

**Amendment # 2
Lower Colorado River Authority
Clean Rivers Program FY 2010/2011 QAPP**

**Prepared by the Lower Colorado River Authority
In Cooperation with the
Texas Commission on Environmental Quality (TCEQ)**

Questions concerning this QAPP should be directed to:

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Effective: March 10, 2010

Summary of Change: Two changes to analytical laboratory and methods designation in Table A7.1 for City of Austin (COA) sediment monitoring for the Clean Rivers Program (CRP) under the Lower Colorado River Authority (LCRA) 2010-2011 Quality Assurance Project Plan (QAPP) are proposed in this amendment. Proposed changes to the CRP will become effective upon TCEQ approval.

1. COA would like to add DHL Analytical as the primary laboratory for the analysis of organophosphate pesticides in sediment currently analyzed by EPA method 8141A, and change the method designation from EPA 8141A to EPA8270C. COA would like to retain the LCRA-ELS lab as a backup.
2. The City of Austin would like to submit organophosphate pesticides in sediment from DHL under method EPA 8270C instead of method EPA 8081A.

Justification: The following details the two changes to the QAPP that are listed above.

As of December 15, 2009, DHL Analytical has become accredited by the State of Texas under the National Environmental Laboratory accreditation program (NELAP) to perform organochlorine and organophosphate pesticides by EPA method 8270. A copy of the new certificate with the added fields of accreditation is available at:

http://www.tceq.state.tx.us/assets/public/compliance/compliance_support/qa/labs/dhl_analytical.pdf

COA and DHL personnel have worked closely with TCEQ QA staff to refine Table A7.1 so that useful sediment data is produced and submitted to TCEQ. This amendment is a continuation of that quality improvement reflecting upgrades to superior analytical methods at reduced cost to COA. There are no proposed changes to sample collection, handling and preservation. COA will continue to submit sediment sample results from Lady Bird Lake, Lake Austin and Barton Springs with no changes to the frequency or site lists currently specified in the Coordinated Monitoring Schedule.

1. COA would like to add DHL as the primary laboratory for the analysis of organophosphate pesticides in sediment, currently analyzed by ELS under method 8141A. COA would like to update the method for these pesticides from EPA 8141A to EPA 8270C for DHL. COA would like to retain ELS lab as a backup. This change affects 4 parameters: demeton, diazinon, guthion, methyl parathion. NELAP does not offer Method 8270C accreditation for diazinon. Method 8270C is a reliable and effective gas-chromatography/mass spectrometry analysis, with reporting limits and quality control specifications equivalent to or better than the existing capillary gas chromatographic method 8141A (see table below). In addition to lower reporting limits, use of method 8270C at DHL will reduce the cost of analyses for COA.

Pesticide in Sediment (µg/Kg)	DHL LOQ (8270C)	ELS LOQ (8141A)	AWRL
Azinphos-methyl (Guthion)	6	50	N/A
Demeton, Total	6	150	N/A
Diazinon	6	50	N/A
Parathion, methyl	6	50	N/A

- COA would like to amend the method designation for organochlorine pesticides in sediment performed by DHL, changing from method EPA 8081A to EPA 8270C. This change affects six parameters: BHC-alpha isomer, aldrin, chlordane (technical and mixed metabolites), dieldrin, total endrin and toxaphene. The reporting limits and quality control specifications for these pesticides with EPA 8270C are equivalent to the existing limits specified under method EPA 8081A. The GC/MS techniques of EPA 8270C are superior to the method EPA 8081A, and the use of EPA 8270C will result in a lower cost for COA.

The specific revisions to Table A7.1 are shown for the affected COA sediment parameters. Revisions to existing rows are highlighted in yellow. New (additional rows) are highlighted in green.

PARAMETER	UNITS	MATRIX	METHOD	PARAMETER CODE	AWRL	Limit of Quantitation (LOQ)	LOQ CHECK STANDARD $\mu\text{g}/\text{kg}$ Range	PRECISION (RPD of LCS/LCSD)	BIAS %Rec. of LCS	Lab
DEMETON (SYSTOX)	$\mu\text{g}/\text{kg}$	Sediment	EPA 8141A	82400	NA	100	20-200	30	50-140	EIS (backup)
DIAZINON	$\mu\text{g}/\text{kg}$	Sediment	EPA 8141A	39571	NA	50	10-100	30	50-140	EIS (backup)
GUTHION	$\mu\text{g}/\text{kg}$	Sediment	EPA 8141A	39581	NA	50	10-100	30	50-140	EIS (backup)
METHYL PARATHION	$\mu\text{g}/\text{kg}$	Sediment	EPA 8141A	39601	NA	50	10-100	30	50-140	EIS (backup)
DEMETON (SYSTOX)	$\mu\text{g}/\text{kg}$	Sediment	EPA 8270C	82400	NA	100	20-200	30	50-140	DHL
DIAZINON	$\mu\text{g}/\text{kg}$	Sediment	EPA 8270C	39571	NA	50	10-100	30	50-140	DHL
GUTHION	$\mu\text{g}/\text{kg}$	Sediment	EPA 8270C	39581	NA	50	10-100	30	50-140	DHL
METHYL PARATHION	$\mu\text{g}/\text{kg}$	Sediment	EPA 8270C	39601	NA	50	10-100	30	50-140	DHL
BHC-ALPHA isomer	$\mu\text{g}/\text{kg}$	Sediment	EPA 8270C	39076	50	5	0.8-16	50	49-143	DHL
ALDRIN	$\mu\text{g}/\text{kg}$	Sediment	EPA 8270C	39333	40	5	0.8-16	50	45-144	DHL
CHLORDANE (tech mix & metab)	$\mu\text{g}/\text{kg}$	Sediment	EPA 8270C	39351	2.4	5	0.8-16	50	45-145	DHL
DIELDRIN	$\mu\text{g}/\text{kg}$	Sediment	EPA 8270C	39383	2.15	5	0.8-16	50	48-141	DHL
TOTAL ENDRIN	$\mu\text{g}/\text{kg}$	Sediment	EPA 8270C	39393	103.5	5	0.8-16	50	36-131	DHL
TOXAPHENE	$\mu\text{g}/\text{kg}$	Sediment	EPA 8270C	39403	16	250	20-400	50	31-136	DHL

Ref: United States Environmental Protection Agency (USEPA) Methods for Chemical Analysis of Water and Wastes, Manual #EPA-600/4-79-020.

Only the COA's section in Table A7.1 is affected by this amendment. The revised Table A7.1 dealing with analysis of sediment organics is shown below. Two pages 43 will be part of the QAPP as a result of this amendment.

Distribution: QAPP Amendments/Revisions to Appendices will be distributed to all personnel on the distribution list maintained by the LCRA.

These changes will be incorporated into the QAPP document and TCEQ and the LCRA will acknowledge and accept these changes by signing this amendment.

COA Monitoring

Organics/Conventionals in Sediment										
PARAMETER	UNITS	MATRIX	METHOD	PARAMETER CODE	AWRL	Limit of Quantitation (LOQ)	LOQ Check Standard Absolute concentration	PRECISION (RPD of LCS/LCSD)	BIAS (% Rec. of LCS)	LAB
ACENAPHTHYLENE	ug /kg	Sediment	EPA 8270C	34203	44.5	50	5-100	25	56-116	DHL
ACENAPHTHENE	ug /kg	Sediment	EPA 8270C	34208	65	50	5-100	25	56-114	DHL
ANTHRACENE	ug /kg	Sediment	EPA 8270C	34223	422.5	50	5-100	25	40-113	DHL
BENZO(B)FLUORANTHENE	ug /kg	Sediment	EPA 8270C	34233	NA	50	5-100	25	43-115	DHL
BENZO(K)FLUORANTHENE	ug /kg	Sediment	EPA 8270C	34245	NA	50	5-100	25	54-118	DHL
BENZO-A-PYRENE	ug /kg	Sediment	EPA 8270C	34250	725	50	5-100	25	48-115	DHL
BIS (2-CHLOROETHYL) ETHER	ug /kg	Sediment	EPA 8270C	34276	NA	133	13.4-268	30	38-125	DHL
BIS (2-CHLOROETHOXY) METHANE	ug /kg	Sediment	EPA 8270C	34281	NA	133	13.4-268	30	43-125	DHL
BIS (2-CHLOROISOPROPYL) ETHER	ug /kg	Sediment	EPA 8270C	34286	NA	133	13.4-268	30	25-125	DHL
N-BUTYL BENZYL PHTHALATE	ug /kg	Sediment	EPA 8270C	34295	NA	330	13.4-268	30	49-125	DHL
CHRYSENE	ug /kg	Sediment	EPA 8270C	34323	645	50	5-100	25	56-115	DHL
DIETHYL PHTHALATE	ug /kg	Sediment	EPA 8270C	34339	NA	330	13.4-268	30	50-125	DHL
DIMETHYL PHTHALATE	ug /kg	Sediment	EPA 8270C	34344	NA	330	13.4-268	30	49-125	DHL
1,2-DIPHENYL HYDRAZINE	ug /kg	Sediment	EPA 8270C	34349	NA	133	13.4-268	30	38-125	DHL
FLUORANTHENE	ug /kg	Sediment	EPA 8270C	34379	1115	50	5-100	25	41-108	DHL
FLUORENE	ug /kg	Sediment	EPA 8270C	34384	268	50	5-100	25	47-128	DHL
HEXACHLORO CYCLO PENTADIENE	ug /kg	Sediment	EPA 8270C	34389	NA	133	13.4-268	30	34-125	DHL
HEXACHLORO ETHANE	ug /kg	Sediment	EPA 8270C	34399	6885	133	13.4-268	30	34-125	DHL
INDENO (1,2,3-CD) PYRENE	ug /kg	Sediment	EPA8270C	34406	NA	50	5-100	25	46-119	DHL
ISOPHORONE	ug /kg	Sediment	EPA 8270C	34411	NA	133	13.4-268	30	43-125	DHL
N-NITROSO-DI-N-PROPYLAMINE	ug /kg	Sediment	EPA 8270C	34431	NA	133	13.4-268	30	40-125	DHL
N-NITROSODI PHENYLAMINE	ug /kg	Sediment	EPA 8270C	34436	NA	133	13.4-268	30	49-125	DHL
N-NITROSODIMETHYL AMINE	ug /kg	Sediment	EPA 8270C	34441	NA	133	13.4-268	30	38-125	DHL
NAPHTHALENE	ug /kg	Sediment	EPA8270C	34445	280.5	50	5-100	25	55-113	DHL
NITROBENZENE	ug /kg	Sediment	EPA 8270C	34450	80.53	133	13.4-268	30	41-125	DHL
PARACHLOROMETA CRESOL	ug /kg	Sediment	EPA 8270C	34455	NA	330	13.4-268	30	46-125	DHL
PHENANTHRENE	ug /kg	Sediment	EPA8270C	34464	585	50	5-100	25	55-114	DHL
PYRENE	ug /kg	Sediment	EPA8270C	34472	760	50	5-100	25	42-125	DHL

COA Monitoring

PARAMETER	UNITS	MATRIX	METHOD	PARAMETER CODE	AWRL	Limit of Quantitation (LOQ)	LOQ Check Standard Absolute concentration	PRECISION (RPD of LCS/LCSD)	BIAS (% Rec. of LCS)	LAB
BENZO(GHI)PERYLENE; 1,2-BENZOPERYLEN	ug /kg	Sediment	EPA 8270C	34524	NA	50	5-100	25	47-123	DHL
1,2-DICHLORO BENZENE	ug /kg	Sediment	EPA 8270C	34539	2220	133	13.4-268	30	45-125	DHL
1,2,4-TRICHLORO BENZENE	ug /kg	Sediment	EPA 8270C	34554	1160	133	13.4-268	30	44-125	DHL
1,3-DICHLORO BENZENE	ug /kg	Sediment	EPA 8270C	34569	175	133	13.4-268	30	39-125	DHL
1,4-DICHLORO BENZENE	ug /kg	Sediment	EPA 8270C	34574	2105	133	13.4-268	30	35-125	DHL
2-CHLOROPHENOL	ug /kg	Sediment	EPA 8270C	34589	NA	133	13.4-268	30	44-125	DHL
2-NITROPHENOL	ug /kg	Sediment	EPA 8270C	34594	NA	133	13.4-268	30	42-125	DHL
DI-N-OCTYL PHTHALATE	ug /kg	Sediment	EPA 8270C	34599	NA	133	13.4-268	30	41-132	DHL
2,4-DICHLORO PHENOL	ug /kg	Sediment	EPA 8270C	34604	NA	133	13.4-268	30	45-125	DHL
2,4-DIMETHYL PHENOL	ug /kg	Sediment	EPA 8270C	34609	NA	133	13.4-268	30	32-125	DHL
2,4-DINITRO TOLUENE	ug /kg	Sediment	EPA 8270C	34614	NA	133	13.4-268	30	48-125	DHL
2,4-DINITRO PHENOL	ug /kg	Sediment	EPA 8270C	34619	NA	660	13.4-268	30	25-132	DHL
2,4,6-TRICHLOROPHENOL	ug /kg	Sediment	EPA 8270C	34624	NA	133	13.4-268	30	43-125	DHL
2,6-DINITRO TOLUENE	ug /kg	Sediment	EPA 8270C	34629	NA	133	13.4-268	30	48-155	DHL
3,3'-DICHLORO BENZIDINE	ug /kg	Sediment	EPA 8270C	34634	NA	133	13.4-268	30	25-128	DHL
4-BROMOPHENYL PHENYL ETHER	ug /kg	Sediment	EPA 8270C	34639	NA	133	13.4-268	30	46-125	DHL
4-CHLOROPHENYL PHENYL ETHER	ug /kg	Sediment	EPA 8270C	34644	NA	133	13.4-268	30	47-125	DHL
4-NITROPHENOL	ug /kg	Sediment	EPA 8270C	34649	NA	660	13.4-268	30	25-138	DHL
DNOC (4,6-DINITRO-ORTHO-CRESOL)	ug /kg	Sediment	EPA 8270C	34660	NA	330	13.4-268	30	29-137	DHL
2,3,4,6-TETRACHLOROPHENOL	ug /kg	Sediment	EPA 8270C	34721	NA	133	13.4-268	30	40-125	DHL
PCP (PENTA CHLOROPHENOL)	ug /kg	Sediment	EPA 8270C	39061	NA	133	13.4-268	30	25-125	DHL (back up)
PCP (PENTA CHLOROPHENOL)	ug /kg	Sediment	EPA 8151	39061	NA	5	0.5-12.5	30	5-125	ELS
BIS (2-ETHYLHEXYL) PHTHALATE	ug /kg	Sediment	EPA 8270C	39102	1323.5	133	13.4-268	30	47-127	DHL
DI-N-BUTYL PHTHALATE	ug /kg	Sediment	EPA 8270C	39112	21.5	330	13.4-268	30	56-125	DHL
PRONAMIDE	ug /kg	Sediment	EPA 8270C	73031	NA	133	13.4-268	30	40-125	DHL
DICHLORO PHENOL; 2,6-	ug /kg	Sediment	EPA 8270C	73122	NA	133	13.4-268	30	38-125	DHL
NAPHTHYL AMINE; 2-	ug /kg	Sediment	EPA 8270C	73124	NA	133	13.4-268	30	40-125	DHL
N-NITROSO-DI-N-BUTYLAMINE	ug /kg	Sediment	EPA 8270C	73159	NA	133	13.4-268	30	38-125	DHL
BENZYL ALCOHOL	ug /kg	Sediment	EPA 8270C	75212	NA	133	13.4-268	30	25-125	DHL
BENZOIC ACID	ug /kg	Sediment	EPA 8270C	75315	NA	133	13.4-268	30	25-125	DHL
DIBENZO FURAN	ug /kg	Sediment	EPA 8270C	75647	NA	133	13.4-268	30	51-125	DHL

COA Monitoring

2,4,5-TRICHLORO PHENOL	ug /KG	Sediment	EPA 8270C	78401	NA	133	13.4-268	30	49-125	DHL
PARAMETER	UNITS	MATRIX	METHOD	PARAMETER CODE	AWRL	Limit of Quantitation (LOQ)	LOQ Check Standard Absolute concentration	PRECISION (RPD of LCS/LCSD)	BIAS (% Rec. of LCS)	LAB
ACETO PHENONE	ug /kg	Sediment	EPA 8270C	78755	NA	133	13.4-268	30	40-125	DHL
ANILINE	ug /kg	Sediment	EPA 8270C	78866	NA	133	13.4-268	30	40-125	DHL
2-METHYL NAPHTHALENE	ug /kg	Sediment	EPA 8270C	78868	335	50	5-100	25	47-128	DHL
PENTACHLORONITROBENZENE	ug /kg	Sediment	EPA 8270C	81808	NA	133	13.4-268	30	40-125	DHL
1,2,4,5-TETRACHLOROBENZENE	ug /kg	Sediment	EPA 8270C	88826	NA	133	13.4-268	30	38-125	DHL
CRESOLS	ug /kg	Sediment	EPA 8270C	88811	NA	133	13.4-268	30	40-125	DHL
1,2,5,6-DIBENZANTHRAcene	ug /kg	Sediment	EPA 8270C	34559	335	50	5-100	25	43-120	DHL
PHENOL (C6H5OH)-single compound	ug /kg	Sediment	EPA 8270C	34695	NA	133	13.4-268	30	25-125	DHL
PYRIDINE	ug /kg	Sediment	EPA 8270C	88823	NA	660	13.4-268	30	20-125	DHL
CARBAZOLE	ug /kg	Sediment	EPA 8270C	78543	NA	133	13.4-268	30	40-125	DHL
2,4-D	ug /kg	Sediment	EPA 8151A	39731	NA	5	0.5-12.5	30	39-141	ELS
2,4,5-T	ug /kg	Sediment	EPA 8151A	39741	NA	5	0.5-12.5	30	29-142	ELS
SILVEX	ug /kg	Sediment	EPA 8151A	39761	NA	5	0.5-12.5	30	39-140	ELS
DICAMBA (BANVEL)	ug /kg	Sediment	EPA 8151A	38444	NA	5	0.5-12.5	30	16-161	ELS
DINOSEB	ug /kg	Sediment	EPA 8151A	38781	NA	5	0.5-12.5	30	5-115	ELS
DEMETON (SYSTOX)	ug /kg	Sediment	EPA 8270C	82400	NA	6	1.6-32	30	50-140	DHL
DIAZINON	ug /kg	Sediment	EPA 8270C	39571	NA	6	0.8-16	30	50-140	DHL
GUTHION	ug /kg	Sediment	EPA 8270C	39581	NA	6	0.8-16	30	50-140	DHL
METHYL PARATHION	ug /kg	Sediment	EPA 8270C	39601	NA	6	0.8-16	30	50-140	DHL
DEMETON (SYSTOX)	ug /kg	Sediment	EPA 8141A	82400	NA	100	20-200	30	50-140	ELS (back up)
DIAZINON	ug /kg	Sediment	EPA 8141A	39571	NA	50	10-100	30	50-140	ELS (back up)
GUTHION	ug /kg	Sediment	EPA 8141A	39581	NA	50	10-100	30	50-140	ELS (back up)
METHYL PARATHION	ug /kg	Sediment	EPA 8141A	39601	NA	50	10-100	30	50-140	ELS (back up)
PCBS	ug /kg	Sediment	EPA 8082 or 8082A	39519	90	70	15-300	50	37-127	DHL
BHC-ALPHA isomer	ug /kg	Sediment	EPA 8070C	39076	50	5	0.8-16	50	49-143	DHL
ALDRIN	ug /kg	Sediment	EPA 8070C	39333	40	5	0.8-16	50	45-144	DHL
CHLORDANE (tech mix & metab)	ug /kg	Sediment	EPA 8070C	39351	2.4	5	0.8-16	50	45-145	DHL
DIELDRIN	ug /kg	Sediment	EPA 8070C	39383	2.15	5	0.8-16	50	48-141	DHL
TOTAL ENDRIN	ug /kg	Sediment	EPA 8070C	39393	103.5	5	0.8-16	50	36-131	DHL
TOXAPHENE	ug /kg	Sediment	EPA 8070C	39403	16	250	20-400	50	31-136	DHL

Reporting to be consistent with SWQM guidance and based on measurement capability

* Reporting to be consistent with SWQM guidance and based on measurement capability

** Chlorine residual to be collected downstream of chlorinated outfalls. Laboratory is responsible for ensuring that chlorine residual is neutralized prior to analysis.

*** An AWRL has not been developed for this parameter. The number shown is based on low point of a calibration curve.

**** Based on a range statistic as described in *Standard Methods, 20th Edition*, Section 9020-B, Quality Assurance/Quality Control - Intralaboratory Quality Control Guidelines. This criterion applies to bacteriological duplicates with concentrations >10 MPN/100mL or >10 organisms/100mL.

COA Monitoring

References:

TCEQ SOP, V1 - TCEQ Surface Water Quality Monitoring Procedures Volume 1: Physical and Chemical Monitoring Methods for Water, Sediment, and Tissue, 2008 (RG-415).

TCEQ SOP, V2 - TCEQ Surface Water Quality Monitoring Procedures Volume 2: Methods for Collecting and Analyzing Biological Community and Habitat Data, 2005 (RG-416).

United States Environmental Protection Agency (USEPA) Methods for Chemical Analysis of Water and Wastes, Manual #EPA-600/4-79-020.

American Public Health Association (APHA), American Water Works Association (AWWA), and Water Environment Federation (WEF), *Standard Methods for the Examination of Water and Wastewater*, 20th Edition, 1998.

United States Environmental Protection Agency (USEPA) Manual #EPA-821-R-9S-027.