

# the Rain events

## NUMERIC ACTION LEVELS

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

Numeric Action Levels. No, it's not a cheesy line from a thriller movie; it's a requirement in the Industrial General Permit! As an industrial facility in California, your mission has started, and you have no choice but to accept it – our state has already received a couple strong storm events, and most industrial facilities have already submitted at least one batch of storm water samples to the laboratory. When you get your samples back, you will need to compare the results with the NAL levels listed in Table 2 of the Industrial General Permit (2014-0057-DWQ). What are these action levels? In this newsletter article, we are going to take a look at NALs and how they can affect your facility.

So, what are NALs? NAL stands for Numeric Action Level, and is a "tool" of sorts to help industrial facilities gauge their effectiveness in preventing storm water pollution. It is important to note that exceeding a NAL is not a Permit violation, as pointed out in Attachment C of the IGP. There are two different types of NAL exceedances – Annual NAL exceedances, and Instantaneous NAL exceedances. Both of these NALs are based on the benchmark numbers included in the EPA's Multi-Sector General Permit. Unlike the previous version of the Industrial General Permit which did not include any procedures or guidelines to assess sampling results, the new IGP has included NALs to provide industrial facilities with a guideline to measure the effectiveness of their pollution prevention programs. The list of current NALs can be found in Table 2 of the IGP.

### ANNUAL NALs

An Annual NAL exceedance occurs when the average analytical result for one or more sampling parameters (say, Oil and Grease) is higher than the Annual NAL listed in Table 2 for that parameter. Basically, at the end of the reporting year, each industrial facility in California will need to compile all their analytical results and calculate the arithmetic mean (average) for each parameter. The neat thing about this method of

reporting is that it smooths out the rough edges of your analytical results – in other words, a slightly high analytical result for Oil and Grease from one storm event can be brought under control by averaging it with lower Oil and Grease numbers from the next storm event. If you need a refresher on how to calculate an arithmetic mean, check out *The Compliance Corner* on the next page for some helpful resources. The standard arithmetic mean calculation will work for all sample parameters, **except pH**. Because pH values are logarithmic, the formula for calculating the average is a little tricky. But not to fear, WGR has an easy-to-use calculator available for free [on our website](#) that you can use to calculate and average the pH results. So again, after you have all of your sample results and have calculated the average, you will need to compare your numbers against the Annual NAL numbers in Table 2.

### INSTANTANEOUS NALs

Contrary to what the term may suggest, an Instantaneous NAL exceedance is not a one-time exceedance of a sampling parameter. According to the Permit, an Instantaneous NAL exceedance occurs when the analytical results for any single parameter exceeds the instantaneous maximum NAL values for two or more storm events per reporting year. (Continued on page 2)

(Continued from page 1) Basically, at least two analytical results for the same parameter need to be outside the Instantaneous NAL values for you to have an Instantaneous NAL exceedance. The good news is that only three parameters currently have instantaneous NAL exceedances – pH, TSS, and Oil and Grease. Each time you collect storm water samples, you will need to check your results against the NAL list in Table 2. If the pH, TSS, or O&G results are outside or above the NAL value range, you will want to take action to make sure they behave for the next storm event.

What happens if you have an annual or instantaneous NAL exceedance? The Permit has a lot to say about that. For each parameter that has an exceedance, your facility status will move from Baseline to Level 1, and you will be required to take what the Permit calls “Exceedance Response Actions” (or ERAs) to make sure those parameters are brought under control. But don’t wait until you have an exceedance to start caring about your storm water quality – be proactive and do the best you can to make sure your storm water is as clean as possible. There’s little doubt that it’s more cost-effective to prevent an exceedance than it is to respond to one. ☁

# the Compliance corner

## Calculating Arithmetic Mean

In order to average your sample results, you will need to use the arithmetic mean technique. If you’re like the rest of us who have trouble remembering our high school algebra, don’t worry – it’s actually a pretty simple process. To calculate the arithmetic mean of a series of numbers, simply add all of the numbers together, and divide the result by how many numbers are in the series. Here’s another way to look at it:

**Step 1:** Add up all your sample results for one parameter. We’ll use TSS for this example – we sampled an outfall four times during the reporting year, so we have four sample results for this outfall.

$$110 + 80 + 65 + 40 = 295$$

**Step 2:** Divide the result of the first step by the number of sample results in the calculation, which in this case would be 4.

$$295 / 4 = 73.75$$

**73.75** is the average (or arithmetic mean) of the four sample results for this outfall. Notice that the average is below the TSS annual NAL number listed in Table 2, which is 100 mg/L. And since there weren’t two sample results over the 400 mg/L Instantaneous NAL, this outfall is looking pretty good. Calculating the arithmetic mean is pretty simple – just take your time and double check your math. Still struggling to understand how to do it? Check out [this helpful video](#) from Khan Academy on calculating arithmetic mean.

Need a SWPPP revision for the new permit?  
Give us a call at (209) 334-5363, ext. 114

## “To Do List” for November:

- ☁ Perform the November monthly inspection
- ☁ If you haven’t done so, perform your Fall storm water training for facility personnel.
- ☁ If you have already collected samples, review your results and take corrective action if needed.

## How to Use WGR’s pH Averaging Tool

As the main article pointed out, the standard arithmetic mean technique won’t work for pH values, because pH values are logarithmic. The formula for calculating a logarithmic average is pretty complicated, but we actually have a free pH calculator you can use to calculate the average of your pH results.

<http://wgr-sw.com/pH/>



After you enter in all your pH values and click “Calculate,” the tool will return a couple of different results. The result that you are looking for is the “true average,” which is the logarithmic average.

The pH values used: 7.8, 8.2, 7.9, 8.0

Arithmetic Average:	pH ≤ 7	pH ≥ 7
		7.98
True Average:	pH ≤ 7	pH ≥ 7
		7.95

Please contact us if you have any questions ...

## The Rain Events

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# NAL REFERENCE SHEET

(Taken from Table 2 on Page 43 of the Industrial General Permit – 2014-0057-DWQ)

PARAMETER	TEST METHOD	REPORTING UNITS	ANNUAL NAL	INSTANTANEOUS MAXIMUM NAL
pH*	See Section XI.C.2 of the IGP	pH units	N/A	Less than 6.0; greater than 9.0
Suspended Solids (TSS)*, Total	SM 2540-D	mg/L	100	400
Oil & Grease (O&G)*, Total	EPA 1664A	mg/L	15	25
Zinc, Total (H)	EPA 200.8	mg/L	0.26**	
Copper, Total (H)	EPA 200.8	mg/L	0.0332**	
Cyanide, Total	SM 4500-CN C, D, or E	mg/L	0.022	
Lead, Total (H)	EPA 200.8	mg/L	0.262**	
Chemical Oxygen Demand (COD)	SM 5220C	mg/L	120	
Aluminum, Total	EPA 200.8	mg/L	0.75	
Iron, Total	EPA 200.7	mg/L	1.0	
Nitrate + Nitrite Nitrogen	SM 4500-NO3-E	mg/L	0.68	
Total Phosphorus	SM 4500-P B+E	mg/L	2.0	
Ammonia (as N)	SM 4500-NH3 B+ C or E	mg/L	2.14	
Magnesium, Total	EPA 200.7	mg/L	0.064	
Arsenic, Total (c)	EPA 200.8	mg/L	0.15	
Cadmium, Total (H)	EPA 200.8	mg/L	0.0053**	
Nickel, Total (H)	EPA 200.8	mg/L	1.02**	
Mercury, Total	EPA 245.1	mg/L	0.0014	
Selenium, Total	EPA 200.8	mg/L	0.005	
Silver, Total (H)	EPA 200.8	mg/L	0.0183**	
Biochemical Oxygen Demand (BOD)	SM 5210B	mg/L	30	

SM – Standard Methods for the Examination of Water and Wastewater, 18<sup>th</sup> edition

EPA – U.S. EPA test methods

(H) – Hardness dependent

\* Minimum parameters required by the Industrial General Permit

\*\*The NAL is the highest valued used by the EPA based on their hardness table in the 2008 MSGP.

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# CHANGE YOUR COURSE!

Under the new Industrial General Permit, you  
only have one chance at baseline status.

*Let us help navigate the storm.*

*A single NAL exceedance will change your  
facility from Baseline to Level 1.*

**What does this mean?  
More money.**

**Level 1 Dischargers must:**

- Appoint a QISP
- Perform a Level 1 Evaluation
- Evaluate the Need for Additional BMPs
- File a Level 1 ERA Report

**Level 2 Dischargers must:**

- Further Evaluate BMP Options
- Install additional BMPs, which may include structural or mechanical devices
- Prepare a Level 2 Action Plan

## Exceedance Avoidance Strategic Investigation

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## Storm Water Contest...

Each month, we invite our readers to participate in a contest to test their knowledge of the Industrial General Permit and their storm water compliance program. We enter all submittals to our monthly newsletter question into a drawing, and one person is selected at random to receive a \$25 gift card.

**If your facility begins discharging at 2:00 AM, can you still collect a storm water sample when the facility opens at 7:00?**

Congratulations, Mike Covey, Jr. - you are correct! If the facility began discharging at 2:00 AM, **the staff can still collect a storm water sample at 7:00 AM, because the 12-hour window has not completely elapsed.**

Mike wins a \$25 gift card to Subway for a steak and cheese footlong!

## This Month's Contest Question:

**If one of your sample parameters exceeds the Instantaneous NAL value for only one storm, will you be required to take any Exceedance Response Action?**

By November 30, 2015, submit your response to the above question by sending an email to [jteravskis@wgr-sw.com](mailto:jteravskis@wgr-sw.com). All persons submitting the correct answer will be placed in a drawing. The winner will receive a \$25 gift card to Applebee's.



# thankful.

The Rain Events staff wishes to thank all of our readers for trusting us to answer your compliance questions! Have a great Thanksgiving, and don't forget to thank God for the rain we've already received!