

STATE OF CALIFORNIA
STANDARD AGREEMENT
 STD 213 (Rev 06/03)

AGREEMENT NUMBER 16-C0102
UC Davis Agreement Number A32553
REGISTRATION NUMBER

1. This Agreement is entered into between the State Agency and the Contractor named below:

STATE AGENCY'S NAME

Department of Pesticide Regulation, hereinafter referred to as "State"

CONTRACTOR'S NAME

The Regents of the University of California, hereinafter referred to as "University"

2. The term of this Agreement is: April 1, 2017 or upon final approval, whichever is later, through June 30, 2019

3. The maximum amount of this Agreement is: \$ 159,202.00

4. The parties agree to comply with the terms and conditions of the following Exhibits, which by this reference are made a part of the Agreement.

Exhibit A – A5: A–Scope of Work; A1–Deliverables; A2–Key Personnel; A3–Authorized Representatives; A4–Preexisting Data; A5–CV/Resumes	11 page(s)
Other Exhibits A (when applicable): A6–Current & Pending Support; A7–Third Party Confidential Information Requirement	1 page(s)
Exhibit B – B–Budget; B1–Budget Justification; B2–Subrecipient Budgets (if applicable); B3– Invoice Elements	5 page(s)
Exhibit C* – University Terms and Conditions	UTC-116

Check mark additional Exhibits below, and attach Exhibits or provide internet link:

- Exhibit D** – Additional Requirements Associated with Funding Sources 1 page(s)
- Exhibit E** – Special Conditions for Security of Confidential Information page(s)
- Exhibit F** – Access to State Facilities and Computing Resources page(s)
- Exhibit G** – If applicable 1 page(s)

Items shown with an Asterisk (*) are hereby incorporated by reference and made part of this agreement as if attached hereto.

These documents can be viewed at <http://www.dgs.ca.gov/ols/Resources/StandardContractLanguage.aspx>.

IN WITNESS WHEREOF, this Agreement has been executed by the parties hereto.

CONTRACTOR		California Department of General Services Use Only OJC 
CONTRACTOR'S NAME (if other than an individual, state whether a corporation, partnership, etc.) The Regents of the University of California, Davis Campus		
BY (Authorized Signature) 	DATE SIGNED (Do not type) 5/15/17	
PRINTED NAME AND TITLE OF PERSON SIGNING Kelly Gilmore, Associate Director - Procurement & Contracting Services		
ADDRESS Contracting Services 260 Cousteau Place, Ste. 150, Davis, CA. 95618		
STATE OF CALIFORNIA		
AGENCY NAME Department of Pesticide Regulation		
BY (Authorized Signature) 	DATE SIGNED (Do not type) 5-15-17	
PRINTED NAME AND TITLE OF PERSON SIGNING Lu Saepanh, Fiscal Services and Business Operations Branch Chief		
ADDRESS 1001 I Street, MS 4-A, Sacramento, CA. 95814		
		<input type="checkbox"/> Exempt per: 

Exhibit A

Project Summary & Scope of Work

Project Summary/Abstract

Briefly describe the long-term objectives for achieving the stated goals of the project.

If Third-Party Confidential Information is to be provided by the State:

- Performance of the Scope of Work is anticipated to involve use of third-party Confidential Information and is subject to the terms of this Agreement; **OR**
- A separate CNDA between the University and third-party is required by the third-party and is incorporated in this Agreement as Exhibit A7.

Scope of Work

Describe the goals and specific objectives of the proposed project and summarize the expected outcomes. If applicable, describe the overall strategy, methodology, and analyses to be used. Include how the data will be collected, analyzed, and interpreted as well as any resource sharing plans as appropriate. Discuss potential problems, alternative strategies, and benchmarks for success anticipated to achieve the goals and objectives.

The proposed project will address contamination related to pesticide loading and associated toxicity in the lower Salinas River watershed by evaluating a treatment channel and associated wetland on property adjacent to Tembladero Slough, a pesticide-impaired water body that impacts Moss Landing Harbor and Elkhorn Slough. The treatment channel and wetland system are currently used to treat Tembladero Slough by directing a portion of the flow from the Slough through the system. This system was previously used to reduce concentrations of the organophosphate diazinon, nutrients and suspended particles from a portion of the Tembladero Slough discharge, and reduce pesticide loading and toxicity to surface waters in the Moss Landing Harbor and Elkhorn Slough.

As pesticide use patterns continue to evolve, treatment systems need to be refined to address newer classes of contaminants. For example, Department of Pesticide Regulation (DPR) and USGS surface water monitoring on the Central Coast has detected elevated concentrations of the neonicotinoid pesticide imidacloprid, and recent collaborative monitoring by DPR and UC Davis has detected surface water toxicity to chironomids due to this pesticide. Neonicotinoids are highly soluble and not amenable to treatment by vegetative sorption (Stang et al., 2015). Preliminary results of DPR bioreactor monitoring in Santa Maria has also suggested these treatment systems may not be effective for this class of pesticides. The proposed project will modify the Tembladero treatment system to incorporate additional steps to specifically treat neonicotinoids and other water soluble contaminants, such as certain organophosphates and nutrients.

Recent bench-scale laboratory experiments have demonstrated that granulated-activated carbon (GAC) effectively removes imidacloprid from solution under loading regimes typical of row crop agriculture runoff (Voorhees et al., in prep). Field experiments have demonstrated that GAC is an

effective polishing step for removing residual chlorpyrifos not completely removed by vegetation (Phillips et al., 2016). Similar to other organophosphate pesticides, chlorpyrifos is partially treated by steps such as vegetated ditches and sediment settling ponds, but requires additional steps to reduce concentrations to levels that comply with water quality criteria ($< 0.25 \mu\text{g/L}$). Similar measures will likely be required for neonicotinoids. Bench-scale experiments to determine GAC effectiveness over extended loading regimes and comparisons of GAC performance relative to biochar are currently being designed in a collaboration between UC Davis and the Anthropocene Institute. Results of this research will be applied to use of these technologies in the Tembladero project.

The proposed project will incorporate a sediment settling area with vegetated treatment and a GAC installation in the existing Tembladero treatment channel. The treatment channel drains to a restored wetland where additional treatment occurs and the project will evaluate the efficacy of this integrated system for treating the complex mixture of contaminants in the Tembladero Slough. This includes agriculture and urban runoff containing suspended particles, nutrients, legacy and current-use pesticides. The project will combine monitoring of pesticides, nutrients, total suspended solids and toxicity at key points in the treatment process with the goal of evaluating how well this system removes the specific contaminants responsible for the current U.S. EPA 303(d) impaired water body designation of the Tembladero Slough, as well as newer classes of pesticides now impacting this system.

The Tembladero Slough is currently listed as impaired due to a number of agriculture and urban runoff-related contaminants, and associated impacts, including the organophosphate pesticides chlorpyrifos, diazinon and malathion, sediment toxicity due to pyrethroid pesticides, turbidity and nutrients. Though not officially listed due to neonicotinoids, recent monitoring suggests that this pesticide class now also impacts this system. The combination of treatment processes proposed for the current project have been developed to address the complex mixture of contaminants in central coast runoff through continuing collaborative research with DPR, UC Davis, UC Cooperative Extension and other researchers. The techniques have matured to the stage where a field evaluation of an integrated system under real-world conditions is now appropriate. It is anticipated this project will serve as a demonstration wetland treatment system for similar implementation projects throughout the Central Coast. DPR Pesticide Research Grant funding will be used for effectiveness evaluation through provision of chemical analysis and toxicity testing.

Tasks

The project will assess treatment practice effectiveness monitoring of the Tembladero Slough treatment channel. Monitoring will include evaluations of contaminant reductions at three key stations as Tembladero Slough water progresses through the treatment channel and wetland. Monitoring will include evaluation of the treatment processes through chemical analysis of pesticides, nutrients, suspended particles (as turbidity) and associated toxicity (Task 3).

Task 1) Project Management (April 2017 – June 2019) – UC Davis faculty researchers, along with the Project Manager from the Department of Pesticide Regulation and scientists from the Central Coast Wetlands Group (CCWG) at Moss Landing will coordinate all aspects of the project. UC Davis will organize a kick-off meeting to introduce participating parties. Other meetings or phone calls will be planned as necessary.

Task 2) Management Practice Implementation (Design and Construction, July 2017 – August 2017) – Implement field planting and GAC installation at site to treat Tembladero Slough flow. The Molera Treatment Wetland consists of a 285 meter long, 6.5 meter wide, and 0.3 meter deep sinuous channel that drains onto a non-channelized wetland shelf before flows are returned to Tembladero Slough. The treatment system receives water from a pump intake in Tembladero Slough. The existing system will be modified to optimize treatment of current-use pesticides, nutrients and turbidity. Modifications will include the addition of pennywort and watercress to approximately 20% of the distal end of the treatment channel, and a GAC installation at the outflow of the channel. The GAC installation will consist of a fiberglass flow-through trough containing approximately 400 liters of GAC in mesh Filtrexx® socks.

Task 3) Monitoring Performance (September 2017 – June 2019) – Develop wetland monitoring plan and conduct wetland monitoring to evaluate project effectiveness. Tembladero Slough water will be pumped continuously through the wetland at a rate of approximately 360 L/m. Composite samplers will be installed at the inflow, downstream of the vegetation, and the outflow of the GAC installation. Composite samples from eight 72-hour flow events will be sampled from each station. All samples will be tested for toxicity with *Ceriodaphnia dubia* (96 hour acute test), *Chironomus dilutus* (10 day chronic test), and *Hyalella azteca* (96 hour acute test), as well as analyzed for a suite of neonicotinoid, organophosphate, and pyrethroid pesticides. Water samples will also be analyzed for nitrate, phosphate and turbidity. It is predicted that three events will be sampled between September and December 2017, and four between January and September 2018.

Task 4) Education and Outreach (January 2019 – June 2019). Conduct project demonstrations and outreach to educate growers, landowners, and other stakeholders on project outcomes through field tours or other communications.

Project Timeline:

Task	Start Date	End Date
Task 1: Project Management	4/1/17	6/30/19
Task 2: Management Practice Implementation	7/1/17	8/31/17
Task 3: Monitoring Performance	9/1/17	9/30/19
Task 4: Education and Outreach	1/1/19	6/30/19

Exhibit A1

SCHEDULE OF DELIVERABLES

List all items that will be delivered to the State under the proposed Scope of Work. Include all reports, including draft reports for State review, and any other deliverables, if requested by the State and agreed to by the Parties.

Deliverable*	Description	Due Date
Project Report	Task 3: Final report will include results of all monitoring events, including toxicity, analytical chemistry, and nutrient and pesticide load reduction.	6/30/2019
Year One Progress Report	Task 3: Progress Report will include status of all Task Items	12/31/2017
Year Two Progress Report	Task 3: Progress Report will include status of all Task Items	12/31/2018
Field Tour Summary	Task 4: Report number and attendee count for field tours	6/30/2019
The following Deliverables are subject to paragraph 18. Copyrights, Section B of Exhibit C		

** If use of any Deliverable is restricted or is anticipated to contain Preexisting Data or copyrightable works with any restricted use, it will be clearly identified in Exhibit A4, Use of Preexisting Data, Copyrighted Works and Deliverables.*

Exhibit A2

KEY PERSONNEL

List Key Personnel as defined in the Agreement starting with the PI, by last name, first name followed by Co-PIs. Then list all other Key Personnel in alphabetical order by last name. For each individual listed include his/her name, institutional affiliation, and role on the proposed project. Use additional consecutively numbered pages as necessary.

Last Name, First Name	Institutional Affiliation	Role on Project
PI:		
<i>Tjeerdema, Ronald</i>	<i>UC Davis</i>	<i>PI oversight of project</i>
Co-PI(s) – if applicable:		
Other Key Personnel (if applicable):		
<i>Phillips, Bryn</i>	<i>UC Davis</i>	<i>Project Manager, Data QA</i>
<i>Anderson, Brian</i>	<i>UC Davis</i>	<i>Project Manager</i>

Exhibit A3

AUTHORIZED REPRESENTATIVES AND NOTICES

The following individuals are the authorized representatives for the State and the University under this Agreement. Any official Notices issued under the terms of this Agreement shall be addressed to the Authorized Official identified below, unless otherwise identified in the Agreement.

Changes in the University Principal Investigator are subject to the Key Personnel section of this Agreement. Changes in other contact information may be made by notification, in writing, between the parties.

State Agency Contacts	University Contacts
<p>Agency Name: Department of Pesticide Regulation</p> <p>Contract Project Manager (Technical)</p> <p>Name: Xin Deng Sr. Environmental Scientist</p> <p>Address: Department of Pesticide Regulation 1001 I Street, MS 3-B Sacramento, CA 95814</p> <p>Telephone: 916-445-2506 Fax: 916-324-4088 Email: xin.deng@cdpr.ca.gov</p>	<p>University Name: University of California, Davis</p> <p>Principal Investigator</p> <p>Name: Ronald Tjeerdema Associate Dean</p> <p>Address: Environmental Sciences UC Davis, One Shields Ave Davis, CA 95616</p> <p>Telephone: (530) 752-6730 Fax: Email: rstjeerdema@ucdavis.edu</p>
<p>Authorized Official (contract officer)</p> <p>Name: Lu Saepanh Fiscal Services and Business Operations Branch Chief</p> <p>Address: Department of Pesticide Regulation 1001 I Street, MS 4-A Sacramento, CA 95814</p> <p>Send notices to (if different):</p> <p>Name: Xin Deng Sr. Environmental Scientist</p> <p>Address: Department of Pesticide Regulation 1001 I Street, MS 3-B Sacramento, CA 95814</p> <p>Telephone: 916-445-2506 Fax: 916-324-4088 Email: xin.deng@cdpr.ca.gov</p>	<p>Authorized Official</p> <p>Name: Kelly Gilmore Associate Director Address: Accounting and Financial Services, Contracting 260 Cousteau Place, Ste 150 Davis, CA 95618</p> <p>Telephone: (530) 754-1374 Fax: Email: kngilmore@ucdavis.edu</p> <p>Send notices to (if different):</p> <p>Name: Address: Telephone: Fax: Email:</p>

<p><i>Administrative Contact</i></p> <p>Name: Terry Harrison Contract Analyst</p> <p>Address: Department of Pesticide Regulation 1001 I Street, MS 4-A Sacramento, CA 95814</p> <p>Telephone: 916-445-2511</p> <p>Fax: 916-445-6845</p> <p>Email: terry.harrison@cdpr.ca.gov</p>	<p><i>Administrative Contact</i></p> <p>Name: V.Ana Balogh Account Analyst</p> <p>Address: Metro Cluster 4138 Meyer Hall Davis, CA 95616</p> <p>Telephone: (530)754-8998</p> <p>Fax:</p> <p>Email: vvbalogh@ucdavis.edu</p>
<p><i>Financial Contact/Accounting</i></p> <p>Name: Accounts Payable</p> <p>Address: Department of Pesticide Regulation 1001 I Street, MS 4-A P.O. Box 4015 Sacramento, CA 95812-4015</p>	<p><i>Authorized Financial Contact/Invoicing</i></p> <p>Name: Kelly Gilmore Associate Director Address: Accounting and Financial Services, Contracting 260 Cousteau Place, Ste 150 Davis, CA 95618</p> <p>Telephone: (530) 754-1374</p> <p>Fax:</p> <p>Email: kngilmore@ucdavis.edu</p>

Exhibit A4

USE OF PREEXISTING DATA, COPYRIGHTED WORKS AND DELIVERABLES

If the either Party will be using any third-party or pre-existing data or copyrighted works that have restrictions on use, then list all such data or copyrighted works and the nature of the restriction below. If no third-party or pre-existing data or copyrighted works will be used, check "none" in this section.

A. State: Preexisting Data and/or copyrighted works to be provided to the University from the State or a third party for use in the performance in the Scope of Work.

None or List:

Owner (State Agency or 3 rd Party)	Type of Data or copyrighted work (Restricted or Unrestricted)	Description	If Restricted, nature of restriction:

B. University: Use of Preexisting Data or copyrighted works included in Deliverables identified in Exhibit A1.

None or List:

Owner (University or 3 rd Party)	Type of Data or copyrighted work (Restricted or Unrestricted)	Description	If Restricted, nature of restriction:

C. Anticipated restrictions on use of Project Data.

If the University PI anticipates that any of the Project Data generated during the performance of the Scope of Work will have a restriction on use (such as subject identifying information in a data set) then list all such anticipated restrictions below. If there are no restrictions anticipated in the Project Data, then check "none" in this section.

None or List:

Owner (University or 3 rd Party)	Description	Nature of Restriction:

Exhibit A5

CURRICULUM VITAE (CV) / RÉSUMÉS / BIOSKETCH

Attach CV/Résumé/Biosketch for Key Personnel listed in Exhibit A2.

Ronald Scott Tjeerdema:

Professor of Environmental Toxicology

Education

- 1987 PhD Pharmacology & Toxicology, University of California, Davis 1983 MA
Pharmacology, University of California, Santa Barbara
- 1980 BS Wildlife Management, Humboldt State University, Arcata, CA
- 1980 BS Natural Resource Planning & Interpretation, Humboldt State University, Arcata, CA

Experience

- 2014–present Associate Dean, College of Agricultural & Environmental Sciences, UC Davis
- 2003–14 Chair, Department of Environmental Toxicology, UCD
- 1999–present Professor, Department of Environmental Toxicology, UCD 1999–
present Environmental Chemist, Agricultural Experiment Station, UCD
- 2011–15 Director, USDA IR-4 Minor-Use Pesticide Project, Western Region, UCD 1999–
present Affiliate, Graduate Groups in Agricultural & Environmental Chemistry, Pharmacology
& Toxicology, Forensic Science and Ecology, UCD
- 1998–99 Professor, Department of Chemistry & Biochemistry, UC Santa Cruz 1
- 1994–98 Associate Professor, Department of Chemistry & Biochemistry, UCSC
- 1992–94 Assistant Professor, Department of Chemistry & Biochemistry, UCSC
- 1987–92 Lecturer and Assistant Research Toxicologist, Institute of Marine Sciences, UCSC

Professional Certification

- 1994–present Diplomate in General Toxicology, American Board of Toxicology (DABT)

Membership in Professional Societies

- Society of Toxicology (SOT; Mechanisms Section)
- Society of Environmental Toxicology & Chemistry (SETAC) American
Chemical Society (ACS; Agrochemicals Division)

American Society of Pharmacology & Experimental Therapeutics (ASPET)

Honors and Awards

2011–present Donald G. Crosby Endowed Chair in Environmental Chemistry, UCD 2011 Nominee,
9th Annual ASUCD Excellence in Education Award

2008 Director's Achievement Award for Service on the Lake Davis Pike Eradication Project,
California Department of Fish & Game

2005 Gamma Sigma Delta Honor Society for Agriculture

1997 Donald G. Crosby Distinguished Alumni Award, Department of Environmental Toxicology,
UCD

1997 Program Committee Tri-Chair (organizer and host), 1997 Annual Meeting of the Society of
Environmental Toxicology & Chemistry (SETAC), San Francisco, CA

1983–87 NIEHS Predoctoral Fellowship in Toxicology, UCD

Bryn Phillips:

Education:

1989 B.S. Zoological Sciences, California State University, Long Beach

1995 M.S. Marine Sciences, San Jose State University, Moss Landing Marine Laboratories

Bryn Phillips has been a Research Specialist with the University of California since 1992. He designs and conducts research projects to assess ambient water and sediment quality in marine, estuarine, and freshwater environments (for a more thorough description, see Brian Anderson's profile). His research identifies sources and causes of toxicity through watershed assessments and toxicity identification evaluations. His work includes:

- Integrating and interpreting synoptic data from chemical and toxicological analyses conducted at cooperating laboratories
- Developing toxicity assessment techniques
- Evaluating acute and chronic effects of pollutants
- Coordinating and conducting aquatic and sediment toxicity tests and research projects
- Data management and quality control

Brian S. Anderson:

Education:

1982. B.S., Biological Sciences, Oregon State University (emphasis in marine ecology).

1987. M.A., Marine Biology, San Jose State University, Moss Landing Marine Laboratories (emphasis in phycology, marine ecology).

Professional Positions

1987- present. Research Specialist, University of California, Davis.

Professional Affiliations

Society of Environmental Toxicology and Chemistry

Selected Research Experience

2013– 2016. Effects of clay on the amphipod *Eohaustorius estuarius*. Grant research for the San Francisco Estuary Institute.

2013– on-going. Co-lead researcher on investigations of the efficacy of vegetated treatment systems, granulated carbon and recycled plastic for reducing toxicity associated with pesticide runoff. Grant research for the California Department of Pesticide Regulation.

2011 - 2014. Co-lead researcher on the efficacy of LID practices for reduction of storm water contamination and toxicity in the City of Salinas. DWR Proposition 84 grant research.

2008 – ongoing. Co-lead researcher on long-term trend monitoring of sediment contamination and toxicity in California watersheds; Surface Water Ambient Monitoring Program/Stream Pollution Trends monitoring project.

2008-2010. Co-lead researcher on sources and causes of water and sediment toxicity in the Santa Maria River watershed. Grant Research for the Central Coast Regional Water Quality Control Board.

2005 – 2011. Lead researcher on investigations of the efficacy of vegetated treatment systems and constructed wetlands for reducing toxicity associated with pesticide runoff. Grant research for the State Water Resources Control Board and the Central Coast Regional Water Quality Control Board, in cooperation with the Monterey County Resource Conservation District.

1998-2010 Lead researcher on monitoring studies of pesticide runoff associated with ambient toxicity in the Salinas River and associated drainages. Grant research for California State Water Resources Control Board.

1990-1997. Lead researcher on the effects of contaminated sediments on the early life stages of marine and estuarine species. Grant research for the San Francisco Regional Water Quality Control Board.

1985-2005. Lead researcher on the effects of point and non-point source pollution on early life stages of kelp (*Macrocystis pyrifera*), red abalone (*Haliotis rufescens*), mysid shrimp (*Holmesimysis costata*), and topsmelt (*Atherinops affinis*). Grant research for the California State Water Resources Control Board.

Exhibit A6

CURRENT & PENDING SUPPORT

(Will be incorporated, if applicable.)

University will provide current & pending support information for Key Personnel identified in Exhibit A2 at time of proposal and upon request from State agency. The "Proposed Project" is this application that is submitted to the State. Add pages as needed.

PI: Ronald Tjeerdema					
Status (currently active or pending approval)	Award # (if available)	Source (name of the sponsor)	Project Title	Start Date	End Date
Proposed Project	16-C0102	CA Dept of Pesticide Regulation	Tembladero Slough Pesticide and Toxicity Reduction Project	04/01/2017	06/30/2019
CURRENT	14-082-270	CA State Water Resources Control Board	Stream Pollution Trends Program	06/05/2015	12/31/2017
Bryn Phillips					
Status	Award #	Source	Project Title	Start Date	End Date
Proposed Project	16-C0102	CA Dept of Pesticide Regulation	Tembladero Slough Pesticide and Toxicity Reduction Project	04/01/2017	06/30/2019
CURRENT	14-082-270	CA State Water Resources Control Board	Stream Pollution Trends Program	06/05/2015	12/31/2017
Brian Anderson					
Status	Award #	Source	Project Title	Start Date	End Date
Proposed Project	16-C0102	CA Dept of Pesticide Regulation	Tembladero Slough Pesticide and Toxicity Reduction Project	04/01/2017	06/30/2019
CURRENT	14-082-270	CA State Water Resources Control Board	Stream Pollution Trends Program	06/05/2015	12/31/2017

Exhibit B

Budget Estimate for Project Period

Exhibit B
Line Item Budget

Payment and Invoicing will be in accordance to Section 14 of the attached Exhibit C (UTC-116).

Principal Investigator (Last, First) Tjeerdema, Ronald

COMPOSITE BUDGET: ESTIMATE FOR ENTIRE PROPOSED PROJECT PERIOD
04/01/2017 To 06/30/2019

Budget Category	From: To:	04/01/2017 06/30/2017	07/01/2017 06/30/2018	07/01/2018 06/30/2019	Total
		Year 1	Year 2	Year 3	
Personnel: <i>Salary and fringe benefits</i>		\$38,762	\$10,490	\$4,142	\$ 53,394
Approved Hourly Rates:					
Specialist V - \$108		170 hours	45 hours	12 hours	
Specialist IV - \$99		170 hours	45 hours	24 hours	
Staff Research Assoc. I - \$47		76 hours	25 hours	10 hours	
Travel		\$0	\$0	\$	\$
Materials & Supplies		\$10,783	\$0	\$	\$ 10,783
Water Sample Analyses by UC Davis-Granite Canyon					
Ceriodaphnia 96-h (21 @ \$665)		\$0	\$34,790	\$17,395	\$ 52,185
Chironomus 10-d (21 @ \$1160)					
Hyalella 96-h (21 @ \$660)					
Consultant		\$0	\$0	\$	\$
Subrecipient U.S. Geological Survey		\$0	\$18,360	\$24,480	\$42,840
Other Direct Costs (ODC)		\$0	\$0	\$	\$
Total Direct Costs		\$49,545	\$63,640	\$46,017	\$159,202
Indirect (F&A) Costs					
On-Campus	E&A Base MTDC				
Indirect (F&A) Costs		\$0	\$0	\$0	\$0
Total Costs					\$159,202

Exhibit B1

Budget Justification

The Budget Justification will include the following items in this format.

Personnel

Name. Starting with the Principal Investigator, list the names of all known personnel who will be involved on the project for each year of the proposed project period. Include all collaborating investigators, individuals in training, technical and support staff or include as "to be determined" (TBD).

Ronald Tjeerdema	Principal Investigator
Bryn Phillips	Project Manager
Brian Anderson	Project Manager
Jennifer Voorhees	Lab Analyst (SRA III)
Laura McCalla	Lab Analyst (SRA I)

Role on Project. For all personnel by name, position, function, and a percentage level of effort (as appropriate), including "to-be-determined" positions.

Name	Position	Function	Percentage Level of Effort
Ronald Tjeerdema	PI	Supervisory	2%
Bryn Phillips	Project Manager	Manager	17%
Brian Anderson	Project Manager	Manager	17%
Jennifer Voorhees	Lab Analyst	Lab Analyst	15%
Laura McCalla	Lab Analyst	Lab Analyst	19%

Fringe Benefits.

In accordance with University policy, explain the costs included in the budgeted fringe benefit percentages used, which could include tuition/fee remission for qualifying personnel to the extent that such costs are provided for by University policy, to estimate the fringe benefit expenses on Exhibit B.

N/A

Travel

Itemize all travel requests separately by trip and justify in Exhibit B1, in accordance with University travel guidelines. Provide the purpose, destination, travelers (name or position/role), and duration of each trip. Include detail on airfare, lodging and mileage expenses, if applicable. Should the application include a request for travel outside of the state of California, justify the need for those out-of-state trips separately and completely.

N/A

Materials and Supplies

Itemize materials supplies in separate categories. Include a complete justification of the project's need for these items. Theft sensitive equipment (under \$5,000) must be justified and tracked separately in accordance with State Contracting Manual Section 7.29.

Flow weighted samplers (3 @ \$2,800 each) are required to collect composited samples over time for the analyses.

Granulated activated Carbon (\$2,400) is required for treatment of some water samples prior to analyses.

Equipment

List each item of equipment (greater than or equal to \$5,000 with a useful life of more than one year) with amount requested separately and justify each.

N/A

Consultant Costs

Consultants are individuals/organizations who provide expert advisory or other services for brief or limited periods and do not provide a percentage of effort to the project or program. Consultants are not involved in the scientific or technical direction of the project as a whole. Provide the names and organizational affiliations of all consultants. Describe the services to be performed, and include the number of days of anticipated consultation, the expected rate of compensation, travel, per diem, and other related costs.

N/A

Subawardee (Consortium/Subrecipient) Costs

Each participating consortium organization must submit a separate detailed budget for every year in the project period in Exhibit B2. Subcontracts. Include a complete justification for the need for any subawardee listed in the application.

U.S. Geological Survey will perform analysis of plant samples under this Agreement.

Other Direct Costs

Itemize any other expenses by category and cost. Specifically justify costs that may typically be treated as indirect costs. For example, if insurance, telecommunication, or IT costs are charged as a direct expense, explain reason and methodology.

N/A

Rent

If the scope of work will be performed in an off-campus facility rented from a third party for a specific project or projects, then rent may be charged as a direct expense to the award.

N/A

Indirect (F&A) Costs

Indirect costs are calculated in accordance with the University budgeted indirect cost rate in Exhibit B.

N/A

Exhibit B2

Budget Estimates Pertaining to Subcontractors (when applicable)

U.S. Geological Survey cost details:

\$2,040.00 / sample analyzed

(neonicotinoids & other \$860.00 + pyrethroids/fipronil & other \$1,180.00 per sample)

Total Estimated Cost \$2,040.00 / sample x 21 samples = \$42,840.00

Exhibit B3

Invoice and Detailed Transaction Ledger Elements

In accordance with Section 14 – Payment and Invoicing, the invoice, summary report and/or transaction/payroll ledger shall be certified by the University's Financial Contact and the PI.

Summary Invoice – includes either on the invoice or in a separate summary document – by approved budget category (Exhibit B) – expenditures for the invoice period, approved budget, cumulative expenditures and budget balance available¹

- Personnel
- Equipment
- Travel
- Subawardee – Consultants
- Subawardee – Subcontract/Subrecipients
- Materials & Supplies
- Other Direct Costs
 - TOTAL DIRECT COSTS (if available from system)
- Indirect Costs
 - TOTAL

Detailed transaction ledger and/or payroll ledger for the invoice period²

- Univ Fund OR Agency Award # (to connect to invoice summary)
- Invoice/Report Period (matching invoice summary)
- GL Account/Object Code
- Doc Type (or subledger reference)
- Transaction Reference#
- Transaction Description, Vendor and/or Employee Name
- Transaction Posting Date
- Time Worked
- Transaction Amount

¹ If this information is not on the invoice or summary attachment, it may be included in a detailed transaction ledger.

² For salaries and wages, these elements are anticipated to be included in the detailed transaction ledger. If all elements are not contained in the transaction ledger, then a separate payroll ledger may be provided with the required elements.

Exhibit D (if applicable)

Additional Requirements Associated with Funding Sources

If the Agreement is subject to any additional requirements imposed on the funding State agency by applicable law (including, but not limited to, bond, proposition and federal funding), then these additional requirements will be set forth in Exhibit D. If the University is a subrecipient, as defined in 2 CFR 200 (Uniform Guidance on Administrative Requirements, Audit Requirements and Cost Principles for Federal Financial Assistance), and the external funding entity is the federal government, the name of the federal agency, the prime award number (if available), and the Catalog of Federal Domestic Assistance (CFDA) program number will be listed in Exhibit D. (Please see sections 10.A and 10.B of the UTC.)

Agency (Required for federal funding source)	Prime Agreement Number (if available)	If Federal, CFDA Number
United States Environmental Protection Agency	BG-00T11417-0	

Exhibit G – Negotiated Alternate UTC Terms (if applicable)

*While every effort has been made to keep the UTC as universal in its application as possible, there may be unique projects where a given term in the UTC may be inappropriate or inadequate. AB20 allows for those terms to be changed, but only through the mutual agreement and negotiation of the State agency and the University campus. If a given term in the UTC is to be changed, the change should **not** be noted in Exhibit C, but rather noted separately in Exhibit G.*

1. Harassment Free Workplace

The Department of Pesticide Regulation (DPR) is committed to providing a safe, secure environment, free from sexual misconduct. It is policy of the Department that employees have the right to work in an environment that is free from all forms of discrimination, including sexual harassment. This policy specifically speaks to freedom from a sexually harassing act that results in the creation of an intimidating, hostile or offensive work environment or that otherwise interferes with an individual's employment or work performance. As a Contractor with DPR, you and your staff are expected to comply with a standard of conduct that is respectful and courteous to DPR employees and all other persons contacted during the performance of this Agreement. Sexual harassment is unacceptable, will not be tolerated; and may be cause for prohibiting some or all of the Contractor's staff from performing work under this Agreement.