Request for Qualifications to Provide Aquatic Toxicity Testing Services

Qualifications Due	December 13, 2019
Project Start Date	April 2020
Project End Date	September 2021
Contract Duration	17 months
Contract Renewal	up to 2 annual renewals
Prices Good for	17 months
Question & Answer End Date	November 22, 2019
Contact	Matthew Heberger Delta RMP Program Manager San Francisco Estuary Institute - Aquatic Science Center matth@sfei.org
Bid Comments	The Delta Regional Monitoring Program (hereinafter Delta RMP) is seeking a Contractor to provide laboratory services for aquatic toxicity testing of ambient water to support the stakeholder-directed project formed to improve understanding of water quality issues in the Sacramento-San Joaquin River Delta (the Delta) as specified in this document. The Delta RMP is managed by the Aquatic Science Center (ASC), a Joint-Powers Authority housed within the nonprofit San Francisco Estuary Institute (SFEI) in Richmond, California. ASC manages all

	contracts on behalf of the Delta RMP. ASC shall issue a blanket purchase order to the successful bidder for an initial 17 month period. After the initial period, the Delta RMP reserves the right to exercise 2 additional one-year period extensions for a total of 3.5 years.
Quote Submission	Please submit your statement of qualifications and cost estimate as a single PDF file in an email with a recognizable subject line such as: **Toxicity Testing Laboratory Services Qualifications**. You can expect an email confirmation that we have received your materials soon after they are received. If you have any doubt, please email to the address above for confirmation.
Pricing/ Price Adjustments	Pricing shall be fixed for the initial term of the contract. In the event the Delta RMP elects to exercise its option for renewals, price adjustments will be considered by the Delta RMP if the vendor demonstrates to the satisfaction of the Delta RMP that price increase is justified. Price increase requests must be tied to the consumer price index (CPI), producer price index (PPI), living wage, or other relevant industry-specific index. Requests for increase must be fully documented by the supplier.
Post Award Submittal Requirements	The successful contractor will be required to obtain and maintain the following types and amounts of insurance for the duration of the agreement: 1. General Liability: $1,000,000 per occurrence / $2,000,000 aggregate including coverage for bodily injury, property damage, personal and advertising injury, and Products/Completed Operations coverage, 2. Automobile Liability: $1,000,000 combined single limit for bodily injury and property damage, 3. Workers' Compensation: as required by law, and 4. Professional Liability (Errors & Omissions): $1,000,000 per claim/ $2,000,000 aggregate. The contractor will obtain and provide Certificate(s) of Insurance naming ASC as an additional insured on the general liability and automobile liability policies. All required evidence of insurance shall be emailed (preferred) or mailed to the ASC business contact prior to the execution of any agreement.

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Scope of Work

Introduction & Background

The Delta Regional Monitoring Program (Delta RMP) is a stakeholder-directed project formed to improve understanding of water quality issues in the Sacramento-San Joaquin River Delta (the Delta). The goal of the Delta RMP is to design and coordinate current and future monitoring activities in and around the Delta to provide critically needed water quality information to better inform policy and regulatory decisions of the Central Valley Regional Water Quality Control Board and other federal, state, and local agencies and organizations.

The Delta RMP is managed by the **Aquatic Science Center** (ASC), a joint powers authority housed within the nonprofit San Francisco Estuary Institute (SFEI) in Richmond, California. In addition, governance of the program is delegated to several stakeholder committees. The Delta RMP **Steering Committee** (SC) determines the overall budget, allocates program funds, tracks progress, and provides strategic direction and priorities for the Delta RMP from a manager's perspective. The **Technical Advisory Committee** (TAC) is the advisory body that provides technical advice to the SC. The TAC makes recommendations to the SC based on technical evaluation of proposed or existing program elements, and based on priorities set by the SC. The TAC is responsible for developing and revising the Delta RMP monitoring design based on SC direction and priorities. The **Pesticides Subcommittee** and **Toxicity Workgroup** are standing subcommittees of the TAC formed to evaluate issues related to pesticides and report findings back to the larger group. This subcommittee consists of representatives from the SC, TAC, and other sectors such as academia, nongovernmental organizations, government agencies, and industry.

Additional information regarding the program, including work plans and meeting summaries can be found on the Delta RMP website: https://www.sfei.org/DeltaRMP

General Requirements

Services must include routine chronic and acute toxicity testing for ambient water, toxicity identification evaluation (TIE) investigations, and continued communication with ASC staff and Delta RMP stakeholders.

The Contractor shall have in-house capability to perform all testing and related services as outlined below, including TIE services. If any of the analysis is subcontracted to another laboratory, this must be noted and the subcontractor must also meet all of the requirements listed within the Scope of Work.

Sample Schedule and Process Requirements

The Delta RMP pesticides monitoring design includes six sampling events during each water year, with eight samples taken during each event. For each sampling event, samples are collected over the course of two–three days. The six sampling events are spread throughout the

water year, with three wet-season events (first seasonal flush and two subsequent significant winter storms) and three dry-season events (early spring, late spring/early summer and late summer). For wet season sampling, the Delta RMP will alert the contractor seven days in advance of upcoming storms for organism preparation and two days in advance about the likelihood of adequate precipitation. For dry season sampling, the Delta RMP will coordinate the sampling schedule with the contractor seven or more days in advance.

The Contractor is required to deliver appropriate pre-cleaned sample containers and coolers for sample storage during sampling and transport to the sample pick-up location listed below.

The Contractor must be available seven days per week, excepting holidays off, and available to perform testing on any schedule, with the capacity to meet all accelerated monitoring and TIE requirements detailed in the Delta RMP Quality Assurance Project Plan (QAPP). It must be noted in the Statement of Qualification if there are any holidays when the laboratory is not open to accept and/or process samples.

The Contractor must provide same-day courier service for samples. Overnight deliveries via Fedex or UPS are not acceptable.

Location of sample pick-up:

California Water Science Center
Placer Hall, 6000 J St
Sacramento, CA 95819

The Contractor is required to initiate testing within 36 hours of the first sample collection, preferably within 24-hours of sample collection time.

Service Requirements

Routine Tests

The Contractor must have the ability to provide services to complete the Delta RMP toxicity testing needs. A goal of the Delta RMP's aquatic toxicity testing program is to provide data comparable to that of California's Surface Water Ambient Monitoring Program (SWAMP), meaning the Delta RMP testing has additional requirements beyond those specified in EPA methods. The current monitoring design calls for aquatic toxicity testing at 100% (no serial dilutions) with five species, all of which should be performed by a single contractor:

- *Selenastrum capricornutum* (also known as *Raphidocelis subcapitata*) algae 96-hr test for growth (EPA Method 1003.0 and consistent with SWAMP freshwater chronic MQO Table 10)
- *Ceriodaphnia dubia* 6–8-day dual-endpoint test for survival & reproduction (EPA Method 1002.0 and consistent with SWAMP freshwater chronic MQO Table 6)
- *Chironomus dilutus* 10-day water column dual-endpoint test for survival & growth (SWAMP freshwater chronic MQO Table 7)

- *Hyalella azteca* 96-hr test for survival (SWAMP freshwater chronic MQO Table 8)
- *Pimephales promelas* 7-day test for larval survival & growth (EPA Method 1000.0 and consistent with SWAMP freshwater chronic MQO Table 9)
- Toxicity Identification Evaluation (TIE) testing as necessary for all above tests (see below)
- Monthly reference toxicant testing for all above tests

The Delta RMP may alter required test species or methods in the future. Depending on the scope of changes, the Delta RMP may elect to require a re-bidding process.

The Contractor should have experience in stormwater event-driven monitoring and be willing to accommodate short notice (48 hours or other agreed notification period) to pick up and initiate sample tests within allowed holding times.

The Contractor must be able to provide related consulting, on-call technical support, staff training, and support services for acute and chronic toxicity related issues and methodologies. The Contractor should expect to work closely with the Delta RMP TAC and Pesticides Subcommittee, provide timely (see below) status reports, and perform TIE follow-up testing as recommended by the TIE Subcommittee (a select group of appropriate Pesticides Subcommittee representatives); a representative from the laboratory should be able to attend quarterly meetings (in person or by phone) to provide updates on results and answer technical questions.

Toxicity Identification Evaluation (TIE) Tests

The Contractor shall notify by telephone, text message, and email the TIE Subcommittee within 24 hours of observation that a sample (or samples) exceeds the TIE trigger (as outlined in the QAPP Appendix I).

Delta RMP TIE testing (as described in the QAPP section 13.2.5) has the primary goal of identifying whether pesticides are causing or contributing to toxic effects. This includes identification (or exclusion) of other factors (i.e., water quality conditions or other toxicants) contributing to reduced survival, growth, or reproduction. A phased TIE approach is used, to the extent possible, to achieve these goals by initially focusing on treatments that identify major classes of contaminants including pesticides. Phase 1 TIE treatments include:

- EDTA (evidence of metals toxicity)
- Solid-phase extraction column (e.g., C-8 or C-18; evidence of toxicity due to non-polar organics, organic-metal chelates, and some surfactants)
- Centrifugation (evidence of toxicity due to particulate-bound contaminants such as chlorpyrifos and pyrethroids)
- PBO (evidence of toxicity due to a substance that is metabolized by the CYP450 enzyme system; evidence of OP insecticides if toxicity is reduced and of pyrethroid insecticides if toxicity is potentiated)
- Carboxylesterase addition (evidence of toxicity due to a contaminant with an ester bond, such as pyrethroid insecticides)

- Baseline (confirms if the toxicity is persistent)

If the cause of an observed effect is not clear after initial TIE testing, or if further detail describing the type or specific toxicant is desired, then the TIE Subcommittee may choose to have the laboratory conduct additional TIE treatments such as manipulations of temperature, aeration, or pH; removal of oxidants with $Na_2S_2O_3$; or solid-phase extraction (SPE) for cations.

Quality Assurance and Quality Control

The Contractor shall review the latest version of the Delta RMP Quality Assurance Project Plan (QAPP). The Delta RMP laboratory methodology is performance-based. Suggested methods for analyses (used in past RMP monitoring) are listed in Section 13.2.2 *Toxicity Testing Procedures*. Alternatives providing similar sensitivity and specificity may be suggested by the laboratory and used after consultation with and approval by the TAC.

All scientific activities undertaken by laboratories must adhere to quality assurance and quality control procedures as described in the QAPP and current versions of test guidance documents. The QAPP includes requirements for documenting chain-of-custody for samples, proper sample storage and holding times, data validation methods, and analysis of quality control samples including control negative samples and reference toxicants tests. The Contractor will be required to notify the Pesticides Subcommittee immediately upon identifying an invalid test or, if possible, when the control is exhibiting a poor or irregular survival or reproduction pattern that causes the laboratory staff to anticipate that Test Acceptability Criteria may not be met. In this notification, the laboratory will describe the concern and should provide a recommendation for retesting or continued monitoring of the results. The Contractor will be required to provide concise and complete reports of analyses of quality control samples to verify that Test Acceptability Criteria are being met.

Reporting of Results

The Contractor should be able to calculate toxicity using BOTH the EPA standard method and the Test of Significant Toxicity (TST) method.

The Contractor shall provide updates and results at quarterly RMP Pesticides Subcommittee meetings, either by webinar/phone or in person in the Sacramento area. Any testing deviations or issues shall be reported to the Pesticides Subcommittee within 48 hours.

Laboratory personnel will verify, screen, validate, and prepare all data, including QA/QC results, in accordance with the Delta RMP's QAPP and will provide detailed QA/QC documentation that can be referred to for an explanation of any factors affecting data quality or interpretation. Any detailed QA/QC data not submitted as part of the reporting package (see below) should be maintained in the laboratory's database for future reference. The Contractor is required to populate all elements of the appropriate CEDEN Electronic Data Deliverable (EDD) template, provided by ASC, including associated QA/QC information, as outlined below. Each EDD report will consist of analytical and QA replicate data results, Case Narrative, and Standard Operating Procedure (SOP).

The Contractor shall submit provisional data and any testing issues to the Delta RMP Program Manager via email within 14 days following the conclusion of each round of testing. Case Narratives should be provided within 30 days of the conclusion of each round of testing. Formatted and finalized CEDEN EDDs shall be submitted within 45 days of the conclusion of each round of testing. The Contractor shall validate the completed EDDs via the web at http://ceden.org/CEDEN_checker/Checker/index.htm and shall submit finalized EDDs, Case Narratives, and SOPs through ASC's Data Submittal Portal, https://rdcdataupload.sfei.org/.

Toxicity and QA data results: Tabulated data in CEDEN format. Required data are listed in Attachment B. See the CEDEN Toxicity Data Submission Guidance Document for more information.

Case Narrative: The following topics will be addressed in the narrative:

Overview of Work Performed, Toxicity Testing Methodology, and Reporting

- Number of samples received and analyzed
- Handling/storage/preparation of samples
- Summary of toxicity methods (organisms, endpoints, and test duration)
- Define necessary qualifiers
- TIE triggers, methods, and results

Completeness

- Were all samples tested and all results reported?
- Describe the reason(s) for any missing or qualified results.

The lab shall assist the Delta RMP in updating the QAPP as appropriate. Major changes in methods from previous years must be approved by the Delta RMP and included in a revised QAPP for approval by the State Board QA Officer.

Price/Payment

The price for each individual test will include all costs associated with the sample analysis, including but not limited to pick up, lab testing/analysis and all associated result reporting including Case Narratives, TIE summaries, QA/QC evaluations and CEDEN EDDs.

Invoices shall be submitted no more frequently than monthly and at least quarterly. Invoices must include the following: contract number, project name, time period of work performed, detailed labor, unit and/or extended price, and a description of work performed that correlates with the contract budget.

Invoices may only be submitted for tests in which all reporting to the Delta RMP is completed by the Contractor to the satisfaction of the Delta RMP. Payment will not be issued for any analysis for which the report and EDD was not received as described within this RFQ.

Operating expenses (sample analyses excluded) over $5.00 shall be accompanied by copies of receipts, supporting invoices, or other source documents from vendors that the Contractor engaged to complete any portion of the work funded under this agreement. Alcohol is not allowed. Expenses $500.00 and above must be preapproved by the Delta RMP. Any reimbursement for necessary travel and per diem shall be at rates not to exceed those set by the California Department of Human Resources. These rates may be found at http://www.calhr.ca.gov/employees/Pages/travel-reimbursements.aspx. Reimbursement will be at the State travel and per diem amounts that are current as of the date costs are incurred by the Contractor. No travel outside the State of California shall be reimbursed unless prior authorization is obtained from the Delta RMP.

All invoices must be approved by the Delta RMP Project Manager and will be paid within 45 days of receipt of invoice unless the report and/or EDD have not been received. 90% of the full cost will be paid upon initial data receipt, with the remaining 10% retained until all data undergo final review and verification by ASC. Timely invoicing is required and the Delta RMP shall have no obligation to pay for costs incurred more than 180 days prior to the delivery of the subject invoice to ASC for payment.

If, at any time, the Contractor has reason to believe that the cost of the work will exceed the amount set forth in the contract, the Contractor will notify ASC in writing, including a revised budget for completion of the work. ASC will not be obligated to reimburse the Contractor for any cost in excess of the amount set forth unless and until an agreement is made to increase the maximum amount.

Statement of Qualifications and Cost Estimate Specifics

Note about the confidentiality of materials submitted: *The Statement of Qualifications (SOQ) package will be shared with members of the Delta RMP TAC and Pesticides Subcommittee, which include state and federal employees. ASC will make reasonable efforts to safeguard confidential information, and will instruct committee members to do so as well.*

However, we cannot guarantee that all materials submitted to the Delta RMP as part of a Qualification Package will be kept confidential. Please segregate and label materials which you consider to be protected by trade secret privilege, and kindly provide justification for asserting this privilege. Note that public disclosure of this information will be determined by applicable state and federal law, including California Government Code section 6254(d), California Evidence Code section 1060, and the federal Freedom of Information Act.

Laboratories contracted by the Delta RMP agree to make some materials available to the public as a part of the Quality Assurance Project Plan (QAPP), excluding documents that contain trade secrets, which may be made available only to project staff and QAPP reviewers, or provided in a redacted form suitable for public distribution.

Statement of Qualifications (SOQ) should include the following:

1. Laboratory Information (limit 1 page)

Provide specific information concerning your laboratory, including at a minimum:

- Contact information
- Indicate if any analysis for the Delta RMP could be subcontracted to another laboratory (if so, please clearly note which test(s) and provide all relevant information below for the subcontractor in addition to for your laboratory)
- Relevant laboratory certifications
- Holidays when the laboratory is not open to accept and/or process samples
- Plans for sample transport (describe how you will stay within hold times and maintain proper sample temperature)

2. Laboratory Experience (limit 2 pages)

Provide a narrative summary of organizational experience in aquatic toxicity testing (especially in regards to the species tested by the Delta RMP), ability to perform various TIE manipulations, and ability to provide data in the required CEDEN templates (outlined under Service Requirements in Scope of Work). The summary should be as specific as possible. Examples are encouraged but not required.

3. Client References

Provide three (3) client references with contact names, phone numbers, email addresses, and the nature of the project completed for the client. Prior experience working for a regional

monitoring program or similar program with multiple stakeholders is preferred but not required.

4. Proof of Quality

Provide Standard Operating Procedures (SOP) documents for conducting each of the following:

- *Selenastrum capricornutum* (also known as *Raphidocelis subcapitata*) algae 96-hr test for growth (EPA Method 1003.0)
- *Ceriodaphnia dubia* 7-day dual-endpoint test for survival & reproduction (EPA Method 1002.0)
- *Chironomus dilutus* 10-day water column dual-endpoint test for survival & growth (SWAMP MQO Table 7)[1]
- *Hyalella azteca* 96-hr test for survival (SWAMP MQO Table 8)[2]
- *Pimephales promelas* 7-day test for larval survival & growth (EPA Method 1000.0)
- Phase 1 Toxicity Identification Evaluation (TIE) testing for all above tests

Provide the following summary statistics of aquatic toxicity testing over the past three years in the provided spreadsheet format (Attachment C):

1. Ongoing reference toxicant test data (including control charts) AND control organism CV data/control charts for a minimum of the most recent 20 tests (report mean, standard deviation, and CV) for each of the following:
    - *Ceriodaphnia dubia* chronic reproduction (EC25)
    - *Pimephales promelas* chronic growth (EC25)
    - *Selenastrum capricornutum* chronic growth (EC25)
    - *Hyalella azteca* acute survival (LC50) in 96-hr water-only reference toxicant tests, if available, and 10-day control growth (LC50; EPA method 100.1)
    - *Chironomus dilutus* acute survival (LC50) in 96-hr water only reference toxicant tests, if available, and 10-day control growth (LC50; EPA method 100.2)

2. Test completion rate and the reason(s) for any invalidated/re-tested tests for the 5 current Delta RMP test species (*Hyalella* or *Chironomid* SWAMP tests and/or equivalent sediment test data performed with these species may be submitted).

3. Annual DMR-QA proficiency testing data for years 2016–2018 (Studies 36–38) for chronic *P. promelas*, chronic *C. dubia* and *S. capricornutum* tests, including corrective action protocols for any DMR-QA tests not meeting acceptability requirements during this time period. If your laboratory is not DMR-QA certified, please instead provide any equivalent proficiency testing data and a short description of the certification program

[1] SOP(s) for the water-only test and/or an equivalent sediment test (e.g., EPA method OPPTS 850.1790) may be submitted. However, any laboratory contracted by the Delta RMP will be required to have an SOP for the water column test.
[2] SOP(s) for the water-only test and/or an equivalent sediment test (e.g., ASTM E1706-19; http://www.astm.org/cgi-bin/resolver.cgi?E1706) may be submitted. However, any laboratory contracted by the Delta RMP will be required to have an SOP for the water column test.

(including a link to the program website). If your laboratory has no proficiency testing data, please provide an explanation as to why not.

Provide an example of a standard laboratory report provided to clients. If laboratory reports are tiered by detail and cost, please provide examples of each tiered option.

5. Cost of Services

Provide a detailed annual budget (assuming no TIE testing), including labor and other direct and indirect costs for analysis of 48 environmental water samples, plus two field blanks and two field duplicates (52 samples total), for the 5 Delta RMP test species. The budget should be broken down by task, with material costs and labor hours included. The budget should specify not only per-test costs, but also all other anticipated costs (e.g., sample transport, labor hours required to make presentations for quarterly meetings, organisms purchased before potential storm events and then not used, etc.).

In addition to the annual budget, provide the per-test cost for TIEs as described in the Delta RMP QAPP, which will be performed as needed, as directed by the TIE subcommittee and authorized by the Delta RMP Program Manager. The per-test TIE costs should also be broken down by task, with material costs and labor hours included.

6. Conflict of Interest Statement

The stakeholders and managers of the Delta RMP have a strong interest in avoiding both real and perceived conflicts of interest, and ensuring that the contracted work is done in a way that is impartial and unbiased. The bidder shall include a statement on whether their organization has provided services or entered into contracts in the past five years with any of the Delta RMP contributors listed in Attachment A. If your organization has had financial dealings with any of the listed organizations, please include a brief description of services provided to each agency or organization listed in Attachment A.

Questions & Requests for Additional Information

Questions concerning this RFQ should be emailed to Matthew Heberger, Delta RMP Program Manager, at matth@sfei.org. Questions and/or comments regarding this RFQ will be accepted through November 22, 2019. Please provide your laboratory name, address, phone number and email address if they do not appear as a signature block for your email. Inquiries and email responses will be posted online at https://www.sfei.org/DeltaRMP by December 2, 2019, or as soon thereafter as possible.

Materials Submission

Please submit your Statement of Qualifications and Cost Estimate as a single PDF file in an email to the Delta RMP Program Manager (matth@sfei.org) with a subject line such as: **Toxicity Testing Laboratory Services Qualifications**. You can expect an email confirmation that we have received your package soon after it is received. If you have any doubt, please email for confirmation without the attachments.

Evaluation Procedures

Qualifications will be evaluated on the following factors, which include but are not limited to: analysis costs, relevant experience, and past laboratory performance. Demonstrated experience on projects similar in nature and the quality and commitment of experienced personnel are key evaluation attributes.

Since only those contractors best meeting the requirements will be given further consideration in the selection process, it is essential that your submittal articulate the reasons that your organization should be selected.

Contractors will be evaluated based only on the information provided in submitted statement of qualifications and follow-up interviews (if determined necessary). Interviews with client references may also be performed.

Qualifications will be evaluated by a committee of Delta RMP stakeholders.

If a statement of qualifications and cost estimate is received that meets the requirements of the Delta RMP and is accepted by the evaluation committee, contract negotiations will be entered into between ASC and the laboratory.

RFQ General Information

All laboratories are hereby advised that this Request for Qualifications is not a commitment or offer to enter into an agreement or engage in any competitive bidding or negotiation pursuant to any statute, ordinance, rule, or regulation.

The Delta RMP reserves the right to negotiate (through ASC) with any qualified source.

The Delta RMP reserves the right to reject any or all qualification packages for any reason or for no reason at all.

The Delta RMP reserves the right to request further information from the laboratory, either in writing or orally. Such request will be addressed to that person or persons authorized by the laboratory to represent the laboratory.

The Delta RMP reserves the sole right to judge the laboratory's representations, either written or oral.

Laboratories understand and agree that submission of a statement of qualifications constitutes acknowledgement and acceptance of, and a willingness to comply with all terms, conditions, and criteria contained in this Request for Qualifications. Any requested exceptions to the described terms, conditions, and criteria should be provided as part of the SOQ.

False, incomplete, or unresponsive statements in connection with an SOQ may be sufficient cause for the rejection of the SOQ. The evaluation and determination of the fulfillment of the above requirement will be the Delta RMP's responsibility and its decision shall be final.

The Delta RMP reserves the right to interpret or change any provisions of this Request for Qualifications at any time prior to the submission date. Such interpretations or changes will be in the form of addenda to this RFQ. Such addenda will become part of this RFQ and may become part of any resultant contract. Such addenda will be made available to each person or organization that is known to have received this RFQ. Should such addenda require additional information not previously requested, a consultant's failure to address the requirements of such addenda might result in the SOQ being disqualified or receiving a lower review score.

The Delta RMP reserves the sole right to evaluate and select the successful applicant. The selection process is anticipated to include an evaluation of qualifications and an interview with the top bidders. If interviews are conducted, the anticipated project manager and key staff should participate.

The Delta RMP and ASC shall not in any way be liable for any costs incurred in connection with the preparation of any materials submitted in response to this RFQ.

The Delta RMP and ASC reserve the right to audit, at their discretion, any contractor in person.

Attachment A – Delta RMP Participants and Contributors

Aquatic Science Center - San Francisco Estuary Institute
Brentwood, City of
California State Water Resources Control Board
California Department of Water Resources
California Department of Transportation (Caltrans)
Central Valley Regional Water Quality Control Board
Ceres, City of
Colusa County
Davis, City of
Discovery Bay
East San Joaquin Water Quality Coalition
El Dorado County
Hughson, City of
Ironhouse Sanitary District
Lathrop, City of
Lodi, City of
Manteca, City of
Modesto, City of
Mountain House
National Marine Fisheries Service
Oakdale, City of
Patterson, City of
Port of Stockton
Port of West Sacramento
Rio Vista, City of
Ripon, City of
Riverbank, City of
Rocklin, City of
Sacramento County
Sacramento, City of
Sacramento Stormwater Quality Partnership
Sacramento Regional County Sanitation District (Regional San)
Sacramento Valley Water Quality Coalition
Sacramento Yacht Club
San Joaquin County
San Joaquin County and Delta Water Quality Coalition
Stanislaus County
State and Federal Contractors Water Agency
Stockton, City of
Sutter County
Tracy, City of
Turlock, City of
US Army Corps of Engineers
US Bureau of Reclamation
US Environmental Protection Agency, Region 9
Vacaville, City of
West Sacramento, City of
Westside San Joaquin River Watershed Coalition
Woodland, City of
Yolo County
Yuba County

Attachment B – CEDEN Toxicity Testing Reporting Requirements

The toxicity CEDEN template contains four tabs: Location, ToxBatch, ToxSummaryResults, and ToxReplicateResults. Below is a brief description of the required fields in each tab. Replicate information must be provided for all tests and species in the ToxReplicateResults, including water quality parameters (alkalinity, ammonia, hardness, dissolved oxygen, pH, specific conductivity, and temperature). Additional guidance information can also be found here: http://ceden.org/ceden_datatemplates.shtml

Location Tab – Required Fields (provided by the Delta RMP sampling team)	
Field Name	**Definition**
StationCode	A code representing the Station Name and site and should be unique within CEDEN. A single waterbody may have multiple stations. StationCodes and station information must be submitted to the CEDEN system via the new vocabulary request process before lab data can be submitted.
SampleDate	Refers to the date the sample was collected in the field; formatted as dd/mm/yyyy.
ProjectCode	References the project that is associated with the sample.
CoordinateNumber	Number of coordinates recorded at a Location; e.g. 1 for Points (target and actual coordinates), 1 and 2 for Lines. Default value equals "1."
ActualLatitude	Represents the actual latitude for the sample site in decimal degrees with 5 decimal places.
ActualLongitude	Represents the actual longitude for the sample site in decimal degrees with 5 decimal places (must be negative).
Datum	The Datum field records the datum that was used on the GPS Device to record the GPS measurements. Example = NAD83. If the datum is unknown, use "NR."

ToxBatch Tab – Required Fields (to be provided by the toxicity testing laboratory)	
Field Name	**Definition**
ToxBatch	The ToxBatch is a unique code, provided by the laboratory, which represents a group of samples processed together. It groups all environmental samples with their supporting QC samples and will be used to verify completeness. Batches should only include one species and should not combine test types, i.e., reference toxicants and sample results should not be in the same batch. It is recommended that the species code be included in the ToxBatch. To ensure uniqueness in the CEDEN system, the LabAgencyCode may be appended to this value when loaded to CEDEN. Please use a standard format to construct a composite ToxBatch. Format as batch name dash (–) LabAgencyCode. Example: Batch1–SCCWRP.
StartDate	StartDate refers to the date the toxicity test began. Format is dd/mm/yyyy hh:mm.

LabAgencyCode	LabAgencyCode refers to the organization, agency, or laboratory that performed the analysis on the sample.

ToxSummaryResults Tab – Required Fields	
Field Name	**Definition**
StationCode	A code representing the StationName and site and should be unique within CEDEN. A single waterbody may have multiple stations. StationCodes and station information must be submitted to the CEDEN system via the new vocabulary request process before lab data can be submitted.
SampleDate	Refers to the date the sample was collected in the field. Formatted as dd/mmm/yyyy.
ProjectCode	References the project that is associated with the sample.
CollectionTime	Refers to the time when the first sample of a sampling event at a specific station was collected in the field. Format equals hh:mm. Use "00:00" if the time sampling started is unknown.
CollectionMethodCode	Refers to the general method of collection such as "Sed_Grab", "Sed_Core", "Water_Grab", "Autosampler24h", "Autosampler7d". Use "Not Recorded" when environmental samples are taken using an unknown method. For LabQA samples utilize "Not Applicable."
SampleTypeCode	Refers to the type of sample collected or analyzed. Use "Not Recorded" if unknown.
Replicate	Used to distinguish between replicates created at a single collection in the field. The default value is 1. Replicate samples are collected at the same station and date. Therefore, samples collected on different dates from the same station should both have a Replicate value of "1."
CollectionDepth	Records the depth or penetration, from the surface in the water or sediment column, at which the sample was collected.
UnitCollectionDepth	Refers to the units used in the CollectionDepth including cm (centimeters) and m (meters).
ToxBatch	The ToxBatch is a unique code, provided by the laboratory, which represents a group of samples processed together. It groups all environmental samples with their supporting QC samples and will be used to verify completeness. Batches should only include one species and should not combine test types, i.e. reference toxicants and sample results should not be in the same batch. It is recommended that the species code be included in the ToxBatch. To ensure uniqueness in the CEDEN system, the LabAgencyCode may be appended to this value when loaded to CEDEN. Please use a standard format to construct a composite ToxBatch. Format as ToxBatch a dash – and the LabAgencyCode. Example: Batch1-SCCWRP
MatrixName	Refers to the sample matrix, e.g. "samplewater". Use "Not Recorded" if unknown.
MethodName	Refers to the analysis method used by the laboratory to analyze the sample. Use "Not Recorded" if the method used is unknown.
TestDuration	ToxTestDurCode indicates the duration of the toxicity test as a number and includes the associated units.

OrganismName	OrganismName (FinalID) refers to the scientific name of the species used in the toxicity test.
QAControlID	LabSampleID of the control sample used for statistical comparisons
Treatment	Treatment refers to any treatment performed on the sample, such as a pH adjustment. Default value is "None."
Concentration	Concentration refers to the adjusted final concentration or value of the analyte applied to the toxicity sample, expressed as a number. Default value is "0."
UnitTreatment	UnitTreatment refers to the units used in the treatment. When the treatment is "None," the default for unit is "None."
Dilution	Dilution is recorded as a proportion of the original sample. If no dilution is performed, the default value of "100" is used. A sample with 80% sample and 20% blank water has a dilution value of "80."
WQSource	WQSource differentiates between water quality measurements taken in the overlying water or "interstitialwater" (pore water). Default value equals "Not Applicable" for toxicity endpoints.
ToxPointMethod	ToxPointMethod refers to the general method used in obtaining or calculating the result. Toxicity replicate and summary data have a default value of "None" unless a method other than the test MethodName is used for the calculations.
AnalyteName	Name of the analyte or parameter for which the analysis is conducted and a result is reported. The LookUp list includes the acceptable abbreviation or name of the variable used by the database, enabling consistency across reporting.
FractionName	Specific descriptor of the Analyte. For example, Ammonia as NH3 are often expressed as total or unionized and therefore this description should be used within the fraction field.
UnitAnalyte	UnitAnalyte indicates the units used in the measurement of the AnalyteName.
TimePoint	TimePoint is the code value that represents the point in time during the test at which the measurement was recorded for water quality measurements or the day on which the end points were taken. Example if a test was originally going to last 7 days but the endpoints were taken on the 6th day then the TimePoint would indicate "Day 6."
RepCount	RepCount is the total number of sample replicates analyzed for the associated toxicity endpoint in the toxicity test (i.e., RepCount equals the number of lab replicates used to calculate the mean result).
Mean	Mean is the average result calculated from all replicates of a single sample.
StdDev	StdDev or standard deviation is a statistic that indicates how tightly all the replicates are clustered around the mean in a set of data. This calculation includes all the applicable replicates from a single sample.
StatisticalMethod	StatisticalMethod is the statistical test or method used to calculate the probability of whether a test is significant or not. Used to determine whether the sample replicates are significantly different from the control. Use "NR" when unknown.
AlphaValue	AlphaValue is the predetermined statistical acceptance level that is not calculated, but is chosen by the laboratory when running the statistical method

CalcValueType	Calculated statistical type. For example, Probability or T value.
CalculatedValue	Calculated statistic from associated statistical method. Note when utilizing a CalcValueType of Probability ,negative control samples (CNEG) are "0.5."
CriticalValue	The derived critical value based on sample size and alpha value of the statistical test. The CriticalValue is compared to the calculated value in the associated statistical test.
PercentEffect	Percent difference between the mean of the endpoint and the mean of the control's associated endpoint; ((Mean Control Response − Mean Sample Response) / Mean Control Response) * 100.
SigEffect	The toxicity significant effect code or SigEffect indicates whether the sample result is significantly different from the control and can include whether or not it is greater or less than the evaluation threshold. Default value equals NR for environmental samples. Default value equals NA for LABQA with a CriticalValueType of Probability.
TestQACode	Applied to the result to describe any special conditions, situations or outliers that occurred during or prior to the analysis to achieve the result. The default code, indicating no special conditions, is "None." If more than one code needs to be applied to a record, the convention is to list them in alphabetical order separated by commas and no spaces. Use "NR" if unknown.

ToxReplicateResults Table – Required Fields	
Field Name	**Definition**
StationCode	A code representing the StationName and site and should be unique within CEDEN. A single waterbody may have multiple stations. StationCodes and station information must be submitted to the CEDEN system via the new vocabulary request process before lab data can be submitted.
SampleDate	Refers to the date the sample was collected in the field. Formatted as dd/mmm/yyyy.
ProjectCode	References the project that is associated with the sample.
CollectionTime	Refers to the time when the first sample of a sampling event at a specific station was collected in the field. Format equals hh:mm. Use "00:00" if the time sampling started is unknown.
CollectionMethodCode	Refers to the general method of collection such as "Sed_Grab", "Sed_Core", "Water_Grab", "Autosampler24h", "Autosampler7d". Use "Not Recorded" when environmental samples are taken using an unknown method. For LabQA samples utilize "Not Applicable."
SampleTypeCode	Refers to the type of sample collected or analyzed. Use "Not Recorded" if unknown.
Replicate	Used to distinguish between replicates created at a single collection in the field. The default value is 1. Replicate samples are collected at the same station and date. Therefore, samples collected on different dates from the same station should both have a Replicate value of "1."
CollectionDepth	Records the depth or penetration, from the surface in the water or sediment column, at which the sample was collected.

UnitCollectionDepth	Refers to the units used in the CollectionDepth including cm (centimeters) and m (meters).
ToxBatch	The ToxBatch is a unique code, provided by the laboratory, which represents a group of samples processed together. It groups all environmental samples with their supporting QC samples and will be used to verify completeness. Batches should only include one species and should not combine test types, i.e. reference toxicants and sample results should not be in the same batch. It is recommended that the species code be included in the ToxBatch. To ensure uniqueness in the CEDEN system, the LabAgencyCode may be appended to this value when loaded to CEDEN. Please use a standard format to construct a composite ToxBatch. Format as ToxBatch a dash – and the AgencyCode. Example: Batch1-SCCWRP
MatrixName	Refers to the sample matrix, e.g. "samplewater". Use "Not Recorded" if unknown.
MethodName	Refers to the analysis method used by the laboratory to analyze the sample. Use "Not Recorded" if the method used is unknown.
TestDuration	ToxTestDurCode indicates the duration of the toxicity test as a number and includes the associated units.
OrganismName	OrganismName (FinalID) refers to the scientific name of the species used in the toxicity test.
QAControlID	LabSampleID of the control sample used for statistical comparisons
Treatment	Treatment refers to any treatment performed on the sample, such as a pH adjustment. Default value is "None."
Concentration	Concentration refers to the adjusted final concentration or value of the analyte applied to the toxicity sample, expressed as a number. Default value is "0."
UnitTreatment	UnitTreatment refers to the units used in the treatment. When the treatment is "None," the default for unit is "None."
Dilution	Dilution is recorded as a proportion of the original sample. If no dilution is performed, the default value of "100" is used. A sample with 80% sample and 20% blank water has a dilution value of "80."
WQSource	WQSource differentiates between water quality measurements taken in the overlying water or "interstitialwater" (pore water). Default value equals "Not Applicable" for toxicity endpoints.
ToxPointMethod	ToxPointMethod refers to the general method used in obtaining or calculating the result. Toxicity replicate and summary data have a default value of "None" unless a method other than the test MethodName is used for the calculations.
AnalyteName	Name of the analyte or parameter for which the analysis is conducted and a result is reported. The LookUp list includes the acceptable abbreviation or name of the variable used by the database, enabling consistency across reporting.
FractionName	Specific descriptor of the Analyte. For example, Ammonia as NH3 are often expressed as total or unionized and therefore this description should be used within the fraction field.
UnitAnalyte	UnitAnalyte indicates the units used in the measurement of the AnalyteName.

TimePoint	TimePoint is the code value that represents the point in time during the test at which the measurement was recorded for water quality measurements or the day on which the end points were taken. Example if a test was originally going to last 7 days but the endpoints were taken on the 6th day then the TimePoint would indicate "Day 6."
LabReplicate	The LabReplicate identifies the individual splits of the toxicity sample and is used to identify from which replicate a result originated.
Result	Numeric result of a test, stored as text to retain trailing zeros. Result may be left blank as long as an appropriate ResQualCode is provided. For example, the Result may be blank if it was not recorded and there would be an associated ResQualCode of "NR".
ResQualCode	The Result Qualifier Code or ResultQualCode qualifies the analytical result of the sample. Default value equals "=".

Attachment C – Spreadsheet for Submitting Proof of Quality Data

[Download link]

Note: This Excel spreadsheet has multiple tabs. Instructions are in the first tab, and the following tabs are each for a different species. All cells are locked other than data entry cells.