**Performance Comparison Form (Clean Matrix, Laboratory Pure Water)**

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| --- | --- |
| **Date** |  |
| **Laboratory / Facility Name** |  |
| **Laboratory / Facility Address** |  |
| **ATP Method No. and Title** | ASTM D7575-11, Solvent-Free Membrane Recoverable O&G by IR |
| **Current Method Approved for NPDES** | HEM & SGT-HEM, EPA 1664A/B |
| **Analyte or Class of Analytes** | Oil and Grease |

**Instructions:**

This is a fillable form. Use the Tab key to advance through the entries.

Enter the summary results comparing the performance of the currently approved NPDES method to the ATP method in a clean matrix. This includes an **Initial Precision and Recovery (IPR**) study, a **Method Detection Limit (MDL**) determination and the successful analysis of a **Proficiency Testing (PT)** sample. All three include the basic QC elements listed below including calibration.

* The **IPR** is determined from the analysis of four mid-level QC spikes or QC samples from a Proficiency Testing Provider. These are prepared in laboratory pure water as distinct individual samples and analyzed. The spikes or QC material are from a source different from that used for the calibration and the procedures are to include all preparation steps in the reference and D7575 method (homogenization, sub-sampling, filtering, drying, etc.).
* An **MDL** is to be determined using the procedures per [40 CFR Part 136, Appendix B](http://www.ecfr.gov/cgi-bin/text-idx?c=ecfr&SID=4b92bf3cf3331df08ae21773191ec650&rgn=div9&view=text&node=40:24.0.1.1.1.0.1.8.2&idno=40). This is often achieved by performing the MDL study by spiking at the concentration of the lowest calibration level that has been shown to meet the initial calibration acceptance criteria.
* A **PT** sample is to be from an official wastewater PT study, such as DMRQA or WP, where the certified value is unknown to the laboratory at the time of the analysis.
* In addition to this summary of results, provide all supporting instrument results and copies of log books (standard/reagent log; sample preparation log and instrument run log) organized into sections with the same title as the “QC Elements” listed below.
* Complete and sign the **Certification Statement** on the last page of this form.

| **QC Element\*** | **EPA Method 1664A/B** | | **Result for EPA 1664A/B** | **Results for D7575** | **Comments** |
| --- | --- | --- | --- | --- | --- |
| **Frequency & Concentration**  *(indicate units)* | **Acceptance Criteria\*\*** |
| **Initial Holding Time/ Sample Prep Verification Study** | Not in EPA 1664A/B.  For D7575, use lab prepared standards and analyze at or after 28 days. Do not use pre-prepared Calibration Standard Devices (CSD). Initial prior to analysis: 200; 160; 120; 80; 40; 4; 1 mg/L. | D7575: cal. stds. read back within +/-5% of true. Verified lin. cal. range and current cal. |  |  |  |
| **Initial Calibration Stds.** | Initial prior to analysis;  EPA 1664A/B; 2, 1000 mg  D7575: 200; 160; 120; 80; 40; 4; 1mg/L or CSD. | EPA 1664A/B: +/-10% at 2 mg, +/-0.5% at 1000 mg.  D7575: cal. stds. read back within +/-5% of true. |  |  |  |
| **Calibration Blank** | Not in EPA 1664A/B | D7575: <1 mg/L |  |  |  |
| **Method Blank** | One each batch of 20 samples | EPA 1664A/B: <5 mg/L.  D7575: <MDL or <10% of known conc. of associated test samples |  |  |  |
| **Permit Conc. Limit for Analyte†** |  |  |  |  |  |
| **Initial Cal. Verification** | Before and after batch: EPA 1664A/B; 2, 1000 mg  D7575: OPR at 40 mg/L, do not use pre-prepared CSD. | EPA 1664A/B: +/-10% at 2 mg, +/-0.5% at 1000 mg.  D7575: OPR reads back within +/-5% of true. |  |  |  |
| **Continuing Cal. Verification** | Before and after batch: EPA 1664A/B: 2, 1000 mg  D7575: OPR at 40 mg/L, do not use pre-prepared CSD. | EPA 1664A/B; +/-10% at 2 mg, +/-0.5% at 1000 mg.  D7575: OPR reads back within +/-5% of true. |  |  |  |
| **Ongoing Precision & Recovery (OPR)** | One per batch; 40 mg/L. | HEM Recovery: 78-114% |  |  |  |
| **Matrix Spike** | One per batch at permit limit, 1 to 5 times background or OPR concentration, whichever is highest | HEM Recovery: 78-114% |  |  |  |
| **Duplicate or Matrix Spike Duplicate** | Optional – same as Matrix Spike above. | HEM Recovery: 78-114%; HEM RPD: 18% |  |  |  |
| **Trend Analysis** | Monthly QCS sample | HEM Recovery: 78-114% |  |  |  |
| **Initial Precision & Recovery** | Initial, mg/L  Ongoing as needed | HEM Precision (s) 11%; HEM Recovery (X) 83-101% |  |  |  |
| **Method Detection Limit** | Initial, mg/L  Ongoing as needed | MDL < 1.4 |  |  |  |
| **Other QC Elements per the Reference Method** (e.g., addl. initial calibrations, cont. cal. verifications, etc.)  *insert rows below and split cells as needed* | | | | | |

Notes

\* QC elements are listed at [40 CFR 136.7](http://www.ecfr.gov/cgi-bin/text-idx?c=ecfr&SID=4b92bf3cf3331df08ae21773191ec650&rgn=div8&view=text&node=40:24.0.1.1.1.0.1.7&idno=40)**.** See EPA Methods 1664 Rev. A and Rev. B for additional info & requirements. If QC items do not apply, attach the rationale/reason.

\*\* If not in EPA 1664A/B or otherwise specified, see ASTM D7575 for QC Limits

† Must be above low cal. standard

**Calibration blank**: Lab pure water analyzed without sample processing. Same as a **Method Blank** for methods not requiring sample preparation.

**Method blank**: Lab pure water carried thru the entire method. In methods without sample preparation this is the same as the **Calibration Blank.**

Calibration Verification

Initial: mid conc. std. source different from Cal. Stds at least 1 with @ Initial Cal.

Continuing: mid conc. std at least at start and end @ 20 samples

|  |  |
| --- | --- |
| **Initial Precision and Recovery** | |
| **Source of Cal. Stds.** |  |
| **Source of Spike** *(Independent of cal.stds)* |  |
| **Conc. of Spike or QC Sample** |  |
| **Units** |  |
| **Accuracy % Recovery Limit & Source** |  |
| **Precision Units / Limit & Source** |  |

**IPR Results Summary (EPA 1664A/B) Units: mg/L**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Analyte** | **Level of Spike** | **Result #1** | **Result #2** | **Result #3** | **Result #4** | **Average** | **% Recovery/**  **Evaluation** | **Std. Deviation**  **(n-1)** | **Relative**  **Std. Deviation/**  **Evaluation** |
|  |  |  |  |  |  |  |  |  |  |

* In addition to this IPR summary, provide copies of supporting documentation including: run logs; standard/reagent prep. logs; sample prep. logs; instrument outputs; bench sheets.

**IPR Results Summary (D7575) Units mg/L**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Analyte** | **Level of Spike** | **Result #1** | **Results #2** | **Result #3** | **Result #4** | **Average** | **% Recovery** | **Std. Deviation**  **(n-1)** | **Relative**  **Std. Deviation** |
|  |  |  |  |  |  |  |  |  |  |

**MDL Results (EPA 1664A/B) Units: mg/L**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Analyte** | **Level of Spike** | **Result #1** | **Result #2** | **Result #3** | **Result #4** | **Result**  **#5** | **Result**  **#6** | **Result**  **#7** | **Std.**  **Dev.**  **(n-1)** | **MDL** |
|  |  |  |  |  |  |  |  |  |  |  |

**MDL Results (D7575) Units: mg/L**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Analyte** | **Level of Spike** | **Result #1** | **Results #2** | **Result #3** | **Result #4** | **Result**  **#5** | **Result**  **#6** | **Result**  **#7** | **Std.**  **Dev.**  **(n-1)** | **MDL** |
|  |  |  |  |  |  |  |  |  |  |  |

|  |  |
| --- | --- |
| **Method Detection Limit** | |
| **Conc. of Spike or QC and Conc. Units** |  |
| **Low Cal. Std. Conc. = Quant. Limit (QL)** |  |
| **Permit Limit (PL)** |  |
| **Student’s t value** | 3.143 for n=7 |
| **Is MDL < QL < Permit Limit for Ref. Method?** |  |
| **Is MDL < QL < Permit Limit for ATP Method?** |  |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Proficiency Testing (PT)**  *Attach copy of PT Study Report from PT Provider.* | **Method** | **Provider/Study** | **Target/True Value & Units** | **Reported Value**  **& Units** | **Accept. Limits** | **Evaluation**  **(Unaccept/Accept.)** |
| EPA 1664A/B |  |  |  |  |  |
| D7575 |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

* Reminder: In addition to submission of this summary form, provide copies of supporting documentation including:
  + Run logs
  + Standard/reagent preparation log
  + Sample preparation logs
  + Instrument outputs
  + Bench sheets; and
  + *Oil and Grease ATP Comparison* worksheet.

Additionally, copies of all supporting data must be kept on file at the laboratory.

**Certification Statement**

(Complete one copy of this form for each Performance Comparison Form Submitted)

We, the undersigned, CERTIFY that:

* The data and forms submitted with this application are true, accurate, complete and self-explanatory.\*
* All original raw data (including a copy of this certification form) necessary to reconstruct and validate these performance analyses have been retained at the facility, and that the associated information is well organized and available for review by authorized inspectors.

Statement of Method Comparability

Based on the attached results from the *Oil and Grease ATP Comparison Worksheet:*

*(check one)*

[ ] Method \_\_\_\_\_\_ is comparable to EPA 1664A/B over the course of \_\_ days in \_\_\_\_\_\_\_\_\_\_\_\_\_\_ *(matrix name)*.

[ ] Method \_\_\_\_\_\_ is NOT comparable to EPA 1664A/B over the course of \_\_ days in \_\_\_\_\_\_\_\_\_\_\_\_\_\_ *(matrix name)*.

*Attach the* Oil and Grease ATP Comparison Worksheet (Feb. 2013) *to this application.*

|  |  |
| --- | --- |
| \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Facility Manager Name *(print)* | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Facility Manager Title |
| \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Signature | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Date |
|  | |
| \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Quality Assurance Officer Name *(print)* |  |
| \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Signature | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Date |

\* Explanation of terms:

|  |  |
| --- | --- |
| True: | Consistent with supporting data. |
| Accurate: | Based on good laboratory practices consistent with sound scientific principles/practices. |
| Complete: | Includes the results of all supporting performance testing. |
| Self-Explanatory: | Data properly labeled and stored so that the results are clear and require no additional explanation. |