For MNG490000 and the Multi-Sector MRO050000 Permits

Stormwater Sampling

Topics

- Benchmark MSGP vs. Intervention MNG49 Monitoring
- Locations
- Sampling
  - Types
  - Supplies
  - Techniques
  - Packaging
  - Manifesting
- SWMR/DMR reporting
- Annual reporting

Benchmark vs. Intervention Monitoring

- Similar
  - Parameters for Sector E facilities – 100 mg/l TSS and 1.0 mg/l Iron
  - Timing: first 30 min. of qualifying rain event
  - Rainfall events separated by 72 hours
  - Is below the most down-gradient BMP from the source of industrial activity or significant materials, but prior to discharging from the Permittee's operational control.
  - Minimizes or eliminates sampling of stormwater from off-site sources (run-on).
  - Yields a sample that best represents the contribution of pollutants the Permittee is required to monitor for in accordance with this permit and that receives discharge from an area of industrial activities, processes, and significant materials exposed to stormwater.
  - Sampling waivers can be applied

Benchmark vs. Intervention Monitoring

Differences

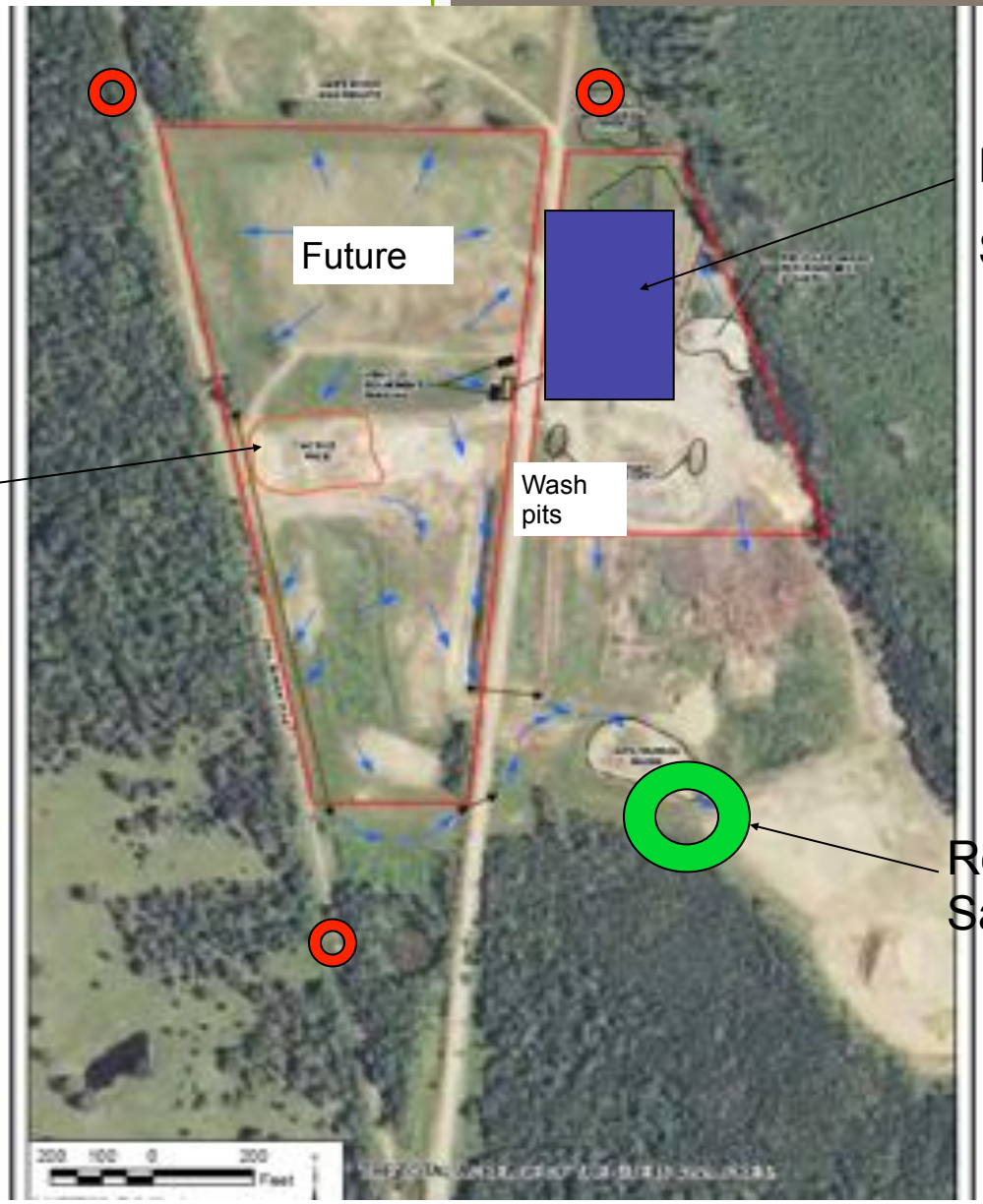
- Benchmark MSGP
  - Quarterly sampling
  - SWMR report quarterly
  - Proof of stormwater sampling waiver in SWPPP
- Intervention
  - Semi Annual sampling
  - Intervention monitoring reports due Jan 21
  - Proof of stormwater sampling waiver submitted to MPCA

Mine Dewatering

- Quarterly Sampling – when operating
- Quarterly Submittal
- Effluent limits (ENFORCABLE)

http://www.mo.nrcs.usda.gov/news/MOphotogallery/Watersheds/discharge%20pipe%201.jpg

Locations



Aggregate Mining Sector J

Ready – Mix Sector E

Representative Sample

Activities

Locations

- Representative
- Co-located activities
- Dewatering
- Co-mingling

Locations

Introduction

Ultimate goal:

- Sample represents the water body or discharge

Avoid:

- Bottom sediment
- Floating debris
- Stagnant water

Sample Collection

Procedures - Three Methods for Sampling & Monitoring:

1. Visual – Recording physical conditions of the water at a sample point

2. Direct – Sample is collected directly into the sample bottle

3. Indirect – Sample is collected with a device or container and then transferred into the sample bottle

Visual Monitoring – Direct Inspection

Oily Sheen

Foam

Discoloration

Floating Solids

Pre-Sample

Laboratory and Sample Coordination

- **Coordinate sample bottle delivery with the laboratory**
- **Pre populate Chain-of-Custody (some labs provide service)**
- **Expiration of preservatives**
- **Inspect and calibrate (pH) meters**
- **Cooler filled with Ice (Double/triple**

Sample

Quality Control – Decontamination

- All sampling devices must be cleaned prior to use at each sample location

Procedure:

1. Prepare a solution of non-phosphate detergent
2. Wash the device and remove visible residue
3. Thoroughly rinse with potable water
4. Only place on clean or plastic-

Equipment used to sample process wastewater or other industrial liquids should not be used to collect other samples

Sample

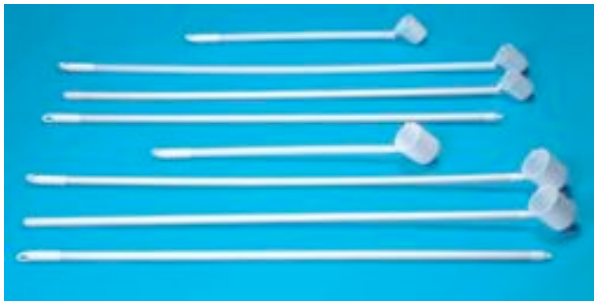
Quality Control – Gloves

- Wear new powder-free latex or nitrile gloves
- Change gloves between sample locations

Sample Collection

Procedure – Indirect Sampling

- Follow Direct Sampling procedure to fill transfer container
- Immediately transfer samples
- Slowly pour during transfer
- Avoid :
  - Overfilling,
  - losing preservative
  - transferring sediment or debris



Sample Collection

Procedures – Sheet Flow

- Example: Flow across a flat parking lot

- Sample collection goals:
  - Collect a representative sample of site discharge to surface water
    - Observe sheet flow to find a concentrated collection point
    - Use flat bottomed collection device (Milk Jug, etc.)

Sample

Procedures – Sample Collection

When filling sample bottles:

- Do not allow sample equipment to touch the sample bottle.
- For samples requiring "no headspace:"
  - Slowly fill the bottle and form a meniscus
  - Cap the bottle
  - Turn the bottle over and inspect for bubbles
  - Uncap and add additional sample if a bubble larger than a small pea is observed.

If the sample has been improperly collected, discard and start over

Sample

Field Information Form

- Document sampling information
  - Date and Time
  - Field measurements
  - Visual observations
- Submit originals with sample bottles

Post-Sample Collection

Post-Sampling Activities

Sampler Responsibilities:

- Control sample temperature
  - <6 Degrees Centigrade
- Sample handling
- Chain-of-Custody
- Pack coolers

Post-Sample Collection

Sample Handling and Shipment

Cooler With Field Forms and Water Ice

Cooler with Custody Seal

Post-Sample Collection

Chain-of-Custody (COC) Form

- Documents the continuous possession of the sample from collection to analysis.
- Remains with the samples until analysis is performed
- Must be included in the cooler with samples shipped by courier.
  - Shipping agents (such as Fed Ex) do not sign the COC
  - Shipping receipt must be retained as part of the record

Complete and accurate Chain-of-Custody forms are critical to documenting the validity of sample results

Stormwater Sampling

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3

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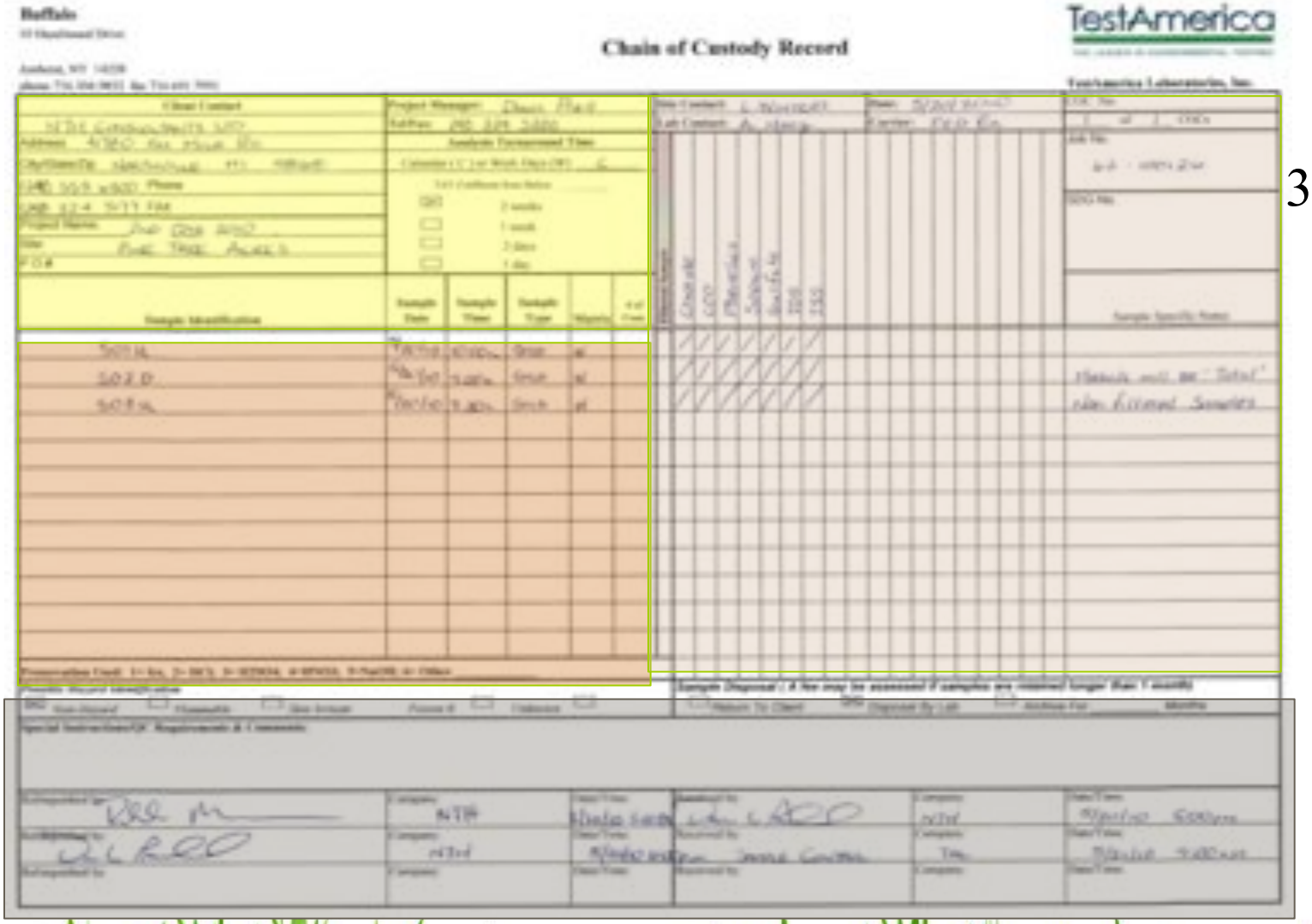


Stormwater sampling report (SWMR)(DMR)

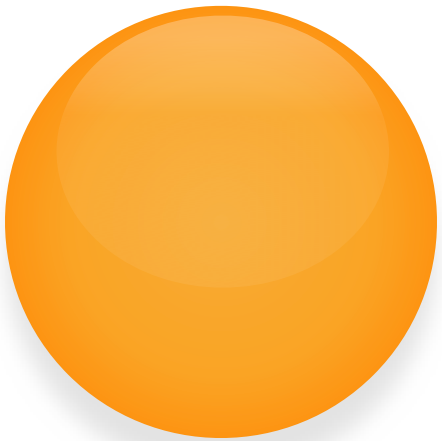
- Must be submitted by the 21st of the month following the last day of the sampling quarter or year
- Online access
- Printout, complete manually (SWMR)
- DMR Electronic submittal online
- Submit to the MPCA
- Must submit a report even if no sample has been taken.
- 2 samples needed in the next quarter.

- **All Facilities must submit the Annual Report by submitting to the MPCA by March 31st.**

- A summary of inspection findings (dates, BMP maintenance, etc.)
- A confirmation that the Plan accurately reflects facility conditions.
- A confirmation that newly-exposed significant materials (if any) have been identified and that the Plan has been modified to address them.
- A description of any Plan modifications made by facilities during the reporting year.
- A list of all reportable spills and leaks that occurred at the facility during the reporting year.

Stormwater Monitoring

MPCA Fact Sheets and the Stormwater Monitoring Manual are available for reference



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