

STATE OF CALIFORNIA
Budget Change Proposal - Cover Sheet
 DF-46 (REV 07/14)

| | | | |
|--|-----------------------|--|-------------------|
| Fiscal Year 2015-16 | Business Unit 3960 | Department Department of Toxic Substances Control | Priority No. 1 |
| Budget Request Name 3960-106-BCP-BR-2015-A1 | | Program 3625 Hazardous Waste Management | Subprogram |

Budget Request Description
 Replacement of Laboratory Equipment

Budget Request Summary

The Department of Toxic Substances Control (DTSC) requests a one-time augmentation of \$1.5 million to procure laboratory equipment used for sample preparation and chemical analysis in support of criminal, civil, and administrative enforcement of hazardous waste laws. The failure to replace this equipment will adversely affect DTSC's ability to carry out its mission and take protective measures at critical sites.

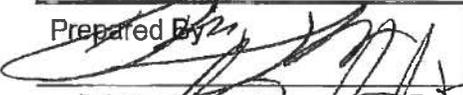
| | |
|---|--|
| Requires Legislation <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | Code Section(s) to be Added/Amended/Repealed |
|---|--|

| | | |
|--|----------------|------|
| Does this BCP contain information technology (IT) components? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <i>If yes, departmental Chief Information Officer must sign.</i> | Department CIO | Date |
|--|----------------|------|

For IT requests, specify the date a Special Project Report (SPR) or Feasibility Study Report (FSR) was approved by the Department of Technology, or previously by the Department of Finance.

| | | |
|---|-------------|-------|
| <input type="checkbox"/> FSR <input type="checkbox"/> SPR | Project No. | Date: |
|---|-------------|-------|

If proposal affects another department, does other department concur with proposal? Yes No
 Attach comments of affected department, signed and dated by the department director or designee.

| | | | |
|--|---------------|---|---------------|
| Prepared By  | Date 4/1/2015 | Reviewed By  | Date 4/1/2015 |
| Department Director  | Date 4/2/15 | Agency Secretary  | Date 4/2/15 |

Department of Finance Use Only

| |
|---|
| Additional Review: <input checked="" type="checkbox"/> Capital Outlay <input checked="" type="checkbox"/> ITCU <input checked="" type="checkbox"/> FSCU <input checked="" type="checkbox"/> OSAE <input type="checkbox"/> CALSTARS <input type="checkbox"/> Technology Agency |
| BCP Type: <input checked="" type="checkbox"/> Policy <input checked="" type="checkbox"/> Workload Budget per Government Code 13308.05 |
| PPBA Original Signed By: Elen Morati Date submitted to the Legislature: APR 2 2015 |

Analysis of Problem

A. Budget Request Summary

DTSC is requesting a one-time augmentation of \$1.5 million from the Hazardous Waste Control Account to procure equipment to replace obsolete and unreliable laboratory instrumentation and sample preparation equipment in the Berkeley and Pasadena Environmental Chemistry Laboratories (ECL). As part of a final judgment (*The People of the State of California v Pacific Bell Telephone Company dba AT&T*), DTSC was provided a Supplemental Environmental Project (SEP) in the amount of \$1.5 million to be used for the procurement of laboratory equipment to be used in the testing of substances for hazardous characteristics, including, but not limited to, testing performed at the request of the People.

B. Background/History

ECL serves as the analytical and environmental chemistry expert for DTSC, identifying and measuring the amount of chemicals in a wide variety of environmental samples. Laboratory data are essential to regulatory activities such as permitting, complaint and criminal investigations, enforcement actions, and site characterization and remediation. DTSC needs impartial and legally defensible scientific data for critical decision-making. Handling the requests of the Department's many core programs for analytical data on an increasing number of toxic chemicals requires state-of-the-art, reliable, and functioning instruments and equipment.

ECL also serves as a reference laboratory for the State Water Resources Control Board's Environmental Laboratory Accreditation Program (ELAP), the State's laboratory certification program under Title 22 California Code of Regulations (CCR) section 64811(g). ELAP is necessary to validate laboratory facilities, scientist qualifications and competency, quality operation systems and data accuracy and precision of commercial laboratories that operate as business entities in California for hazardous waste testing.

As a reference laboratory, validating and refuting data from commercial laboratories used by defendants and other potential responsible parties is an important role for ECL. These commercial laboratories generally use updated and advanced instruments for their work. For ECL to support a prosecutor's case it must be able to match, or exceed, the capability of private labs. The scientific credibility of ECL and DTSC is firmly linked to its analytical and data management capabilities and these capabilities require modern, properly functioning instruments and equipment.

ECL has over 200 analytical instruments and related laboratory equipment items in its Berkeley and Pasadena laboratories. Each instrument in the laboratory has a finite life, which is typically five to seven years for analytical instruments and seven to ten years for supporting equipment. As an instrument ages, it breaks down more frequently, causing sample loss or compromising data quality. In addition, the capabilities of old, outdated instruments can never match the sensitivity and detection limits achievable by more modern instruments. This makes it difficult or impossible to measure toxic chemicals at concentrations of concern, especially where they may be multiple exposures to low-level contaminants. Outdated software and operating systems have a significant negative impact on throughput and productivity, especially if the manufacturer no longer exists or no longer supports the old instruments with spare parts for repairs.

Historically, DTSC used one-time augmentations through the BCP process to upgrade ECL equipment. In FY 2005-06 (BCP #4), ECL received a one-time augmentation of \$1,052,000 for instrument replacement. In FY 2007-08 (BCP #7), ECL received a one-time augmentation of \$978,000 for instrument replacement. In FY 2007-08 (Legislative Change Issue #220), ECL received a one-time augmentation of \$1,210,000 to purchase new equipment for the new Biomonitoring program. In FY 2012-13 (FL #2), \$150,000 was permanently redirected to augment ECL's equipment budget for the Safer Consumer Products Program. In FY 2013-14 (May Revise Letter), ECL received \$70,000 to purchase new equipment for the Stable Funding for Biomonitoring California.

ECL recently provided testing and analytical support to the State Attorney General's Office and the Alameda County District Attorney's Office in their joint enforcement action against AT&T for violations of hazardous waste management requirements. As a result, DTSC received \$1.5 million from AT&T for a Supplemental Environmental Project (SEP) as part of the final judgment in the case of *The People of*

Analysis of Problem

the State of California v Pacific Bell Telephone Company dba AT&T, Alameda County Superior Court Case No. RG14748856. The final judgment requires that DTSC use the amount of \$1.5 million for the procurement of laboratory equipment in the testing of substances for hazardous characteristics, including, but not limited to, testing performed at the request of the People of the State of California.

C. State Level Considerations

It is the State's policy to provide effective enforcement of environmental laws and regulations. DTSC is charged with enforcing laws and regulations governing the management and disposal of hazardous waste and the cleanup of sites contaminated with hazardous substances under Chapter 6.5 of the Health and Safety Code Section 25100 et seq. and Title 22 CCR section 66260 et seq. ECL was created to provide analytical data and environmental chemistry expert support of DTSC's enforcement, site cleanup, and other activities that protect human health and environment. DTSC relies on legally defensible scientific data as the basis for decision-making. DTSC must have the capability to identify and assess chemicals that are likely to affect public health and the environment. For example, it is known that mercury, lead and cadmium cause significant public health concern and environmental harm; ECL has been responsible for testing these heavy metals in children's jewelry, glass bottles, plastics, paper bags, containers, electronic waste, plumbing fixtures, and various consumer items. No State or commercial lab is able to conduct this testing in support of DTSC's work. The State has a responsibility to ensure that ECL can provide needed support by funding the replacement of essential instruments and other equipment as they become obsolete.

Improving ECL's infrastructure and upgrading its instrumentation is aligned with Goal 4 of DTSC's 2014-2018 Strategic Plan:

Goal 4: Maintain and increase DTSC's organizational and operational capacity, effectiveness, and performance.

Objective 4.6: Strengthen and augment the capability and capacity of the Environmental Chemistry Laboratory (ECL) to provide scientific leadership and serve DTSC's programs by prioritizing work, updating equipment, and implementing an internationally recognized quality management system.

ECL activities supported by this request will maintain and enhance ECL's ability to provide high-quality, legally defensible data and to validate data used in enforcement cases that are generated by private laboratories.

D. Justification

DTSC is requesting an augmentation to replace obsolete equipment using the \$1.5 million received for this purpose in *The People of the State of California v Pacific Bell Telephone Company dba AT&T*. Replacing obsolete equipment will improve capacity and measurement technologies used in criminal, civil, and administrative enforcement of hazardous waste laws. With the proposed instruments DTSC will be able to: expand the analysis of semi-volatile organic chemicals (SVOC) in soil, water, sludge, and solid waste at lower detection levels; expand the analysis to other toxic chemicals in pesticides; develop methods for detection of trace metals and hexavalent chemicals in drinking water at the new health-based levels; develop methods for the speciation of arsenic and other toxic metals; develop new methods for soil vapor analysis of volatile organic compounds (VOCs) from air samples; test and validate methods developed by commercial labs on soil vapor analysis. In addition, the proposed instruments will also provide updated software with the capability to provide an improved computer backup system for data storage and security.

In addition, the typical age of the equipment proposed for replacement is over 15 years of age. This is significant because the typical useful lifespan for laboratory instruments is five to seven years for advanced instruments and seven to ten years for related laboratory equipment.

The consequence of having outdated equipment manifests itself in many ways. Repairs and spare parts for outdated instruments become more expensive or unavailable over time, ultimately decreasing instrument functionality and effectiveness. The technology also evolves to the point where existing instruments and data systems are obsolete. For example, upgrades provided for current operating

Analysis of Problem

system or data analysis software may not be compatible with the old hardware of the instrument. The instrument may no longer be capable of meeting the rigorous quality assurance parameters of the tests, such as calibration sensitivity or linearity, and therefore, may not be suitable for generating reliable and defensible data that meets U.S. EPA or other standard method requirements.

The impact of using outdated equipment has other ramifications. For example, ECL scientists must spend an inordinate amount of time and effort trying to keep this old equipment running past its useful life. Often, manufacturer or third-party support has been non-existent or inefficient and DTSC's ECL staff has had to try homemade solutions to keep equipment working. This extraordinary equipment maintenance routine has taken valuable staff time away from sample analysis and data management and diverted resources better focused on program objectives. Eventually, staff will be unable to keep the old equipment running which will reduce DTSC's sample and chemical analysis capacity further delaying analysis in enforcement cases. Delays in analysis translate into delays in case referrals and prosecutions. If laboratory data are not presented in a timely manner or do not meet legal standards of defensibility, they can be successfully challenged. This can result in the failure of enforcement actions.

DTSC relies heavily on impartial and legally defensible scientific data for critical decision-making to enforce hazardous waste laws and ensure the safety of communities and the environment. ECL's role is to provide this defensible scientific data by using advanced instruments to identify and measure chemicals in wastes and other samples. The instruments must be accurate, precise, and reliable, so that ECL's results will withstand challenges in legal proceedings. As instruments age and reach the end of their service life, they no longer meet current standards for accuracy and precision. They also become unreliable and break down more frequently.

E. Outcomes and Accountability

Outcomes

With this proposal, DTSC will purchase replacement equipment, which will enhance ECL's capabilities to identify and measure chemicals of concern to DTSC, the Legislature and the public. The outcomes will be:

- DTSC management decisions based on high-quality scientific data on chemicals of emerging concern to California.
- Standardized and validated methods used by commercial laboratories measuring toxic chemicals in wastes and water streams.
- Use of high-quality scientific reports and publications as basis by regulatory management for policy decision making.
- Improved data quality, precision, and accuracy.
- Faster turnaround times for sample analysis.
- Less staff time and expense for instrument maintenance.

Accountability

ECL will use tracking indicators to measure the effectiveness of the instrument purchase.

Outcome (i) will be tracked using specific time keeping tracking codes that include time spent on instrument upkeep and maintenance.

Outcomes (ii), (iii) and (v) will be tracked using ECL's Laboratory Information Management System's output of the number of samples analyzed and methods used, provided monthly to DTSC management.

Outcomes (iv) and (vi) will be tracked by ECL's performance indicators on scientific publications, professional meetings attended, and specific PCA codes for time spent supporting DTSC management and other programs on hazardous chemical issues.

Analysis of Problem

F. Analysis of All Feasible Alternatives

Alternative 1: Approve this request for a one-time laboratory equipment augmentation of \$1.5 million

Pro:

- Provides authority to expend monies as intended in the judgment.
- Allows DTSC to improve data quality, precision, and accuracy.
- Expands analysis to other toxic chemicals in pesticides.
- Expands analysis of SVOCs in soil, water, sludge, and solid waste samples to lower detection levels.
- Ability to develop new methods for soil vapor analysis of VOCs from vapor intrusion.
- Ability to develop methods for detection of trace level metals and hexavalent chromium in drinking water at new health-based levels.
- Ability to develop methods for the speciation of arsenic and other toxic metals.
- Expands analysis of VOCs in different media such as liquids and solids at lower detection limits.
- Updates software for increased data storage and security.
- Less time and money spent on equipment maintenance.
- Faster turnaround time for sample analysis.

Con:

- Requires a one-time augmentation to DTSC's budget.

Alternative 2: Absorb the \$1.5 million expenditure within existing budget authority

Pro:

- Allows DTSC to improve data quality, precision, and accuracy.
- Expands analysis to other toxic chemicals in pesticides.
- Expands analysis of SVOCs in soil, water, sludge, and solid waste samples to lower detection levels.
- Ability to develop new methods for soil vapor analysis of VOCs from vapor intrusion.
- Ability to develop methods for detection of trace level metals and hexavalent chromium in drinking water at new health-based levels.
- Ability to develop methods for the speciation of arsenic and other toxic metals.
- Expands analysis of VOCs in different media such as liquids and solids at lower detection limits.
- Updates software for increased data storage and security.
- Less time and money spent on equipment maintenance.
- Faster turnaround time for sample analysis.

Con:

- Does not provide increased authority to expend monies as intended in the judgment.

Analysis of Problem

- Reduces funding availability for other mandated enforcement and hazardous waste management activities.

Alternative 3: Maintain status quo/do nothing

Pro:

- Does not require an augmentation in DTSC's budget.
- Does not reduce funding availability for other mandated enforcement and hazardous waste management activities.

Cons:

- Does not meet the intent of the judgment and the \$1.5 million SEP will remain in the HWCA.
- Does not address obsolete laboratory equipment which is unsupported.
- Does not provide the opportunity to expand analysis to other toxic chemicals in pesticides.
- Does not improve data quality, precision, and accuracy.
- Does not provide the opportunity to expand analysis of SVOCs in soil, water, sludge, and solid waste samples to lower detection levels.
- Does not provide the opportunity to develop new methods for soil vapor analysis of VOCs from vapor intrusion.
- Does not provide the opportunity to develop methods for detection of trace level metals and hexavalent chromium in drinking water at new health-based levels.
- Does not provide the opportunity to develop methods for the speciation of arsenic and other toxic metals.
- Does not provide the opportunity to expand VOC analysis in different media such as liquids and solids at lower detection limits.
- Does not allow for increased data storage and security.
- Staff will continue to spend time and resources on equipment maintenance.
- Equipment may fail completely reducing further the capacity of the lab to provide timely sample and chemical analysis for enforcement cases.

G. Implementation Plan

July 2015

- Contact vendors to provide information and demonstration on instruments to understand the technology and capabilities of the equipment.
- Compare capabilities and costs with different vendors.
- Identify the appropriate procurement method and proceed with procuring equipment.

August 2015 – September 2015

- Coordinate with vendor on schedule for installation and training.
- Prepare facility to ensure it can accommodate equipment (i.e. location, electrical and ventilation requirements, safety measures).

October 2015 – December 2015

Analysis of Problem

- Installation of equipment includes setup, optimization of equipment parameters and familiarization of hardware and software of equipment.
- Training for ECL Staff on how to operate equipment.

January 2016 to March 2016

- Method development and validation on new equipment.
- Write standard operating procedures (SOPs) for methods using new equipment.
- ECL Staff establish competency on analyzing samples with new methods.

H. Supplemental Information

This proposal includes funding to replace the obsolete equipment identified on Attachment 1 with equipment that will expand DTSC's sample analysis and method development capabilities in support of criminal, civil, and administrative enforcement of hazardous waste laws.

I. Recommendation

DTSC recommends Alternative 1: Approve the one-time augmentation of \$1.5 million to replace obsolete laboratory equipment.

BCP Fiscal Detail Sheet

BCP Title: Replacement of Laboratory Equipment

DP Name: 3960-106-BCP-DP-2015-A1

Budget Request Summary

FY15

CY BY BY+1 BY+2* BY+3* BY+4*

| | | | | | | |
|--|-----|---------|-----|-----|-----|-----|
| Operating Expenses and Equipment | 0 | 1,500 | 0 | 0 | 0 | 0 |
| 5368 - Non-Capital Asset Purchases - Equipment | \$0 | \$1,500 | \$0 | \$0 | \$0 | \$0 |
| Total Operating Expenses and Equipment | \$0 | \$1,500 | \$0 | \$0 | \$0 | \$0 |
| Total Budget Request | \$0 | \$1,500 | \$0 | \$0 | \$0 | \$0 |
| Fund Summary | | | | | | |
| Fund Source - State Operations | 0 | 1,500 | 0 | 0 | 0 | 0 |
| 0014 - Hazardous Waste Control Account | \$0 | \$1,500 | \$0 | \$0 | \$0 | \$0 |
| Total State Operations Expenditures | \$0 | \$1,500 | \$0 | \$0 | \$0 | \$0 |
| Total All Funds | \$0 | \$1,500 | \$0 | \$0 | \$0 | \$0 |
| Program Summary | | | | | | |
| Program Funding | 0 | 1,500 | 0 | 0 | 0 | 0 |
| 3625 - Hazardous Waste Management | \$0 | \$1,500 | \$0 | \$0 | \$0 | \$0 |
| Total All Programs | \$0 | \$1,500 | \$0 | \$0 | \$0 | \$0 |
| Other Resources | | | | | | |
| Revenue | 0 | 1,500 | 0 | 0 | 0 | 0 |
| 0014 - Hazardous Waste Control Account | \$0 | \$1,500 | \$0 | \$0 | \$0 | \$0 |
| Total Revenue - All Funds | \$0 | \$1,500 | \$0 | \$0 | \$0 | \$0 |

Department of Toxic Substances Control
Replacement of Laboratory Equipment

| CURRENT EQUIPMENT | YEAR PURCHASED | CURRENT TYPE OF ANALYSIS CAPABILITY | PROPOSED EQUIPMENT | ANALYSIS CAPABILITY | LAB LOCATION | ESTIMATED COST |
|--|----------------|--|--|--|--------------|----------------|
| Gas Chromatograph - Mass Spectrometer | 1999 | Identifies and measures the amount of semi-volatile organic chemicals (SVOCs) in soils, water, sludge and solid waste samples. | Gas Chromatograph – Triple Quad Mass Spectrometer | Expands SVOCs analysis at lower detection limits. Expands analysis to other toxic chemicals such as organochlorine and organophosphorus pesticides. Updated software with capability to tentatively identify new compounds and to address computer backup system for data storage and security. | Pasadena | \$275,000 |
| Gas Chromatograph - Mass Spectrometer | 2000 | Analyzes volatile organic compounds (VOCs) from air samples. | Thermal Desorption – Gas Chromatograph – Mass Spectrometer | Develop new methods for soil vapor analysis of VOCs from vapor intrusion. Test and validate methods developed by commercial labs on soil vapor analysis. Updated software with capability to address computer backup system for data storage and security. | Pasadena | \$370,000 |
| Liquid Chromatograph – Mass Spectrometer * | 2004 | Analyzes SVOCs, PCBs, polycyclic aromatic compounds (PAHs) and perchlorate in water samples. | Liquid Chromatograph – Inductively Coupled Mass Spectrometer | Develop methods for detection of trace level metals and hexavalent chromium (Cr(VI)) in drinking water at the new health-based levels. Develop methods for the speciation of arsenic and other toxic metals. Updated software with capability to address computer backup system for data storage and security. | Pasadena | \$430,000 |
| Gas Chromatograph - Mass Spectrometer | 1999 | Identifies and measures the amount of semi-volatile organic chemicals (SVOCs) in soils, water, sludge and solid waste samples. | Gas Chromatograph – Triple Quad Mass Spectrometer | Expands SVOCs analysis at lower detection limits. Expands analysis to other toxic chemicals such as organochlorine and organophosphorus pesticides. Updated software with capability to tentatively identify new compounds and to address computer backup system for data storage and security. | Berkeley | \$275,000 |
| Gas Chromatograph - Mass Spectrometer | 1999 | Analyzes volatile organic compounds (VOCs) from soils and water samples. | Purge & Trap – Gas Chromatograph – Mass Spectrometer | Expands VOC analysis in different media such as liquids and solids at lower detection limits. Identify new chemicals of concern. Updated software with capability to address computer backup system for data storage and security. | Berkeley | \$150,000 |
| | | | | | TOTAL | \$1,500,000 |

All equipment listed has reached End-of-Guaranteed Support (EGS)
*Manufacturer no longer in business (Varian)