# Industrial Stormwater Permitting and Compliance

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# Outline

- Who is subject?
- General Permits
- Notice of Intent
- No Exposure
- Permit Requirements
- Stormwater Pollution Prevention Plan (SWPPP)
- Monitoring
- eDMR
- Inspections
- Tier Response
- Site-Specific Examples

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# Who is subject to the NPDES Stormwater Program?

- Point Source discharge associated with industrial activity
- 11 regulated categories
    1. Facilities subject to 40 CFR Subchapter N
    2. SIC-specific industries (lumber, paper, petroleum, leather, stone, metal, etc.)
    3. Mineral Industry
    4. Hazardous waste TSD facilities
    5. Landfills
    6. Steam Electric Plants
    7. Transportation
    8. Treatment Works
    9. Construction (>1 acre disturbed)
    10. Light Industry (Various SIC Codes)
    11. Discharge otherwise not regulated (Discretion of DEQ)

# General Stormwater Permits

- 22 General Industrial Permits

NCG01. Construction activities for projects permitted on or after 8/3/2011

NCG02. Mining

NCG03. Metal Fabrication

NCG05. Apparel, Printing, Leather, and Rubber

NCG06. Food and Kindred

NCG07. Stone, Clay, and Glass

NCG08. Transit and Transportation

NCG09. Paints and Varnishes

NCG10. Used Motor Vehicles

NCG11. Treatment Works

NCG12. Landfills

NCG13. Non-Metal Waste and Scrap

NCG14. Ready-Mix Concrete

NCG15. Airports

NCG16. Asphalt Paving Mixtures

NCG17. Textile Mill

NCG18. Furniture Manufacture

NCG19. Marinas and Shipbuilding

NCG20. Scrap Metal

NCG21. Timber Products

NCG24. Composting Operations

NCG25. Construction activities for projects permitted on or after 10/1/2020 not subject to the Sedimentation Pollution Control Act

# Notice of Intent

- Owner/Operator Information
- Facility Information
- Outfall Information
- Other Permits and Hazardous Waste Information
- Site Diagram
- Site Location Map

- Issued a Certificate of Coverage

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# No Exposure Certification

- Eligible if industrial materials and operations are not exposed to stormwater
- No Exposure Certification Application
  - Similar information required as NOI
  - No exposure checklist

| Acceptable | Not Acceptable |
|---|---|
| Storm-resistant shelter | Raw, intermediate, or by-product storage |
| Drums | Material handling |
| Tanks | Waste products |
| Vehicles | Industrial machinery |
| Final products | Industrial activities |

- Certify annually

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# General Permit Requirements

- SWPPP
- Operational Requirements
- Qualitative and Analytical Monitoring
- Discharge Monitoring Reporting
- Other Occurrences That Must Be Reported

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# Stormwater Pollution Prevention Plan (SWPPP)

- Responsible Party
- General Location Map
- Site Map
- Narrative Description of Industrial Process
- Feasibility Study*
- Evaluation of Stormwater Outfalls
- Stormwater Best Management Practice (BMP) Summary
- BMP Inspections*
- Secondary Containment Plan
- Spill Prevention and Response Procedures*
- Solvent Management Plan*
- Preventative Maintenance and Good Housekeeping
- Employee Training
- Representative Outfall Status
- Devices Exempt from Analytical Monitoring*
- Annual SWPPP Review and Update
- Annual On-Line SWPPP Certification (Forthcoming)
- Notice to Modify the SWPPP
- SWPPP Documentation

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# Responsible Party

- SWPPP Team
- Coordination, Development, Implementation, and Revision of SWPPP
- Position Assignments


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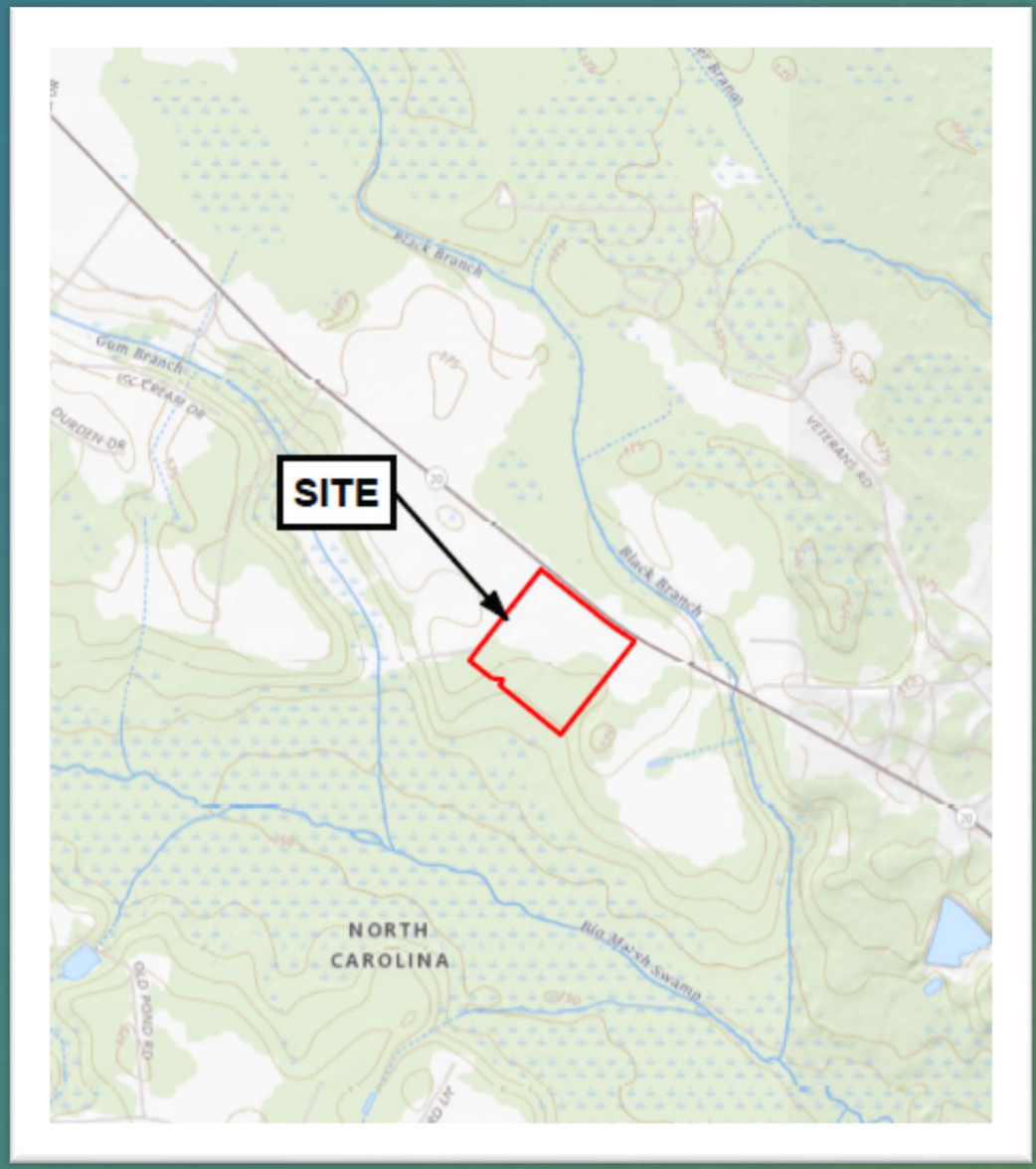
# Location Map

- Transportation routes and surface waters
- Receiving waters
- Total Maximum Daily Load (TMDL)-Parameters of Concern

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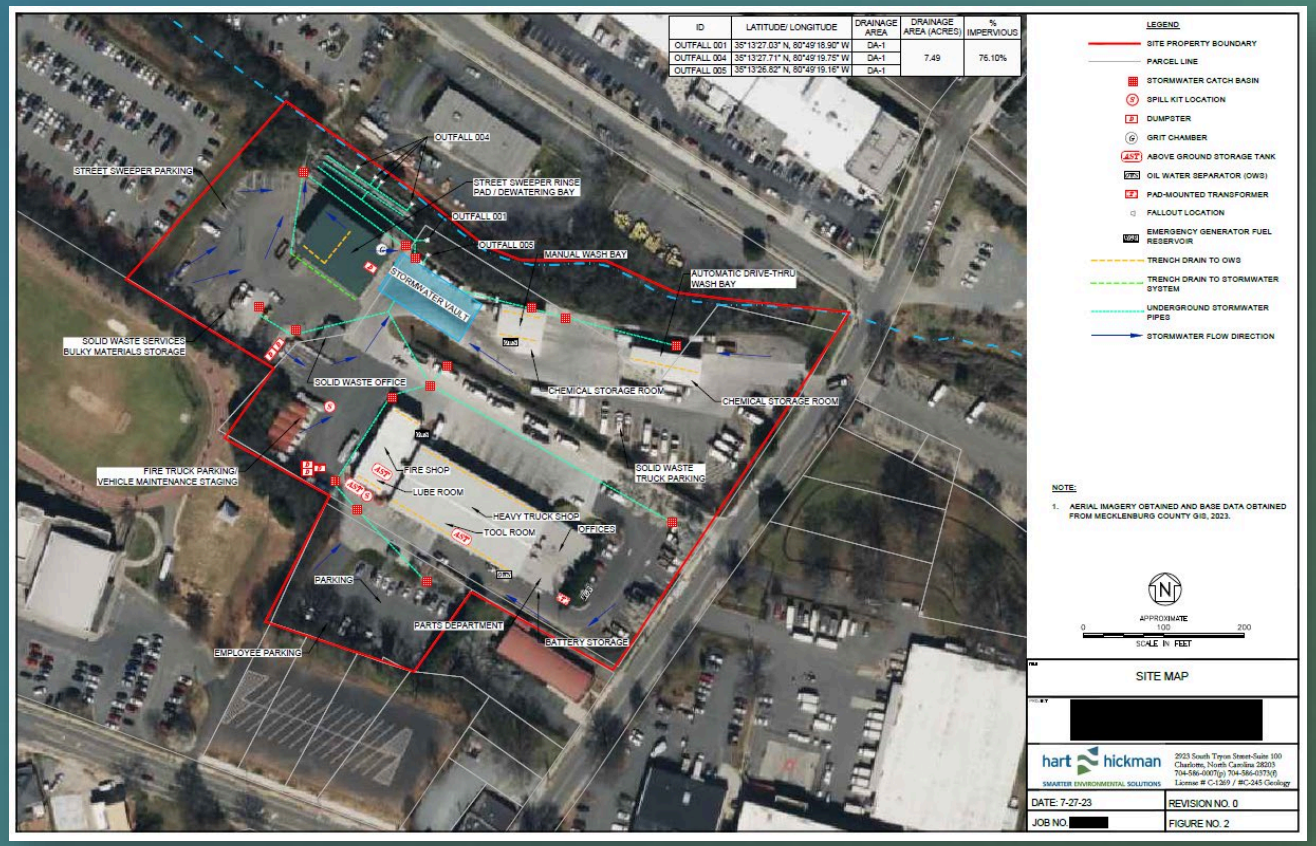
# Site Map

- Property boundary
- Site topography
- Buildings, roads, parking areas
- Industrial activity areas
- Outfalls w/ coordinates
- Drainage areas w/ impervious %
- Stormwater Control Measures (SCMs)
- Stormwater collection/drainage features, structures, and direction of flow
- On-site and adjacent surface waters and wetlands
- Graphic scale and north arrow

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# Industrial Processes Description

- Storage practices
- Loading and unloading activities
- Outdoor process areas
- Dust or particulate generating and control processes
- Waste disposal practices
- List of potential pollutants that could be expected to be present in stormwater discharge for each outfall

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# Feasibility Study

- Review of technical and economic feasibility of changing methods or operation or storage practices to eliminate or reduce exposure of materials and processes to rainfall and runoff
- Where practical, prevent exposure of storage areas and industrial operations
- Where elimination of exposure is not practical, evaluate the feasibility of diverting stormwater away from potential contamination

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# Outfall Evaluation

- Annually certify that no non-stormwater discharges are present
- If non-stormwater discharges are present, identify the source and record whether the discharge is otherwise permitted by rule or a different permit
- Allowable non-stormwater discharges
  - Authorized discharges under a non-stormwater NPDES permit
  - Uncontaminated groundwater, foundation drains, air conditioner condensate without added chemicals, springs, discharges of uncontaminated potable water, waterline and fire hydrant flushings, water from footing drains, irrigation waters, flows from riparian habitats and wetlands
  - Discharges resulting from fire-fighting or emergency shower or eye wash as a result of use in the event of an emergency

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# BMP Summary

- Best Management Practices (BMPs): Measures or practices used to reduce the amount of pollution entering surface waters. BMPs may take the form of a process, activity, or physical structure.
- Written record of the specific rational for installation and implementation of the selected site BMPs
- Structural and nonstructural practices to minimize the exposure and transport of materials in stormwater
- BMPs for vehicle maintenance activities
- Reviewed and updated annually

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# Secondary Containment Plan

- Required for bulk storage of liquid materials including petroleum products; storage in any amount of water priority chemicals listed in Section 313 of Title III of the Superfund Amendments and Reauthorization Act (SARA); and storage of hazardous substances in any amount.
  - A table or summary of tanks and stored materials equipped with secondary containment systems;
  - Manually activated valves or other similar devices that are securely closed with a locking mechanism if the secondary containment devices are connected to stormwater conveyance system;
  - A commitment to visually observe any accumulated stormwater prior to release for color, foam, outfall staining, visible sheens, and dry weather flow; and
  - Records on every release from a secondary containment system that include: the individual making the observation, a description of the accumulated stormwater, and the date and time of the release. These records shall be kept for a period of five (5) years.

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# Spill Prevention and Response Procedures (SPRP)

- An assessment of areas of the facility where there is the potential for spills;
- A list of trained facility personnel responsible for implementing the SPRP;
- A signed and dated acknowledgement in which staff members accept responsibilities for the SPRP;
- An inventory of spill response materials and equipment and the locations for storing these items;
- Written procedures for proper cleanup and disposal of spilled materials; and
- A list of significant spills or leaks of pollutants that have occurred during the previous three (3) years and any corrective actions taken to mitigate spill impacts or the notation that no spills have occurred. This list shall be updated on annual basis.


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# Solvent Management Plan

- an annually updated and quantified inventory of solvents present on site during the previous three years;
- a narrative description of the facility locations and uses of solvents;
- the method of disposal, including quantities disposed on-site and off-site; and
- the management procedures and engineering measures for assuring that solvents do not spill or leak into stormwater.
- If solvents are not stored or used onsite, the owner must certify that in the SWPPP. The Division may at its discretion require submittal, review, and approval of the SMP.


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# Preventative Maintenance and Good Housekeeping Program

- A schedule of inspections, maintenance, and housekeeping measures for industrial activity areas including, at a minimum, all material storage and handling areas, disposal areas, process areas, loading and unloading areas, haul roads, and vehicle maintenance areas.  Inspections shall occur at a minimum on a quarterly schedule (January-March, April-June, July-September, October-December).
- A plan for disposing spent lubricants and fuels properly and in accordance with applicable federal disposal regulations.
- A record of inspections, maintenance, and housekeeping activities.

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# Employee Training

- General stormwater awareness;
- The provisions of the current general permit;
- Spill response training;
- Used oil management;
- Spent solvent management;
- Secondary containment releases;
- Fueling procedure;
- Process water vs. stormwater;
- Disposal of spent abrasives;
- Sanding, painting, and blasting procedures, and
- Used battery management.


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# Representative Outfall Status

- Multiple discharge locations with substantially identical stormwater discharges
- Submit ROS request
- DEQ site visit
- Analytical sampling requirements may be performed at a reduced number of outfalls
- May also apply to qualitative monitoring, if requested
- Notify the Division of any site or activity modifications that result in a change to ROS
- Request reissuance of ROS prior to the expiration the General Permit to maintain ROS.

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# Devices Exempt from Analytical Monitoring

- Request a device be exempted from analytical monitoring based on as-built plans, Engineer's Certification, design calculations, and approved construction drawings.
- Exemption from analytical monitoring is contingent on Regional Office approval.

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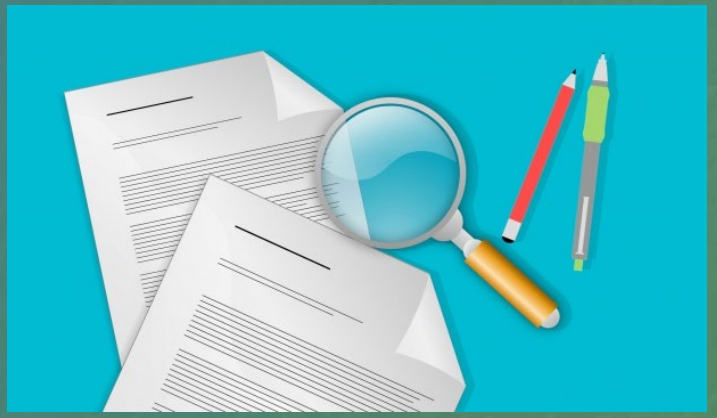
# Annual SWPPP Review and Update

- Review and update SWPPP on an annual basis.
- Amend the SWPPP whenever there is a change in design, construction, operation, site drainage, maintenance, or configuration of the physical features which may have a significant effect on the potential for the discharge of pollutants to surface waters.
- Update shall include a review and comparison of sample analytical data to benchmark values (if applicable) over the past year, including a discussion about Tiered Response status.
- Annual Summary Data Monitoring Report (DMR) form
- Annual On-Line SWPPP Certification (Forthcoming)



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# Qualitative Monitoring

- Concurrently with Analytical Monitoring during "measurable storm event"
  - Actual discharge
  - Previous discharge was 72 hours prior
- Visually monitor for:
  - Color
  - Odor
  - Clarity
  - Floating Solids
  - Suspended Solids
  - Foam
  - Oil Sheen
  - Erosion or deposition at the outfall
  - Other obvious indicators of stormwater pollution
- Investigate and implement corrective actions if issues identified within 60 days

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# Analytical Monitoring

- Each outfall receiving stormwater from industrial areas
- Sample collected within first 30 minutes of discharge
- Parameters dependent on General Permit (rainfall, pH, COD, TSS, metals, oil & grease, etc.)
- Quarterly (most permits)
- Track motor and hydraulic oil usage for vehicle maintenance (some permits)
- Benchmark exceedances are not violations
- Exceedances require a tiered response

| Parameter Code | Parameter | Receiving Stream Classification(s) | Units | Benchmark |
|---|---|---|---|---|
| CO530 | Total Suspended Solids (TSS) | All, except ... | mg/L | 100 |
| | | HQW, ORW, Tr, PNA | mg/L | 50 |
| 00400 | pH[1] | Freshwater | Standard | 6.0-9.0 |
| | | Saltwater | Standard | 6.8-8.5 |
| 01027 | Cadmium, Total (as Cd) | All, except... | mg/L | 0.003 |
| | | Tr | mg/L | 0.002 |
| CO034 | Chromium III, Total Recoverable (as Cr) | Freshwater | mg/L | 0.905 |
| | | Saltwater | mg/L | none |
| 01051 | Lead, Total Recoverable (as Pb) | Freshwater | mg/L | 0.075 |
| | | Saltwater | mg/L | 0.22 |
| 46529 | Total Rainfall of Sampled Event | - | Inches | - |
| **For vehicle or equipment maintenance areas in which more than 55 Gallons of motor oil and/or hydraulic oil is used per month when averaged over the calendar year.** | | | | |
| 552 | Non Polar Oil & Grease per EPA Method 1664 SGT-HEM | All | mg/L | 15 |
| NCOIL | Average Monthly Oil Usage at the Facility | - | Gallons/month | - |

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# Tier One Response: Single Benchmark Exceedance

- Remain in Tier One status until three consecutive samples are under the benchmark or are inside the benchmark range for all parameters.
- Document exceedance and response in SWPPP
- Within 2 weeks:
  - Notify Regional Office
  - Conduct stormwater management inspection
  - Identify and evaluate possible causes
- Within 1 month:
  - Select feasible courses of action to reduce concentrations of parameters of concern (Source controls, operational controls, or physical improvements)
- Within 2 months:
  - Implement actions

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# Tier Two Response: Two Consecutive Benchmark Exceedances

- Remain in Tier Two status until three consecutive samples are under the benchmark or are inside the benchmark range for all parameters.
- Document exceedance and response in SWPPP
- Within 2 weeks:
  - Notify Regional Office
  - Conduct stormwater management inspection
  - Identify and evaluate possible causes
- Within 1 month:
  - Select feasible courses of action to reduce concentrations of parameters of concern (Source controls, operational controls, or physical improvements)
- Within 2 months:
  - Implement actions
  - Implement monthly monitoring at every outfall that triggered a Tier Two response for **all parameters** until three samples in a row are below the benchmark value

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# Tier Three Response: Four Benchmark Exceedances Within the Permit Term

- Remain in Tier Three status until three consecutive samples are under the benchmark or are inside the benchmark range for all parameters.
- Document exceedance and response in SWPPP
- Implement or continue monthly monitoring for **all parameters** at subject outfall
- Within 2 weeks:
  - Notify Regional Office
  - Conduct stormwater management inspection
  - Identify and evaluate possible causes
- Within 1 month:
  - Prepare Action Plan and submit to Regional Office
- Implement Action Plan upon approval from DEQ
- Notify DEQ once Action Plan is complete

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# Action Plan

- Documentation of the four benchmark exceedances,
- An inspection report that covers the industrial activities within the drainage area of the outfall with the exceedances (including the date of the inspection and the personnel conducting the inspection),
- An evaluation of standard operating procedures and good housekeeping procedures,
- Identification of the source(s) of exceedances,
- Specific actions that will be taken to remedy the identified source(s) with a schedule for completing those actions, and
- A monitoring plan to verify that the Action Plan has addressed the source(s).


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# Tiered Relief

- Evaluation of background sources (Upgradient, off-site sources)
- Building material sources
- All feasible actions taken
- Case-by-case basis


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# Discharge Monitoring Report

- Due 30 days after monitoring period ends
- Submittal through eDMR
- Multiple permission levels
  - Owner
  - Facility Administrator
  - Data Entry
  - View Only
- No flow during monitoring period requires DMR submittal
- User Manual

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# Other Occurrences That Must Be Reported

- Visible sediment deposition in a stream or wetland
- Oil spills:
  - >25 gallons
  - <25 gallons but cannot be cleaned up within 24 hours
  - Cause a sheen on surface water
  - Are within 100 ft of surface water
- Release of hazardous substance >reportable quantity
- Anticipated or unanticipated bypass
- Noncompliance with the conditions of permit that may endanger health or the environment
- 24 hour notification required with follow up report within 7 days (depending on the occurrence)

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# Suggestions

- Pursue No Exposure whenever possible
- Pursue Representative Outfall Status
- Review/Update SWPPP routinely
- Train and get “Buy-In” from employees
- Address benchmark exceedances immediately
  - Evaluate potential background sources, building material sources, onsite sources, and tiered relief options


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# Example Project

- Metals Benchmark Exceedances (Zinc, Lead, and Copper)
- Background and Building Material Sampling (Road Runoff, Roof Drains, and Rainfall)


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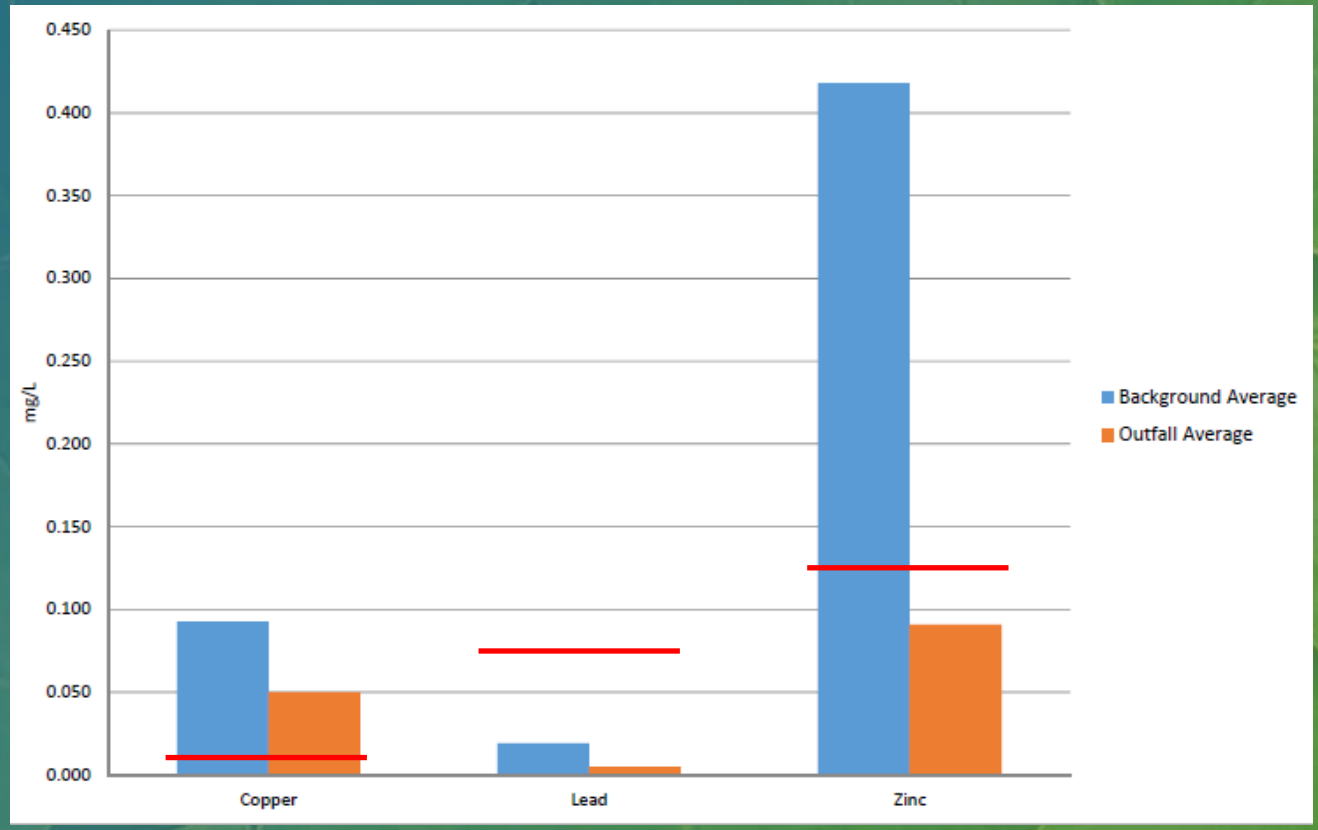
# Results

- Elevated metals in all samples including rainfall
- Metals identified in runoff from roof material including whitening coating and galvanized building materials
- Justified Tiered Relief following a DEQ site visit
- ROS granted due to certain outfalls comingled with stormwater from off-site sources




0.010 (Cu) 0.075 (Pb) 0.126 (Zn)

Benchmark Values (mg/L)

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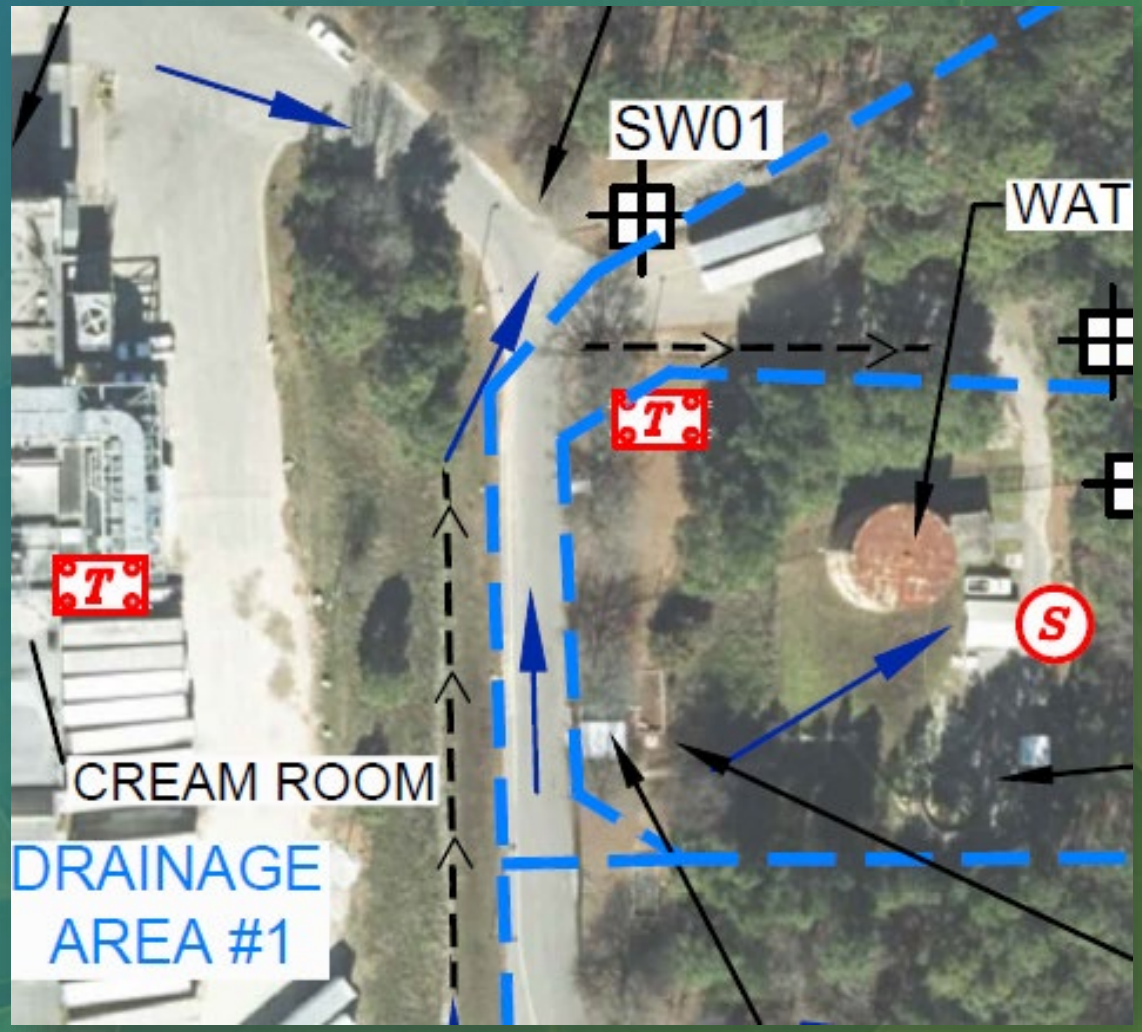
# Example Project

- Chemical Oxygen Demand (COD) Benchmark Exceedances
- Improved housekeeping (spilled flour/food waste; bakery exhaust potential sources)
- Cleaned biological growth from outfall and stormwater conveyance
- Higher results in hotter months
- Upgradient sampling including condensate

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# Results

- Elevated COD from condensate drains from HVAC units on the roof
- Connected to onsite wastewater pretreatment system
- COD levels improved until another elevated result
- Determined that cooling tower cleaning contributed to elevated COD
- Connected to onsite wastewater pretreatment system

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# Example Project

- Charlotte-Mecklenburg Storm Water Services visited the site, took a stormwater sample, and recommended a stormwater permit
- Exceedances of benchmark values for pH, copper, and zinc
- H&H visited the site and identified solutions to qualify for No Exposure Certification
- NEC granted

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# Smarter Environmental Solutions

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DEQ Industrial Stormwater Website