

CDPH Laboratory Update



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Environmental Health Laboratory

Report to Scientific Guidance Panel

Oakland, CA

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Staff Changes



New Staff

- Sample Management Specialist – Alanna Viegas
Hired from a biotechnology company
- Research Scientist II – Wei Zou
Hired from DTSC; experienced in organic and inorganic analysis
- Research Scientist Supervisor I – Ryszard Gajek
Promoted from EHL lead testing program

Farewell & Thanks to

Visiting professor from PRC - RuiFang Fan

Methods



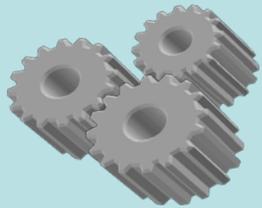
- In production



- Under validation



- Under development



In Production

- Metals in blood
 - Hg, Cd, Pb, Mn
- Phthalate metabolites
 - mEP, mBP, mBzP, mCPP, mECPP, mCHP
- Common metabolites of organophosphate pesticides – DAPs
 - DMTP, DMDTP, DEP, DEDTP
- Chlorpyrifos metabolite
 - TCPy
- Pyrethroid metabolite
 - 3-PBA
- Environmental phenols (13 compounds)
- Hydroxy PAHs (10 compounds)
- Creatinine



Under Validation

- Arsenic speciation in urine by LC-ICP-MS
- Metal panel in urine by ICP-MS
- DAPs by LC-MS
- OP specific metabolites and pyrethroid metabolites by LC-MS
- PBDEs and PCBs in dried blood spot and low volume of blood sample

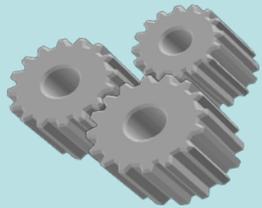
Arsenic Speciation

<u>Analytes</u>	<u>MDL</u> ($\mu\text{g/L}$)	<u>Stability</u> (CV%)	<u>Recovery</u> (%)
Arsenobetaine	0.169	12.0	103
Arsenic – III	0.201	9.4	81
Dimethyl Arsenic Acid	0.226	6.7	104
Monomethyl Arsenic Acid	0.18	8.6	84
Arsenic - V	0.20	9.4	100



Under Development

- Perchlorate
- Automation of sample preparation procedures



Sample Analyses Status

November 2011-March 2012



MIEEP:

- Sample analysis completed for all organic analytes in urine (up to 92 samples & blanks)
- Peer and QA review completed for: OP specific metabolites and environmental phenols

BEST:

- Sample analysis and data review completed for blood metals for 62 participants

FOX:

- PAH and phthalate analyses done for 40 samples

Publications

- Measurements of Polybrominated Diphenyl Ethers and Polychlorinated Biphenyls in a Single Drop of Blood,
 - *Journal of Chromatography B*, in press, 2012
- Fast and Simultaneous Determination of Urinary PAHs by liquid Chromatography/Tandem Mass Spectrometry,
 - *Chemical Research in Toxicology*, 25, 491 – 499, 2012
- Determination of Ten Monohydroxylated Polycyclic Aromatic Hydrocarbons by Liquid-liquid Extraction and Liquid Chromatography Tandem Mass Spectrometry,
 - *Talanta*, in press, 2012

Future Work

- Finish MIEEP, FOX and BEST sample analysis
- Complete method validation
 - PBDE & PCB Dried blood spot and low volume blood
 - Metal panel in urine
 - Arsenic speciation
 - OP and pyrethroid metabolites
- Develop analytical method for perchlorate
- Expand analyte list
 - Organophosphate and pyrethroid pesticides
- Automate sample preparation