

Levels of QA, Certifications, Credentials, Defending Your Data

GCSA Employee Training

Tulsa Technology Center, Broken Arrow

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Phase 2 Data Streaming

DATA IN-FLOWS

Lab & Field Data

Who, what, where,
when, why, how

Photographs

BMP Quantities

Inspection
Interviews

Map Data

Data from
Agencies

Complaint
Tracking

Training
Records

Budget items

Data
Management
System

DATA OUT-FLOWS

Information to Media

Data for Court

Enforcement Data

Reports to Councils

Management Reports

Reports to City Staff

Reports to Citizens

Data to Agencies

ODEQ Annual Report

Program Audits

What Is Quality Assurance (QA)?

QA = QUALITY ASSURANCE:

The overall management system that ensures that your data will meet defined standards and project requirements. QA applies to all aspects of the storm water program.

QC = QUALITY CONTROL:

Quality control refers to the technical activities intended to reduce errors in specific tasks or systems. We accomplish this by relying on standard operating procedures (SOPs).

Levels of QA:

SOPs and well written SWMP.

SOPs, SWMP and O&M procedures.

SOPs, SWMP, O&M procedures and Facility SWP3s.

SOPs, SWMP, O&M procedures, Facility SWP3s and QAPP.



Standard Operating Procedures (SOPs)

Clearly written SOPs should cover:

In-House Admin: (data management, instrument care, supplies);

Field work: (observations, measurements, sample collections);

Analytical methods: (field test kits, lab analysis, calibration);

Inspection procedures: (streams, outfalls, construction, facilities).

SOPs are written guidance for everyone to achieve consistency in task performance.

There should be an SOP for each type of repetitive task or activity; e.g., an SOP for field measurement of turbidity, or for collecting stream samples for lab analysis.

To What Activities Should QA Apply?

- Technically, **all activities** pertaining to any type of data collection, analysis, manipulation and reporting.
- Determine your **highest priorities first**. For example:
 - *Visual inspections / monitoring of MS4*
 - *Source tracking inspections*
 - *Construction site inspections*
- If **private consultants** and/or **labs** are used, be sure that they employ appropriate and adequate QA to their activities.
- Make this part of your **contract specifications**, especially if their work is needed for enforcement or court evidence.

SOPs, SWMP, SWP3s, O&M Procedures

- Sometimes **hard to draw distinctions** between these.
- ODEQ increasingly asks for a “*SWP3 for each city facility*”.
- ODEQ will accept some type of written **O&M Procedures**.
- Can't ignore that you **MUST** have **written procedures**.
- **SOPs** have a narrow focus on repetitive tasks, whereas...
- **SWMP** is an umbrella document over entire program.
- **SWP3** content does not easily lend itself to an O&M Manual.
- **ODEQ** does not require specific formats or contents for O&M.
- Revised **OKR04** relies more heavily on **written O&M procedures**.
- Formal **guidance** is often too complex; be creative / useful.

Five Major Data Quality Indicators

Precision:

The closeness of multiple measurements.

Accuracy:

The closeness of a measurement to the actual value.

Representativeness:

The closeness of the actual conditions of a measurement or sample to the intended condition.

Completeness:

The closeness of the number of measurements or samples taken to the intended number.

Comparability:

The ability to compare results to other results or targets.

QA Requirements in General Permits

OKR04's Part V lists a number of requirements for “Monitoring, Record Keeping and Reporting”

“Samples and measurements...shall be representative of the monitored activity.”

“If lab analysis is conducted it must [use] 40 CFR Part 136” [methods]

“Monitoring records must include...[names, dates, times, place, methods, etc.]”

“Retain records of all monitoring information” (e.g. copies of reports, instrument charts, etc.)

How to Start a Formal QA Program

- Managers, Mayors and Councilmen must learn the importance of good QA'd data, and how it will help them defend their programs.
- Don't try to do it all at once – expect changes as you go.
- Decide what level of QA you need to apply to each type of data and activity.
- Start with SOPs and a well written SWMP.
- Seek guidance from experienced resources.
- Be comfortable with what you create – stick to basics.
- Amend as your Phase II program grows – QA is dynamic.
- OKR04 is flexible in written formats for QA documents.

A Good Beginning QA Program

- Start applying QA to “hard data” first – E.g., data from field measurements, field test kits and lab data as well as visual observation data.
- DQOs – Decide up front **how you will use the data** you will be collecting. Select methods that will give you useable data.
- SOPs – Prepare written step by step **instructions** for all repeatable activities, and list supplies needed.
- SWMP & O&M Procedures – O&M should be **in your SWMP**.
- QAPP – (Optional) Prepare an umbrella **QA Project Plan** (QAPP) for all activities requiring formal QA attention.
- Lab and Service contracts – include in contracts the **types of QA** you want for lab services and from vendors and consultants.

Sampling Considerations

Don't just walk out the door – prepare !

- **TYPE:** Grab vs. Composite
- **DEVICE:** Direct fill, sampler, compositor
- **CONTAINERS:** Plastic, glass, specialized (e.g. Teflon lid)
- **LABELS:**
- **PRESERVATION:**
- **HOLDING TIMES:**
- **CHAIN OF CUSTODY:** Forms
- **FIELD NOTES & MEASUREMENTS:** More forms
- **INSTRUMENTS:** Calibrated, properly working



EPA's QA Resources

- EPA guidance documents:

- <http://www.epa.gov/region6/qa/qatools.htm>

- **DQO** Guidance = QA/G-4

- **QAPP** Guidance = QA/R-5

- **QMP** Guidance = QA/R-2

- **SOP** Guidance = QA/G-6



- QAPPs are not approvable by EPA unless they pertain to projects funded by EPA water quality grants.
- EPA periodically offers QA training courses.
- Contact ODEQ and/or INCOG for QA advice.

EPA Guidance is too formal for beginners.
Start easier and expand later.

Certificates in Stormwater Program

- A certificate documents that you have attended an instructional session or workshop. It reflects the level of knowledge that you have attained.
- Most workshops, seminars, conferences and webinars offer Certificates to reflect the level of training / education received.
- There are a few national and state organizations that pre-approve the training / education seminar materials, but most seminar certificates are not approved by national or state organizations.
- OKR04 requires employee training for specific topics.
- GCSA members receive training in all OKR04 topics annually.
- Some organizations offer formal credentials.

Credentials Offered By Organizations

- Internet searches turn up many options.
- Some organizations offer several certified training options.
- Some specialize in construction, others in overall program management.
- Most training costs \$400 - \$900, with annual renewal fees.
- Typically, a 2-3 day course work is followed by a written test to confirm proficiency and knowledge.
- Most certified programs provide “Letters” that can be placed after your name on formal documents. (SEE HANDOUT).

Richard B. Smith, CSM = “Certified Stormwater Manager”

Certificate / License Options

- Neither EPA nor ODEQ requires any formal certification or license to manage or work in the stormwater permit program.
- Neither EPA nor ODEQ offer any type of formal certification training or licensing for the stormwater permit program.
- This leaves a vacuum for those wishing to have some type of credentials.
- “Certificates of Attendance” are the most common, and they are needed to document OKR04-required training.
- Many stormwater professionals desire formal credentials.
- Certifying programs from organizations fill this void where there are no other options.

Benefits of Credentials

- **Credentials** – *“A document which shows that a person is qualified to do a particular job; testimonials or certified documents showing that a person is entitled to credit or has a right to exercise official power.” (from online Webster dictionary)*
- The private company Certificate Programs provide documentation of credentials, with corresponding letters for signatures.
- Who needs impressing?
 - *City management, supervisors, staff, department heads, etc.*
 - *Citizens, city councils, press and media, any public entity.*
 - *Other agencies, permittees, authorities, etc.*
 - *Judges, attorneys, those being inspected or challenging your enforcement actions, etc.*
 - *Your own self-pride and sense of accomplishment.*

Documentation & Appearance

- Anyone going into the public represents their city/county. Documentation, Attitude and Appearance are very important.
 - *Have your ID, Certificates and Licenses with you.*
 - *Have copies of all local codes that relate to your day's actions.*
 - *Professional appearance (shirt w/emblem, uniform, neat).*
 - *Politeness: be friendly, confident and positive. Don't cuss, spit, chew, swagger, tell bad jokes, scratch, gossip, talk politics or religion; and stay on topic, don't waste their time.*
 - *Be organized: clearly explain why you are there, encourage cooperation, and have all documentation ready.*
- You will find that most of the time your own attitude and appearance will be more useful than a Certificate.

Defending Your Data

- Where will Defense be most needed?
 - *Meetings with violators and their attorneys.*
 - *City Council meetings that challenge your work or program.*
 - *Citizens that challenge your findings / program.*
 - *ODEQ/EPA audits or enforcement actions against you.*
- What will help?
 - *Certificates, Licenses and Credentials.*
 - *Formal education and experience in stormwater and permits.*
 - *Well organized documentation and recordkeeping.*
 - *Staying in budget; Staying on schedule.*
 - *Honesty, even if it hurts (you or them).*

Thank you.

Any Questions ?



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