

A New ERA in Industrial Stormwater Regulation: Considerations, Strategies and Lessons learned for NPDES Regulated Industrial Dischargers within the Exceedance Response Action Models of Stormwater Regulation

Introduction

The purpose of the Clean Water Act (CWA) is to “restore and maintain the chemical, physical and biological integrity of the nation’s waters. To that end and under the CWA, stormwater runoff cannot occur unless a National Pollutant Discharge Elimination System (NPDES) permit is in place. The Federal Clean Water Act (CWA) regulations at 40 CFR 122.26(b)(14)(i)-(xi) require stormwater discharges to be covered under NPDES permits. These regulations help to ensure stormwater pollutants of concern are not discharged to streams, creeks, wetland, rivers and oceans. Since roughly 2014, regulatory trends in the Industrial Stormwater Sector have shown a significant increase whereby several states have adopted increased compliance standard(s) for the regulation of industrial stormwater at Industrial Facilities. There are several common fundamental components of the “Exceedance Response Action” (ERA) or tiered Corrective Action compliance mechanism already in place, and currently being implemented in the States of California, Washington and the most recent General Permit in Oregon. This new Exceedance Response paradigm has wide-reaching implications for future NPDES permittees of industrial stormwater discharges. The escalation or “tiered” response standards is based on EPA Benchmark Levels and a potential for future Numeric Effluent Limits (NELs). These states are viewed as “precursors” of what may be expected throughout the United States, as several key components of the forthcoming MSGP will push other states to move towards similar ERA response scenarios and regulations. Stormwater managers and facility compliance personnel have only just begun to come to terms with the tiered ERA Response paradigm. However, as the tiered escalation becomes more common and ERA Level 1 and Level 2 reporting is performed, facilities are beginning to reach an equilibrium of stormwater compliance in terms of strategy, feasibility, budget and allocation of resources.

The impetus behind this move to the ERA tiered approach appears to be an ongoing push by State and Federal Regulators to push industrial stormwater programs to better achieve Best Available and Best Conventional Technology (BAT/BCT) through more effective implementation of Best Management Practices (BMPs). States are also beginning to see benefits to overall compliance and hopefully, better water quality. Facilities are now held more accountable, and can better compare themselves to other companies within their industrial sector. Questions arising from the ERA scenario are very beneficial to other dischargers within their Sector, which include: Are they facing the same challenges with elevated pollutants of concern from their Facility’s industrial stormwater discharge? What BMPs have they implemented and if so have they been effective in reducing and/or eliminating pollutants in stormwater discharge? These become the considerations and strategies for industrial stormwater managers and

owners of Facilities as they move from Baseline, to ERA Level 1, and subsequently, ERA Level 2 Status.

Currently, approximately forty-seven states have primacy, and promulgate the Federal CWA NPDES regulations through State Regulations. The remaining states fall under the Multi-Sector General Permit for regulation of industrial stormwater. A new era of stormwater regulation under a “trajectory” of required compliance responsibilities is upon us and will continue to impact permittees.

Status Level(s) under a Tiered Level NPDES Regulatory Approach to Benchmark Exceedances

Under an ERA-based NPDES Industrial General Permit, dischargers are each generally assigned a “status” level in the first reporting year of the Permit. This Level-0 or “Baseline” status works to ensure a somewhat level playing field for the industrial permittees in the first reporting year. These ERA effluent benchmarks have been established through stakeholder input, regulatory input (State and Federal) and a review of historical effluent water quality records. It is important to note that these are not effluent limits, rather “action” levels for dischargers to pursue effective BMPs for the respective Facilities. If the Facility exceeds the established benchmarks, then Level 1 status is assigned the following year. If the same facility, while being in an escalated tier exceeds the benchmark in a subsequent reporting year, it moves to an even more stringent category, up to and including Active Treatment. This results in increased stormwater program management costs and higher exposure for the permittee. These NPDES General Permit triggers can and do differ based on State, Regional, Sector, Receiving Water and other factors.

	pH (Standard)	TSS (mg/L)	Oil and Grease (mg/L)	COD (mg/L)	Total Copper (mg/L)	Total Lead (mg/L)	Total Zinc (mg/L)	Arsenic (mg/L)
California ¹	6.0 - 9.0 (Range)	100/400 ³	15/25 ³	120	0.03 ¹	0.26 ¹	0.03 ¹	0.26
Washington	6.0 - 9.0 (Range)	100	N/A	120	.032 (East) .014 (West)	0.081	0.117	0.15
Oregon ⁴	5.5 - 9.0 (Range)	100	10	120	0.02	0.015	0.09	0.15

¹ California Benchmark Values referred to as Numeric Action Limits (NALs)
² Values for Metals, hardness dependent. The NAL is the highest value used by U.S. EPA based on their hardness table in the 2008 MSGP..
³ California has instantaneous maximum and yearly average benchmarks for pH, TSS and O & G.
⁴ Oregon values shown for Regional only (Some Columbia River, Columbia Slough and/or Portland Harbor values are lower).
 Note: Not all Facilities test for these parameters; can vary based on SIC Code/Sector.

Based on these Benchmarks (and others), industrial dischargers must meet the thresholds or face an escalation under the State Regulatory mechanism. The States of California, Washington and Oregon as

shown above are seen to be regulatory precursors to future state industrial general permits. The following is a brief summary of the tiered regulatory compliance obligations for those states.

California – In California, all industrial general permittees begin as “Level 0” or “Baseline” status during their first year of Notice of Intent (NOI) coverage. Stormwater effluent sampling results are submitted during the reporting year via the State Water Resources Control Board (SWRCB) Stormwater Multiple Application and Reporting System (on-line database). Dischargers who breach the benchmarks are pushed into an ERA Status Level. The ERA levels are based on single stormwater pollutants of concern. In other words, after the first three (3) reporting years, a Facility could be 0/baseline for pH, Level 1 for Oil and Grease (O&G) and Level 2 for Total Suspended Solids (TSS). Level 1 is commences at the beginning of the next reporting year. Additional compliance requirements ensue, including an ERA Level 1 Evaluation by a Qualified Industrial Stormwater Professional (QISP); and ERA Level 1 Report. This review and report includes a review of the stormwater analytical data, contributory drainage areas and potential implementation of more effective BMPs. These BMPs can be administrative, source control (i.e. cover/contain), or others. At this level, the Facility is looking at potential pollutants somewhat as a whole (e.g., TSS could be a surrogate for other benchmark overages). If the Level 1 facility breaches the NALs for a second straight year, then the Facility becomes “Level 2” status. When a discharger reaches ERA Level 2 status, regulatory expectations increase. Each Level 2 facility must formulate an ERA Action Plan for each constituent of concern that breached the NAL. Each drainage area needs to be evaluated for pollutants related to the Level 2 exceedances. The Level 2 Action Plan become part of the a more plenary subsequent ERA Level 2 Technical Report, which provides a detailed plan of the Industrial Permit Demonstrations (Industrial Activity BMPs, Non-Industrial Source and/or Natural Occurring Background). If and only if the Facility chooses the Industrial Activity BMP Demonstration, and analytical results return below the NALs can the Facility move back down to Baseline for the ERA pollutant of concern. If this same Facility breaches the NAL for the same pollutant, they move directly back to ERA Level 2 for the next stormwater permit year.

Washington – The State of Washington Industrial Stormwater General Permit was issued in December of 2014 with an effective implementation date of January 2, 2015. The State of Washington and Department of Environmental Quality (DEQ) passed the regulations in compliance with the CWA and the State of Washington Water Pollution Control Law (Chapter 90.48, Revised Code of Washington). The Washington General Permit provides dischargers with four (4) categories: one for “baseline” (essentially, non-tier status) and three (3) for an escalation based on Corrective Actions (CAs) as follows: Level one Corrective Actions for permittees that exceed Permit benchmark values for one quarter of a reporting year, are to include Operational Source Control BMPs; Level Two Corrective Actions for a breach of pollutant benchmarks and are to include Structural Source Control BMPs; and Level three Corrective Actions to include Treatment BMPs. This obligation carries a heavy burden to the Permittee. Prior to the installation of treatment BMPs that require design-storm sizing and any process to collect, treat, reclaim or dispose of industrial stormwater, the discharger must submit an engineering report. Additionally an Operation and Maintenance (O&M Manual) must also be submitted. In this Corrective Action escalation scenario, the cost can rise exponentially to come into full compliance. By using the tiered approach, the State of Washington can essentially “short-list” Facilities that have not met the benchmark values in reducing and/or eliminating pollutants of concern in stormwater discharge. The Corrective Actions implemented must be documented in the Facility Stormwater Pollution Prevention Plan (SWPPP).

Oregon – The State of Oregon’s NPDES General Permit 1200-Z became effective in August of 2017. This General Permit also has a tiered approach to categorization of industrial stormwater permittees. Operational and source control measures are required in direct response for benchmark exceedances during the first reporting year. The average of monitoring results collected during the second year determine if treatment is necessary. In contrast to the Washington permit, in which all benchmark parameters (statewide and sector-specific) can force the discharger to implement treatment BMP(s), only statewide benchmark parameters can escalate Oregon permittees into installing treatment. Similar to California and Washington, the Oregon permit requires that the higher tier treatment measures be shown in the site-specific SWPPP and designed/stamped by a licensed engineer.

Table 2
Overview of Tiered Corrective Action Response in the State NPDES Permits of California, Washington and Oregon

State of NPDES General Permit:	Effective Date of NPDES Industrial Permit:	Tiered Escalation Response based on Effluent Benchmarks?	Tiers/Corrective Action/Response Levels:	Escalation and Response/Corrective Action for BMP Implementation:
California	July, 2015	Yes	Baseline	<i>None (Maintain, Inspect, Report)</i>
			ERA Level 1	<i>Administrative and General non-structural BMPs</i>
			ERA Level 2	<i>Advanced/Structural BMPs</i>
Washington	January, 2015	Yes	Level 0 or Baseline	<i>None (Maintain, Inspect, Report)</i>
			Level 1 Corrective Action(s)	<i>Operational Source Control BMPs</i>
			Level 2 Corrective Action(s)	<i>Additional BMPs up to and including Structural Source Control BMPs</i>
			Level 3 Corrective Action(s)	<i>Treatment Control BMPs</i>
Oregon	August, 2017	Yes	Tier 0 or Baseline	<i>None (Maintain, Inspect, Report)</i>
			Tier 1 Corrective Action	<i>General, non-structural, administrative BMPs</i>
			Tier 2 Corrective Action	<i>Treatment Measures, Report must include proposal for passive or active treatment BMPs</i>

A collective NGO lawsuit pushes the Federal Multi-sector Permit towards a tiered regulatory response mechanism.

In August of 2016, the United States Environmental Protection Agency (US EPA) entered into a landmark settlement agreement (*Waterkeeper Alliance v. US EPA* [2d Cir. 15-02091]). In what was seen as a win across the board for NGOs and Environmental Groups, a collective of these groups brought suit against the EPA concluding that the current NPDES MSGP does not take enough effective measures from a regulatory perspective to reduce and/or eliminate pollutants in stormwater, a collective group of Non-government organizations or “NGOs” formed the “Waterkeeper Alliance”. This group of petitioners recently brought suit against the US EPA. On August 17, 2016, the United States Environmental Protection Agency (US EPA) entered into a landmark settlement agreement (*Waterkeeper Alliance v. US EPA* [2d Cir. 15-02091]). This decision has major implications for the Multi-Sector General Permit (MSGP), which is up for reissuance in 2020. Furthermore, General Permits must not be less stringent than the EPA’s MSGP, and as such, this decision has future implications for future state’s industrial General Permits.

Under the Settlement agreement, the 2020 MSGP Permit, it is required that the EPA establish a three (3) tiered risk level approach to EPA benchmark exceedances. Based on stormwater analytical results, a Facility faces an escalation scenario if the benchmarks are exceeded. Several constituents of concerns will have “dual” benchmarks, one for yearly average, and a potential instantaneous threshold (i.e. 4 x benchmark = overage). This will most likely affect future State NPDES Permits which use the MSGP as a regulatory guidance mechanism. Communication will become increasingly important between states that have established tiered response and those that do not. What is working? What is not? For NPDES

regulations across the United States, this will be increasingly important to collectively protect the Waters of the U.S. (WOTUS).

California Industrial Permit - Challenges, issues and lessons learned

The first reporting year of the California General Permit began on July 1, 2015. By October of 2016, there were approximately 6,300 Notice of Intent (NOI) dischargers. Of those dischargers, approximately 5,750 submitted stormwater sampling data, of which approximately 2,100 Facilities became ERA Level 1 Status Facilities. By October of 2017, California had approximately 10,000 NOI dischargers, and approximately 1,000 sites that attained ERA Level 2 Status (10%). The newly minted permit brought with it a significant increase in compliance requirements. The net of this new General Permit was also increased from the former permit, no longer allowing a conditional exemption for light industry as did the previous (1997) NPDES Permit.

	Notice of Intent (NOI) Facilities	Facilities with at least one (1) Sampling Result entered via SMARTs	Industrial Permittees in Exceedance Response Action (ERA) Level 1 Status	Industrial Permittees in Exceedance Response Action (ERA) Level 2 Status	Top 3 ERA Level 2 Pollutants of Concern ²		
					Total Iron	Total Zinc	Total Aluminum
California¹	±10,000	±5,750	±3,120	±1,000	±400	±285	±248

¹ Notice of Intent only, does not include No Exposure Certifications (NECs) or Notice of Non-applicability (NONAs)
² By Percent of dischargers in category that sample for pollutant of concern

Source: California SWRCB and SMARTs Database

Under the ERA response scenario, one of the largest challenges facing dischargers in California was the quick turnaround needed for BMP implementation after becoming ERA Level 1 status. For large corporations and those with extremely diverse geography (i.e. railroads), there was little or no time to implement the ERA Level 1 BMPs, much less get them budgeted correctly. Fiscal years may not line up with the stormwater reporting year. By the time management approves the budget, the next stormwater permit cycle is moving forward. Failure to implement the BMPs in a timely fashion, may escalate the facility (or facilities) to ERA Level 2 status.

Additionally, in the quest for zero-discharge is a good win/win for facilities regulators. If there is sufficient room at the site, a discharger may choose to install a large retention pond. However, in California’s General Permit, the only way to return to baseline is to capture four (4) consecutive qualifying storm events (QSEs) with analytical results below the benchmark values for the exceedance

response pollutants. In this case, the facility with the newly constructed retention pond may not discharge, and thus the facility is stuck in ERA Level 1 or Level 2 purgatory, and thus be somewhat penalized for going to zero-discharge. Some facilities have begun to install bypass valves, with the hope of purposefully discharging at a later date, after the storm and sufficient residence time for pollutant reduction.

In the first and second year of California's permit, many dischargers were reviewing potential additional BMPs as line-item costs and attempts were made to keep the stormwater management budget as minimal as possible. As California made its way into the third year (2017-2018) of the permit cycle, an increased number of facilities reviewed the feasibility not just in terms of cost of compliance, but cost of exposure. The ERA Level 1 and Level 2 facilities are searchable on the public SMARTs database. Many states are shifting to "electronic" or on-line databases significantly increasing permittees' exposure. As the NGOs appear to be coming more proficient at targeting industrial dischargers, the ERA categorization easily daylights facilities that are not in compliance, in essence creating "short-lists" for NGOs to cross-reference and conduct searches through the available databases.



Stormwater Regulation is evolving, pushing more responsibility on to the Dischargers by holding them accountable through categorization based on a discharger's ability to meet numeric benchmarks. Additionally, how a discharger responds and applies effective BMPs determines their status. Ultimately, it is up to the industrial permittee to take the initiative, with an eye to priorities and feasibility for the future of their stormwater compliance program.

Brief Bio:

Mr. Meronek has been with SCS Engineers Northern California Office for over fourteen (14) years, and is a current State of California Industrial Storm Water Qualified Industrial Storm Water Practitioner (QISP) and a QISP Trainer-of-Record (ToR) under the new Industrial Permit (IGP). Under the 2015 IGP, Mr. Meronek has performed Site BMP and Pollutant Source Assessments, written and reviewed SWPPPs, and implemented Monitoring Implementation Plans (MIPs) for over one hundred (100) Facilities throughout the western United States. He has performed National Pollutant Discharge Elimination System (NPDES) storm water services for state, municipal and private clients across a vast cross-section of Industrial. Mr. Meronek has successfully worked with Companies, Facility managers, and attorneys to comprehensively review and re-evaluate Facilities for NPDES compliance including technology-based BPT/BCT/BAT implementation for control of pollutants in stormwater discharge.