STATE OF CALIFORNIA | STATE WATER RESOURCES CONTROL BOARD

JANUARY 1, 2021 TO DECEMBER 31, 2021

Discharge Monitoring Report-Quality Assurance Study 41 Summary

TO
U. S. ENVIRONMENTAL PROTECTION AGENCY
Headquarters, Washington, D.C.
Region IX, San Francisco, CA

Report Date: January 28, 2022

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Discharge Monitoring Report-Quality Assurance Study 41 Description

The purpose of the annual Discharge Monitoring Report-Quality Assurance (DMR-QA) Study is to ensure the integrity of the data submitted by the United States Environmental Protection Agency (U.S. EPA) National Pollutant Discharge Elimination System (NPDES) permitted facilities (permittees) for Discharge Monitoring Report (DMR) reporting requirements and evaluate the performance of the laboratories to analyze wastewater samples associated with the Federal Clean Water Act NPDES Program. Although California does not participate in the U.S. EPA DMR-QA Program, all major NPDES permittees and the contract laboratories they use are required to participate in the DMR-QA Study annually. A total of 264 DMR-QA Study 41 notification letters (Appendix A) were sent out in May 2022 by the California State Water Resources Control Board (State Water Board) QA Officer to the permitted facilities regulated under 238 major NPDES permits. Some cities or facilities utilize the same NPDES permit, resulting in more notification letters being sent out than there are NPDES-permits. If a permittees email address was invalid, the QA Officer would contact the facility by phone to track down the correct contact email to receive the DMR-QA notification letters. Letters were re-issued when contact emails were updated.

In California, permittees may submit the results of Water Pollution (WP) studies used for laboratory accreditation to satisfy participation in the DMR-QA Study rather than the authorized DMR-QA testing analytes. The WP testing analytes are used by the State Water Board Environmental Laboratory Accreditation Program (ELAP) when accrediting laboratories. Permittees may elect to analyze both DMR-QA samples and WP samples, but most permittees choose to analyze the WP testing analytes only. The testing analytes are purchased by the permittees and laboratories from U.S. EPA-approved providers. A list of approved providers is included with the notification letter.

The permittees and contract laboratories have a period of twelve months in which to perform the testing and report the data to the State Water Board QA Officer. Although the permittees are required to submit the data directly to the State Water Board QA Officer, contract laboratories and the vendors will also send the data on behalf of the permittees. Most of the data are received as email attachments. Occasionally, paper copies are received. The vendors send the comma separated value (CSV) files to both the State Water Boards QA Officer and to ELAP, as they are the accrediting body in California. The CSV format allows the data to be tabulated without having to enter each study data point manually. Upon receipt of the data results, the State Water Board QA Officer sends a confirmatory email to the permittees or laboratories. The data are saved in two types of files, one for permittees and one for laboratories. Data are further filed by permittee and NPDES permit number; or laboratory name. A thorough review process exists to eliminate duplicate data for each permittee from tabulation. Spreadsheets are updated annually as the study data are received from the permittees and laboratories. The updates are generally for contact, email, and phone number changes that need to be recorded. The spreadsheets contain the following information: permittee contact name, email address, address, phone number, ELAP and National Environmental

Laboratory Accreditation Program (NELAP) certification numbers of laboratories associated with each permit, and U.S. EPA laboratory codes for each participating laboratory.

As of January 28, 2022, the State Water Board received DMR-QA Study 41 data from 192 permittees and 74 reports specifically from contract laboratories. The lab performance and data result summaries are provided in Appendix C, Table 2, in accordance with the waiver granted to the State Water Board in 2011. All data reports are on file and available for review upon request.

Permittees and contract laboratories, which report not-acceptable WP results, are required to submit corrective action reports (CARs) and retest data demonstrating that the permittee or laboratory possesses the proficiency to analyze a wastewater contaminant accurately. There is no specific form for reporting a CAR. The permittee or laboratory submits the CAR via e-mail, e-mail attachment or paper copy. The corrective actions taken by the laboratories resulted in accurate test results upon repeating the analyses.

The State Water Board received 35 CARs. The results of the investigation for unacceptable results include the following:

- Nitrite analysis: Expired standards were accidentally used to quantify the PT sample resulting in low results. A new standard was made and a policy for the lab to dispose of all outdated standards upon expiration was implemented.
- Harness by Titration: It was discovered that the analyst manually entered the wrong result in the PT sample result field. A new verification step was added to the result transfer step to ensure this is not repeated. Re-run of sample identified that the analyst would have received an acceptable score.
- Aluminum analysis: PT was not diluted during analysis and the analyst quantified sample even though sample signal was outside calibration range resulting in a high biased result. Lab implemented new trainings and check to make sure all signals are within calibration range.
- Nitrate analysis: Laboratory determined that insufficient column rinsing, and stabilization resulted in low recoveries. Laboratory changed their SOP to account for more column rinsing and stabilization times.
- pH analysis: PT samples were not analyzed within specified holding times and resulted in a low bias. Laboratory implemented new sample receipt protocol to make sure short-holding times are met.
- Iron Analysis: A 300:1 dilution was used for the PT sample, but an incorrect dilution factor was used to calculate results. Laboratory implemented new trainings and a check to review dilution factors for all future samples.

All CARs are on file and available for review upon request. No laboratory audits were performed by the State Water Board Quality Assurance Program relating to DMR-QA Study 41.

Appendix A: Notification Letter

CALIFORNIA Water Boards

GAVIN NEWSOM GOVERNOR
JARED BLUMENFELD SECRETARY FOR ENVIRONMENTAL PROTECTION

May 6, 2021

«First_Name» «Last_Name»
«Facility»
«Address»
«City», «State» «Zip»

SUBJECT: DMR-QA STUDY 41

Hello «First_Name» «Last_Name»,

The U.S. Environmental Protection Agency (U.S. EPA) released DMR-QA Study 41 on April 23rd, 2021. Under the authority of Section 308 of the Clean Water Act, the U.S. EPA requires major and selected minor permittees under the National Pollutant Discharge Elimination System (NPDES) Program to participate in the annual Discharge Monitoring Report-Quality Assurance (DMR-QA) Study. **Participation in this Study is mandatory.** The DMR-QA Study evaluates the analytical ability of laboratories that routinely perform or support self-monitoring analyses required by NPDES permits to ensure the integrity of the NPDES Program. California holds an exemption waiver with the U.S. EPA that allows California NPDES permit holders to work directly with the State Water Resources Control Board (State Water Board) for proficiency testing data submission and timelines.

In California, there are two options to satisfy the requirements of the DMR-QA Study 41. The permittee can submit results from the on-site and/or contract laboratories analysis of a DMR-QA sample or the laboratories' most recent Water Pollution (WP) Performance Evaluation Study. It is the responsibility of the permittee to ensure that proficiency testing activities of the laboratories satisfy the DMR-QA Study 41 requirements. Permittees can review the Study 41 instructions included as an attachment to this email and on the website.

https://www.epa.gov/compliance/discharge-monitoring-report-quality-assurance-study-program

All DMR-QA and WP testing samples must be purchased by accredited Proficiency Testing PT) providers. A list of accredited providers accompanies this notification letter. The Permittee is responsible for having the in-house and/or contract laboratories analyze wastewater PT samples for all analytes required to be monitored under their NPDES permit. The Permittee shall submit the results of the DMR-QA Study or the results of the most recent WP Performance Evaluation Study to the State Water Board Quality Assurance Officer (State Water Board QA Officer) at QualityAssurance@Waterboards.ca.gov. In alignment with US EPA's schedule, results and any corrective actions shall be submitted by **December 17th, 2021**.

It is the responsibility to submit the DMR-QA Study 41 test results from vendors, and onsite or contract laboratories that perform work associated with your NPDES permit to the State Water Board QA Officer. The State Water Board QA Officer (State DMR-QA Coordinator) will then send the DMR-QA Study 41 results to the National DMR-QA Coordinator and U.S. EPA Region IX Quality Assurance Manager.
The key components of the study are listed below.

1. The Study period is the entire twelve months of the year. However, participation earlier in the year allows for extra time for corrective action procedures and sample retesting, if necessary.

2. Laboratories may use the same WP Performance Evaluation Study test results that are used for the laboratory accreditation process in order to satisfy the requirements of the DMR-QA Study 41.

3. It is important that you request that each contract laboratory used by your facility send to you a copy of the evaluated results for your records. The results should be sent to you in pdf file reports. A copy of the evaluated data must be submitted to the State Water Board QA Officer.

4. Please submit all data files/reports from the approved PT vendors and laboratories to the State Water Board QA Officer. Additionally, please inform the vendor to provide CSV data files to the State Board QA Officer of the data results you are submitting. These files are uploaded by State Water Board staff into the DMR-QA database for this study. **As the NPDES Permittee, you are responsible for ensuring the DMR-QA Study data is received by the State Water Board QA Officer. The State Water Board does not retrieve DMR-QA Study results from a vendor or laboratory website portal.**

If any results are graded “Not Acceptable,” you must submit a corrective action report to the State Water Board. **As the NPDES Permittee, you are responsible for ensuring that a corrective action report is prepared and sent to the State Water Board QA Officer.** This consists of a follow up with the laboratories to determine the root cause of the deficiency and describe the corrective action that will take place to prevent future occurrences. Retesting for the analytes that are graded “Not Acceptable” is required. Results from all PT retests shall be submitted to the State Board QA Officer. Failure to submit corrective action information or results from PT retests may result in loss of accreditation from the California Environmental Laboratory Accreditation Program (ELAP).

Below is the current information the State Water Board has on file for your facility. Please review this information and notify me of any corrections via my e-mail address or by telephone within 30 calendar days from receipt of this notification. Please list the

laboratories that you use for the DMR-QA Study 41 testing and their corresponding accreditation numbers associated with this NPDES permit. If your onsite laboratory and your contract laboratories hold both ELAP and the National Environmental Laboratory Accreditation Program (NELAP) accreditations, please include both accreditation certificate numbers. Additionally, please provide the EPA Lab ID number for each laboratory that reports data for your NPDES permit number including the on-site laboratory. This ID may be found on the data report sent to you or your contract laboratories by the vendor.

If there are no changes, please respond stating there are no changes.

Permit number: NPDES «NPDES»
Contact person: «First_Name» «Last_Name»
Mailing address: «Address»,
«City», «State» «Zip»
Phone number: «Discharger_Phone»
E-mail address: «Discharger_Email»

LABORATORY NAME	EPA ID #	ELAP #	NELAP #
«Lab_Name_1»	«EPA_ID_1»	«ELAP_1»	«NELAP_1»
«Lab_Name_2»	«EPA_ID_2»	«ELAP_2»	«NELAP_2»
«Lab_Name_3»	«EPA_ID_3»	«ELAP_3»	«NELAP_3»
«Lab_Name_4»	«EPA_ID_4»	«ELAP_4_»	«NELAP_4»
«Lab_Name_5»	«EPA_ID_5»	«ELAP_5»	«NELAP_5»
«Lab_Name_6»	«EPA_ID_6»	«ELAP_6»	«NELAP_6»
«Lab_Name_7»	«EPA_ID_7»	«ELAP_7»	«NELAP_7»
«Lab_Name_8»	«EPA_ID_8»	«ELAP_8»	«NELAP_8»
«Lab_Name_9»	«EPA_ID_9»	«ELAP_9»	«NELAP_9»

Please contact us at QualityAssurance@Waterboards.ca.gov if you have any questions.

Thank you,

Andrew Hamilton
State Water Board QA Officer | State DMR-QA Coordinator
Office of Information Management and Analysis | State Water Board

Accredited Proficiency Testing Providers

The following Proficiency Test (PT) Providers are accredited by A2LA or ACLASS. A2LA and ACLASS have each been designated a Proficiency Testing Oversight Body (PTOB)/Proficiency Testing Provider Accreditor (PTPA) by The NELAC Institute (TNI). Find the following PT Providers on the internet at: http://www.nelac-institute.org/ptproviders.php.

NELAC-Accredited Provider	Chem	Micro	WET
NYS DOH Environmental Laboratory Approval Program, Albany, NY Dr. Kenneth Aldous (518) 474-7161 elap@health.state.ny.us	X	X	
Environmental Resource Associates (ERA), Golden, CO (800) 372-0122 interlabgroup@eraqc.com; info@eraqc.comwww.eraqc.com	X	X	X
Absolute Standards, Inc., Hamden, CT Mr. Stephen Arpie (203) 281-2917 or (800) 368-1131 stephen@absolutestandards.comwww.absolutestandards.com	X	X	
Phenova Inc., Golden, CO (303) 940-0033 info@phenova.comwww.phenova.com	X	X	X
Advanced Analytical Solutions, LLC, Parkersburg, WV (304) 485-6325 Fred@advancedqa.comwww.advancedqa.com	X	X	
Millipore Sigma (formerly Sigma Aldrich), Laramie, WY Mrs. Jennifer Duhon (307) 742-5452 Fax: (855) 831-9211 RTCPTgroup@sial.comwww.sigmaaldrich.com	X	X	X
NSI Lab Solutions, Raleigh, NC Mr. Mark Hammersla (919) 789-3000 or (800)234-7837 mark.hammersla@nsilabsolutions.comwww.nsilabsolutions.com	X	X	

Appendix B: Study 41: Schedule of Activities

Table 1. DMR-QA Study 41 Schedule of Activities

Task	Calendar Date	Activity
Obtain current list of NPDES permitted permittees.	Ongoing	Contact NPDES staff for current list of NPDES permittees which is annually updated.
Review and update Notification Letter.	February 1, 2021 to May 5, 2021.	This allows the State Water Board to update the Notification Letter sent to permittees.
Send out annual notice of participation to permitted permittees.	May 6, 2021: Electronic notifications; May 6, 2021 - June 30, 2021-Re-issue notification letters.	Send notification of upcoming DMR-QA Study 41. Provide current information and request contact information updates. E-mail notifications sent to all when possible. Contact facilities if no repose to receive updated contact information. Re-issue notification letters, if needed.
Collect electronic and paper copies of data and corrective action notices.	January 1, 2021-December 31, 2021	Upload electronic data files sent by providers of proficiency testing analytes.
Assess collected data.	January 1, 2022-January 15, 2022.	Analyze for frequency and trends in reported “not acceptable” data. Review corrective action letters submitted by permittees and laboratories.
Report assessment to US EPA Region 9.	January 28, 2022	Report analysis to U.S. EPA Region 9 by January 31, 2022

Appendix C: Study 41 Results

Table 2. Assessment of DMR-QA Study 41 Data

Laboratories Performance Summary	Count	%
Laboratories Passed (laboratories with all "Acceptable" result evaluations)	145	65.6
Laboratories Failed (laboratories with at least one "Not Acceptable" result evaluation)	76	34.4
Totals	**221**	

Data Results Summary	Count	%
Acceptable	7,782	97.7%
Not Acceptable	182	2.3%
Totals	**7,964**	

Data Results Summary (by analyte category)			
Analyte Category	**Accept.**	**Not Accept.**	**Total**
Metals	3,750	53	3,803
Microbiology	475	3	478
Non-Metal Inorganics	3,464	120	3,584
WET	93	6	99
Totals	**7,782**	**182**	**7,964**

Metals				
TNI Analyte Code	**Analyte Name**	**Accept.**	**Not Accept.**	**Total**
1000	Aluminum	169	4	173
1005	Antimony	179	2	181
1010	Arsenic	186	6	192
1015	Barium	181	0	181
1020	Beryllium	176	5	181
1030	Cadmium	196	2	198
1040	Chromium	196	1	197
1045	Chromium (VI)	89	0	89
1050	Cobalt	179	0	179
1055	Copper	202	0	202
1070	Iron	146	10	156
1075	Lead	196	1	197

1090	Manganese	178	1	179
1095	Mercury	129	5	134
1100	Molybdenum	184	0	184
1105	Nickel	201	0	201
1140	Selenium	197	7	204
1150	Silver	196	9	205
1165	Thallium	182	0	182
1185	Vanadium	183	0	183
1190	Zinc	205	0	205
Total		**3,750**	**53**	**3,803**

Microbiology				
TNI Analyte Code	**Analyte Name**	**Accept.**	**Not Accept.**	**Total**
2500	Total coliforms	198	1	199
2525	*Escherichia coli*	134	2	136
2530	Fecal coliforms	143	0	143
Total		**475**	**3**	**478**

Non-Metal Inorganics				
TNI Analyte Code	**Analyte Name**	**Accept.**	**Not Accept.**	**Total**
1505	Alkalinity as CaCO3	125	4	129
1515	Ammonia as Nitrogen	148	5	153
1530	Biochemical Oxygen Demand (BOD)	166	6	172
1555	Carbonaceous BOD (CBOD)	110	0	110
1565	Chemical Oxygen Demand (COD)	116	11	127
1575	Chloride	115	1	116
1610	Conductivity	184	2	186
1645	Total Cyanide	106	3	109
1730	Fluoride	117	1	118
1755	Total hardness as CaCO3	154	2	156
1795	Total Kjeldahl Nitrogen (TKN)	77	2	79
1803	Oil & Grease	81	13	94
1810	Nitrate as Nitrogen	159	4	163
1840	Nitrite as Nitrogen	168	7	175
1870	Orthophosphate as P	157	5	162
1900	pH	271	6	277
1905	Total Phenolics	28	4	32

1910	Total Phosphorus	119	13	132
1940	Total Residual Chlorine	198	3	201
1955	Residue-filterable (Total Dissolved Solids)	146	8	154
1960	Residue-nonfilterable (Total Suspended Solids)	203	6	209
1965	Residue-settleable	138	4	142
2000	Sulfate	98	4	102
2040	Total Organic Carbon (TOC)	81	1	82
2055	Turbidity	199	5	204
Total		**3,025**	**105**	**3,130**

Whole Effluent Toxicity (US EPA)				
US EPA Analyte Code	**Analyte Name**	**Accept.**	**Not Accept.**	**Total**
754	Fathead Minnow (*Pimephales promelas*) - MHSF 25°C - LC50	6	0	6
755	Fathead Minnow (*Pimephales promelas*) - 20% DMW - LC50	1	0	1
756	Fathead Minnow (*Pimephales promelas*) - MHSF - NOEC SURVIVAL	4	0	4
759	Fathead Minnow (*Pimephales promelas*) - 20% DMW - NOEC SURVIVAL	2	0	2
764	*Ceriodaphnia dubia* - MHSF 25°C - LC50	2	0	2
765	*Ceriodaphnia dubia* - 20% DMW 25° - LC50	4	0	4
766	*Ceriodaphnia dubia* - MHSF - NOEC SURVIVAL	5	0	5
767	*Ceriodaphnia dubia* - MHSF - IC25** REPRODUCTION	5	0	5
768	*Ceriodaphnia dubia* - MHSF - NOEC REPRODUCTION	5	0	5
769	*Ceriodaphnia dubia* - 20% DMW - NOEC SURVIVAL	3	0	3
770	*Ceriodaphnia dubia* - 20% DMW - IC25** REPRODUCTION	3	0	3
771	*Ceriodaphnia dubia* - 20% DMW - NOEC REPRODUCTION	2	1	3
788	*Daphnia magna* - MHSF 25° - LC50	2	2	4
794	*Daphnia pulex* - MHSF 25°C - LC50	2	0	2
798	Mysid *(Americamysis bahia, Mysidopsis bahia)* 25°C - LC50	5	0	5
799	Mysid *(Americamysis bahia, Mysidopsis bahia)* - NOEC SURVIVAL	5	0	5
803	Inland silverside *(Menidia berylina)* 25°C - LC50	4	0	4
804	Sheepshead minnow (*Cyprinodon variegatus*) 25°C - LC50	0	0	0
805	Sheepshead minnow (*Cyprinodon variegatus*) - NOEC SURVIVAL	0	0	0
808	Fathead Minnow *(Pimephales promelas)* - MHSF - IC25** (ON) GROWTH	5		5
810	Fathead Minnow *(Pimephales promelas)* - MHSF - NOEC (ON) GROWTH	5		5
812	Fathead minnow *(Pimephales promelas)* - 20% DMW - IC25** (ON) GROWTH	2		2
814	Fathead minnow *(Pimephales promelas)* - 20% DMW - NOEC (ON) GROWTH	2		2

816	Mysid *(Americamysis bahia, Mysidopsis bahia)* - IC25** (ON) GROWTH	3	2	5
818	Mysid *(Americamysis bahia, Mysidopsis bahia)* - NOEC (ON) GROWTH	4	1	5
820	Sheepshead minnow (*Cyprinodon variegatus*) - IC25** (ON) GROWTH	0	0	0
822	Sheepshead minnow (*Cyprinodon variegatus*) - NOEC (ON) GROWTH	0	0	0
824	Inland Silverside *(Menidia berylina)* - NOEC SURVIVAL	8	0	8
825	Inland Silverside *(Menidia berylina)* - IC25** (ON) GROWTH	8	0	8
826	Inland Silverside *(Menidia berylina)* - NOEC (ON) GROWTH	8	0	8
Total		**93**	**6**	**99**