

DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES  
DIVISION OF WATER QUALITY

**FACT SHEET**

GENERAL PERMIT NCG090000  
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM  
PERMIT TO DISCHARGE STORMWATER

Permit No. NCG090000

Date: September 4, 2012

**1. TYPES OF DISCHARGES COVERED**

*a. Industrial Activities Covered by this General Permit*

Coverage under this general permit is applicable to all owners or operators of stormwater point source discharges associated with activities classified as establishments primarily engaged in manufacture of paints, varnishes, lacquers, enamels, and allied products [standard industrial classification (SIC) 285]. Coverage is also applicable to point source discharges **from like industrial activities** deemed by the Division of Water Quality (DWQ) to be similar to these operations in the process, or the discharges, or the exposure of raw materials, intermediate products, by-products, products, or waste products.

*b. Types of Operations Covered*

Excerpted from 1992 Fact Sheet:

The Paints, Varnishes, Lacquers, Enamels, and Allied Products categories include facilities primarily involved in the manufacturing of paints (in paste and ready-mixed form); varnishes; lacquers; enamels and shellacs; putties, wood fillers, and sealers; paint and varnish removers; paint brush cleaners; and allied paint products.

When viewed as a class, many of the facilities in this General Permit typically purchase feedstock which is made into various surface coating products using an entirely physical process (no chemical conversions take place) that involves mixing, grinding, as well as other operations. Storage of raw materials, intermediate products, final products, by-products, waste products, and chemicals does not typically occur outside. Production of significant emissions from stacks or air exhaust systems are not a part of the manufacturing process at these facilities. The use of unhooded manufacturing and heavy industrial equipment will be minimal or non-existent. However, the potential for exposure of toxic constituents at these facilities exists especially at locations such as shipping and receiving areas, areas used to store empty drums, outside bulk chemical storage areas. Chemical spills are not an uncommon occurrence at these facilities.

Activities which are conducted by the Paints, Varnishes, Lacquers, Enamels, and Allied Products Group are probably best described by the Flow Diagram (attached Figure 2.).

Pollutant parameters of particular concern in these industries can be broadly be categorized as Conventional Pollutants, Heavy Metals, and Volatile Organic Compounds.

EPA Effluent Guidelines in Title 40 Code of Federal Regulations (CFR) Part 446 for the Paint Formulating Category mandate the requirement that there be no discharge of process wastewater. The Development Document for Effluent Limitations Guidelines and Standards for the Paint Formulating Point Source Category (EPA- 440/1-79/049b) identify pollutants that are of particular concern for the process wastewater discharges from paint formulators. The parameters identified are as follows:

Conventional Pollutants

- Biochemical Oxygen Demand (BOD)
- Chemical Oxygen Demand (COD)

Selected Metal Priority Pollutants

- Cadmium
- Chromium
- Copper
- Lead
- Mercury
- Nickel
- Zinc

Selected Organic Priority Pollutants

- Benzene
- Carbon tetrachloride
- 1,1,1 Trichloroethane
- 1-1 Dichloroethylene
- Ethylbenzene
- Methylene Chloride
- Naphthalene
- Pentachlorophenol
- Bis(2-ethylhexyl) phthalate
- Di-N-butyl phthalate

*c. Characteristics of Discharged Stormwater*

**2007 data commentary:** Data submitted in response to the previous NCG090000 permit term covered: [Total Cadmium](#), [Total Chromium](#), and [Total Lead](#) with the vehicle maintenance areas monitored for [pH](#), [Oil and Grease \(O&G\)](#), and [Total Suspended Solids \(TSS\)](#). Analysis of data submitted by 16 permittees indicated that all parameters had averages or maximum reported values that exceeded current benchmark concentrations. The decision to retain parameters from the previous permit was based in part on this assessment, but also on their continued usefulness as stormwater pollution indicators for these industry types—especially within the revised monitoring scheme and tiered responses introduced by this renewal permit. A tabular explanation of the data analysis is presented in the Appendix.

**2012 data commentary:** Seventeen permittees reported 362 pollutant parameter measurements during the 5-year term from 2007 to 2012, for the same parameters as in the previous permit cycle: [Total Cadmium](#), [Total Chromium](#), and [Total Lead](#).

Approximately 70% of the reported data indicated that the pollutant concentrations were below the benchmark values for the three toxic heavy metal pollutants. The remaining ~30% of measurements were reported as exceedances or inadequate reporting levels (~10%), and indistinct verbal reports of “Below Detection”, or similarly inadequate descriptions (~20%).

Vehicle maintenance area analyses were reported only 6 times, suggesting that most facilities do not meet the qualifying average consumption threshold of more than 55 gallons of new motor oil per month.

*d. Geographic Area(s) Covered by this General Permit*

Discharges covered by this General Permit are located at any place within the political boundary of the State of North Carolina. Discharges located on the Cherokee Indian Tribal Reservation are subject to permitting by the US Environmental Protection Agency and are not covered by this General Permit.

*e. Receiving Waters*

Receiving waters include all surface waters of North Carolina or municipal separate storm sewer systems conveying stormwater to surface waters.

## **2. DISCHARGE CONTROLS AND LIMITATIONS**

The General Permit incorporates two main approaches to reduce the discharge of polluted stormwater from this category of industrial facilities: It requires a written management plan with the specific objective of site management action to control polluted discharges, and it requires periodic self-monitoring of the discharges. The General Permit incorporates pollutant benchmark concentrations to provide facilities a tool with which to assess the effectiveness of implementation of the management plan, the Stormwater Pollution Prevention Plan (SPPP). These benchmark concentrations are not effluent limits, but provide guidelines for implementation of the facility’s SPPP. Exceedences of benchmark values require the permittee to increase monitoring, increase management actions, increase record keeping, and/or install stormwater BMPs in a tiered program. Four (4) benchmark exceedences trigger notification to the DWQ Regional Office and may prompt additional requirements (“Tier 3”). This general permit first incorporated stormwater benchmarks and tiered responses in the 2007 renewal.

## **3. PROPOSED MONITORING AND REPORTING REQUIREMENTS**

The permit specifies monitoring and reporting requirements for both quantitative and qualitative assessment of the stormwater discharge and operational inspections of the entire facility. Specific pollutant parameters for which sampling must be performed and the frequency of the sampling are based upon the types of materials used, stored, and transferred at these sites and on the potential for contamination of the stormwater runoff at these facilities.

The draft renewal permit proposes specific analytical monitoring requirements for the following parameters: **Total Cadmium, Total Chromium, Total Lead, Total Toxic Organics (TTO), and Total Rainfall**. **Qualifying discharges from Vehicle Maintenance Areas will be analyzed for pH, Total Petroleum Hydrocarbons (TPH), Total Suspended Solids (TSS), and Total Rainfall**. The addition of TTO is based on the expectation of the presence of organic solvents or paint vehicles in the manufacturing process. The substitution of TPH for the previous Oil & Grease analysis is based on the assessment that TPH is more specific for petroleum hydrocarbons than its predecessor analysis, oil and grease. The other parameters are retained based in part on data submitted by permittees, but also on the expectation of their continued presence in the manufacturing activity and their usefulness as stormwater pollution indicators for these industry types within the revised monitoring scheme.

The draft permit incorporates a modified definition of what storm event should be sampled. Previous permits required sampling during a “representative storm event.” The proposed NCG090000 permit renewal now requires permittees to sample the “**measurable storm event**,” a new term for North Carolina stormwater permits. The “measurable storm event” is an event that results in an actual discharge, rather than an event with a rainfall measuring 0.1 inches or more. To qualify as a measurable storm event, the previous storm event must have been at least 72 hours prior. Last year the NCG140000 Ready-Mixed Concrete General Permit was the first permit to implement this new storm event definition.

The proposed general permit allows the permittee to forgo sampling if *adverse weather* conditions prevent sample collection (see the **Definitions** section of the draft permit). Inability to sample because of adverse weather conditions must be documented in the SPPP and recorded on the data monitoring forms (DMRs). The proposed draft maintains the requirement to separate semi-annual sampling events by a minimum of 60 days.

As before, the renewal permit specifies qualitative (visual) monitoring of each stormwater outfall for the purpose of evaluating the effectiveness of the Stormwater Pollution Prevention Plan and assessing new sources of stormwater pollution. Qualitative monitoring parameters include color, odor, clarity, floating and suspended solids, foam, oil sheen, and other obvious indicators of stormwater pollution. Qualitative monitoring should be performed during the analytic sampling event.

The draft permit proposes more specific direction to the permittee about how to respond to qualitative monitoring. If qualitative monitoring indicates that existing stormwater BMPs are ineffective, or that significant stormwater contamination is present, the permittee must investigate potential causes, evaluate the feasibility of corrective actions, and implement those corrective actions within 60 days. A written record of the permittee’s investigation, evaluation, and response actions must be kept in the SPPP. The draft permit also includes a **Qualitative Monitoring Response**, establishing actions for when a permittee repeatedly fails to respond effectively to correct problems, or if the discharge causes or contributes to a water quality standard violation.

#### 4. COMPLIANCE SCHEDULE

The proposed compliance schedule in Part III, Section A was modified to address facilities that are renewing coverage under this renewed permit. The permittee shall comply with Limitations and Controls specified for stormwater discharges in accordance with the following schedule:

**Existing Facilities already operating but applying for permit coverage for the first time:** The Stormwater Pollution Prevention Plan shall be developed and implemented within 12 months of the effective date of the **Certificate of Coverage** and updated thereafter on an annual basis. Secondary containment, as specified in Part II, Section A, Paragraph 2(b) of this general permit, shall be accomplished within 12 months of the effective date of the issuance of the **Certificate of Coverage**.

**New Facilities applying for coverage for the first time:** The Stormwater Pollution Prevention Plan shall be developed and implemented prior to the beginning of discharges from the operation of the industrial activity and be updated thereafter on an annual basis. Secondary containment, as specified in Part II, Section A, Paragraph 2(b) of this general permit shall be accomplished prior to the beginning of discharges from the operation of the industrial activity.

**Existing facilities previously permitted and applying for renewal under this General Permit:** All requirements, conditions, limitations, and controls contained in this permit (except new SPPP elements in this permit renewal) shall become effective immediately upon issuance of the **Certificate of Coverage**. New elements of the Stormwater Pollution Prevention Plan for this permit renewal shall be developed and implemented within 6 months of the effective date of this general permit and updated thereafter on an annual basis. Secondary containment, as specified in Part III, Paragraph 2(b) of this general permit shall be accomplished prior to the beginning of discharges from the operation of the industrial activity.

#### 5. SPECIAL CONDITIONS WHICH WILL HAVE A SIGNIFICANT IMPACT ON THE DISCHARGE

A permittee may develop a solvent management plan in lieu of performing the required total toxic organics (TTO) monitoring. Continuing recertification of the implementation of the solvent management plan will be required as part of the semi-annual analytical monitoring report.

#### 6. BASIS FOR CONTROLS AND LIMITATIONS

##### Stormwater Discharges

The conditions of this general permit have been designed using best professional judgment to achieve water quality protection through compliance with the technology-based standards of the Clean Water Act (Best Available Technology [BAT] and Best Conventional Pollutant Control Technology [BCT]). Where the Director determines that a water quality violation is occurring and water quality-based controls or effluent limitations are required

to protect the receiving waters, coverage under the general permit shall be terminated and an individual permit will be required. Based on a consideration of the appropriate factors for BAT and BCT requirements, and a consideration of the factors discussed below in this fact sheet for controlling pollutants in stormwater discharges associated with the activities as described in Item 1 (Types of Discharge Covered), the permit retains a set of requirements for developing and implementing stormwater pollution prevention plans, and specific requirements for monitoring and reporting on stormwater discharges.

The permit conditions reflect the Environmental Protection Agency's (EPA) and North Carolina's pollution prevention approach to stormwater permitting. The quality of the stormwater discharge associated with an industrial activity will depend on the availability of pollutant sources. This renewal permit still reflects the Division's position that implementation of Best Management Practices (BMPs) and traditional stormwater management practices which control the source of pollutants meets the definition of BAT and BCT. The permit conditions are not numeric effluent limitations, but rather are designed to be flexible requirements for developing and implementing site specific plans to minimize and control pollutants in the stormwater discharges associated with the industrial activity.

Title 40 Code of Federal Regulations (CFR) Part 122.44(k)(2) authorizes the use of BMPs in lieu of numeric effluent limitations in NPDES permits when the agency finds numeric effluent limitations to be infeasible. The agency may also impose BMP requirements which are "reasonably necessary" to carry out the purposes of the Act under the authority of 40 CFR 122.44(k)(3). The conditions of the renewal permit are retained under the authority of both of these regulatory provisions. The pollution prevention requirements (BMP requirements) in this permit operate as limitations on effluent discharges that reflect the application of BAT/BCT. The basis is that the BMPs identified require the use of source control technologies which, in the context of this general permit, are the best available of the technologies economically achievable (or the equivalent BCT finding).

All facilities covered by this stormwater general permit must prepare, retain, implement, and (at a minimum of annually) update a stormwater pollution prevention plan. The term "pollution prevention" distinguishes this source reduction approach from traditional pollution control measures that typically rely on end-of-pipe treatment to remove pollutants in the discharges. The plan requirements are based primarily on traditional stormwater management, pollution prevention and BMP concepts, providing a flexible basis for developing site-specific measures to minimize and control the amounts of pollutants that would otherwise contaminate the stormwater runoff.

The pollution prevention approach adopted in the SPPP in the renewal permit still focuses on two major objectives: 1) to identify sources of pollution potentially affecting the quality of stormwater discharges associated with industrial activity from the facility; and 2) to describe and ensure that practices are implemented to minimize and control pollutants in stormwater discharges associated with industrial activity from the facility and to ensure compliance with the terms and conditions of this permit.

The Division believes that it is not appropriate, at this time, to require a single set of effluent limitations or a single design or operational standard for all facilities which

discharge stormwater associated with industrial activity. The permit instead establishes a framework for the development and implementation of site-specific stormwater pollution prevention plans. This framework provides the necessary flexibility to address the variable risk for pollutants in stormwater discharges associated with the industrial activities that are addressed by the permit, while ensuring procedures to prevent stormwater pollution at a given facility are appropriate given the processes employed, engineering aspects, functions, costs of controls, location, and age of facility (as discussed in 40 CFR 125.3). This approach allows flexibility to establish controls which can appropriately address different sources of pollutants at different facilities.

The EPA and NPDES States have, on a case-by-case basis, imposed BMP requirements in NPDES permits. The EPA has also continued to review and evaluate case studies involving the use of BMPs and the use of pollution prevention measures associated with spill prevention and containment measures for oil. The development of the NPDES permit application requirements for stormwater discharges associated with industrial activity resulted from the evaluation and identification of the potential contaminants and the resultant water quality impacts of stormwater discharges from industrial sites. Public comments received during the rule making provided additional insight regarding stormwater risk assessment, as well as appropriate pollution prevention and control measures and strategies. During that time EPA again reviewed stormwater control practices and measures. These experiences have shown the Division that pollution prevention measures such as BMPs can be appropriately used and that permits containing BMP requirements can effectively reduce pollutant discharges in a cost-effective manner. BMP requirements are imposed in general permits in lieu of numeric effluent limitations pursuant to 40 CFR 122.44(k)(2).

**There has been no significant change to this rationale since the 2007 renewal of General Permit NCG090000.**

### Stormwater Benchmarks

The proposed **pH benchmark** range of between 6.0 and 9.0 standard units for discharges from vehicle maintenance areas is based on N.C. Water Quality Standards in 15A NCAC 02B .0211 and is consistent with other renewed general stormwater permits.

The **TPH benchmark** of 15 mg/l for discharges from vehicle maintenance areas is consistent with other States' benchmarks and/or limits and reflects a value we would associate only with significant oil contamination. See **Appendices A and B** for more information on TPH. DWQ is replacing O&G with TPH, which can be analyzed cost effectively with the same method used to measure O&G: EPA Method 1664 (SGT-HEM). The permit does not require the more elaborate and typically more expensive TPH analysis with gas chromatography. The basis of this change is that O&G is composed of fatty matter from animal and vegetable sources and hydrocarbons of petroleum origin. Because TPH targets the family of chemical compounds that originally come from crude oil such as gasoline, diesel, kerosene, etc., TPH is more suited for vehicle maintenance activities.

The standard **total suspended solids (TSS) benchmark** of 100 mg/l for discharges from vehicle maintenance areas is based on the median concentration derived from the National

Urban Runoff Program (NURP) study in 1983 and serves as a benchmark in most other industrial stormwater permits with TSS monitoring. The lower TSS benchmark for ORW, HQW, trout, and primary nursery area (PNA) waters of 50 mg/l reflects half that standard value and was set to flag potential problems in discharges to waters with much lower water quality standards for TSS concentrations (20 mg/l for HQW and ORW; 10 mg/l for trout and PNA waters).

The benchmarks for the toxic heavy metals **cadmium, chromium, and lead** remain the same as in the previous version of the permit; i.e. 0.001 mg/L, 1.0 mg/L, and 0.03 mg/L, respectively. However, as indicated immediately preceding, the permit will now require reporting **in mg/L rather than ug/L**. Although the change in units represents no change in the benchmarks or in the measured pollutant concentrations, our examination of the reported data suggests that on some occasions permittees are confused as to the required reporting units and the reporting of values below the method detection limit. We hope this change to the generally more common unit (mg/L) will reduce confusion and result in a more uniform data set for our review in the future. See **Appendices D and E** for more information on the heavy metals.

The values for all three benchmarks are based on ½ FAV as reported in EPA's Ambient Water Quality Criteria documents in 2001, 1980, and 1980 for cadmium, chromium, and lead respectively. North Carolina is currently proposing changes to water quality (WQ) metals standards that will establish dissolved metals standards for the first time. If those WQ standards are finalized, acute values for *total recoverable* metals will change as a result of a revised translation method (for translating a dissolved value to a total recoverable value, which federal NPDES regulations require to be used in a permit) and a different assumed water hardness. However, the proposed metals standards will not be finalized for some time. Because those changes are not final, DWQ is not proposing new stormwater benchmarks for the three toxic heavy metals at this time.

The **Total Toxic Organics (TTO) benchmark has been added for this renewal** of NCG090000. The addition of a new benchmark is based on the expectation that organic solvents or paint vehicles generally may be present in the manufacturing process. The benchmark has been set at 1 mg/L, and is already implemented in other stormwater permits, specifically for the metals finishing industries and the scrap metal industries. The TTO analyses can be relatively costly, and the draft permit provides that the permittee may instead develop and implement a Solvent Management Plan as part of the SPPP. The draft permit text specifically calls attention to the Solvent Management Plan alternative, and requests public comment on it as a substitute for the TTO analyses. See **Appendix C**.

## 7. REQUESTED VARIANCES OR ALTERNATIVES TO REQUIRED STANDARDS

There are no requested variances or alternatives to required standards. Facilities requesting variances to required standards will not be covered under this General Permit but will instead be required to seek coverage under an individual permit.

## **8. THE ADMINISTRATIVE RECORD**

The administrative record, including application, draft permit, fact sheet, public notice, comments received, and additional information is available by writing to:

Stormwater Permitting Unit  
Division of Water Quality  
1617 Mail Service Center  
Raleigh, North Carolina 27699-1617

The above documents are available for review and copying at:

Archdale Building  
9th Floor  
Surface Water Protection Section  
Stormwater Permitting Unit  
512 N. Salisbury Street  
Raleigh, North Carolina

between the hours of 8:00 AM and 5:00 PM Monday through Friday. Copies will be provided at a charge of 10 cents per page.

## **9. STATE CONTACT**

Additional information about the draft and final permit may be obtained at the above address between the hours of 8:00 AM and 5:00 PM Monday through Friday by contacting: **Ken Pickle** at (919) 807-6376.

## **10. SCHEDULE OF PERMIT ISSUANCE**

Draft Permit to Public Notice – **Statewide notice to publish September 4, 2012**  
**Draft available on-line September 4, 2012;**  
***Comment period ends October 4, 2012.***

Permit Scheduled to Issue – **October 19, 2012 (Effective November 1, 2012)**

## **11. PROCEDURE FOR THE FORMULATION OF FINAL DETERMINATIONS**

### *a. Comment Period*

The Division of Water Quality proposed to issue an NPDES General Permit for the above described stormwater discharges subject to the outlined effluent limitations,

management practices, and special conditions. These determinations were open to comment from the public.

Interested persons were invited to submit written comments on the permit application or on the Division of Water Quality's proposed determinations to the following address:

Stormwater Permitting Unit  
Division of Water Quality  
1617 Mail Service Center  
Raleigh, North Carolina 27699-1617  
Attn: **Ken Pickle**

All comments received within thirty days following the date of public notice are considered in the formulation of final determinations.

*b. Public Meeting*

The Director of the Division of Water Quality may hold a public meeting if there is a significant degree of public interest in a proposed permit or group of permits. Public notice of such a meeting will be circulated in newspapers in the geographical area of the discharge and to those on the Division of Water Quality mailing list at least thirty days prior to the meeting.

*c. Appeal Hearing*

An applicant whose permit is denied, or is granted subject to conditions he deems unacceptable, shall have the right to a hearing before the Commission upon making written demand to the Office of Administrative Hearing within 30 days following issuance or denial of the permit.

*d. Issuance of a Permit When no Hearing is Held*

If no public meeting or appeal hearing is held, after review of the comments received, and if the Division of Water Quality determinations are substantially unchanged, the permit will be issued and become effective on the first day of the month following the issuance date. This will be the final action of the Division of Water Quality.

If a public meeting or appeal hearing is not held, but there have been substantial changes, public notice of the Division of Water Quality revised determinations will be made. Following a 30-day comment period, the permit will be issued and will become effective on the first day of the month following the issuance date. This will be the final action of the Division of Water Quality unless a public meeting or appeal hearing is granted.

## APPENDIX A

### Comparison of Other States’ TPH Stormwater Benchmarks and/or Limits:

Agency	Media	Benchmark, Limit, Criteria, etc	Value (mg/L)	Notes
CT	groundwater	protection criteria	0.5	EPA Method 418.1
NV	groundwater	discharge limit	1.0	Technology-based limit
VA	groundwater	reporting limit	1.0	Virginia Petroleum Storage Tank Program
KS	groundwater	cleanup standard	0.5	Risk-based standard
TX	groundwater	MCL	1.1	Maximum Contaminant Level
OK	groundwater	MCL	3.0	May require cleanup down to 0.1 mg/L if near well
Tacoma, WA	stormwater	performance goal	10.0	24-hr average
Tacoma, WA	stormwater	performance goal	15.0	Grab sample
WA	stormwater	max daily limit	5.0	Port of Seattle NPDES permit technology-based limit for construction areas; 5.0 mg/L typically used for all construction sites in state; plus no visible sheen non-numerical limit.
WA	stormwater	max daily limit	8.0	Port of Seattle NPDES permit for deicing areas
WA	stormwater	max daily limit	15.0	Port of Seattle NPDES permit for roadways
NJ	stormwater	mo. Ave. limit	10.0	24-hr average, EPA Method 1664A, NJPDES NJ0132721 (hot-mix asphalt plants)
NJ	stormwater	max daily limit	15.0	Grab sample, EPA Method 1664A, NJPDES NJ0132721 (hot-mix asphalt plants)
TX	stormwater	max daily limit	15.0	Grab sample, TPDES permit TXG340000 (petroleum bulk stations and terminals)

## APPENDIX B

### Comparison of TPH Analysis Costs vs. O&G Analysis:

LABORATORY	O&G/HEM	TPH as SGT-HEM	TPH-GRO	TPH-DRO	
	EPA 1664A		SW-846 EPA 8015B		
Environmental Chemists Inc.	\$50	\$50	\$50	\$50	
Pace Analytical Services, Inc.	\$50	\$60	\$40	\$40	
Microbac Laboratories, Inc.	\$55	\$55	na	na	
Cameron Testing Services	\$45	\$60	\$43	\$43	
Environmental Conservation Laboratories, Inc.	\$75	\$75	\$40	\$45	
Water Tech Labs, Inc.	\$50	na	\$60	\$60	
DWQ Lab	\$34	na	\$87	\$87	
Meritech, Inc.	\$45	\$68	\$50	\$50	
Charlotte-Mecklenburg Utilities Laboratory	\$30	\$43	na	na	
					<b>Avg (TPH-GRO + TPH-DRO) cost to capture full range of TPH</b>
<b>Average Cost</b>	<b>\$48</b>	<b>\$59</b>	<b>\$53</b>	<b>\$54</b>	<b>\$106</b>
<i>Notes:</i>					
HEM = n-hexane extractable material					
SGT-HEM = silica gel treated n-hexane extractable material					
GRO = gasoline range organics					
DRO = diesel range organics					

**APPENDIX C**  
**NPDES Stormwater General Permits NCG030000 and NCG100000**  
**(Modified and proposed in 2012 for the renewal of NCG090000)**  
**Total Toxic Organics (TTO) Benchmark Development**

1. Reference: Subchapter N - Effluent Guidelines and Standards, 40CFR433.10ff, Part 433 – Metal Finishing Point Source Category. Forty-six types of metal finishing operations are listed, appearing to be a comprehensive list of the types of activities that might be labeled, ‘metal finishing.’
  - a. Subpart A presents wastewater and pretreatment effluent limitations in 433.13, 433.14, 433.15, 433.16, and 433.17 for BPT, BAT, PSES, NSPS, and PSNS respectively. These paragraphs uniformly present a TTO effluent limitation of 2.13 mg/L maximum for any one day. No monthly average effluent limitation is established.
  - b. TTO for the metal finishing category includes 111 toxic organics, including solvents, chlorinated hydrocarbons, pesticides, PCBs, and dioxin. The reportable value for the TTO analysis is the sum of all concentrations for the 111 analytes greater than 0.01 mg/L.
  - c. Paragraph 433.12(a) provides that in lieu of TTO monitoring the permitting authority may allow the permittee to certify on each DMR that there has been no dumping of concentrated TTO into the wastewater stream.
  - d. Further, 433.12(a) provides that if TTO monitoring is required, the permittee may ‘analyze for only those pollutants that would reasonably be expected to be present.’
  - e. Paragraph 433.12(b) provides that if the permittee selects the certification alternative to TTO monitoring, he must submit a solvent management plan to the permitting authority’s satisfaction, and that the plan shall be incorporated as a part of the permit.
2. DWQ had established stormwater benchmark values for sixteen of the 111 toxic organics: benchmark values of 0 ug/L for dioxin and for the 7 PCBs; anthracene – 0.005 mg/L; pentachlorophenol – 0.019 mg/L; toluene – 0.055 mg/L and 0.0018 mg/L in trout waters; 1.0 mg/L for 2,4-dimethylphenol and for naphthalene; acrylonitrile – 3.8 mg/L; phenol – 4.5 mg/L in trout waters; and benzene – 6.7 mg/L.
3. The current draft permit provides as follows:
  - a. The permittee may elect to develop a solvent management plan and incorporate it in his SPPP. All in imitation of the federal effluent guidelines for wastewater and pretreatment discharges. Consistent with the previous version of the permits NCG03 and NCG10.
  - b. DWQ is willing to work with the permittee on alternate analyses and/or benchmarks to satisfy the TTO monitoring requirement. This provision is parallel to, but not identical to, the federal provision establishing that wastewater permittees need only analyze for the pollutants reasonably expected to be present.
  - c. **The benchmark is set at 1.0 mg/L.** This is not a limit value in the sense that an exceedence constitutes a permit violation. This is more like an action level value. DWQ has benchmark values set for only a very small portion of the TTO suite. A value of 1.0 mg/L corresponds to our benchmarks for naphthalene and 2,4-dimethylphenol. Three benchmark values are above 1.0 mg/L, and 11 benchmark values are below 1.0 mg/L.
  - d. DWQ may evaluate analysis results and determine if any chemicals are present at levels of concern, even if below 1.0 mg/l, and require appropriate actions.

### APPENDIX D

Previous Data Analysis Summary, 2007

Summary of NCG090000 Monitoring Data provided by Julie's 4/12/07 DMR FileMaker file.

None of these data were eliminated, with the exception of a couple of "0" entries.

Data	Total	Units	Benchmark
Count of Event Precip.	129		
Max of Event Precip.	4.03	inches	
Min of Event Precip.	0.1	inches	
Average of Event Precip.	0.99	inches	
Count of Event Duration	128		
Max of Event Duration	2448	minutes	
Min of Event Duration	0.5	minutes	
Average of Event Duration	76.30	minutes	
Count of Total Flow	125		
Max of Total Flow	515	MG	
Min of Total Flow	0	MG	
Average of Total Flow	28.22	MG	
Count of Cadmium	115		
Max of Cadmium	200	µg/l	0.001 mg/l
Min of Cadmium	0.001	µg/l	0.001 mg/l
Average of Cadmium	7.82	µg/l	0.001 mg/l
Count of Chromium	116		
Max of Chromium	1109	µg/l	1 mg/l
Min of Chromium	0.005	µg/l	1 mg/l
Average of Chromium	29.88	µg/l	1 mg/l
Count of Lead Recovered	120		
Max of Lead Recovered	200	µg/l	.03 mg/l
Min of Lead Recovered	0.003	µg/l	.03 mg/l
Average of Lead Recovered	16.49	µg/l	.03 mg/l

Compiled by A. Lau

16 facilities have submitted monitoring data since 9/1/02, and as of 7/1/07 there were 16 active permits. The data on this form represents all of the data submitted since the beginning of the program.

## APPENDIX E

### NCG090000 Data Analysis Summary, 2012

- Seventeen permittees reported 362 measurements on Cd, Cr, and Pb concentrations during the 5-year term of NCG09.
- Only six vehicle maintenance data points were reported in the five-year permit term, suggesting that most facilities do not meet the qualifying criterion of 55 gallons of new motor oil per month.
- **The number of reported exceedances of the heavy metals benchmarks is low, (only 10 out of 362 data points) suggesting that the industry is doing a pretty good job in controlling heavy metal stormwater pollutants.** However, the picture is confused by the large number of unintelligible reports in the form of: ‘below detection’ or ‘<MDL’ or ‘BRL’ or ‘non-detect’ or similar useless notations that do not allow us to conclude that any particular discharge was or was not below the benchmark value.
- Additionally confusing the picture, the data suggest several instances of the use of inadequate method or reporting levels, i.e. the laboratory analytical tests were not run to levels equal to or below the benchmark value. These instances should be considered exceedances.
- Additionally, some permittees identified in our database as having a valid permit have not submitted any sampling results in the five-year term of the permit. This circumstance should be viewed as a compliance problem for the specific facilities, and not necessarily a fair characterization of other permittees in the industry.
- Tabulated data count

Reported values	Count	Per cent	Comment
<b>Exceedances</b>	10	3%	Above benchmarks
<b>Inadequate MDL</b>	26	7%	Should be interpreted as a benchmark exceedance
<b>Indistinct MDL</b>	79	22%	Physical facts are questionable, but in the form received by DWQ, these reports cannot be interpreted as below benchmarks.
<b>Apparently below benchmarks</b>	247	68%	However, the data also seems to indicate some possibility of permittee confusion on both the mg/L vs. ug/L question and the appropriate MDL question. Consequently upon closer inspection, the count may be lower.
	362	100%	

- Summary data-based conclusions and data-based draft permit actions:
  - The industry may be doing a good job, but poor reporting procedures make the industry-wide circumstances unclear. *Revise permit text to require mg/L units and to prohibit reporting “BRL”, “<MDL”, etc. Hope that with this extra guidance, the next permit cycle produces data that will support clearer conclusions about the industry’s performance.*
  - Retain all three current heavy metal analytes.

