployment.
- 3.5 The Network Coordinator will integrate station into the existing Continuous Ambient Monitoring (CAMS) network.
- 3.6 The Network Coordinator will facilitate the planning of field deployment for all continuous monitoring stations by coordinating with TCEQ Ambient Monitoring Section, Surface Water Quality Monitoring Team (SWQM), Data Management & Quality Assurance Section (DM&QA), and other areas of MOPs and Field Operations Division (FOD), other TCEQ entities, as well as other monitoring entities outside of TCEQ.
- 3.7 A deployed station will continuously measure water quality information with minimal attention from Site Operator, and transmit collected data to TCEQ's Meteostar database.
- 3.8 Attachment A is a checklist of individual and team roles and responsibilities for those participating in the planning and deployment of stations.

## 4.0 LIMITATIONS

The following scenarios may delay the deployment of a station:

- Monitoring objective not documented
- Data quality objectives not determined
- Priorities set by TCEQ management
- Insufficient staff and/or financial resources

- A suitable site for deployment not identified
- Processing of equipment procurement
- Processing of service contract procurement
- IPS coding to ingest data record into Meteostar database

## 5.0 SAFETY

- 5.1 Safety hazards exist when working in the field, in and around water. *Chapter 11 of the Surface Water Quality Monitoring Procedures Volume 1: Physical and Chemical Monitoring Methods for Water, Sediment, and Tissue* (TCEQ, 2003), provides detailed information regarding general field safety and precautions.
- 5.2 Although no special safety training is required to perform the actions described in this SOP, attending a basic first aid and emergency response course may prove useful in a dangerous situation. Using common sense and being aware of your surroundings can prevent accidents and dangerous situations.
- 5.3 The procedures described in this SOP do not require the use of hazardous chemicals. However, a Material Safety Data Sheet (MSDS) must be acquired, reviewed, and kept on file for any chemical used to carry out procedures described in this SOP. This may include standards to calibrate equipment, reagents for analysis, electrolyte solutions to maintain performance of monitoring sensors and/or pesticides used to prepare the site.
- 5.4 All chemicals must be stored and disposed of according to procedures recommended on the MSDS.

## 6.0 EQUIPMENT and REAGENTS

- 6.1 Water quality monitoring equipment may include a multi-probe sonde. This sonde must be capable of communicating using SDI-12 software. The use of parameter-specific sensors outfitted on the sonde is dependent upon the monitoring objective. The number of sondes deployed is dependent upon the monitoring objective.
- 6.2 Each multi-probe sonde shall need the following accessories to be deployed:
- A cable equipped with an SDI-12 lead, and of sufficient length to connect the deployed sonde to the monitoring station datalogger .
  - A field display or communications interface to view monitoring results and program monitoring and communication functions of the sonde.
  - A probe guard to protect sensors during deployment in the field and to calibrate in the laboratory.
  - Maintenance supplies to keep the sonde functional and deployed for the duration of the project, or the fiscal year (whichever is less). The manufacturer of the instrument should be consulted for maintenance equipment and recommendations.

- 6.3 Sites located on flowing waterbodies must be equipped to measure water level, and/or flow. These data are required for data validation purposes. Multiprobes capable of measuring depth are suitable for this purpose. Direct flow measurement using doppler or other technology must have SDI-12 output so that data can be telemetered and displayed.
- 6.4 An auto-analyzer may be used to collect water quality data . The parameters measured by the auto-analyzer are determined in the Monitoring Objective.
- 6.5 The auto-analyzer may require chemical reagents and standards to perform its analysis of the parameter(s) of interest. Supply and store reagents and standards according to the manufacturer's recommendations.
- 6.6 Each auto-analyzer shall need the following accessories to be deployed:
- Pump of sufficient head to draw the sample from the waterbody to the monitoring station per manufacturer specifications of auto-analyzer.
  - Tubing of sufficient length and diameter to carry the sample from the waterbody to the monitoring station.
  - Maintenance supplies to keep the auto-analyzer functional and deployed for the duration of the project, or the fiscal year (whichever is less). The manufacturer of the instrument should be consulted for maintenance recommendations.
  - Climate controlled shelter or housing.
- 6.7 All monitoring equipment will require calibration standards to maintain measurement accuracy. Chemical standards should be National Institute of Standards and Technology (NIST) traceable.
- 6.8 A Global Positioning System (GPS) capable of data collection to agency standards as outlined in Chapter 08-12 of TCEQ Operating Policies and Procedures will be used to reference the station location.
- 6.9 A digital camera is necessary to provide electronic location reference points of the station.
- 6.10 The shelter used is dependent upon the type of monitoring, communication, and data logging equipment used. This may be a trailer, protective hard shell, metal box, or equivalent.
- 6.11 Communications equipment will be selected based on proximity to electrical and phone service, cell phone coverage, and other site-specific considerations. The selection, procurement, testing, training to operate, and deployment of this equipment is coordinated by the Ambient Monitoring Communications Coordinator of the Ambient Monitoring Section.
- 6.12 Procurement of coding services provided by IPS (Meteostar contractor) may be necessary to process data record into a Meteostar database compatible format.

- 6.13 The Site Operator, Project Lead, and Data Validator may need analog phone lines and modems to call the monitoring station for remote troubleshooting and data retrieval purposes. This will depend on the scope of the project and the monitoring equipment used.
- 6.14 The Site Operator will need a laptop or desktop personal computer (PC) installed at the station to interface with monitoring and communications equipment. Laptops and PCs are provided by the Ambient Monitoring Section.

## 7.0 PROCEDURE

- 7.1 The need for a site is identified and a Project Lead is assigned by MOPs management to work directly with the Network Coordinator.
- 7.2 The monitoring and data quality objectives, and project scope are determined by one or a combination of potential stakeholders: entities interested in the data generated by the project, members of the Water Quality Program Coordination Team (WQPCT), direct management of the SWQM Team, the SWQM Team Lead, and/or the Project Lead. Specifically, existing and potential need/use of data should be addressed. *Chapter 2 of the Surface Water Quality Monitoring Procedures Volume 1: Physical and Chemical Monitoring Methods for Water, Sediment, and Tissue (TCEQ, 2003)*, provides information regarding monitoring guidelines. Sampling will monitor influences on water quality and drinking water sources.
- 7.3 The Network Coordinator completes and submits the Ambient Monitoring Work Manual Request (AMWMR) memo between MOPs and FOD (Attachment B) requesting the participation of FOD field staff. Participation can be at several levels:
- Operation and maintenance of the site
  - Assisting a non-TCEQ cooperator to operate and maintain the station
  - Training a non-TCEQ cooperator to operate and maintain the station
  - Providing technical support for a non-TCEQ cooperator
- 7.4 The FOD agrees or disagrees with the proposal. If FOD agrees to staff the proposal, the FOD signs and returns the AMWMR and assigns a Site Operator for the project. If FOD is unable to provide the necessary staff, then the Project Lead investigates opportunities for non-contract partnership from entities such as River Authorities, other State agencies, municipalities, universities, or contractors. The partner appoints a Site Operator of their choosing. If a partner is not identified, the Project Lead investigates the possibility of contracting the work. The contractor appoints a Site Operator at their discretion.
- 7.5 The DM&QA Work Group Leader is contacted by the Network Coordinator to request data validation services. If resources are not available from DM&QA, the

Project Lead investigates the possibility of contracting the work. The contractor appoints a Data Validator of their choosing.

- 7.6 The Project Lead will identify criteria for the site selection process with the concurrence of the SWQM Team and other interested entities. Criteria include: monitoring objective documented in Section 7.2, potential exposure to target pollutants, representativeness of immediate stream reach, flow, availability of vehicle access, proximity to utilities (phone and electrical), steepness of bank slope, terrain and accessibility to the water, channel bends, ownership of land, potential risk to equipment from flooding, erosion, and other natural hazards, such as local flora and fauna.
- 7.7 The Project Lead will consult existing monitoring groups in the study area to discuss past and current monitoring activities and water quality trends relevant to the selection of a new site. Key discussion points during coordination include identification of environmental impacts and their sources, locations within the watershed that are exposed to pollutants, and locations representative of conditions within the watershed. Plan monitoring with input from other monitoring groups to reduce duplication of effort and intensify monitoring in targeted areas.
- 7.8 The Site Operator and Project Lead consult TCEQ and non-TCEQ monitoring entities to identify potential sites. The Site Operator and/or Project Lead participates in reconnaissance visits to locations meeting criteria for site selection and monitoring objectives. During site visits, information regarding property ownership, nearest neighbor, and utility service providers should be collected and forwarded to the Network Coordinator. The Site Operator provides information on potential sites to the Project Lead and Network Coordinator.
- 7.9 The Water Quality Monitoring and Assessment Section Manager, SWQM Team Lead or designee, approves the site with concurrence from the Project Lead.
- 7.10 The Network Coordinator prepares a letter and/or TCEQ standard license agreement and sends it to the property owner to obtain permission to locate the station.
- 7.11 If the property owner (or his/her legal representation) wishes to modify the license agreement, the Network Coordinator contacts TCEQ General Law Division for assistance in resolving the differences.
- 7.12 The Site Operator works with the property owner and the Network Coordinator to obtain permission and signature on the license agreement. Once the agreement is signed, the Network Coordinator receives and files the signed original.
- 7.13 The Project Lead coordinates a site visit of the selected site to assess monitoring, communications, and deployment needs; as well as collect site documentation including photographs and geo-spatial coordinates. Staff should consider equipment and service needs specific to the location of the monitoring site and

monitoring objective. Dependent upon availability and staff time, representatives from the Ambient Monitoring Section, including the Ambient Monitoring Communications Coordinator should actively participate in the initial site visit. Coordinates should be collected following procedures outlined in TCEQ Operating Policy and Procedures (OPP) 08-12, Global Positioning Systems. The collector of coordinates should be GPS-certified by TCEQ. Digital photographs of the site should be forwarded to staff unable to participate.

- 7.14 The Project Lead completes and submits an Ambient Work Request Form (Attachment C), to the Ambient Monitoring Section detailing the network changes to be implemented, based on information gained during the site visit.
- 7.15 The Project Lead requests monitoring equipment from the Ambient Monitoring Section Store-room. If unavailable in store-room, Project Lead completes a purchase request form (PF) and specifications for monitoring equipment. Make, model, and quantity of monitoring equipment to be purchased are based on the Monitoring Objective. Replacement parts and maintenance equipment should also be included in the purchase. Any communication requirements or specifications related to monitoring equipment should be provided by the Ambient Monitoring Communications Coordinator. The Project Lead forwards the purchase information to the Purchasing Administrative Services Coordinator (ASC). The estimated date of arrival for equipment should be considered when scheduling the date of deployment. The Network Coordinator is provided a copy of the PF.
- 7.16 The Project Lead requests laptop from Ambient Monitoring Storeroom. If a laptop is not available for project use, Project Lead notifies Section Manager of Water Quality Monitoring and Assessment Section and Network Coordinator that procurement of laptops will be needed prior to deployment of site. The Project Lead obtains a PC from Ambient Monitoring Section, if site requires a PC. Project Lead installs proprietary software to laptop and/or PC needed to perform monitoring related tasks such as calibration.
- 7.17 The Ambient Monitoring Communications Coordinator requests communication equipment for the site from the Ambient Monitoring Storeroom. If the required communication equipment is not available from the Ambient Monitoring Storeroom, Ambient Monitoring Communications Coordinator completes a PF and specifications for all communications equipment, based on needs identified during an on-site visit. The Ambient Monitoring Communications Coordinator, or designee, forwards this information to the ASC. The estimated date of arrival for equipment should be considered when scheduling the date of deployment. The Network Coordinator is provided a copy of this PF.
- 7.18 The Ambient Monitoring Section forwards the minimum specifications for fence, electricity, pad, and other site preparation criteria to the Site Operator.
- 7.19 The Ambient Monitoring Section completes a PF and specifications for all site preparation materials and equipment. The Ambient Monitoring Section,

forwards this information to the ASC. The estimated date of arrival for equipment should be considered when scheduling the date of deployment. The Network Coordinator is provided a copy of this PF.

- 7.20 If contract work is necessary for site preparation, the Site Operator provides local contractor information to Network Coordinator; or obtains bids for site preparation work including fence, electricity, and pad, sends to the Network Coordinator for review and bid selection. The Network Coordinator should consult the Ambient Monitoring Section and/or Project Lead for input on site preparation prior to selecting a bid.
- 7.21 The Network Coordinator fills out a purchase request for site preparation contract work based on information provided by Site Operator, Ambient Monitoring Section and Project Lead and forwards it to the ASC. A purchase order is issued to the successful bidder and the Site Operator oversees the work to ensure all specifications are met. Work must be completed at least one week before the deployment date.
- 7.22 If communication at the site requires landline telephone service, the Network Coordinator fills out the Utilities Form (attachment D) and forwards it to the ASC for issuance of a PF. The PF must be issued before the Telecommunications Section can process the order. The Network Coordinator submits a request to the Telecommunications Section for a new telephone line to be installed at the station with a field contact name and phone number. The Site Operator works with the Telecommunications Section staff and the telephone service provider to have the phone line installed at least one week before the station is to be deployed.
- 7.23 If electrical power is required at the site, the Site Operator identifies local electric service provider. The Network Coordinator works with the ASC to prepare a PF for electrical service. A copy of the PF is provided to the Network Coordinator. The Network Coordinator contacts the electric service provider to establish an account for the site.
- 7.24 The Project Lead, Ambient Monitoring Communications Coordinator, and Ambient Monitoring Section test monitoring and communications equipment compatibility and suitability prior to planned deployment date. Any issues identified during testing should be resolved prior to deployment of monitoring station.
- 7.25 The Network Coordinator and Project Lead work with the Ambient Monitoring Section, including the Ambient Monitoring Communications Coordinator to test and prepare monitoring and communications equipment, and site materials for the upcoming deployment.
- 7.26 The Project Lead coordinates monitoring equipment training for the Site Operator before or during deployment.

- 7.27 The Ambient Monitoring Communications Coordinator provides communication training to the Site Operator before or during the deployment.
- 7.28 The Network Coordinator obtains an Air Quality Systems (AQS) number and makes arrangements for registering the site/equipment in Leading Environmental Analysis and Display System (LEADS).
- 7.29 The Project Lead prepares a Continuous Water Monitoring Site Initiation Form (SIF) with site documentation including GPS coordinates, detailed map, station description, longevity of project, site operator, parameters to be added/deleted, and the data validator; and forwards it to the DM&QA Section Site File Coordinator, Metostar Systems Administrator, and Network Coordinator (Attachment E). The Site File Coordinator uses the information on this form to establish the site in the Surface Water Quality Monitoring Information System (SWQMIS) and/or TCEQ Regulatory Activities and Compliance System (TRACS) databases.
- 7.30 The Ambient Monitoring Section will configure the datalogger to collect and transfer data from the site to the network. The Ambient Monitoring Communications Coordinator or designee, will ensure the current data display system is configured to reflect the network changes to be implemented, and notify the Meteostar Systems Administrator about the upcoming network change at least one week ahead of the implementation date.
- 7.31 The Network Coordinator notifies the Site Operator, Ambient Monitoring Section, and Data Validator via email about the tentative date for deployment of the station as soon as a date is scheduled. The Network Coordinator or Project Lead will immediately notify above participants via email if the deployment date is cancelled, rescheduled, or delayed for any reason.
- 7.32 The Network Coordinator coordinates with the Project Lead, Ambient Monitoring Section, and Site Operator to deploy the station/equipment.
- 7.33 The Project Lead will ensure that digital photographs are taken of the following station reference points: upstream, downstream, left bank, right bank, and overall site location. The digital photographs and previously determined latitude/longitude coordinates will be forwarded to the Meteostar Systems Administrator by the Project Lead.
- 7.34 The Site Operator is responsible for signing property transfer slips if the operator is a TCEQ employee. The Project Lead is responsible for signing property transfer slips if the operator is a cooperator or contractor. The signing of property transfer slips and tagging of monitoring and site-related equipment should be coordinated with the Ambient Monitoring Section.

- 7.35 The Project Lead and Ambient Monitoring Section ensure the station is properly collecting and communicating data as planned prior to leaving the station.
- 7.36 The Site Operator is responsible for entering details about the deployment in the operator log, and ensuring that a calibration has been initiated and completed successfully. A successful calibration determines the actual start up date for the equipment. The operator log is discussed at length in Section 7.8 of the SOP for the Operation of Continuous Water Quality Monitoring Equipment, Monitoring Operations Division SOP # AMPM-008.
- 7.37 The Project Lead notifies the Network Design Team, Network Coordinator, Ambient Monitoring Section, and the Data Validator via email that the new station is up and running, and specifies a date for data validation to begin.
- 7.38 The Project Lead provides a copy of the SIF the Quality Control Officer for amendment of the *CWQMN Quality Assurance Project Plan (QAPP)*, once the station is collecting data.

## 8.0 CALCULATIONS

Not Applicable

## 9.0 QUALITY CONTROL

- 9.1 Monitoring equipment must be tested and calibrated prior to deployment and operated according to the following SOPs and guidance documentation:
- *Surface Water Quality Monitoring Procedures, Volume 1: Physical and Chemical Monitoring Methods for Water, Sediment, and Tissue (TCEQ, 2003).*
  - *AMPM – 011. Analysis of DO, SC, pH, Temperature & Depth in Ambient Surface Water Using YSI & EDS Sondes ( TCEQ,2006)*
  - *AMPM – 012. Analysis of NO3 in Ambient Surface Water Using an Aqualab Continuous Auto-Analyzer (TCEQ, 2006)*
  - *AMPM – 013. Analysis of NH3 in Ambient Surface Water Using an Aqualab Continuous Auto-Analyzer (TCEQ, 2006)*
  - *AMPM-014. Analysis of TRP in Ambient Surface Water Using an Aqualab Continuous Auto-Analyzer (TCEQ, 2006)*
  - *AMPM-015. Analysis of DO in Ambient Surface Water Using an Aqualab Continuous Auto-Analyzer (TCEQ, 2006)*
  - *AMPM-016. Analysis of EC in Ambient Surface Water Using an Aqualab Continuous Auto-Analyzer (TCEQ, 2006)*

- *AMPM-017. Analysis of pH in Ambient Surface Water Using an Aqualab Continuous Auto-Analyzer (TCEQ, 2006)*
- *AMPM-018. Analysis of Turbidity in Ambient Surface Water Using an Aqualab Continuous Auto-Analyzer (TCEQ, 2006)*

## 10.0 DEFINITIONS

Not Applicable.

## 11.0 REFERENCES

TCEQ Surface Water Quality Monitoring Data Management Reference Guide, 2005. Austin, TX.

[http://www.tceq.state.tx.us/compliance/monitoring/water/quality/data/wdma/dmrg\\_index.html](http://www.tceq.state.tx.us/compliance/monitoring/water/quality/data/wdma/dmrg_index.html)

TCEQ Surface Water quality Monitoring Procedures, Volume 1: Physical and Chemical Monitoring Methods for Water, Sediment and Tissue. 2003. Austin, TX.

[http://www.tceq.state.tx.us/compliance/monitoring/water/quality/data/wqm/mtr/swqm\\_procedures.html](http://www.tceq.state.tx.us/compliance/monitoring/water/quality/data/wqm/mtr/swqm_procedures.html)

TCEQ Analysis of DO, SC, pH, Temperature & Depth in Ambient Surface Water Using YSI & EDS Sondes. AMPM – 011. 2006. Austin, TX

TCEQ Analysis of NO<sub>3</sub> in Ambient Surface Water Using an Aqualab Continuous Auto-Analyzer. AMPM – 012. 2006. Austin, TX

TCEQ Analysis of NH<sub>3</sub> in Ambient Surface Water Using an Aqualab Continuous Auto-Analyzer. AMPM – 013. 2006. Austin, TX

TCEQ Analysis of TRP in Ambient Surface Water Using an Aqualab Continuous Auto-Analyzer. AMPM-014. 2006. Austin, TX

TCEQ Analysis of DO in Ambient Surface Water Using an Aqualab Continuous Auto-Analyzer. AMPM-015. 2006. Austin, TX

TCEQ Analysis of EC in Ambient Surface Water Using an Aqualab Continuous Auto-Analyzer. AMPM-016. 2006. Austin, TX

TCEQ Analysis of pH in Ambient Surface Water Using an Aqualab Continuous Auto-Analyzer. AMPM-017. 2006. Austin, TX

TCEQ Analysis of Turbidity in Ambient Surface Water Using an Aqualab Continuous Auto-Analyzer AMPM-018. 2006. Austin, TX

USGS. Guidelines and Standard Procedures for Continuous Water-Quality Monitors: Station Operation, Record Computation, and Data Reporting. Techniques and Methods 1-D3. 2006. Reston, Va.

<http://pubs.usgs.gov/tm/2006/tm1D3/>

Chapter 6.13 of the TCEQ Operating Policies and Procedures *Monitoring Operations Hazardous Waste Disposal Plan*

[http://home.tceq.state.tx.us/internal/admin/opp/docs/06-13\\_opp.pdf](http://home.tceq.state.tx.us/internal/admin/opp/docs/06-13_opp.pdf)

Chapter 8.12 of the TCEQ Operating Policies and Procedures *Global Positioning Systems*

<http://home.tceq.state.tx.us/internal/oprr/watsup/gps/>

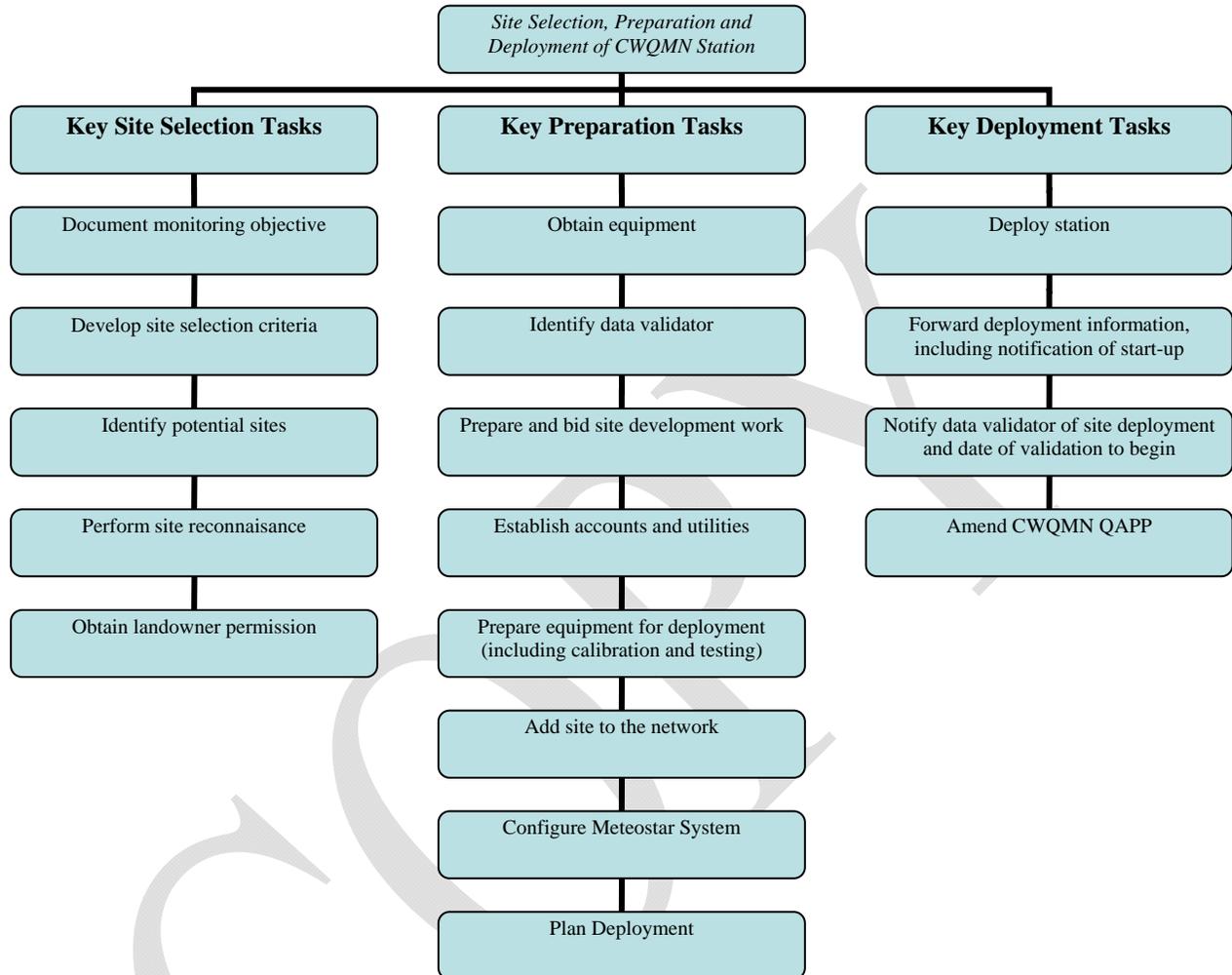
*Monitoring Operations Hazardous Waste Disposal Plan*

## 12.0 POLLUTION PREVENTION and WASTE MANAGEMENT

Supervisors, sampling personnel, and laboratory analysts should identify and implement innovative and cost-saving waste reduction procedures as part of the method development, and review and revision of standard operating procedures. Wastes that do result from these procedures are managed and disposed in accordance with appropriate state and federal regulations.

Refer to Chapter 6.13 of the TCEQ Operating Policies and Procedures for guidelines on general recycling, waste reduction, and water and energy conservation. Review these procedures for specific employee responsibilities and mechanisms for office related waste prevention and management. Consult the *Monitoring Operations Hazardous Waste Disposal Plan* for laboratory specific waste minimization recommendations and requirements for proper handling of hazardous waste that results from laboratory procedures.

### 13.0 SHORTHAND PROCEDURE



## **Attachment A**

### **CHECK LIST of PARTIES INVOLVED with the SITE SELECTION, PREPARATION and DEPLOYMENT of CONTINUOUS WATER MONITORING STATIONS**

#### **IDENTIFICATION OF RESPONSIBLE PARTIES AND ASSOCIATED TASKS**

##### **Network Coordinator**

- Responsible for integrating new sites into the existing Continuous Ambient Monitoring (CAMS) network
- Completes and sends Ambient Monitoring Work Manual Revision Form to FOD
- Facilitates and establishes access behind the firewall to appropriate non-TCEQ staff, including site operator
- Obtains site access agreements with property owners
- Coordinates with DM&QA Section to obtain IPS licenses (including Exceed) for Site Operator
- Contacts DM&QA Work Group Leader
- Coordinate development of pre-deployment infrastructure, including completion of purchase orders and specifications for fencing, utilities, and other site preparation
- Ensures purchase requests are complete and submitted for establishing telephone and electrical service
- Prepare and manage contractual agreements related to network-wide support services
- Prepare, with input from DM&QA Section, contractual agreements related to data validation
- Ensures project is on schedule with coordination and assistance from Project Lead
- Completes work order requests to internal teams
- Obtains site CAMS and Ambient Quality Systems (AQS) number
- Schedules and facilitates deployment planning meeting
- Works with Project Lead to accomplish proposed project within specified time frame
- Provides updates to management

##### **Project Lead**

- Responsible for coordination of the overall project
- Coordinate initial meeting internal staff and external stakeholders to discuss proposed project
- Document monitoring objective with input from management and stakeholders
- Identify representative project site with input from interested parties
- Maintains dialog with Network Coordinator on status, schedule, and issues for the project
- Provide project info to CWQMN Quality Control Officer for amendment of CWQMN QAPP
- Completes purchase requests for project-specific monitoring instrumentation
- Obtain laptops and/or PC's for project
- Assist the Ambient Monitoring Section to prepare list of supplies needed for deployment by completing Ambient Monitoring Work Request Form
- Plan and participate in site reconnaissance; coordinate with appropriate internal and external parties to accomplish objectives of site visits
- Complete continuous water monitoring Site Initiation Form
- Work closely with Network Coordinator and Ambient Monitoring Section to accomplish proposed project within specified time frame
- Initiate and manage contracts related to specific projects
- Coordinate monitoring equipment training for the Site Operator
- Work directly with Ambient Monitoring Section to manage inventory for project and facilitate property transfers
- Works with Ambient Monitoring Section and AMCC to prepare and test monitoring equipment and site materials prior to deployment
- Participate in deployment of station as appropriate
- Provide site documentation to site file coordinator, LEADS systems administrator, and AMCC
- Notifies data validator when new site is established, and specifies date for data validation to begin

**Site Operator (Field Operations Staff , Contractor, or Cooperator)**

- FOD management will approve or reject interoffice memo tasking Regional staff to participate in project as Site Operator (FOD staff only).
- Provides overall support for operation and maintenance of station
- Assist Project Lead and Network Coordinator with identifying sites
- Facilitate site preparation operations with Network Coordinator
- Provide information and/or complete purchase request, utility, and bid tabulation forms from Network Coordinator to prepare the site
- Provide documentation to complete the site initiation form
- Operate and maintain station after deployment
- Follow approved equipment operation and maintenance SOPs
- Follow statement of work as specified in contract or cooperator agreement

**Ambient Monitoring Communications Coordinator**

- Establishes and maintains VPN access to appropriate non-TCEQ staff, including site operator
- Research and test new communication technology and coordinate with project lead to check monitoring equipment compatibility
- Works with Project lead and Ambient Monitoring Section to prepare and test communications and monitoring equipment prior to deployment
- Provides communications equipment training

**Data Management and Quality Assurance Section**

- Provides overall support of validating data produced by the station, including non-DM&QA validators
- Manage contracts related specifically to the validation of data
- Assist the Network Coordinator in writing contracts related specifically to the validation of data
- Participate in meetings to determine validation needs and issues
- Generates Site ID for the water data base (TRACS or SWQMIS)
- Train operators on data validation software and procedures when applicable including Manual Validation
- Provide training for Site Operator on the data display system
- Coordinate with Network Coordinator to obtain IPS license agreements

**Ambient Monitoring Section**

- Provides overall support of communication needs
- Travel to site to determine communication needs as Project Lead deems necessary
- Procure communication equipment
- Coordinate with Project Lead to test new monitoring equipment for communications compatibility
- Provide on-site training for the operation of communications equipment and provide written communications-related SOPs as reference documentation
- Coordinate with LEADS system administrator concerning network changes
- Participate in monthly CWQMN meeting, or ensure the project is adequately represented
- Provides overall support for deployment of station and maintaining equipment inventory
- Provides laptop and/or PC for station operation
- Provide generic site preparation specifications to Site Operator
- Visit proposed sites to assess logistics needed for site development and deployment
- Procure the necessary supplies needed for the deployment with assistance from Project Lead
- Ensure proper site development inventory is available for deployment
- Coordinate equipment property transfers with Project Lead and Site Operators
- Deploy the site
- Provide training to operate and maintain station infrastructure

### **Clean Rivers Program (CRP)**

- Assist with identifying future projects or cooperators for planned projects
- Provide input on data needs and site selection
- Facilitate communications with cooperators, if entity is a CRP partner
- Serve as data validator, if agreed

### **Total Maximum Daily Load Program (TMDL)**

- Assist with identifying future projects or cooperators for planned projects
- Provide input on data needs and site selection
- Facilitate communications with cooperators, if entity is a TMDL contractor
- Serve as data validator, if agreed

## **Responsibilities Not Part of MANP-001:**

### **Network Coordinator**

- Promote capabilities of CWQMN to stakeholders, management, and potential cooperators
- Keep SWQM and CRP staff informed about discussions with potential cooperators in their basin
- Maintain all planning and training documents on the public drive and available to agency staff (some should be password protected)
- Schedule deployments based on site readiness
- Coordinate monthly Continuous Water Quality Monitoring (CWQMN) meeting

### **Project Leads and Surface Water Quality Monitoring Team**

- Technical Systems Audits of stations in CWQMN (including EMRS stations)
- Tracks general cost for the network including agency staff, inventory, site and data operations, communication infrastructure, deployment, equipment, and maintenance
- Make available cost estimates for deployment and operation of common types of station configuration
- Coordinate the maintenance of an inventory of replacement parts and instruments within the MOPs stockroom
- Plan and procure monitoring instrumentation for annual deployment schedule
- Coordinate with Site Operator to provide services for repair and purchasing supplies to maintain station
- Research and test new monitoring technology equipment with the Ambient Monitoring Communications Coordinator (AMCC) to check communications compatibility
- Draft Standard Operating Procedures for new monitoring technology
- Participate in monthly CWQMN meeting, or ensure the project is adequately represented
- Plan and procure laptops for annual deployment schedule in coordination with Ambient Monitoring Section

### **Site Operator**

- Order consumable items as necessary
- Provide documentation to data validation personnel as necessary
- Assist data validator with troubleshooting activities
- Enter routine operator log entries
- Participate in monthly CWQMN meeting, or ensure the project is adequately represented
- Review and revise SOPs every two years

### **Ambient Monitoring Section**

- Provides overall support of communication needs
- Provides overall support of site repair
- Draft brief SOP based on instrument manual if formal SOP not available

**Data Management and Quality Assurance Section**

- Performance audits of stations in CWQMN (including EMRS stations)
- Web development
- Assist with audit procedures
- Participate in monthly CWQMN meeting, or ensure the project is adequately represented

**Manager for Each Section**

- Makes staff assignments through Team Leads or Work Group Leader
- Keeps track of SOP revisions, need for new SOPs, through Team Leads or Work Group Leader
- Ensures PC's and laptops are available for deployments

COPY

### Attachment B

Ambient Monitoring Work Manual Revision Form

To: Jennifer Sidnell, Director  
 Field Operations Division (MC 174) Date: December 29, 2006

From: Steve Spaw, P.E., Director  
 Monitoring Operations Division (MC 165)

Subject: Ambient Monitoring Work Manual Revision/Addition

Description of Revision or Addition:  Example: Addition of (2) Continuous Water Quality Monitoring Stations monitoring water quality on the Pecos River to existing network.			
Field Operations Responsibilities:  Operate and Maintain this station.			
Reason for Revision/Addition:  There is a need for (2) stations to identify water quality trends as a result of recently-implemented salt cedar eradication management practices on the Pecos River			
Monitoring Location Unique Identification	Pecos River CAMS 782 and 783		
Site Operator Appointee (to be completed by FOD):			
Region Number	7	New or Existing Work Location	New
Closest Street/Highway River Crossing: Pecos River at Hwy 80			
Start/End Date of Work: January, 1, 2008			

Months per Year: 12	Monthly Man-Hours Required for both on-site and off-site activities (Do not include travel): 18
Training Required? Yes	Training Provided by: Monitoring Operation Division
Location of Training: on site	Man-hour to Complete Training: 4
Comments Attached?	

SS/PCD/nl

cc: Mr. David Bower, Assistant Director, Field Operations Division (MC 174)  
 Mr. John Forehand, Field Operations Division (MC 174)  
 Mr. Chuck Dvorsky, Monitoring Operations Division (MC 165)  
 Mr. Patrick Roques, Monitoring Operations Division (MC 165)  
 Mr. Scott Mgebhoff, Monitoring Operations Division (MC 165)  
 Mrs. Brenda Archer, Monitoring Operations Division (MC 165)

### Description of Required Information

<b>Description of Revision or Addition</b>	A full description of the work to be added or revised within the Ambient Monitoring Work Manual.
<b>Reason for Revision/Addition</b>	The reason the requested revisions are necessary (e.g., golden algae bloom monitoring, trend monitoring . . . etc).
<b>Monitoring Location Unique Identification</b>	This is a <u>unique</u> identification number or name.
<b>Site Operator Appointee</b>	Name of staff appointed by FOD management to operate station.
<b>New <u>or</u> Existing Work Location</b>	State whether the site is a site which Field Operations is already conducting work at.
<b>Region Number</b>	TCEQ Region where the work will occur.
<b>Closest Street/Highway River Crossing</b>	Major highway river crossing where the work will be performed. If not appropriate, the closest landmark.
<b>Start/End Date of Work</b>	The start date is the date which Field Operation's staff will start and stop expending man-hours.
<b>Months per Year</b>	The number of months per year that will require Field Operations to expend man-hours.
<b>Monthly Man-Hours Required</b>	The estimated number of man-hours to perform the work (EXCLUDING TRAVEL) including on-site time <u>and</u> hours required off-site.
<b>Training Required? (yes/no)</b>	State whether training will be appropriate prior to the start date of the work or on an on-going basis.
<b>Training Provided by</b>	Who will provide the training.
<b>Location of Training</b>	Location of required training.
<b>Man-hour to Complete Training</b>	Hours required to complete training, including estimated travel time and out-of-class reading.

**Attachment C**

**AMBIENT MONITORING WORK REQUEST FORM**

**To:** Larry Lehmann, Ambient Monitoring Section      Date of Request: \_\_\_\_\_

**Requested by:** \_\_\_\_\_ Ext. \_\_\_\_\_ Section: \_\_\_\_\_

Specifications and drawings (if required) of work requested:  
(Use additional pages if required)

Materials Required:

Materials shall be supplied by? \_\_\_\_\_  
Materials shall be charged to index number? \_\_\_\_\_

Project completion date requested: \_\_\_\_\_

**Completed by Ambient Monitoring Section**

Date received: \_\_\_\_\_ Work Request Number: AMSX - \_\_\_\_\_

Work request assigned to: \_\_\_\_\_

Yes    Work can be completed by requested completion date.

No    Work can not be completed by requested date. You may discuss a revised date with Ambient Monitoring personnel and/or elect to contract a vendor for work requested.

M/hrs: \_\_\_\_\_ Materials used: (Use additional pages if required)

Project was completed and/or cancelled on \_\_\_\_\_ by \_\_\_\_\_.

Project was completed and/or cancelled on \_\_\_\_\_ by \_\_\_\_\_

Comments:

**Attachment D**

**AMBIENT MONITORING SITE UTILITIES FOR SET UPS OR CHANGES**

Requestor: \_\_\_\_\_

Date: \_\_\_\_\_

AQS#: \_\_\_\_\_

CAMS/TAMS/SITE# \_\_\_\_\_

STREET ADDRESS OF SITE (need physical address):

CITY: \_\_\_\_\_

REGION: \_\_\_\_\_

**NAME OF ELECTRIC COMPANY:** \_\_\_\_\_

ACCOUNT NUMBER: \_\_\_\_\_

DATE SERVICE BEGAN: \_\_\_\_\_

DATE SERVICE WAS DISCONNECTED: \_\_\_\_\_

-----

**NAME OF PHONE COMPANY:** \_\_\_\_\_

PHONE NUMBER AT SITE: \_\_\_\_\_

DATE SERVICE BEGAN: \_\_\_\_\_

DATE SERVICE WAS DISCONNECTED: \_\_\_\_\_

COMMENTS: **Electric bills - Have vendor mail invoice to :**

**TCEQ**

**Attn: Mary Bounds -MC165**

**PO Box 13087**

**Austin, TX 78711-3087**

**FUNDING INFO REQUIRED:** Is this a AIR or WATER Site?

Special Grant - what type?

**Attachment E**

**Continuous Monitoring Site Initiation Form**

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY CONTINUOUS WATER QUALITY MONITORING SITE INITIATION AND UPDATE							
CHECK ACTION REQUIRED:	Add New Station LEADS		Change Existing LEADS		Delete Existing LEADS		
	Add New Station TRACS		Change Existing TRACS		Delete Existing TRACS		
Requestor Name				Region or Agency Name:			
Contact Phone #							
CAMS ID		LEADS ID		TRACS ID		AQS ID	

**SITE NAME:** (30 Character Limit)

**LONG DESCRIPTION:** (135 Character Limit. Begin with name of water body)

**Street Address** (or 911 Address)

**Location Data**

TCEQ Region		City	
Basin		County	
Segment		Latitude	
Federal Code	County	Longitude	
TRACS Code	County		
EcoRegion Level IV	Code		
How Was Lat/Long Determined?		GPS	TOPO
Was GPS Operator TCEQ Certified?		YES	NO

Short-Term/Long-Term:      Short-Term       Long-Term

Site Operator:      Name       Email       Phone

Data Validator:      Name       Email       Phone

Cooperator Rep:      QA Name       Email       Phone

**Attachment E cont.**

**Continuous Monitoring Site Initiation Form**

Status (A/D/T)	Date	Parameter Name	Parameter Method Code	Parameter POC#	Monitor Manufacturer	Monitor Model

<b>CWQMN QAPP INFORMATION</b>			
SWQM Project Lead			
Project Name			
Site Operator Organization			
Site Operator Address			
Cooperator QAPP Rep Address			
Data Validator Organization			
Data Validator Address			
Telemetry Method			
Support Contracts			
Goods/Services Provided			
Vendor Name			
Address			
Telephone			
Email Address			
Project Objective New Site:			
Change Objective Existing Site:			
Comments			

## Attachment F

### List of Acronyms

SOP	Standard Operating Procedure
MOPs	Monitoring Operations Division
TCEQ	Texas Commission on Environmental Quality
USGS	United States Geological Survey
GPS	Global Positioning System
SWQM	Surface Water Quality Monitoring Team
DM&QA	Data Management and Quality Assurance
FOD	Field Operations Division
MSDS	Material Safety Data Sheet
NIST	National Institute of Standards and Technology
PC	Personal Computer
WQPCT	Water Quality Planning Coordination Team
PF	Purchase Request Form
ASC	Administrative Services Coordinator
LEADS	Leading Environmental Analysis and Display System
AQS	Air Quality Systems
SIF	Continuous Water Monitoring Site Initiation Form
SWQMIS	Surface Water Quality Monitoring Information System
TRACS	TCEQ Regulatory Activities and Compliance System
SOP	Standard Operating Procedure
CAMS	Continuous Ambient Monitoring Station
CWQMN	Continuous Water Quality Monitoring Network