



Industrial User's Training Part 2

- Inspections - Part 4 of the Industrial General Permit
- Monitoring - Part 6 of the Industrial General Permit



Who Needs to Perform Inspections?

- If you have permit coverage under the IGP, you are required to inspect your facility on a regular basis.
 - Exceptions for inactive or unstaffed facilities for Routine and Quarterly Visual – Must be properly substantiated & documented in SWPPP, see permit for specific requirements
- Types of Inspections:
 - Routine Facility Inspections
Part 4.1
 - Quarterly Visual Assessments
Part 4.2
 - Comprehensive Site Inspections
Part 4.3





Routine Facility Inspections

(IGP Part 4.1)

Must be conducted

- At least quarterly (i.e., once each calendar quarter)
- When the facility is in operation (normal business hours)
- In all areas of the facility where materials or activities are exposed to storm water
- By qualified personnel and at least one member of the storm water pollution prevention team
- At least once per year it must take place during a period when storm water discharge is occurring (during a rain event)
- Exceptions for unstaffed and inactive sites apply - see the IGP for additional information



Documenting Routine Facility Inspections



- Findings of each inspection must be documented and maintained onsite with the SWPPP
- At minimum, the facility inspection form must include:
 - Inspection date and time
 - Name(s) and signature(s) of the inspector(s)
 - Weather & description of any discharges occurring
 - Previously unidentified discharges of pollutants from the site
 - Control measures needing maintenance or repair
 - Failed control measures that need replacement
 - Incidents of non-compliance observed
 - Additional control measures needed to maintain compliance with permit requirements

DHEC/EPA Inspection Forms

 NPDES Storm Water Construction Compliance Inspection Report (For Sites Covered Under CGP SCR10000)	Permittee Inspection Report Primary Secondary
Project Name: Permit #: Permittee Name: Permittee Address: Inspection Date/Time:	Inspector name and title: Qualifications: Contact #: Last Inspection Date: Weather during inspection:

Section 1:
*For each question below, mark the corresponding box: Yes, No, N/A. For all items marked "No", note Ref letter, and provide the Corrective action and Location of the deficiency, the original date noted, and the date it was corrected. For all items marked N/A, provide an explanation as to why this question is not applicable to your project.
 NOTE: Ref letters may be used multiple times for different corrective actions and locations.*

Ref	Storm Water Plans and Related Documents	Yes	No	N/A
A	Is coverage letter, NOI, approvals, certifications, and a copy of the NPDES Construction General Permit (CGP) on site? (Readily available electronic copy of CGP acceptable) 3.1.1.H.V.			
B	Is the OS-SWPPP available on site or is its location posted as required? 3.1.6.			
C	Is there a rain gauge on site (or appropriate alternative) and are results being logged as required? 3.1.1.H.V.h. & 4.2.D.			
D	Are previous inspection reports on site and being conducted once every calendar week? 3.1.1.H.H. & 4.2.B.			
E	Does the OS-SWPPP match the current site conditions and are all BMPs identified? 3.1.1.H.III.			
F	Have all areas of the site that are disturbed or used for storage of materials exposed to precipitation been inspected? 4.2.A.I.			
G	Is the construction sequence being followed? 3.1.1.E. & 3.2.3.			

Ref	Corrective Actions and Locations 4.2.F.	Date Inspected	Date Corrected

DHEC 0496 (03/2013)

[illegible]

<http://www.scdhec.gov/Environment/WaterQuality/Stormwater/ApplicationsForms/>

<https://www3.epa.gov/npdes/pubs/3510-2F.pdf>



Quarterly Visual Assessments

(IGP Part 4.1)

- **Once each quarter collect a storm water sample from each outfall and conduct a visual assessment of each sample**
- **Collect samples in such a manner that they are representative of the discharge**
- **Sampling must occur during the site's normal business hours**
- **Collect the sample in a clean, clear glass or plastic container and examine in a well lit area – if possible document with photos**
- **Samples must be collected within the first 30 minutes of actual discharge from the storm event or as soon as practicable. If taken beyond the first 30 minutes of discharge, document why sample collection wasn't possible within the first 30 minutes**



Quarterly Visual Assessment

Visually inspect the samples for:

- Color
- Foam
- Odor
- Oil Sheen
- Clarity
- Floating Solids
- Settled Solids
- Suspended Solids
- Other obvious indicators of pollution





Quarterly Visual Assessment Documentation

At minimum, document the following:

- Sample location(s)**
- Sample collection date and time**
- Visual assessment date and time**
- Personnel collecting the sample and performing the visual assessment, and their signatures**
- Nature of the discharge (rainfall runoff or snow melt)**
- Amount of precipitation**
- Results of the observations of the discharge**
- Probable sources of any observed contamination**
- And why, if applicable, it was not possible to take samples within the first 30 minutes of discharge**



Comprehensive Site Inspections

(IGP Part 4.3)

- **Must be conducted once during each calendar year**
- **Must be conducted by qualified personnel and at least one member the storm water pollution prevention team**
- **Must include a review of any monitoring data collected – document any conclusions/analysis**
- **Must consider results of the past year's visual and analytical monitoring**
- **Must cover all areas of the facility covered under the permit including:**
 - **Areas identified as potential pollutant sources**
 - **Where industrial activities or materials are exposed to storm water**
 - **Any areas used to comply with effluent limits**
 - **Areas where spills or leaks have occurred in the past 3 years**



Comprehensive Site Inspection - Continued

Inspection must examine the following:

- Industrial materials, residue or trash that may have or could come into contact with storm water
- Leaks or spills from industrial equipment, drums, tanks and other containers
- Offsite tracking of industrial or waste materials or sediment where vehicles enter/exit the site
- Tracking or blowing of raw, final or waste materials from areas of no exposure to exposed areas
- Control measures needing maintenance, repair or replacement
- All outside facility areas, however, they should also include interior areas where materials could exit buildings





Comprehensive Site Inspection - Continued

- Review the most up-to-date SCDHEC TMDL list (www.scdhec.gov/tmdl). Also refer to DHEC's Online Water Quality Tool for updated TMDL and impairment information (<http://gisweb00.dhec.sc.gov/water/Stormwater.html?mode=1>)
- Documentation of this review must be kept with the SWPPP
- Observe storm water control measures to ensure they are functioning properly
- The Comprehensive Site Inspection may be used as one of the Routine Inspections as long as all the components of both are included





Comprehensive Site Inspection Documentation

- **Date of inspection (IGP Part 4.3)**
- **Name(s) and title(s) of personnel making the inspection**
- **Observations related to the implementation of control measures**
 - Previously unidentified discharges
 - Previously unidentified pollutants in existing discharges
 - Evidence of, or potential for, pollutants to enter the facilities drainage system
 - Evidence of pollutants discharging to receiving waters and condition of and around outfalls including flow dissipation measures to reduce scour
 - Additional control measures needed to address conditions requiring corrective actions
- **Any required revisions to the SWPPP**
- **Any incidents of non-compliance observed or a certification stating the facility is in compliance**
- **A signed, certified statement in accordance with Appendix B, S.C. R.61-9.122.22 of the permit**



Inspection Document

 NPDES Storm Water Construction Compliance Inspection Report (For Sites Covered Under CGP SCR10000)		Permittee Inspection Report		
		Primary	Secondary	
Project Name:		Inspector name and title:		
Permit #:		Qualifications:		
Permittee Name:		Contact #:		
Permittee Address:		Last Inspection Date:		
Inspection Date/Time:		Weather during inspection:		
Section 1: For each question below, mark the corresponding box: Yes, No, N/A. For all items marked "No", note Ref letter, and provide the Corrective action and Location of the deficiency, the original date noted, and the date it was corrected. For all items marked N/A, provide an explanation as to why this question is not applicable to your project. NOTE: Ref letters may be used multiple times for different corrective actions and locations.				
Ref	Storm Water Plans and Related Documents	Yes	No	N/A
A	Is coverage letter, NOI, approvals, certifications, and a copy of the NPDES Construction General Permit (CGP) on site? (Readily available electronic copy of CGP acceptable) 3.1.1.H.V.			
B	Is the OS-SWPPP available on site or is its location posted as required? 3.1.6.			
C	Is there a rain gauge on site (or appropriate alternative) and are results being logged as required? 3.1.1.H.V.h. & 4.2.D.			
D	Are previous inspection reports on site and being conducted once every calendar week? 3.1.1.H.H. & 4.2.B.			
E	Does the OS-SWPPP match the current site conditions and are all BMPs identified? 3.1.1.H.III.			
F	Have all areas of the site that are disturbed or used for storage of materials exposed to precipitation been inspected? 4.2.A.i.			
G	Is the construction sequence being followed? 3.1.1.E. & 3.2.3.			
Ref	Corrective Actions and Locations 4.2.F.	Date Inspected	Date Corrected	

DHEC 0496 (03/2013)

<http://www.scdhec.gov/Environment/WaterQuality/Stormwater/ApplicationsForms/>



Who Needs to Perform Storm Water Monitoring

(IGP Part 6)

- The facility's SIC code will determine which sector requirements apply and which types of sampling are required. Refer to Part 8- Sector Specific Requirements for Industrial Activity for more information
- The permit requires specific types of analytical monitoring which may include:
 - Quarterly Benchmark Monitoring (IGP Part 6.2.1)
 - Annual Effluent Limitations Guidelines Monitoring (IGP Part 6.2.2)
 - Impaired Waters Monitoring (IGP Part 6.2.4)
 - Additional Monitoring as Required by SCDHEC (IGP Part 6.2.5)

It is up to you to verify your facilities sampling requirements.



General Monitoring Guidelines

- Sampling must be performed on a storm event that results in actual discharge (measureable storm event) that follows the preceding measureable storm event by at least 72 hours
- For each monitoring event, identify the date and duration of the rain event, rainfall total for the event, and time since the previous measureable storm event (or absence of measureable precipitation in the previous 3 days)
- Sample within first 30 minutes of discharge or as soon as practicable and document in SWPPP why samples were taken outside of the 30 minute window
- Document in the SWPPP any substitute sampling due to adverse weather conditions





Before Monitoring Begins...

SC Department of Health and Environmental Control
Water Quality Information

Please enter an address to locate site

Street

City State SC

Zip Code

If the site is correctly located,
Click to open Water Information Report and automatically zoom to the watershed of interest.
⚠️ Note: Site can be relocated later if needed.
If address tool is used to relocate, please close Water Quality form before entering the new address.

Locate your facility online using DHEC's online Water Quality (NOI) tool. It can be found at:
<https://gis.dhec.sc.gov/water/Stormwater.html>

This tool will walk you through the steps to locate your facility, determine which water body the site drains to, and locate impaired or TMDL listed waterways which would trigger sampling

Map Legend

Map Layer	Map Symbol
☐ Monitoring Stations	
☐ TMDL Stations	
☐ Watersheds (10 Digits Hydrologic Units)	
☐ Coastal Critical Area	
☐ MS4 Designation	
☐ TMDL Watershed	
☐ 319 Project Area	
☒ Selected Monitoring Stations	
☐ Streams*	
* Grayed out until mid-level of full zoom	
Location Searched	
Location Accepted	



Required Monitoring

Benchmark Monitoring (IGP Part 6.2.1)

- **Must monitor for any benchmark parameters specified for the sector(s), both primary industrial activity and any co-located industrial activities**
- **Refer to Part 8 of the IGP to determine if this is necessary for your facility**
- **Serves as a tool to determine the overall effectiveness of the facility's storm water control measures**
- **Conducted quarterly for the first 4 full quarters of permit coverage**
- **After 4 quarters, if the average of the 4 values for any parameter doesn't exceed the benchmark value, sampling can be discontinued.**

This documentation must be included in the SWPPP

- **If the average exceeds the benchmark value, refer to Part 6.2.1.2b for requirements**



Required Monitoring

Effluent Limitations Monitoring (IGP Part 6.2.2)

- **Only required for specific sectors; refer to Part 8 of the IGP to see if your facility has effluent limits**
- **Monitor once per year at each outfall containing the discharges identified in the following table, for the parameters specified in Part 8 of the permit**
- **Must be submitted to SCDHEC per IGP Part 7.1**
- **Exceedences must be reported to SCDHEC within 30 days of receiving test results in an exceedance report per IGP Part 7.3**
- **Submit Reports to: SCDHEC**

**Bureau of Water/Water Pollution Compliance & Enforcement
2600 Bull Street
Columbia, SC 29201**



Greenville County NPDES Phase I Storm Water MS4 Permit

Table 6-1. Required Monitoring for Effluent Limits Based on Effluent Limitations Guidelines

Regulated Activity	Effluent Limit	Monitoring Frequency	Sample Type
Discharges resulting from spray down or intentional wetting of logs at wet deck storage areas	See Part 8.A.7	1/year	Grab
Runoff from phosphate fertilizer manufacturing facilities that comes into contact with any raw materials, finished product, by-products or waste products (SIC 2874)	See Part 8.C.4	1/year	Grab
Runoff from asphalt emulsion facilities	See Part 8.D.4	1/year	Grab
Runoff from material storage piles at cement manufacturing facilities	See Part 8.E.5	1/year	Grab
Runoff from hazardous waste landfills	See Part 8.K.6	1/year	Grab
Runoff from non-hazardous waste landfills	See Part 8.L.10	1/year	Grab
Runoff from coal storage piles at steam electric generating facilities	See Part 8.O.8	1/year	Grab
Runoff containing urea from airfield pavement deicing at existing and new primary airports with 1,000 or more annual non-propeller aircraft departures	See Part 8.S.7	1/year	Grab



Required Monitoring

Impaired Waters Monitoring (IGP Part 6.2.4)

- If the impaired waters have an approved TMDL or are listed on the latest 303d list - check yearly at comprehensive site inspection/SWPPP review, using online SCDHEC Water Quality Tool
- If the facility discharges to an impaired water, monitor for all pollutants for which the water is impaired
- If the impairment is for suspended solids, turbidity or sediment, you must monitor for total suspended solids (TSS)
- If an indicator parameter is listed in the impairment, you must monitor for that parameter with some exceptions:
 - Bio impairments - sampling is not necessary until an approved TMDL is issued stating a pollutant of concern
 - No sampling required for dissolved oxygen (DO) impairments without approved TMDL with DO below the stream standard
 - Mercury or Polychlorinated biphenyl (PCB) is the pollutant of concern - no sampling is necessary



Monitoring Schedule

If the waterway is impaired but does not have an approved or established TMDL (Listed on the 303d list):

- **Monitor once per year at each outfall discharging storm water for the pollutant of concern**
- **Pollutant of concern is not detected above natural background levels after 1 year of monitoring and is not expected to be present - document in SWPPP per permit requirements and may discontinue monitoring**

If the waterway is impaired and has an approved or established TMDL:

- **Monitoring must be conducted to demonstrate that the discharge is not causing or contributing to the TMDL**
- **Sampling must be completed at least 4 times per year**
- **Work towards achieving the pollutant reduction in TMDL**
- **If in the first year all 4 samples fall below detection limits monitoring for that pollutant may be discontinued**



Be Prepared!

Items you may need:

- Sampling kit (from laboratory)
- Gloves and eye protection
- Preservatives and pH indicator paper or pH meter
- Rain gauge
- Pens, sharpies (waterproof)
- Rain Gear
- Light source
- Wet ice
- Sample pole





Field Preservation Confirmation

- Use a good quality pH indicator paper with a pH range of 1-14
- Test sample after adding preservative
- Compare strip to pH range indicator
- Document





Required Containers, Preservation, & Holding Times – Verify with Lab

Parameter	Container	Preservation	Holding Time
Fecal Coliform	Plastic, Glass sterile	Cool, 4°C ; 0.008% Na ₂ S ₂ O ₃ if residual chlorine present	6 hours
Fecal Streptococci	Plastic, Glass sterile	Cool, 4°C ; 0.008% Na ₂ S ₂ O ₃ if residual chlorine present	6 hours
Oil and Grease	Glass with teflon lid	Cool, 4°C; HCl to pH <2; Collect sample directly in container	28 days
pH	Plastic, Glass	None required	Analyze immediately
Total Phenolics	Glass	Cool, 4°C; H ₂ SO ₄ to pH < 2; residual chlorine must be removed with ferrous ammonium sulfate before pH adjustment	28 days
Temperature	Plastic, Glass	None required	Analyze immediately
Residual Chlorine	Plastic, Glass	None required	Analyze immediately
Cyanide	Plastic, Glass	Cool, 4°C; NaOH to pH > 12; 0.6 g Ascorbic acid if residual chlorine present	14 days
Total Suspended Solids	Plastic, Glass	Cool, 4°C	7 days
Total Dissolved Solids	Plastic, Glass	Cool, 4°C	7 days
Chemical Oxygen Demand	Plastic, Glass	Cool, 4°C; H ₂ SO ₄ to pH <2	28 days
Biochemical Oxygen Demand	Plastic, Glass	Cool, 4°C	48 hours
Total Kjeldahl Nitrogen	Plastic, Glass	Cool, 4°C; H ₂ SO ₄ to pH <2	
Nitrate	Plastic, Glass	Cool, 4°C	48 hours
Nitrite	Plastic, Glass	Cool, 4°C	48 hours
Dissolved Phosphorus	Plastic, Glass	Cool, 4°C; H ₂ SO ₄ to pH <2 after filtration	28 days
Ammonia Nitrogen	Plastic, Glass	Cool, 4°C; H ₂ SO ₄ to pH <2	28 days
Total Phosphorus	Plastic, Glass	Cool, 4°C; H ₂ SO ₄ to pH <2	28 days
Volatile Organics	Glass, teflon lined septum	Cool, 4°C; HCl to pH <2; 0.008% Na ₂ S ₂ O ₃ if residual chlorine present	14 days
Acid / Base Neutrals	Glass	Cool, 4°C; 0.008% Na ₂ S ₂ O ₃ if residual chlorine present	7 days until extraction; 40 days after extraction
Pesticides	Glass	Cool, 4°C; pH 5-9; 0.008% Na ₂ S ₂ O ₃ if residual chlorine present; store in dark	
Metals (except Mercury)	Plastic, Glass	HNO ₃ to pH <2	6 months
Mercury	Plastic, Glass	HNO ₃ to pH <2	28 days



Greenville County NPDES Phase I Storm Water MS4 Permit





Sample Labeling

- Proper labeling of each sampling container is essential
- Use a waterproof label (usually supplied by the laboratory) and a pen with waterproof ink

The form is a white rectangular label with red text and lines. It contains the following fields and information:

- Logo:** A red square logo with a stylized 'G' and a building.
- Company Name:** ROGERS & CALLCOTT ENGINEERS, INC.
- Address:** 718 Lowndes Hill Road, Greenville, SC 29607
- Phone:** (864) 232-1556
- FAX:** (864) 233-9058
- PRESERVATIVE (CIRCLE):** NONE, HAOH, HNO3, H2SO4
- OTHER:** _____
- PROJECT # (CLIENT):** _____
- SAMPLE ID:** _____
- DATE/TIME:** _____
- COLLECTOR:** _____
- TYPE (CIRCLE):** GRAB, COMP, FILTERED, OTHER, _____
- ANALYZE FOR:** _____
- LABORATORY#:** _____



R/C COC FORM



Questions about Monitoring??

- Review the Industrial General Permit
- If you are required to monitor you may want to contact a qualified lab to assist you with your sampling
- Contact SCDHEC Bureau of Water



End of Part 2

To determine how much you learned and to document the completion of this training module, please complete Quiz 2.