October 2013

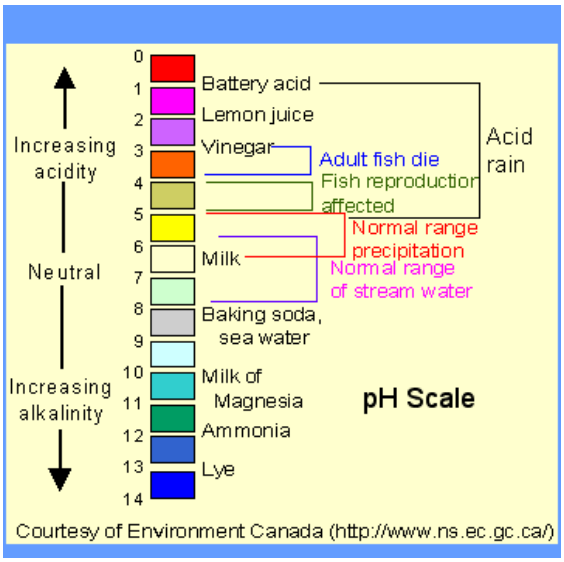
The Monthly Dirt

A Monthly Newsletter on the California Construction General Permit
By WGR Southwest, Inc.

Acidic or Caustic?

One of the basic requirements that QSPs must do in the field is to test for pH. While most of us know that pH has to do with how acidic or basic the water is; we may be unsure of what pH is actually measuring and how the changes in pH affect storm water.

In this issue of "***The Monthly Dirt***" we want to give you some basics on pH … what it is, what affects it, and how to measure it.



The pH scale measures how acidic or basic the storm water sample is on a scale of 0 to 14. A pH of 7 is neutral. A pH less than 7 is acidic. A pH greater than 7 is basic (also referred to as caustic or alkaline).

The pH scale is logarithmic, which means each whole pH value below 7 is ten times more acidic than the higher value. For example, pH 5 is ten times more acidic than pH 6 and 100 times (10 times 10) more acidic than pH 7. This is also true for pH values above 7, each of which is ten times more basic than the next lower whole value. For example, pH 9 is ten times more basic than pH 8 and 100 times (10 times 10) more basic than pH 7.

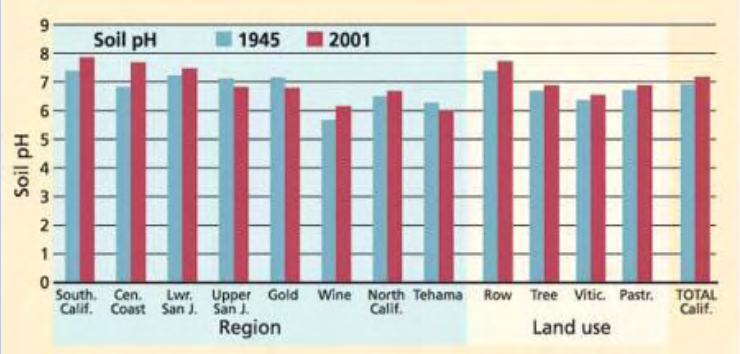
Pure water is neutral. But when chemicals or pollutants are mixed with water, the water mixture can become either acidic or basic. Such is the case when storm water comes into contact with ammonia, sulfur, battery acids, lime, cement, wet or fresh concrete, and other pollutants. This mixing can happen on the ground with runoff, or can happen in the atmosphere with air pollutants, which is how we get "acid rain".

When acid rain or pH impacted storm water runoff collect in streams and ponds, the pH of that water body is changed. Even slight pH changes in streams harm fish - especially sensitive juvenile fish and other organisms.

In storm water applications, prevention is the key. It is usually much easier to prevent pollutants from coming into contact with storm water than to try to adjust the pH of the runoff.

pH of California Soils

What is the pH of soil in California and how does it compare to the NALs? According to a UC Davis study[1], pH values of California soils range from 5.5 to 7.8. But, the study showed that the levels have not remained constant over the years. In many areas the soil pH is rising; but all areas have seen a change in pH. The average pH in 1945 for the 125 study sites was 6.87, compared to 7.10 in 2001. The most significant pH changes occurred in Southern California, the lower San Joaquin Valley, the Central Coast, and in the Gold Country.



Soil amendments, plant material, deposition of sediment, and the introduction of construction materials such as cement, can alter pH at a construction site. The report states that any change in soil pH away from neutral can be viewed as a negative change in soil quality and, ultimately, in water quality. This is why the CGP requires pH monitoring of runoff from the project and BMPs to control pH altering substances.

[1]California Agriculture, Fabrice DeClerck and Michael J Singer; 57(2):38-41. DOI: 10.3733/ca.v057n02p38. April-June 2003. For more information go to: http://ucanr.edu/repository/cao/landingpage.cfm?article=ca.v057n02p38&fulltext=yes

pH Averaging

The State's FAQ #44 for the Construction General Permit asks the question, "*Will daily average pH values be calculated linearly or through the logarithmic method?*" In response to the question, the State refers to their Technical Bulletin 2013.1. The bulletin can be accessed at: www.swrcb.ca.gov/water_issues/programs/stormwater/docs/bulletin_2013_1.pdf

The technical bulletin shows how to calculate the daily pH average logarithmically or by using an arithmetic average method which separately averages the pH measurements above 7 and those below 7. If the arithmetic average method is used, the QSP should never average numbers below and above 7 together. To make things easier for the QSP in the field, WGR has made available an online tool that you can use to average pH. Go to www.wgr-sw.com/pH .

Upcoming Training …

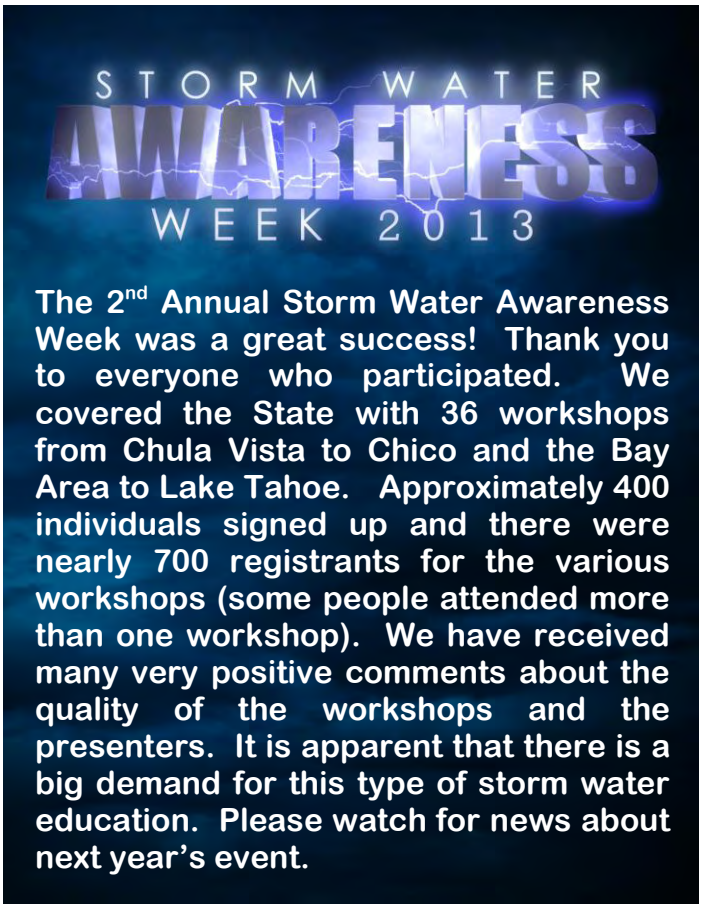
Got SWPPP? Classes coming to Lodi:

- ✓ QSP/QSD Training – Oct. 8-10, 2013
- ✓ CPESC Review & Exam – Nov. 5-7, 2013

For more information about these classes, go to www.gotswppp.com.

Want storm water training for your crew?

Contact us to set up a training date.



The 2nd Annual Storm Water Awareness Week was a great success! Thank you to everyone who participated. We covered the State with 36 workshops from Chula Vista to Chico and the Bay Area to Lake Tahoe. Approximately 400 individuals signed up and there were nearly 700 registrants for the various workshops (some people attended more than one workshop). We have received many very positive comments about the quality of the workshops and the presenters. It is apparent that there is a big demand for this type of storm water education. Please watch for news about next year's event.

Please contact us if you have any questions …

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Quick QSP Quips

Required Inspections

Risk 1, 2 & 3 – Traditional Projects:

- Weekly BMP inspections
- Pre-storm (within 48 hours before)
- Post-storm (within 48 hours after)
- During storms (every 24 hours)
- Quarterly for non-storm water flows

Risk 2 & 3 – Traditional Projects:

- Daily inspect immediate access roads for sediment and track out

LUP Types 1, 2 & 3 Projects:

- Daily visual BMP inspections and ensure that photographs of the site are taken before, during, and after storm events are taken during inspections, and submitted through the State Water Board's SMARTS website once every three rain events.

LUP Types 2 & 3 Projects:

- Pre-storm (within 48 hours before)
- Post-storm (within 48 hours after)
- During storms (every 24 hours)

Risk 3 & LUP Type 3 Projects:

- *If triggered*, receiving water or bioassessment observations

RAIN EVENT ACTION PLANS

- Required of Risk 2 & 3 traditional projects only. LUPs are not required to prepare REAPs.
- Are triggered by a 50% or greater possibility of rain per the NOAA weather forecast at www.srh.noaa.gov
- Must be prepared within 48 hours of the predicted storm event.
- Must be implemented and a paper copy on-site within 24 hours of the predicted storm event.
- Must be prepared by a QSP.

Sampling Requirements

Risk 1 – Traditional Projects:

- Only for non-visible pollutants if triggered

Risk 2 & 3 – Traditional Projects:

- Discharge monitoring (pH and turbidity) at least 3 times per day when there is a discharge
- Non-visible pollutants *if triggered*.

Risk 3 – Traditional Projects:

- Upstream and downstream receiving water testing *if triggered*.
- Bioassessment *if triggered*.

LUP Type 1 Projects:

- Only for non-visible pollutants if triggered

LUP Types 2 & 3 Projects:

- Discharge monitoring (pH and turbidity) at least 3 times per day when there is a discharge
- Non-visible pollutants *if triggered*.

LUP Type 3 Projects:

- Upstream and downstream receiving water testing *if triggered*.
- Bioassessment *if triggered*.

Non-visible sampling – All Risk and Type Levels:

- Triggered by a breach, malfunction, leakage, or spill observed during a visual inspection.
- Collected during the first 2 hours of discharge.
- Two samples one at the affected discharge point and another at an unaffected area

Qualifying Rain Events

A qualifying rain event is "any event that produces 0.5 inches or more precipitation with a 48 hour or greater period between rain events." *In other words, it is a period of rain that is "bookended" by dry weather that is at least 48 hours long.*

Sampling Exemptions

1. It is not a "qualifying rain event".
2. During dangerous weather conditions such as flooding and electrical storms.
3. Outside of scheduled site business hours.

Remember to document if any of these exemptions are applicable to your project.

Numeric Action Levels

Prepare a NAL exceedance report within 10 days if either of the following is true about your project's daily average:

pH is <6.5 or >8.5

Turbidity is >250 NTU

- ✓ NALs are daily averages of monitoring data from all discharge points for the entire day.
- ✓ pH must be averaged logarithmically. Averaging tool is at www.wgr-sw.com/pH
- ✓ NAL exceedance reports must be uploaded onto SMARTS.

Rules of Engagement for Sampling

The following are helpful guidelines that have been extracted from the permit to assist you in knowing when to sample:

1. If there is no discharge, then no sample is required.
2. Collect a minimum of 3 samples per day for the entire site.
3. Each day, collect at least one sample from each point of discharge.

Best Management Practices

- ❑ Risk 1 mandatory BMPs are found in Attachment C.
- ❑ Risk 2 mandatory BMPs are found in Attachment D.
- ❑ Risk 3 mandatory BMPs are found in Attachment E.
- ❑ LUP mandatory BMPs are found in Attachment A.
- ❑ The QSP must use a checklist for inspections and include a description of the BMPs evaluated and the deficiencies noted.
- ❑ Corrective action must begin within **72 hours** of identification and be completed as soon as possible.
- ❑ Inactive areas of soil disturbance that are not scheduled to be disturbed for at least 14 days must have effective soil cover.
- ❑ Projects must establish and maintain effective perimeter controls and stabilize all construction entrances and exits to sufficiently control erosion and sediment discharges from the site.
- ❑ Risk Levels 2 & 3 and LUP Types 2 & 3 projects must apply linear sediment controls along the toe of the slope, face of the slope, and at the grade breaks of exposed slopes to comply with the table shown at the right.

Slope Percentage	Sheet flow length not to exceed
0-25%	20 feet
25-50%	15 feet
Over 50%	10 feet

Questions? Call the QSP Help Hotline:

(209) 649-0877 or email at

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