

AGREEMENT NUMBER <b>14-C0103</b>
REGISTRATION NUMBER <b>1415298</b>

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

STATE AGENCY'S NAME

**Department of Pesticide Regulation**

CONTRACTOR'S NAME

**The Regents of the University of California**

2. The term of this Agreement is: **May 1, 2015 or upon final approval by the State, whichever occurs later, through April 15, 2017**

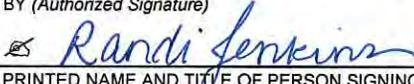
3. The maximum amount of this Agreement is: **\$ 98,684.00**  
**Ninety-eight thousand six hundred eighty-four dollars and no cents**

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

<b>Exhibit A</b> – Scope of Work	6 Pages
<b>Exhibit B</b> – Budget Detail and Payment Provisions	3 Pages
<b>Exhibit C*</b> – General Terms and Conditions (GIA 610)	
<b>Exhibit D</b> - Special Terms and Conditions	2 Pages
<b>Exhibit E</b> – Additional Terms and Conditions	1 Page
<b>Exhibit F</b> – Resume	3 Pages

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.ols.dgs.ca.gov/Standard+Language/default.htm>*

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

CONTRACTOR		<b>California Department of General Services Use Only</b>
CONTRACTOR'S NAME (if other than an individual, state whether a corporation, partnership, etc.)		
<b>The Regents of the University of California</b>		
BY (Authorized Signature)	DATE SIGNED(Do not type)	
	<b>4.29.2015</b>	
PRINTED NAME AND TITLE OF PERSON SIGNING		
<b>Randi Jenkins, J.D.</b> <b>Associate Director</b>		
ADDRESS		
<b>1850 Research Park Drive, Suite 300</b> <b>Davis, CA 95618</b>		
STATE OF CALIFORNIA		
AGENCY NAME		
<b>Department of Pesticide Regulation</b>		
BY (Authorized Signature)	DATE SIGNED(Do not type)	
	<b>5/13/15</b>	
PRINTED NAME AND TITLE OF PERSON SIGNING		
<b>Lu Saepanh, Fiscal Services and Business Operations Branch Chief</b>		
ADDRESS		
<b>1001 I Street, Sacramento, CA 95814</b>		

Exempt per:  
 Delegation Letter 74.5

**EXHIBIT A**  
**STANDARD AGREEMENT**

**SCOPE OF WORK**

1. This Agreement is between the Regents of the University of California, hereinafter referred to as UCD or Contractor, and the Department of Pesticide Regulation, hereinafter referred to as DPR.
2. This Agreement will commence on the start date May 1, 2015 as presented herein or upon final approval by the State, whichever is later and no work shall begin before that time. This Agreement is of no effect unless approved by the State. Contractor shall not receive payment for work performed prior to the approval of the Agreement and before receipt of the notice to proceed by the Contract Manager. This Agreement shall expire on April 15, 2017. The services shall be provided during normal working hours.
3. The Project Representatives during the term of this Agreement will be:
  - A. All official communications, except invoices, from the Contractor to DPR, shall be directed to the attention of the DPR Contract Manager, **Jennifer Teerlink**, or designee, at:

Department of Pesticide Regulation  
Environmental Monitoring Branch, MS 3B  
1001 I Street  
P.O. Box 4015  
Sacramento, CA 95812-4015

Phone (916) 324-4072; Fax (916) 324-4088  
Email address: [Jennifer.Teerlink@cdpr.ca.gov](mailto:Jennifer.Teerlink@cdpr.ca.gov)

- B. All invoices from the Contractor to DPR shall be directed to:

Department of Pesticide Regulation  
Attn: Accounts Payable  
P.O. Box 4015, MS 4A  
Sacramento, CA 95812-4015

- C. All programmatic communications from DPR to the Contractor shall be directed to the attention of **Dr. Thomas Young**, or designee, at:

Dr. Thomas Young  
Department of Civil and Environmental Engineering  
One Shields Avenue  
UC Davis, CA 95616

Phone: 530-754-9399; Fax: 530-752-7872  
Email: [tyoung@ucdavis.edu](mailto:tyoung@ucdavis.edu)

**EXHIBIT A**  
**STANDARD AGREEMENT**

- D. All administrative communications, except payments, from DPR to Contractor shall be directed to:

Office of Research, Sponsored Programs  
1850 Research Park Drive Ste. 300  
Davis, CA 95618

Phone: 530-754-7700; FAX: 530-754-8229  
Email Address: [vcresearch@ucdavis.edu](mailto:vcresearch@ucdavis.edu)

- E. All payments from DPR to the Contractor shall be directed to:

Cashier's Office  
P.O. Box 989062  
West Sacramento, CA 95798-9062

- F. The Project Representatives during the term of this Agreement may be changed by mutual written agreement without the necessity of formal amendment to this Agreement.

**4. Background and Objectives**

Detections of pesticides in treated wastewater discharges have raised water quality concerns, but the extent of the problem and the sources of the compounds to wastewater treatment plants are largely unknown. Addressing these problems requires robust and validated analytical methods to identify and quantify pesticides in wastewater; these methods are not currently available, especially for insecticides other than pyrethroids. Scanning for non-target pesticides and adjuvants will allow identification of compounds entering wastewater system from sources not otherwise identified.

**5. Objectives**

The objectives of this research are to develop, validate, and demonstrate analytical methods to quantify the concentrations of a target list of pesticides in municipal wastewater influent and effluent and to simultaneously scan for the presence of pesticides and adjuvants not currently on the list.

**EXHIBIT A**  
**STANDARD AGREEMENT**

**6. Work to be Performed**

A. Task 1

- 1) **Develop Targeted Analytical Methods for High Priority Pesticides.**  
Targeted analytical methods will be developed for 27 compounds (Table 1), which include both insecticide active ingredients and persistent and/or toxic degradation products of selected insecticides. This list was developed by DPR staff from store shelf surveys of residential use pesticides and available toxicity data. The methods will be developed for gas and liquid chromatography with high resolution mass spectrometry (GC-HRMS and LC-HRMS) to allow simultaneous quantification of the target compounds and identification of insecticides or adjuvants not currently on the list. All methods will be formulated to support implementation of the target compound analysis procedures on unit resolution LC- and GC-mass spectrometers.
- 2) Extraction, concentration, cleanup and analysis methods will be developed and refined using wastewater influent and effluent samples from the UC Davis wastewater treatment plant spiked with the target compounds. Once acceptable compound recoveries, method reproducibility and detection limits have been obtained for all compounds, a technical memo will be prepared summarizing the methods and to report target compound results.

**Table 1. Analytes to be Included in the Target Method**

<b>Analyte</b>	<b>DPR Chemical Code</b>	<b>Use Type</b>
Permethrin	2008	Insecticide
Cyhalothrin	2297 & 5877	Insecticide
Cypermethrin	2171 & 3866	Insecticide
Phenothrin/Sumithrin	2093	Insecticide
Tetramethrin	1695	Insecticide
Deltamethrin	3010	Insecticide
Esfenvalerate	2321	Insecticide
Prallethrin	3985	Insecticide
D-Trans Allethrin	4038	Insecticide
Imiprothrin	5327	Insecticide
Bifenthrin	2300	Insecticide
Tralomethrin	2329	Insecticide
Cyphenothrin	3885	Insecticide
Bioallethrin	4039	Insecticide
Beta-cyfluthrin	3956	Insecticide

**EXHIBIT A  
 STANDARD AGREEMENT**

Etofenprox	2292	Insecticide
Fipronil	3995	Insecticide
Fipronil sulfide		Degradate
Fipronil amide		Degradate
Fipronil sulfone		Degradate
Desulfinyl fipronil		Degradate
Desulfinyl fipronil amide		Degradate
Imidacloprid	3849	Insecticide
Novaluron	5754	Insecticide
Propoxur	62	Insecticide
Pyriproxyfen	4019	Insecticide
Chlorothalonil	677	Insecticide

B. Task 2

**Conduct Target and Non-target Analysis for Pesticides and Adjuvants in Municipal Wastewater Influent.** A cooperating wastewater treatment facility will be identified in cooperation with DPR staff. Sampling locations will be determined after consulting with staff at the wastewater treatment facility. The primary goal of sampling site selection will be to obtain samples from portions of the sewer-shed that include distinctly different land uses (e.g., residential/commercial, sanitary sewers/combined sewers) and that contain businesses that handle pesticides (e.g., pet grooming facilities, pest control operators, nurseries, hospitals). To obtain information about weekly and seasonal variations, wastewater samples will be collected on one weekday and one weekend day in three seasons, spring (March 2016), summer (July 2016) and fall (November 2016). A total of 12 sites will be sampled at each of the 6 time points, 10 sites representing various sub-divisions of the sewer-shed, one combined influent and one effluent sample. Therefore, a total of 72 wastewater samples will be analyzed using validated methods for quantification of target compounds and identification of non-target pesticides and adjuvants using high resolution spectroscopy scans. The budget below assumes that these samples are collected by the staff of the cooperating utility or by DPR and are provided to UC Davis. Each sampling event will include at least one field blank and one matrix spike duplicate for quality assurance.

C. Task 3

**Prepare Final Report.** A final report will be prepared summarizing the findings of the wastewater source identification sampling campaign with respect to both target and non-target analytes. Beyond the quantitative concentration results, the robust, validated analytical methods developed under this project are expected to support the development of improved understanding of the sources and usage patterns of

**EXHIBIT A  
STANDARD AGREEMENT**

pesticides obtained at retail outlets. The combination of target and non-target analytical methods will provide a comprehensive consideration of pesticides and adjuvants of concern for wastewater treatment operations and information about their primary sources. The full scan high resolution data obtained in the study will be retained for subsequent re-processing to determine the presence of newly recognized compounds of concern.

**7. Deliverables**

- A. Contractor will provide two annual progress reports (August 2015, August 2016).
- B. Contractor will present one seminar to DPR, nearer to the end of the study. The seminar can be presented at DPR in Sacramento or at a DPR-sponsored conference (agreed upon by the Contractor and by the DPR Contract Manager).
- C. Contractor will submit a final report of the study results to DPR 15 days before completion of the contract.

**8. Project Timeline**

Tasks/Deliverables	2015			2016				2017	
	May-Jul	Aug-Oct	Nov-Dec	Jan-Mar	Apr-Jun	Jul-Sept	Oct-Dec	Jan-Feb	Mar-Apr
<i>Task 1. Develop targeted analytical methods for pesticides in wastewater</i>	x	x	x						
<i>Task 2. Measure pesticides in wastewater influent across multiple seasons</i>				x		x	x		
<i>Task 3. Prepare final report</i>								x	x
Deliverables									
7.A Annual Reports		x				x			
7.B Seminar to DPR									x
7.C Final Report									x

**9. DPR's Responsibilities**

- A. DPR will review the technical memorandum summarizing analytical method development results under Task 1 and will provide comments within 30 days of submission.

**EXHIBIT A**  
**STANDARD AGREEMENT**

- B. DPR will participate in identifying a cooperating wastewater treatment plant and in selecting sampling sites.
- C. DPR staff will, as needed, participate in collection of wastewater samples.
- D. DPR staff will transport and deliver wastewater samples to UC Davis.

**EXHIBIT B**  
**Standard Agreement**

**BUDGET DETAIL AND PAYMENT PROVISIONS**

**1. Invoicing**

- A. Upon receipt and approval of invoices by the Contract Manager for services performed according to the Scope of Work in Exhibit A and the terms of this Agreement, DPR agrees to compensate Contractor, in arrears, for actual allowable costs incurred as specified herein and in accordance with the rates specified herein or attached hereto. Incomplete or disputed invoices shall be returned to Contractor, unpaid, for correction.
- B. Invoices will include the Agreement Number, and will be itemized in accordance with the Rates in this Exhibit, and will be submitted in triplicate, not more frequently than monthly or less than quarterly in arrears, to:

Department of Pesticide Regulation  
Attn: Accounts Payable  
P.O. Box 4015, MS-4A  
Sacramento, CA 95812-4015

**2. Budget Contingency Clause**

- A. It is mutually agreed that if the Budget Act of the current year and/or any subsequent years covered under this Agreement does not appropriate sufficient funds for the program, this Agreement shall be of no further force and effect. In this event, DPR shall have no liability to pay any funds whatsoever to Contractor or to furnish any other considerations under this Agreement and Contractor shall not be obligated to perform any provisions of this Agreement.
- B. If funding for any fiscal year is reduced or deleted by the Budget Act for purposes of this program, DPR shall have the option to either cancel this Agreement with no liability occurring to DPR, or offer an Agreement Amendment to Contractor to reflect the reduced amount.

**3. Payment**

- A. Costs for this Agreement shall be computed in accordance with State Administrative Manual (SAM) Sections 8752 and 8752.1.
- B. Nothing herein contained shall preclude advance payments pursuant to Article 1, Chapter 3, Part 1, Division 3, Title 2 of the California Government Code, Sections 11256 and 11257.
- C. Contractor will be reimbursed for direct costs, other than salary costs, that are identified in the Contractor's rates.

**EXHIBIT B**  
**Standard Agreement**

- D. Contractor will bill in arrears for costs incurred during the billing period. If applicable, salary costs will be itemized and billed by position. Documentation supporting specific salary costs will be presented if requested by DPR. Non-wage costs will be billed, in summary, according to general expense categories. A detailed report of transactions will support the billing. Individual expenditures exceeding \$500.00 will be supported by a photocopy of the original documentation. Documentation in support of expenditures less than \$500.00 will be presented if requested by DPR.
- E. Contractor shall not commence performance of work or services until this contract has been approved by the State. No payment will be made prior to approval nor for any work performed prior to approval of this Agreement.
- F. Ten percent (10%) of each invoice amount shall be withheld by DPR until the satisfactory completion of this Agreement

**4. Rates**

**Table I- Budget Details**

	FY 14-15	FY 15-16	FY 16-17	Line Subtotal
1. Salaries & Wages	\$11,100	\$25,680	\$16,308	\$53,088
2. Benefits <sup>①</sup>	\$3,265	\$8,079	\$4,515	\$15,859
3. Travel	\$0	\$0	\$0	\$0
4. Supplies <sup>②</sup>	\$2,500	\$5,000	\$2,500	\$10,000
5. Contractual	\$0	\$0	\$0	\$0
6. Minor Equipment or Equipment	\$0	\$0	\$0	\$0
7. Indirect Cost <sup>③</sup>	\$4,216	\$9,690	\$5,831	\$19,737
<b>FY Subtotal</b>	\$21,081	\$48,449	\$29,154	
		<b>Agreement Total</b>		<b>\$98,684</b>

<sup>①</sup> Benefits include: Worker's Compensation and other benefits appropriate for title

(NOTE: Student Interns are non-personnel employees with no benefits and shall be excluded from the percentage calculation of this line item.)

<sup>②</sup> Supplies include: Copying services, field sampling supplies, lab supplies, reagents

<sup>③</sup> Indirect Cost: 25% of Total Direct Cost for indirect cost rate includes: depreciation of buildings and equipment, utility consumption, operations and maintenance costs, administrative services provided at the departmental and central level.

**EXHIBIT B**  
**Standard Agreement**

**Table II – Details of Salary and Benefits**

<b>Salaries</b>	<b>FY14-15 05/15-06/15</b>	<b>FY15-16 07/15-06/16</b>	<b>FY16-17 07/16-4/15/17</b>
Thomas Young, Principal Investigator (\$17,085/mo. x 1 mo. @ 25% Yr.1, 1 mo. @ 50% Yr. 2 & Yr. 3)	\$4,271	\$8,799	\$9,063
Chris Alaimo, Staff Research Asst. (\$4,329/mo. x 2 mos. @ 50% in Yr.1, 12 mos. @ 20% Yr. 2, 5 mos. @ 20% Yr.3)	\$4,329	\$10,701	\$4,593
Christoph Moschet, Postdoctoral Res. (\$5,000/mo. x 2 mo. @ 25% Yr.1, 12 mos. @ 10% Yr. 2, 5 mos. @ 10% in Yr.3)	\$2,500	\$6,180	\$2,652
<b>Salary total</b>	<b>\$11,100</b>	<b>\$25,680</b>	<b>\$16,308</b>
<b>Benefits</b>			
Principal Investigator @ 16%, 17%, and 18% years 1-3, respectively	\$683	\$1,496	\$1,631
SRA @ 50.4% 51.7%, and 52.4% years 1-3, respectively	\$2,182	\$5,533	\$2,407
Postdoc @ 16%, 17%, and 18% years 1-3, respectively	\$400	\$1,050	\$477
<b>Benefits total</b>	<b>\$3,265</b>	<b>\$8,079</b>	<b>\$4,515</b>

Note: All project salaries include a 3% increase per each fiscal year.

**5. Cost Limitation**

- A. The total amount of this Agreement shall not exceed \$98,684.00
- B. It is understood and agreed that this total is an estimate and that DPR will pay for only those services actually rendered as authorized by the DPR Contract Manager or his/her designee.

**EXHIBIT D**  
**Standard Agreement**

**SPECIAL TERMS AND CONDITIONS**

**1. Termination**

- A. Either Party reserves the right to terminate this agreement without cause upon thirty (30) days written notice to the other Party, or immediately in the event of a material breach. In the event of termination, Contractor shall be paid for all allowable costs incurred up to the date of termination, including any non-cancelable obligations.
- B. In the event that the total Agreement amount is expended prior to the expiration date, DPR may, at its sole discretion, terminate this Agreement with 30 days notice to contractor.

**2. Subcontracting**

Contractor shall perform the work contemplated with resources available within its own organization and no portion of the work shall be subcontracted.

**3. State-Owned Data - Integrity and Security**

- A. Contractor shall comply with the following requirements to ensure the preservation, security, and integrity of State-owned data on portable computing devices and portable electronic storage media:
  - 1) Encrypt all State-owned data stored on portable computing devices and portable electronic storage media using government-certified Advanced Encryption Standard (AES) cipher algorithm with a 256-bit or 128-bit encryption key to protect DPR data stored on every sector of a hard drive, including temp files, cached data, hibernation files, and even unused disk space.
  - 2) Data encryption shall use cryptographic technology that has been tested and approved against exacting standards, such as FIPS 140-2 Security Requirements for Cryptographic Modules.
  - 3) Encrypt, as described above, all State-owned data transmitted from one computing device or storage medium to another.
  - 4) Maintain confidentiality of all State-owned data by limiting data sharing to those individuals contracted to provide services on behalf of the State, and limit use of State information assets for State purposes only.
  - 5) Install and maintain current anti-virus software, security patches, and upgrades on all computing devices used during the course of the Agreement.
  - 6) Notify the Contract Manager immediately of any actual or attempted violations of security of State-owned data, including lost or stolen computing devices, files, or portable electronic storage media containing State-owned data.

**EXHIBIT D**  
**Standard Agreement**

7) Advise the owner of the State-owned data, the agency Information Security Officer, and the agency Chief Information Officer of vulnerabilities that may present a threat to the security of State-owned data and of specific means of protecting that State-owned data.

- B. Contractor shall use the State-owned data only for State purposes under this Agreement.
- C. Contractor shall not transfer State-owned data to any computing system, mobile device, or desktop computer without first establishing the specifications for information integrity and security as established for the original data file(s).

**4. Dispute Resolution**

- A. DPR reserves the right to issue an order to stop work in the event that a dispute should arise, or in the event that DPR gives the performing agency a notice that this Agreement will be terminated. If DPR exercises this right, the stop-work order will be in effect until the dispute has been resolved or this Agreement has been terminated.
- B. Any dispute concerning a question of fact arising under the terms of this Agreement which is not disposed of within a reasonable period of time by agency employees normally responsible for the administration of this agreement, shall be brought to the attention of the Executive Officer or designated representative of each agency for joint resolution.
- C. The Contractor shall continue to perform all its responsibilities under this agreement during any dispute until notified to stop work or expiration of this Agreement.

**5. 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.

**EXHIBIT E**  
**Standard Agreement**

**ADDITIONAL PROVISIONS**

**1. Disposition of Work Product**

- A. DPR retains use and non-commercial governmental distribution rights to all deliverables identified in Exhibit A of this Agreement.
- B. Contractor must include the following disclosure statement on any publically available materials including but not limited to documents, publications, reports, brochures, websites, or electronic media funded in whole or part by this contract/grant: "The Department of Pesticide Regulation (DPR) provided partial or full funding for this project but does not necessarily agree with any opinion expressed, nor endorse any commercial product or trade name mentioned.
- C. DPR may not fund any project or portion of a project deemed to promote or disparage any brand or trade name, or contradict the Department's regulatory program. Therefore, DPR must approve all deliverables before final release.

**i. Contractor Evaluation**

The Contractor is hereby notified that its performance under this Agreement will be evaluated within thirty (30) calendar days following the Expiration of this Agreement. The evaluation may include statements on the adequacy of the service or the product, whether the service was satisfactory, whether the service or the product was provided or completed within the time limitations, reasons for time or cost overruns, whether the product is operational or being utilized by the State, and/or the State plans for implementation, and the State's general impression as to the competency of the Contractor and its staff. The evaluation shall be filed in the State's official Contractor Evaluation File.

**ii. Consulting Services**

- A. The Contractor is hereby advised of its duties, obligations and rights under Public Contract Code § 10335.5.
- B. The Contractor's key personnel assigned to perform work under this Agreement and their level of responsibility shall be mutually acceptable to the State and the Contractor.

**EXHIBIT F**  
**Standard Agreement**

**Thomas M. Young**

Department of Civil & Environmental Engineering  
University of California  
Davis, CA 95616

ph: 530-754-9399  
fax: 530-752-7872  
email: tyoung@ucdavis.edu

**Education**

University of Michigan, Ph.D., Environmental Engineering, 1996  
University of California, Berkeley, M.P.P., Graduate School of Public Policy, 1987  
Michigan State University, B.S. with Honors, Chemical Engineering, 1985

**Professional Experience**

University of California, Davis, Professor (7/06-present)  
University of California, Davis, Associate Professor (7/01-6/06)  
University of California, Davis, Assistant Professor (11/95-6/01)  
University of Michigan, Research and Teaching Assistant (9/91-9/95)  
US Environmental Protection Agency, Environmental Protection Specialist (8/87-8/90)

**Peer-Reviewed Journal Publications (Selected as relevant to this proposal from 78 total)**

- Luo, Y., Jorgenson, B.; Thuyet, D.; Young, T.M., Spurlock, F., Goh, K. "Insecticide washoff from concrete surfaces: characterization and prediction," *Environmental Science and Technology*, **2014**, 48(1): 234-243.
- Parry, E. and Young, T.M. "Distribution of pyrethroid insecticides in secondary wastewater effluent," *Environmental Toxicology and Chemistry*, **2013**, 32(12), 2686-2694.
- Jorgenson, B.C., Brown, L., Fleishman, E., Macneale, K., Schlenk, D., Scholz, N., Spromberg, J., Werner, I., Weston, D., Young, T.M., Zhang, M., Zhao, Q. "Predicted Transport of Pyrethroid Insecticides From An Urban Landscape To Surface Water," *Environmental Toxicology and Chemistry*, **2013**, 32 (11): 2469-77.
- Luo, Y., Spurlock, F., Jiang, W., Jorgenson, B.C., Young, T.M., Gan, J., Gill, S., Goh, K.S. "Pesticide washoff from concrete surfaces: literature review and a new modeling approach," *Water Research*, **2013**, 47: 3163-3172.
- Jorgenson, B.C., Wissel-Tyson, C., Young, T.M. "Factors Contributing to the Off-Target Transport of Pyrethroid Insecticides from Urban Surfaces," *Journal of Agricultural and Food Chemistry*, **2012**, 60(30): 7333-7340.
- Thuyet, D.Q., Jorgenson, B.C., Wissel-Tyson, C., Watanabe, H., Young, T.M. "Wash off of imidacloprid and fipronil from turf and concrete surfaces using simulated rainfall" *Science of the Total Environment*, **2012**, 414: 515-524.
- Giudice, B.D., Young, T.M. "Mobilization of endocrine disrupting chemicals, heavy metals, and estrogenic activity in simulated rainfall runoff from land-applied biosolids" *Environmental Toxicology and Chemistry*, **2011**, 30(10): 2220-2228.

**EXHIBIT F**  
**Standard Agreement**

- Fojut, T.L., Young, T.M. "Desorption of pyrethroids from suspended solids" *Environmental Toxicology and Chemistry*, **2011**, 30(8): 1760–1766.
- Fojut, T.L., Young, T.M. "Pyrethroid sorption to Sacramento River suspended solids and bed sediments" *Environmental Toxicology and Chemistry*, **2011**, 30(4): 787-792.
- Jorgenson, B.C., Young, T.M. "Formulation effects and the off-target transport of pyrethroid insecticides from urban hard surfaces" *Environmental Science & Technology*, **2010**, 44(13), 4951-7.
- Giudice, B., Young, T.M. "The Antimicrobial triclocarban stimulates embryo production in the freshwater mudsnail *Potamopyrgus Antipodarum*" *Environmental Toxicology and Chemistry*, **2010**, 29(4): 966-970.
- Hwang, H-M., Green, P.G., Young, T.M. "Historical trends of trace metals in a sediment core from a contaminated tidal salt marsh in San Francisco Bay" *Environmental Geochemistry and Health*, **2009**, 31:421-430.
- Hwang, H.M., Green, P.G., Young, T.M. "Tidal salt marsh sediment in California, USA: Part 3. Current and historic toxicity potential of contaminants and their bioaccumulation" *Chemosphere*, **2008**, 71: 2139-2149.
- Giudice, B.D., Massoudieh, A., Huang, X., Young, T.M. "A Stochastic Simulation Procedure for Selecting Herbicides with Minimum Environmental Impact" *Environmental Science and Technology*, **2008**, 42: 354-360.
- Hwang, H.-M., Green, P.G., Higashi, R.M., Young, T.M. "Tidal salt marsh sediment in California, USA: Part 2. Occurrence and anthropogenic input of trace metals," *Chemosphere*, **2006**, 64: 1899-1909.
- Hwang, H.-M., Green, P.G., Young, T.M. "Tidal salt marsh sediment in California, USA: 1. Occurrence and sources of organic contaminants," *Chemosphere*, **2006**, 64: 1383-1392.
- Huang, X., Massoudieh, A., Young, T.M. "Measured and Predicted Herbicide Removal by Mulch" *Journal of Environmental Engineering*, **2006**, 132(8): 918-925.
- Huang, X., Fong, S., Deanovic, L., Young, T.M. "Toxicity of Herbicides in Highway Runoff" *Environmental Toxicology and Chemistry*, **2005**, 24, 214-218.
- Massoudieh, A., Huang, X., Young, T.M., Mariño, M.A. "Modeling Fate and Transport of Roadside-Applied Herbicides" *Journal of Environmental Engineering*, **2005**, 131, 1057-1067.
- Lu, X.Q., Werner, I., Young, T.M. "Geochemistry and Bioavailability of Metals in Sediments from Northern San Francisco Bay" *Environment International*, **2005**, 31, 593-602.
- Huang, X., Pedersen, T., Fischer, M., White, R., Young, T. M. "Herbicide Runoff Along Highways: II. Sorption Control" *Environmental Science & Technology*, **2004**, 38, 3272-3278.

**EXHIBIT F**  
**Standard Agreement**

Huang, X., Pedersen, T., Fischer, M., White, R., Young, T. M. "Herbicide Runoff Along Highways: I. Field Observations" *Environmental Science & Technology*, **2004**, 38, 3263-3271.

Datta, S., Do, L.V., Young, T.M. "A Simplified Method for Sampling and Analysis of High Volume Surface Water for Organic Contaminants Using XAD-2" *Journal of Environmental Science and Health Part B*, **2004**, B39(2): 225-234.

Werner, I., Teh, S.J., Datta, S., Lu, X.Q., Young, T.M. "Biomarker responses in *Macoma Nasuta* exposed to sediments from northern San Francisco Bay" *Marine Environmental Research*, **2004**, 58: 299-304.

