

Benchmark Monitoring Plan & Visual Assessment Procedures Template
State of Michigan Industrial Storm Water Program



Water Resources Division
DEQ Environmental Assistance Center 800-662-9278
www.michigan.gov/deq

The intent of this compliance assistance document is to provide a template that permittees can use to develop a Benchmark Monitoring Plan and Visual Assessment Procedures that meet the conditions of the storm water permit associated with special use areas. This document and other compliance assistance documents can be found at the DEQ, WRD Industrial Storm Water website www.mi.gov/deqstormwater (then click on INDUSTRIAL STORM WATER PROGRAM).

Section 1: General Information

Facility Name: **Keith's Metal Recycling LLC**

NPDES COC or Permit No. & Issuance Date: **MIS123456 issued on 1/1/2017**

Facility Contact Information (Name, Phone Number, Email):

George Storm

616-213-3456

gstorm@gmail.com

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Section 2: Description of the Site

1. Check the type of industrial activity that applies: Auto Salvage, Metal Recycling, Both
 - a) Check the activity(s) that the facility engages in that generates metal particulates: Cutting, Shredding, Grinding, Smelting, Other (Describe: **NA**), or None
 - b) Check the metal particulates that the facility handles: Turnings, Grinding Sludges / Fines, Swarf, Other (Describe: **NA**), or None
2. Specify the facility's hours of operation: **8:00AM-5:00PM Monday through Saturday.**
3. Describe how the storm water is discharged from the facility (e.g. storm sewer pipes, ditches, overland (sheet) flow, etc.): **Catch basins located at our facility go to an onsite storm sewer that outlets into a detention basin. When water is high enough in the detention basin it discharges to Deer Creek through discharge point 001. Water in the front of the building sheet flows across the paved area to a catch basin in the street which we have designated as discharge point 002.**
4. What is the receiving waters listed on Certificate of Coverage (COC): **Deer Creek**

Section 3: Sample Collection, Frequency, and Handling

1. List the discharge point(s) (as indicated on the SWPPP site map): **001 and 002**
 - a) Is there substantially identical discharge points? Yes No (*Only applicable for visual assessments not benchmark monitoring. All discharge points will need to be monitored for 3 successive quarters to meet the benchmark monitoring requirements.*)
If "Yes" then complete a) and b) below, if "No" go to Number 2.
 - b) List the substantially identical discharge points: **NA**
Note the following:
 - *The determination of substantially identical storm water discharge points is to be based on the significant material evaluation in the SWPPP and should be clearly documented.*

- *Visual assessments shall be conducted on a rotating basis of each substantially identical storm water discharge point through the period of coverage under the permit.*
2. Describe the sampling location for each discharge point (e.g. end of pipe, catch basin prior to discharge, etc.): **For discharge point 001 the sample location is the detention basin outfall pipe. For discharge point 002 the sample location is the curb gutter upstream of the catch basin grate.**
 3. List the Industrial Storm Water Certified Operator(s) and / or Qualified Personnel that will collect the water sample(s): **George Storm (Industrial Storm Water Certified Operator) will be collecting the storm water samples.**
 - a) Training for the Industrial Storm Water Certified Operator(s) and / or Qualified Personnel includes viewing the 3 Visual Assessment tutorials on the DEQ, WRD Industrial Storm Water webpage. Check this box if true.
 - b) If not describe the equivalent training implemented: **NA**
 4. Indicate how the Industrial Storm Water Certified Operator(s) and / or Qualified Personnel will collect the storm water samples (consistent with DEQ guidance): auto sampler grab from surface of discharge grab from pipe discharge
 5. List the sampling equipment used for collecting the water sample(s) (e.g. rope and bucket, auto sampler, sampling pole, etc.): **A quart canning jar will be used to collect the sample from the detention basin discharge pipe (discharge point 001). Sample bottles provided by the lab will be used to collect the sample for the benchmark monitoring study. At discharge point 002, water will be collected with a clean plastic dust pan and transferred to a quart canning jar for the visual assessment and to the lab sample bottles for chemical analysis.**
 6. Describe how each discharge point was evaluated to determine when a discharge (suitable for collecting a sample) would begin during a qualifying storm event (or snowmelt event): **Water begins to flow into the street catch basin (discharge point 002) after about 0.1 inch of rain so this is the first discharge point that will be monitored. This flow can be observed from the office window. When the water appears to be flowing into the curb gutters of the street the certified operator will collect a sample from the curb gutter at the discharge point . The certified operator will then check the detention basin discharge pipe (discharge point 001) to see if it is discharging. Depending on the volume of water in the detention basin at the time of the rain, the timing of the discharge will vary significantly. The certified operator will monitor the depth of water in the detetion basin. A pole with depth measurements has been installed in the detention basin. When the water reaches the 4 foot mark the basin begins to discharge. When the water reaches a depth (4 foot mark) where it is likely to discharge, the certified operator will monitor it on 30 minute intervals and take a sample when it begins to discharge from the detention basin discharge pipe.**

Note the following:

 - *A qualifying storm event means a storm event causing greater than 0.1 inch of rainfall and occurring at least 72 hours after the previous measurable storm event that also caused greater than 0.1 inch of rainfall*
 - *Adverse conditions that would prohibit safe sampling conditions include local flooding, high winds, electrical storms, or situations that otherwise make sampling impractical such as drought or extended frozen conditions. If sampling does not occur because of adverse conditions documentation including rationale will be filed with the SWPPP.*
 7. Describe how the samples will be collected from multiple discharge points in order to collect all samples within 30 minutes after the start of the discharge (determine the timing sequence for water sample collection):
 - NA, only one discharge point

Yes, the site has multiple discharge points, describe: **For Rainfall events: The amount of rainfall will be monitored with a rain gauge which can be observed from the office window. When the rain gauge has reached the 0.1 inches of rainfall mark, the certified operator will go to discharge point 002 and collect the sample if there is a discharge at the monitoring point. Then the certified operator will proceed to discharge point 001 and check the water level in the detention basin. If it is close to the 4 foot mark (the depth when the discharge occurs) the certified operator will check the basin every 30 minutes and collect a sample if there is a discharge. For snowmelt events: The certified operator will check discharge point 002 at 2:00PM and if it is discharging a sample will be collected. If the ice level in the detention pond is at or above the 4 foot depth the certified operator will check the discharge point (001) to see if there is a discharge. If there is a discharge the certified operator will collect the sample from the monitor point for discharge point 001.**

8. Identify the quarter and calendar year the Benchmark Monitoring will commence: **The benchmark monitoring will begin in the 3rd quarter of 2017. Monitoring will continue until 3 successive quarters in which a qualifying storm event has occurred during the facility's hours of operation.**

Note the following:

- *Visual Assessments are required every quarter in which a qualifying storm event occurs.*
- *Benchmark Monitoring is required for 3 successive quarters in which a qualifying storm event occurs.*
- *Visual Assessments and Benchmark Monitoring shall occur within one month of the comprehensive site inspection.*

9. Described how observations made by the Industrial Storm Water Certified Operator(s) and / or Qualified Personnel (at each discharge point) will be documented during the discharge: **The time of the discharge will be recorded and a photo of the water discharging at the discharge point will be taken. This information will be used to fill out the visual assessment report form.**

10. Describe the sample storage procedures: **The collected samples for the visual assessment will be taken back to the office and analyzed within 30 minutes of collection by the certified operator. Samples that will be sent to the lab will be stored in a cooler with ice until they are shipped to the lab the next day.**

Section 4: Sample Analysis

1. Describe the procedures the Industrial Storm Water Certified Operator will follow to perform the Visual Assessment(s) of the water sample(s): **The samples will be taken to the office and observed against the east wall which is painted white. The samples will be photographed with the white wall as a background.**
2. List the name of the Industrial Storm Water Certified Operator(s) that will be performing the water sample Visual Assessment(s): **George Storm (Industrial Storm Water Certified Operator) will conduct the visual assessment of the collected samples.**
3. Provide information regarding the laboratory performing the chemical analysis for the Benchmark Monitoring: **The Green Lab located in Greenland , Mi will perform the chemical analysis.**
4. Indicate the receiving water hardness value from the COC: **205 mg/l**
5. Use the table below to identify the applicable Benchmark Monitoring Parameters that are required by the general permit and list the Benchmark Values according to the hardness value indicated on the COC. As a general rule the samples should be kept at approximately 4 degrees Celsius until delivered to the lab.

Benchmark Monitoring Parameter	EPA Method	Quantification Level	Holding Time From Collection	Benchmark Values According to Hardness
<input checked="" type="checkbox"/> Total Suspended Solids	160.2	10.0 mg/l	7 Days	100 mg/l
<input checked="" type="checkbox"/> Chemical Oxygen Demand	410.4	5.0 mg/l	28 Days	120 mg/l
<input checked="" type="checkbox"/> Total Copper	200.8	1.0 ug/l	180 Days	77 ug/l
<input checked="" type="checkbox"/> Total Lead	200.8	1.0 ug/l	180 Days	3100 ug/l
<input checked="" type="checkbox"/> Total Zinc	200.8	1.0 ug/l	180 Days	890 ug/l

Section 5: Data Evaluation & Documentation

- The DEQ, WRD Visual Assessment and Benchmark Monitoring Report Form should be used to document each water sample. Check this box if the DEQ, WRD report form is used.
 - If the DEQ, WRD report form is not used the alternate form being used to meet this requirement must be included with this document.*
- Colored photos shall be used to record the Visual Assessment and Benchmark Monitoring samples. If other methods of recording observations will be used describe those methods: NA or Describe: **NA**
- All Visual Assessment and Benchmark Monitoring documentation should be kept with the SWPPP file at the facility for at least 3 years. If documentation will be kept off site, identify the location: NA or Describe: **NA**
- Corrective actions if needed will be described on the DEQ, WRD Visual Assessment and Benchmark Monitoring Report Form. If other methods will be used describe those methods: NA or Describe: **NA**

The Benchmark Monitoring results will be evaluated as such:

- The first comparison will be made between each individual Benchmark Monitoring result and the Benchmark Monitoring Concentration. If any single metal sample result is **3 times higher** than the Benchmark Metal Concentration the following actions will be taken within 30 days of receiving the analytical results:*
 - Review all controls and develop a schedule for implementing corrective actions*
 - Submit a Benchmark Monitoring Report for review and approval to the department*
 - Continue sampling once approval is received*
- The second comparison will be made between the average of the 3 Benchmark Monitoring results and the Benchmark Monitoring concentration.*
 - If the average of 3 Benchmark Monitoring results **does not exceed** the Benchmark Concentration for that parameter the report will be submitted within 90 days of last sampling date.*
 - If the average of 3 Benchmark Monitoring results for any parameter **exceeds** the Benchmark Concentration for that parameter the report will be submitted within 90 days of last sampling date, then:*
 - Control measures will be reviewed to see if modifications are required*
 - Commence sampling 3 more quarters for only the parameters that exceeded the Benchmark Concentration*

Section 6: Reporting

- Approximate calendar quarter the Benchmark Monitoring will be completed: **The 2nd or 3rd quarter of 2018.**

2. Approximate calendar quarter the Benchmark Monitoring Report will be submitted to the department: **4th quarter of 2018.**

The Benchmark Monitoring Report will include:

- a) *All analytical results obtained during the course of the study, including actual quantification levels and any notations, and all sheets provided by the analyzing laboratory. If an alternative hardness value obtained through sampling was used in the metals data evaluation, analytical results for hardness shall be provided, as well.*
- b) *For the qualifying storm event that is sampled, the report will provide:*
 - *A written record of the qualifying storm event's date*
 - *A measurement or estimate of the rainfall*
- c) *The time (in days or hours) elapsed between the qualifying storm event sampled and the end-date of the previous qualifying storm event*
- d) *A summary of the data evaluation, including the hardness value used in the metals data evaluation;*
- e) *Written notification of any exceedances of Benchmark Concentrations*
- f) *A description of the response(s) made to the data evaluation, including any corrective actions considered necessary and a schedule for implementing them.*

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