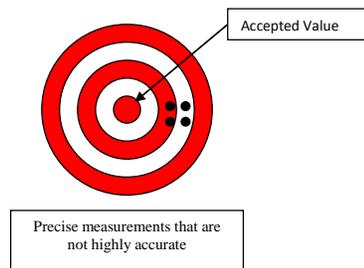


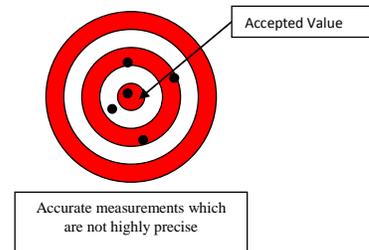
## Precise or Accurate?

Do the words “precision” and “accuracy” mean the same thing? Often times you will hear them used synonymously; but there is a distinction between them that is important for anyone who is managing data to understand. Precision can be defined by how close together are measurements of the same thing for a given target. Accuracy is defined by how close the measurements are to a “standard”.

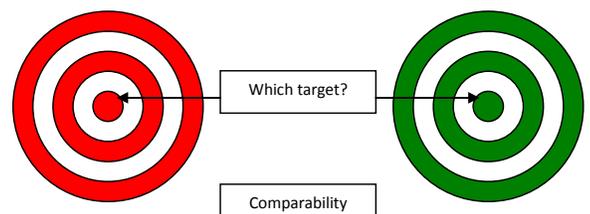


In archery for example, the target on the left would be precise but not too accurate. Note that the four arrows are pretty much in the same location but are not real close to the bulls eye. If these were laboratory measurements of the same sample of storm water, the data would be precise but not very accurate. Accuracy has little to do with precision; **it is possible to be precisely wrong.**

The target shown on the right has less precision than the one shown above, but has more accuracy. The goal of good data is to have both accuracy and precision. There are QA/QC tests that can be run to determine accuracy and precision. Later on in this newsletter, we will explain how this is done with your storm water analyses.



Finally, it is important to determine what the target is. In order to appropriately compare data from multiple sampling events, standard methods of sample handling and analysis must be used. Using standard methods, such as following instructions described in procedure documents, eliminates many variables that might result in unusable data because it is not comparable. For storm water samples, this comparability of data is accomplished by using only U.S. Environmental Protection Agency and State of California approved sampling techniques and analytical methods.



## April's "To Do List" (no fooling!):

- April Storm Water Observations (Form 4) at all outfalls.
- Storm Water Sampling – You only have until the end of next month to get your second sample for the year!
- Do the 4<sup>th</sup> Quarter Non-Storm Water Observations (Forms 2 & 3 by May 31)
- Call WGR to schedule your Annual Comprehensive Site Compliance Evaluation (ACSCE), which is typically done in May.

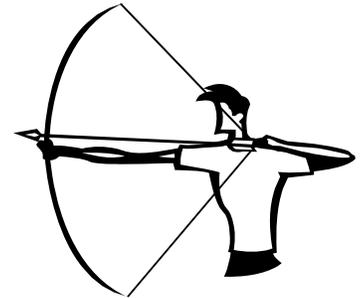


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## We Have a Winner !!!

**Abel Martir** was right on target with last month's storm water contest!

How long should storm water records, including annual reports, observations, analytical results, and maintenance records be retained?



- *The Answer is: 5 Years.*

Abel will be sent a \$25 gift card to Chili's (which is also redeemable at Romano's Macaroni Grill, On the Border, and Maggianos). Good job Abel!

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## Annual Report Coupon



**DON'T GET SOAKED ON YOUR ANNUAL REPORT PREPARATION!**

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It is not too early to start thinking about your annual report. It is due to the State on July 1<sup>st</sup>. We are offering this special price to all of our newsletter recipients. To redeem the coupon, send an email to [jteravskis@wgr-sw.com](mailto:jteravskis@wgr-sw.com) and ask for the \$299 report special. To receive this price, all analytical and observation data must be provided to WGR. WGR will email the completed report to your facility so that you can print it out, sign it, and mail it to the State.



## Laboratory QA/QC

When you get the storm water sampling laboratory report, have you noticed it is 8 to 12 pages long, but the information you need is only on 1 or 2 pages? Have you ever wondered what is all that other stuff and whether it is important or not? Here is a key in solving the riddle of a QA/QC report. This data is used in determining the accuracy and precision of the laboratory analysis.

### Accuracy Measurements:

**Matrix Spike (MS):** For every 20 samples or each analytical batch (whichever is more frequent), the laboratory adds one or more substances to the storm water sample at known concentrations and tests the percent detection of those substances. The analytical accuracy is considered acceptable if the spiked substances are detected between 80 and 120% of the actual concentration.

**Laboratory Control Sample (LCS):** Also for every 20 samples or each analytical batch, the laboratory runs a separate sample of a certified reference material with target analytes at known concentrations and tests the percent detection of those analytes. As with the MS, acceptable accuracy is where the reference material is detected between 80 and 120% of the known concentrations.

**Method Blank:** For every 20 samples or each analytical batch, the laboratory runs a “blank”, which should be not detected above the detection limit of the target analyte. This is to make sure there are no “false positives”.

### Precision Measurements:

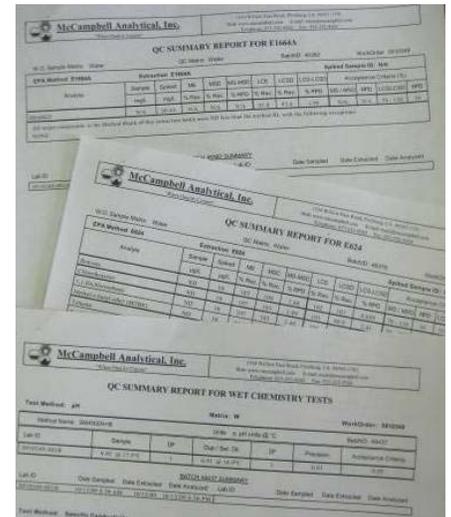
**Matrix Spike Duplicate (MSD):** At the same time, the laboratory will run a second matrix spike. The duplicate not only is used as another measure of accuracy, but also used to compare the percent recovery of the MS and MSD. To have acceptable precision, the Relative Percent Difference (RPD) (in other words, the difference in the two recovery percentages) must be below 25%.

**Laboratory Control Sample Duplicate (LCSD):** A duplicate of the LCS is also tested. The RPD of the LCS and LCSD must be below 25%.

The laboratory may do other things to assure accuracy and precision such as: following strict written test procedures, performing “continuing calibration verification”, using certified calibration standards, and injecting and testing surrogates in the samples. Anytime the laboratory has a failing QA/QC test, it will be reported on the laboratory report, typically on the cover page.

However, good QA/QC is not limited to the laboratory, but must also be incorporated in the field while collecting samples. Samplers should be trained on proper sample collection protocol. Field blanks and travel blanks are appropriate when collecting samples to be tested for volatile organics or other analytes that could be present in the atmosphere.

Your storm water results must be reliable. You would not want to be compelled to take expensive corrective action for poor analytical results that were due to faulty field or laboratory protocol. So take the time to perform technically correct sampling and make sure your laboratory is accurate and precise.



# April Storm Water Contest



By April 30, submit a response for the following:

**What protocol should a sampler follow to prevent cross-contamination of a storm water sample?**

All persons submitting correct answers will be placed in a drawing. The winner will receive a \$25 gift card to **Lowe's** for your Spring home improvement projects. Please submit your entries to [jteravskis@wgr-sw.com](mailto:jteravskis@wgr-sw.com).

*Please contact us if you have any questions ...*

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**Technical Questions about Storm Water Compliance? Call ...**

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