QA PROJECT PLAN REVIEW CHECKLIST

This checklist is based on the elements in *EPA Requirements for QA Project Plans (QA/R-5)* (EPA, 2001a). This checklist can be used to either write or review a QA Project Plan, especially those involving field sampling and laboratory analyses.

PROJECT TITLE City of Columbia Supplemental Env Projects (SEP)

Preparer: Tracy Mitchell **Date Submitted for Review: 1/13/2015** **QAPP ID 1/13/2015**
Reviewer: NFB **Date of Review: 1/23/2015**

Element	Acceptable (Yes/No)	Page/ Section	Comments
A1. Title and Approval Sheet			
Contains project title	Yes		
Indicates revision number, if applicable	Partial		Until it's approved, the revision number should be 0.
Indicates organization's name	Yes		
Date signature of organization's project manager	Yes		
Dated signature of organization's QA manager present	Yes		
Other signatures, as needed	Yes		Need EPA signatures as per phone call on 2/5
A2. Table of Contents			
Lists QA Project Plan information sections	Yes		

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Document control information indicated			
A3. Distribution List			
Includes all individuals who are to receive a copy of the QA Project Plan and identifies their organization	Partial		A project verifier and a project validator are not identified. Both must receive a copy of the QAPP.
A4. Project/Task Organization			
Identifies key individuals involved in all major aspects of the project, including contractors	Partial		A project verifier and a project validator are not identified.
Discusses their responsibilities	Yes		Lab Certification numbers are in Section A8
Project QA Manager position indicates independence from unit generating data	No		Nydia Burdick and EPA are not the Project QA Managers.
Identifies individual responsible for maintaining the official, approved QA Project Plan	Yes		
Organizational chart shows lines of authority and reporting responsibilities	Partial		A Project QA manager is not on the chart.
A5. Problem Definition/Background			
States decision(s) to be made, actions to be taken, or outcomes expected from the information to be obtained	NA		

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Clearly explains the reason (site background or historical context) for initiating this project	Yes		
Identifies regulatory information, applicable criteria, action limits, etc. necessary to the project	Yes		Required by DHEC and EPA
A6. Project/Task Description			
Summarizes work to be performed, for example, measurements to be made, data files to be obtained, etc., that support the project's goals	Yes		
Provides work schedule indicating critical project points, e.g., start and completion dates for activities such as sampling, analysis, data or file reviews, and assessments	Yes		
Details geographical locations to be studied, including maps where possible	Yes		
Discusses resource and time constraints, if applicable	NA?		
A7. Quality Objectives and Criteria			
Identifies performance/measurement criteria for all information to be collected and acceptance criteria for information obtained from previous studies, including project action limits and laboratory detection limits and	Partial		See the comment beside precision. Is the laboratory running a LCS/LFB with each TSS batch? Most labs do not since this is not a method requirement.

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range of anticipated concentrations of each parameter of interest			
Discusses precision	Partial		Precision is not a reliable DQI for bacteria and DO and this needs to be stated here.
Addresses bias	Yes		However, Matrix Spikes/Matrix Spike Duplicates are not applicable to any parameter chosen for this project. .
Discusses representativeness	Yes		
Identifies the need for completeness	No		This section is concerned with what is needed for the actual project. Up to this point you have referred to the analytical methods and that's fine. Here, though you must specify the percentage of valid samples you must have either to make environmental decisions/conclusions OR to satisfy DHEC or EPA. In Section B1, you state that a new sample will be collected if a sample is inadvertently destroyed. This indicates that 100% completeness is required.
Describes the need for comparability	No		Here is where you state that you are analyzing the samples with the same methods as previously used so that results obtained from this project

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			can be directly compared to historical data.
Discusses desired method sensitivity	Yes		
A8. Special Training/Certifications			
Identifies any project personnel specialized training or certifications	Yes		
Discusses how this training will be provided	Yes		
Indicates personnel responsible for assuring these are satisfied	Yes		
Identifies where this information is documented	Yes		
A9 Reports and Documentation			
Identifies report format and summarizes all data report package information	Partial		What will be sent to DHEC? In what format? You state that "All reports, records and electronic files from the laboratory will be supplied by the City and DHEC on the quarterly or monthly basis, as described previously." Is this being supplied TO DHEC? If not, what is DHEC supplying? This needs clarification.
Lists all other project documents, records, and electronic	Yes		

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files that will be produced			
Identifies where project information should be kept and for how long	Yes		
Discusses back up plans for records stored electronically	Yes		
States how individuals identified in A3 will receive the most current copy of the approved QA Project Plan, identifying the individual responsible for this	Yes		
B1. Sampling Process Design (Experimental Design)			
Describes and justifies design strategy, indicating size of the area, volume, or time period to be represented by a sample	Yes		DHEC selected
Details the type and total number of sample types/matrix or test runs/trials expected and needed	Partial		You state this: "All samples that require analysis will be taken at the outfall of the station, with the exception of those that can be taken in the field by handheld devices and are not subject to the standards of a DHEC certified lab method". This needs clarification because every parameter you have listed requires an approved method and SC DHEC certification.

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Indicates where samples should be taken, how sites will be identified/located	Partial		In Section A6. Identify what you mean by a "Sampling Site Outfall". Are these from treatment plants or are you simply collecting from a stream? Later in the QAPP this sounds just like stream collection.
Discusses what to do if sampling sites become inaccessible	Yes		
Identifies project activity schedules such as each sampling event, times samples should be sent to the laboratory, etc.	Partial		You must finalize the schedule even if you only state that samples will be collected the first week of the month or on the 15th. If the samplinges date falls on a Saturday or Sunday, the samples will be collected on Friday---or something like that. You state: "Once the Project Manager receives this laboratory report, the information will be provided to DHEC according to the distribution list." This is not clear. Are you providing the data to everyone on the distribution list? This is unusual.
Specifies what information is critical and what is for informational purposes only	Yes		Any samples lost will be recollected.
Identifies sources of variability and how this variability	No		Bacteria counts are variable due to their nature.

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should be reconciled with project information			Is there any other source of variability? Will rain affect your parameters? If stream sampling, you must address weather variability.
B2. Sampling Methods			
Identifies all sampling SOPs by number, date, and regulatory citation, indicating sampling options or modifications to be taken	Yes		In Section B2
Indicates how each sample/matrix type should be collected	Yes		
If in situ monitoring, indicates how instruments should be deployed and operated to avoid contamination and ensure maintenance of proper data	Yes		
If continuous monitoring, indicates averaging time and how instruments should store and maintain raw data, or data averages	NA		
Indicates how samples are to be homogenized, composited, split, or filtered, if needed	NA		
Indicates what sample containers and sample volumes should be used	Yes		

Element	Acceptable (Yes/No)	Page/ Section	Comments
Identifies whether samples should be preserved and indicates methods that should be followed	Yes		
Indicates whether sampling equipment and samplers should be cleaned and/or decontaminated, identifying how this should be done and by-products disposed of	Yes		
Identifies any equipment and support facilities needed	Yes		
Addresses actions to be taken when problems occur, identifying individual(s) responsible for corrective action and how this should be documented	Yes		
B3. Sample Handling and Custody			
States maximum holding times allowed from sample collection to extraction and/or analysis for each sample type and, for in-situ or continuous monitoring, the maximum time before retrieval of information	No		
Identifies how samples or information should be physically handled, transported, and then received and held in the laboratory or office (including temperature upon receipt)	Yes		
Indicates how sample or information handling and	Yes		

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custody information should be documented, such as in field notebooks and forms, identifying individual responsible			
Discusses system for identifying samples, for example, numbering system, sample tags and labels, and attaches forms to the plan	No		How will the sample collector provide a unique identifier for each sample? How will the lab provide a unique identifier?
Identifies chain-of-custody procedures and includes form to track custody	Yes		
B4. Analytical Methods			
Identifies all analytical SOPs (field, laboratory and/or office) that should be followed by number, date, and regulatory citation, indicating options or modifications to be taken, such as sub-sampling and extraction procedures	PENDING Review of the TSS and *E. Coli* SOPs		
Identifies equipment or instrumentation needed	PENDING Review of the TSS and *E. Coli* SOPs		
Specifies any specific method performance criteria	PENDING Review of the TSS and *E.*		

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	Coli SOPs		
Identifies procedures to follow when failures occur, identifying individual responsible for corrective action and appropriate documentation	PENDING Review of the TSS and *E. Coli* SOPs		
Identifies sample disposal procedures	Yes		
Specifies laboratory turnaround times needed	Yes		
Provides method validation information and SOPs for nonstandard methods	NA		
B5. Quality Control			
For each type of sampling, analysis, or measurement technique, identifies QC activities which should be used, for example, blanks, spikes, duplicates, etc., and at what frequency	PENDING Review of the TSS and *E. Coli* SOPs		See also comments at the end of this Form
Details what should be done when control limits are exceeded, and how effectiveness of control actions will be determined and documented	PENDING Review of the TSS and *E. Coli* SOPs		
Identifies procedures and formulas for calculating applicable QC statistics, for example, for precision, bias,	Partial		There has been a recent change in the holding times for Fecal Coliforms. It is no longer 6 hours

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outliers and missing data			for transport and 2 hours to set it up. Please use this language: Sample analysis should begin as soon as possible after receipt; sample incubation must be started no later than 8 hours from time of collection. (40CFR Part 136.3) Matrix spikes are not used for the parameters in this project. This information must be removed from the QAPP as it does not apply. MDL calculations do not apply for microbiological analysis and they are not used for TSS, DO and temperature. Remove this information. There is no such thing as a "Method Blank" for microbiological analysis. There is only sterility check. Remove this information. A blind PE sample~~s~~ must be analyzed annually for each parameter. At least monthly a set of weights covering the range of the balance must be checked. The daily check should be made with a weight that is close to what the sample plus weighing dish will weigh.

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			Duplicates are not analyzed for DO or temperature. For the YSI Proplus, address only those parameters within the project. According to previous information conductivity and pH are not being analyzed. This information must be removed from the table addressing QC for this meter. There are also not PE samples for DO or temperature. Remove this information.
B6. Instrument/Equipment Testing, Inspection, and Maintenance			
Identifies field and laboratory equipment needing periodic maintenance, and the schedule for this	Yes		
Identifies testing criteria	Yes		
Notes availability and location of spare parts	Yes		
Indicates procedures in place for inspecting equipment before usage	NO		If this is in the SOPs, I'll take this and make it a Yes.
Identifies individual(s) responsible for testing, inspection and maintenance	NO		If this is in the SOPs, I'll take this and make it a Yes.
Indicates how deficiencies found should be resolved, re-	NO		If this is in the SOPs, I'll take this and make it a

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	inspections performed, and effectiveness of corrective action determined and documented			Yes.
B7.	**Instrument/Equipment Calibration and Frequency**			
	Identifies equipment, tools, and instruments that should be calibrated and the frequency for this calibration	Yes		
	Describes how calibrations should be performed and documented, indicating test criteria and standards or certified equipment	Partial		Balance must be checked cross the entire range at least monthly. Remove the information about pH and conductivity.
	Identifies how deficiencies should be resolved and documented	Yes		
B8.	**Inspection/Acceptance for Supplies and Consumables**			
	Identifies critical supplies and consumables for field and laboratory, noting supply source, acceptance criteria, and procedures for tracking, storing and retrieving these materials	Yes		
	Identifies the individual(s) responsible for this	Yes		
B9.	**Non-direct Measurements**			
	Identifies data sources, for example, computer databases	No		Historical data is considered a non-direct

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or literature files, or models that should be accessed and used			measurement and you mentioned that you were comparing this data with historical data.
Describes the intended use of this information and the rationale for their selection, i.e., its relevance to project	No		
Indicates the acceptance criteria for these data sources and/or models	No		
Identifies key resources/support facilities needed	No		
Describes how limits to validity and operating conditions should be determined, for example, internal checks of the program and Beta testing	NA		
B10. Data Management			
Describes data management scheme from field to final use and storage	Yes		
Discusses standard record-keeping and tracking practices, and the document control system or cites other written documentation such as SOPs	Yes		In A 9
Identifies data handling equipment/procedures that should be used to process, compile, analyze, and transmit data reliably and accurately	Yes		In A 9

Element	Acceptable (Yes/No)	Page/ Section	Comments
Identifies individual(s) responsible for this	Yes		In A 9
Describes the process for data archival and retrieval	Yes		In A 9
Describes procedures to demonstrate acceptability of hardware and software configurations			
Attaches checklists and forms that should be used	NA?		
C1. Assessments and Response Actions			
Lists the number, frequency, and type of assessment activities that should be conducted, with the approximate dates	Yes		
Identifies individual(s) responsible for conducting assessments, indicating their authority to issue stop work orders, and any other possible participants in the assessment process	Yes		
Describes how and to whom assessment information should be reported	Yes		
Identifies how corrective actions should be addressed and by whom, and how they should be verified and documented	No		

Element		Acceptable (Yes/No)	Page/ Section	Comments
C2.	Reports to Management			
	Identifies what project QA status reports are needed and how frequently	Yes		
	Identifies who should write these reports and who should receive this information	No		This can be very brief.
D1.	Data Review, Verification, and Validation			
	Describes criteria that should be used for accepting, rejecting, or qualifying project data	Yes		
D2.	Verification and Validation Methods			
	Describes process for data verification and validation, providing SOPs and indicating what data validation software should be used, if any	Partial		Verification was addressed but validation was not. –Discuss what will be examined for data validation. Since this investigation can go down to the raw data, you may wish to include a percent of the data that will be validated. A validator must be chosen. This person(s) cannot be involved in data generation.
	Identifies who is responsible for verifying and validating different components of the project data/information, for example, chain-of-custody forms, receipt logs, calibration	Partial		See above

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information, etc.			
Identifies issue resolution process, and method and individual responsible for conveying these results to data users	No		
Attaches checklists, forms, and calculations	NA?		
D3. Reconciliation with User Requirements			
Describes procedures to evaluate the uncertainty of the validated data	No		We will discuss this over the phone.
Describes how limitations on data use should be reported to the data users	No		We will discuss this over the phone.

In Section B5 the QAPP states: Duplicates are typically not helpful for bacterial analyses and are not customarily run for bacteria unless specifically requested. Temperature is measured with a thermometer in-situ conditions. For each cooler of samples that is transported to the analytical laboratory, a 100ml plastic container (prepared by the laboratory) will be included that is marked "temperature blank." This blank will be used by the laboratory's sample custodian to check the temperature of samples upon receipt to ensure that samples were maintained at the temperature appropriate for the particular analysis. Typically, a sample is collected in a 250 mL bottle with no preservative and the hold time is considered immediate. Temperature should be taken by a calibrated NIST thermometer.

Issues:

1) -With a DO meter temperature is usually measured with the built in temperature sensor, not a thermometer. The city needs to check with On-Line Env.
2) I'm not sure what you mean that a sample is collected in a 250 ml bottle with no preservative and the hold time is immediate. Is this for DO? Temperature?
3) The lab's thermometers are checked annually with a NIST traceable thermometer. This thermometer is expensive and is not used in the field or to check

samples upon receipt.