Utah Division of Water Quality

Checklist of Essential Elements for Sampling and Analysis Plans (SAPs)[1]

Monitoring Project/Program:_____
Preparer(s):_____
Reviewer(s):_____
Date Submitted for Review:_____
Date of Review:_____
Parent QAPP or Equivalent Document:_____

Instructions for Preparers:

As required by DWQ's Quality Assurance Program Plan for Monitoring Programs (DWQ QAPP), any monitoring activity conducted or overseen by DWQ must have a SAP, excluding one-time response actions (such as a spill) or compliance sampling. The SAP must be reviewed and revised for each field season/monitoring year. SAPs are approved and kept on file by the Monitoring Section QA Staff and must be distributed to everyone involved with a monitoring project. Use the template and checklist below to help create your SAP. The SAP should contain or reference all the elements in this checklist but need not have the same format. Rather than extensive text, include as much information as possible in the form of tables, which are easier to refer to in the field. The SAP should be a usable, stand-alone document that can be taken into the field by Monitors. Therefore, if you choose to use an element directly from the DWQ QAPP that needs to be viewable when reading the SAP, copy and paste it into the SAP rather than just referencing the QAPP so that Monitors do not have to read through both documents while in the field.

Definitions and Acronyms:

DPM- Designated Project Manager. As defined by DEQ's Quality Management Plan (QMP), the DPM is the staff member responsible for a specific project and has immediate managerial or technical control of that project. The DPM is responsible for specifying the quality of the data required for each project and initiating corrective actions when quality control is not being met. The DPM may also be a program manager. The DPM is responsible for designing monitoring strategies, setting project-specific data quality objectives (DQOs), and developing project-specific SAPs. DPMs are responsible for making sure all personnel involved with the project are briefed and/or trained on the procedures to be used. Roles of DPMs are further discussed throughout the DWQ QAPP.

IR – Integrated Report

SMP – Strategic Monitoring Plan

[1] Thanks to the Montana Department of Environmental Quality's public Quality Assurance webpage for providing the template for this checklist.

1. Introduction and Background Information (This can be brief if it references some previous documentation or the IR or SMP, etc.)

- € Site history
- € Regulatory framework
- € Summary of previous investigations
- € Location/characteristics of any known pollution sources at the site or in the area
- € Site location map showing area at a broad scale

2. Objectives and Design of the Investigation (This should be very specific to the project and should be a result of discussions between DPM, data users, stakeholders, science panel, etc.)

- € Specific objectives of this study (describe how they support broader program goals/objectives or regulatory framework)
- € Provide the study design (i.e. spatial/temporal limits, sample characteristics, the smallest population, area, volume, or time frame for which decisions will be made).
- € Discuss representative sampling conditions and instructions for field personnel if they encounter non-representative sampling conditions
- € Describe parameters of concern (narrative – must conform to list(s) in sections 4 and 6)
- € Number, location, and frequency of samples and quality control samples
- € Sampling Site Locations
  - € Rationale for site selection
  - € Site map(s) showing sampling locations and "control" sites and any other pertinent features such as land use, etc. within the sampling area

3. Special Precautions and Safety Plan

- € Detailed itemization of any specific safety concerns
- € Reference an applicable safety plan
- € Any additional safety training required for project
- € Document that field personnel comply with your Invasive Species Plan and SOPs to prevent spread of invasive species

4. Field Sampling Methods and Documentation

- € Any special training needed beyond those discussed in DWQ QAPP, and where training documentation will be kept

- Include a table listing each field instrument to be used (equipment, describe operation or indicate where operation manual is kept for field event, include calibration procedures, if any)
- Include a table listing each sampling method to be used (sampling equipment if needed, cite method in SAP, attach applicable SOPs)
- For any sampling equipment used, describe operation or indicate where operation manual is kept for field event, include decontamination procedures, if any, attach applicable SOPs
- If not found in SOPs, include equipment lists, sampling trip organizing checklists,
- List corrective actions for problems that may occur in the field
- Discuss what field documentation is required, and how field records shall be generated and stored

5. Laboratory Sample Handling Procedures

- Describe sample containers, preservatives, holding times
- Describe field documentation (COC) and sample labeling procedures
- Describe shipping plan for sample transport to laboratory

6. Analytical Methods and Laboratory Documentation

- Chemical – list parameter, cite preparation method and analytical method, list required sensitivity or detection limits
- Biological – cite method or desired taxonomic level and organism target count, etc.
- Required reporting procedures (e.g. hardcopy, electronic deliverables) and turn-around times
- Be sure DWQ has obtained QA documentation for each laboratory used (check with Monitoring Section QA Staff), reference this information and any new/research analytical methods being used (obtain these protocols if available from lab)
- List the required data package contents from the analyzing laboratories [or reference a service contract or Memorandum of Understanding (MOU)]

7. Project Quality Control Requirements

- Table of QC limits for field instruments (operation range, accuracy, and precision)
- Table listing each Data Quality Indicator (precision, accuracy, bias, etc.), how it will be measured, and the performance criteria against which it will be evaluated (use the table in the DWQ QAPP and adapt it to *this* project if needed)
    - Analytical (internal to lab) QC limits for chemical analyses (acceptable precision, accuracy, and negative control – lab method blank)

- Field sample QC limits for chemical analyses [Acceptable precision (field duplicates) and negative control (field blanks)]
- QC limits for biological analysis [Acceptable precision (% diff in enumeration, 5 taxonomic difference)]

€ QC limits, schedule, and descriptions of planned field/lab audits/assessments

€ Data quality assurance review procedures

- Describe system of data qualification
- Describe measure of completeness relative to planned design
- Corrective actions for non-conformance

8. Data Analysis, Record Keeping, and Reporting Requirements

€ Data interpretation approach (include means to temper decision-making if limited completeness of design occurs)

€ Describe project record keeping procedures and archive (hardcopies, electronic data)

€ Describe how and when DPM wishes to be notified of available laboratory/field results

€ Describe expected content and format of final project report and who will receive original/copies.

9. Schedule and Budget

€ Table or figure showing project schedule with key project milestones

€ List funding sources for project and include anticipated equipment, consumables, personnel purchases/costs

€ Sample costs/lab resources per fee schedule

10. Project Team and Responsibilities

€ Identify project team responsibilities and personnel

€ Identify sampling personnel

€ Identify subcontractors (e.g. chemical and biological labs)

References (Include references to DWQ-prepared documents)

Appendices and Attachments (Include SOPs, Chain of Custody forms, Field Forms, Sample Labels, etc.)