

METAL MANAGEMENT

POLLUTION PREVENTION | SOURCE REDUCTION | TREATMENT

Metals and storm water – the not so glamorous pollutant.

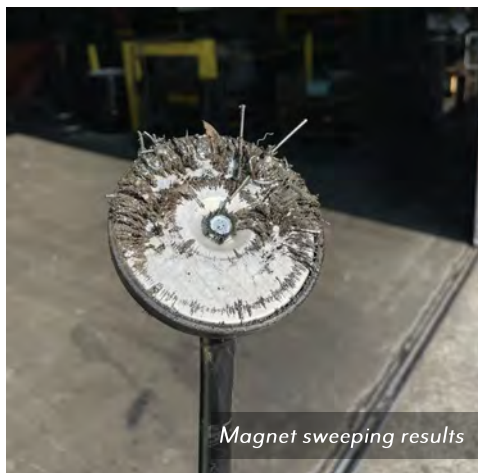
While certain metals may have a nice ring to them, others are a not-so-friendly source of pollution when it comes to storm water runoff. Heavy metals in runoff can have pretty detrimental effects on aquatic life and water quality. According to the Industrial General Permit (IGP), it is a crucial compliance step to specify the correct sampling parameters. In this month's edition of **The Rain Events**, we're going to be focusing on how to prevent metal pollution by practicing good housekeeping, implementing source reduction, and treating storm water for problem pollutants – especially heavy metals like aluminum, zinc, copper, lead, iron, and more.

At industrial facilities, metal is ever present in some form or other — from material sources, to equipment, and even the building itself, metal seems to be everywhere. So how do you know when you need to test for it, and if it's a problem parameter at your facility? Well, start by checking the SWPPP for what pollutants need to be monitored. While Table 1 in the IGP specifies (by SIC Code) certain mandatory parameters required to be monitored, the SWPPP developer must also do an assessment of potential pollutant sources to identify other site-specific analytes to add to the monitoring program, not to mention adding other pollutants to the monitoring program because of watershed impairments and TMDLs. Probably because they are involved in almost every industrial process, it is very common to have several metals included on your monitoring list.

Pollution Prevention & Good Housekeeping:

When faced with this metal dilemma, the first step you can take toward pollution prevention is evaluating if your facility is in compliance with the benchmarks for

metals. If not, or if there is a potential for a benchmark to be exceeded, you should take stock of the pollutant (metal) sources at the facility. Do a site walk and observe operations, materials, and potential sources. Evaluate if pollutant activities and sources are under cover or are performed in an area that does not have exposure to storm water. Evaluate good housekeeping measures – such as



Magnet sweeping results

sweeping, container management, and source control. We challenge you to even do a magnet sweeping test! Run a magnet over your facility surfaces and see how much metal is collected. You might

be surprised. Heavy metal pollution can come from very sneaky places. So, be sure to consider sources that may not be as obvious, such as galvanized roof tops and coated

surfaces (zinc); forklift and truck tire wear (zinc); dust from vehicle brakes (copper); oil staining from lubricants (zinc); scrap metal or rusty surfaces (iron); or concrete/cement/fly ash (aluminum). Also, take into consideration what types of industrial facilities are surrounding your facility if you are having NAL exceedances and have no apparent pollutant sources on site. Maybe



Galvanized roofing



Iron metal drain grate.

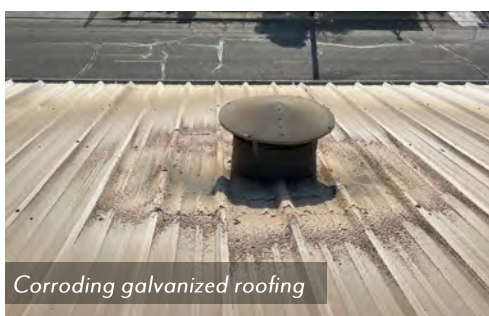


dig through some of the facility's historical data if you still can't find a source! Knowing the potential sources of pollutants goes a long way in preventing pollution and is a great start to good housekeeping. Typically, metals in runoff can be greatly reduced by regularly vacuuming and sweeping. Running a magnet around your facility to pick up anything missed is also a great idea. Generally, TSS and heavy metals go hand in hand – if TSS is reduced, usually the metal levels will follow suit. But don't just look aboveground for sources, clean storm drain lines and catch basins that may have a build up of metal containing sludge or solids.

Source Reduction:

As part of managing metals, consider and implement methods which reduce sources of pollutants! That doesn't necessarily mean getting rid of all your metal sources (*although if you have unused piles of corroding metal laying around your facility, we recommend getting rid of that*), but, where you can, put a cover over metal sources. Cover can be as complex as building a structure to provide area coverage or as simple as securing a tarp over sources (metal recycling bins, etc.). If feasible, move industrial metal producing activities under cover. Replace or coat corroding metal surfaces which may be causing a spike in your analytical data.

Another source reduction to consider is finding alternative products or methods that don't contain metals. For instance, a



facility may be using cooling tower treatment chemicals that are high in metals and can switch to water treatment chemicals that contain less or no metals. If there is a way to get done what you need to with the least number of pollutants used – considering taking that route! Obviously, there are considerations such as quality and quantity that need to be accounted for, but if there's another route that involves less or no pollutants, believe us, it will save a lot of headaches in the long run.



Treatment Trains:

Last, but definitely not least, a rigorous treatment of storm water needs to be implemented at your facility if heavy metals are causing NAL exceedances. Start by replacing older and less effective BMPs with new ones (i.e., drain inserts). Creating areas around drain inlets that slow and filter the flow (rock bags, wattle, compost socks, and inlet protection). The slower the flow, the more solids (particulate metals) are reduced from the discharge. There are various treatment options available - from filtration devices installed at roof drain downspouts to reduce the metal pollutant runoff from roofing, to in-line storm water drainage treatment systems, and compost socks.



Compost has proven to be a very effective filtration media for metals. [Filtrexx](#) (a manufacturer and designer of compost filter socks) has designed a compost sock which can remove up to 73% heavy metals from runoff.¹ Other pollutants that can be removed or treated with compost include sediment, hydrocarbons, nutrients



(nitrogen and phosphorus), and bacteria.

There are several storm water treatment companies that provide systems designed specifically for removing heavy metals from storm water runoff. Whether it's metal [absorptive sponge cubes from CleanWay](#), to a customized installed treatment system from [StormwaterRx](#), there are many different filtration methods and devices commercially available for removing metals from storm water runoff.



But don't rely on treatment alone! An ounce of prevention is worth a pound of cure. Putting in place some preventative measures to reduce the exposure of metals to storm water by good housekeeping and source reduction will reduce the size and complexity of the treatment system and make treatment more feasible and economical.

Before the rainy season comes back, we highly recommend taking a close look at where and how metals are being exposed to storm water at your facility and evaluate what you can do differently to keep them from coming into contact with the facility's runoff.

¹<https://www.filtrexx.com/en/applications/envirosoxx-pollutant-removal>

The Rain Events

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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 show 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. Last month's contest question was:

What allowances are made by the Water Board to industrial facilities affected by wildfires?

For June, there were no entries, so the answer to this question can be found in The Rain Events June Edition newsletter!

...This Month's Contest

What other water quality parameter goes hand in hand with the metal parameters?

We need industrial storm water sleuths to help us with this month's question. Submit your answers by Friday, August 12th. Email your answer to jteravskis@wgr-sw.com. One winner will be selected by a random drawing to receive a \$25 gift card to Amazon.

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