

**DWR-NPDES-SOP-G-08-Settleable Solids 2540 F-01012024
Settleable Solids, SM 2540 F-2015**

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1) EFFECTIVE DATE: 01/01/2024

2) SIGNATURES:

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Initial Demonstration of Capability (DOC)

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- Documentation (signed form) that analyst has read and understands all appropriate SOPs and Methods

Method Detection Limit (MDL)

- NONE

Initial Calibration Verification (ICV)

- NONE

Method Blank (MB)

- NONE

Laboratory Fortified Blank (LFB)

- NONE

Duplicate

- 2540 A.5. – Analyze $\geq 5\%$ of all samples in duplicate or at least one duplicate sample with each batch of ≤ 20 samples. The laboratory may plot duplicate determinations on a control chart for evaluation. Typically, the relative percent difference (RPD) of duplicates should not exceed 10%, but RPD may vary considerably due to sample matrix and concentration
- **Summary: Analyze two samples for Settleable Solids.**
 - **For example, pour up 1000 mL of effluent into Imhoff then pour up another 1000 mL of effluent in another Imhoff. Wait 45 min, stir, wait 15 min, read. Calculate RPD for both samples**
 - **Target value is to get close to the first value and have an RPD of less than 10%**
 - **Run on a 5% basis (one for every 20 samples or once per month, whichever is more frequent), see batch size for more information**

Laboratory Fortified Matrix (LFM)/Laboratory Fortified Matrix Duplicate (LFMD)

- NONE

Control Charts

- 2540 A.5. – Analyze $\geq 5\%$ of all samples in duplicate or at least one duplicate sample with each batch of ≤ 20 samples. The laboratory may plot duplicate determinations on a control chart for evaluation
- 1020 B-2014 13.b. – The precision chart...is constructed from the average and standard deviation of a specified number of measurements [e.g., %RSD or relative percent difference (RPD)] for replicate or duplicate analyses of the analyte of interest... Perfect agreement between replicates or duplicates results in a difference of zero when the values are subtracted, so the baseline of the chart is zero. Therefore for precision charts, only upper WLs [Warning Levels] and upper CLs [Control Levels] are meaningful
- **Summary: Create and maintain control charts once you have 20-30 data points**

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Corrective Action - 1020 B.5., B.8., & B.15.

Batch Size

- For samples that need to be analyzed on a 5% basis (1 for every 20 samples or once per month, whichever is more frequent) follow these criteria:
 - If a permit stated that 3 analyses per week, we would allow for a duplicate to be analyzed at least once per month
 - Pick a date and be consistent, the 1st of every month or the 1st Thursday of every month. Mark your calendar!!
 - If a permit stated 5 analyses per week, we would suggest twice a month
 - Pick a date and be consistent, the 1st and 15th of every month or the 1st and 3rd Thursday of every month. Mark your calendar!!

Calculations

- RPD – relative percent differences for duplicates =

$$\left(\frac{|sample\ result - duplicate\ result|}{(sample\ result + duplicate\ result)/2} \right) \times 100$$

Revision Number	Date	Brief Summary of Change
0	November 2013	Initial issuance of the Guidance
1	July 5, 2018	Method editorial revision date changed from 1997 to 2011.
2	December 15, 2021	Method editorial revision date changed from 2011 to 2015, duplicate information added from SM 2540 (2015), added information on control charts.
4	December 11, 2023	Grammatical and word choice changes, effective date