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Managing Water in the West

Sediment Chemistry Investigation: Sampling, Analysis, and Quality Assurance Findings for Klamath River Reservoirs and Estuary, October 2009 - January 2010

In Support of the Secretarial Determination on Klamath River Dam Removal and Basin Restoration, Klamath River, Oregon and California

U.S. Department of the Interior
Bureau of Reclamation
Mid-Pacific Region

May 2011

Mission Statements

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The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

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Peer Review Certification: This document has been peer reviewed per guidelines established by the Technical Service Center and is believed to be in accordance with the service agreement and standards of the profession. Questions concerning this report should be addressed to G. Chris Holdren, Group Manager of the Environmental Applications and Research Group (86-68220) at 303-445-2178.

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1.0 Introduction

The results of the sediment studies reported in this document are part of a series of studies designed to support the Secretarial Determination on Klamath Dam Removal and Basin Restoration in support of the Klamath Hydroelectric Settlement Agreement (KHSA) and the Klamath Basin Restoration Agreement (KBRA). The primary goal of this study was to provide quantitative estimates of the concentrations and distribution of potentially toxic compounds contained within sediment currently trapped behind the four PacifiCorp dams being considered for removal under the KHSA. Elutriate[1] analyses further allow for estimation of the concentrations of chemicals that are likely to be released to the water column should reservoir sediments become suspended or transported through facilities removal.

Presented in this report are the sampling design and sampling methods for chemical and bioassessment investigations of sediment within the PacifiCorp reservoirs and the Klamath River estuary. Analytical results of the sediment and elutriate analyses completed for this project are included in Appendices A and B, respectively. The Quality Assurance Project Plan (QAPP) for the sediment sampling and analysis is included in Appendix C. Discussions of quality assurance findings for the sediment and elutriate chemistry investigations are presented in Appendices D – G and quality assurance findings for microcystin parameters are included in Appendix H. Appendix I details SOPs for the program; materials and methods for the collection of water column data are presented in Appendix J. Analytical results of the bioassessment investigation, and the related quality assurance assessment of those results, are not reported here; they are being incorporated into a larger study of chemical bioaccumulation in biota exposed to sediment within PacifiCorp reservoirs.

1.1 Background

The sediment investigation discussed in this report was conducted in support of the KHSA and the KBRA agreements which were signed on February 18, 2010 with a goal of developing solutions to natural resources issues in the Klamath Basin. The KHSA and the KBRA are intended to provide for the restoration of native fisheries and sustainable water supplies throughout the Klamath River Basin. In addition, the KHSA established a process for a Secretarial Determination. This process includes additional studies, environmental review, and a decision by the Secretary of the Interior (Secretary) regarding whether facilities removal at J.C. Boyle, Copco 1, Copco 2, and Iron Gate Dams (1) will advance restoration of salmonid (salmon, steelhead, and trout) fisheries of the Klamath Basin, and (2) is in the public interest, including but not limited to, potential impacts on affected local communities and Native American Tribes.

[1] Elutriate is formed by mixing four parts sediment and one part native water, mixing vigorously for thirty minutes, then letting the mixture settle for one hour. After settling, the overlying solution is separated from the settled material and centrifuged to remove particulates. The resulting fluid is an “elutriate” or “sample elutriate”.

Facilities removal is defined as the physical removal of all or part of each of the four PacifiCorp dams on the Klamath River: JC Boyle Dam, Copco 1 Dam, Copco 2 Dam, and Iron Gate Dam. The goals of the dam removal would be to achieve, at a minimum, a free-flowing condition and volitional fish passage. Several associated activities would be required in association with dam removal, such as site remediation and restoration measures (including previously inundated lands) to avoid or minimize adverse downstream impacts. If a positive Determination on dam removal is made, data collected in this study and others may be used to obtain the applicable permits required for the decommissioning of the four dams, including those from the states of California and Oregon and US EPA.

A Technical Management Team (TMT) was formed to address the questions above for the Secretarial Determination, including analysis of existing scientific and engineering data and new studies, where necessary, to fill critical data gaps. The Water Quality Sub-Team (WQST), one of nine sub-teams to the TMT, was tasked with overseeing water quality and related studies to support, either directly or indirectly, the Secretarial Determination and Environmental Compliance, and with assisting in the preparation of related documents. Studies of sediment quality described herein were conducted with coordination among the WQST and the Engineering, Geomorphology, and Hydrology Sub-Team. The engineering, environmental, and economic studies conducted under the Secretarial Determination will contribute important information for the Secretary's decision. Information compiled under the direction of the TMT will also be used in the preparation of documents under the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA) as the project proceeds.

1.2 Study Context

A number of closely related studies, including this one, are helping to address questions about how suspension or transport of reservoir sediments might affect local and downstream environments. Geologic studies were undertaken to evaluate the quantity, location, and physical characteristics of erodible sediments in the four reservoirs (McCulla, 2011) and a companion engineering study is investigating the potential fate and transport of sediments released from the reservoirs (Reclamation, 2011). A study estimating the potential effects of dam removal on biological oxygen demand (BOD) and immediate oxygen demand (IOD) was carried out on samples collected in this study. The results of the BOD/IOD study are presented in Stillwater Sciences (2011).

Among the important data gaps identified by the TMT and stakeholders was the need for information about the potential for dam removal to strand sediments and associated contaminants in the regions near the current facilities, and the potential effects of transported reservoir sediment on downstream environments, including the Klamath River Estuary. Results of these sediment analyses provide estimations of the concentrations of chemicals likely to be transferred to the water column during reservoir drawdown, should reservoir sediment be suspended or transported. In combination, sediment quality, engineering and geologic studies are intended to

address the effects of the KBRA and KHSA and will inform the evaluation of risks to human health, infrastructure, and aquatic biological communities.

1.3 Project Location and Description

The Klamath River flows from its headwaters near Klamath Falls, Oregon, downstream of Upper Klamath Lake, to its confluence with the Pacific Ocean in northern California (Figure 1). The Upper Klamath Basin includes large undeveloped forested and mountainous areas, and has since the late 1800's supported mining, commercial forestry, irrigated and non-irrigated agriculture, an urban community, and other industry, while the Lower Klamath Basin is relatively undeveloped.

1.3.1 Reservoirs

Four hydroelectric dams are located along the main stem of the Klamath River between Klamath Falls, OR, and Yreka, CA (Figure 1). The four dams are owned by PacifiCorp as part of the Klamath Hydroelectric Project and are the focus of these sediment contaminant studies. Samples also were collected from the Klamath River Estuary near Klamath, CA, to provide information on existing conditions in the most likely area for sediment deposition downstream of the reservoirs. More complete descriptions of the reservoirs, their operation, and the Hydroelectric Project Area in general, are provided by the Final Environmental Impact Statement for the Klamath Hydroelectric Project (Federal Energy Regulatory Commission, 2007).

J.C. Boyle Dam is located in Klamath County, Oregon, about 15 miles southwest of Klamath Falls, Oregon, and 30 miles upstream of Copco 1 Dam. The dam is an earthfill dam that was completed in 1958 and impounds about 3,500 acre-feet of water. Copco 1 and Copco 2 dams are located approximately 25 miles northeast of Yreka in Siskiyou County, California. Copco 1 is a concrete dam that was completed in 1918 and impounds about 46,900 acre-feet of water. Copco 2 is a concrete reregulation dam just downstream of Copco 1 that was completed in 1925 and impounds about 73 acre-feet. Iron Gate dam is located 20 miles northeast of Yreka and 8 miles downstream of Copco 2 dam. It was completed in 1962, is of earth-fill construction, and impounds about 58,000 acre-feet of water.

Previous studies indicate that the four dams are holding back between 14 and 21 million cubic yards (MCY) of accumulated sediment (G&G Associates, 2003; Eilers and Gubala, 2003; GEC, 2006). A more recent study conducted by Reclamation (2011) estimates the total volume of accumulated sediment as 13.1 million cubic yards. Over half of the total amount (about 7.4 MCY) is in Copco 1 Reservoir, while about 4.7 MCY of sediment have accumulated in Iron Gate Reservoir and about 1 MCY of sediment have accumulated in JC Boyle Reservoir. There is no significant sediment accumulation behind Copco 2 Dam (McCulla, 2010).

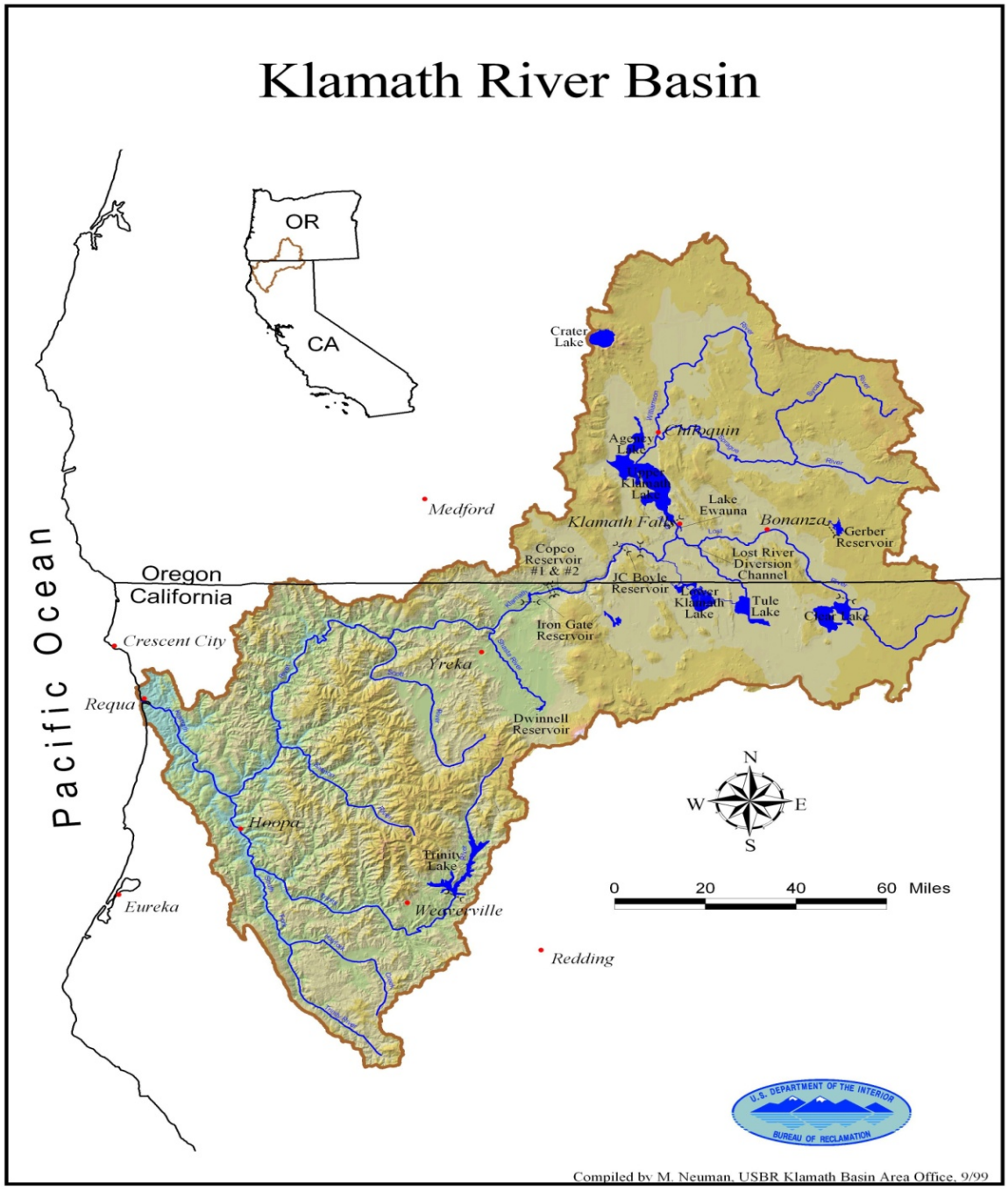

Figure 1 - The Klamath River Basin, Oregon and California, USA.

1.3.2 Klamath River Estuary

The Klamath River enters the Pacific Ocean through the Klamath River Estuary approximately 20 miles south of Crescent City in Northern California. The estuary receives water from the Klamath, Scott, Shasta, Salmon, and Trinity River watersheds, which have a combined area of approximately 12,100 mi^2. Tidal exchanges are commonly assumed to influence the lower 4.0 mi of the Klamath River (Stillwater Sciences, 2009).

The estuary is approximately 0.75 mi wide from its mouth at River Mile 0 (RM 0) to approximately RM2. The main channel is located on the northern side of the estuary and the southern side is comprised of a network of channels and gravel bars called the South Slough. A sand bar typically exists between two bedrock formations to the north and south of the river mouth, and the river mouth can be located at either the far northern or far southern end of the sand bar (Wallace, 1998).

Like the main stem of the Klamath River, flows and residence times in the estuary are seasonal. Flows and water exchanges increase during the winter and spring months when rainfall and snowmelt are at their peaks. Periods of low flow occur during the summer and fall months, and the estuary mouth has occasionally closed during low-flow periods in the summer (Hiner, 2006).

1.4 Previous Investigations

A study of potential sources of contaminants to reservoir sediments within the PacifiCorp reservoirs was conducted by Shannon and Wilson, Inc. (2006a). The same authors also conducted a reconnaissance-level study which quantified concentrations of potential chemical contaminants within reservoir sediments (Shannon and Wilson, Inc., 2006b). Most analytes detected in the 2006b study were present at concentrations below available Puget Sound Dredge Disposal Analysis (PSDDA) screening levels. Detected analytes include: DDE (a metabolite of DDT), dioxins/furans, polychlorinated biphenyls (PCBs), several metals (As, Cr, Cu, Ni, Zn, and Hg) and several chemicals grouped as volatile and semi-volatile organic carbons (VOCs and SVOCs) (Shannon and Wilson, Inc., 2006b).

Ethylbenzene and total xylenes were detected above PSDDA screening levels in a single sample collected from Copco 1 Reservoir (Shannon and Wilson, Inc., 2006b). In each of the three samples analyzed for dioxins and furans (one sample per reservoir), dioxins were detected at concentrations approximating background levels (Water Quality Subteam, 2010). Total cyanide, but no bioavailable cyanide, was found in two of three samples; one each in JC Boyle Reservoir and Copco 1 Reservoir.

Shannon and Wilson (2006b) detected some constituents at concentrations above PSDDA screening levels. Because the low-level presence of some analytes was of special concern to stakeholders, this screening level contaminant study was developed to better define the extent and distribution of chemical compounds of concern within the reservoir sediment deposits.

Sediment from the Klamath River Estuary also was included to provide information on the status of existing contaminants in areas where sediment may deposit in the lower river.

1.5 Study Objectives

The primary goal of this study was to provide quantitative estimates of the concentrations and distribution of potentially toxic compounds contained within sediment accumulated behind the four PacifiCorp dams being considered for removal under the KHSA. Following direction provided by the Sediment Evaluation Framework and Sediment Evaluation Framework guidelines (EPA/USACE, 2008; Sediment Evaluation Framework, 2010), secondary goals were to: 1) analyze elutriate to estimate the concentrations of chemicals that are likely to be released to the water column should reservoir sediments become suspended or transported; 2) conduct toxicity bioassays in order to determine whether exposure to reservoir-derived sediment or elutriate could be harmful to exposed organisms; 3) expose organisms to reservoir and estuary sediments to provide information on cumulative toxicity in aquatic species; and 4) estimate existing chemical concentrations in the Klamath River estuary, which is a likely region for deposition of some reservoir sediments, transient or otherwise, if they are released downstream during dam removal.

The study of reservoir sediment quality was additionally intended to broadly examine whether or not sediment chemistry might differ with sediment stratigraphy, depth, and/or location relative to the historic river channel or thalweg.

Specific sub-goals of the sediment sampling effort were to:

- Collect a suite of site-specific sediment cores at JC Boyle, Copco 1, Copco 2 and Iron Gate reservoirs that are distributed lake-wide and inferred to be representative of "average" reservoir sediment (from all depths) at each location;
- For each site-specific sediment core, collect sub samples from distinct stratigraphic horizons within each core; if sediments are massive (homogeneous), sub sample sediment homogenized in five foot depth intervals (or fraction thereof);
- For each of the major reservoirs (JC Boyle, Copco 1, and Iron Gate reservoirs), create one composite sample that is representative of sediment located within the estimated location of the historic river channel, and a second composite sample that is representative of sediment residing outside of the estimated historic river channel;
- Collect sediment from low energy depositional areas within the upper (fresh water dominated) and lower (marine dominated) Klamath River estuary;
- Quantify chemical concentrations within bulk sediment and sample elutriate, through laboratory analysis of target constituents;
- Conduct standardized laboratory toxicity tests and bioaccumulation studies using vertebrate and invertebrate test species that grow on, within, or above sediments;

- Use consistent and clean field and analytical techniques to collect, handle, and analyze samples without introducing bias; obtain analytical data that meet quality objectives and quality assurance criteria; present analytical results in a format that promotes data usability and analysis.

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2.0 Sampling and Analysis

2.1 Sampling Dates

Sediment samples were collected from the PacifiCorp reservoirs between October 1 and November 17, 2009; water for use with elutriate and bioassessment analyses was collected from the reservoirs on five dates between October and December, 2009.

Copco 2 sampling was attempted December 10th 2009; ultimately, samples were not collected at this reservoir due to the absence of accumulated sediment.

The collection of samples from the Estuary was added to the project after design of the initial reservoir sampling, and due to logistical reasons and resource availability could not be scheduled for the same period as the reservoir sampling (fall 2009). Instead, collection of water and sediment samples occurred with the assistance of the Yurok Tribe, during a time of relatively high flows, January 2010.

2.2 Site Distribution

Sediment sampling sites within JC Boyle, Copco 1 and Iron Gate reservoirs are distributed lake-wide as shown in Figures 2-4, respectively, and were situated to avoid archeologically sensitive areas. Sampling sites are identified with an alphanumeric identification code (ID) indicating overall sample location ("CDH" for reservoir; “CHA” for estuary), year of collection ("09"), and site-specific index numbers (2-32 and 41-46).

At each reservoir, approximately two thirds of the sample sites (referred to as “on-thalweg”) are located within the bounds of the estimated location of the historic river channel (Table 1). The remaining sample sites (designated “off-thalweg”) are located outside of the estimated location of the historic river channel - including submerged tributary mouths. Reservoir bathymetry data collected in 2009-2010 and historic maps were used to estimate the path of the historic river channel within each reservoir (Reclamation, 2011).

Table 1 - Reservoir sampling sites for KHSA sediment samples collected in 2009: Distribution and quantity.

	JC Boyle	Copco 1	Iron Gate
reservoir surface area (square mile)[1]	0.7	1.0	1.4
number of on-thalweg sites	7	7	8
number of off-thalweg sites	5	5	5
total sites per reservoir	12	12	13
Average site density (core/mile^2)	17	12	9

[1]FERC, 2007

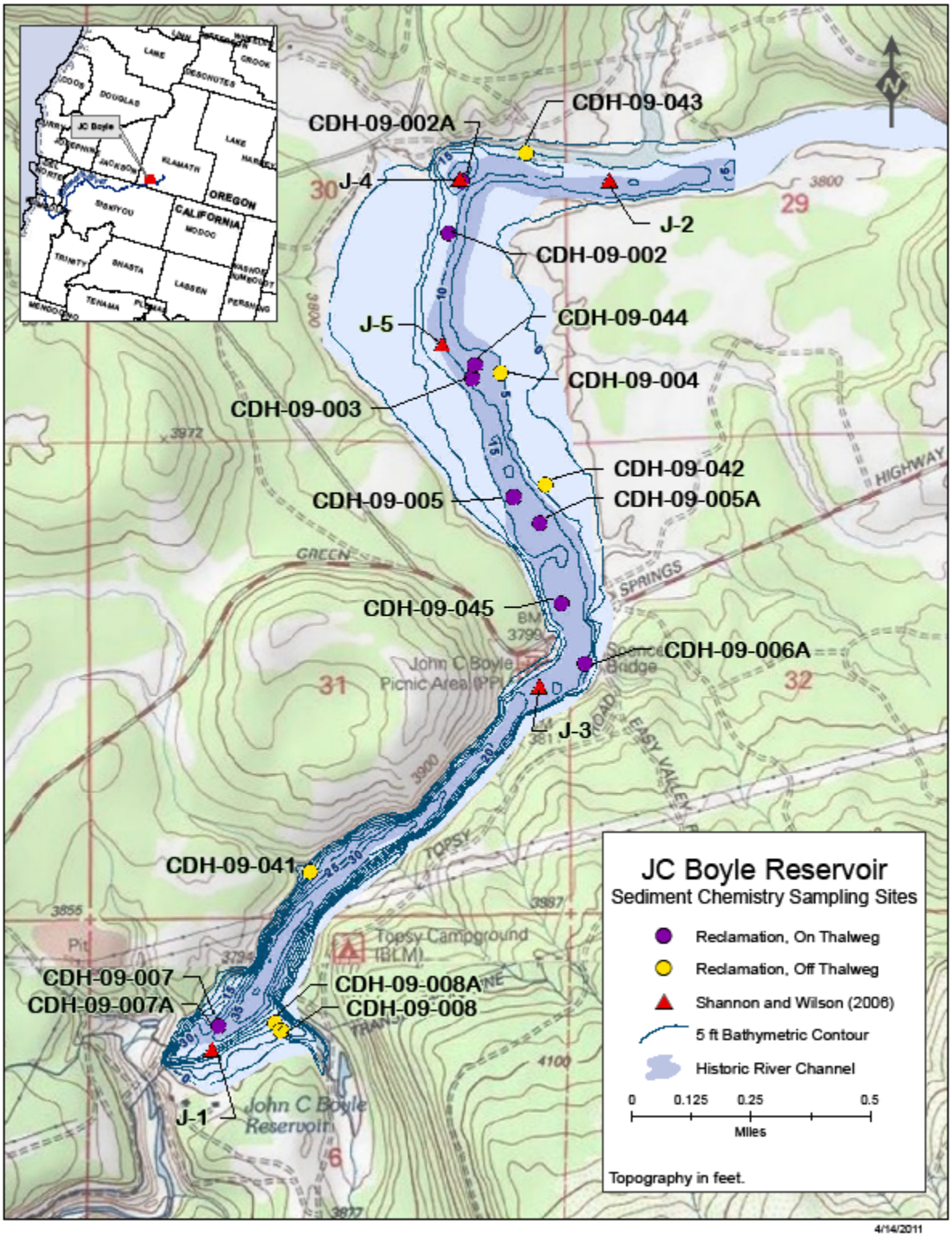


Figure 2 - Sediment sampling locations for JC Boyle Reservoir.

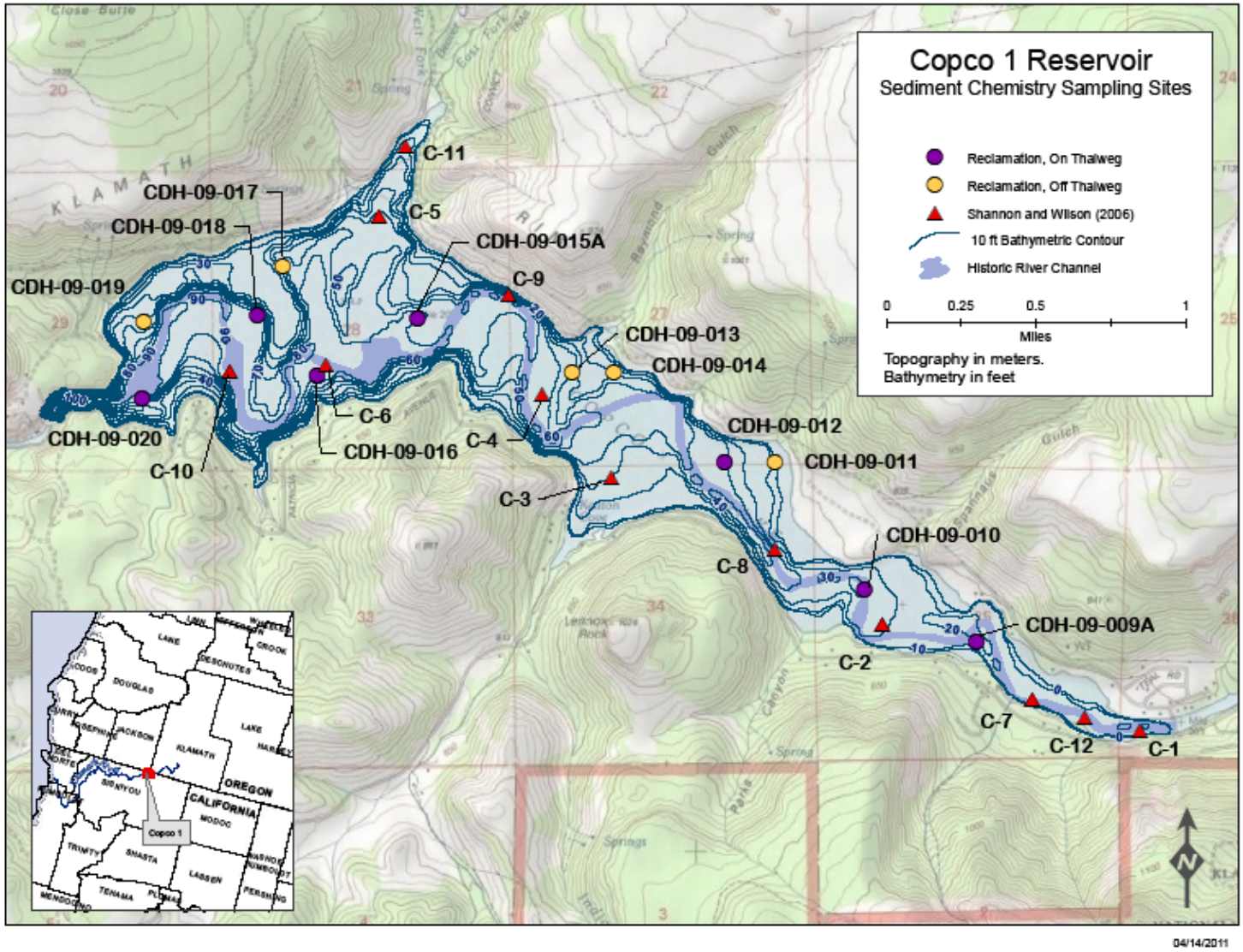


Figure 3 - Sediment sampling locations for Copco 1 Reservoir.

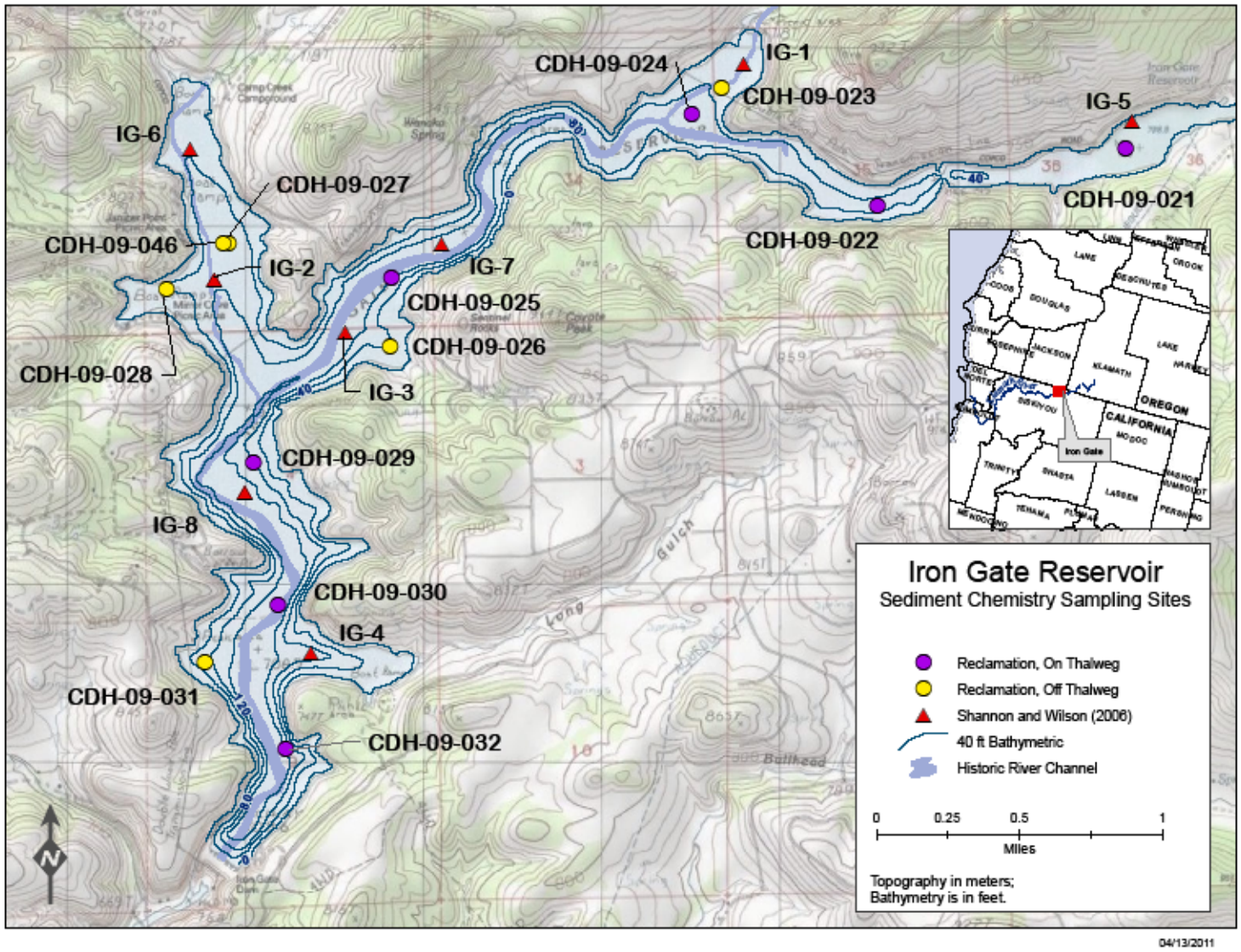


Figure 4 - Sediment sampling locations for Iron Gate Reservoir.

The locations of two JC Boyle sampling sites (CDH-09-007 and CDH-09-002A) approximately coincide with two sites (J-1 and J-4, respectively) that were sampled during the previous sediment chemistry investigations of Shannon and Wilson (2006b). Similarly, one Copco 1 site (CDH-09-016) and three Iron Gate sites (CHD-09-021, CHD-09-023, CHD-09-027) respectively correspond to Shannon and Wilson locations C-6, IG-5, IG-1and IG-2.

Within the Klamath River estuary, two regions of fine-grained sediment deposition were originally targeted for sediment collection, a marine-dominated "lower" estuary environment, and an "upper" estuary environment with a greater fresh-water influence. Specific sampling sites were determined at the time of sample collection because locations of fine-grained sediment were not known prior to sampling.

As shown in Figure 5, sediment was collected from three sites within the lower, marine-dominated estuary and two within the upper estuary. At the time of sample collection, exposures of fine-grained sediment were very limited and those that were identified appeared to be significantly influenced by human activity (fire pits and garbage). These areas were deemed unsuitable for sampling; therefore depositional sediment was collected from moderate to high-energy areas.

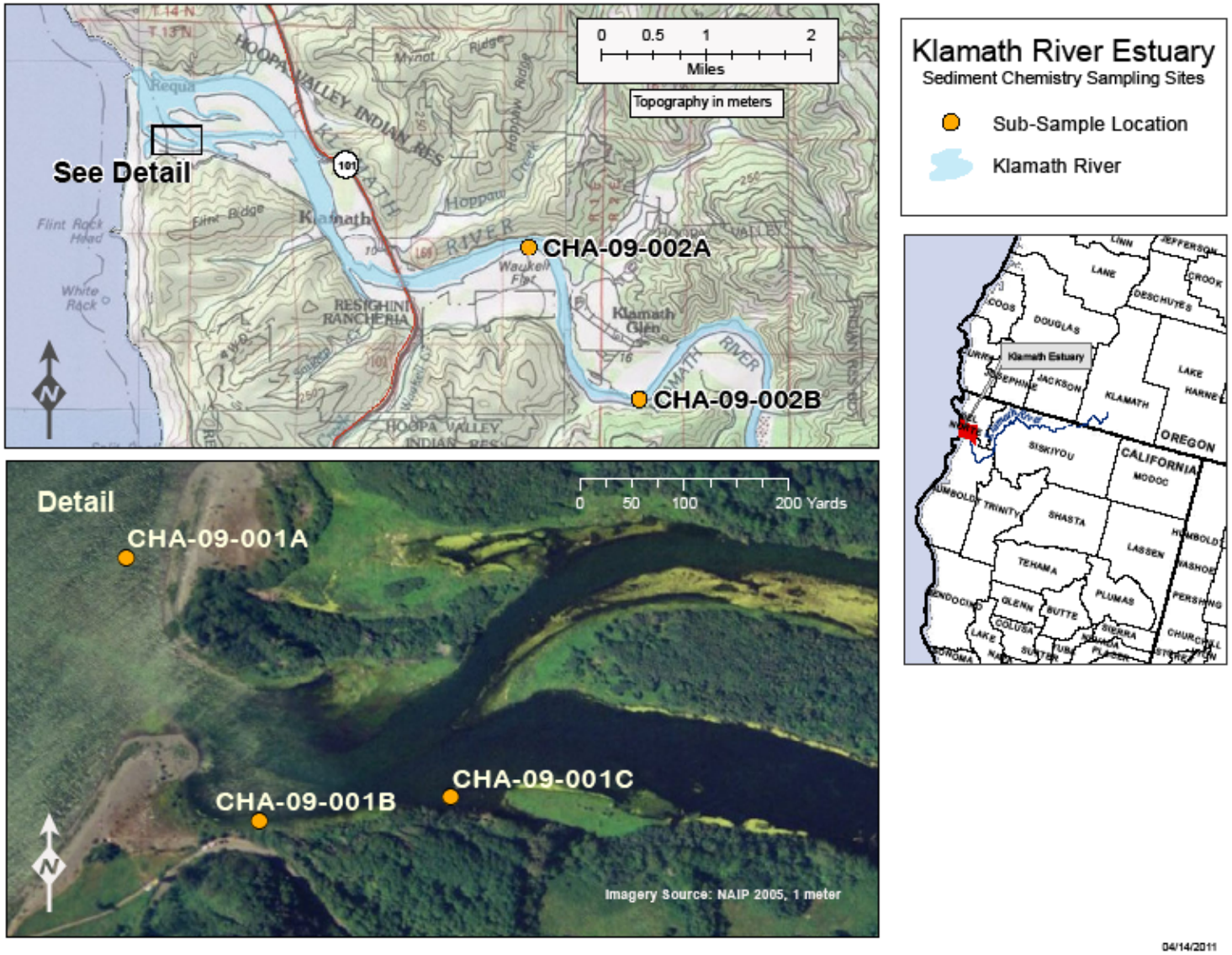


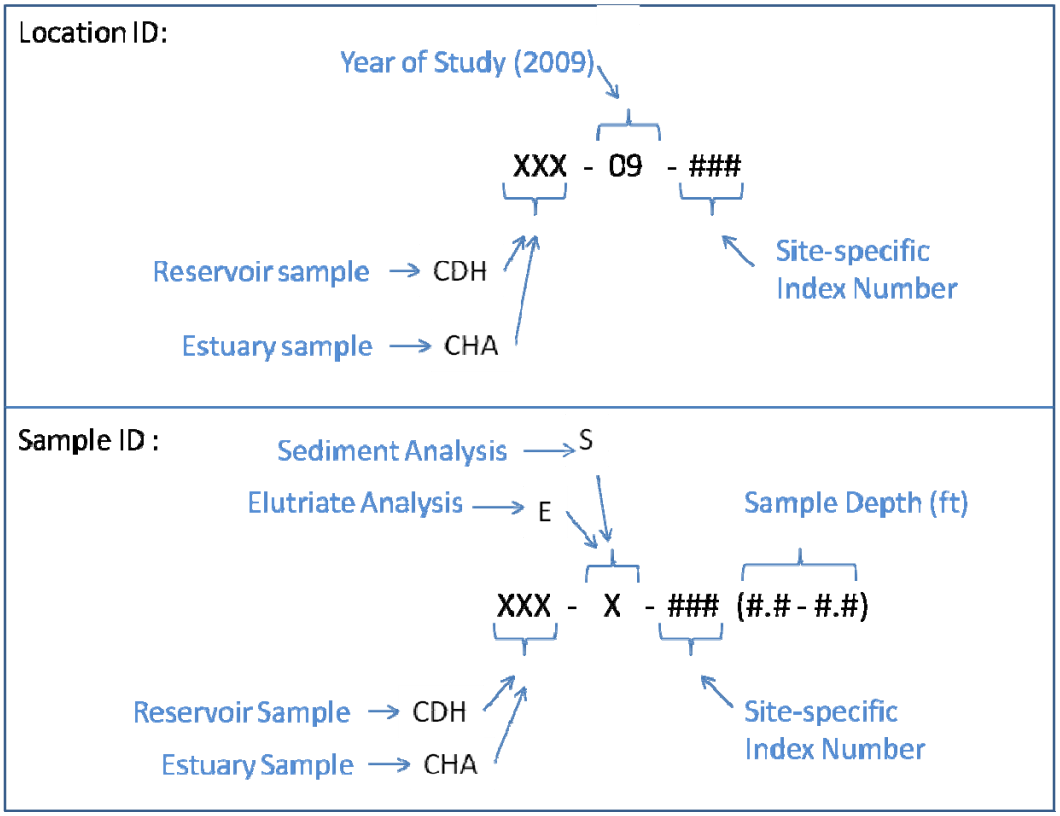
Figure 5 - Klamath River Estuary sediment sampling locations.

2.3 Sample Identification

Samples retrieved at each reservoir sampling site are labeled with an ID that corresponds to the site ID. As illustrated in Figure 6, sample codes for non-composite samples are modified from location IDs by replacing the study year (09) with the letter "S" to show that the sample was collected for use with analysis of the bulk sediment, or "E" to show that the sediment was collected for use with elutriate analyses. The sample depth, measured in tenths of feet below the sediment/water interface, is shown parenthetically at the end of the sample ID.

Due to a lack of accumulated sediment, some coring sites could not be sampled and needed to be moved to locations where sampling objectives could be achieved. If sites were laterally shifted more than ¼ mile, they were assigned a new site index number. If the locations were shifted less than ¼ mile, the letter "A" was added to the original index number.

Figure 6 - Identification codes for sampling sites and non-composite reservoir samples.



Composite samples (samples composed from sediment collected at more than one sample site) are labeled as shown in Table 2. Similar to IDs for non-composite samples, "CDH" indicates a reservoir composite, "CHA" indicates an estuary composite, and an "E" indicates that the sample was used with elutriate analyses. Dissimilar to non-composite sample codes, an "S" indicates that the sample was used for bioassessment studies. In addition, the site-specific index numbers used with non-composite samples are replaced by codes tied to the origin of the sample (JB for

JC Boyle, CP for Copco, IG for Iron Gate, N for off-thalweg reservoir sediment, T for on-thalweg reservoir sediment, 001 for the lower estuary and 002 for the upper estuary).

Table 2 - Composite sample identification.

Thalweg Designation:	On-Thalweg	Off-Thalweg	Not Applicable
Sediment used with Elutriate Analyses			
JC Boyle Reservoir	CDH-E-JBT	CDH-E-JBN	
Copco 1 Reservoir	CDH-E-CPT	CDH-E-CPN	
Iron Gate Reservoir	CDH-E-IGT	CDH-E-IGN	
Upper Klamath R. Estuary			CHA-E-002
Lower Klamath R. Estuary			CHA-E-001
Sediment used with Bioassessment Testing			
JC Boyle Reservoir	CDH-S-JBT	CDH-S-JBN	
Copco 1 Reservoir	CDH-S-CPT	CDH-S-CPN	
Iron Gate Reservoir	CDH-S-IGT	CDH-S-IGN	
Upper Klamath R. Estuary			CHA-S-002
Lower Klamath R. Estuary			CHA-S-001

Samples of native water (collected for use with chemical elutriate and bioassessment studies) are labeled with the ID for the corresponding sediment sample followed parenthetically by the word "water".

2.4 Sampling Overview

Sediment collections are summarized in Table 3 including dates of sample collection, sample locations (latitudes and longitudes) and on-thalweg and off-thalweg site designations. Other general information is also summarized, including sample collection equipment, and the analyses performed on each sample. Detailed descriptions of sampling equipment, methods and protocols are described in Section 3.0. Sample "categories" and the suites of chemicals analyzed ("Analyte Suite") for each sample are explained in Section 2.4.2. Composite samples are described in Section 2.6.

Native water was used as the water source for preparing elutriate samples. Table 4 summarizes general information including collection dates and sample locations (latitudes and longitudes) for these samples. Water collection methods and protocols are detailed in Section 3.2.

At reservoir sediment collection sites CDH-09-002 through CDH-09-032, water column physical measurements (temperature, pH, dissolved oxygen, specific conductance and turbidity) were measured on the same day that sediment was collected from the corresponding site. Water column profiles were collected adjacent to the sediment sampling locations (approximately 100 – 500 meters away). Methods and protocols for physical measurements are described in Appendix I.

Table 3 - Sediment collection summary.

Sample ID	Collection Date	Latitude (N)	Longitude (W)	Thalweg Orientation	Sample Category	Associated Reservoir Composite	Analyte Suite	Collection Method
JC BOYLE RESERVOIR								
CDH-S-002 (0.0-5 0)	10/15/2009	42° 08' 49.6"	122° 02' 10.8"	on	depth interval, total depth	--	A	fight auger
CDH-S-002A (0.0-2.9)	10/22/2009	42° 08' 55.3"	122° 02' 08.7"	on	depth interval, total depth	subsample of CDH-S-JBT CDH-E-JBT	--	manual gravity core
CDH-S-003 (0.0-3.8)	10/15/2009	42° 08' 33.7"	122° 02' 07.5"	on	depth interval, total depth	--	A	fight auger
CDH-S-004A (0.0-1.3)	5/25/2010	42° 08' 20.8"	122° 02' 02.2"	off	depth interval	--	F	fight auger
CDH-S-004 (0.0-6 0)	10/7/2009	42° 08' 34.2"	122° 02' 03.3"	off	depth interval	--	A	fight auger
CDH-S-004 (5.8-9)	10/7/2009	42° 08' 34.2"	122° 02' 03.3"	off	depth interval	--	A	fight auger
CDH-S-005 (0.0-0.3)	10/6/2009	42° 08' 20.6"	122° 02' 01.6"	on	depth interval, total depth	--	A	fight auger, dredge
CDH-S-005A (0.0-0.7)	10/22/2009	42° 08' 17.7"	122° 01' 57.7"	on	depth interval, total depth	subsample of CDH-S-JBT CDH-E-JBT	--	manual gravity core
CDH-S-006A (0.0-0.3)	10/7/2009	42° 08' 02.2"	122° 01' 51.4"	on	depth interval, total depth	--	A	dredge
CDH-S-007 (0.0-5 0)	10/1/2009	42° 07' 23.0"	122° 02' 46.0"	on	depth interval	--	A[1]	fight auger
CDH-S-007 (0.0-5.1)	10/23/2009	42° 07' 23.0"	122° 02' 46.0"	on	depth interval	--	A	fight auger
CDH-S-007 (4.2-9 2)	10/2/2009	42° 07' 22.9"	122° 02' 46.0"	on	depth interval	--	A	fight auger
CDH-S-007 (9.2-12.0)	10/2/2009	42° 07' 22.9"	122° 02' 46.0"	on	depth interval	--	A[2]	fight auger
CDH-S-007 (10.5-12.0)	10/1/2009	42° 07' 23.0"	122° 02' 46.0"	on	depth interval	--	A	fight auger
CDH-S-007 (12.0-17.0)	10/1/2009	42° 07' 23.0"	122° 02' 46.0"	on	depth interval	--	A	fight auger
CDH-S-007 (17.0-18.7)	10/2/2009	42° 07' 22.9"	122° 02' 46.0"	on	depth interval	--	A	fight auger
CDH-S-007 (0.0-18.7)	10/1/2009	42° 07' 23.0"	122° 02' 46.0"	on	total depth	--	B	fight auger
CDH-S-008 (0.0-2 2)	5/25/2010	42° 07' 24.0"	122° 02' 38.5"	off	depth interval, total depth	--	F	fight auger
CDH-S-008 (0.0-1.7)	10/3/2009	42° 07' 22.4"	122° 02' 36.8"	off	depth interval, total depth	--	A, B	fight auger
CDH-S-008A (0.0-1.8)	10/14/2009	42° 07' 23.2"	122° 02' 37.7"	off	depth interval, total depth	subsample of CDH-S-JBN CDH-E-JBN	--	manual gravity core
CDH-S-041 (0.0-3.5)	10/14/2009	42° 07' 39.7"	122° 02' 32.2"	off	depth interval, total depth	subsample of CDH-S-JBN CDH-E-JBN	--	manual gravity core
CDH-S-042 (0.0-1.5)	10/15/2009	42° 08' 21.9"	122° 01' 56.9"	off	depth interval, total depth	subsample of CDH-S-JBN CDH-E-JBN	--	manual gravity core
CDH-S-043 (0.0-2 0)	10/15/2009	42° 08' 58.3"	122° 01' 59.2"	off	depth interval, total depth	subsample of CDH-S-JBN CDH-E-JBN	A	manual gravity core
CDH-S-044 (0.0-2 9)	10/22/2009	42° 08' 35.1"	122° 02' 07.1"	on	depth interval, total depth	subsample of CDH-S-JBT CDH-E-JBT	--	manual gravity core
CDH-S-045 (0.0-1.6)	10/23/2009	42° 08' 08.9"	122° 01' 54.7"	on	depth interval, total depth	subsample of CDH-S-JBT CDH-E-JBT	--	manual gravity core

Table 3 - Sediment collection summary (continued).

Sample ID	Collection Date	Latitude (N)	Longitude (W)	Thalweg Orientation	Sample Category	Associated Reservoir Composite	Analyte Suite	Collection Method
COPCO 1 RESERVOIR								
CDH-S-009A (0.0-4.6)	11/10/2009	41° 58' 05.8"	122° 16' 27.6"	on	depth interval, total depth	subsample of CDH-S-CPT CDH-E-CPT	A	direct push
CDH-S-010 (0.0-5.0)	11/10/2009	41° 58' 15.1"	122° 16' 53 5"	on	dep h interval	--	A	direct push
CDH-S-010 (5.0-8.0)	11/10/2009	41° 58' 15.1"	122° 16' 53 5"	on	dep h interval	--	A	direct push
CDH-S-010 (0.0-8.0)	11/10/2009	41° 58' 15.1"	122° 16' 53 5"	on	total depth	subsample of CDH-S-CPT CDH-E-CPT	--	direct push
CDH-S-011 (0.0-1.3)	11/15/2009	41° 58' 37.6"	122° 17' 14 5"	off	depth interval, total depth	subsample of CDH-S-CPN CDH-E-CPN	A	vibracorer
CDH-S-012 (0.0-5.4)	11/11/2009	41° 58' 37.7"	122° 17' 26.4"	on	depth interval, total depth	subsample of CDH-S-CPT CDH-E-CPT	A	direct push
CDH-S-013 (0.0-5.7)	11/11/2009	41° 58' 53.5"	122° 18' 01 9"	off	depth interval, total depth	subsample of CDH-S-CPT CDH-E-CPT	A	direct push
CDH-S-014 (0.0-5.3)	11/15/2009	41° 58' 53.3"	122° 17' 52 0"	off	depth interval, total depth	subsample of CDH-S-CPN CDH-E-CPN	A, B, E	vibracorer
CDH-S-015A (0.0-5 0)	11/12/2009	41° 59' 03.1"	122° 18' 38 0"	on	dep h interval	--	A	direct push
CDH-S-015A (5.0-9.7)	11/12/2009	41° 59' 03.1"	122° 18' 38 0"	on	dep h interval	--	A	direct push
CDH-S-015A (0.0-9.7)	11/12/2009	41° 59' 03.1"	122° 18' 38 0"	on	total depth	subsample of CDH-S-CPT CDH-E-CPT	B, E	direct push
CDH-S-016 (0.0-5.0)	11/13/2009	41° 58' 53.3"	122° 19' 01.6"	on	dep h interval	--	A	direct push
CDH-S-016 (5.0-7.5)	11/13/2009	41° 58' 53.3"	122° 19' 01.6"	on	dep h interval	--	A	direct push
CDH-S-016 (0.0-7.5)	11/13/2009	41° 58' 53.3"	122° 19' 01.6"	on	total depth	subsample of CDH-S-CPT CDH-E-CPT	--	direct push
CDH-S-017 (0.0-1.2)	11/14/2009	41° 59' 12.5"	122° 19' 09.6"	off	depth interval, total depth	subsample of CDH-S-CPN CDH-E-CPN	A	direct push, vibracore
CDH-S-018 (0.0-5.0)	11/13/2009	41° 59' 04.1"	122° 19' 15.4"	on	dep h interval	--	A	vibracore
CDH-S-018 (5.0-8.9)	11/13/2009	41° 59' 04.1"	122° 19' 15.4"	on	dep h interval	--	A	vibracore
CDH-S-018 (0.0-8.9)	11/13/2009	41° 59' 04.1"	122° 19' 15.4"	on	total depth	subsample of CDH-S-CPT CDH-E-CPT	E	vibracore
CDH-S-019 (0.0-4.8)	11/14/2009	41° 59' 03.2"	122° 19' 42 2"	off	depth interval, total depth	subsample of CDH-S-CPN CDH-E-CPN	A	vibracore
CDH-S-020 (0.0-5.0)	11/14/2009	41° 58' 49.5"	122° 19' 42.7"	on	dep h interval	--	A	vibracore
CDH-S-020 (5.0-7.0)	11/14/2009	41° 58' 49.5"	122° 19' 42.7"	on	dep h interval	--	A	vibracore
CDH-S-020 (0.0-7.0)	11/14/2009	41° 58' 49.5"	122° 19' 42.7"	on	total depth	subsample of CDH-S-CPT CDH-E-CPT	--	vibracore

Table 3 - Sediment collection summary (continued).

Sample ID	Collection Date	Latitude (N)	Longitude (W)	Thalweg Orientation	Sample Category	Associated Reservoir Composite	Analyte Suite	Collection Method
IRON GATE RESERVOIR								
CDH-S-021 (0.0-0.5)	10/31/2009	41° 58' 11.7"	122° 22' 26.9"	on	depth interval, total depth	subsample of CDH-E-IGT-1 CDH-S-IGT	A	gravity core
CDH-S-021 (0.0-0.9)	4/13/2010	41° 58' 11.7"	122° 22' 26.9"	on	depth interval, total depth	--	G	manual gravity core
CDH-S-022 (0.0-1.4)	11/2/2009	41° 58' 01.7"	122° 23' 27.6"	on	depth interval, total depth	subsample of CDH-E-IGT-1 CDH-S-IGT	A	gravity core
CDH-S-023 (0.0-5.4)	11/7/2009	41° 58' 23.3"	122° 24' 05.5"	off	depth interval	--	A, E	gravity core
CDH-S-023 (5.4-7.7)	11/7/2009	41° 58' 23.3"	122° 24' 05.5"	off	depth interval	--	A	gravity core
CDH-S-023 (0.0-7.7)	11/9/2009	41° 58' 23.3"	122° 24' 05.5"	off	total depth	subsample of CDH-S-IGN CDH-E-IGN	--	gravity core
CDH-S-024 (0.0-4.1)	11/3/2009	41° 58' 18.6"	122° 24' 12.7"	on	depth interval, total depth	subsample of CDH-E-IGT-1 CDH-S-IGT	A	fight auger
CDH-S-025 (0.0-4.7)	11/17/2009	41° 57' 49.2"	122° 25' 26.4"	on	depth interval, total depth	subsample of CDH-E-IGT-2 CDH-S-IGT	A	vibracore
CDH-S-026 (0.0-2.0)	11/9/2009	41° 57' 36.9"	122° 25' 26.8"	off	depth interval, total depth	subsample of CDH-S-IGN CDH-E-IGN	A	gravity core
CDH-S-027 (0.0-1.9)	11/4/2009	41° 57' 55.8"	122° 26' 06.1"	off	depth interval, total depth	subsample of CDH-E-IGT-1 CDH-S-IGT	A	gravity core
CDH-S-028 (0.0-1.0)	11/6/2009	41° 57' 47.4"	122° 26' 21 2"	off	depth interval, total depth	subsample of CDH-S-IGN CDH-E-IGN	A	gravity core
CDH-S-029 (0.0-4.8)	11/17/2009	41° 57' 15.7"	122° 26' 00.4"	on	depth interval, total depth	subsample of CDH-E-IGT-2 CDH-S-IGT	A, B, E	vibracore
CDH-S-030 (0.0-2.9)	11/5/2009	41° 56' 50.0"	122° 25' 54.6"	on	depth interval, total depth	subsample of CDH-E-IGT-1 CDH-S-IGT	A	gravity core
CDH-S-031 (0.0-4.8)	11/10/2009	41° 56' 39.7"	122° 26' 12.5"	off	depth interval, total depth	subsample of CDH-S-IGN CDH-E-IGN	A, B	gravity core
CDH-S-032 (0.0-3.4)	11/17/2009	41° 56' 23.8"	122° 25' 52.9"	on	depth interval, total depth	subsample of CDH-E-IGT-2 CDH-S-IGT	A	vibracore
CDH-S-046 (0.0-2.5)	11/15/2009	41° 57' 55.6"	122° 26' 07.4"	on	depth interval, total depth	--	A, H	manual gravity core

Table 3 - Sediment collection summary (continued).

Sample ID	Collection Date	Latitude (N)	Longitude (W)	Thalweg Orientation	Sample Category	Associated Estuary Composite	Analyte Suite	Collection Method
UPPER ESTUARY								
CHA-S-002A	1/12/2010	41° 31' 22.1"	124° 00' 27.7"	--	composite subsample	CHA-S-002 CHA-E-002	--	shovel
CHA-S-002B	1/12/2010	41° 30' 07.4"	123° 59' 13.4"	--	composite subsample	CHA-S-002 CHA-E-002	--	shovel
LOWER ESTUARY								
CHA-S-001A	1/12/2010	41° 32' 17.3"	124° 04' 33.8"	--	composite subsample	CHA-S-001 CHA-E-001	--	shovel
CHA-S-001B	1/12/2010	41° 32' 09.9"	124° 04' 28.6"	--	composite subsample	CHA-S-001 CHA-E-001	--	shovel
CHA-S-001C	1/12/2010	41° 32' 10.6"	124° 04' 21.4"	--	composite subsample	CHA-S-001 CHA-E-001	--	shovel

1. Due to laboratory error, samples were not analyzed for: VOCs, PAHs, phthalates, phenols, chlorinated pesticides, or PCB aroclors.

2. Due to improper sample preservation, samples were not analyzed for total sulfide.

Table 4 - Water collection summary.

Sample ID	Date	Latitude (N)	Longitude (W)	Corresponding Sediment Sample	Analyses
JC Boyle Reservoir					
CDH-E-JBT (water)	30-Oct-09	42º 08' 10.3"	122º 01' 49.2"	On-Thalweg Reservoir Composite	Suite C: Elutriate Chemistry
CDH-S-JBT (water)	30-Nov-09	42º 08' 10.3"	122º 01' 49.2"	On-Thalweg Reservoir Composite	Suite D: Bioassessments
CDH-E-JBN (water)	30-Oct-09	42º 08' 10.3"	122º 01' 49.2"	Off-Thalweg Reservoir Composite	Suite C: Elutriate Chemistry
CDH-S-JBN (water)	30-Nov-09	42º 08' 10.3"	122º 01' 49.2"	Off-Thalweg Reservoir Composite	Suite D: Bioassessments
Copco 1 Reservoir					
CDH-E-CPT (water)	21-Nov-09	41º 58' 28.9"	122º 17' 30.8"	On-Thalweg Reservoir Composite	Suite C: Elutriate Chemistry
CDH-S-CPT (water)	2-Dec-09	41º 58' 28.9"	122º 17' 30.8"	On-Thalweg Reservoir Composite	Suite D: Bioassessments
CDH-E-CPN (water)	21-Nov-09	41º 58' 28.9"	122º 17' 30.8"	Off-Thalweg Reservoir Composite	Suite C: Elutriate Chemistry
CDH-S-CPN (water)	2-Dec-09	41º 58' 28.9"	122º 17' 30.8"	Off-Thalweg Reservoir Composite	Suite D: Bioassessments
Iron Gate Reservoir					
CDH-E-IGT-1 (water)	6-Nov-09	41º 58' 08.7"	122º 26' 17.4"	On-Thalweg Reservoir Composite	Suite C: Elutriate Chemistry
CDH-E-IGT-2 (water)	21-Nov-09	122º 26' 17.4"	122º 26' 17.4"	On-Thalweg Reservoir Composite	Suite C: Elutriate Chemistry
CDH-S-IGT (water)	2-Dec-09	122º 26' 17.4"	122º 26' 17.4"	On-Thalweg Reservoir Composite	Suite D: Bioassessments
CDH-E-IGN (water)	13-Nov-09	122º 26' 17.4"	122º 26' 17.4"	Off-Thalweg Reservoir Composite	Suite C: Elutriate Chemistry
CDH-S-IGN (water)	2-Dec-09	122º 26' 17.4"	122º 26' 17.4"	Off-Thalweg Reservoir Composite	Suite D: Bioassessments
Klamath River Estuary					
CHA-E-001 (water)	12-Jan-10	41º 32' 16.9''	124º 04'14.8''	Estuary Composite (lower)	Suite C: Elutriate Chemistry
CHA-S-002 (water)	12-Jan-10	41º 31' 22.1''	124º 00' 27.7''	Estuary Composite (upper)	Suite C: Elutriate Chemistry
CHA-E-002 (water)	12-Jan-10	41º 31' 22.1''	124º 00' 27.7''	Estuary Composite (upper)	Suite D: Bioassessments

2.5 Target Analytes, Analytical Methods, and Analyte Suites

Target constituents are listed individually in the data results tables, Appendices A and B. Within the results tables, the analytical methods are either listed individually, next to the analyte name, or are specified in the table header for a particular chemical grouping. When analytes were not detected above the reporting limit for the appropriate method, the concentrations in Appendices A and B were reported as less than the reporting limit. The reporting limits that were contracted for each analyte are summarized in the QAPP for the program (Appendix C; Table 14). Note that the specified reporting limits may not have been achieved due to method limitations, matrix affects, or required sample dilutions.

A number of considerations went into choosing the approximately 500 sediment and nearly 370 elutriate analyses conducted for this study. A comprehensive, preliminary list was drawn from chemicals and tests recommended in National and State environmental guidance documents for the evaluation of sediment and elutriate quality (EPA/USACE, 1998; EPA/USACE, 2008; USACE et al., 2009). Constituents were then added in order to address stakeholder concerns and data gaps identified by the WQST. Emphasis was placed on chemical groups which (a) previous studies had identified a likely concern based on detections, toxicity, known upstream sources, or known regional or national issues; (b) are known to bioaccumulate from sediments into higher trophic levels; or (c) were needed as ancillary data to understand sediment and chemical mobility, transport, or toxicity.

2.5.1 Target Analytes

Constituents analyzed in this study were broken into analyte "suites" as described below. The analytes included within each suite are summarized in Table 5.

Suite A: Sediment Chemistry - Comprehensive
Constituents needed in order to gain knowledge of the spatial (longitudinal, lateral, and with depth) distribution of a wide variety of chemicals of concern.

To complete Suite A analyses, the total sediment volume required was 1.5 liters per sample.

Suite B: Sediment Chemistry - Special Concern
Constituents that merited confirmation or clarification of prior results (e.g. dioxins/furans, PCB congeners) and constituents of emerging concern (e.g. polybrominated diphenyl ethers).

To complete Suite B analyses, the total sediment volume required was 1.65 liters per sample.

Suite C: Elutriate Chemistry – Comprehensive
Constituents in Suites A and B that are soluble in water and therefore suitable for elutriate analysis;

To complete Suite C analyses, the total sediment volume required was 4.0 liters per sample.

Table 5 - Analyte suite summary.

Suite A: Sediment Chemistry - Comprehensive	**Suite C: Elutriate Chemistry - Comprehensive**	**Suite E: Sediment Chemistry - Biotoxins**
(201 analytes by 23 methods)	**(368 analytes by 22 methods)**	**(12 analytes by 1 method)**
Ammonia	Ammonia	Microcystin
Chlorinated Pesticides	Biological oxygen demand (BOD) 5-day	
Diesel Range Organics	Carbamates	
pH	Chloride	**Suite F: Sediment Chemistry - Resample**
Phenols	Chlorinated Pesticides	
Phthalates	Dissolved organic carbon (DOC)	**(79 analytes by EPA method 8260C)**
Polyaromatic hydrocarbons (PAH)	Organophosphorus Compounds (OP)	VOCs
Polychlorinated biphenyl (PCB) Aroclors	pH	
Residual Range Organics	Phenols	
Semi-volatile organic compounds	Phthalates	**Suite G: Sediment Chemistry - Resample**
Specific conductance (EC)	Polyaromatic hydrocarbons (PAH)	
Total % solids	Polychlorinated biphenyl (PCB) Aroclors	**(89 analytes by 3 methods)**
Total metals	Semi-volatile organic compounds	Polyaromatic hydrocarbons (PAH)
Total Nitrogen	Specific conductance (EC)	Chlorinated pesticides
Total organic carbon (TOC)	Total dissolved solids (TDS)	Phenols
Total Phosphorus	Total metals	Phthalates
Total Sulfide	Total Nitrogen	
Total volatile solids (TVS)	Total organic carbon (TOC)	
Volatile organic compounds (VOC)	Total Phosphorus	**Suite H: Sediment Chemistry - Add On**
Weak-acid dissociable (WAD) cyanide	Total Sulfide	
	Weak-acid dissociable (WAD) cyanide	**(395 analytes by 26 methods)**
		Dioxins and Furans
		PCB Congeners
Suite B: Sediment Chemistry - Special Concern	**Suite D: Sediment and Elutriate Bioassessment Studies**	
(299 analytes by 11 methods)	**(5 tests by 2 methods)**	
Acid Volatile Sulfide (AVS)	4-day Elutriate Bioassay	
Carbamates	(*Oncorhynchus mykiss*)	
Dioxins and Furans	10-day Sediment Bioassay	
Organophosphorus Compounds (OP)	(*Chironomus dilutus*)	
PCB Congeners	10-day Sediment Bioassay	
Polybrominated diphenyl ethers (PBDE)	(*Hyalella azteca*)	
Pyrethroids	28-day Bioaccumulation	
	(*Corbicula fluminea*)	
	28-day Bioaccumulation	
	(*Lumbriculus variegatus*)	

Suite D: Sediment and Elutriate Bioassessment Studies
Toxicity bioassays and bioaccumulation studies recommended in guidance documents: EPA Method 600/R-99/064 (EPA, 2000); Pacific Northwest Sediment Evaluation Framework (USACE et al. 2009; 2010 interim); Dredged Material Evaluation and Disposal Procedures Users' Manual (EPA/USACE, 2008); and the Inland Testing Manual (EPA/USACE, 1998). Results for the bioassessment studies will be reported elsewhere.

To complete Suite D analyses, the total sediment volume required was 29.0 liters per sample.

Suite E: Biotoxin Studies
Analyses needed to confirm the absence of biotoxins in sediments (nine microcystin congeners, Anatoxin and Domoic acid and Okadaic acid analyzed by a non-standard method by the California Department of Fish and Game's Water Pollution Control Laboratory).

To complete Suite E analyses, the total sediment volume required was 1.0 liters per sample.

Suite F: Re-sample
Constituents (VOCs by EPA Standard Method 8260C) analyzed outside of hold time for some JC Boyle samples.

To complete Suite F analyses, the total sediment volume required was 0.125 liters per sample.

Suite G: Re-sample
Constituents (PAHs, chlorinated pesticides, phenols and phthalates) were re-sampled as a result of compromised data due to lab error on the initial sample analysis.

To complete Suite G analyses, the total sediment volume required was 0.250 liters per sample.

Suite H: Add-on
Constituents with the potential to be found within dark sediment layers interpreted by on-site geologists as potential charcoal deposits (dioxins, furans, PCB congeners).

To complete Suite H analyses, the total sediment volume required was 0.500 liters per sample.

2.5.2 Sample Categories

Bulk sediment samples were collected following four strategies and categorized according to the collection strategy and regional location for the samples. Table 6 presents the geographic distribution of sample analyses, listing the specific subset of samples collected for analysis of each analyte suite.

Depth Interval Samples
Reservoir "Depth Interval" samples are subsamples of individual reservoir cores, homogenized over five foot depth intervals (or a fraction thereof). For example, a core seven and a half feet long yields two Depth Interval samples, one representing sediment collected from the

sediment/water interface to five feet below the interface (0.0'-5.0'), the other from five feet to seven and a half feet deep (5.0'-7.5'). Depth Interval samples were created by collecting subsamples evenly with depth throughout the length of the specified depth interval and then homogenizing the subsamples. Collection methods are described in detail in Section 3.1.

Depth Interval samples, representing the average sediment composition at a particular location and depth, were collected to help resolve potential spatial and/or time variations in reservoir sediment composition. Depth Interval samples were collected at all sampling sites within each reservoir as outlined in the original sampling plan in the QAPP (Appendix C), maximizing the spatial distribution of data points. Depth Interval samples were analyzed for the "Suite A" chemical constituents shown in Table 5.

Total Depth Samples

Reservoir "Total Depth" samples were generated by homogenizing subsamples that were collected evenly with depth through the length of an entire core. Total Depth samples were created by collecting subsamples evenly with depth throughout the length of the entire core and then homogenizing the subsamples. Collection methods are described in detail in Section 3.1. Note that for cores less than five feet long, Total Depth samples also qualify as Depth Interval samples.

Total Depth samples represent average sediment at a particular location for all depths of sediment at that location. At each reservoir, two Total Depth samples were selected for analysis of Suite B constituents (Table 5), one from a core proximal to the dam and one more distal (Table 6).

Table 6 - Geographic distribution of sample analyses: Analyte suites, sample categories, and geographic distribution.

Analyte Suite		Sample Category	Category Defintion	Sample Distribution
A	Sediment Chemistry - Comprehensive	Reservoir - Depth Interval	Sediment homogenized over a 5 ft depth interval within a single core	Each core at all reservoirs
		Estuary - Composite	Sediment from multiple subsamples collected within one estuary region	Two regions per estuary: one in the upper estuary, one in the lower estuary
B	Sediment Chemistry - Special Concern	Reservoir - Total Depth	All sediment from a single core	Two cores per reservoir: one distal and one proximal to the dam
		Estuary - Composite	Sediment from multiple subsamples collected within one estuary region	Two regions per estuary: one in the upper estuary, one in the lower estuary
C	Elutriate Chemistry - Comprehensive	Reservoir - Composite	Sediment from multiple subsamples collected within one reservoir	Two regions per reservoir: one on-thalweg region and one off-thalweg region
		Estuary - Composite	Sediment from multiple subsamples collected within one estuary region	Two regions per estuary: one in the upper estuary, one in the lower estuary
D	Bioassessments	Reservoir - Composite	Sediment from multiple subsamples collected within one reservoir	Two regions per reservoir: one on-thalweg region and one off-thalweg region
		Estuary - Composite	Sediment from multiple subsamples collected within one estuary region	Two regions per estuary: one in the upper estuary, one in the lower estuary
E	Sediment Toxicity - Microcystin	Reservoir - Total Depth	All sediment from a single core	Three Copco Reservoir cores; two cores in Iron Gate Reservoir
F	Sediment Chemistry - Resample (VOCs)	Reservoir - Depth Interval	Sediment homogenized over a 5 ft depth interval within a single core, upper 5 ft interval only	Two cores within JC Boyle Reservoir
G	Sediment Chemistry - Resample (phthalates, phenols, PAHs, CPs)	Reservoir - Total Depth	All sediment from a single core	One core in Iron Gate Reservoir
H	Sediment Chemistry - Add On (Dioxins, PCBs)	Reservoir - Total Depth	All sediment from a single core	One core in Iron Gate Reservoir

Reservoir Composite Samples

Two multiple-core "Reservoir Composite" samples were created for each reservoir (Table 6). Reservoir Composite samples represent average (lake-wide) on-thalweg or off-thalweg sediments. For example, in Iron Gate Reservoir, the on-thalweg Reservoir Composite sample was formed by compositing each on-thalweg core collected at that reservoir and the off-thalweg Reservoir Composite sample was composited from a subsample of each Total Depth non-thalweg core collected at Iron Gate reservoir. Likewise, similar Reservoir Composite samples were collected in JC Boyle and Copco 1 reservoirs.

Composite sample details (subsample IDs, subsample volume contributions, potential bias associated with each composite sample) are shown in Table 7 and discussed in Section 2.6.2. Compositing methods are described in Section 3.1.4.

Reservoir Composite samples were analyzed for the "Suite C" (chemical elutriate) and "Suite D" (bioassessment) constituents shown in Table 5.

Estuary Composite Samples

Two "Estuary Composite" samples were created, one from the upper and one from the lower estuary (Table 6). The Lower Estuary Composite sample was composited from sediment collected at three sites near the estuary mouth (Figure 5; Tables 3 and 8). At each of the three Lower Estuary subsample locations, two sample replicates were collected; replicates were positioned approximately 5 ft apart. Lower Estuary samples were collected below waterline using a boat; water depth ranged from 5 to 8 feet. The Upper Estuary sediment sample was composited from material collected at two sites: one approximately four river-miles upstream from the river mouth, the other about six river-miles upstream. Both subsamples were collected at, or immediately below, the waterline and were collected from areas of point bar deposition within a meander bend.

Estuary Composite samples collected at the upper Klamath River estuary were analyzed for in Suite A, B, C and D constituents (Tables 3, 5 and 8). Estuary Composite samples collected at the lower estuary were analyzed for Suite A, B and C constituents.

Table 7 - Reservoir composite sample summary.

Composite Sample ID	Composite Sample Date	Composite Sample Category	Composite Sample Volume (L)	Analyte Suite	Subsample Site ID	Subsample Collection Date	Subsample (Core) Length (ft)	Ideal Subsample Volume for Maintaining Depth Proportionality (L)	Subsample Volume Contributed (L)
JC Boyle Reservoir									
CDH-E-JBT	22-Oct-09	On-thalweg Reservoir Composite	4.00	C	CDH-09-002A	22-Oct-09	2.9	1.43	1.00
					CDH-09-005A	22-Oct-09	0.7	0.35	1.00
					CDH-09-044	22-Oct-09	2.9	1.43	1.00
					CDH-09-045	23-Oct-09	1.6	0.79	1.00
CDH-S-JBT	22-Oct-09	On-thalweg Reservoir Composite	30.28	D	CDH-09-002A	22-Oct-09	2.9	10.84	7.57
					CDH-09-005A	22-Oct-09	0.7	2.62	7.57
					CDH-09-044	22-Oct-09	2.9	10.84	7.57
					CDH-09-045	23-Oct-09	1.6	5.98	7.57
CDH-E-JBN	14-Oct-09	Off-thalweg Reservoir Composite	4.00	C	CDH-09-008A	14-Oct-09	1.8	0.82	1.00
					CDH-09-041	14-Oct-09	3.5	1.59	1.00
					CDH-09-042	15-Oct-09	1.5	0.68	1.00
					CDH-09-043	15-Oct-09	2.0	0.91	1.00
CDH-S-JBN	14-Oct-09	Off-thalweg Reservoir Composite	30.28	D	CDH-09-008A	14-Oct-09	1.8	6.19	7.57
					CDH-09-041	14-Oct-09	3.5	12.04	7.57
					CDH-09-042	15-Oct-09	1.5	5.16	7.57
					CDH-09-043	15-Oct-09	2.0	6.88	7.57

Table 7 - Reservoir composite sample summary (continued).

Composite Sample ID	Composite Sample Date	Composite Sample Category	Composite Sample Volume (L)	Analyte Suite	Subsample Site ID	Subsample Collection Date	Subsample (Core) Length (ft)	Ideal Subsample Volume for Maintaining Depth Proportionality (L)	Subsample Volume Contributed (L)
Copco 1 Reservoir									
CDH-E-CPT	11/10/2009	On-thalweg Reservoir Composite	5.85	C	CDH-09-009A	10-Nov-09	4.6	0.47	0.50
					CDH-09-010	10-Nov-09	8.0	0.82	0.80
					CDH-09-012	11-Nov-09	5.4	0.56	0.60
					CDH-09-013	11-Nov-09	5.7	0.59	0.60
					CDH-09-015A	12-Nov-09	9.7	1.00	1.00
					CDH-09-016	13-Nov-09	7.5	0.77	0.75
					CDH-09-018	13-Nov-09	8.9	0.92	0.90
					CDH-09-020	14-Nov-09	7.0	0.72	0.70
CDH-S-CPT	11/10/2009	On-thalweg Reservoir Composite	30.70	D	CDH-09-009A	10-Nov-09	4.6	2.49	2.50
					CDH-09-010	10-Nov-09	8.0	4.32	4.25
					CDH-09-012	11-Nov-09	5.4	2.92	3.00
					CDH-09-013	11-Nov-09	5.7	3.08	3.00
					CDH-09-015A	12-Nov-09	9.7	5.24	5.20
					CDH-09-016	13-Nov-09	7.5	4.05	4.00
					CDH-09-018	13-Nov-09	8.9	4.81	4.75
					CDH-09-020	14-Nov-09	7.0	3.78	4.00
CDH-E-CPN	11/14/2009	Off-thalweg Reservoir Composite	4.26	C	CDH-09-011	15-Oct-09	1.3	0.44	0.60
					CDH-09-014	15-Oct-09	5.3	1.79	0.85
					CDH-09-017	14-Oct-09	1.2	0.41	0.56
					CDH-09-019	14-Nov-09	4.8	1.62	2.25
CDH-S-CPN	11/14/2009	Off-thalweg Reservoir Composite	31.00	D	CDH-09-011	15-Oct-09	13.00	3.20	3.20
					CDH-09-014	15-Oct-09	17.00	13.04	13.00
					CDH-09-017	14-Oct-09	1.2	2.95	3.00
					CDH-09-019	14-Nov-09	4.8	11.81	11.80

Table 7 - Reservoir composite sample summary (continued).

Composite Sample ID	Composite Sample Date	Composite Sample Category	Composite Sample Volume (L)	Analyte Suite	Subsample Site ID	Subsample Collection Date	Subsample (Core) Length (ft)	Ideal Subsample Volume for Maintaining Depth Proportionality (L)	Subsample Volume Contributed (L)
Iron Gate Reservoir									
CDH-E-IGT-1	10/31/2009	On-thalweg Reservoir Composite	5.50	C	CDH-09-021	31-Oct-09	0.5	0.25	0.25
					CDH-09-022	2-Nov-09	1.4	0.70	0.75
					CDH-09-024	3-Nov-09	4.1	2.05	2.00
					CDH-09-027	4-Nov-09	1.9	0.95	1.00
					CDH-09-030	5-Nov-09	2.9	1.45	1.5
CDH-E-IGT-2	11/17/2009	On-thalweg Reservoir Composite	5.40	C	CDH-09-025	17-Nov-09	4.7	1.97	2.00
					CDH-09-029	17-Nov-09	4.8	2.01	2.00
					CDH-09-032	17-Nov-09	3.4	1.42	1.40
CDH-S-IGT	10/31/2009	On-thalweg Reservoir Composite	30.35	D	CDH-09-021	31-Oct-09	0.5	0.64	0.65
					CDH-09-022	2-Nov-09	1.4	1.79	2.00
					CDH-09-024	3-Nov-09	4.1	5.25	5.00
					CDH-09-025	17-Nov-09	4.7	6.02	5.70
					CDH-09-027	4-Nov-09	1.9	2.43	2.50
					CDH-09-029	17-Nov-09	4.8	6.15	6.30
					CDH-09-030	5-Nov-09	2.9	3.71	3.80
					CDH-09-032	17-Nov-09	3.4	4.35	4.40
CDH-E-IGN	11/6/2009	Off-thalweg Reservoir Composite	5.63	C	CDH-09-023	7-Nov-09	7.7	2.73	3.00
					CDH-09-026	9-Nov-09	2.0	0.71	0.75
					CDH-09-028	6-Nov-09	1.0	0.35	0.38
					CDH-09-031	10-Nov-09	4.8	1.70	1.50
CDH-S-IGN	11/6/2009	Off-thalweg Reservoir Composite	13.90	D	CDH-09-023	7-Nov-09	7.7	6.91	6.40
					CDH-09-026	9-Nov-09	2.0	1.79	2.00
					CDH-09-028	6-Nov-09	1.0	0.90	1.00
					CDH-09-031	10-Nov-09	4.8	4.30	4.50
CDH-S-IGN (archive)	11/6/2009	Off-thalweg Reservoir Composite	13.30	D	CDH-09-026	11/9/2009	2.0	3.41	3.80
					CDH-09-028	11/6/2009	1.0	1.71	1.90
					CDH-09-031	11/10/2009	4.8	8.18	7.60

Table 8 - Estuary composite sample summary.

Composite Sample ID	Composite Sample Date	Composite Sample Category	Composite Sample Volume (L)	Analyte Suite	Subsample Site ID	Subsample Collection Date
Upper Klamath River Estuary						
CHA-E-002	12-Jan-10	Estuary Composite	4.00	C	CHA-09-002A	12-Jan-10
					CHA-09-002B	12-Jan-10
CHA-S-002	12-Jan-10	Estuary Composite	33.125	A, B, D	CHA-09-002A	12-Jan-10
					CHA-09-002B	12-Jan-10
Lower Klamath River Estuary						
CHA-E-001	12-Jan-10	Estuary Composite	4.00	C	CHA-09-001A	12-Jan-10
					CHA-09-001B	12-Jan-10
					CHA-09-001C	12-Jan-10
CHA-S-001	12-Jan-10	Estuary Composite	3.125	A, B	CHA-09-001A	12-Jan-10
					CHA-09-001B	12-Jan-10
					CHA-09-001C	12-Jan-10

2.6 Reservoir and Estuary Composite Samples

2.6.1 Depth Proportionality

Composite samples for use with bioassessment and elutriate analyses are shown in Tables 7 and 8. Composite samples were dated with the date of the oldest (earliest collected) sediment included within the composite.

When assembling composite samples, the goal was to represent the length of each sample core proportionally, in accordance with Dredged Material Evaluation and Disposal Procedures (Users' Manual) and Sediment Evaluation Framework guidelines (EPA/USACE, 2008; Sediment Evaluation Framework, 2010).

Depth proportionality of cores was determined using the following formula:

$$\frac{\text{Subsample depth}}{\text{Sum of all subsample depths}} = \frac{\text{Ideal depth-proportional volume}}{\text{Volume of the final composite sample}}$$

A minimum of twenty nine liters of sediment were required to complete bioassessment tests and a minimum of four liters were needed to complete elutriate analyses. The coring equipment yielded approximately three liters of sediment for analysis for every five feet of recovered sediment. In order to fill volume requirements, replicate cores were collected at most core locations. It was not efficient or practical to collect more replicates than absolutely required (coring with the push core or flight auger methods was slow - at the longest, taking up to two days to collect one core at site CDH-09-007). Maintaining depth proportionality was not always possible because the sample volumes collected at some locations fell short of the amount

necessary to maintain proportionality. The degree to which depth proportionality was maintained can be evaluated by observing the values indicated in Tables 7 and 8.

Note that if the sample volumes collected at all locations were greater than the amount necessary; a composite larger than required was created. For example, as shown in Table 7, for Copco 1 Reservoir Composite sample CDH-E-CPT, 5.85 liters of sediment were submitted to the laboratory.

2.6.2 Potential Biases to Reservoir Composite Samples

Potential Depth Bias - JC Boyle Reservoir

Sediment from deeper locations at JC Boyle Reservoir is underrepresented in the composite samples from this reservoir. The Vibracore sampler, which is capable of quickly collecting samples up to twenty five feet long, was not available until after all JC Boyle sampling had been completed. With the sampling equipment available, it was not possible to collect cores longer than 6 to 8 feet in the amount of time available, therefore a field decision was made to collect samples from areas where sediment deposits were thin.

To a lesser, and possibly insignificant extent, the under representation of the deeper sediments was further compounded by the composite strategy used at JC Boyle. Due to a miscommunication, JC Boyle composite samples were assembled from subsamples of equal volumes, rather than depth proportional volumes. As shown in Table 7, in samples submitted for both elutriate and bioassessment testing, deeper sediments were under-represented and shallower sediments over-represented in both the on-thalweg and the off-thalweg composite samples from JC Boyle Reservoir (CDH-E-JBT and CDH-E-JBN).

Potential Depth Bias – Copco Reservoir

As shown in Table 7, in samples submitted for elutriate testing, deeper sediments were under-represented and shallower sediments over-represented in the off-thalweg composite from Copco Reservoir (CDH-E-CPN).

Potential Depth Bias – Iron Gate Reservoir

As shown in Table 7, in samples submitted for bioassessment studies, deeper sediments were under-represented and shallower sediments over-represented in the off-thalweg composite samples from Iron Gate Reservoir (CDH-S-IGN and CDH-S-IGN Archive). Not enough sediment was available from the deepest core (CDH-09-023) to provide a depth proportional composite of sufficient volume. All of subsample CDH-S-023 was consumed by composite sample CDH-S-IGN in an effort to form a sample that was as close as possible to being depth-proportional. Because this sample did not meet minimum volume requirements, a supplemental sample, CDH-S-IGN Archive was composited depth proportionally from the remaining cores (the deepest core was excluded altogether).

Potential on-thalweg/off-thalweg Bias

On-thalweg composite samples from Iron Gate and Copco 1 reservoirs may contain a small percentage of non-thalweg sediment within them. Bathymetric maps of the reservoirs (Figures 2-4) were updated post-sampling, using data collected during the 2009/2010 field work (Greimann, 2010). Bathymetric refinements suggest that two sampling sites which were originally designated "on-thalweg" (CDH-09-013 and CDH-09- 027) may have been located off of the current estimate of the location of the Klamath River thalweg.

3.0 Sampling Methods and Materials

3.1 Sediment Collection

3.1.1 Equipment

As shown in Table 3, six types of sample collection equipment were used for this study. Equipment choices were driven by site-specific variations in field conditions and by the final sediment volume needed from each site.

Reservoir sediments were collected primarily by coring. This method allowed collection at known depths, and allowed collection of material reaching from the sediment/water interface to the contact between the sediments that have accumulated within each reservoir and soils that were present before the reservoirs were impounded.

Coring was achieved through use of a rig-supported flight auger dry core (FADC) fitted with a steel split-tube sampler (3 inch inside diameter by 5 ft long); a winch and cable deployed "manual" gravity corer fitted with a Lexan® tube (2 5/8 inch inside diameter by <8 ft long); a rig-supported gravity corer fitted with a Lexan® tube (2 5/8 inch inside diameter by <8 ft long); a rig-supported "direct-push" corer fitted with a Lexan® tube (2 5/8 inch inside diameter by <8 ft long); and a Vibracorer fitted with a Lexan® (plastic) tube (3 ¾ inch inside diameter by <10 ft long). Coring equipment and deployment methods are described in detail in McCullah (2011).

Note that for samples collected using the manually deployed gravity corer, sample depths are less accurately known than for samples collected with other methods. With the manual deployment of the gravity corer, it was not possible to insure that the core tube remained plumb during sampling.

At each reservoir site, cores were inspected by on-site geologists to verify that the reservoir sediment/ pre-reservoir sediment contact had been reached. The visually distinct contact was recognized by differences in sediment character (e.g. color, grain size and composition, sample consistency/moisture content). If the core did not reach the contact with the pre-reservoir sediment, coring was continued (FACD method) or the incomplete sample was discarded and a new core collected (Virbracore®, push, or gravity coring methods).

At reservoir sites CDH-09-005, which correlates to samples CDH-S-005 and CDH-E-005, and CDH-09-006A, which correlates to samples CDH-S-006A and CDH-E-006A, samples were collected using a stainless steel PONAR® box dredge. At both locations, the 0.3 ft thickness of reservoir sediment was pre-determined using the flight auger coring device. Due to the thin layer of reservoir sediment, collecting sufficient sediment volume to complete all desired Suite A analyses (approximately 1.5 liter at each site) was not practical. Because the depth interval of

available sediment had already been determined, and the lower contact with pre-reservoir sediment confirmed, PONAR® box dredge sampling was implemented.

Estuary sediments were collected using a shovel fitted with a stainless steel blade. Attempts to sample with the gravity corer failed due to the course nature of the sediment.

3.1.2 Sample Handling

Disposable Nitrile® gloves were worn during equipment cleaning, sample collection, and all sample handling. Gloves were replaced with clean gloves between all new samples or if needed, more often. Sampling tools (spatulas, spoons and scrapers) composed of Teflon®, stainless steel or silicon were used to manipulate samples.

Prior to collection of any new sample (any sample with a new sample ID) all equipment surfaces that could contact sample material were thoroughly cleaned following standard Reclamation protocols (Appendix I). After cleaning, equipment was covered with aluminum foil and tools were either wrapped in foil or placed within a resealable plastic bag. Between collections of sample replicates, unless there was some reason to think that the equipment may have been contaminated, equipment was rinsed with environmental water to remove all visible debris but was not cleaned with Alquinox® and de-ionized (DI) water.

Sediments collected using the FADC method were extracted by placing the closed split-tube sampler on a level surface, laying the casing open, dividing the core longitudinally, and cradling each half of the core sample within its original steel casing. Subsamples were collected from the split core without removing the core from the steel core tube, as described in Section 3.1.3 (Figure 7). Sediment collected with the gravity or push corer was extruded onto a plastic or aluminum foil covered-surface using a disc shaped Teflon® insert. Samples collected using the Vibracore method were extracted by tapping the outer surface of the core tube with a rubber mallet to release the sediment from its casing and then placing the in-tact core directly onto an aluminum-foil lined aluminum tray (Figures 8 and 9).

Airborne contamination was minimized by keeping sample containers and sampling equipment covered with aluminum foil when not in use; small sampling utensils were stored in plastic bags. Diesel engines (boat motors) were turned-off during sampling; cigarette smoking aboard sample collection vessels was prohibited.

Figure 7 - Sediment sample within the FADC split tube.

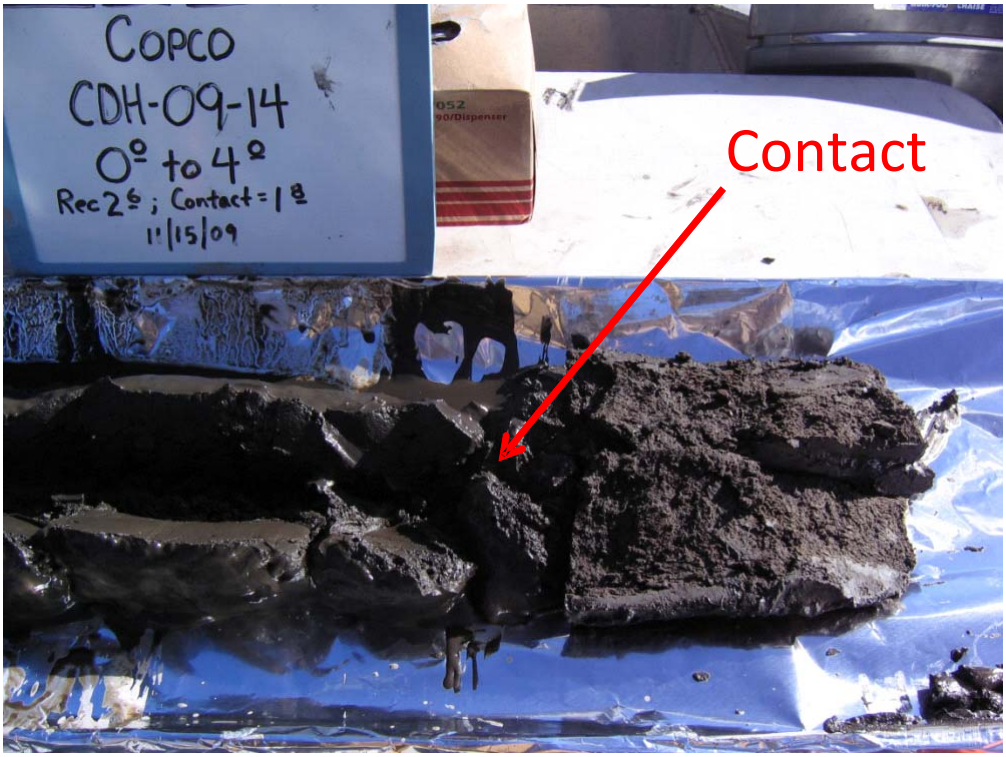


Figure 8 - Sediment core extruded from a Lexan® core tube showing the contact between pre-reservoir sediment (course grained sediment; right of contact) and sediment accumulated since the reservoir was formed (fine grained sediment; left of contact).

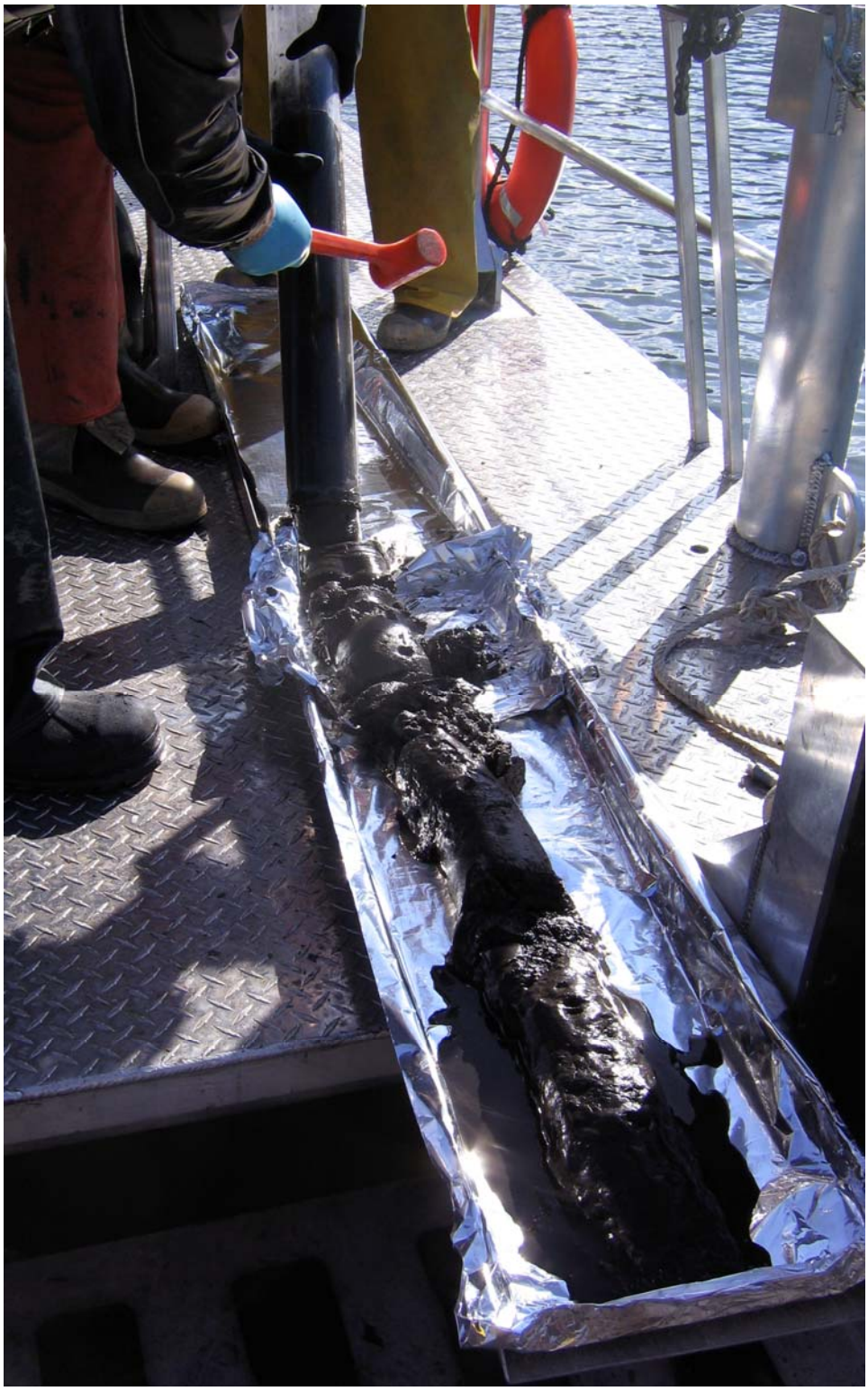


Figure 9 – Sediment core is extruded by tapping the outside of the core tube and moving the tube down the length of the aluminum foil lined tray to achieve a continuous length of undisturbed core..

3.1.3 Subsample Collection

Prior to sampling for chemical and bioassay analyses, sample cores were described and photographed for use with the geologic and geotechnical studies associated with this report (McCullah, 2011; Reclamation, 2011).

Core material to be used in chemical assays was collected from the central portion of each core as a precaution against potential contamination resulting from sediment contact with the coring tubes. Cores were split in half lengthwise, then sample material was removed from the inner core, and sediment from the outer 0.5 inch thick margin of each core was discarded. This precaution was omitted for sediment collected for use with chemical elutriate or bioassessment analyses as large sample volumes were needed for these analyses (4L and 30L per sample, respectively). Discarding sediment from the margins of each core would have greatly increased the time needed for the field effort. Note that all sediment cores destined for elutriate and bioassessment studies were collected in Lexan® tubes.

With the exception of sediments submitted for VOC analyses, samples were homogenized prior to sub-sampling following standard Reclamation protocols (Appendix I). Aliquots of the homogenized samples were then partitioned into the appropriate containers for each particular analysis.

Sample containers, preservation methods, contract analytical laboratories and analytical methods are as stated in the QAPP for this program (Appendix C).

3.1.4 Sample Compositing

Composite samples were created in the field office after all cores had been collected and subsample volumes could be calculated (see Section 2.6.1). Following standard protocols, total depth cores were homogenized in their entirety (Appendix I). The appropriate (calculated) volume of each subsample homogenate was then measured in a glass cup and placed in a five gallon stainless steel pot using pre-cleaned utensils made from stainless steel. The composite material was then homogenized by mixing with an electric drill fitted with a stainless steel "paint mixing" bit until the composite homogenate was uniform in texture and color as per standard procedure.

3.2 Water Collection

In order to provide the most realistic approximation of natural leaching conditions, the aqueous elutriate solution was prepared with native (site) water. At JC Boyle reservoir, water was collected by wading knee deep, pausing at least three minutes, and then collecting a surface grab sample using a certified clean, four liter amber glass jar. At Copco 1 and Iron Gate reservoirs, surface grabs were collected from a wooden boat dock. Boating activity was not observed at times of sample collection.

At the upper and lower estuary, water was collected from a boat anchored approximately fifteen feet from shore.

Water for use with chemical analysis of sample elutriate was collected directly into amber glass jars as described above. Water for use with bioassessment tests was collected in a glass jar as described above, and then transferred into certified clean plastic Cubitainers® (Appendix I).

Dates and locations of water collection are shown in Table 4. Elutriate testing was performed using standard elutriate test (SET) protocol referenced in the Inland Testing Manual (EPA/USACE, 1998). Water for elutriate was delivered to the lab for use with elutriate tests within one day of collection.

3.3 Water Column Physical Measurements

Water column physical measurements (temperature, pH, dissolved oxygen, specific conductance and turbidity) were measured at each reservoir, adjacent to reservoir core sampling sites CDH-09-002 through CDH-09-032. Materials, methods and protocols for physical measurements are described in Appendix J. Results of water column physical measurements (temperature, dissolved oxygen, turbidity, specific conductance and pH) taken at JC Boyle, Copco 1 and Iron Gate reservoirs, are summarized in Figures 10, 11, and 12 respectively.

In some cases the sonde may have been lowered into the sediment in the process of trying to find the bottom. Readings potentially affected by suspended sediment were not deleted from the dataset.

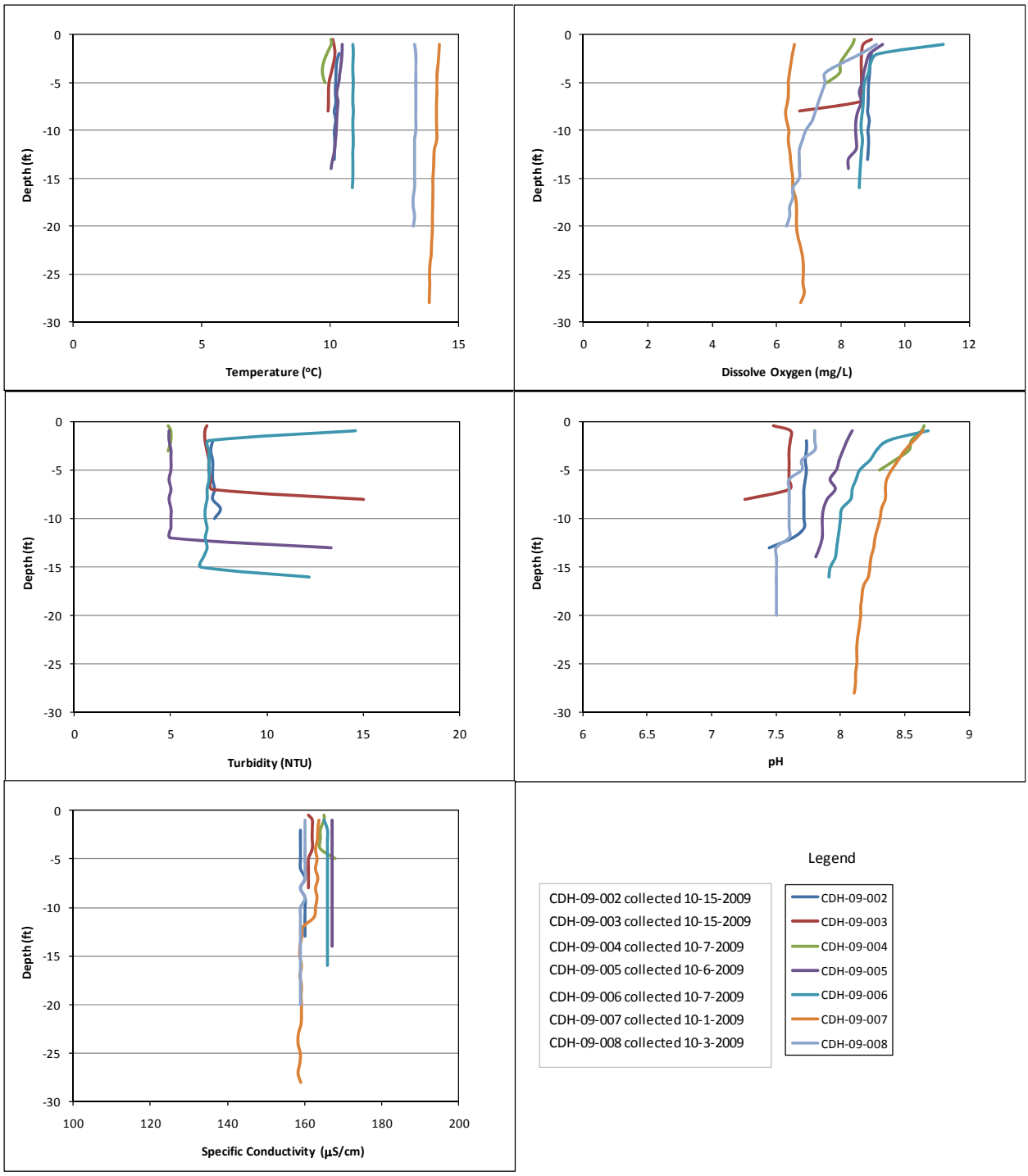


Figure 10 - Water column profiles for JC Boyle Reservoir. Temperature, dissolved oxygen, turbidity, pH and specific conductance measurements were collected between October 1st and October 15th 2009 at sites CDH-09-002 through CDH-09-008.

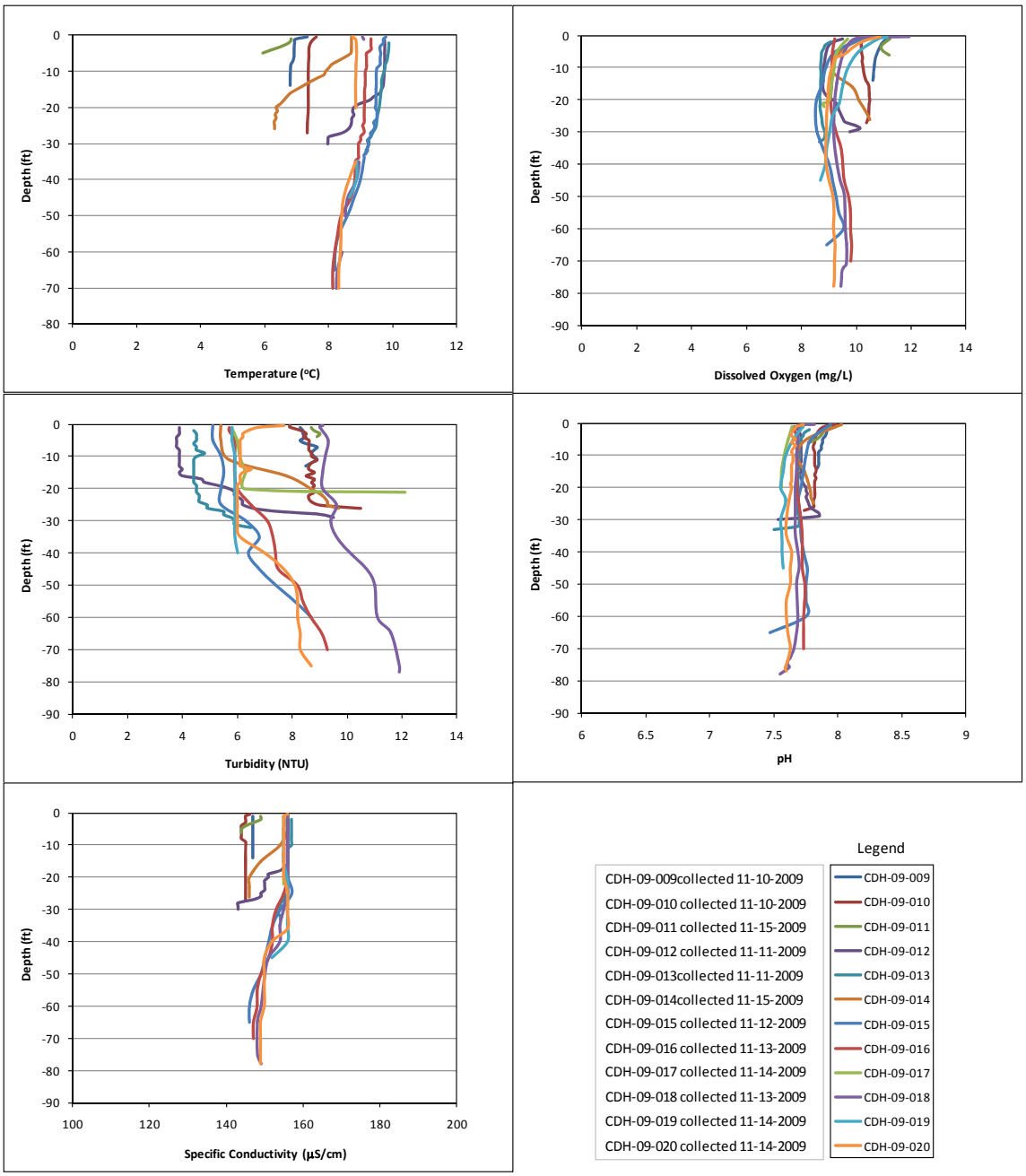


Figure 11 - Water column depth profiles for Copco 1 Reservoir. Temperature, dissolved oxygen, turbidity, pH and specific conductance measurements were collected between November 10th and November 15th 2009 at sites CDH-09-009 through CDH-09-020.

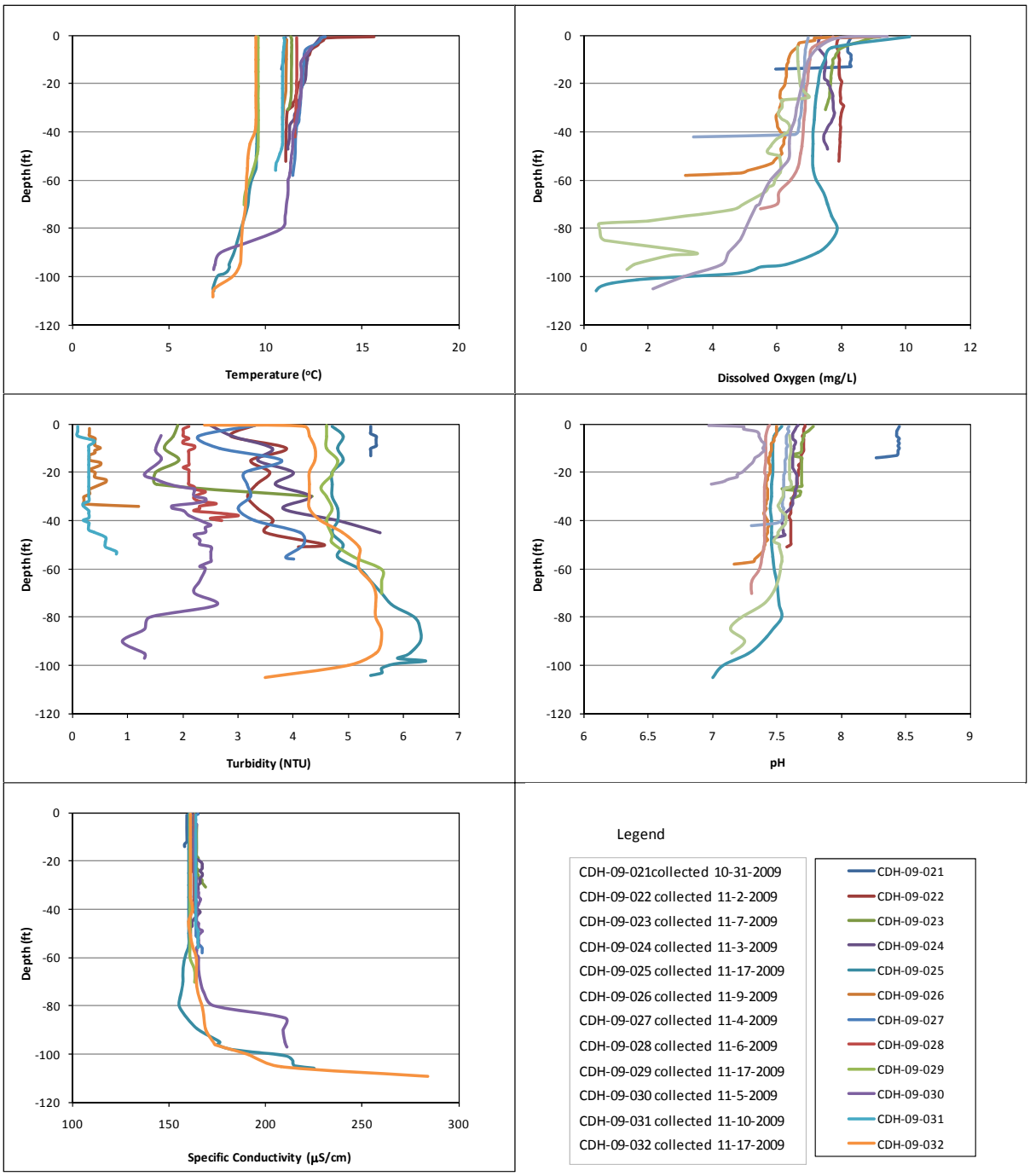


Figure 12 - Water column profiles for Iron Gate Reservoir. Temperature, dissolved oxygen, turbidity, pH and specific conductance measurements were collected between October 31st and November 17th 2009 at sites CDH-09-021 through CDH-09-032.

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4.0 Summary of Quality Assurance/Quality Control Assessment

This assessment consisted of incorporating external, blind QA samples when feasible; reviewing the results of laboratory quality control calculations; quantitatively analyzing the results of QA samples for compliance with quality assurance criteria discussed below; and reviewing the dates on which analyses were performed in order to determine if the analyses were conducted within the holding times.

4.1 QA Overview and Definitions

For this report, "quality assurance" refers to the independent assessment of the laboratories' ability to produce data with acceptable levels of precision and accuracy without introducing contamination. The QA process involves "incorporating" (including) "external" QA samples into batches of "environmental" (project) samples prior to submitting them to the laboratory for analysis. QA incorporation can be either "single blind" or "double blind" to the laboratory. Double blind QA samples are indistinguishable from project samples; single blind QA samples are distinct from the project samples but their chemical concentrations are not known to the laboratory. Both single blind and double blind QA was used in this investigation.

The QA process also includes independently reviewing the laboratory's internal quality control (QC) data and comparing the analysis date with the sample collection date to determine if the analysis was conducted within the hold time.

4.1.1 External QA Samples

Accuracy of sample results was assessed either through incorporation of "reference samples" or through incorporation of "blank spike samples". "Reference samples" are certified reference materials that contain specific analytes with concentrations that are accurately known at a stated level of confidence. "Blank spike" samples (used only with elutriate analyses) are composed of DI water with a certified spike solution or certified reference solution added. A "spike solution" is composed of one or more parameters diluted from a stock standard. External matrix spike samples were not incorporated for elutriate samples because the background concentrations of the environmental samples were unknown and because the laboratory produced the elutriate samples without an opportunity to incorporate an external matrix spike. As discussed in the sections below, for some analyses, an aqueous reference was used if there was no certified sediment reference available.

Analytical precision (or repeatability) was assessed either through incorporation of identical reference materials termed "reference duplicates" or through incorporation of identical blank spike samples termed "blank spike duplicates".

In order to assess contamination, "blank" DI water samples were incorporated into elutriate sample batches and certified blank soil reference materials were incorporated into sediment sample batches.

Precision for External QA Samples

Duplicate samples were incorporated into sample batches to assess precisions. Duplicates were incorporated at a rate of 10% (one duplicate sample for every 10 environmental samples). If less than 10 environmental samples were collected, at least one duplicate sample was incorporated. Precision was assessed by calculating the relative percent difference (RPD) or reporting limit difference between the reported values for duplicate samples. The QA acceptance limits differed depending on the type of sample analyzed (elutriate or sediment) and on the analytical result obtained. For elutriate samples with a result $\geq$ five times the reporting limit (RL), the acceptance criterion was $\leq$ 20% RPD; for elutriate samples with a result less than five times the RL, the acceptance criterion was a difference within one RL (Appendix C). For sediment samples with a result $\geq$ five times the RL, the acceptance criterion was $\leq$ 35% RPD; and for sediment samples with a result less than five times the RL, the acceptance criterion was a difference within two RLs (Appendix C).

Accuracy for External QA Samples

Reference and blank spike samples, also called "accuracy check samples", were incorporated into sample batches in order to assess the accuracy of the analytical results. Accuracy check samples were incorporated at a rate of 10% of the environmental samples. If less than 10 environmental samples were collected, at least one accuracy check sample was incorporated. Accuracy of analyses performed on reference samples was assessed by comparing laboratory analytical results to the certified values of the reference samples using either percent recovery (PR) or the manufacturer's certified acceptance range. Accuracy of blank spike samples was assessed by comparing laboratory analytical results to the known values of the blank spike samples using PR. The acceptance criteria were based on the sample matrix. For elutriate samples, the acceptance criteria were either reported values within 80% - 120% of the certified concentrations, or results within the certified acceptance range provided by the reference manufacturer (Appendix C). For sediment samples, the acceptance criteria were either reported values within 65% - 135% of the certified concentrations, or results within the certified acceptance range provided by the reference manufacturer (Appendix C).

Contamination for External QA Samples

Blank water samples and blank soil certified references were incorporated to assess laboratory contamination. They were incorporated at a rate of 5% of the environmental samples. If less than 20 environmental samples were collected, at least one blank sample was incorporated. The QA acceptance criteria are results less than or equal to two times the RL, less than or equal to 10% of the lowest environmental sample result, or less than the manufacturer's certified value (Appendix C).

4.1.2 Laboratory Quality Control Samples

Laboratory "quality control" (QC) samples allow data quality to be internally assessed by the laboratory. Similar to QA samples, laboratory QC samples included blank, duplicate, and blank spike samples. Laboratory QC samples also include matrix spike or surrogate samples. "Matrix spike samples" refer to project samples that have a certified reference solution added to them. "Surrogate samples" are samples in which a pure analyte(s), which is extremely unlikely to be found in any sample, is added to a sample before extraction or other processing, and is measured with the same procedures used to measure other sample components.

As specified in the QAPP for this project: 1) QC samples are to be incorporated by the laboratory at the rates established within the applicable analytical methods or the laboratory SOPs and 2) QC sample results are to meet the acceptance criteria established by the analytical methods or the laboratory SOPs.

4.2 QA Review Process

The QA review process consisted of assessing QA sample results (Section 5.1.1; reviewing the laboratory's internal QC data (Section 5.1.2); and determining whether project samples were analyzed within the holding times specified in the QAPP.

External QA samples with results that did not meet QA acceptance criteria were reanalyzed if sufficient sample material remained. If reanalysis confirmed the original (unacceptable) QA sample result, the results for the batch of samples associated with the QA sample were accepted without qualification. If reanalysis did not confirm the original QA sample result, the sample batch (including the associated QA samples) was reanalyzed. If QA sample results for the batch reanalysis did not meet the acceptance criteria, results for the sample batch were "accepted with qualification".

Qualifications include "possibly biased high" (H), "possibly biased low" (L), "may vary excessively from true value" (V), or "sample analyzed or extracted past the hold time" (T). The H qualifier indicates that the concentration reported for a particular analysis may be higher than is accurate. The "L" qualifier indicates that the value stated may be lower than is accurate. The "V" qualifier indicates that the precision for the analysis was unacceptable and that the results may be higher or lower than is accurate. The "T" qualifier indicates that the reported value was obtained past the recommended hold time. Data qualification can arise from a variety of quality assurance issues. For example, an "H" qualified result may have been associated with a QA blank sample that did not meet QA criteria for contamination, or the "H" qualification may have been applied because the analytical result for the project sample was associated with a QA reference result that was higher than the acceptance criteria. Qualified results are explained on an individual basis in the complete QA Summaries (Appendices D-H).

Interpretation of qualified data is best evaluated by the data user on a per/qualified result basis.

4.3 QA Assessment

The majority of the data was accepted without qualification. Qualified data can be used; however, the usability of the data should be determined by the end-user depending on the intended purpose. For this investigation, reporting limits for polyaromatic hydrocarbons (PAHs), phthalates, and phenols (EPA 8270 analysis) in sediment samples were not at least three times below the action limit as specified in the QAPP; the wrong analytical method was used to analyze the samples which resulted in reporting limits for some parameters that were above the action limits stated in the QAPP. Therefore, the PAH, phthalate, and phenol sediment data may not be suitable for the original intended purpose.

In depth QA/QC summaries for all sediment data collected for this study are presented in Appendices D through H. Separate reports were prepared for inorganic parameters – sediment (Appendix D); inorganic parameters – elutriate (Appendix E); organic parameters – sediment (Appendix F); organic parameters – elutriate (Appendix G); and microcystin parameters – sediment (Appendix H).

Findings from the QA assessments are summarized below.

4.3.1 Findings from Inorganic Parameters – Sediment Samples (Appendix D)

External, blind QA samples were incorporated where feasible; however because certified references could not be acquired for all parameters, no reference samples were incorporated for WAD cyanide, acid volatile sulfide, or total volatile solids. The accuracy and precision for these parameters was assessed by reviewing laboratory QC samples. The reference samples incorporated for ammonia-N were also analyzed for total nitrogen; however, the references did not have certified values for total nitrogen. Therefore, these references were used to assess the precision for total nitrogen, but accuracy for total nitrogen was assessed by reviewing the laboratory's QC samples. Soil reference samples could not be obtained for some parameters; aqueous reference samples were used in place of soil reference samples for these parameters where possible. External QA samples were incorporated for the parameters identified in the appendix.

Precision - Externally Incorporated QA Samples

The parameters noted in the appendix were assessed for precision using external QA samples. All duplicate samples had differences within the QA acceptance limits except for TOC for one sample set. Specifically, the RPD for QA samples CDH-S-020 (2-4) and CDH-S-032 (10-12) was unacceptable for TOC. These two QA samples were submitted for reanalysis. The reanalyzed results confirmed the original results; therefore, the original TOC results were accepted as valid and no qualifications for precision were applied to the environmental samples that were analyzed with these duplicate samples.

Accuracy - Externally Incorporated QA Samples

The parameters noted in the appendix were assessed for accuracy using external QA samples. All accuracy samples had percent recoveries within the QA acceptance limits.

Contamination - Externally Incorporated QA Samples

The parameters noted in the appendix were assessed for contamination using external QA samples. In addition, a rinse blank was collected by the field samplers. All blank samples met the QA acceptance limits.

Holding Time

All parameters noted in the appendix were analyzed within their recommended holding times.

Laboratory Quality Control

The laboratory QC sample results were acceptable except for the following: sample CDH-S-017 (0.0-1.2) was qualified as possibly biased low for zinc based on a low recovery in the laboratory's matrix spike associated with this sample.

4.3.2 Findings from Inorganic Parameters – Elutriate Samples (Appendix E)

External, blind QA samples were incorporated where feasible; however because certified references could not be acquired for all parameters, no reference samples were incorporated for WAD cyanide or particulate organic carbon (POC). Accuracy and precision for these parameters were assessed by reviewing the laboratory's QC samples. External QA samples were incorporated for the parameters identified in the appendix.

Precision - Externally Incorporated QA Samples

The parameters identified in the appendix were assessed for precision using external QA samples. All duplicate samples had differences within the QA acceptance limits except for DOC and TOC for one sample set. Specifically, the RPDs for QA samples CHA-W-001 and CHA-W-003 were unacceptable for DOC and TOC. These two QA samples were submitted for reanalysis of both DOC and TOC. The reanalyzed results confirmed the original results. Therefore, the original DOC and TOC results were accepted as valid and no qualifications for precision were applied to the environmental samples that were analyzed with these duplicate samples.

Accuracy - Externally Incorporated QA Samples

The parameters identified in the appendix were assessed for accuracy using external QA samples. All accuracy check samples had percent recoveries within the QA acceptance limits except for DOC, TOC, chromium, mercury, zinc, and antimony in selected samples as indicated below.

The percent recoveries for QA sample CHA-W-001 were unacceptable for DOC and TOC. This QA sample was submitted for reanalysis for both DOC and TOC. The reanalyzed results confirmed the original results. Therefore, the original DOC and TOC results were accepted as

valid and no qualifications for accuracy were applied to the environmental samples that were analyzed with this accuracy check sample.

The percent recoveries for QA sample CDH-W-CPN were unacceptably high for chromium, mercury, and zinc. The percent recovery for QA sample CDH-W-CPT was unacceptably high for mercury. These QA samples were submitted for reanalysis. The reanalyzed results confirmed the original results. Therefore, the original chromium, mercury, and zinc results for CDH-W-CPN were accepted as valid and the original mercury result for CDH-W-CPT was accepted as valid; there were no qualifications for accuracy applied to the environmental samples that were analyzed with these accuracy check samples.

The percent recovery for sample CDH-W-CPN was also unacceptably high for antimony. Since the environmental sample results analyzed with this sample were non-detect for antimony, reanalysis was not requested and the data for antimony was not qualified.

Contamination - Externally Incorporated QA Samples

The parameters identified in the appendix were assessed for contamination using external QA samples. All blank samples met the QA acceptance limits except for one sample for mercury. Specifically, QA sample CDH-W-IGT-4 had an unacceptable blank result for mercury. This sample was submitted for reanalysis, and the reanalyzed result confirmed the original result. Therefore, the original mercury result for CDH-W-IGT-4 was accepted as valid and no qualifications were applied to the environmental samples that were analyzed with this blank sample.

Holding Time

All parameters identified in the appendix were analyzed within their recommended holding times except for the following: environmental samples CDH-E-CPT, CDH-E-IGT-2, and CDH-E-CPN were analyzed past the hold time for TDS. The original analysis was within the hold time; however, the samples were reanalyzed due to unacceptable QA results on the original analysis. The reanalyzed results demonstrated acceptable QA results and were accepted as valid, although they were analyzed past the hold time.

Laboratory Quality Control

The laboratory QC sample results were acceptable except for the following: sample CDH-E-IGN was qualified as possibly biased high for total nitrogen based on a high recovery in the laboratory matrix spike associated with this sample.

4.3.3 Findings from Organic Parameters – Sediment Samples (Appendix F)

External, blind QA samples were incorporated where feasible. Certified references could not be acquired for all parameters. The accuracy and precision for these parameters were assessed by reviewing the laboratory's QC samples. External QA samples were incorporated for the parameters identified in the appendix.

Precision and Accuracy – Externally Incorporated QA Samples

Because of the complexity of the analyses and the number of parameters involved, it is not uncommon for QA/QC issues to occur in analyses for individual analytes in a sample analyzed for organic parameters, even though the larger pattern may be acceptable. No problems were identified during the data validation process which were serious enough to cause rejection of data, but numerous, minor issues with precision and accuracy caused some data to be qualified. Complete details of these findings can be found in the appendix.

Contamination - Externally Incorporated QA Samples

The parameters identified in the appendix were assessed for contamination using external QA samples. In addition, a rinse blank was collected by the field samplers. The blank samples met the QA acceptance limits.

Holding Time

Several samples were extracted and analyzed past the recommended holding times. See the appendix for a complete list of all parameters that were qualified. Two samples from JC Boyle Reservoir, CDH-S-004 (0.0-1.3) and CDH-S-008 (0.0-2.2), were analyzed outside of hold time for volatile organic carbons (EPA 8260 analysis). These samples were re-collected and analyzed within their hold time. For these two samples for EPA 8260 analysis, only the data meeting hold time requirements is reported.

Laboratory Quality Control

Several samples were qualified or considered estimates because of unacceptable laboratory QC results. See the appendix for a complete list of all parameters and samples that were qualified.

4.3.4 Findings from Organic Parameters – Elutriate Samples (Appendix G)

External QA samples were not incorporated for organic parameters in elutriate samples. Data validation was performed by reviewing the holding times and the results of the laboratory's QC samples.

Holding Time

Several samples were extracted and analyzed past the recommended holding times. See the appendix for a complete list of all parameters that were qualified. The diazinon results were reported as qualitative; diazinon must be extracted immediately after sample collection which was not possible for this sampling effort.

Laboratory Quality Control

Several sample results were qualified or considered estimates because of unacceptable laboratory QC results. See the appendix for a complete list of all parameters and samples that were qualified.

4.3.5 Findings from Microcystin Parameters – Sediment Samples (Appendix H)

External QA samples were not incorporated for microcystin parameters in sediment samples. Data validation was performed by reviewing the holding times and the results of the laboratory's QC samples.

Holding Time

All microcystin parameters were analyzed within their recommended holding times.

Laboratory Quality Control

The laboratory QC sample results were acceptable.

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Appendix A

Results of Sediment Analyses

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Analyte	JC Boyle Reservoir - Sediment - Standard Analytes																	
	CDH-S-002(0.0-5)	CDH-S-003(0.0-3.8)	CDH-S-004(0.0-1.3)	CDH-S-004(0.0-6)	CDH-S-004(5.8-9)	CDH-S-005(0.0-0.3)	CDH-S-006A(0.0-0.3)	CDH-S-007(0.0-5)	CDH-S-007(0-5.1)	CDH-S-007(4.2-9.2)	CDH-S-007(9.2-12)	CDH-S-007(10.5-12.0)	CDH-S-007(12-17)	CDH-S-007(17-18.7)	CDH-S-007(0.0-18.7)	CDH-S-008(0.0-1.7)	CDH-S-008(0.0-2.2)	CDH-S-043(0.0-2.0)
Conventionals (units and methods vary, all dry weights except pH and EC)																		
pH (EPA Method 9045)	7.0	6.9	-	7.0	7.1	7.1	6.7	6.8	6.6	7.0	7.0	-	6.9	7.5	-	7.4	-	7.0
EC (umhos/cm, Standard Methods 2510B)	110	580	-	360	490	120	150	450	450	420	430	-	590	550	-	110	-	200
Calcium (mg/kg, EPA Method 6010B)	7,500	7,100	-	5,700	5,100	5,900	5,700	5,400	5,200	5,400	5,400	-	5,500	4,800	-	5,400	-	6,100
Magnesium (mg/kg, EPA Method 6010B)	2,500	4,700	-	3,700	3,900	3,400	3,700	3,700	3,600	3,700	3,800	-	4,000	3,400	-	3,400	-	2,900
Ammonia as N (mg/kg, EPA Method 350.1)	62	160	-	140	200	17	10	180	120	190	190	-	290	330	-	27	-	41
Total Nitrogen as N (mg/kg, EPA Method 351.2)	550	1600	-	1,500	1,300	1,300	1,200	1,600	1,500	1,500	1,500	-	1,700	1,900	-	1,100	-	1,100
Total Phosphorus as P (mg/kg, Standard Methods 4500P Mod)	210	240	-	120	160	92	110	110	99	130	130	-	260	260	-	120	-	210
Cyanide, WAD (mg/kg, Standard Methods 4500CN I)	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0 5	<0.5	-	<0.5	<0.5	-	<0.5	-	<0.5
Total Solids (mg/kg, Standard Methods 2540B)	650,000	250,000	-	180,000	210,000	130,000	120,000	210,000	180,000	210,000	200,000	-	240,000	310,000	-	210,000	-	210,000
Total Volatile Solids (mg/kg, Standard Methods 2540G)	19,000	31,000	-	25,000	22,000	21,000	18,000	31,000	25,000	31,000	30,000	-	34,000	40,000	-	25,000	-	31,000
TOC (%, Method USGS:N011, T10 USGS:C011, T08)	0.79	6.18	-	7.4	5.18	8.07	7.78	7 29	7.43	7 18	6.95	-	6.55	6.65	-	5.67	-	7.73
Metals & AVS (mg/kg dry weight, EPA Method 6020 unless otherwise noted)																		
Aluminum	20,000	28,000	-	26,000	26,000	23,000	27,000	26,000	26,000	25,000	24,000	-	29,000	22,000	-	28,000	-	30,000
Antimony	<0.31	<0.80	-	<1.2	<0.97	<1.5	<1.7	<0.99	<1.1	<1.0	<0.97	-	<0.84	<0.74	-	<1.0	-	<1.0
Arsenic	4.3	10	-	13	7.7	11	11	11	11	11	11	-	10	9.0	-	15	-	11
Cadmium	<0.16	<0.40	-	<0.59	<0.48	<0.77	<0.84	<0.49	<0 56	<0.51	<0.49	-	<0.42	<0.37	-	<0 50	-	<0.51
Chromium	18	32	-	32	32	26	30	30	34	30	29	-	33	27	-	30	-	38
Copper	9.8	28	-	31	34	23	28	28	22	29	28	-	32	25	-	30	-	27
Iron (EPA Method 6010B)	37,000	8200	-	21,000	26,000	11,000	8400	20,000	20,000	16,000	21,000	-	25,000	23,000	-	33,000	-	15,000
Lead	2.8	10	-	10	10	7.9	25	8.6	8.3	8.4	8.5	-	11	9.1	-	9.0	-	8.6
Mercury (EPA Method 7471A)	<0.063	<0.16	-	<0.24	<0.19	<0.31	<0.34	<0.20	<0 23	<0.20	<0.19	-	<0.17	<0.15	-	<0 20	-	<0.20
Nickel	19	32	-	24	26	21	25	23	25	23	23	-	26	21	-	25	-	27
Selenium	<0.29	<0.73	-	1.5	<0.96	<1.5	<1.6	1.2	<1.1	<0.94	<0.92	-	<0.79	<0.72	-	<0.99	-	<1.0
Silver (EPA Method 6010B)	<2.5	<0.79	-	<3.0	<3.0	<2.4	<1 9	<2.5	<2.8	<2.1	<2.5	-	<2.5	<2.4	-	<3.8	-	<2.0
Zinc	19	47	-	54	48	47	55	52	55	52	49	-	45	47	-	56	-	53
Acid Volatile Sulfides (EPA Method 821/R-91-100)	-	-	-	-	-	-	-	-	-	-	-	26	-	-	57	6.0	-	-
Organics																		
SVOCs: PAHs (ug/kg dry weight, EPA Method 8270D unless otherwise noted)																		
Acenaphthene	<230 T	<510 T	-	<950	<770	<1,200 T	<1,200	<800 T	<920	<830 T	<790 T	-	<680 T	<610 T	-	<810 T	-	<720 T
Acenaphthylene	<230 T	<510 T	-	<950	<770	<1,200 T	<1,200	<800 T	<920	<830 T	<790 T	-	<680 T	<610 T	-	<810 T	-	<720 T
Anthracene	<230 T	<510 T	-	<950	<770	<1,200 T	<1,200	<800 T	<920	<830 T	<790 T	-	<680 T	<610 T	-	<810 T	-	<720 T
Benzo(a)anthracene	<230 T	<510 T	-	<950	<770	<1,200 T	<1,200	<800 T	<920	<830 T	<790 T	-	<680 T	<610 T	-	<810 T	-	<720 T
Benzo(a)pyrene	<230 T	<510 T	-	<950	<770	<1,200 T	<1,200	<800 T	<920	<830 T	<790 T	-	<680 T	<610 T	-	<810 T	-	<720 T
Benzo(b)fluoranthene	<230 T	<510 T	-	<950	<770	<1,200 T	<1,200	<800 T	<920	<830 T	<790 T	-	<680 T	<610 T	-	<810 T	-	<720 T
Benzo(g,h,i)perylene	<230 T	<510 T	-	<950	<770	<1,200 T	<1,200	<800 T	<920	<830 T	<790 T	-	<680 T	<610 T	-	<810 T	-	<720 T
Benzo(k)fluoranthene	<230 T	<510 T	-	<950	<770	<1,200 T	<1,200	<800 T	<920	<830 T	<790 T	-	<680 T	<610 T	-	<810 T	-	<720 T
4-Bromophenyl phenyl ether	<230 T	<510 T	-	<950	<770	<1,200 T	<1,200	<800 T	<920	<830 T	<790 T	-	<680 T	<610 T	-	<810 T	-	<720 T
Chrysene	<230 T	<510 T	-	<950	<770	<1,200 T	<1,200	<800 T	<920	<830 T	<790 T	-	<680 T	<610 T	-	<810 T	-	<720 T
Dibenzo(a,h)anthracene	<230 T	<510 T	-	<950	<770	<1,200 T	<1,200	<800 T	<920	<830 T	<790 T	-	<680 T	<610 T	-	<810 T	-	<720 T
Fluorene	<230 T	<510 T	-	<950	<770	<1,200 T	<1,200	<800 T	<920	<830 T	<790 T	-	<680 T	<610 T	-	<810 T	-	<720 T
Fluoranthene	<230 T	<510 T	-	<950	<770	<1,200 T	<1,200	<800 T	<920	<830 T	<790 T	-	<680 T	<610 T	-	<810 T	-	<720 T
Indeno(1,2,3-cd)pyrene	<230 T	<510 T	-	<950	<770	<1,200 T	<1,200	<800 T	<920	<830 T	<790 T	-	<680 T	<610 T	-	<810 T	-	<720 T
2-Methyl naphthalane	<230 T	<510 T	-	<950	<770	<1,200 T	<1,200	<800 T	<920	<830 T	<790 T	-	<680 T	<610 T	-	<810 T	-	<720 T
Naphthalene (EPA Method 8260C)	<6.7	<19	<22	<27 T	<23 T	<30 T	<36 T	<24 T	<28	<24 T	<24 T	-	<19 T	<18 T	-	<23 T	<26	<19
Phenanthrene	<230 T	<510 T	-	<950	<770	<1,200 T	<1,200	<800 T	<920	<830 T	<790 T	-	<680 T	<610 T	-	<810 T	-	<720 T
Pyrene	<230 T	<510 T	-	<950	<770	<1,200 T	<1,200	<800 T	<920	<830 T	<790 T	-	<680 T	<610 T	-	<810 T	-	<720 T
Organics																		
PCBs (ug/g dry weight, EPA Method 8082 unless otherwise noted)																		
Aroclor 1016	<0.045	<0.13	-	<0.19	<0.16	<0.24	<0.24	<0.16 T	<0 19	<0.17 T	<0.16 T	-	<0 14 T	<0.12 T	-	<0.16 T	-	<0.13
Aroclor 1221	<0.090	<0.25	-	<0.39	<0.31	<0.49	<0.48	<0.32 T	<0 38	<0.34 T	<0.33 T	-	<0 28 T	<0.24 T	-	<0.32 T	-	<0.26
Aroclor 1232	<0.045	<0.13	-	<0.19	<0.16	<0.24	<0.24	<0.16 T	<0 19	<0.17 T	<0.16 T	-	<0 14 T	<0.12 T	-	<0.16 T	-	<0.13
Aroclor 1242	<0.045	<0.13	-	<0.19	<0.16	<0.24	<0.24	<0.16 T	<0.19	<0.17 T	<0.16 T	-	<0 14 T	<0.12 T	-	<0.16 T	-	<0.13
Aroclor 1248	<0.045	<0.13	-	<0.19	<0.16	<0.24	<0.24	<0.16 T	<0.19	<0.17 T	<0.16 T	-	<0 14 T	<0.12 T	-	<0.16 T	-	<0.13
Aroclor 1254	<0.045	<0.13	-	<0.19	<0.16	<0.24	<0.24	<0.16 T	<0.19	<0.17 T	<0.16 T	-	<0 14 T	<0.12 T	-	<0.16 T	-	<0.13
Aroclor 1260	<0.045	<0.13	-	<0.19	<0.16	<0.24	<0.24	<0.16 T	<0.19	<0.17 T	<0.16 T	-	<0 14 T	<0.12 T	-	<0.16 T	-	<0.13
Aroclor 1268	<0.045	<0.13	-	<0.19	<0.16	<0.24	<0.24	<0.16 T	<0.19	<0.17 T	<0.16 T	-	<0 14 T	<0.12 T	-	<0.16 T	-	<0.13
Total PCBs (pg/g) (EPA Method 1668A)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	13,000 T	10,000 T	-	-

Analyte	JC Boyle Reservoir - Sediment - Standard Analytes																	
	CDH-S-002(0.0-5)	CDH-S-003(0.0-3.8)	CDH-S-004(0.0-1.3)	CDH-S-004(0.0-6)	CDH-S-004(5.8-9)	CDH-S-005(0.0-0.3)	CDH-S-006A(0.0-0.3)	CDH-S-007(0.0-5)	CDH-S-007(0-5.1)	CDH-S-007(4.2-9.2)	CDH-S-007(9.2-12)	CDH-S-007(10.5-12.0)	CDH-S-007(12-17)	CDH-S-007(17-18.7)	CDH-S-007(0.0-18.7)	CDH-S-008(0.0-1.7)	CDH-S-008(0.0-2.2)	CDH-S-043(0.0-2.0)
Organics																		
Pesticides/Herbicides: Organochlorine Pesticides (ug/kg dry weight, EPA Method 8081A unless otherwise noted)																		
Aldrin	<0.90	<2.5	-	<3.9 T	<3 1 T	<4.9 T	<4.8 T	<3.2 T	<3.8	<3.4 T	<3.3 T	-	<2.8 T	<2.4 T	-	<3.2 T	-	<2.6
Chlordane (Technical)	<4.5	<13	-	<19 T	<16 T	<24 T	<24 T	<16 T	<19	<17 T	<16 T	-	<14 T	<12 T	-	<16 T	-	<13
Chlordane-Alpha	<0.90	<2.5	-	<3.9 T	<3.1 T	<4.9 T	<4.8 T	<3.2 T	<3.8	<3.4 T	<3.3 T	-	<2.8 T	<2.4 T	-	<3.2 T	-	<2.6
Chlordane-Gamma	<0.90	<2.5	-	<3.9 T	<3.1 T	<4.9 T	<4.8 T	<3.2 T	<3.8	<3.4 T	<3.3 T	-	<2.8 T	<2.4 T	-	<3.2 T	-	<2.6
4,4'-DDT	<0.90	<2.5	-	<3.9 T	<3 1 T	<4.9 T	<4.8 T	<3.2 T	<3.8	4.1 T	<3.3 T	-	<2.8 T	<2.4 T	-	<3.2 T	-	<2.6
4,4'-DDD	<0.90	<2.5	-	<3.9 T	<3 1 T	<4.9 T	<4.8 T	3.7 T	<3.8	<3.4 T	<3.3 T	-	<2.8 T	<2.4 T	-	<3.2 T	-	<2.6
4,4'-DDE	<0.90	<2.5	-	<3.9 T	<3 1 T	<4.9 T	<4.8 T	3.4 T	<3.8	<3.4 T	<3.3 T	-	<2.8 T	<2.4 T	-	<3.2 T	-	<2.6
2,4'-DDT (ENV by GC-MS Specialty)	<45	<130	-	<190	<160	<240 T	<240	<33 T	<190	<33 T	<33 T	-	<33 T	<33 T	-	<160 T	-	<130
2,4'-DDD (ENV by GC-MS Specialty)	<4.5	<13	-	<19	<16	<24 T	<24	<3.3 T	<19	<3.3 T	<3.3 T	-	<3.3 T	<3.3 T	-	<16 T	-	<13
2,4'-DDE (ENV by GC-MS Specialty)	<4.5	<13	-	<19	<16	<24 T	<24	<3.3 T	<19	<3.3 T	<3.3 T	-	<3.3 T	<3.3 T	-	<16 T	-	<13
Dieldrin	<0.90	<2.5	-	<3.9 T	<3 1 T	<4.9 T	<4.8 T	3.4 T	<3.8	<3.4 T	<3.3 T	-	<2.8 T	<2.4 T	-	<3.2 T	-	<2.6
Endosulfan I	<0.90	<2.5	-	<3 9 T, L	<3.1 T, L	<4.9 T, L	<4.8 T, L	<3.2 T, L	<3.8	<3.4 T, L	<3 3 T, L	-	<2.8 T, L	<2.4 T, L	-	<3.2 T, L	-	<2.6
Endosulfan II	<0.90	<2.5	-	<3 9 T, L	<3.1 T, L	<4.9 T, L	<4.8 T, L	<3.2 T, L	<3.8	<3.4 T, L	<3.3 T, L	-	<2.8 T, L	<2.4 T, L	-	<3.2 T, L	-	<2.6
Endosulfan Sulfate	<0.90	<2.5	-	<3.9 T	<3 1 T	<4.9 T	<4.8 T	<3.2 T	<3.8	<3.4 T	<3.3 T	-	<2.8 T	<2.4 T	-	<3.2 T	-	<2.6
Endrin	<0.90	<2.5	-	<3.9 T	<3 1 T	<4.9 T	<4.8 T	<3.2 T	<3.8	<3.4 T	<3.3 T	-	<2.8 T	<2.4 T	-	<3.2 T	-	<2.6
Endrin Aldehyde	<0.90	<2.5	-	<3.9 T	<3 1 T	<4.9 T	<4.8 T	<3.2 V, T	<3.8	5.0 T, V	<3.3 T	-	<2.8 T	<2.4 T	-	<3.2 T	-	<2.6
Endrin Ketone	<0.90	<2.5	-	<3.9 T	<3 1 T	<4.9 T	<4.8 T	<3.2 T	<3.8	<3.4 T	<3.3 T	-	<2.8 T	<2.4 T	-	<3.2 T	-	<2.6
Heptachlor	<0.90	<2.5	-	<3.9 T	<3 1 T	<4.9 T	<4.8 T	<3.2 T	<3.8	<3.4 T	<3.3 T	-	<2.8 T	<2.4 T	-	<3.2 T	-	<2.6
Heptachlor Epoxide	<0.90	<2.5	-	<3.9 T	<3 1 T	<4.9 T	<4.8 T	<3.2 V, T	<3.8	<3.4 T, V	<3.3 T	-	<2.8 T	<2.4 T	-	<3.2 T	-	<2.6
HCH - Alpha	<0.90	<2.5	-	<3.9 T	<3 1 T	<4.9 T	<4.8 T	<3.2 T	<3.8	<3.4 T	<3.3 T	-	<2.8 T	<2.4 T	-	<3.2 T	-	<2.6
HCH - Beta	<0.90	<2.5	-	<3.9 T	<3 1 T	<4.9 T	<4.8 T	<3.2 T	<3.8	<3.4 T	<3.3 T	-	<2.8 T	<2.4 T	-	<3.2 T	-	<2.6
HCH - Delta	<0.90	<2.5	-	<3.9 T	<3 1 T	<4.9 T	<4.8 T	6 9 V, T	<3.8	<3.4 T	<3.3 T	-	<2.8 T	5.6 T, V	-	<3.2 T	-	<2.6
HCH - Gamma	<0.90	<2.5	-	<3.9 T	<3 1 T	<4.9 T	<4.8 T	<3.2 T	<3.8	<3.4 T	<3.3 T	-	<2.8 T	<2.4 T	-	<3.2 T	-	<2.6
Methoxychlor	<0.90	<2.5	-	<3.9 T	<3 1 T	<4.9 T	<4.8 T	4.0 T	3.8	9.7 T	<3.3 T	-	<2.8 T, V	3.7 T, V	-	<3.2 T	-	<2.6
Toxaphene	<45	<130	-	<190 T	<160 T	<240 T	<240 T	<160 T	<190	<170 T	<160 T	-	<140 T	<120 T	-	<160 T	-	<130
Particle Size Fraction (% dry weight)																		
Fines (<0.005 mm)	-	-	-	-	-	-	-	31.8	37.6	35.2	31.5	35.4	31.6	46.3	-	42.3	-	-
Fines (0.005 to 0.075 mm)	-	-	-	-	-	-	-	62.5	52.6	57.3	62.9	58.4	60 1	48.1	-	52.8	-	-
Sand (#200 to #4)	-	-	-	-	-	-	-	5.7	9.8	7 5	5.6	6.2	8.3	5.6	-	4.9	-	-
Gravel (#4 to 3 inch)	-	-	-	-	-	-	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	0.0	-	-
Cobbles (3 to 5 inch)	-	-	-	-	-	-	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	0.0	-	-
Oversize (> 5 inch)	-	-	-	-	-	-	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	0.0	-	-

	CDH-S-002(1.3-2.6)	CDH-S-002(4.4-5)	CDH-S-003(5.1-5.9)	CDH-S-004A(0.0-9.2)	CDH-S-005(0.0-1.3)	CDH-S-006(0.0-1.4)	CDH-S-008(0.0-0.5)	CDH-S-044(0.0-2.9)	CDH-S-045(0.0-1.6)
Particle Size Fraction (% dry weight)									
Fines (<0.005 mm)	5.4	5.2	18.1	41.5	55.6	1.6	44.1	33.3	8.1
Fines (0.005 to 0.075 mm)	9.3	10.3	32.1	54.8	44.4	6.6	53.0	51.4	24 9
Sand (#200 to #4)	85.3	84.5	49.8	3.7	0.0	26.2	2.9	15.3	67.0
Gravel (#4 to 3 inch)	0.0	0.0	0.0	0.0	0.0	65.6	0.0	0.0	0.0
Cobbles (3 to 5 inch)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Oversize (> 5 inch)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Qualifiers:
V: result may vary excessively from the true value
H: result may have a high bias
L: result may have a low bias
T: result obtained past the holding time
U: result determined to be an outlier at the time of data validation
- : no data
< : not detected at reporting limit shown

Analyte	JC Boyle Reservoir - Sediment - Additional Analytes																
	CDH-S-002(0.0-5)	CDH-S-003(0.0-3.8)	CDH-S-004(0.0-1.3)	CDH-S-004(0.0-6)	CDH-S-004(5.8-9)	CDH-S-005(0.0-0.3)	CDH-S-006A(0.0-0.3)	CDH-S-007(0.0-5)	CDH-S-007(0.0-5.1)	CDH-S-007(4.2-9.2)	CDH-S-007(9.2-12)	CDH-S-007(12-17)	CDH-S-007(17-18.7)	CDH-S-007(0.0-18.7)	CDH-S-008(0.0-1.7)	CDH-S-008(0.0-2.2)	CDH-S-043(0.0-2.0)
Organics																	
Pesticides/Herbicides: Organophosphate Pesticides (ug/kg dry weight, EPA Method 8141A unless otherwise noted)																	
0,0,0-Triethylphosphorothioate	-	-	-	-	-	-	-	-	-	-	-	-	-	<360	-	-	-
Azinphosmethyl	-	-	-	-	-	-	-	-	-	-	-	-	-	<360	<400	-	-
Bolstar	-	-	-	-	-	-	-	-	-	-	-	-	-	<360	<400	-	-
Chlorpyrifos (Method GCMS-NCI-SIM, see footnote)	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.33	<0.33	-	-
Coumaphos	-	-	-	-	-	-	-	-	-	-	-	-	-	<360	<400	-	-
Demeton	-	-	-	-	-	-	-	-	-	-	-	-	-	<360	-	-	-
Demeton-O	-	-	-	-	-	-	-	-	-	-	-	-	-	<360	<400	-	-
Demeton-S	-	-	-	-	-	-	-	-	-	-	-	-	-	<360	<400	-	-
Diazinon (CDH-S-007[0-18.7] by MLA-047 Rev 03)	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.019	<400	-	-
Dichlorvos	-	-	-	-	-	-	-	-	-	-	-	-	-	<360	<400	-	-
Dimethoate	-	-	-	-	-	-	-	-	-	-	-	-	-	<360	-	-	-
Disulfoton	-	-	-	-	-	-	-	-	-	-	-	-	-	<360	<400	-	-
EPN	-	-	-	-	-	-	-	-	-	-	-	-	-	<360	-	-	-
Ethoprop	-	-	-	-	-	-	-	-	-	-	-	-	-	<360	<400	-	-
Ethyl parathion	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<400	-	-
Famphur	-	-	-	-	-	-	-	-	-	-	-	-	-	<360	-	-	-
Fensulfothion	-	-	-	-	-	-	-	-	-	-	-	-	-	<360	<400	-	-
Fenthion	-	-	-	-	-	-	-	-	-	-	-	-	-	<360	<400	-	-
Malathion	-	-	-	-	-	-	-	-	-	-	-	-	-	<360	<400	-	-
Methyl parathion	-	-	-	-	-	-	-	-	-	-	-	-	-	<360	<400	-	-
Mevinphos	-	-	-	-	-	-	-	-	-	-	-	-	-	<360	<400	-	-
Parathion	-	-	-	-	-	-	-	-	-	-	-	-	-	<360	-	-	-
Phorate	-	-	-	-	-	-	-	-	-	-	-	-	-	<360	<400	-	-
Ronnel	-	-	-	-	-	-	-	-	-	-	-	-	-	<360	<400	-	-
Stirophos	-	-	-	-	-	-	-	-	-	-	-	-	-	<360	<400	-	-
Sulfotep	-	-	-	-	-	-	-	-	-	-	-	-	-	<360	-	-	-
Thionazin	-	-	-	-	-	-	-	-	-	-	-	-	-	<360	-	-	-
Tokuthion	-	-	-	-	-	-	-	-	-	-	-	-	-	<360	-	-	-
Trichloronate or Tirchloronat	-	-	-	-	-	-	-	-	-	-	-	-	-	<360	<400	-	-
Organics																	
Pesticides/Herbicides: Carbamate Pesticides (ug/kg dry weight, CDH-S-007[0-18.7] by Method MLA-047 Rev 03 and CDH-S-008[0.0-1.7] by EPA Method 8318, unless otherwise noted)																	
3-Hydroxycarbofuran	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.19	<37 L, T	-	-
Aldicarb	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.19	<11 T	-	-
Aldicarb Sulfone	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.38	<19 T	-	-
Aldicarb Sulfoxide	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.19	<11 L, T	-	-
Aminocarb	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.19	-	-	-
Bendiocarb	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.38	-	-	-
Carbaryl	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.19	<19 L, T	-	-
Carbazole (EPA Method 8270D)	<230 L, T	<510 L, T	-	<950	<770	<1,200 T	<1,200	<800 T	<920	<830 T	<790 T	<680 T	<610 T	-	<810 T	-	<720 L, T
Carbofuran	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.19	<3.7 T	-	-
Dioxacarb	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.19	-	-	-
Imidacloprid	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.38	-	-	-
Methiocarb	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.38	<15 L, T	-	-
Methomyl	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.19 L	<15 T	-	-
Mexacarbate	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.19	-	-	-
Oxamyl	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.19	<110 T	-	-
Piperonyl butoxide	-	-	-	-	-	-	-	-	-	-	-	-	-	0.16	-	-	-
Pirimicarb	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.19	-	-	-
Promecarb	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.38	-	-	-
Propoxur	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.19	<3.7 T	-	-

Analyte	JC Boyle Reservoir - Sediment - Additional Analytes																
	CDH-S-002(0.0-5)	CDH-S-003(0.0-3.8)	CDH-S-004(0.0-1.3)	CDH-S-004(0.0-6)	CDH-S-004(5.8-9)	CDH-S-005(0.0-0.3)	CDH-S-006A(0.0-0.3)	CDH-S-007(0.0-5)	CDH-S-007(0.0-5.1)	CDH-S-007(4.2-9.2)	CDH-S-007(9.2-12)	CDH-S-007(12-17)	CDH-S-007(17-18.7)	CDH-S-007(0.0-18.7)	CDH-S-008(0.0-1.7)	CDH-S-008(0.0-2.2)	CDH-S-043(0.0-2.0)
Organics																	
Pesticides/Herbicides: Pyrethroids (Insecticides) (ug/kg dry weight, Method GCMS-NCI-SIM)																	
Allethrin	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.33	<0.33	-	-
Bifenthrin	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.33	<0.33	-	-
Cyfluthrin	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.33	<0.33	-	-
Cypermethrin	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.33	<0.33	-	-
Deltamethrin: tralomethrin	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.33	<0.33	-	-
Esfenvalerate: fenvalerate	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.33	<0.33	-	-
Fenpropathrin	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.33	<0.33	-	-
Lambda-cyhalothrin	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.33	<0.33	-	-
Permethrin (Total)	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.33	1.0 H	-	-
Tau-Fluvalinate	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.33	<0.33	-	-
Tetramethrin	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.33	<0.33	-	-
Organics																	
Phthalates (ug/kg dry weight, EPA Method 8270D)																	
Di-N-butyl phthalate	<230 T	<510 T	-	<950	<770	<1,200 T	<1,200	<800 T	<920	<830 T	<790 T	<680 T	<610 T	-	<810 T	-	<720 T
Diethyl phthalate	<230 T	<510 T	-	<950	<770	<1,200 T	<1,200	<800 T	<920	<830 T	<790 T	<680 T	<610 T	-	<810 T	-	<720 T
Dimethyl phthalate	<230 T	<510 T	-	<950	<770	<1,200 T	<1,200	<800 T	<920	<830 T	<790 T	<680 T	<610 T	-	<810 T	-	<720 T
Bis(2-ethylhexyl) phthalate	<230 T	<510 T	-	<950	<770	<1,200 T	<1,200	<800 T	<920	<830 T	<790 T	<680 T	<610 T	-	<810 T	-	<720 T
Butyl benzyl phthalate	<230 T	<510 T	-	<950	<770	<1,200 T	<1,200	<800 T	<920	<830 T	<790 T	<680 T	<610 T	-	<810 T	-	<720 T
Di-N-octyl phthalate	<230 T	<510 T	-	<950	<770	<1,200 T	<1,200	<800 T	<920	<830 T	<790 T	<680 T	<610 T	-	<810 T	-	<720 T
Organics																	
VOCs (ug/kg dry weight, EPA Method 8260C, unless otherwise noted)																	
1,2,4-Trimethylbenzene	<6.7	<19	<22	<27 T	<23 T	<30 T	<36 T	<24 T	<28	<24 T	<24 T	<19 T	<18 T	-	<23 T	<26	<19
1,2-Dibromoethane	<6.7	<19	<22	<27 T	<23 T	<30 T	<36 T	<24 T	<28	<24 T	<24 T	<19 T	<18 T	-	<23 T	<26	<19
1,3,5-Trimethylbenzene	<6.7	<19	<22	<27 T	<23 T	<30 T	<36 T	<24 T	<28	<24 T	<24 T	<19 T	<18 T	-	<23 T	<26	<19
2,4-Dinitrotoluene (EPA Method 8270D)	<230 T	<510 T	-	<950	<770	<1,200 T	<1,200	<800 T	<920	<830 T	<790 T	<680 T	<610 T	-	<810 T	-	<720 T
2,6-Dinitrotoluene (EPA Method 8270D)	<230 T	<510 T	-	<950	<770	<1,200 T	<1,200	<800 T	<920	<830 T	<790 T	<680 T	<610 T	-	<810 T	-	<720 T
2-Butanone	<6.7	<19	24	<27 T	<23 T	<30 T	<36 T	<24 T	<28	<24 T	<24 T	<19 T	<18 T	-	<23 T	<26	<19
2-Hexanone	<6.7	<19	<22	<27 T	<23 T	<30 T	<36 T	<24 T	<28	<24 T	<24 T	<19 T	<18 T	-	<23 T	<26	<19
4-methyl-2-pentanone	<6.7	<19	<22	<27 T	<23 T	<30 T	<36 T	<24 T	<28	<24 T	<24 T	<19 T	<18 T	-	<23 T	<26	<19
Acetone	9.1	110	340	110 T	95 T	72 T	50 T	140 T	240	100 T	33 T	99 T	57 T	-	110 T	180	120
Allyl chloride	<6.7	<19	<22	<27 T	<23 T	<30 T	<36 T	<24 T	<28	<24 T	<24 T	<19 T	<18 T	-	<23 T	<26	<19
Benzene	<6.7	<19	<22	<27 T	<23 T	<30 T	<36 T	<24 T	<28	<24 T	<24 T	<19 T	<18 T	-	<23 T	<26	<19
Bromobenzene	<6.7	<19	<22	<27 T	<23 T	<30 T	<36 T	<24 T	<28	<24 T	<24 T	<19 T	<18 T	-	<23 T	<26	<19
Bromochloromethane	<6.7	<19	<22	<27 T	<23 T	<30 T	<36 T	<24 T	<28	<24 T	<24 T	<19 T	<18 T	-	<23 T	<26	<19
Bromodichloromethane	<6.7	<19	<22	<27 T	<23 T	<30 T	<36 T	<24 T	<28	<24 T	<24 T	<19 T	<18 T	-	<23 T	<26	<19
Bromoform	<6.7	<19	<22	<27 T	<23 T	<30 T	<36 T	<24 T	<28	<24 T	<24 T	<19 T	<18 T	-	<23 T	<26	<19
Bromomethane	<6.7	<19	<22	<27 T	<23 T	<30 T	<36 T	<24 T	<28	<24 T	<24 T	<19 T	<18 T	-	<23 T	<26	<19
Carbon disulfide	<6.7	<19	<22	<27 T	<23 T	<30 T	<36 T	<24 T	<28	<24 T	<24 T	<19 T	<18 T	-	<23 T	<26	<19
Carbon tetrachloride	<6.7	<19	<22	<27 T	<23 T	<30 T	<36 T	<24 T	<28	<24 T	<24 T	<19 T	<18 T	-	<23 T	<26	<19
Chlorobenzene	<6.7	<19	<22	<27 T	<23 T	<30 T	<36 T	<24 T	<28	<24 T	<24 T	<19 T	<18 T	-	<23 T	<26	<19
Chloroethane	<6.7	<19	<22	<27 T	<23 T	<30 T	<36 T	<24 T	<28	<24 T	<24 T	<19 T	<18 T	-	<23 T	<26	<19
Chloroform	<6.7	<19	<22	<27 T	<23 T	<30 T	<36 T	<24 T	<28	<24 T	<24 T	<19 T	<18 T	-	<23 T	<26	<19
Chloromethane	<6.7	<19	<22	<27 T	<23 T	<30 T	<36 T	<24 T	<28	<24 T	<24 T	<19 T	<18 T	-	<23 T	<26	<19
cis-1,2-Dichloroethene	<6.7	<19	<22	<27 T	<23 T	<30 T	<36 T	<24 T	<28	<24 T	<24 T	<19 T	<18 T	-	<23 T	<26	<19
cis-1,3-Dichloropropene	<6.7	<19	<22	<27 T	<23 T	<30 T	<36 T	<24 T	<28	<24 T	<24 T	<19 T	<18 T	-	<23 T	<26	<19
Cyclohexane	<6.7	<19	<22	<27 T	<23 T	<30 T	<36 T	<24 T	<28	<24 T	<24 T	<19 T	<18 T	-	<23 T	<26	<19
Dibromochloromethane	<6.7	<19	<22	<27 T	<23 T	<30 T	<36 T	<24 T	<28	<24 T	<24 T	<19 T	<18 T	-	<23 T	<26	<19
Dibromomethane	<6.7	<19	<22	<27 T	<23 T	<30 T	<36 T	<24 T	<28	<24 T	<24 T	<19 T	<18 T	-	<23 T	<26	<19
Dichlorodifluoromethane	<6.7	<19	<22	<27 T	<23 T	<30 T	<36 T	<24 T	<28	<24 T	<24 T	<19 T	<18 T	-	<23 T	<26	<19
Dichlorofluoromethane	<6.7	<19	<22	<27 T	<23 T	<30 T	<36 T	<24 T	<28	<24 T	<24 T	<19 T	<18 T	-	<23 T	<26	<19
Diesel Range Organics (mg/kg, EPA Method 8015 DRO)	<5.4	20	-	<23 T	<19	<29 T	<29	<19 T	<23	<20 T	<20 T	<17 T	<15 T	-	<19 T	-	<15
Ethyl acetate	<6.7	<19	<22	<27 T	<23 T	<30 T	<36 T	<24 T	<28	<24 T	<24 T	<19 T	<18 T	-	<23 T	<26	<19
Ethyl ether	<6.7	<19	<22	<27 T	<23 T	<30 T	<36 T	<24 T	<28	<24 T	<24 T	<19 T	<18 T	-	<23 T	<26	<19
Ethyl methacrylate	<6.7	<19	<22	<27 T	<23 T	<30 T	<36 T	<24 T	<28	<24 T	<24 T	<19 T	<18 T	-	<23 T	<26	<19
Ethylbenzene	<6.7	<19	<22	<27 T	<23 T	<30 T	<36 T	<24 T	<28	<24 T	<24 T	<19 T	<18 T	-	<23 T	<26	<19
Freon 113	<6.7	<19	<22	<27 T	<23 T	<30 T	<36 T	<24 T	<28	<24 T	<24 T	<19 T	<18 T	-	<23 T	<26	<19
Iodomethane	<6.7	<19	<22	<27 T	<23 T	<30 T	<36 T	<24 T	<28	<24 T	<24 T	<19 T	<18 T	-	<23 T	<26	<19

Analyte	JC Boyle Reservoir - Sediment - Additional Analytes																
	CDH-S-002(0.0-5)	CDH-S-003(0.0-3.8)	CDH-S-004(0.0-1.3)	CDH-S-004(0.0-6)	CDH-S-004(5.8-9)	CDH-S-005(0.0-0.3)	CDH-S-006A(0.0-0.3)	CDH-S-007(0.0-5)	CDH-S-007(0.0-5.1)	CDH-S-007(4.2-9.2)	CDH-S-007(9.2-12)	CDH-S-007(12-17)	CDH-S-007(17-18.7)	CDH-S-007(0.0-18.7)	CDH-S-008(0.0-1.7)	CDH-S-008(0.0-2.2)	CDH-S-043(0.0-2.0)
Isopropylbenzene	<6.7	<19	<22	<27 T	<23 T	<30 T	<36 T	<24 T	<28	<24 T	<24 T	<19 T	<18 T	-	<23 T	<26	<19
meta, para-Xylene	<13	<38	<45	<54 T	<45 T	<60 T	<73 T	<47 T	<56	<48 T	<49 T	<38 T	<36 T	-	<45 T	<51	<39
Methyl acetate	<6.7	<19	<22	<27 T	<23 T	<30 T	<36 T	<24 T	<28	<24 T	<24 T	<19 T	<18 T	-	<23 T	<26	<19
Methylcyclohexane	<6.7	<19	<22	<27 T	<23 T	<30 T	<36 T	<24 T	<28	<24 T	<24 T	<19 T	<18 T	-	<23 T	<26	<19
Methylene chloride	<6.7	<19	<22	<27 T	<23 T	<30 T	<36 T	<24 T	<28	<24 T	<24 T	<19 T	<18 T	-	<23 T	<26	<19
MTBE	<6.7	<19	<22	<27 T	<23 T	<30 T	<36 T	<24 T	<28	<24 T	<24 T	<19 T	<18 T	-	<23 T	<26	<19
N-Butylbenzene	<6.7	<19	<22	<27 T	<23 T	<30 T	<36 T	<24 T	<28	<24 T	<24 T	<19 T	<18 T	-	<23 T	<26	<19
N-Propylbenzene	<6.7	<19	<22	<27 T	<23 T	<30 T	<36 T	<24 T	<28	<24 T	<24 T	<19 T	<18 T	-	<23 T	<26	<19
ortho-Xylene	<6.7	<19	<22	<27 T	<23 T	<30 T	<36 T	<24 T	<28	<24 T	<24 T	<19 T	<18 T	-	<23 T	<26	<19
Pentachloroethane	<6.7	<19	<22	<27 T	<23 T	<30 T	<36 T	<24 T	<28	<24 T	<24 T	<19 T	<18 T	-	<23 T	<26	<19
p-Isopropyltoluene	<6.7	<19	<22	<27 T	<23 T	<30 T	<36 T	<24 T	<28	<24 T	<24 T	<19 T	<18 T	-	<23 T	<26	<19
Residual Range Organics (mg/kg, EPA Method 8015 RRO)	<54	<150	-	<230 T	<190	<290 T	<290	<190 T	<230	<200 T	<200 T	<170 T	<150 T	-	<190 T	-	<150
sec-butylbenzene	<6.7	<19	<22	<27 T	<23 T	<30 T	<36 T	<24 T	<28	<24 T	<24 T	<19 T	<18 T	-	<23 T	<26	<19
Styrene	<6.7	<19	<22	<27 T	<23 T	<30 T	<36 T	<24 T	<28	<24 T	<24 T	<19 T	<18 T	-	<23 T	<26	<19
tert-butylbenzene	<6.7	<19	<22	<27 T	<23 T	<30 T	<36 T	<24 T	<28	<24 T	<24 T	<19 T	<18 T	-	<23 T	<26	<19
Tetrachloroethene	<6.7	<19	<22	<27 T	<23 T	<30 T	<36 T	<24 T	<28	<24 T	<24 T	<19 T	<18 T	-	<23 T	<26	<19
Toluene	<6.7	<19	<22	<27 T	<23 T	<30 T	<36 T	<24 T	<28	<24 T	<24 T	<19 T	<18 T	-	<23 T	<26	<19
Organics																	
SVOCs: Phenols (ug/kg dry weight, EPA Method 8270D unless otherwise noted)																	
2,4,5-Trichlorophenol	<230 T	<510 T	-	<950	<770	<1,200 T	<1,200	<800 T	<920	<830 T	<790 T	<680 T	<610 T	-	<810 T	-	<720 T
2,4,6-Trichlorophenol	<230 T	<510 T	-	<950	<770	<1,200 T	<1,200	<800 T	<920	<830 T	<790 T	<680 T	<610 T	-	<810 T	-	<720 T
2,4-Dichlorophenol	<230 T	<510 T	-	<950	<770	<1,200 T	<1,200	<800 T	<920	<830 T	<790 T	<680 T	<610 T	-	<810 T	-	<720 T
2,4-Dimethylphenol	<230 T	<510 T	-	<950	<770	<1,200 T	<1,200	<800 T	<920	<830 T	<790 T	<680 T	<610 T	-	<810 T	-	<720 T
2-Chlorophenol	<230 T	<510 T	-	<950	<770	<1,200 T	<1,200	<800 T	<920	<830 T	<790 T	<680 T	<610 T	-	<810 T	-	<720 T
2-Methylphenol	<230 T	<510 T	-	<950	<770	<1,200 T	<1,200	<800 T	<920	<830 T	<790 T	<680 T	<610 T	-	<810 T	-	<720 T
4-Chloro-3-methylphenol	<230 T	<510 T	-	<950	<770	<1,200 T	<1,200	<800 T	<920	<830 T	<790 T	<680 T	<610 T	-	<810 T	-	<720 T
4-Methylphenol	<230 T	<510 T	-	<950	<770	<1,200 T	<1,200	<800 T	<920	<830 T	<790 T	<680 T	<610 T	-	<810 T	-	<720 T
4-Nitrophenol	<930 T	<2,000 T	-	<3,800	<3,100	<4,800 T	<4,800	<3,200 T	<3,700	<3,300 T	<3,200 T	<2,700 T	<2,400 T	-	<3,200 T	-	<2,900 T
Pentachlorophenol (EPA Method 8151A)	<4.5	<13	-	34 L	<7.1 T	<24 T, L	<24 L	< 16 T, L	<19	<17 T, L	<16 T, L	<14 T, L	<12 T, L	-	<16 T, L	-	<13
Phenol	<230 T	<510 T	-	<950	<770	<1,200 T	<1,200	<800 T	<920	<830 T	<790 T	<680 T	<610 T	-	<810 T	-	<720 T
2-Nitrophenol	<230 T	<510 T	-	<950	<770	<1,200 T	<1,200	<800 T	<920	<830 T	<790 T	<680 T	<610 T	-	<810 T	-	<720 T
2,4-Dinitrophenol	<930 T	<2,000 T	-	<3,800	<3,100	<4,800 T	<4,800	<3,200 T	<3,700	<3,300 T	<3,200 T	<2,700 T	<2,400 T	-	<3,200 T	-	<2,900 T
4,6-Dinitro-2-methylphenol	<930 T	<2,000 T	-	<3,800	<3,100	<4,800 T	<4,800	<3,200 T	<3,700	<3,300 T	<3,200 T	<2,700 T	<2,400 T	-	<3,200 T	-	<2,900 T
Organics																	
SVOCs: Chlorinated hydrocarbons (ug/kg dry weight, EPA Method 8260C, unless otherwise noted)																	
1,1,1,2-Tetrachloroethane	<6.7	<19	<22	<27 T	<23 T	<30 T	<36 T	<24 T	<28	<24 T	<24 T	<19 T	<18 T	-	<23 T	<26	<19
1,1,1-Trichloroethane	<6.7	<19	<22	<27 T	<23 T	<30 T	<36 T	<24 T	<28	<24 T	<24 T	<19 T	<18 T	-	<23 T	<26	<19
1,1,2,2-Tetrachloroethane	<6.7	<19	<22	<27 T	<23 T	<30 T	<36 T	<24 T	<28	<24 T	<24 T	<19 T	<18 T	-	<23 T	<26	<19
1,1,2-Trichloroethane	<6.7	<19	<22	<27 T	<23 T	<30 T	<36 T	<24 T	<28	<24 T	<24 T	<19 T	<18 T	-	<23 T	<26	<19
1,1-Dichloroethane	<6.7	<19	<22	<27 T	<23 T	<30 T	<36 T	<24 T	<28	<24 T	<24 T	<19 T	<18 T	-	<23 T	<26	<19
1,1-Dichloroethene	<6.7	<19	<22	<27 T	<23 T	<30 T	<36 T	<24 T	<28	<24 T	<24 T	<19 T	<18 T	-	<23 T	<26	<19
1,1-Dichloropropene	<6.7	<19	<22	<27 T	<23 T	<30 T	<36 T	<24 T	<28	<24 T	<24 T	<19 T	<18 T	-	<23 T	<26	<19
1,2,3-Trichlorobenzene	<6.7	<19	<22	<27 T	<23 T	<30 T	<36 T	<24 T	<28	<24 T	<24 T	<19 T	<18 T	-	<23 T	<26	<19
1,2,3-Trichloropropane	<6.7	<19	<22	<27 T	<23 T	<30 T	<36 T	<24 T	<28	<24 T	<24 T	<19 T	<18 T	-	<23 T	<26	<19
1,2,4-Trichlorobenzene	<6.7	<19	<22	<27 T	<23 T	<30 T	<36 T	<24 T	<28	<24 T	<24 T	<19 T	<18 T	-	<23 T	<26	<19
1,2-Dibromo-3-chloropropane	<6.7	<19	<22	<27 T	<23 T	<30 T	<36 T	<24 T	<28	<24 T	<24 T	<19 T	<18 T	-	<23 T	<26	<19
1,2-Dichlorobenzene	<6.7	<19	<22	<27 T	<23 T	<30 T	<36 T	<24 T	<28	<24 T	<24 T	<19 T	<18 T	-	<23 T	<26	<19
1,2-Dichloroethane	<6.7	<19	<22	<27 T	<23 T	<30 T	<36 T	<24 T	<28	<24 T	<24 T	<19 T	<18 T	-	<23 T	<26	<19
1,2-Dichloropropane	<6.7	<19	<22	<27 T	<23 T	<30 T	<36 T	<24 T	<28	<24 T	<24 T	<19 T	<18 T	-	<23 T	<26	<19
1,3-Dichlorobenzene	<6.7	<19	<22	<27 T	<23 T	<30 T	<36 T	<24 T	<28	<24 T	<24 T	<19 T	<18 T	-	<23 T	<26	<19
1,3-Dichloropropane	<6.7	<19	<22	<27 T	<23 T	<30 T	<36 T	<24 T	<28	<24 T	<24 T	<19 T	<18 T	-	<23 T	<26	<19
1,4-Dichlorobenzene	<6.7	<19	<22	<27 T	<23 T	<30 T	<36 T	<24 T	<28	<24 T	<24 T	<19 T	<18 T	-	<23 T	<26	<19
1-Chlorohexane	<6.7	<19	<22	<27 T	<23 T	<30 T	<36 T	<24 T	<28	<24 T	<24 T	<19 T	<18 T	-	<23 T	<26	<19
2-Chloronaphthalene (EPA Method 8270D)	<230 T	<510 T	-	<950	<770	<1,200 T	<1,200	<800 T	<920	<830 T	<790 T	<680 T	<610 T	-	<810 T	-	<720 T
2,2-Dichloropropane	<6.7	<19	<22	<27 T	<23 T	<30 T	<36 T	<24 T	<28	<24 T	<24 T	<19 T	<18 T	-	<23 T	<26	<19
2-Chlorotoluene	<6.7	<19	<22	<27 T	<23 T	<30 T	<36 T	<24 T	<28	<24 T	<24 T	<19 T	<18 T	-	<23 T	<26	<19
3,3'-Dichlorobenzidine (EPA Method 8270D)	<230 T	<510 T	-	<950	<770	<1,200 T	<1,200	<800 T	<920	<830 T	<790 T	<680 T	<610 T	-	<810 T	-	<720 T
4-Chlorophenyl phenyl ether (EPA Method 8270D)	<230 T	<510 T	-	<950	<770	<1,200 T	<1,200	<800 T	<920	<830 T	<790 T	<680 T	<610 T	-	<810 T	-	<720 T
4-Chlorotoluene	<6.7	<19	<22	<27 T	<23 T	<30 T	<36 T	<24 T	<28	<24 T	<24 T	<19 T	<18 T	-	<23 T	<26	<19

Analyte	JC Boyle Reservoir - Sediment - Additional Analytes																
	CDH-S-002(0.0-5)	CDH-S-003(0.0-3.8)	CDH-S-004(0.0-1.3)	CDH-S-004(0.0-6)	CDH-S-004(5.8-9)	CDH-S-005(0.0-0.3)	CDH-S-006A(0.0-0.3)	CDH-S-007(0.0-5)	CDH-S-007(0.0-5.1)	CDH-S-007(4.2-9.2)	CDH-S-007(9.2-12)	CDH-S-007(12-17)	CDH-S-007(17-18.7)	CDH-S-007(0.0-18.7)	CDH-S-008(0.0-1.7)	CDH-S-008(0.0-2.2)	CDH-S-043(0.0-2.0)
Bis(2-chloroethoxy) methane (EPA Method 8270D)	<230 T	<510 T	-	<950	<770	<1,200 T	<1,200	<800 T	<920	<830 T	<790 T	<680 T	<610 T	-	<810 T	-	<720 T
Bis(2-chloroethyl) ether (EPA Method 8270D)	<230 T	<510 T	-	<950	<770	<1,200 T	<1,200	<800 T	<920	<830 T	<790 T	<680 T	<610 T	-	<810 T	-	<720 T
Bis(2-chloroisopropyl) ether (EPA Method 8270D)	<230 T	<510 T	-	<950	<770	<1,200 T	<1,200	<800 T	<920	<830 T	<790 T	<680 T	<610 T	-	<810 T	-	<720 T
Hexachlorobenzene (EPA Method 8270D)	<230 T	<510 T	-	<950	<770	<1,200 T	<1,200	<800 T	<920	<830 T	<790 T	<680 T	<610 T	-	<810 T	-	<720 T
Hexachlorocyclopentadiene (EPA Method 8270D)	<230 T	<510 T	-	<950	<770	<1,200 T	<1,200	<800 T	<920	<830 T	<790 T	<680 T	<610 T	-	<810 T	-	<720 T
Hexachlorobutadiene	<6.7	<19	<22	<27 T	<23 T	<30 T	<36 T	<24 T	<28	<24 T	<24 T	<19 T	<18 T	-	<23 T	<26	<19
Hexachloroethane (EPA Method 8270D)	<230 T	<510 T	-	<950	<770	<1,200 T	<1,200	<800 T	<920	<830 T	<790 T	<680 T	<610 T	-	<810 T	-	<720 T
trans-1,2-Dichloroethene	<6.7	<19	<22	<27 T	<23 T	<30 T	<36 T	<24 T	<28	<24 T	<24 T	<19 T	<18 T	-	<23 T	<26	<19
trans-1,3-Dichloropropene	<6.7	<19	<22	<27 T	<23 T	<30 T	<36 T	<24 T	<28	<24 T	<24 T	<19 T	<18 T	-	<23 T	<26	<19
trans-1,4-Dichloro-2-butene	<6.7	<19	<22	<27 T	<23 T	<30 T	<36 T	<24 T	<28	<24 T	<24 T	<19 T	<18 T	-	<23 T	<26	<19
Trichloroethene	<6.7	<19	<22	<27 T	<23 T	<30 T	<36 T	<24 T	<28	<24 T	<24 T	<19 T	<18 T	-	<23 T	<26	<19
Trichlorofluoromethane	<6.7	<19	<22	<27 T	<23 T	<30 T	<36 T	<24 T	<28	<24 T	<24 T	<19 T	<18 T	-	<23 T	<26	<19
Organics																	
SVOCs: Other SVOCs (ug/kg dry weight, EPA Method 8270D unless otherwise noted)																	
2-Nitroaniline	<230 L, T	<510 L, T	-	<950	<770	<1,200 T	<1,200	<800 T	<920	<830 T	<790 T	<680 T	<610 T	-	<810 T	-	<720 L, T
3-Nitroaniline	<230 T	<510 T	-	<950	<770	<1,200 T	<1,200	<800 T	<920	<830 T	<790 T	<680 T	<610 T	-	<810 T	-	<720 T
4-Chloroaniline	<230 T	<510 T	-	<950	<770	<1,200 T	<1,200	<800 T	<920	<830 T	<790 T	<680 T	<610 T	-	<810 T	-	<720 T
4-Nitroaniline	<230 T	<510 T	-	<950	<770	<1,200 T	<1,200	<800 T	<920	<830 T	<790 T	<680 T	<610 T	-	<810 T	-	<720 T
Benzoic acid	<930 V, T	<2,000 V, T	-	<3,800	<3,100	<4,800 T	<4,800	<3,200 T	<3,700	<3,300 T	<3,200 T	<2,700 T	<2,400 T	-	<3,200 T	-	<2,900 V, T
Benzyl alcohol	<230 T	<510 T	-	<950	<770	<1,200 T	<1,200	<800 T	<920	<830 T	<790 T	<680 T	<610 T	-	<810 T	-	<720 T
Dibenzofuran	<230 T	<510 T	-	<950	<770	<1,200 T	<1,200	<800 T	<920	<830 T	<790 T	<680 T	<610 T	-	<810 T	-	<720 T
Isophorone	<230 T	<510 T	-	<950	<770	<1,200 T	<1,200	<800 T	<920	<830 T	<790 T	<680 T	<610 T	-	<810 T	-	<720 T
Nitrobenzene	<230 T	<510 T	-	<950	<770	<1,200 T	<1,200	<800 T	<920	<830 T	<790 T	<680 T	<610 T	-	<810 T	-	<720 T
N-Nitrosodi-N-propylamine	<230 T	<510 T	-	<950	<770	<1,200 T	<1,200	<800 T	<920	<830 T	<790 T	<680 T	<610 T	-	<810 T	-	<720 T
N-Nitrosodiphenylamine	<230 T	<510 T	-	<950	<770	<1,200 T	<1,200	<800 T	<920	<830 T	<790 T	<680 T	<610 T	-	<810 T	-	<720 T
Pyridine	<230 T	<510 T	-	<950	<770	<1,200 T	<1,200	<800 T	<920	<830 T	<790 T	<680 T	<610 T	-	<810 T	-	<720 T
Tetrahydrofuran (EPA Method 8260C)	<6.7	<19	<22	<27 T	<23 T	<30 T	<36 T	<24 T	<28	<24 T	<24 T	<19 T	<18 T	-	<23 T	<26	<19

Qualifiers:
V: result may vary excessively from the true value
H: result may have a high bias
L: result may have a low bias
T: result obtained past the holding time
U: result determined to be an outlier at the time of data validation

- : no data
< : not detected at reporting limit shown
Chlorpyrifos: Sample CDH-S-008(0.0-1.7) also analyzed by EPA Method 8141A with a result of <400.

Analyte	JC Boyle Reservoir - Sediment - Dioxins, Furans, PBDEs, and PCB Congeners	
	CDH-S-007(0.0-18.7)	CDH-S-008(0.0-1.7)
Organics		
Polychlorinated Dioxins and Furans (pg/g dry weight, EPA Method 8290A)		
2,3,7,8-TCDD	<0.30	0.19
2,3,7,8-TCDF	0.90	0.88
1,2,3,7,8-PECDD	1.1	<0.91
1,2,3,7,8-PECDF	0.88	1.1
2,3,4,7,8-PECDF	1.5	1.5
1,2,3,4,7,8-HXCDD	1.6	1.5
1,2,3,6,7,8-HXCDD	7.3	6.6
1,2,3,7,8,9-HXCDD	3.7	3.7
1,2,3,6,7,8-HXCDF	4.4	5.3
1,2,3,7,8,9-HXCDF	0.66	0.67
1,2,3,4,7,8-HXCDF	2.1	1.7
2,3,4,6,7,8-HXCDF	3.0	3.2
1,2,3,4,6,7,8-HPCDD	180	170
1,2,3,4,6,7,8-HPCDF	64	58
1,2,3,4,7,8,9-HPCDF	3.3	3.5
OCDD	1,500	1,400
OCDF	240 V	140
TOTAL HPCDD	360	360
TOTAL HPCDF	220	170
TOTAL HXCDD	58	59
TOTAL HXCDF	57	68
TOTAL PECDD	10	7.7
TOTAL PECDF	32	40
TOTAL TCDD	4.5 V	2.7
TOTAL TCDF	30	42
Organics		
PBDEs (pg/g dry weight, EPA Method 1614 unless otherwise noted)		
BDE-10	<4.9	<1.3
BDE-100	59	49
BDE-105	<13	<6.2
BDE-116	<16	<7.5
BDE-118	<11	<5.2
BDE-119/BDE-120	<10	<4.9
BDE-12/BDE-13	<2.7	<4.4
BDE-126	<7.0	<3.5
BDE-128	<49	<18
BDE-138/BDE-166	<39	<15
BDE-140	<20	<7.4
BDE-15	<2.2	<4.7
BDE-153	<26	<7.6
BDE-154	<35	<5.1
BDE-155	<11	<4.3
BDE-17/BDE-25	68	64
BDE-181	<65	<27
BDE-183	<32	<14
BDE-190	<110	<45
BDE-203	<100	<38
BDE-206	130 V	<42
BDE-207	<40	<40
BDE-208	<29	<44
BDE-209	5,000 V	300
BDE-28/BDE-33	18	34
BDE-30	<7.3	<1.8
BDE-32	<5.2	<1.3
BDE-35	<4.4	6.9
BDE-37	<4.4	<1.4
BDE-47	230	140
BDE-49	190	210
BDE-51	31	42
BDE-66	<6.2	<2.3
BDE-7	<120	93
BDE-71	<5.3	<1.9
BDE-75	<4.5	<1.7
BDE-77	<4.4	<1.6
BDE-79	<3.7	<1.4
BDE-8/BDE-11	<6.7	<31
BDE-85	<12	<5.6
BDE-99	160 H	84 H
DBDPE (EPA Method 1614 Mod)	<120	<65
HBB (EPA Method 1614 Mod)	<5.5	<2.1
PBEB (EPA Method 1614 Mod)	<3.8	<1.1
Organics		
PCBs (pg/g dry weight, EPA Method 1668A)		
PCB Congener 1	21 T	14 T
PCB Congener 100	1.9 T	<1.4 T
PCB Congener 101/113/89	610 T	470 T
PCB Congener 104	<0.77 T	<2.3 T
PCB Congener 105/127	250 T	180 T
PCB Congener 108/83	27 T	23 T
PCB Congener 109/107	74 T	58 T
PCB Congener 11	130 T	100 T
PCB Congener 110	670 T	540 T
PCB Congener 112	<2.5 T	<2.7 T
PCB Congener 114	12 T	<8.4 T
PCB Congener 115/116/87	240 T	170 T
PCB Congener 117/111	15 T	11 T
PCB Congener 118/106	650 T	490 T
PCB Congener 119	<11 T	<12 T
PCB Congener 12/13	<31 T	21 T
PCB Congener 122	<5.7 T	<4.2 T
PCB Congener 123	<3.1 T	<4.5 T
PCB Congener 124	21 T	<9.9 T
PCB Congener 126	<4.5 T	<5.7 T
PCB Congener 128	<140 T	130 T

Analyte	JC Boyle Reservoir - Sediment - Dioxins, Furans, PBDEs, and PCB Congeners	
	CDH-S-007(0.0-18.7)	CDH-S-008(0.0-1.7)
PCB Congener 129	<30 T	20 T
PCB Congener 130	55 T	<39 T
PCB Congener 132	260 T	180 T
PCB Congener 133/165/131	<9.0 T	<0.92 T
PCB Congener 134	<41 T	37 T
PCB Congener 135	90 T	68 T
PCB Congener 136/154	93 T	76 T
PCB Congener 137	42 T	25 T
PCB Congener 138/160	630 T	420 T
PCB Congener 139/149	600 T	410 T
PCB Congener 14	<14 T	<11 T
PCB Congener 140	4.3 T, V,	<0.91 T
PCB Congener 141	160 T	98 T
PCB Congener 142	<11 T	<10 T
PCB Congener 143	<33 T	<0.93 T
PCB Congener 144	32 T	<17 T
PCB Congener 145/148	<0.76 T	<0.49 T
PCB Congener 147	<15 T	10 T
PCB Congener 15	130 T	90 T
PCB Congener 150	<0.66 T	<0.43 T
PCB Congener 151	160 T	<100 T
PCB Congener 152	<0.64 T	<0.42 T
PCB Congener 155	<1.0 T	<1.7 T
PCB Congener 156	72 T	56 T
PCB Congener 157	17 T	13 T
PCB Congener 158	84 T	48 T
PCB Congener 159	<0.87 T	<0.68 T
PCB Congener 16/32	94 T	46 T
PCB Congener 161/146	110 T	<86 T
PCB Congener 162	<0.96 T	2.8 T
PCB Congener 164/163	210 T	150 T
PCB Congener 166	<0.87 T	<0.68 T
PCB Congener 167	35 T	22 T
PCB Congener 168/153	760 T	530 T
PCB Congener 169	<2.2 T	<2.0 T
PCB Congener 17	59 T	32 T
PCB Congener 170/190	190 T	140 T
PCB Congener 171	48 T	38 T
PCB Congener 173	4.8 T	<4.0 T
PCB Congener 174	200 T	160 T
PCB Congener 175	<5.7 T	<3.7 T
PCB Congener 176	<26 T	19 T
PCB Congener 177	110 T	88 T
PCB Congener 178	50 T	<32 T
PCB Congener 179	95 T	69 T
PCB Congener 18	170 T	77 T
PCB Congener 181	<1.8 T	<1.1 T
PCB Congener 182/187	<310 T	250 T
PCB Congener 183	140 T	<89 T
PCB Congener 184	<0.98 T	<1.3 T
PCB Congener 185	<29 T	<18 T
PCB Congener 186	<1.0 T	<1.3 T
PCB Congener 188	<1.1 T	<1.5 T
PCB Congener 189	6.3 T	6.4 T
PCB Congener 19	<8.6 T	4.5 T
PCB Congener 191	6.6 T	4.7 T
PCB Congener 192/172	33 T	25 T
PCB Congener 193/180	440 T	330 T
PCB Congener 194	120 T	98 T
PCB Congener 195	44 T	36 T
PCB Congener 196/203	190 T	150 T
PCB Congener 197	7.8 T	<4.6 T
PCB Congener 198	<6.9 T	<7.3 T
PCB Congener 199	200 T	170 T
PCB Congener 2	43 T	32 T
PCB Congener 20/33/21	190 T	130 H, T
PCB Congener 200	22 T	<14 T
PCB Congener 201	<23 T	<15 T
PCB Congener 202	<37 T	<31 T
PCB Congener 204	<0.96 T	<1.7 T
PCB Congener 205	7.8 T	6.8 T
PCB Congener 206	130 T	110 T
PCB Congener 207	<13 T	<12 T
PCB Congener 208	47 T	<33 T
PCB Congener 209	120 T	130 T
PCB Congener 22	110 T	74 T
PCB Congener 25	26 T	15 T
PCB Congener 26	44 T	24 T
PCB Congener 27/24	12 T	<5.3 T
PCB Congener 29	<13 T	<4.7 T
PCB Congener 3	50 T	39 T
PCB Congener 30	<2.0 T	<1.1 T
PCB Congener 31/28	660 T	390 T
PCB Congener 34/23	<13 T	<4.7 T
PCB Congener 35	<13 T	9.1 T
PCB Congener 36	<12 T	<4.3 T
PCB Congener 37	<17 T	95 H, T
PCB Congener 38	<12 T	<4.2 T
PCB Congener 39	<11 T	6.2 T
PCB Congener 4/10	<24 T	<17 T
PCB Congener 40/57	26 T	18 T
PCB Congener 41	<0.99 T	<0.62 T
PCB Congener 42	71 T	54 T
PCB Congener 43	<1.6 T	<1.0 T
PCB Congener 44	<1.5 T	<0.93 T
PCB Congener 45	23 T	13 T

Analyte	JC Boyle Reservoir - Sediment - Dioxins, Furans, PBDEs, and PCB Congeners	
	CDH-S-007(0.0-18.7)	CDH-S-008(0.0-1.7)
PCB Congener 46/69/73	8.7 T	5.2 T
PCB Congener 48/47/75	100 T	70 T
PCB Congener 49	170 T	140 T
PCB Congener 50	<1.3 T	<0.83 T
PCB Congener 51	8.3 T	<4.1 T
PCB Congener 52	400 T	260 T
PCB Congener 53	24 T	14 T
PCB Congener 54	<0.93 T	<0.55 T
PCB Congener 55	<2.0 T	<0.70 T
PCB Congener 56	140 T	110 T
PCB Congener 58	12 T	<0.87 T
PCB Congener 59	180 T	120 T
PCB Congener 6	<18 T	<14 T
PCB Congener 60	62 T	39 T
PCB Congener 62	<1.1 T	<0.71 T
PCB Congener 63	<0.94 T	9.6 T
PCB Congener 65	<1.1 T	<0.69 T
PCB Congener 66/80	440 T	220 T
PCB Congener 67	<1.0 T	7.4 T
PCB Congener 71	54 T	45 T
PCB Congener 72/64/68	140 T	96 T
PCB Congener 74/61	<13 T	130 T
PCB Congener 76/70	170 T	300 T
PCB Congener 77	44 T	59 T
PCB Congener 78	<1.3 T	<1.4 T
PCB Congener 79	<1.4 T	<1.4 T
PCB Congener 8/5	120 T	77 T
PCB Congener 81	<1.4 T	<1.6 T
PCB Congener 82	71 T	57 T
PCB Congener 84/90	150 T	130 T
PCB Congener 85/120	87 T	73 T
PCB Congener 86/97/125	180 T	140 T
PCB Congener 88	<1.3 T	<1.5 T
PCB Congener 9/7	<14 T	<11 T
PCB Congener 91	66 T	52 T
PCB Congener 92	130 T	100 T
PCB Congener 94	<1.8 T	<1.6 T
PCB Congener 95/93/121	400 T	280 T
PCB Congener 96/103	<2.9 T	8.6 T
PCB Congener 98/102	<11 T	12 T
PCB Congener 99	280 T	250 T

Qualifiers:
V: result may vary excessively from the true value
H: result may have a high bias
L: result may have a low bias
T: result obtained past the holding time
U: result determined to be an outlier at the time of data validation
- : no data
<: not detected at reporting limit shown

Analyte	Copco1 Reservoir - Sediment - Standard Analytes																	
	CDH-S-009A(0.0-4.6)	CDH-S-010(0.0-5.0)	CDH-S-010(5.0-8.0)	CDH-S-011(0.0-1.3)	CDH-S-012(0.0-5.4)	CDH-S-013(0.0-5.7)	CDH-S-014(0.0-5 3)	CDH-S-015A(0.0-5.0)	CDH-S-015A(5.0-9.7)	CDH-S-015A(0.0-9.7)	CDH-S-016(0.0-5.0)	CDH-S-016(5.0-7.5)	CDH-S-017(0.0-1.2)	CDH-S-018(0.0-5.0)	CDH-S-018(5.0-8.9)	CDH-S-019(0.0-4.8)	CDH-S-020(0.0-5.0)	CDH-S-020(5.0-7.0)
Conventionals (units and methods vary, all dry weights except pH and EC)																		
pH (EPA Method 9045)	7.0	7.1	7.3	6.7	7.3	7.2	7.3	7.1	7.5	-	7.4	7.8	7.6	7.4	7.5	6.8	7.3	7.3
EC (umhos/cm, Standard Methods 2510B)	250	520	830	150	600	480	370	610	990	-	830	480	110	530	680	260	370	280
Calcium (mg/kg, EPA Method 6010B)	5,000	5,900	4,600	6,000	4,800	5,200	5,400	4,900	4,500	-	4,400	3,800	6,200	4,900	3,900	5,000	4,500	4,100
Magnesium (mg/kg, EPA Method 6010B)	3,100	3,800	3,000	3,600	3,600	4,500	4,400	4,700	4,500	-	4,600	3,400	4,600	5,800	4,100	3,900	4,300	3,100
Ammonia as N (mg/kg, EPA Method 350.1)	110	200	250	28	200	160	100	150	310	-	240	250	22	170	170	66	91	60
Total Nitrogen as N (mg/kg, EPA Method 351.2)	1,500	2,800	1,500	1,300	1,300	1,100	1,000	1,300	1,400	-	1,300	1,500	850	1,200	1,300	1,100	1,200	1,300
Total Phosphorus as P (mg/kg, Standard Methods 4500P Mod)	130	270	180	160	200	190	200	210	230	-	190	210	140	160	230	180	120	120
Cyanide, WAD (mg/kg, Standard Methods 4500CN I)	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Total Solids (mg/kg, Standard Methods 2540B)	250,000	270,000	230,000	280,000	240,000	230,000	250,000	240,000	260,000	-	260,000	250,000	230,000	240,000	250,000	260,000	260,000	280,000
Total Volatile Solids (mg/kg, Standard Methods 2540G)	38,000	36,000	36,000	30,000	33,000	30,000	27,000	35,000	33,000	-	31,000	25,000	24,000	22,000	27,000	24,000	26,000	30,000
TOC (%, Method USGS:N011, T10 USGS:C011, T08)	6.61	5.4	6.23	4.92	5.27	5	4.9	5 23	4.8	-	4.68	4.83	4 35	4.5	4.82	4.07	4.45	5.14
Metals & AVS (mg/kg dry weight, EPA Method 6020 unless otherwise noted)																		
Aluminum	32,000	33,000	25,000	26,000	28,000	32,000	29,000	30,000	28,000	-	29,000	30,000	31,000	35,000	28,000	29,000	28,000	26,000
Antimony	<0.83	<0.75	<0.91	<0.72	<0.81	<0.95	<0.78	<0.87	<0.76	-	<0.81	<0.78	<0.86	<0.89	<0.80	<0.78	<0.82	<0.72
Arsenic	6.8	6.9	6.9	13	7.3	8.1	6.3	9.4	8.3	-	8.9	8.8	8.5	9.3	9.1	9.1	9.3	9.9
Cadmium	<0.41	<0.37	<0.46	<0.36	<0.41	<0.48	<0.39	<0.44	<0.38	-	<0.40	<0.39	<0.43	<0.45	<0.40	<0.39	<0.41	<0.36
Chromium	41	41	36	35	37	42	37	36	35	-	36	34	33	38	34	30	31	28
Copper	28	33	27	28	29	35	31	30	29	-	29	24	28	32	24	24	24	23
Iron (EPA Method 6010B)	18,000	21,000	17,000	21,000	19,000	21,000	23,000	21,000	21,000	-	21,000	20,000	24,000	24,000	21,000	22,000	23,000	22,000
Lead	6.4	8.4	7.8	8.5	8.2	10	9.4	8.3	9.5	-	9.0	7.6	9.3	9.3	7.6	8.6	8.7	7.5
Mercury (EPA Method 7471A)	<0.17	<0.15	<0.18	<0.14	<0 16	<0.19	<0.16	<0.17	<0.15	-	<0.16	<0.16	<0.17	<0.18	<0.16	<0.16	<0.16	<0.14
Nickel	28	32	24	25	26	30	28	26	26	-	26	23	24	28	23	22	23	23
Selenium	<0.78	0.97	<0.88	1.2	1.0	<0.86	<0.76	<0.82	0.83	-	<0.77	<0.78	1.0	<0.88	<0.80	<0.78	<0.78	<0.70
Silver (EPA Method 6010B)	<2.1	<1.9	<2 3	<1.8	<2.0	<2.4	<2.0	<2.2	<1.9	-	<2.0	<2.0	<2 2	<2.2	<2.0	<1.9	<2.0	<1.8
Zinc	52	55	50	49	52	59	48	50	50	-	50	48	63 L	52	51	45	44	43
Acid Volatile Sulfides (EPA Method 821/R-91-100)	-	-	-	-	-	-	55	-	-	320	-	-	-	-	-	-	-	-
Organics																		
SVOCs: PAHs (ug/kg dry weight, EPA Method 8270D unless otherwise noted)																		
Acenaphthene	<710	<580	<730	<580	<620	<700	<660	<680	<620	-	<650	<620	<700	<710	<650	<620	<620	<590
Acenaphthylene	<710	<580	<730	<580	<620	<700	<660	<680	<620	-	<650	<620	<700	<710	<650	<620	<620	<590
Anthracene	<710	<580	<730	<580	<620	<700	<660	<680	<620	-	<650	<620	<700	<710	<650	<620	<620	<590
B.nz.,.,.n.hra..ne	<.1.	<..	<..0	<...	<.2.	<..	<6..	<..0	<.2.	-	<...	<.2.	<..0	<.1.	<..0	<62.	<.2.	<...
Benzo(a)pyrene	<710	<580	<730	<580	<620	<700	<660	<680	<620	-	<650	<620	<700	<710	<650	<620	<620	<590
Benzo(b)fluoranthene	<710	<580	<730	<580	<620	<700	<660	<680	<620	-	<650	<620	<700	<710	<650	<620	<620	<590
Benzo(g,h,i)perylene	<710	<580	<730	<580	<620	<700	<660	<680	<620	-	<650	<620	<700	<710	<650	<620	<620	<590
Benzo(k)fluoranthene	<710	<580	<730	<580	<620	<700	<660	<680	<620	-	<650	<620	<700	<710	<650	<620	<620	<590
4-Bromophenyl phenyl ether	<710	<580	<730	<580	<620	<700	<660	<680	<620	-	<650	<620	<700	<710	<650	<620	<620	<590
Chrysene	<710	<580	<730	<580	<620	<700	<660	<680	<620	-	<650	<620	<700	<710	<650	<620	<620	<590
Dibenzo(a,h)anthracene	<710	<580	<730	<580	<620	<700	<660	<680	<620	-	<650	<620	<700	<710	<650	<620	<620	<590
Fluoranthene	<710	<580	<730	<580	<620	<700	<660	<680	<620	-	<650	<620	<700	<710	<650	<620	<620	<590
Fluorene	<710	<580	<730	<580	<620	<700	<660	<680	<620	-	<650	<620	<700	<710	<650	<620	<620	<590
Indeno(1,2,3-cd)pyrene	<710	<580	<730	<580	<620	<700	<660	<680	<620	-	<650	<620	<700	<710	<650	<620	<620	<590
2-Methyl naphthalane	<710	<580	<730	<580	<620	<700	<660	<680	<620	-	<650	<620	<700	<710	<650	<620	<620	<590
Naphthalene (EPA Method 8260C)	<21	<18	<22	<18	<19	<21	<20	<20	<19	-	<20	<19	<21	<21	<20	<19	<19	<18
Phenanthrene	<710	<580	<730	<580	<620	<700	<660	<680	<620	-	<650	<620	<700	<710	<650	<620	<620	<590
Pyrene	<710	<580	<730	<580	<620	<700	<660	<680	<620	-	<650	<620	<700	<710	<650	<620	<620	<590
Organics																		
PCBs (ug/g dry weight, EPA Method 8082 unless otherwise noted)																		
Aroclor 1016	<0.14	<0.12	<0.15	<0.12	<0 13	<0.14	<0.13	<0.14	<0.13	-	<0.13	<0.13	<0.14	<0.14	<0.13	<0.12	<0.13	<0.12
Aroclor 1221	<0.29	<0.24	<0.30	<0.24	<0 26	<0.28	<0.27	<0.27	<0.25	-	<0.26	<0.25	<0.28	<0.28	<0.27	<0.25	<0.25	<0.24
Aroclor 1232	<0.14	<0.12	<0.15	<0.12	<0.13	<0.14	<0.13	<0.14	<0.13	-	<0.13	<0.13	<0.14	<0.14	<0.13	<0.12	<0.13	<0.12
Aroclor 1242	<0.14	<0.12	<0.15	<0.12 L	<0.13	<0.14	<0.13 L	<0.14	<0.13	-	<0.13	<0.13	<0.14 L	<0.14	<0.13	<0.12 L	<0.13 L	<0.12 L
Aroclor 1248	<0.14	<0.12	<0.15	<0.12	<0.13	<0.14	<0.13	<0.14	<0.13	-	<0.13	<0.13	<0.14	<0.14	<0.13	<0.12	<0.13	<0.12
Aroclor 1254	<0.14	<0.12	<0.15	<0.12	<0.13	<0.14	<0.13	<0.14	<0.13	-	<0.13	<0.13	<0.14	<0.14	<0.13	<0.12	<0.13	<0.12
Aroclor 1260	<0.14	<0.12	<0.15	<0.12	<0.13	<0.14	<0.13	<0.14	<0.13	-	<0.13	<0.13	<0.14	<0.14	<0.13	<0.12	<0.13	<0.12
Aroclor 1268	<0.14	<0.12	<0.15	<0.12	<0.13	<0.14	<0.13	<0.14	<0.13	-	<0.13	<0.13	<0.14	<0.14	<0.13	<0.12	<0.13	<0.12
Total PCBs (pg/g) (EPA Method 1668A)	-	-	-	-	-	-	13,000 T	-	-	10,000 T	-	-	-	-	-	-	-	-

Analyte	Copco1 Reservoir - Sediment - Standard Analytes																	
	CDH-S-009A(0.0-4.6)	CDH-S-010(0.0-5.0)	CDH-S-010(5.0-8.0)	CDH-S-011(0.0-1.3)	CDH-S-012(0.0-5.4)	CDH-S-013(0.0-5.7)	CDH-S-014(0.0-5 3)	CDH-S-015A(0.0-5.0)	CDH-S-015A(5.0-9.7)	CDH-S-015A(0.0-9.7)	CDH-S-016(0.0-5.0)	CDH-S-016(5.0-7.5)	CDH-S-017(0.0-1.2)	CDH-S-018(0.0-5.0)	CDH-S-018(5.0-8.9)	CDH-S-019(0.0-4.8)	CDH-S-020(0.0-5.0)	CDH-S-020(5.0-7.0)
Organics																		
Pesticides/Herbicides: Organochlorine Pesticides (ug/kg dry weight, EPA Method 8081A unless otherwise noted)																		
Aldrin	<2.9	<2.4	<3.0	<2.4	<2.6	<2.8	<2.7	<2.7	<2.5	-	<2.6	<2.5	<2.8	<2.8	<2.7	<2.5	<2.5	<2.4
Chlordane (Technical)	<14	<12	<15	<12	<13	<14	<13	<14	<13	-	<13	<13	<14	<14	<13	<12	<13	<12
Chlordane-Alpha	<2.9	<2.4	<3.0	<2.4	<2.6	<2.8	<2.7	<2.7	<2.5	-	<2.6	<2.5	<2.8	<2.8	<2.7	<2.5	<2.5	<2.4
Chlordane-Gamma	<2.9	<2.4	<3.0	<2.4	<2.6	<2.8	<2.7	<2.7	<2.5	-	<2.6 V	<2.5 V	<2.8	<2.8	<2.7	<2.5	<2.5	<2.4
4,4'-DDT	<2.9	<2.4	<3.0	<2.4	<2.6	<2.8	<2.7	<2.7	<2.5	-	<2.6	<2.5	<2.8	<2.8	<2.7	<2.5	<2.5	<2.4
4,4'-DDD	<2.9	<2.4	<3.0	<2.4	<2.6	<2.8	<2.7	<2.7	<2.5	-	<2.6	<2.5	<2.8	<2.8	<2.7	<2.5	<2.5	<2.4
4,4'-DDE	<2.9	<2.4	<3.0	<2.4	<2.6	<2.8	<2.7	<2.7	<2.5	-	<2.6	<2.5	<2.8	<2.8	<2.7	<2.5	<2.5	<2.4
2,4'-DDT (ENV by GC-MS Specialty)	<140	<120	<150	<120	<130	<140	<130	<130	<120	-	<130	<120	<140 T	<140	<130	<120 T	<130 T	<120 T
2,4'-DDD (ENV by GC-MS Specialty)	<14	<12	<15	<12	<13	<14	<13	<13	<12	-	<13	<12	<14 T	<14	<13	<12 T	<13 T	<12 T
2,4'-DDE (ENV by GC-MS Specialty)	<14	<12	<15	<12	<13	<14	<13	<13	<12	-	<13	<12	<14 T	<14	<13	<12 T	<13 T	<12 T
Dieldrin	<2.9	<2.4	<3.0	<2.4	<2.6	<2.8	<2.7	<2.7	<2.5	-	<2.6	<2.5	<2.8	<2.8	<2.7	<2.5	<2.5	<2.4
Endosulfan I	<2.9 L	<2.4 L	<3.0 L	<2.4 L	<2.6 L	<2.8 L	<2.7 L	<2.7 L	<2.5 L	-	<2.6 L	<2.5 L	<2.8 L	<2.8 L	<2.7 L	<2.5 L	<2.5 L	<2.4 L
Endosulfan ..	<2.9 L	<2.4 L	<3.0 L	<2.4 L	<2.6 L	<2.8 L	<2.7 L	<2.7 L	<2.5 L	-	<2.6 L	<2.5 L	<2.8 L	<2.8 L	<2.7 L	<2.5 L	<2.5 L	<2.4 L
Endosulfan Sulfate	<2.9	<2.4	<3.0	<2.4	<2.6	<2.8	<2.7	<2.7	<2.5	-	<2.6	<2.5	<2.8	<2.8	<2.7	<2.5	<2 5	<2.4
Endrin	<2.9	<2.4	<3.0	<2.4	<2.6	<2.8	<2.7	<2.7	<2.5	-	<2.6 V	<2.5	<2.8	<2.8	<2.7	<2.5	<2.5	<2.4
Endrin Aldehyde	<2 9	<2.4	<3.0	<2.4	<2.6	<2.8	<2.7	<2.7	<2.5	-	<2.6	<2.5	11 V	<2.8	<2.7	<2.5	<2 5	<2.4
Endrin Ketone	<2.9	<2.4	<3.0	<2.4	<2.6	<2.8	<2.7	<2.7	<2.5	-	<2.6	<2.5	<2.8	<2.8	<2.7	<2.5	<2.5	<2.4
Heptachlor	<2.9	<2.4	<3.0	<2.4	<2.6	<2.8	<2.7	<2.7	<2.5	-	<2.6	<2.5	<2.8	<2.8	<2.7	<2.5	<2 5	<2.4
Heptachlor Epoxide	<2 9	<2.4	<3.0	<2.4	<2.6	<2.8	<2.7	<2.7	<2.5	-	<2.6	<2.5	<2.8	<2.8	<2.7	<2.5	<2.5	<2.4
HCH - Alpha	<2.9	<2.4	<3.0	<2.4 V	<2.6	<2.8	<2.7 V	<2.7	<2.5	-	<2.6 V	<2.5 V	<2.8	<2.8	<2.7	<2.5	<2.5	<2.4
HCH - Beta	3.0	<2.4	<3.0	<2.4	<2.6	<2.8	<2.7	<2.7	<2.5	-	<2.6	<2.5	3.1	<2.8	<2.7	<2.5	<2.5	<2.4
HCH - Delta	4.2	3.1	<3.0	<2.4	<2.6	<2.8	<2.7	<2.7	<2.5	-	3.6	<2.5	3.8	<2.8	<2.7	<2.5	<2 5	2.7
HCH - Gamma	<2.9	<2.4	<3.0	<2.4	<2.6	<2.8	<2.7	<2.7	<2.5	-	<2.6	<2.5	<2.8	<2.8	<2.7	<2.5	<2.5	<2.4
Methoxychlor	<2.9	<2.4	<3.0	<2.4	<2.6	<2.8	<2.7	<2.7	<2.5	-	4 5	<2.5 V	<2.8	<2.8	<2.7	<2.5	<2.5	<2.4
Toxaphene	<140	<120	<150	<120	<130	<140	<130	<140	<130	-	<130	<130	<140	<140	<130	<120	<130	<120
Particle Size Fraction (% dry weight)																		
Fines (<0.005 mm)	31.3	27.8	38.8	-	39.0	44.1	-	75.1	60.8	-	-	-	62.5	-	-	70.4	59.7	-
Fines (0.005 to 0.075 mm)	47.4	53.4	57.8	-	58.7	53.9	-	24.9	33.3	-	-	-	36.0	-	-	29.1	30.8	-
Sand (#200 to #4)	20.5	18.8	3.4	-	2.3	2.0	-	0.0	5.9	-	-	-	1.5	-	-	0.5	9.5	-
Gravel (#4 to 3 inch)	0.8	0.0	0.0	-	0.0	0.0	-	0.0	0.0	-	-	-	0.0	-	-	0.0	0.0	-
Cobbles (3 to 5 inch,	...	..0	0.0	-	0.0	0.0	-	0.0	0.0	-	-	-	0.0	-	-	0.0	0.0	-
Oversize (> 5 inch)	0.0	0.0	0.0	-	0.0	0.0	-	0.0	0.0	-	-	-	0.0	-	-	0.0	0.0	-

	CDH-S-012(5.4-6.0)	CDH-S-013(5.7-6.5)	CDH-S-014(0.0-1 8)	CDH-S-016(0.0-7.5)	CDH-S-018(0.0-8.9)	CDH-S-018(8.9-10.0)	CDH-S-020(5.0-7.4)
Particle Size Fraction (% dry weight)							
Fines (<0.005 mm)	37.9	46.7	38.1	58.1	82.0	39.4	57.3
Fines (0.005 to 0.075 mm)	56.5	48.9	59.4	31.5	18.0	48.6	33.9
Sand (#200 to #4)	5.6	4.4	2.5	10.4	0.0	12.0	8.8
Gravel (#4 to 3 inch)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cobbles (3 to 5 inch)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Oversize (> 5 inch)	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Qualifiers:
V: result may vary excessively from the true value
H: result may have a high bias
L: result may have a low bias
T: result obtained past the holding time
O: result determined to be an outlier at the time of data validation
- : no data
< : not detected at reporting limit shown

Analyte	Copco1 Reservoir - Sediment - Additional Analytes																		
	CDH-S-009A(0.0-4.6)	CDH-S-010(0.0-5.0)	CDH-S-010(5.0-8.0)	CDH-S-011(0.0-1.3)	CDH-S-012(0.0-5.4)	CDH-S-013(0.0-5.7)	CDH-S-014(0.0-5 3)	CDH-S-015A(0.0-5.0)	CDH-S-015A(5.0-9.7)	CDH-S-015A(0.0-9.7)	CDH-S-016(0.0-5.0)	CDH-S-016(5.0-7.5)	CDH-S-017(0.0-1.2)	CDH-S-018(0.0-5.0)	CDH-S-018(5.0-8.9)	CDH-S-018(0.0-8.9)	CDH-S-019(0.0-4.8)	CDH-S-020(0.0-5.0)	CDH-S-020(5.0-7.0)
Organics																			
Pesticides/Herbicides: Organophosphate Pesticides (ug/kg dry weight, EPA Method 8141A unless otherwise noted)																			
0,0,0-Triethylphosphorothioate	-	-	-	-	-	-	<350	-	-	<330	-	-	-	-	-	-	-	-	-
Azinphosmethyl	-	-	-	-	-	-	<350	-	-	<330	-	-	-	-	-	-	-	-	-
Bolstar	-	-	-	-	-	-	<350	-	-	<330	-	-	-	-	-	-	-	-	-
Chlorpyrifos see ootnote of ethods) f m	-	-	-	-	-	-	<0 33	-	-	<0 33	-	-	-	-	-	-	-	-	-
Coumaphos	-	-	-	-	-	-	<350	-	-	<330	-	-	-	-	-	-	-	-	-
Demeton	-	-	-	-	-	-	<350	-	-	<330	-	-	-	-	-	-	-	-	-
Demeton-O	-	-	-	-	-	-	<350	-	-	<330	-	-	-	-	-	-	-	-	-
Demeton-S	-	-	-	-	-	-	<350	-	-	<330	-	-	-	-	-	-	-	-	-
Diazinon (Method MLA-047-Rev 03)	-	-	-	-	-	-	<0 018	-	-	<0 016	-	-	-	-	-	-	-	-	-
Dichlorvos	-	-	-	-	-	-	<350	-	-	<330	-	-	-	-	-	-	-	-	-
Dimethoate	-	-	-	-	-	-	<350	-	-	<330	-	-	-	-	-	-	-	-	-
Disulfoton	-	-	-	-	-	-	<350	-	-	<330	-	-	-	-	-	-	-	-	-
EPN	-	-	-	-	-	-	<350	-	-	<330	-	-	-	-	-	-	-	-	-
Ethoprop	-	-	-	-	-	-	<350	-	-	<330	-	-	-	-	-	-	-	-	-
Famphur	-	-	-	-	-	-	<350	-	-	<330	-	-	-	-	-	-	-	-	-
Fensulfothion	-	-	-	-	-	-	<350	-	-	<330	-	-	-	-	-	-	-	-	-
Fenthion	-	-	-	-	-	-	<350	-	-	<330	-	-	-	-	-	-	-	-	-
Malathion	-	-	-	-	-	-	<350	-	-	<330	-	-	-	-	-	-	-	-	-
Methyl arathion p	-	-	-	-	-	-	<350	-	-	<330	-	-	-	-	-	-	-	-	-
Mevinphos	-	-	-	-	-	-	<350	-	-	<330	-	-	-	-	-	-	-	-	-
Parathion	-	-	-	-	-	-	<350	-	-	<330	-	-	-	-	-	-	-	-	-
Phorate	-	-	-	-	-	-	<350	-	-	<330	-	-	-	-	-	-	-	-	-
Ronnel	-	-	-	-	-	-	<350	-	-	<330	-	-	-	-	-	-	-	-	-
Stirophos	-	-	-	-	-	-	<350	-	-	<330	-	-	-	-	-	-	-	-	-
Sulfotep	-	-	-	-	-	-	<350	-	-	<330	-	-	-	-	-	-	-	-	-
Thionazin	-	-	-	-	-	-	<350	-	-	<330	-	-	-	-	-	-	-	-	-
Tokuthion	-	-	-	-	-	-	<350	-	-	<330	-	-	-	-	-	-	-	-	-
Trichloronate r irchloronat o T	-	-	-	-	-	-	<350	-	-	<330	-	-	-	-	-	-	-	-	-
Organics																			
Pesticides/Herbicides: Carbamate Pesticides (ug/kg dry weight, Method MLA-047 Rev 03 unless otherwise noted)																			
3-Hydroxycarbofuran	-	-	-	-	-	-	<0 18	-	-	<0 16	-	-	-	-	-	-	-	-	-
Aldicarb	-	-	-	-	-	-	<0 18	-	-	<0 16	-	-	-	-	-	-	-	-	-
Aldicarb ulfone S	-	-	-	-	-	-	<0 37	-	-	<0 33	-	-	-	-	-	-	-	-	-
Aldicarb ulfoxide S	-	-	-	-	-	-	<0 18	-	-	<0 16	-	-	-	-	-	-	-	-	-
Aminocarb	-	-	-	-	-	-	<0 18	-	-	<0 16	-	-	-	-	-	-	-	-	-
Bendiocarb	-	-	-	-	-	-	<0 37	-	-	<0 32	-	-	-	-	-	-	-	-	-
Carbaryl	-	-	-	-	-	-	<0 18	-	-	<0 16	-	-	-	-	-	-	-	-	-
Carbazole (EPA Method 8270D)	<710	<580	<730	<580	<620	<700	<660	<680	<620	-	<650	<620	<700	<710	<650	-	<620	<620	<590
Carbofuran	-	-	-	-	-	-	<0 18	-	-	<0 16	-	-	-	-	-	-	-	-	-
Dioxacarb	-	-	-	-	-	-	<0 18	-	-	<0 16	-	-	-	-	-	-	-	-	-
Imidacloprid	-	-	-	-	-	-	<0 37	-	-	<0 32	-	-	-	-	-	-	-	-	-
Methiocarb	-	-	-	-	-	-	<0 37	-	-	<0 33	-	-	-	-	-	-	-	-	-
Methomyl	-	-	-	-	-	-	<0 18	-L	-	<0 16	-L	-	-	-	-	-	-	-	-
Mexacarbate	-	-	-	-	-	-	<0 18	-	-	<0 16	-	-	-	-	-	-	-	-	-
Oxamyl	-	-	-	-	-	-	<0 19	-L	-	<0 17	-L	-	-	-	-	-	-	-	-
Piperonyl utoxide b	-	-	-	-	-	-	0 040	-	-	0 035	-	-	-	-	-	-	-	-	-
Pirimicarb	-	-	-	-	-	-	<0 18	-	-	<0 16	-	-	-	-	-	-	-	-	-
Promecarb	-	-	-	-	-	-	<0 37	-	-	<0 32	-	-	-	-	-	-	-	-	-
Propoxur	-	-	-	-	-	-	<0 18	-	-	<0 16	-	-	-	-	-	-	-	-	-

Analyte	Copco1 Reservoir - Sediment - Additional Analytes																	
	CDH-S-009A(0.0-4.6)	CDH-S-010(0.0-5.0)	CDH-S-010(5.0-8.0)	CDH-S-011(0.0-1.3)	CDH-S-012(0.0-5.4)	CDH-S-013(0.0-5.7)	CDH-S-014(0.0-5 3)	CDH-S-015A(0.0-5.0)	CDH-S-015A(5.0-9.7)	CDH-S-015A(0.0-9.7)	CDH-S-016(0.0-5.0)	CDH-S-016(5.0-7.5)	CDH-S-017(0.0-1.2)	CDH-S-018(0.0-5.0)	CDH-S-018(5.0-8.9)	CDH-S-018(0.0-8.9)	CDH-S-019(0.0-4.8)	CDH-S-020(0.0-5.0)	CDH-S-020(5.0-7.0)
Organics																				
Pesticides/Herbicides: Pyrethroids (Insecticides) (ug/kg dry weight, Method GCMS-NCI-SIM)																				
Allethrin	-	-	-	-	-	-	<0 33	-	-	<0 33	-L	-	-	-	-	-	-	-	-	
Bifenthrin	-	-	-	-	-	-	<0 33	-	-	<0 33	-	-	-	-	-	-	-	-	-	
Cyfluthrin	-	-	-	-	-	-	<0 33	-	-	<0 33	-	-	-	-	-	-	-	-	-	
Cypermethrin	-	-	-	-	-	-	<0 33	-	-	<0 33	-	-	-	-	-	-	-	-	-	
Deltamethrin: ralomethrin t	-	-	-	-	-	-	<0 33	-	-	<0 33	-	-	-	-	-	-	-	-	-	
Esfenvalerate: envalerate f	-	-	-	-	-	-	<0 33	-	-	<0 33	-	-	-	-	-	-	-	-	-	
Fenpropathrin	-	-	-	-	-	-	<0 33	-	-	<0 33	-	-	-	-	-	-	-	-	-	
Lambda-cyhalothrin	-	-	-	-	-	-	<0 33	-	-	<0 33	-	-	-	-	-	-	-	-	-	
Permethrin Total) (	-	-	-	-	-	-	<0 33	-	-	<0 33	-	-	-	-	-	-	-	-	-	
Tau-Fluvalinate	-	-	-	-	-	-	<0 33	-	-	<0 33	-	-	-	-	-	-	-	-	-	
Tetramethrin	-	-	-	-	-	-	<0 33	-	-	<0 33	-	-	-	-	-	-	-	-	-	
Organics																				
Phthalates (ug/kg dry weight, EPA Method 8270D)																				
Di-N-butyl phthalate	<710	<580	<730	<580	<620	<700	<660	<680	<620	-	<650	<620	<700	<710	<650	-	<620	<620	<590	
Diethyl phthalate	<710	<580	<730	<580	<620	<700	<660	<680	<620	-	<650	<620	<700	<710	<650	-	<620	<620	<590	
Dimethyl phthalate	<710	<580	<730	<580	<620	<700	<660	<680	<620	-	<650	<620	<700	<710	<650	-	<620	<620	<590	
Bis(2-ethylhexyl) phthalate	<710	<580	<730	<580	<620	<700	<660	<680	<620	-	<650	<620	<700	<710	<650	-	<620	<620	<590	
Butyl benzyl phthalate	<710	<580	<730	<580	<620	<700	<660	<680	<620	-	<650	<620	<700	<710	<650	-	<620	<620	<590	
Di-N-octyl phthalate	<710 V	<580 V	<730 V	<580	<620 V	<700 V	<660	<680 V	<620 V	-	<650 V	<620 V	<700	<710 V	<650 V	-	<620	<620	<590	
Organics																				
VOCs (ug/kg dry weight, EPA Method 8260C, unless otherwise noted)																				
1,2,4-Trimethylbenzene	<21	<18	<22	<18	<19	<21	<20	<20	<19	-	<20	<19	<21	<21	<20	-	<19	<19	<18	
1,2-Dibromoethane	<21	<18	<22	<18	<19	<21	<20	<20	<19	-	<20	<19	<21	<21	<20	-	<19	<19	<18	
1,3,5-Trimethylbenzene	<21	<18	<22	<18	<19	<21	<20	<20	<19	-	<20	<19	<21	<21	<20	-	<19	<19	<18	
2,4-Dinitrotoluene (EPA Method 8270D)	<710	<580	<730	<580	<620	<700	<660	<680	<620	-	<650	<620	<700	<710	<650	-	<620	<620	<590	
2,6-Dinitrotoluene (EPA Method 8270D)	<710	<580	<730	<580	<620	<700	<660	<680	<620	-	<650	<620	<700	<710	<650	-	<620	<620	<590	
2-Butanone	29	<18	<22	<18	<19	36	<20	26	37	-	35	<19	<21	53	29	-	<19	21	27	
2-Hexanone	<21	<18	<22	<18	<19	<21	<20	<20	<19	-	<20	<19	<21	<21	<20	-	<19	<19	<18	
4-Methyl-2-pentanone	<21	<18	<22	<18	<19	<21	<20	<20	<19	-	<20	<19	<21	<21	<20	-	<19	<19	<18	
Acetone	360	63	92	40	81	480	90	390	510	-	460	270	100	730	440	-	120	210	280	
Allyl chloride	<21	<18	<22	<18	<19	<21	<20	<20	<19	-	<20	<19	<21	<21	<20	-	<19	<19	<18	
Benzene	<21	<18	<22	<18	<19	<21	<20	<20	<19	-	<20	<19	<21	<21	<20	-	<19	<19	<18	
Bromobenzene	<21	<18	<22	<18	<19	<21	<20	<20	<19	-	<20	<19	<21	<21	<20	-	<19	<19	<18	
Bromochloromethane	<21	<18	<22	<18	<19	<21	<20	<20	<19	-	<20	<19	<21	<21	<20	-	<19	<19	<18	
Bromodichloromethane	<21	<18	<22	<18	<19	<21	<20	<20	<19	-	<20	<19	<21	<21	<20	-	<19	<19	<18	
Bromoform	<21	<18	<22	<18	<19	<21	<20	<20	<19	-	<20	<19	<21	<21	<20	-	<19	<19	<18	
Bromomethane	<21	<18	<22	<18	<19	<21	<20	<20	<19	-	<20	<19	<21	<21	<20	-	<19	<19	<18	
Carbon disulfide	<21	<18	<22	<18	<19	<21	<20	<20	<19	-	<20	<19	<21	<21	<20	-	<19	<19	<18	
Carbon tetrachloride	<21	<18	<22	<18	<19	<21	<20	<20	<19	-	<20	<19	<21	<21	<20	-	<19	<19	<18	
Chlorobenzene	<21	<18	<22	<18	<19	<21	<20	<20	<19	-	<20	<19	<21	<21	<20	-	<19	<19	<18	
Chloroethane	<21	<18	<22	<18	<19	<21	<20	<20	<19	-	<20	<19	<21	<21	<20	-	<19	<19	<18	
Chloroform	<21	<18	<22	<18	<19	<21	<20	<20	<19	-	<20	<19	<21	<21	<20	-	<19	<19	<18	
Chloromethane	<21	<18	<22	<18	<19	<21	<20	<20	<19	-	<20	<19	<21	<21	<20	-	<19	<19	<18	
cis-1,2-Dichloroethene	<21	<18	<22	<18	<19	<21	<20	<20	<19	-	<20	<19	<21	<21	<20	-	<19	<19	<18	
cis-1,3-Dichloropropene	<21	<18	<22	<18	<19	<21	<20	<20	<19	-	<20	<19	<21	<21	<20	-	<19	<19	<18	
Cyclohexane	<21	<18	<22	<18	<19	<21	<20	<20	<19	-	<20	<19	<21	<21	<20	-	<19	<19	<18	
Dibromochloromethane	<21	<18	<22	<18	<19	<21	<20	<20	<19	-	<20	<19	<21	<21	<20	-	<19	<19	<18	
Dibromomethane	<21	<18	<22	<18	<19	<21	<20	<20	<19	-	<20	<19	<21	<21	<20	-	<19	<19	<18	
Dichlorodifluoromethane	<21	<18	<22	<18	<19	<21	<20	<20	<19	-	<20	<19	<21	<21	<20	-	<19	<19	<18	
Dichlorofluoromethane	<21	<18	<22	<18	<19	<21	<20	<20	<19	-	<20	<19	<21	<21	<20	-	<19	<19	<18	
Diesel Ran_e Or_anics m_/kg, EPA Method 8015 DRO	<17	<14	<18	65	<15	<17	42	<16	<15	-	<16	<15	47	<17	<16	-	26	49	40	
Ethyl acetate	<21	<18	<22	<18	<19	<21	<20	<20	<19	-	<20	<19	<21	<21	<20	-	<19	<19	<18	
Ethyl ether	<21	<18	<22	<18	<19	<21	<20	<20	<19	-	<20	<19	<21	<21	<20	-	<19	<19	<18	
Ethyl methacrylate	<21	<18	<22	<18	<19	<21	<20	<20	<19	-	<20	<19	<21	<21	<20	-	<19	<19	<18	
Ethylbenzene	<21	<18	<22	<18	<19	<21	<20	<20	<19	-	<20	<19	<21	<21	<20	-	<19	<19	<18	
Freon 113	<21	<18	<22	<18	<19	<21	<20	<20	<19	-	<20	<19	<21	<21	<20	-	<19	<19	<18	
Iodomethane	<21	<18	<22	<18	<19	<21	<20	<20	<19	-	<20	<19	<21	<21	<20	-	<19	<19	<18	
Isopropylbenzene	<21	<18	<22	<18	<19	<21	<20	<20	<19	-	<20	<19	<21	<21	<20	-	<19	<19	<18	
meta, para-Xylene	<43	<36	<45	<36	<38	<42	<40	<41	<38	-	<39	<38	<42	<43	<40	-	<37	<38	<36	
Methyl acetate	<21	<18	<22	<18	<19	<21	<20	<20	<19	-	<20	<19	<21	<21	<20	-	<19	<19	<18	
Methylcyclohexane	<21	<18	<22	<18	<19	<21	<20	<20	<19	-	<20	<19	<21	<21	<20	-	<19	<19	<18	
Methylene chloride	<21	<18	<22	<18	<19	<21	<20	<20	<19	-	<20	<19	<21	<21	<20	-	<19	<19	<18	
MTBE	<21	<18	<22	<18	<19	<21	<20	<20	<19	-	<20	<19	<21	<21	<20	-	<19	<19	<18	
N-Butylbenzene	<21	<18	<22	<18	<19	<21	<20	<20	<19	-	<20	<19	<21	<21	<20	-	<19	<19	<18	

Analyte	Copco1 Reservoir - Sediment - Additional Analytes																	
	CDH-S-009A(0.0-4.6)	CDH-S-010(0.0-5.0)	CDH-S-010(5.0-8.0)	CDH-S-011(0.0-1.3)	CDH-S-012(0.0-5.4)	CDH-S-013(0.0-5.7)	CDH-S-014(0.0-5 3)	CDH-S-015A(0.0-5.0)	CDH-S-015A(5.0-9.7)	CDH-S-015A(0.0-9.7)	CDH-S-016(0.0-5.0)	CDH-S-016(5.0-7.5)	CDH-S-017(0.0-1.2)	CDH-S-018(0.0-5.0)	CDH-S-018(5.0-8.9)	CDH-S-018(0.0-8.9)	CDH-S-019(0.0-4.8)	CDH-S-020(0.0-5.0)	CDH-S-020(5.0-7.0)
N-Propylbenzene	<21	<18	<22	<18	<19	<21	<20	<20	<19	-	<20	<19	<21	<21	<20	-	<19	<19	<18
ortho-Xylene	<21	<18	<22	<18	<19	<21	<20	<20	<19	-	<20	<19	<21	<21	<20	-	<19	<19	<18
Pentachloroethane	<21	<18	<22	<18	<19	<21	<20	<20	<19	-	<20	<19	<21	<21	<20	-	<19	<19	<18
p-Isopropyltoluene	<21	<18	<22	<18	<19	<21	<20	<20	<19	-	<20	<19	<21	<21	<20	-	<19	<19	<18
Residual Range Organics (mg/kg, EPA Method 8015 RRO)	<170	<140	<180	320	<150	<170	180	<160	<150	-	<160	<150	220 T	<170	<160	-	<150 T	240 T	210 T
sec-Butylbenzene	<21	<18	<22	<18	<19	<21	<20	<20	<19	-	<20	<19	<21	<21	<20	-	<19	<19	<18
Styrene	<21	<18	<22	<18	<19	<21	<20	<20	<19	-	<20	<19	<21	<21	<20	-	<19	<19	<18
tert-Butylbenzene	<21	<18	<22	<18	<19	<21	<20	<20	<19	-	<20	<19	<21	<21	<20	-	<19	<19	<18
Tetrachloroethene	<21	<18	<22	<18	<19	<21	<20	<20	<19	-	<20	<19	<21	<21	<20	-	<19	<19	<18
Toluene	<21	<18	<22	<18	<19	<21	<20	<20	<19	-	<20	<19	<21	<21	<20	-	<19	<19	<18
Organics																			
SVOCs: Phenols (ug/kg dry weight, EPA Method 8270D unless otherwise noted)																			
2,4,5-Trichlorophenol	<710	<580	<730	<580	<620	<700	<660	<680	<620	-	<650	<620	<700	<710	<650	-	<620	<620	<590
2,4,6-Trichlorophenol	<710	<580	<730	<580	<620	<700	<660	<680	<620	-	<650	<620	<700	<710	<650	-	<620	<620	<590
2,4-Dichlorophenol	<710	<580	<730	<580	<620	<700	<660	<680	<620	-	<650	<620	<700	<710	<650	-	<620	<620	<590
2,4-Dimethylphenol	<710	<580	<730	<580	<620	<700	<660	<680	<620	-	<650	<620	<700	<710	<650	-	<620	<620	<590
2-Chlorophenol	<710	<580	<730	<580	<620	<700	<660	<680	<620	-	<650	<620	<700	<710	<650	-	<620	<620	<590
2-Methylphenol	<710	<580	<730	<580	<620	<700	<660	<680	<620	-	<650	<620	<700	<710	<650	-	<620	<620	<590
4-Chloro-3-methylphenol	<710	<580	<730	<580	<620	<700	<660	<680	<620	-	<650	<620	<700	<710	<650	-	<620	<620	<590
4-Methylphenol	<710	<580	<730	<580	<620	<700	<660	<680	<620	-	<650	<620	<700	<710	<650	-	<620	<620	<590
4-Nitrophenol	<2,900	<2,300	<2,900	<2,300	<620	<2,800	<2,700	<2,700	<2,500	-	<2,600	<2,500	<2,800	<2,800	<2,600	-	<2,500	<2,500	<2,400
Pentachlorophenol (EPA Method 8151A)	<14	<12	<15	<12	<13	<14	<13	<14	<13	-	<13	<13	<14	<14	<13	-	<12	<13	<12
Phenol	<710	<580	<730	<580	<620	<700	<660	<680	<620	-	<650	<620	<700	<710	<650	-	<620	<620	<590
2-Nitrophenol	<710	<580	<730	<580	<2,500	<700	<660	<680	<620	-	<650	<620	<700	<710	<650	-	<620	<620	<590
2,4-Dinitrophenol	<2,900	<2,300	<2,900	<2,300	<2,500	<2,800	<2,700	<2,700	<2,500	-	<2,600	<2,500	<2,800	<2,800	<2,600	-	<2,500	<2,500	<2,400
4,6-Dinitro-2-methylphenol	<2,900	<2,300	<2,900	<2,300	<2,500	<2,800	<2,700	<2,700	<2,500	-	<2,600	<2,500	<2,800	<2,800	<2,600	-	<2,500	<2,500	<2,400
Organics																			
SVOCs: Chlorinated hydrocarbons (ug/kg dry weight, EPA Method 8260C, unless otherwise noted)																			
1,1,1,2-Tetrachloroethane	<21	<18	<22	<18	<19	<21	<20	<20	<19	-	<20	<19	<21	<21	<20	-	<19	<19	<18
1,1,1-Trichloroethane	<21	<18	<22	<18	<19	<21	<20	<20	<19	-	<20	<19	<21	<21	<20	-	<19	<19	<18
1,1,2,2-Tetrachloroethane	<21	<18	<22	<18	<19	<21	<20	<20	<19	-	<20	<19	<21	<21	<20	-	<19	<19	<18
1,1,2-Trichloroethane	<21	<18	<22	<18	<19	<21	<20	<20	<19	-	<20	<19	<21	<21	<20	-	<19	<19	<18
1,1-Dichloroethane	<21	<18	<22	<18	<19	<21	<20	<20	<19	-	<20	<19	<21	<21	<20	-	<19	<19	<18
1,1-Dichloroethene	<21	<18	<22	<18	<19	<21	<20	<20	<19	-	<20	<19	<21	<21	<20	-	<19	<19	<18
1,1-Dichloropropene	<21	<18	<22	<18	<19	<21	<20	<20	<19	-	<20	<19	<21	<21	<20	-	<19	<19	<18
1,2,3-Trichlorobenzene	<21	<18	<22	<18	<19	<21	<20	<20	<19	-	<20	<19	<21	<21	<20	-	<19	<19	<18
1,2,3-Trichloropropane	<21	<18	<22	<18	<19	<21	<20	<20	<19	-	<20	<19	<21	<21	<20	-	<19	<19	<18
1,2,4-Trichlorobenzene	<21	<18	<22	<18	<19	<21	<20	<20	<19	-	<20	<19	<21	<21	<20	-	<19	<19	<18
1,2-Dibromo-3-chloropropane	<21	<18	<22	<18	<19	<21	<20	<20	<19	-	<20	<19	<21	<21	<20	-	<19	<19	<18
1,2-Dichlorobenzene	<21	<18	<22	<18	<19	<21	<20	<20	<19	-	<20	<19	<21	<21	<20	-	<19	<19	<18
1,2-Dichloroethane	<21	<18	<22	<18	<19	<21	<20	<20	<19	-	<20	<19	<21	<21	<20	-	<19	<19	<18
1,2-Dichloropropane	<21	<18	<22	<18	<19	<21	<20	<20	<19	-	<20	<19	<21	<21	<20	-	<19	<19	<18
1,3-Dichlorobenzene	<21	<18	<22	<18	<19	<21	<20	<20	<19	-	<20	<19	<21	<21	<20	-	<19	<19	<18
1,3-Dichloropropane	<21	<18	<22	<18	<19	<21	<20	<20	<19	-	<20	<19	<21	<21	<20	-	<19	<19	<18
1,4-Dichlorobenzene	<21	<18	<22	<18	<19	<21	<20	<20	<19	-	<20	<19	<21	<21	<20	-	<19	<19	<18
1-Chlorohexane	<21	<18	<22	<18	<19	<21	<20	<20	<19	-	<20	<19	<21	<21	<20	-	<19	<19	<18
2-Chloronaphthalene (EPA Method 8270D)	<710	<580	<730	<580	<620	<700	<660	<680	<620	-	<650	<620	<700	<710	<650	-	<620	<620	<590
2,2-Dichloropropane	<21	<18	<22	<18	<19	<21	<20	<20	<19	-	<20	<19	<21	<21	<20	-	<19	<19	<18
2-Chlorotoluene	<21	<18	<22	<18	<19	<21	<20	<20	<19	-	<20	<19	<21	<21	<20	-	<19	<19	<18
3,3'-Dichlorobenzidine (EPA Method 8270D)	<710	<580	<730	<580	<620	<700	<660	<680	<620	-	<650	<620	<700	<710	<650	-	<620	<620	<590
4-Chlorophenyl phenyl ether (EPA Method 8270D)	<710	<580	<730	<580	<620	<700	<660	<680	<620	-	<650	<620	<700	<710	<650	-	<620	<620	<590
4-Chlorotoluene	<21	<18	<22	<18	<19	<21	<20	<20	<19	-	<20	<19	<21	<21	<20	-	<19	<19	<18
Bis 2-chloroethox methane EPA Method 8270D	<710	<580	<730	<580	<620	<700	<660	<680	<620	-	<650	<620	<700	<710	<650	-	<620	<620	<590
Bis(2-chloroethyl) ether (EPA Method 8270D)	<710	<580	<730	<580	<620	<700	<660	<680	<620	-	<650	<620	<700	<710	<650	-	<620	<620	<590
Bis(2-chloroisopropyl) ether (EPA Method 8270D)	<710	<580	<730	<580	<620	<700	<660	<680	<620	-	<650	<620	<700	<710	<650	-	<620	<620	<590
Hexachlorobenzene (EPA Method 8270D)	<710	<580	<730	<580	<620	<700	<660	<680	<620	-	<650	<620	<700	<710	<650	-	<620	<620	<590
Hexachlorocyclopentadiene (EPA Method 8270D)	<710	<580	<730	<580	<620	<700	<660	<680	<620	-	<650	<620	<700	<710	<650	-	<620	<620	<590
Hexachlorobutadiene	<21	<18	<22	<18	<19	<21	<20	<20	<19	-	<20	<19	<21	<21	<20	-	<19	<19	<18
Hexachloroethane (EPA Method 8270D)	<710	<580	<730	<580	<620	<700	<660	<680	<620	-	<650	<620	<700	<710	<650	-	<620	<620	<590
trans-1,2-Dichloroethene	<21	<18	<22	<18	<19	<21	<20	<20	<19	-	<20	<19	<21	<21	<20	-	<19	<19	<18
trans-1,3-Dichloropropene	<21	<18	<22	<18	<19	<21	<20	<20	<19	-	<20	<19	<21	<21	<20	-	<19	<19	<18
trans-1,4-Dichloro-2-butene	<21	<18	<22	<18	<19	<21	<20	<20	<19	-	<20	<19	<21	<21	<20	-	<19	<19	<18
Trichloroethene	<21	<18	<22	<18	<19	<21	<20	<20	<19	-	<20	<19	<21	<21	<20	-	<19	<19	<18
Trichlorofluoromethane	<21	<18	<22	<18	<19	<21	<20	<20	<19	-	<20	<19	<21	<21	<20	-	<19	<19	<18

Copco1 Reservoir - Sediment - Additional Analytes

Analyte	CDH-S-009A(0.0-4.6)	CDH-S-010(0.0-5.0)	CDH-S-010(5.0-8.0)	CDH-S-011(0.0-1.3)	CDH-S-012(0.0-5.4)	CDH-S-013(0.0-5.7)	CDH-S-014(0.0-5 3)	CDH-S-015A(0.0-5.0)	CDH-S-015A(5.0-9.7)	CDH-S-015A(0.0-9.7)	CDH-S-016(0.0-5.0)	CDH-S-016(5.0-7.5)	CDH-S-017(0.0-1.2)	CDH-S-018(0.0-5.0)	CDH-S-018(5.0-8.9)	CDH-S-018(0.0-8.9)	CDH-S-019(0.0-4.8)	CDH-S-020(0.0-5.0)	CDH-S-020(5.0-7.0)
Organics																			
SVOCs: Other SVOCs (ug/kg dry weight, EPA Method 8270D unless otherwise noted)																			
2-Nitroaniline	<710	<580	<730	<580	<620	<700	<660	<680	<620	-	<650	<620	<700	<710	<650	-	<620	<620	<590
3-Nitroaniline	<710	<580	<730	<580	<620	<700	<660	<680	<620	-	<650	<620	<700	<710	<650	-	<620	<620	<590
4-Chloroaniline	<710	<580	<730	<580	<620	<700	<660	<680	<620	-	<650	<620	<700	<710	<650	-	<620	<620	<590
4-Nitroaniline	<710	<580	<730	<580	<620	<700	<660	<680	<620	-	<650	<620	<700	<710	<650	-	<620	<620	<590
Benzoic acid	<2,900	<2,300	<2,900	<2,300	<2,500	<2,800	<2,700	<2,700	<2,500	-	<2,600	<2,500	<2,800	<2,800	<2,600	-	<2,500	<2,500	<2,400
Benzyl alcohol	<710	<580	<730	<580	<620	<700	<660	<680	<620	-	<650	<620	<700	<710	<650	-	<620	<620	<590
Dibenzofuran	<710	<580	<730	<580	<620	<700	<660	<680	<620	-	<650	<620	<700	<710	<650	-	<620	<620	<590
Isophorone	<710	<580	<730	<580	<620	<700	<660	<680	<620	-	<650	<620	<700	<710	<650	-	<620	<620	<590
Nitrobenzene	<710	<580	<730	<580	<620	<700	<660	<680	<620	-	<650	<620	<700	<710	<650	-	<620	<620	<590
N-Nitrosodi-N-propylamine	<710	<580	<730	<580	<620	<700	<660	<680	<620	-	<650	<620	<700	<710	<650	-	<620	<620	<590
N-Nitrosodiphenylamine	<710	<580	<730	<580	<620	<700	<660	<680	<620	-	<650	<620	<700	<710	<650	-	<620	<620	<590
Pyridine	<710 L	<580 L	<730 L	<580 L	<620 L	<700 L	<660 L	<680 L	<620 L	-	<650 L	<620 L	<700 L	<710 L	<650 L	-	<620 L	<620 L	<590 L
Tetrahydrofuran (EPA Method 8260C)	<21	<18	<22	<18	<19	<21	<20	<20	<19	-	<20	<19	<21	<21	<20	-	<19	<19	<18
Biotoxins (ug/kg, analysis by LC-MSMS)																			
Microcystin-RR	-	-	-	-	-	-	<1 00	-	-	<1 00	-	-	-	-	-	<1 00	-	-	-
Microcystin-Desmethyl-RR	-	-	-	-	-	-	<1 00	-	-	<1 00	-	-	-	-	-	<1 00	-	-	-
Microcystin-LR	-	-	-	-	-	-	<1 00	-	-	<1 00	-	-	-	-	-	<1 00	-	-	-
Microcystin-Desmethyl-LR	-	-	-	-	-	-	<1 00	-	-	<1 00	-	-	-	-	-	<1 00	-	-	-
Microcystin-YR	-	-	-	-	-	-	<1 00	-	-	<1 00	-	-	-	-	-	<1 00	-	-	-
Microcystin-LA	-	-	-	-	-	-	<1 00	-	-	<1 00	-	-	-	-	-	<1 00	-	-	-
Microcystin-LW	-	-	-	-	-	-	<1 00	-	-	<1 00	-	-	-	-	-	<1 00	-	-	-
Microcystin-LF	-	-	-	-	-	-	<1 00	-	-	<1 00	-	-	-	-	-	<1 00	-	-	-
Microcystin-LY	-	-	-	-	-	-	<1 00	-	-	<1 00	-	-	-	-	-	<1 00	-	-	-
Anatoxin A	-	-	-	-	-	-	<5 00	-	-	<5 00	-	-	-	-	-	<5 00	-	-	-
Domoic cid a	-	-	-	-	-	-	<2 00	-	-	<2 00	-	-	-	-	-	<2 00	-	-	-
Okadaic cid a	-	-	-	-	-	-	<1 00	-	-	<1 00	-	-	-	-	-	<1 00	-	-	-

Qualifiers:
V: result may vary excessively from the true value
H: result may have a high bias
L: result may have a low bias
T: result obtained past the holding time
U: result determined to be an outlier at the time of data validation
- : no data
<: not detected at reporting limit shown
Chlorpyrifos: CDH-S-014(0 0-5 3) by Method GCMS-NCI-SIM and CDH-S-015A(0 0-0 9) by Method MLA-047 Rev 03

Analyte	Copco1 Reservoir - Sediment - Dioxins, Furans, PBDEs, and PCB Congeners	
	CDH-S-014 (0.0-5.3)	CDH-S-015A (0.0-9.7)
Organics		
Polychlorinated Dioxins and Furans (pg/g dry weight, EPA Method 8290A)		
2,3,7,8-TCDD	<0.17	<0.25
2,3,7,8-TCDF	1.2	0.99
1,2,3,7,8-PECDD	1.2	1.4
1,2,3,7,8-PECDF	0.84	<0.47
2,3,4,7,8-PECDF	1.9	1.8
1,2,3,4,7,8-HXCDD	1.7	1.9
1,2,3,6,7,8-HXCDD	8.8	9.8
1,2,3,7,8,9-HXCDD	4.3	4.2
1,2,3,6,7,8-HXCDF	5.5	3.5
1,2,3,7,8,9-HXCDF	1.0	<0.43
1,2,3,4,7,8-HXCDF	2.3	2.8
2,3,4,6,7,8-HXCDF	3.7	3.2
1,2,3,4,6,7,8-HPCDD	190	180
1,2,3,4,6,7,8-HPCDF	89	96
1,2,3,4,7,8,9-HPCDF	<2.9	<3.6
OCDD	1,500	1,200
OCDF	170	180
TOTAL HPCDD	390	330
TOTAL HPCDF	210	220
TOTAL HXCDD	73	70
TOTAL HXCDF	78	84
TOTAL PECDD	5.5	6 V
TOTAL PECDF	31	31
TOTAL TCDD	2.2	2.7
TOTAL TCDF	11	6.8
Organics		
PBDEs (pg/g dry weight, EPA Method 1614 unless otherwise noted)		
BDE-10	<0.83	<1.1
BDE-100	14	29
BDE-105	<4.3	<5.2
BDE-116	<5.2	<6.3
BDE-118	<3.7	<4.4
BDE-119/BDE-120	<3.4	<4.1
BDE-12/BDE-13	<0.46	<0.60
BDE-126	<2.9	<3.0
BDE-128	<16	<21
BDE-138/BDE-166	<12	<16
BDE-140	<6.3	<8.3
BDE-15	<1.4	<1.7
BDE-153	<7.2	<9.9
BDE-154	<4.3	<5.9
BDE-155	<3.7	<4.9
BDE-17/BDE-25	<7.0	18
BDE-181	<21	<23
BDE-183	<11	<11
BDE-190	<35	<38
BDE-203	<48	<28
BDE-206	<29	<37
BDE-207	<28	<36
BDE-208	<30 L	<39 L
BDE-209	140	190
BDE-28/BDE-33	5.2	<2.0
BDE-30	<1.4	<2.5
BDE-32	<1.0	<1.7
BDE-35	<0.87	<1.5
BDE-37	<0.86	<1.5
BDE-47	47	100
BDE-49	20	62
BDE-51	<4.6	<8.2
BDE-66	<1.5	<1.9
BDE-7	22	<0.91
BDE-71	<1.3	<1.6
BDE-75	<1.1	<1.4
BDE-77	<1.0	<1.3
BDE-79	<0.89	<1.2
BDE-8/BDE-11	<0.92	<2.9
BDE-85	<3.9	<4.7
BDE-99	34	110
DBDPE (EPA Method 1614 Mod)	<150	<180
HBB (EPA Method 1614 Mod)	<6.9	<4.7
PBEB (EPA Method 1614 Mod)	<1.7	<2.3
Organics		
PCBs (pg/g dry weight, EPA Method 1668A)		
PCB Congener 1	20 H, T	12 H, T
PCB Congener 100	<1.4 T	<0.93 T
PCB Congener 101/113/89	470 T	370 T
PCB Congener 104	<0.86 T	<0.61 T
PCB Congener 105/127	200 T	160 T
PCB Congener 108/83	27 T	18 T
PCB Congener 109/107	60 T	43 T
PCB Congener 11	170 H, T	130 H, T
PCB Congener 110	650 T	420 T
PCB Congener 112	<3.9 T	<1.9 T
PCB Congener 114	<10 T	<2.2 T
PCB Congener 115/116/87	200 T	140 T
PCB Congener 117/111	11 T	9.3 T
PCB Congener 118/106	580 T	460 T
PCB Congener 119	13 T	11 T
PCB Congener 12/13	<22 T	16 T
PCB Congener 122	<3.9 T	<2.2 T
PCB Congener 123	8.8 T	8.2 T
PCB Congener 124	<14 T	<10 T
PCB Congener 126	<4.5 T	<3.0 T
PCB Congener 128	180 T	110 T

Analyte	Copco1 Reservoir - Sediment - Dioxins, Furans, PBDEs, and PCB Congeners	
	CDH-S-014 (0.0-5.3)	CDH-S-015A (0.0-9.7)
PCB Congener 129	30 T	28 T
PCB Congener 130	48 T	<38 T
PCB Congener 132	310 T	<0.97 V, T
PCB Congener 133/165/131	9.8 T	7.9 T
PCB Congener 134	44 T	29 T
PCB Congener 135	84 T	<61 T
PCB Congener 136/154	110 T	74 T
PCB Congener 137	38 T	<24 T
PCB Congener 138/160	550 T	450 T
PCB Congener 139/149	580 T	430 T
PCB Congener 14	<21 T	<7.4 T
PCB Congener 140	<2.8 T	<0.89 T
PCB Congener 141	130 T	100 T
PCB Congener 142	<11 T	<0.91 T
PCB Congener 143	<2.7 T	<0.86 T
PCB Congener 144	26 T	<0.84 T
PCB Congener 145/148	<0.85 T	<0.84 T
PCB Congener 147	18 T	<8.0 T
PCB Congener 15	99 H, T	75 H, T
PCB Congener 150	<0.77 T	<0.75 T
PCB Congener 151	130 T	<98 T
PCB Congener 152	<0.72 T	<0.70 T
PCB Congener 155	<1.9 T	<0.40 T
PCB Congener 156	65 T	55 T
PCB Congener 157	14 T	12 T
PCB Congener 158	71 T	51 T
PCB Congener 159	<2.0 T	<0.63 T
PCB Congener 16/32	69 H, T	56 H, T
PCB Congener 161/146	83 T	78 T
PCB Congener 162	3.2 T	<0.71 T
PCB Congener 164/163	200 T	160 T
PCB Congener 166	<10 T	<0.64 T
PCB Congener 167	22 T	20 T
PCB Congener 168/153	580 T	530 T
PCB Congener 169	<2.1 T	<1.7 T
PCB Congener 17	38 H, T	37 H, T
PCB Congener 170/190	180 T	140 T
PCB Congener 171	<48 T	38 T
PCB Congener 173	3.7 T	4.0 T
PCB Congener 174	250 T	180 T
PCB Congener 175	9.4 T	<7.4 T
PCB Congener 176	<24 T	19 T
PCB Congener 177	130 T	90 T
PCB Congener 178	<45 T	<38 T
PCB Congener 179	94 T	<69 T
PCB Congener 18	110 H, T	99 H, T
PCB Congener 181	<3.0 T	<1.3 T
PCB Congener 182/187	330 T	280 T
PCB Congener 183	<92 T	100 T
PCB Congener 184	<1.5 T	<1.1 T
PCB Congener 185	29 T	21 T
PCB Congener 186	<1.6 T	<1.2 T
PCB Congener 188	<1.7 T	<1.4 T
PCB Congener 189	<8.1 T	<4.8 T
PCB Congener 19	10 T	<5.3 T
PCB Congener 191	<4.8 T	5.5 T
PCB Congener 192/172	29 T	25 T
PCB Congener 193/180	410 T	360 T
PCB Congener 194	120 T	110 T
PCB Congener 195	46 T	39 T
PCB Congener 196/203	190 T	180 T
PCB Congener 197	<4.4 T	7.3 T
PCB Congener 198	<8.4 T	<8.7 T
PCB Congener 199	220 T	220 T
PCB Congener 2	25 T	24 T
PCB Congener 20/33/21	140 H, T	100 H, T
PCB Congener 200	23 T	<14 T
PCB Congener 201	<28 T	28 T
PCB Congener 202	<41 T	50 T
PCB Congener 204	<2.0 T	<0.91 T
PCB Congener 205	<7.0 T	7.4 T
PCB Congener 206	210 T	230 T
PCB Congener 207	<29 T	28 T
PCB Congener 208	<85 T	93 T
PCB Congener 209	250 T	330 T
PCB Congener 22	86 H, T	67 H, T
PCB Congener 25	11 H, T	13 H, T
PCB Congener 26	25 H, T	25 H, T
PCB Congener 27/24	<7.6 T	8.0 H, T
PCB Congener 29	<4.4 T	<11 T
PCB Congener 3	39 T	31 T
PCB Congener 30	<1.1 T	<0.99 T
PCB Congener 31/28	390 H, T	380 H, T
PCB Congener 34/23	<4.5 T	<11 T
PCB Congener 35	12 H, T	<9.9 T
PCB Congener 36	<4.0 T	<9.6 T
PCB Congener 37	110 H, T	78 H, T
PCB Congener 38	<3.9 T	<9.5 T
PCB Congener 39	7.2 T	<9.0 T
PCB Congener 4/10	48 H, T	<13 T
PCB Congener 40/57	29 T	16 H, T
PCB Congener 41	<1.0 T	<0.74 T
PCB Congener 42	70 T	44 H, T
PCB Congener 43	<1.7 T	<1.2 T
PCB Congener 44	200 T	130 H, T
PCB Congener 45	23 H, T	15 H, T

Analyte	Copco1 Reservoir - Sediment - Dioxins, Furans, PBDEs, and PCB Congeners	
	CDH-S-014 (0.0-5.3)	CDH-S-015A (0.0-9.7)
PCB Congener 46/69/73	9.0 T	<4.4 T
PCB Congener 48/47/75	83 H, T	62 H, T
PCB Congener 49	150 T	120 T
PCB Congener 50	<1.4 T	<0.98 T
PCB Congener 51	7.6 T	4.8 T
PCB Congener 52	260 T	210 T
PCB Congener 53	19 H, T	14 H, T
PCB Congener 54	<1.0 T	<0.74 T
PCB Congener 55	5.0 H, T	<0.84 T
PCB Congener 56	100 T	89 T
PCB Congener 58	<1.2 T	1.3 T
PCB Congener 59	<1.2 T	<0.82 T
PCB Congener 6	<22 T	<9.1 T
PCB Congener 60	56 H, T	31 H, T
PCB Congener 62	<1.2 T	<0.85 T
PCB Congener 63	11 T	<7.6 T
PCB Congener 65	<1.1 T	<0.81 T
PCB Congener 66/80	250 T	190 T
PCB Congener 67	<7.7 T	5.8 H, T
PCB Congener 71	54 T	31 H, T
PCB Congener 72/64/68	130 T	86 H, T
PCB Congener 74/61	130 T	110 T
PCB Congener 76/70	340 T	280 T
PCB Congener 77	41 T	29 T
PCB Congener 78	5.8 T	<0.84 T
PCB Congener 79	<1.1 T	1.1 V, T
PCB Congener 8/5	92 H, T	54 H, T
PCB Congener 81	<1.3 T	<0.93 T
PCB Congener 82	83 T	50 T
PCB Congener 84/90	170 T	110 T
PCB Congener 85/120	86 T	59 T
PCB Congener 86/97/125	160 T	120 T
PCB Congener 88	<1.5 T	<1.0 T
PCB Congener 9/7	<22 T	<7.6 T
PCB Congener 91	65 T	47 T
PCB Congener 92	95 T	78 T
PCB Congener 94	<1.7 T	<1.2 T
PCB Congener 95/93/121	340 T	230 T
PCB Congener 96/103	<7.5 T	4.8 T
PCB Congener 98/102	<10 T	<8.1 T
PCB Congener 99	250 T	200 T

Qualifiers:
V: result may vary excessively from the true value
H: result may have a high bias
L: result may have a low bias
T: result obtained past the holding time
U: result determined to be an outlier at the time of data validation
- : no data
< : not detected at reporting limit shown

Analyte	Iron Gate Reservoir - Sediment - Standard Analytes														
	CDH-S-021(0.0-0.5)	CDH-S-021(0.0-0.9)	CDH-S-022(0.0-1.4)	CDH-S-023(0.0-5.4)	CDH-S-023(5.4-7.7)	CDH-S-024(0.0-4.1)	CDH-S-025(0.0-4.7)	CDH-S-026(0.0-2.0)	CDH-S-027(0.0-1.9)	CDH-S-028(0.0-1.0)	CDH-S-029(0.0-4.8)	CDH-S-030(0.0-2.9)	CDH-S-031(0.0-4.8)	CDH-S-032(0.0-3.4)	CDH-S-046(0.0-2.5)
Conventionals (units and methods vary, all dry weights except pH and EC)															
pH (EPA Method 9045)	6.8	-	6.7	7.0	7.3	6.9	7.4	7.3	7.1	7.1	7.4	6.9	7.1	7.4	7.2
EC (umhos/cm, Standard Methods 2510B)	130	-	82	330	290	310	340	92	130	100	220	910	130	280	150
Calcium (mg/kg, EPA Method 6010B)	8,100	-	7,600	8,000	3,800	7,500	5,500	8,300	6,500	8,300	5,800	5,300	6,900	4,900	6,700
Magnesium (mg/kg, EPA Method 6010B)	4,700	-	6,400	5,500	3,900	5,700	6,000	8,600	6,800	7,200	6,600	6,000	6,800	5,700	6,600
Ammonia as N (mg/kg, EPA Method 350.1)	47	-	27	140	130	77	100	17	28	29	90	120	24	120	60
Total Nitrogen as N (mg/kg, EPA Method 351.2)	1,400	-	760	810	880	710	1,100	740	720	700	1,000	900	730	1,000	1,000
Total Phosphorus as P (mg/kg, Standard Methods 4500P Mod)	260	-	370	350	180	370	190	170	220	180	180	250	160	160	240
Cyanide, WAD (mg/kg, Standard Methods 4500CN I)	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Total Solids (mg/kg, Standard Methods 2540B)	360,000	-	260,000	510,000	540,000	440,000	240,000	260,000	270,000	250,000	250,000	250,000	250,000	230,000	290,000
Total Volatile Solids (mg/kg, Standard Methods 2540G)	58,000	-	29,000	55,000	56,000	42,000	26,000	27,000	28,000	25,000	24,000	26,000	28,000	23,000	27,000
TOC (%, Method USGS:N011, T10 USGS:C011, T08)	7.19	-	4.46	3.82	3.16	3.39	4.5	3.31	3.67	3.18	3.83	4.12	3.8	4.37	3.62
Metals & AVS (mg/kg dry weight, EPA Method 6020 unless otherwise noted)															
Aluminum	24,000	-	28,000	38,000	38,000	39,000	36,000	40,000	39,000	44,000	34,000	36,000	41,000	34,000	35,000
Antimony	<0.54	-	<0.62	<0.42	<0.38	<0.45	<0.89	<0.85	<0.75	<0.84	<0.81	<0.78	<0.87	<0.87	<0.71
Arsenic	9.9	-	7.5	7.4	8.1	8.0	10	7.5	8.9	7.7	7.7	8.8	9.3	7.7	8.4
Cadmium	<0.27	-	<0.31	<0.21	<0.19	<0.23	<0.45	<0.42	<0.37	<0.42	<0.40	<0.39	<0.43	<0.43	<0.35
Chromium	26	-	29	38	40	44	37	42	32	40	34	35	48	35	28
Copper	17	-	23	30	32	27	31	38	27	38	28	26	37	28	28
Iron (EPA Method 6010B)	19,000	-	28,000	26,000	14,000	30,000	30,000	31,000	30,000	30,000	29,000	28,000	27,000	27,000	32,000
Lead	5.7	-	7.8	5.1	5.3	5.9	9.3	10	8.4	11	9.1	8.5	10	9.2	8.4
Mercury (EPA Method 7471A)	<0.11	-	<0.12	<0.083	<0.075	<0.091	<0.18	<0.17	<0.15	<0.17	<0.16	<0.16	<0.17	<0.17	<0.14
Nickel	18	-	19	27	28	31	28	33	23	27	25	26	31	24	20
Selenium	1.0	-	0.64	0.46	0.50	0.60	<0.85	<0.84	<0.77	<0.82	<0.83	<0.79	<0.78	<0.87	<0.70
Silver (EPA Method 6010B)	<1.4	-	<1.5	<1.0	<0.94	<1.1	<2.2	<2.1	<1.9	<2.1	<2.0	<2.0	<2.2	<2.2	<1.8
Zinc	52	-	50	51	56	55	53	60	57	69	50	54	63	51	56
Acid Volatile Sulfides (EPA Method 821/R-91-100)	-	-	-	-	-	-	-	-	-	-	340	-	78	-	-
Organics **SVOCs: PAHs (ug/kg dry weight, EPA Method 8270D unless otherwise noted)**															
Acenaphthene	<420 T	<520	<470	<330	<310	<370	<710	<640	<590	<600	<700	<170	<630	<730	<630
Acenaphthylene	<420 T	<520	<470	<330	<310	<370	<710	<640	<590	<600	<700	<170	<630	<730	<630
Anthracene	<420 T	<520	<470	<330	<310	<370	<710	<640	<590	<600	<700	<170	<630	<730	<630
Benzo(a)anthracene	<420 T	<520	<470	<330	<310	<370	<710	<640	<590	<600	<700	<170	<630	<730	<630
Benzo(a)pyrene	<420 T	<520	<470	<330	<310	<370	<710	<640	<590	<600	<700	<170	<630	<730	<630
Benzo(b)fluoranthene	<420 T	<520	<470	<330	<310	<370	<710	<640	<590	<600	<700	<170	<630	<730	<630
Benzo(g,h,i)perylene	<420 T	<520	<470	<330	<310	<370	<710	<640	<590	<600	<700	<170	<630	<730	<630
Benzo(k)fluoranthene	<420 T	<520	<470	<330	<310	<370	<710	<640	<590	<600	<700	<170	<630	<730	<630
4-Bromophenyl phenyl ether	<420 T	<520	<470	<330	<310	<370	<710	<640	<590	<600	<700	<170	<630	<730	<630
Chrysene	<420 T	<520	<470	<330	<310	<370	<710	<640	<590	<600	<700	<170	<630	<730	<630
Dibenzo(a,h)anthracene	<420 T	<520	<470	<330	<310	<370	<710	<640	<590	<600	<700	<170	<630	<730	<630
Fluoranthene	<420 T	<520	<470	<330	<310	<370	<710	<640	<590	<600	<700	<170	<630	<730	<630
Fluorene	<420 T	<520	<470	<330	<310	<370	<710	<640	<590	<600	<700	<170	<630	<730	<630
Indeno(1,2,3-cd)pyrene	<420 T	<520	<470	<330	<310	<370	<710	<640	<590	<600	<700	<170	<630	<730	<630
2-Methyl naphthalane	<420 T	<520	<470	<330	<310	<370	<710	<640	<590	<600	<700	<170	<630	<730	<630
Naphthalene (EPA Method 8260C except CDH-S-21[0.0-0.9] by 8270D)	<15	<520	<14	<9.9	<9.3	<11	<21	<19	<18	<19	<21	<5.0	<19	<22	<19
Phenanthrene	<420 T	<520	<470	<330	<310	<370	<710	<640	<590	<600	<700	<170	<630	<730	<630
Pyrene	<420 T	<520	<470	<330	<310	<370	<710	<640	<590	<600	<700	<170	<630	<730	<630
Organics **PCBs (ug/g dry weight, EPA Method 8082 unless otherwise noted)**															
Aroclor 1016	<0.098	-	<0.096	<0.066	<0.062	<0.075	<0.14	<0.13	<0.12	<0.12	<0.14	<0.033	<0.13	<0.15	<0.13
Aroclor 1221	<0.20	-	<0.19	<0.13	<0.12	<0.15	<0.29	<0.26	<0.24	<0.25	<0.28	<0.067	<0.26	<0.30	<0.25
Aroclor 1232	<0.098	-	<0.096	<0.066	<0.062	<0.075	<0.14	<0.13	<0.12	<0.12	<0.14	<0.033	<0.13	<0.15	<0.13
Aroclor 1242	<0.098	-	<0.096	<0.066	<0.062	<0.075	<0.14 L	<0.13	<0.12	<0.12	<0.14 L	<0.033	<0.13	<0.15 L	<0.13 L
Aroclor 1248	<0.098	-	<0.096	<0.066	<0.062	<0.075	<0.14	<0.13	<0.12	<0.12	<0.14	<0.033	<0.13	<0.15	<0.13
Aroclor 1254	<0.098	-	<0.096	<0.066	<0.062	<0.075	<0.14	<0.13	<0.12	<0.12	<0.14	<0.033	<0.13	<0.15	<0.13
Aroclor 1260	<0.098	-	<0.096	<0.066	<0.062	<0.075	<0.14	<0.13	<0.12	<0.12	<0.14	<0.033	<0.13	<0.15	<0.13
Aroclor 1268	<0.098	-	<0.096	<0.066	<0.062	<0.075	<0.14	<0.13	<0.12	<0.12	<0.14	<0.033	<0.13	<0.15	<0.13
Total PCBs (pg/g) (EPA Method 1668A)	-	-	-	-	-	-	-	-	-	-	13,000 T	-	11,000 T	-	8,100 T

Analyte	Iron Gate Reservoir - Sediment - Standard Analytes														
	CDH-S-021(0.0-0.5)	CDH-S-021(0.0-0.9)	CDH-S-022(0.0-1.4)	CDH-S-023(0.0-5.4)	CDH-S-023(5.4-7.7)	CDH-S-024(0.0-4.1)	CDH-S-025(0.0-4.7)	CDH-S-026(0.0-2.0)	CDH-S-027(0.0-1.9)	CDH-S-028(0.0-1.0)	CDH-S-029(0.0-4.8)	CDH-S-030(0.0-2.9)	CDH-S-031(0.0-4.8)	CDH-S-032(0.0-3.4)	CDH-S-046(0.0-2.5)
Organics															
Pesticides/Herbicides: Organochlorine Pesticides (ug/kg dry weight, EPA Method 8081A unless otherwise noted)															
Aldrin	<1.7 T	<2.1	<1.9	<1.3	<1.2	<1.5	<2.9	<2.6	<2.4	<2.5	<2.8	<0.67	<2.6	<3.0	<2.5
Chlordane (Technical)	<8.5 T	<10	<9.6	<6.6	<6.2	<7.5	<14	<13	<12	<12	<14	<3.3	<13	<15	<13
Chlordane-Alpha	<1.7 T	<2.1	<1.9	<1.3	<1.2	<1.5	<2.9	<2.6	<2.4	<2.5	<2.8	<0.67	<2.6	<3.0	<2.5
Chlordane-Gamma	<1.7 T	<2.1	<1.9	<1.3	<1.2	<1.5	<2.9	<2.6	<2.4	<2.5	<2.8	<0.67	<2.6	<3.0	<2.5
4,4'-DDT	<1.7 T	<2.1	<1.9	<1.3	<1.2	<1.5	<2.9	<2.6	<2.4	<2.5	<2.8	<0.67	<2.6	<3.0	<2.5
4,4'-DDD	<1.7 T	<2.1	<1.9	<1.3	<1.2	<1.5	<2.9	<2.6	<2.4	<2.5	<2.8	<0.67	<2.6	<3.0	<2.5
4,4'-DDE	<1.7 T	<2.1	<1.9	<1.3	<1.2	<1.5	<2.9	<2.6	<2.4	<2.5	<2.8	<0.67	<2.6	<3.0	<2.5
2,4'-DDT (ENV by GC-MS Specialty)	<97	-	<95	<65	<61	<75	<140	<130	<120	<120	<140	<33	<130	<150	<130
2,4'-DDD (ENV by GC-MS Specialty)	<97	-	<95	<6.5	<6.1	<75	<14	<13	<120	<12	<14	<33	<13	<15	<13
2,4'-DDE (ENV by GC-MS Specialty)	<97	-	<95	<6.5	<6.1	<75	<14	<13	<120	<12	<14	<33	<13	<15	<13
Dieldrin	<1.7 T	<2.1	<1.9	<1.3	<1.2	<1.5	<2.9	<2.6	<2.4	<2.5	<2.8	<0.67	<2.6	<3.0	<2.5
Endosulfan I	<1.7 T	<2.1	<1.9 L	<1.3 L	<1.2 L	<1.5 L	<2.9 L	<2.6 L	<2.4 L	<2.5 L	<2.8 L	<0.67 L	<2.6 L	<3.0 L	<2.5 L
Endosulfan II	<1.7 T	2.6	<1.9 L	<1.3 L	<1.2 L	<1.5 L	<2.9 L	<2.6 L	<2.4 L	<2.5 L	<2.8 L	<0.67 L	<2.6 L	<3.0 L	<2.5 L
Endosulfan Sulfate	<1.7 T	<2.1	<1.9	<1.3	<1.2	<1.5	<2.9	<2.6	<2.4	<2.5	<2.8	<0.67	<2.6	<3.0	<2.5
Endrin	<1.7 T	<2.1	<1.9	<1.3	<1.2	<1.5	<2.9 V	<2.6	<2.4	<2.5	<2.8	<0.67	<2.6	<3.0	<2.5
Endrin Aldehyde	<1.7 T	<2.1	<1.9	<1.3	<1.2	<1.5	<2.9	<2.6	<2.4	<2.5	<2.8	<0.67	<2.6	<3.0	<2.5
Endrin Ketone	<1.7 T	<2.1	<1.9	<1.3	<1.2	<1.5	<2.9	<2.6	<2.4	<2.5	<2.8	<0.67	<2.6	<3.0	<2.5
Heptachlor	<1.7 T	<2.1	<1.9	<1.3	<1.2	<1.5	<2.9	<2.6	<2.4	<2.5	<2.8	<0.67	<2.6	<3.0	<2.5
Heptachlor Epoxide	<1.7 T	<2.1	<1.9	<1.3	<1.2	<1.5	<2.9	<2.6	<2.4	<2.5	<2.8	<0.67	<2.6	<3.0	<2.5
HCH - Alpha	<1.7 T	<2.1	<1.9	<1.3	<1.2	<1.5	<2.9	<2.6	<2.4	<2.5	<2.8 V	<0.67	<2.6	<3.0 V	<2.5 V
HCH - Beta	<1.7 T	<2.1	<1.9	<1.3	<1.2	<1.5	<2.9	<2.6	<2.4	<2.5	<2.8	<0.67	<2.6	<3.0	<2.5
HCH - Delta	<1.7 T	<2.1	<1.9	<1.3	<1.2	<1.5	<2.9	<2.6	<2.4	<2.5	<2.8	<0.67	<2.6	<3.0	<2.5
HCH - Gamma	<1.7 T	<2.1	<1.9	<1.3	<1.2	<1.5	<2.9	<2.6	<2.4	<2.5	<2.8	<0.67	<2.6	<3.0	<2.5
Methoxychlor	<1.7 T	<2.1	<1.9	<1.3	<1.2	<1.5	<2.9	<2.6	<2.4	<2.5	<2.8	<0.67	<2.6	<3.0	<2.5
Toxaphene	<85 T	<100	<96	<66	<62	<75	<140	<130	<120	<120	<140	<33	<130	<150	<130
Particle Size Fraction (% dry weight)															
Fines (<0.005 mm)	27.4	-	42.2	31.9	27.5	39.5	-	71.0	71.1	66.8	-	-	55.7	-	-
Fines (0.005 to 0.075 mm)	33.1	-	48.9	39.0	45.7	46.4	-	26.7	28.0	30.3	-	-	27.4	-	-
Sand (#200 to #4)	39.5	-	8.9	29.1	26.8	14.1	-	2.3	0.9	2.9	-	-	12.9	-	-
Gravel (#4 to 3 inch)	0.0	-	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	-	-	4.0	-	-
Cobbles (3 to 5 inch)	0.0	-	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	-	-	0.0	-	-
Oversize (> 5 inch)	0.0	-	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	-	-	0.0	-	-

	CDH-S-021(1.1-1.3)		CDH-S-023(0.0-7.1)	CDH-S-023(7.1-8.8)		CDH-S-025(0.0-5.0)		CDH-S-027(3.1-4.2)	CDH-S-027(4.2-4.8)	CDH-S-029(0.0-2.7)	CDH-S-030(0.0-2.5)		CDH-S-032(0.0-4.3)	CDH-S-032(4.3-5.1)
Particle Size Fraction (% dry weight)														
Fines (<0.005 mm)	29.9		26.4	24.0		64.1		67.5	64.0	75.3	65.8		74.7	9.4
Fines (0.005 to 0.075 mm)	39.2		45.4	31.2		26.8		30.9	21.9	17.9	25.6		22.4	10.1
Sand (#200 to #4)	30.9		28.2	44.8		9.1		1.6	14.1	6.8	8.6		2.9	23.8
Gravel (#4 to 3 inch)	0.0		0.0	0.0		0.0		0.0	0.0	0.0	0.0		0.0	56.7
Cobbles (3 to 5 inch)	0.0		0.0	0.0		0.0		0.0	0.0	0.0	0.0		0.0	0.0
Oversize (> 5 inch)	0.0		0.0	0.0		0.0		0.0	0.0	0.0	0.0		0.0	0.0

Qualifiers:
V: result may vary excessively from the true value
H: result may have a high bias
L: result may have a low bias
T: result obtained past the holding time
U: result determined to be an outlier at the time of data validation
- : no data
< : not detected at reporting limit shown

Analyte	Iron Gate Reservoir - Sediment - Additional Analytes														
	CDH-S-021(0.0-0.5)	CDH-S-021(0.0-0.9)	CDH-S-022(0.0-1.4)	CDH-S-023(0.0-5.4)	CDH-S-023(5.4-7.7)	CDH-S-024(0.0-4.1)	CDH-S-025(0.0-4.7)	CDH-S-026(0.0-2.0)	CDH-S-027(0.0-1.9)	CDH-S-028(0.0-1.0)	CDH-S-029(0.0-4.8)	CDH-S-030(0.0-2.9)	CDH-S-031(0.0-4.8)	CDH-S-032(0.0-3.4)	CDH-S-046(0.0-2.5)
Organics															
Pesticides/Herbicides: Organophosphate Pesticides (ug/kg dry weight, EPA Method 8141A unless otherwise noted)															
0,0,0-Triethylphosphorothioate	-	-	-	-	-	-	-	-	-	-	<330	-	<330	-	-
Azinphosmethyl	-	-	-	-	-	-	-	-	-	-	<330	-	<330	-	-
Magnesium (mg/kg, EPA Method 6010B)	-	-	-	-	-	-	-	-	-	-	<330	-	<330	-	-
Chlorpyrifos (CDH-S-029[0.0-4.8] by GCMS-NCI-SIM, also see footnote)	-	-	-	-	-	-	-	-	-	-	<0.33 ,	-L V	<330	-	-
Coumaphos	-	-	-	-	-	-	-	-	-	-	<330	-	<330	-	-
Demeton	-	-	-	-	-	-	-	-	-	-	<330	-	<330	-	-
Demeton-O	-	-	-	-	-	-	-	-	-	-	<330	-	<330	-	-
Demeton-S	-	-	-	-	-	-	-	-	-	-	<330	-	<330	-	-
Diazinon (CDH-S-029[0.0-4.8] by MLA-047-Rev 03)	-	-	-	-	-	-	-	-	-	-	<0.018	-	<330	-	-
Dichlorvos	-	-	-	-	-	-	-	-	-	-	<330	-	<330	-	-
Dimethoate	-	-	-	-	-	-	-	-	-	-	<330 L, V	-	<330	-	-
Disulfoton	-	-	-	-	-	-	-	-	-	-	<330	-	<330	-	-
EPN	-	-	-	-	-	-	-	-	-	-	<330	-	<330	-	-
Ethoprop	-	-	-	-	-	-	-	-	-	-	<330	-	<330	-	-
Famphur	-	-	-	-	-	-	-	-	-	-	<330 L	-	<330	-	-
Fensulfothion	-	-	-	-	-	-	-	-	-	-	<330	-	<330	-	-
Fenthion	-	-	-	-	-	-	-	-	-	-	<330	-	<330	-	-
Malathion	-	-	-	-	-	-	-	-	-	-	<330	-	<330	-	-
Methyl arathion p	-	-	-	-	-	-	-	-	-	-	<330	-	<330	-	-
Mevinphos	-	-	-	-	-	-	-	-	-	-	<330	-	<330	-	-
Parathion	-	-	-	-	-	-	-	-	-	-	<330	-	<330	-	-
Phorate	-	-	-	-	-	-	-	-	-	-	<330	-	<330	-	-
Ronnel	-	-	-	-	-	-	-	-	-	-	<330	-	<330	-	-
Stirophos	-	-	-	-	-	-	-	-	-	-	<330	-	<330	-	-
Sulfotep	-	-	-	-	-	-	-	-	-	-	<330	-	<330	-	-
Thionazin	-	-	-	-	-	-	-	-	-	-	<330	-	<330	-	-
Tokuthion	-	-	-	-	-	-	-	-	-	-	<330	-	<330	-	-
Trichloronate r irchloronat o T	-	-	-	-	-	-	-	-	-	-	<330	-	<330	-	-
Organics															
Pesticides/Herbicides: Carbamate Pesticides (ug/kg dry weight, Sample CDH-S-029[0.0-4.8] by Method MLA-047 Rev 03, Sample CDH-S-031[0.0-4.8] by Method 8321, unless otherwise noted)															
3-Hydroxycarbofuran	-	-	-	-	-	-	-	-	-	-	<0.18	-	<9.7	- L	-
Aldicarb	-	-	-	-	-	-	-	-	-	-	<0.18	-	<9.7	- L	-
Aldicarb ulfone S	-	-	-	-	-	-	-	-	-	-	<0.37	-	<4.9	- L	-
Aldicarb ulfoxide S	-	-	-	-	-	-	-	-	-	-	<0.18	-	<97	-	-
Aminocarb	-	-	-	-	-	-	-	-	-	-	<0.18	-	-	-	-
Bendiocarb	-	-	-	-	-	-	-	-	-	-	<0.37	-	-	-	-
Carbaryl	-	-	-	-	-	-	-	-	-	-	<0.18	-	<4.9	- L	-
Carbazole (EPA Method 8270D)	<420 T, V	<520	<470	<330	<310	<370	<710	<640	<590	<600	<700	<170	<630	<730	<630
Carbofuran	-	-	-	-	-	-	-	-	-	-	<0.18	-	<0.97 ,	-L V	-
Dioxacarb	-	-	-	-	-	-	-	-	-	-	<0.18	-	-	-	-
Imidacloprid	-	-	-	-	-	-	-	-	-	-	<0.37	-	-	-	-
Methiocarb	-	-	-	-	-	-	-	-	-	-	<0.37	-	<3.9	- L	-
Methomyl	-	-	-	-	-	-	-	-	-	-	<0.18	- L	<3.9	- L	-
Mexacarbate	-	-	-	-	-	-	-	-	-	-	<0.18	-	-	-	-
Oxamyl	-	-	-	-	-	-	-	-	-	-	<0.19	- L	<32	-	-
Piperonyl butoxide	-	-	-	-	-	-	-	-	-	-	0.025	-	-	-	-
Pirimicarb	-	-	-	-	-	-	-	-	-	-	<0.18	-	-	-	-
Promecarb	-	-	-	-	-	-	-	-	-	-	<0.37	-	-	-	-
Propoxur	-	-	-	-	-	-	-	-	-	-	<0.18	-	<0.97	- L	-

Analyte	Iron Gate Reservoir - Sediment - Additional Analytes														
	CDH-S-021(0.0-0.5)	CDH-S-021(0.0-0.9)	CDH-S-022(0.0-1.4)	CDH-S-023(0.0-5.4)	CDH-S-023(5.4-7.7)	CDH-S-024(0.0-4.1)	CDH-S-025(0.0-4.7)	CDH-S-026(0.0-2.0)	CDH-S-027(0.0-1.9)	CDH-S-028(0.0-1.0)	CDH-S-029(0.0-4.8)	CDH-S-030(0.0-2.9)	CDH-S-031(0.0-4.8)	CDH-S-032(0.0-3.4)	CDH-S-046(0.0-2.5)
Organics															
Pesticides/Herbicides: Pyrethroids (Insecticides) (ug/kg dry weight, Method GCMS-NCI-SIM)															
Allethrin	-	-	-	-	-	-	-	-	-	-	<0.33 ,	-L V	<0.33	- L	-
Bifenthrin	-	-	-	-	-	-	-	-	-	-	<0.33	- V	<0.33	-	-
Cyfluthrin	-	-	-	-	-	-	-	-	-	-	<0.33	- V	<0.33	-	-
Cypermethrin	-	-	-	-	-	-	-	-	-	-	<0.33	- V	<0.33	-	-
Deltamethrin: ralomethrin t	-	-	-	-	-	-	-	-	-	-	<0.33	- V	<0.33	-	-
Esfenvalerate: envalerate f	-	-	-	-	-	-	-	-	-	-	<0.33	- V	<0.33	-	-
Fenpropathrin	-	-	-	-	-	-	-	-	-	-	<0.33	- V	<0.33	-	-
Lambda-cyhalothrin	-	-	-	-	-	-	-	-	-	-	<0.33	- V	<0.33	- L	-
Permethrin Total) (	-	-	-	-	-	-	-	-	-	-	<0.33	- V	1.4	-H	-
Tau-Fluvalinate	-	-	-	-	-	-	-	-	-	-	<0.33	- V	<0.33	-	-
Tetramethrin	-	-	-	-	-	-	-	-	-	-	<0.33	- V	<0.33	- L	-
Organics															
Phthalates (ug/kg dry weight, EPA Method 8270D)															
Di-N-butyl phthalate	<420 T	<520	<470	<330	<310	<370	<710	<640	<590	<600	<700	<170	<630	<730	<630
Diethyl phthalate	<420 T	<520	<470	<330	<310	<370	<710	<640	<590	<600	<700	<170	<630	<730	<630
Dimethyl phthalate	<420 T	<520	<470	<330	<310	<370	<710	<640	<590	<600	<700	<170	<630	<730	<630
Bis(2-ethylhexyl) phthalate	<420 T	<520	<470	<330	<310	<370	<710	<640	<590	<600	<700	<170	<630	<730	<630
Butyl benzyl phthalate	<420 T	<520	<470	<330	<310	<370	<710	<640	<590	<600	<700	<170	<630	<730	<630
Di-N-octyl phthalate	<420 T	<520	<470	<330 V	<310 V	<370	<710	<640 V	<590	<600 V	<700	<170	<630 V	<730	<630
Organics															
VOCs (ug/kg dry weight, EPA Method 8260C, unless otherwise noted)															
1,2,4-Trimethylbenzene	<15	-	<14	<9.9	<9.3	<11	<21	<19	<18	<19	<21	<5.0	<19	<22	<19
1,2-Dibromoethane	<15	-	<14	<9.9	<9.3	<11	<21	<19	<18	<19	<21	<5.0	<19	<22	<19
1,3,5-Trimethylbenzene	<15	-	<14	<9.9	<9.3	<11	<21	<19	<18	<19	<21	<5.0	<19	<22	<19
2,4-Dinitrotoluene (EPA Method 8270D)	<420 T	<520	<470	<330	<310	<370	<710	<640	<590	<600	<700	<170	<630	<730	<630
2,6-Dinitrotoluene (EPA Method 8270D)	<420 T	<520	<470	<330	<310	<370	<710	<640	<590	<600	<700	<170	<630	<730	<630
2-Butanone	130	-	<14	<9.9	11	<11	58	<19	<18	<19	40	5.4	<19	41	29
2-Hexanone	<15	-	<14	<9.9	<9.3	<11	<21	<19	<18	<19	<21	<5.0	<19	<22	<19
4-Methyl-2-pentanone	<15	-	<14	<9.9	<9.3	<11	<21	<19	<18	<19	<21	<5.0	<19	<22	<19
Acetone	530	-	150	35	160	70	620	160	150	170	470	77	36	440	320
Allyl chloride	<15	-	<14	<9.9	<9.3	<11	<21	<19	<18	<19	<21	<5.0	<19	<22	<19
Benzene	<15	-	<14	<9.9	<9.3	<11	<21	<19	<18	<19	<21	<5.0	<19	<22	<19
Bromobenzene	<15	-	<14	<9.9	<9.3	<11	<21	<19	<18	<19	<21	<5.0	<19	<22	<19
Bromochloromethane	<15	-	<14	<9.9	<9.3	<11	<21	<19	<18	<19	<21	<5.0	<19	<22	<19
Bromodichloromethane	<15	-	<14	<9.9	<9.3	<11	<21	<19	<18	<19	<21	<5.0	<19	<22	<19
Bromoform	<15	-	<14	<9.9	<9.3	<11	<21	<19	<18	<19	<21	<5.0	<19	<22	<19
Bromomethane	<15	-	<14	<9.9	<9.3	<11	<21	<19	<18	<19	<21	<5.0	<19	<22	<19
Carbon disulfide	<15	-	<14	<9.9	<9.3	<11	<21	<19	<18	<19	<21	<5.0	<19	<22	<19
Carbon tetrachloride	<15	-	<14	<9.9	<9.3	<11	<21	<19	<18	<19	<21	<5.0	<19	<22	<19
Chlorobenzene	<15	-	<14	<9.9	<9.3	<11	<21	<19	<18	<19	<21	<5.0	<19	<22	<19
Chloroethane	<15	-	<14	<9.9	<9.3	<11	<21	<19	<18	<19	<21	<5.0	<19	<22	<19
Chloroform	<15	-	<14	<9.9	<9.3	<11	<21	<19	<18	<19	<21	<5.0	<19	<22	<19
Chloromethane	<15	-	<14	<9.9	<9.3	<11	<21	<19	<18	<19	<21	<5.0	<19	<22	<19
cis-1,2-Dichloroethene	<15	-	<14	<9.9	<9.3	<11	<21	<19	<18	<19	<21	<5.0	<19	<22	<19
cis-1,3-Dichloropropene	<15	-	<14	<9.9	<9.3	<11	<21	<19	<18	<19	<21	<5.0	<19	<22	<19
Cyclohexane	<15	-	<14	<9.9	<9.3	<11	<21	<19	<18	<19	<21	<5.0	<19	<22	<19
Dibromochloromethane	<15	-	<14	<9.9	<9.3	<11	<21	<19	<18	<19	<21	<5.0	<19	<22	<19
Dibromomethane	<15	-	<14	<9.9	<9.3	<11	<21	<19	<18	<19	<21	<5.0	<19	<22	<19
Dichlorodifluoromethane	<15	-	<14	<9.9	<9.3	<11	<21	<19	<18	<19	<21	<5.0	<19	<22	<19
Dichlorofluoromethane	<15	-	<14	<9.9	<9.3	<11	<21	<19	<18	<19	<21	<5.0	<19	<22	<19
Diesel Range Organics (mg/kg, EPA Method 8015 DRO)	<12	-	<12	<7.9	<7.4	<9.1	56	<16	29	<15	39	<4.0	<15	54	39
Ethyl acetate	<15	-	<14	<9.9	<9.3	<11	<21	<19	<18	<19	<21	<5.0	<19	<22	<19
Ethyl ether	<15	-	<14	<9.9	<9.3	<11	<21	<19	<18	<19	<21	<5.0	<19	<22	<19
Ethyl methacrylate	<15	-	<14	<9.9	<9.3	<11	<21	<19	<18	<19	<21	<5.0	<19	<22	<19
Ethylbenzene	<15	-	<14	<9.9	<9.3	<11	<21	<19	<18	<19	<21	<5.0	<19	<22	<19
Freon 113	<15	-	<14	<9.9	<9.3	<11	<21	<19	<18	<19	<21	<5.0	<19	<22	<19
Iodomethane	<15	-	<14	<9.9	<9.3	<11	<21	<19	<18	<19	<21	<5.0	<19	<22	<19

Analyte	Iron Gate Reservoir - Sediment - Additional Analytes														
	CDH-S-021(0.0-0.5)	CDH-S-021(0.0-0.9)	CDH-S-022(0.0-1.4)	CDH-S-023(0.0-5.4)	CDH-S-023(5.4-7.7)	CDH-S-024(0.0-4.1)	CDH-S-025(0.0-4.7)	CDH-S-026(0.0-2.0)	CDH-S-027(0.0-1.9)	CDH-S-028(0.0-1.0)	CDH-S-029(0.0-4.8)	CDH-S-030(0.0-2.9)	CDH-S-031(0.0-4.8)	CDH-S-032(0.0-3.4)	CDH-S-046(0.0-2.5)
Isopropylbenzene	<15	-	<14	<9.9	<9.3	<11	<21	<19	<18	<19	<21	<5.0	<19	<22	<19
meta, para-Xylene	<29	-	<29	<20	<19	<23	<43	<39	<36	<37	<42	<10	<38	<44	<38
Methyl acetate	<15	-	<14	<9.9	<9.3	<11	<21	<19	<18	<19	<21	<5.0	<19	<22	<19
Methylcyclohexane	<15	-	<14	<9.9	<9.3	<11	<21	<19	<18	<19	<21	<5.0	<19	<22	<19
Methylene chloride	<15	-	<14	<9.9	<9.3	<11	<21	<19	<18	<19	<21	<5.0	<19	<22	<19
MTBE	<15	-	<14	<9.9	<9.3	<11	<21	<19	<18	<19	<21	<5.0	<19	<22	<19
N-Butylbenzene	<15	-	<14	<9.9	<9.3	<11	<21	<19	<18	<19	<21	<5.0	<19	<22	<19
N-Propylbenzene	<15	-	<14	<9.9	<9.3	<11	<21	<19	<18	<19	<21	<5.0	<19	<22	<19
ortho-Xylene	<15	-	<14	<9.9	<9.3	<11	<21	<19	<18	<19	<21	<5.0	<19	<22	<19
Pentachloroethane	<15	-	<14	<9.9	<9.3	<11	<21	<19	<18	<19	<21	<5.0	<19	<22	<19
p-Isopropyltoluene	<15	-	<14	<9.9	<9.3	<11	<21	<19	<18	<19	<21	<5.0	<19	<22	<19
Residual Range Organics (mg/kg, EPA Method 8015 RRO)	<120	-	<120	<79	<74	<91	340	<160	<140	<150	210	<40	<150	290	220
sec-Butylbenzene	<15	-	<14	<9.9	<9.3	<11	<21	<19	<18	<19	<21	<5.0	<19	<22	<19
Styrene	<15	-	<14	<9.9	<9.3	<11	<21	<19	<18	<19	<21	<5.0	<19	<22	<19
tert-Butylbenzene	<15	-	<14	<9.9	<9.3	<11	<21	<19	<18	<19	<21	<5.0	<19	<22	<19
Tetrachloroethene	<15	-	<14	<9.9	<9.3	<11	<21	<19	<18	<19	<21	<5.0	<19	<22	<19
Toluene	<15	-	<14	<9.9	<9.3	<11	<21	<19	<18	<19	<21	<5.0	<19	<22	<19
Organics															
SVOCs: Phenols (ug/kg dry weight, EPA Method 8270D unless otherwise noted)															
2,4,5-Trichlorophenol	<420 T	<520	<470	<330	<310	<370	<710	<640	<590	<600	<700	<170	<630	<730	<630
2,4,6-Trichlorophenol	<420 T	<520	<470	<330	<310	<370	<710	<640	<590	<600	<700	<170	<630	<730	<630
2,4-Dichlorophenol	<420 T	<520	<470	<330	<310	<370	<710	<640	<590	<600	<700	<170	<630	<730	<630
2,4-Dimethylphenol	<420 T	<520	<470	<330	<310	<370	<710	<640	<590	<600	<700	<170	<630	<730	<630
2-Chlorophenol	<420 T	<520	<470	<330	<310	<370	<710	<640	<590	<600	<700	<170	<630	<730	<630
2-Methylphenol	<420 T	<520	<470	<330	<310	<370	<710	<640	<590	<600	<700	<170	<630	<730	<630
4-Chloro-3-methylphenol	<420 T	<520	<470	<330	<310	<370	<710	<640	<590	<600	<700	<170	<630	<730	<630
4-Methylphenol	<420 T	<520	<470	<330	<310	<370	<710	<640	<590	<600	<700	<170	<630	<730	<630
4-Nitrophenol	<1,700 T	<2,100	<1,900	<1,300	<1,200	<1,500	<2,900	<2,600	<2,400	<2,400	<2,800	<670	<630	<2,900	<2,500
Pentachlorophenol (EPA Method 8151A)	<8.5 T	<10	<9.6	<6.6	<6.2	<7.5	<14	<13	<12	<12	<14	<3.3	<13	<15	<13
Phenol	<420 T	<520	<470	<330	<310	<370	<710	<640	<590	<600	<700	<170	<630	<730	<630
2-Nitrophenol	<420 T	<520	<470	<330	<310	<370	<710	<640	<590	<600	<700	<170	<2,500	<730	<630
2,4-Dinitrophenol	<1,700 T	<2,100	<1,900	<1,300	<1,200	<1,500	<2,900	<2,600	<2,400	<2,400	<2,800	<670	<2,500	<2,900	<2,500
4,6-Dinitro-2-methylphenol	<1,700 T	<2,100	<1,900	<1,300	<1,200	<1,500	<2,900	<2,600	<2,400	<2,400	<2,800	<670	<2,500	<2,900	<2,500
Organics															
SVOCs: Chlorinated hydrocarbons (ug/kg dry weight, EPA Method 8260C, unless otherwise noted) (CDH-S-021[0.0-0.9] by 8270D)															
1,1,1,2-Tetrachloroethane	<15	-	<14	<9.9	<9.3	<11	<21	<19	<18	<19	<21	<5.0	<19	<22	<19
1,1,1-Trichloroethane	<15	-	<14	<9.9	<9.3	<11	<21	<19	<18	<19	<21	<5.0	<19	<22	<19
1,1,2,2-Tetrachloroethane	<15	-	<14	<9.9	<9.3	<11	<21	<19	<18	<19	<21	<5.0	<19	<22	<19
1,1,2-Trichloroethane	<15	-	<14	<9.9	<9.3	<11	<21	<19	<18	<19	<21	<5.0	<19	<22	<19
1,1-Dichloroethane	<15	-	<14	<9.9	<9.3	<11	<21	<19	<18	<19	<21	<5.0	<19	<22	<19
1,1-Dichloroethene	<15	-	<14	<9.9	<9.3	<11	<21	<19	<18	<19	<21	<5.0	<19	<22	<19
1,1-Dichloropropene	<15	-	<14	<9.9	<9.3	<11	<21	<19	<18	<19	<21	<5.0	<19	<22	<19
1,2,3-Trichlorobenzene	<15	-	<14	<9.9	<9.3	<11	<21	<19	<18	<19	<21	<5.0	<19	<22	<19
1,2,3-Trichloropropane	<15	-	<14	<9.9	<9.3	<11	<21	<19	<18	<19	<21	<5.0	<19	<22	<19
1,2,4-Trichlorobenzene	<15	<520	<14	<9.9	<9.3	<11	<21	<19	<18	<19	<21	<5.0	<19	<22	<19
1,2-Dibromo-3-chloropropane	<15	-	<14	<9.9	<9.3	<11	<21	<19	<18	<19	<21	<5.0	<19	<22	<19
1,2-Dichlorobenzene	<15	<520	<14	<9.9	<9.3	<11	<21	<19	<18	<19	<21	<5.0	<19	<22	<19
1,2-Dichloroethane	<15	-	<14	<9.9	<9.3	<11	<21	<19	<18	<19	<21	<5.0	<19	<22	<19
1,2-Dichloropropane	<15	-	<14	<9.9	<9.3	<11	<21	<19	<18	<19	<21	<5.0	<19	<22	<19
1,3-Dichlorobenzene	<15	<520	<14	<9.9	<9.3	<11	<21	<19	<18	<19	<21	<5.0	<19	<22	<19
1,3-Dichloropropane	<15	-	<14	<9.9	<9.3	<11	<21	<19	<18	<19	<21	<5.0	<19	<22	<19
1,4-Dichlorobenzene	<15	<520	<14	<9.9	<9.3	<11	<21	<19	<18	<19	<21	<5.0	<19	<22	<19
1-Chlorohexane	<15	-	<14	<9.9	<9.3	<11	<21	<19	<18	<19	<21	<5.0	<19	<22	<19
2-Chloronaphthalene (EPA Method 8270D)	<420 T	<520	<470	<330	<310	<370	<710	<640	<590	<600	<700	<170	<630	<730	<630
2,2-Dichloropropane	<15	-	<14	<9.9	<9.3	<11	<21	<19	<18	<19	<21	<5.0	<19	<22	<19
2-Chlorotoluene	<15	-	<14	<9.9	<9.3	<11	<21	<19	<18	<19	<21	<5.0	<19	<22	<19
3,3'-Dichlorobenzidine (EPA Method 8270D)	<420 T	<520	<470	<330	<310	<370	<710	<640	<590	<600	<700	<170	<630	<730	<630
4-Chlorophenyl phenyl ether (EPA Method 8270D)	<420 T	<520	<470	<330	<310	<370	<710	<640	<590	<600	<700	<170	<630	<730	<630
4-Chlorotoluene	<15	-	<14	<9.9	<9.3	<11	<21	<19	<18	<19	<21	<5.0	<19	<22	<19

Analyte	Iron Gate Reservoir - Sediment - Additional Analytes														
	CDH-S-021(0.0-0.5)	CDH-S-021(0.0-0.9)	CDH-S-022(0.0-1.4)	CDH-S-023(0.0-5.4)	CDH-S-023(5.4-7.7)	CDH-S-024(0.0-4.1)	CDH-S-025(0.0-4.7)	CDH-S-026(0.0-2.0)	CDH-S-027(0.0-1.9)	CDH-S-028(0.0-1.0)	CDH-S-029(0.0-4.8)	CDH-S-030(0.0-2.9)	CDH-S-031(0.0-4.8)	CDH-S-032(0.0-3.4)	CDH-S-046(0.0-2.5)
Bis(2-chloroethoxy) methane (EPA Method 8270D)	<420 T	<520	<470	<330	<310	<370	<710	<640	<590	<600	<700	<170	<630	<730	<630
Bis(2-chloroethyl) ether (EPA Method 8270D)	<420 T	<520	<470	<330	<310	<370	<710	<640	<590	<600	<700	<170	<630	<730	<630
Bis(2-chloroisopropyl) ether (EPA Method 8270D)	<420 T	<520	<470	<330	<310	<370	<710	<640	<590	<600	<700	<170	<630	<730	<630
Hexachlorobenzene (EPA Method 8270D)	<420 T	<520	<470	<330	<310	<370	<710	<640	<590	<600	<700	<170	<630	<730	<630
Hexachlorocyclopentadiene (EPA Method 8270D)	<420 T	<520 L	<470	<330	<310	<370	<710	<640	<590	<600	<700	<170	<630	<730	<630
Hexachlorobutadiene (CDH-S-021[0.0-0.9] by EPA Method 8270D)	<15	<520	<14	<9.9	<9.3	<11	<21	<19	<18	<19	<21	<5.0	<19	<22	<19
Hexachloroethane (EPA Method 8270D)	<420 T	<520	<470	<330	<310	<370	<710	<640	<590	<600	<700	<170	<630	<730	<630
trans-1,2-Dichloroethene	<15	-	<14	<9.9	<9.3	<11	<21	<19	<18	<19	<21	<5.0	<19	<22	<19
trans-1,3-Dichloropropene	<15	-	<14	<9.9	<9.3	<11	<21	<19	<18	<19	<21	<5.0	<19	<22	<19
trans-1,4-Dichloro-2-butene	<15	-	<14	<9.9	<9.3	<11	<21	<19	<18	<19	<21	<5.0	<19	<22	<19
Trichloroethene	<15	-	<14	<9.9	<9.3	<11	<21	<19	<18	<19	<21	<5.0	<19	<22	<19
Trichlorofluoromethane	<15	-	<14	<9.9	<9.3	<11	<21	<19	<18	<19	<21	<5.0	<19	<22	<19
Organics															
SVOCs: Other SVOCs (ug/kg dry weight, EPA Method 8270D unless otherwise noted)															
2-Nitroaniline	<420 T	<520	<470	<330	<310	<370	<710	<640	<590	<600	<700	<170	<630	<730	<630
3-Nitroaniline	<420 T	<520	<470	<330	<310	<370	<710	<640	<590	<600	<700	<170	<630	<730	<630
4-Chloroaniline	<420 T	<520	<470	<330	<310	<370	<710	<640	<590	<600	<700	<170	<630	<730	<630
4-Nitroaniline	<420 T	<520	<470 L	<330	<310	<370 L	<710	<640	<590 L	<600	<700	<170 L	<630	<730	<630
Benzoic acid	<1,700 T	<2,100	<1,900	<1,300	<1,200	<1,500	<2,900	<2,600	<2,400	<2,400	<2,800	<670	<2,500	<2,900	<2,500
Benzyl alcohol	<420 T, V	<520	<470	<330	<310	<370	<710	<640	<590	<600	<700	<170	<630	<730	<630
Dibenzofuran	<420 T	<520	<470	<330	<310	<370	<710	<640	<590	<600	<700	<170	<630	<730	<630
Isophorone	<420 T	<520	<470	<330	<310	<370	<710	<640	<590	<600	<700	<170	<630	<730	<630
Nitrobenzene	<420 T	<520	<470	<330	<310	<370	<710	<640	<590	<600	<700	<170	<630	<730	<630
N-Nitrosodi-N-propylamine	<420 T	<520	<470	<330	<310	<370	<710	<640	<590	<600	<700	<170	<630	<730	<630
N-Nitrosodiphenylamine	<420 T	<520	<470	<330	<310	<370	<710	<640	<590	<600	<700	<170	<630	<730	<630
Pyridine	<420 T	<520	<470	<330 L	<310 L	<370	<710 L	<640 L	<590	<600 L	<700 L	<170	<630 L	<730 L	<630 L
Tetrahydrofuran (EPA Method 8260C)	<15	-	<14	<9.9	<9.3	<11	<21	<19	<18	<19	<21	<5.0	<19	<22	<19
Biotoxins (ug/kg, analysis by LC-MSMS)															
Microcystin-RR	-	-	-	<1.00	-	-	-	-	-	-	<1.00	-	-	-	-
Microcystin-Desmethyl-RR	-	-	-	<1.00	-	-	-	-	-	-	<1.00	-	-	-	-
Microcystin-LR	-	-	-	<1.00	-	-	-	-	-	-	<1.00	-	-	-	-
Microcystin-Desmethyl-LR	-	-	-	<1.00	-	-	-	-	-	-	<1.00	-	-	-	-
Microcystin-YR	-	-	-	<1.00	-	-	-	-	-	-	<1.00	-	-	-	-
Microcystin-LA	-	-	-	<1.00	-	-	-	-	-	-	<1.00	-	-	-	-
Microcystin-LW	-	-	-	<1.00	-	-	-	-	-	-	<1.00	-	-	-	-
Microcystin-LF	-	-	-	<1.00	-	-	-	-	-	-	<1.00	-	-	-	-
Microcystin-LY	-	-	-	<1.00	-	-	-	-	-	-	<1.00	-	-	-	-
Anatoxin A	-	-	-	<5.00	-	-	-	-	-	-	<5.00	-	-	-	-
Domoic acid	-	-	-	<2.00	-	-	-	-	-	-	<2.00	-	-	-	-
Okadaic acid	-	-	-	<1.00	-	-	-	-	-	-	<1.00	-	-	-	-

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T: result obtained past the holding time
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- : no data
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Chlorpyrifos: Sample CDH-S-031(0.0-4.8) also analyzed by 8141A with a result of <400.

Analyte	Iron Gate Reservoir - Sediment - Dioxins, Furans, PBDEs, and PCB Congeners		
	CDH-S-029(0.0-4.8)	CDH-S-031(0.0-4.8)	CDH-S-046(0.0-2.5)
Organics **Polychlorinated Dioxins and Furans (pg/g dry weight, EPA Method 8290A)**			
2,3,7,8-TCDD	<0.18	<0.17	<0.21 T
2,3,7,8-TCDF	<0.72	0.68	0.68 T
1,2,3,7,8-PECDD	0.68	0.62	0.82 T
1,2,3,7,8-PECDF	0.44	<0.34	0.52 T
2,3,4,7,8-PECDF	0.74	<0.72	<0.71 T
1,2,3,4,7,8-HXCDD	<0.78	1.1	<1.2 T
1,2,3,6,7,8-HXCDD	3.5	3.4	3.5 T
1,2,3,7,8,9-HXCDD	2.0	2.0	2.5 T
1,2,3,6,7,8-HXCDF	1.2	1.3	1.4 T
1,2,3,7,8,9-HXCDF	<0.30	<0.22	<0.81 T
1,2,3,4,7,8-HXCDF	<0.96	1.2	<1.1 T
2,3,4,6,7,8-HXCDF	1.2	1.2	1.4 T
1,2,3,4,6,7,8-HPCDD	70	74	62 T
1,2,3,4,6,7,8-HPCDF	22	24	18 T
1,2,3,4,7,8,9-HPCDF	<1.1	<0.74	2.0 T
OCDD	470	530	430 T
OCDF	49	55	44 T
TOTAL HPCDD	140	150	130 T
TOTAL HPCDF	53	58	45 T
TOTAL HXCDD	32 H	31 H	27 T, H
TOTAL HXCDF	23	24	18 T
TOTAL PECDD	2.0	4.9 V	3.8 T
TOTAL PECDF	5.5	8.5	3.9 T
TOTAL TCDD	0.83	<0.17	0.39 T
TOTAL TCDF	6.5	4.9	3.4 T
Organics **PBDEs (pg/g dry weight, EPA Method 1614 unless otherwise noted)**			
BDE-10	<0.28	<0.28	-
BDE-100	18	22	-
BDE-105	<1.4	<1.3	-
BDE-116	<1.7	<1.6	-
BDE-118	<1.2	<1.1	-
BDE-119/BDE-120	<1.1	<1.1	-
BDE-12/BDE-13	<0.48	<0.15	-
BDE-126	<0.72	<0.78	-
BDE-128	<5.0	<6.7	-
BDE-138/BDE-166	<4.0	<5.4	-
BDE-140	<2.0	<2.7	-
BDE-15	<1.1	<0.13	-
BDE-153	<2.1	<3.1	-
BDE-154	8.4	<8.8	-
BDE-155	<1.2	<1.6	-
BDE-17/BDE-25	11	12	-
BDE-181	<7.7	<7.2	-
BDE-183	<3.9	<3.6	-
BDE-190	<13	<12	-
BDE-203	<16	<6.2	-
BDE-206	<11	<15	-
BDE-207	<11	<14	-
BDE-208	<12 L	<15 L	-
BDE-209	84	220	-
BDE-28/BDE-33	4.6	23	-
BDE-30	<0.62	<1.1	-
BDE-32	<1.2	<0.82	-
BDE-35	<2.4	<0.69	-
BDE-37	<0.37	<0.68	-
BDE-47	62	74	-
BDE-49	52	46	-
BDE-51	<0.57	<4.5	-
BDE-66	<1.0	<0.51	-
BDE-7	<4.7	<1.8	-
BDE-71	<0.85	<0.43	-
BDE-75	<0.72	<0.37	-
BDE-77	<0.84	<0.32	-
BDE-79	<0.60	<0.30	-
BDE-8/BDE-11	2.2	<0.19	-
BDE-85	<1.3	<1.2	-
BDE-99	43	62	-
DBDPE (EPA Method 1614 Mod)	<47	<47	-
HBB (EPA Method 1614 Mod)	<3.9	11	-
PBEB (EPA Method 1614 Mod)	<1.1	<0.80	-
Organics **PCBs (pg/g dry weight, EPA Method 1668A)**			
PCB Congener 1	12 H, T	11 H, T	6.8 H, T
PCB Congener 100	<1.4 T	<1.5 T	<1.3 T
PCB Congener 101/113/89	350 T	320 T	240 T
PCB Congener 104	<0.85 T	<0.56 T	<1.1 T
PCB Congener 105/127	110 T	110 T	72 T
PCB Congener 108/83	19 T	17 T	10 T
PCB Congener 109/107	53 T	45 T	34 T
PCB Congener 11	130 H, T	150 H, T	130 H, T
PCB Congener 110	440 T	380 T	230 T
PCB Congener 112	<2.6 T	<2.2 T	<1.3 T
PCB Congener 114	<7.0 T	<6.9 T	<1.7 T
PCB Congener 115/116/87	130 T	110 T	66 T
PCB Congener 117/111	7.7 T	8.5 T	4.9 T
PCB Congener 118/106	340 T	340 T	220 T
PCB Congener 119	12 T	12 T	9.0 T
PCB Congener 12/13	<22 T	<13 T	<14 T
PCB Congener 122	<2.4 T	<1.8 T	<1.7 T
PCB Congener 123	<2.4 T	<4.4 T	<3.3 T
PCB Congener 124	<9.1 T	<9.7 T	<3.7 T
PCB Congener 126	<3.1 T	<2.5 T	<2.1 T
PCB Congener 128	130 T	100 T	60 T
PCB Congener 129	<20 T	23 T	<0.67 T

Analyte	Iron Gate Reservoir - Sediment - Dioxins, Furans, PBDEs, and PCB Congeners		
	CDH-S-029(0.0-4.8)	CDH-S-031(0.0-4.8)	CDH-S-046(0.0-2.5)
PCB Congener 130	53 T	<35 T	33 T
PCB Congener 132	330 T	200 V, T	150 T
PCB Congener 133/165/131	<4.0 T	<1.8 T	<4.3 T
PCB Congener 134	<48 T	36 T	<21 T
PCB Congener 135	150 T	82 T	62 T
PCB Congener 136/154	190 T	100 T	79 T
PCB Congener 137	<23 T	<17 T	15 T
PCB Congener 138/160	600 T	480 T	330 T
PCB Congener 139/149	890 T	550 T	440 T
PCB Congener 14	<22 T	<8.8 T	<14 T
PCB Congener 140	<7.0 T	<3.4 T	<2.2 T
PCB Congener 141	190 T	130 T	100 T
PCB Congener 142	<8.6 T	<8.0 T	<0.61 T
PCB Congener 143	<1.8 T	<0.63 T	<0.58 T
PCB Congener 144	38 T	<24 T	22 T
PCB Congener 145/148	<2.2 T	<0.58 T	<0.50 T
PCB Congener 147	<9.4 T	<5.9 T	6.9 T
PCB Congener 15	62 H, T	68 H, T	47 H, T
PCB Congener 150	<2.0 T	<0.52 T	<0.45 T
PCB Congener 151	260 T	150 T	140 T
PCB Congener 152	<1.9 T	<0.49 T	<0.42 T
PCB Congener 155	<2.6 T	<1.1 T	<0.70 T
PCB Congener 156	50 T	48 T	33 T
PCB Congener 157	9.3 T	<7.8 T	<5.3 T
PCB Congener 158	70 T	<43 T	42 T
PCB Congener 159	<1.3 T	<0.46 T	<0.43 T
PCB Congener 16/32	50 H, T	51 H, T	46 H, T
PCB Congener 161/146	98 T	89 T	79 T
PCB Congener 162	<1.5 T	<0.52 T	<1.8 T
PCB Congener 164/163	280 T	210 T	160 T
PCB Congener 166	<1.3 T	<9.4 T	<0.43 T
PCB Congener 167	<18 T	19 T	15 T
PCB Congener 168/153	660 T	590 T	540 T
PCB Congener 169	<1.6 T	<1.3 T	<1.0 T
PCB Congener 17	35 H, T	33 H, T	32 H, T
PCB Congener 170/190	430 T	250 T	200 T
PCB Congener 171	140 T	67 T	50 T
PCB Congener 173	11 T	5.9 T	<4.1 T
PCB Congener 174	680 T	330 T	260 T
PCB Congener 175	<9.1 T	<8.7 T	10 T
PCB Congener 176	<77 T	<34 T	26 T
PCB Congener 177	370 T	180 T	140 T
PCB Congener 178	100 T	59 T	57 T
PCB Congener 179	290 T	130 T	100 T
PCB Congener 18	80 H, T	90 H, T	82 H, T
PCB Congener 181	<2.5 T	<1.6 T	<1.3 T
PCB Congener 182/187	670 T	400 T	350 T
PCB Congener 183	220 T	150 T	120 T
PCB Congener 184	<2.9 T	<0.96 T	<0.55 T
PCB Congener 185	63 T	33 T	<30 T
PCB Congener 186	<3.2 T	<1.1 T	<0.61 T
PCB Congener 188	<3.0 T	<1.3 T	<0.81 T
PCB Congener 189	12 T	<5.5 T	<5.5 T
PCB Congener 19	6.1 T	7.6 T	5.8 T
PCB Congener 191	<14 T	10 T	8.2 T
PCB Congener 192/172	58 T	39 T	36 T
PCB Congener 193/180	800 T	560 T	500 T
PCB Congener 194	<160 T	130 T	130 T
PCB Congener 195	120 T	70 T	51 T
PCB Congener 196/203	<230 T	190 T	160 T
PCB Congener 197	<12 T	8.4 T	6.6 T
PCB Congener 198	<14 T	13 T	<7.3 T
PCB Congener 199	300 T	210 T	170 T
PCB Congener 2	16 H, T	17 T	13 H, T
PCB Congener 20/33/21	75 H, T	90 H, T	81 H, T
PCB Congener 200	47 T	22 T	18 T
PCB Congener 201	39 T	29 T	22 T
PCB Congener 202	<44 T	40 T	37 T
PCB Congener 204	<1.4 T	<0.98 T	<0.49 T
PCB Congener 205	<11 T	8.7 T	7.4 T
PCB Congener 206	100 T	89 T	59 T
PCB Congener 207	<12 T	<11 T	10 T
PCB Congener 208	<25 T	28 T	19 T
PCB Congener 209	<47 T	52 T	34 T
PCB Congener 22	58 H, T	64 H, T	52 H, T
PCB Congener 25	8.9 H, T	10 H, T	<11 T
PCB Congener 26	18 H, T	18 H, T	16 H, T
PCB Congener 27/24	7.3 H, T	<6.4 T	6.2 H, T
PCB Congener 29	<7.5 T	<4.2 T	<11 T
PCB Congener 3	21 T	20 T	14 T
PCB Congener 30	<1.3 T	<0.89 T	<1.2 T
PCB Congener 31/28	280 H, T	310 H, T	270 H, T
PCB Congener 34/23	<7.5 T	<4.2 T	<12 T
PCB Congener 35	8.1 H, T	9.4 H, T	<11 T
PCB Congener 36	<6.7 T	<3.8 T	<10 T
PCB Congener 37	73 H, T	78 H, T	51 H, T
PCB Congener 38	<6.6 T	<3.7 T	<10 T
PCB Congener 39	<6.3 T	6.0 T	<9.8 T
PCB Congener 4/10	<36 T	30 H, T	<22 T
PCB Congener 40/57	18 H, T	18 H, T	11 H, T
PCB Congener 41	<0.93 T	<0.59 T	<0.58 T
PCB Congener 42	49 H, T	50 H, T	34 H, T
PCB Congener 43	<1.5 T	<0.97 T	<0.95 T
PCB Congener 44	130 H, T	130 H, T	79 H, T
PCB Congener 45	17 H, T	16 H, T	12 H, T
PCB Congener 46/69/73	6.0 H, T	<5.7 T	<3.4 T
PCB Congener 48/47/75	59 H, T	61 H, T	45 H, T

Analyte	Iron Gate Reservoir - Sediment - Dioxins, Furans, PBDEs, and PCB Congeners		
	CDH-S-029(0.0-4.8)	CDH-S-031(0.0-4.8)	CDH-S-046(0.0-2.5)
PCB Congener 49	98 T	110 T	79 H, T
PCB Congener 50	<1.2 T	<0.78 T	<0.77 T
PCB Congener 51	5.8 T	4.7 T	3.8 T
PCB Congener 52	160 T	170 T	120 H, T
PCB Congener 53	15 H, T	13 H, T	10 H, T
PCB Congener 54	<0.83 T	<0.58 T	<0.63 T
PCB Congener 55	<1.1 T	<0.67 T	<0.78 T
PCB Congener 56	75 H, T	76 H, T	50 H, T
PCB Congener 58	<1.0 T	0.84 T	0.85 T
PCB Congener 59	<1.0 T	<0.65 T	<0.64 T
PCB Congener 6	<22 T	<9.6 T	<14 T
PCB Congener 60	35 H, T	34 H, T	25 H, T
PCB Congener 62	<1.1 T	<0.67 T	<0.66 T
PCB Congener 63	6.4 T	7.1 T	5.8 T
PCB Congener 65	<1.0 T	<0.65 T	<0.64 T
PCB Congener 66/80	170 T	170 T	120 H, T
PCB Congener 67	<4.0 T	5.6 H, T	3.7 H, T
PCB Congener 71	33 H, T	29 H, T	20 H, T
PCB Congener 72/64/68	84 H, T	90 H, T	57 H, T
PCB Congener 74/61	79 H, T	92 H, T	68 H, T
PCB Congener 76/70	200 T	220 T	140 H, T
PCB Congener 77	24 T	28 T	18 H, T
PCB Congener 78	<1.1 T	3.5 T	<0.82 T
PCB Congener 79	<1.1 T	<0.83 V, T	<0.87 T
PCB Congener 8/5	48 H, T	66 H, T	41 H, T
PCB Congener 81	<1.3 T	<0.98 T	<0.91 T
PCB Congener 82	50 T	50 T	27 T
PCB Congener 84/90	110 T	100 T	58 T
PCB Congener 85/120	55 T	49 T	32 T
PCB Congener 86/97/125	110 T	95 T	58 T
PCB Congener 88	<1.5 T	<0.94 T	<0.68 T
PCB Congener 9/7	<22 T	<8.9 T	<14 T
PCB Congener 91	48 T	40 T	25 T
PCB Congener 92	75 T	69 T	52 T
PCB Congener 94	<1.7 T	<1.3 T	<0.75 T
PCB Congener 95/93/121	290 T	220 T	130 T
PCB Congener 96/103	<7.7 T	<6.4 T	6.5 T
PCB Congener 98/102	11 T	<7.5 T	4.6 T
PCB Congener 99	170 T	170 T	120 T

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Analyte	Klamath Estuary - Sediment - Standard Analytes Lower CHA-S-001	 Upper CHA-S-002
Conventionals (units and methods vary, all dry weights except pH and EC)		
pH (EPA Method 9045)	8.5	8.1
EC (umhos/cm, Standard Methods 2510B)	1,400	57
Calcium (mg/kg, EPA Method 6010B)	3,900	3,900
Magnesium (mg/kg, EPA Method 6010B)	19,000	20,000
Ammonia as N (mg/kg, EPA Method 350.1)	2.8	1.1
Total Nitrogen as N (mg/kg, EPA Method 351.2)	350	180
Total Phosphorus as P (mg/kg, Standard Methods 4500P Mod)	410	360
Cyanide, WAD (mg/kg, Standard Methods 4500CN I)	<0.5	<0.5
Total Solids (mg/kg, Standard Methods 2540B)	660,000	700,000
Total Volatile Solids (mg/kg, Standard Methods 2540G)	14,000	5,000
TOC (%, Method USGS:N011, T10 USGS:C011, T08)	0.83	0.27
Metals & AVS (mg/kg dry weight, EPA Method 6020 unless otherwise noted)		
Aluminum (EPA Method 6010B)	13,000	13,000
Antimony	<0.30	<0.27
Arsenic	3.2	2.2
Cadmium	<0.15	<0.14
Chromium	96	97
Copper	26	19
Iron (EPA Method 6010B)	24,000	24,000
Lead	4.3	3.0
Mercury (EPA Method 7471A)	<0.060	<0.054
Nickel	110	110
Selenium	0.36	<0.27
Silver (EPA Method 6010B)	<0.75	<0.68
Zinc	43	42
Acid Volatile Sulfides (EPA Method 821/R-91-100)	530	<0.2
Organics **SVOCs: PAHs (ug/kg dry weight, EPA Method 8270D unless otherwise noted)**		
Acenaphthene	<230	<230
Acenaphthylene	<230	<230
Anthracene	<230	<230
Benzo(a)anthracene	<230	<230
Benzo(a)pyrene	<230	<230
Benzo(b)fluoranthene	<230	<230
Benzo(g,h,i)perylene	<230	<230
Benzo(k)fluoranthene	<230	<230
4-Bromophenyl phenyl ether	<230	<230
Chrysene	<230	<230
Dibenzo(a,h)anthracene	<230	<230
Fluoranthene	<230	<230
Fluorene	<230	<230
Indeno(1,2,3-cd)pyrene	<230	<230
2-Methyl naphthalane	<230	<230
Naphthalene (EPA Method 8260C)	<6.8	<7.0
Phenanthrene	<230	<230
Pyrene	<230	<230
Organics **PCBs (ug/g dry weight, EPA Method 8082 unless otherwise noted)**		
Aroclor 1016	<0.046	<0.046
Aroclor 1221	<0.091	<0.093
Aroclor 1232	<0.046	<0.046
Aroclor 1242	<0.046	<0.046
Aroclor 1248	<0.046	<0.046
Aroclor 1254	<0.046	<0.046
Aroclor 1260	<0.046	<0.046
Aroclor 1268	<0.046	<0.046
Total PCBs (pg/g) (Method 1668B)	520 H	450 H
Organics **Pesticides/Herbicides: Organochlorine Pesticides (ug/kg dry weight, EPA Method 8081A unless otherwise noted)**		
Aldrin	<0.91	<0.93
Chlordane (Technical)	<4.6	<4.6
Chlordane-Alpha	<0.91	<0.93
Chlordane-Gamma	<0.91	<0.93
4,4'-DDT	<0.91	<0.93
4,4'-DDD	<0.91	<0.93
4,4'-DDE	<0.91 V	<0.93
2,4'-DDT (ENV by GC-MS Specialty)	<14	<14
2,4'-DDD (ENV by GC-MS Specialty)	<4.5	<4.6
2,4'-DDE (ENV by GC-MS Specialty)	<4.5	<4.6
Dieldrin	<0.91 V	<0.93
Endosulfan I	<0.91	<0.93
Endosulfan II	<0.91	<0.93
Endosulfan Sulfate	<0.91	<0.93
Endrin	<0.91	<0.93
Endrin Aldehyde	<0.91	<0.93
Endrin Ketone	<0.91	<0.93
Heptachlor	<0.91	<0.93
Heptachlor Epoxide	<0.91	<0.93
HCH - Alpha	<0.91	<0.93
HCH - Beta	<0.91	<0.93
HCH - Delta	1.1	<0.93
HCH - Gamma	<0.91	<0.93
Methoxychlor	24 V	<0.93
Toxaphene	<46	<46

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Analyte	Klamath Estuary - Sediment - Additional Analytes Lower CHA-S-001	 Upper CHA-S-002
Organics **Pesticides/Herbicides: Organophosphate Pesticides (ug/kg dry weight, EPA Method 8141A unless otherwise noted)**		
0,0,0-Triethylphosphorothioate	<28	<23
Azinphosmethyl	<28	<23
Bolstar	<28	<23
Chlorpyrifos (MLA-047-Rev 03)	<0.13	<0.13
Coumaphos	<28	<23
Demeton	<28	<23
Demeton-O	<28	<23
Demeton-S	<28	<23
Diazinon (MLA-047-Rev 03)	<0.0062	<0.0064
Dichlorvos	<28	<23
Dimethoate	<28	<23 L
Disulfoton	<28	<23
EPN	<28	<23
Ethoprop	<28	<23
Famphur	<28	<23 L
Fensulfothion	<28	<23
Fenthion	<28	<23
Malathion	<28	<23
Methyl parathion	<28	<23
Mevinphos	<28	<23
Parathion	<28	<23
Phorate	<28	<23
Ronnel	<28	<23
Stirophos	<28	<23
Sulfotep	<28	<23
Thionazin	<28	<23 L
Tokuthion	<28	<23
Trichloronate or Tirchloronat	<28	<23
Organics **Pesticides/Herbicides: Carbamate Pesticides (ug/kg dry weight, Method MLA-047 Rev 03)**		
3-Hydroxycarbofuran	<0.063	<0.064
Aldicarb	<0.063	<0.064
Aldicarb Sulfone	<0.13	<0.13
Aldicarb Sulfoxide	<0.063	<0.064
Aminocarb	<0.063	<0.064
Bendiocarb	<0.13	<0.13
Carbaryl	<0.063	<0.064
Carbazole (EPA Method 8270D)	<230 L	<230 L
Carbofuran	<0.063	<0.064
Dioxacarb	<0.063	<0.064
Imidacloprid	<0.13	<0.13
Methiocarb	<0.13	<0.13
Methomyl	<0.063 L	<0.064
Mexacarbate	<0.062	<0.063
Oxamyl	<0.064	<0.065
Piperonyl butoxide	0.007	<0.0064
Pirimicarb	<0.063	<0.064
Promecarb	<0.13	<0.13
Propoxur	<0.063	<0.064
Organics **Pesticides/Herbicides: Pyrethroids (Insecticides) (ug/kg dry weight, Method GCMS-NCI-SIM)**		
Allethrin	<0.33 L	<0.33 L
Bifenthrin	<0.33	<0.33
Cyfluthrin	<0.33 L	<0.33 L
Cypermethrin	<0.33	<0.33
Deltamethrin: tralomethrin	<0.33	<0.33
Esfenvalerate: fenvalerate	<0.33	<0.33
Fenpropathrin	<0.33	<0.33
Lambda-cyhalothrin	<0.33 L	<0.33 L
Permethrin (Total)	<0.33 L	<0.33 L
Tau-Fluvalinate	<0.33	<0.33
Tetramethrin	<0.33 L	<0.33 L
Organics **Phthalates (ug/kg dry weight, EPA Method 8270D)**		
Di-N-butyl phthalate	<230	<230
Diethyl phthalate	<230	<230
Dimethyl phthalate	<230	<230
Bis(2-ethylhexyl) phthalate	<230	250
Butyl benzyl phthalate	<230	<230
Di-N-octyl phthalate	<230	<230

Analyte	Klamath Estuary - Sediment - Additional Analytes	
	Lower CHA-S-001	Upper CHA-S-002
Organics **VOCs (ug/kg dry weight, EPA Method 8260C, unless otherwise noted)**		
1,2,4-Trimethylbenzene	<6.8	<7.0
1,2-Dibromoethane	<6.8	<7.0
1,3,5-Trimethylbenzene	<6.8	<7.0
2,4-Dinitrotoluene (EPA Method 8270D)	<230	<230
2,6-Dinitrotoluene (EPA Method 8270D)	<230	<230
2-Butanone	<6.8	<7.0
2-Hexanone	<6.8	<7.0
4-Methyl-2-pentanone	<6.8	<7.0
Acetone	18	<7.0
Allyl chloride	<6.8	<7.0
Benzene	<6.8	<7.0
Bromobenzene	<6.8	<7.0
Bromochloromethane	<6.8	<7.0
Bromodichloromethane	<6.8	<7.0
Bromoform	<6.8	<7.0
Bromomethane	<6.8	<7.0
Carbon disulfide	<6.8	<7.0
Carbon tetrachloride	<6.8	<7.0
Chlorobenzene	<6.8	<7.0
Chloroethane	<6.8	<7.0
Chloroform	<6.	< .
Chloromethane	<6.8	<7.0
cis-1,2-Dichloroethene	<6.8	<7.0
cis-1,3-Dichloropropene	<6.8 L	<7.0
Cyclohexane	<6.8	<7.0
Dibromochloromethane	<6.8 L	<7.0
Dibromomethane	<6.8	<7.0
Dichlorodifluoromethane	<6.8	<7.0
Dichlorofluoromethane	<6.8	<7.0
Diesel Range Organics (mg/kg, EPA Method 8015 DRO)	8.5	9.2
Ethyl acetate	<6.8	<7.0
Ethyl ether	<6.8	<7.0
Ethyl methacrylate	<6.8 L	<7.0
Ethylbenzene	<6.8	<7.0
Freon 113	<6.8	<7.0
Iodomethane	<6.8	<7.0
Isopropylbenzene	<6.8	<7.0
meta, para-Xylene	<14	<14
Methyl acetate	<6.8	<7.0
Methylcyclohexane	<6.8	<7.0
Methylene chloride	<6.8	<7.0
MTBE	<6.8	<7.0
N-Butylbenzene	<6.8 L	<7.0
N-Propylbenzene	<6.8	<7.0
ortho-Xylene	<6.8	<7.0
Pentachloroethane	<6.8	<7.0
p-Isopropyltoluene	<6.8	<7.0
Residual Range Organics (mg/kg, EPA Method 8015 RRO)	<55	<56
sec-Butylbenzene	<6.8	<7.0
Styrene	<6.8 L	<7.0
tert-Butylbenzene	<6.8	<7.0
Tetrachloroethene	<6.8	<7.0
Toluene	<6.8	<7.0
Organics **SVOCs: Phenols (ug/kg dry weight, EPA Method 8270D unless otherwise noted)**		
2,4,5-Trichlorophenol	<230	<230
2,4,6-Trichlorophenol	<230	<230
2,4-Dichlorophenol	<230	<230
2,4-Dimethylphenol	<230	<230
2-Chlorophenol	<230	<230
2-Methylphenol	<230	<230
4-Chloro-3-methylphenol	<230	<230
4-Methylphenol	<230	<230
4-Nitrophenol	<910	<930
Pentachlorophenol (EPA Method 8151A)	<4.6	<4.6
Phenol	<230	<230
2-Nitrophenol	<230	<230
2,4-Dinitrophenol	<910	<930
4,6-Dinitro-2-methylphenol	<910	<930

Analyte	Klamath Estuary - Sediment - Additional Analytes	
	Lower CHA-S-001	Upper CHA-S-002
Organics		
SVOCs: Chlorinated hydrocarbons (ug/kg dry weight, EPA Method 8260C, unless otherwise noted)		
1,1,1,2-Tetrachloroethane	<6.8	<7.0
1,1,1-Trichloroethane	<6.8	<7.0
1,1,2,2-Tetrachloroethane	<6.8	<7.0
1,1,2-Trichloroethane	<6.8	<7.0
1,1-Dichloroethane	<6.8	<7.0
1,1-Dichloroethene	<6.8	<7.0
1,1-Dichloropropene	<6.8	<7.0
1,2,3-Trichlorobenzene	<6.8 L	<7.0
1,2,3-Trichloropropane	<6.8	<7.0
1,2,4-Trichlorobenzene	<6.8 L	<7.0
1,2-Dibromo-3-chloropropane	<6.8	<7.0
1,2-Dichlorobenzene	<6.8	<7.0
1,2-Dichloroethane	<6.8	<7.0
1,2-Dichloropropane	<6.8	<7.0
1,3-Dichlorobenzene	<6.8	<7.0
1,3-Dichloropropane	<6.8	<7.0
1,4-Dichlorobenzene	<6.8	<7.0
1-Chlorohexane	<6.8	<7.0
2-Chloronaphthalene (EPA Method 8270D)	<230	<230
2,2-Dichloropropane	<6.8	<7.0
-C e e	<6.8	<7.0
3,3'-Dichlorobenzidine (EPA Method 8270D)	<230	<230
4-Chlorophenyl phenyl ether (EPA Method 8270D)	<230	<230
4-Chlorotoluene	<6.8	<7.0
Bis(2-chloroethoxy) methane (EPA Method 8270D)	<230	<230
Bis(2-chloroethyl) ether (EPA Method 8270D)	<230	<230
Bis(2-chloroisopropyl) ether (EPA Method 8270D)	<230	<230
Hexachlorobenzene (EPA Method 8270D)	<230	<230
Hexachlorocyclopentadiene (EPA Method 8270D)	<230	<230
Hexachlorobutadiene	<6.8 L	<7.0
Hexachloroethane (EPA Method 8270D)	<230	<230
trans-1,2-Dichloroethene	<6.8	<7.0
trans-1,3-Dichloropropene	<6.8 L	<7.0
trans-1,4-Dichloro-2-butene	<6.8 L	<7.0
Trichloroethene	<6.8	<7.0
Trichlorofluoromethane	<6.8	<7.0
Organics		
SVOCs: Other SVOCs (ug/kg dry weight, EPA Method 8270D unless otherwise noted)		
2-Nitroaniline	<230	<230
3-Nitroaniline	<230	<230
4-Chloroaniline	<230	<230
4-Nitroaniline	<230	<230
Benzoic acid	<910	<930
Benzyl alcohol	<230	<230
Dibenzofuran	<230	<230
Isophorone	<230	<230
Nitrobenzene	<230	<230
N-Nitrosodi-N-propylamine	<230	<230
N-Nitrosodiphenylamine	<230	<230
Pyridine	<230	<230
Tetrahydrofuran (EPA Method 8260C)	<6.8	<7.0

Qualifiers:
V: result may vary excessively from the true value
H: result may have a high bias
L: result may have a low bias
T: result obtained past the holding time
U: result determined to be an outlier at the time of data validation
- : no data
< : not detected at reporting limit shown

Analyte	Klamath Estuary - Sediment - Dioxins, Furans, PBDEs, and PCB Congeners	
	Lower CHA-S-001	Upper CHA-S-002
Organics		
Polychlorinated Dioxins and Furans (pg/g dry weight, EPA Method 8290A)		
2,3,7,8-TCDD	<0.072 T	<0.028 T
2,3,7,8-TCDF	<0.10 T	<0.043 T
1,2,3,7,8-PECDD	<0.048 T	<0.046 T
1,2,3,7,8-PECDF	<0.034 T	<0.025 T
2,3,4,7,8-PECDF	<0.037 T	<0.024 T
1,2,3,4,7,8-HXCDD	<0.054 T	<0.048 T
1,2,3,6,7,8-HXCDD	<0.058 T	<0.050 T
1,2,3,7,8,9-HXCDD	<0.056 T	<0.050 T
1,2,3,6,7,8-HXCDF	<0.030 T	<0.020 T
1,2,3,7,8,9-HXCDF	<0.042 T	<0.026 T
1,2,3,4,7,8-HXCDF	<0.028 T	<0.021 T
2,3,4,6,7,8-HXCDF	<0.031 T	<0.021 T
1,2,3,4,6,7,8-HPCDD	2.0 T	<0.24 T
1,2,3,4,6,7,8-HPCDF	<0.28 T	<0.028 T
1,2,3,4,7,8,9-HPCDF	<0.046 T	<0.041 T
OCDD	17 T	1.7 T
OCDF	1.3 T	<0.23 T
TOTAL HPCDD	4.4 T	<0.052 T
TOTAL HPCDF	<0.046 T	<0.041 T
TOTAL HXCDD	<0.058 T	<0.050 T
TOTAL HXCDF	<0.042 T	<0.026 T
TOTAL PECDD	<0.048 T	<0.046 T
TOTAL PECDF	0.18 T	<0.025 T
TOTAL TCDD	<0.072 T	<0.028 T
TOTAL TCDF	<0.073 T	<0.043 T
Organics		
PBDEs (pg/g dry weight, EPA Method 1614 unless otherwise noted)		
BDE-10	<1.4	<0.44
BDE-100	4.9 H	32
BDE-105	<3.8	<1.7
BDE-116	<3.9	<1.8
BDE-118	<3.5	<1.6
BDE-119/BDE-120	<2.8	<1.3
BDE-12/BDE-13	<0.82	<0.25
BDE-126	<2.3	<1.1
BDE-128	<32	<6.3
BDE-138/BDE-166	<18	<3.6
BDE-140	<9.3	<1.8
BDE-15	1.5	0.73
BDE-153	<9.7	9.0
BDE-154	<5.2	8.1
BDE-155	<3.8	<0.71
BDE-156	<29	<5.8
BDE-17/BDE-25	2.8	2.0
BDE-181	<29	<6.5
BDE-183	<12	<2.7
BDE-184	<7.6	<1.7
BDE-190	<53	<12
BDE-191	<26	<5.8
BDE-196	<46	<18
BDE-197	<30	<12
BDE-203	<45	<17
BDE-206	<31	<5.7
BDE-207	<25	<4.6
BDE-208	<31	<5.7
BDE-209	76 H	<18
BDE-28/BDE-33	<1.7	6.0
BDE-30	<2.1	<0.40
BDE-32	<1.4	<0.27
BDE-35	<1.3	<0.24
BDE-37	<1.2	<0.32
BDE-47	25 H	160
BDE-49	5.4	18
BDE-51	<1.1	0.93
BDE-66	<1.8	15
BDE-7	1.3	<0.39
BDE-71	<1.6	<0.43
BDE-75	<1.4	<0.39
BDE-77	<1.4	<0.36
BDE-79	<1.2	<0.34
BDE-8/BDE-11	<1.0	<0.30
BDE-85	<3.4	5.7
BDE-99	15 H	160
HBB	<1.4	1.8 H
PBEB	<2.0	<0.24

Analyte	Klamath Estuary - Sediment - Dioxins, Furans, PBDEs, and PCB Congeners	
	Lower CHA-S-001	Upper CHA-S-002
Organics		
PCBs (pg/g dry weight, EPA Method 1668A)		
PCB Congener 1	14 H	13 H
PCB Congener 100	<0.082	<0.064
PCB Congener 101/113/89	5.1 H	2.7 H
PCB Congener 104	<0.089	<0.071
PCB Congener 105/127	2.3 H	0.87 H
PCB Congener 108/83	<0.12	0.22 H
PCB Congener 109/107	<0.035	<0.031
PCB Congener 11	42 H	41 H
PCB Congener 110	5.8 H	2.8 H
PCB Congener 112	<0.088	<0.11
PCB Congener 114	<0.045	<0.038
PCB Congener 115/116/87	2.0 H	<0.99
PCB Congener 117/111	<0.095	<0.12
PCB Congener 118/106	6.0 H	2.1 H
PCB Congener 119	<0.15	<0.12
PCB Congener 12/13	3.9	3.9
PCB Congener 122	<0.035	<0.031
PCB Congener 123	<0.039	<0.038
PCB Congener 124	<0.034	<0.031
PCB Congener 126	<0.053	<0.046
PCB Congener 128	<0.050	<0.038
PCB Congener 129	<0.047	<0.036
PCB Congener 130	<0.046	<0.035
PCB Congener 132	<1.7	<0.033 V
PCB Congener 133/165/131	<0.037	<0.028
PCB Congener 134	<0.045	<0.034
PCB Congener 135	0.49	<0.030
PCB Congener 136/154	0.70	0.25
PCB Congener 137	<0.044	<0.033
PCB Congener 138/160	5.1	<0.77
PCB Congener 139/149	4.2	<1.0
PCB Congener 14	<1.6	<2.1
PCB Congener 140	<0.035	<0.027
PCB Congener 141	0.53	<0.029
PCB Congener 142	<0.044	<0.034
PCB Congener 143	<0.042	<0.032
PCB Congener 144	<0.038	<0.029 V
PCB Congener 145/148	<0.031	<0.024
PCB Congener 147	<0.035	<0.027
PCB Congener 15	13 H	11 H
PCB Congener 150	<0.027	<0.020
PCB Congener 151	<0.85	<0.24
PCB Congener 152	<0.027	<0.020
PCB Congener 155	<0.086	<0.046
PCB Congener 156	0.74	0.17
PCB Congener 157	<0.14	<0.035
PCB Congener 158	<0.028	<0.022
PCB Congener 159	<0.033	<0.025
PCB Congener 16/32	17 H	13 H
PCB Congener 161/146	<0.78	<0.025 V
PCB Congener 162	<0.034	<0.026
PCB Congener 164/163	<1.4	<0.41
PCB Congener 166	<0.030	<0.023
PCB Congener 167	<0.054	<0.032
PCB Congener 168/153	4.7	<1.6
PCB Congener 169	<0.050	<0.031
PCB Congener 17	18 H	12 H
PCB Congener 170/190	3.0	<0.34
PCB Congener 171	0.65	<0.092
PCB Congener 173	<0.046	<0.029
PCB Congener 174	2.1	0.37
PCB Congener 175	<0.075	<0.047
PCB Congener 176	<0.054	<0.034
PCB Congener 177	1.5	0.30 H
PCB Congener 178	<0.080	<0.050 V
PCB Congener 179	0.73	<0.034 V
PCB Congener 18	39 H	31 H, V
PCB Congener 181	<0.056	0.51 V
PCB Congener 182/187	<1.6	0.42
PCB Congener 183	<0.59	0.21
PCB Congener 184	<0.052	<0.033
PCB Congener 185	<0.074	<0.046
PCB Congener 186	<0.059	<0.037
PCB Congener 188	<0.17	<0.091
PCB Congener 189	<0.020	<0.014
PCB Congener 19	9.2 H	9.6 H
PCB Congener 191	0.066	<0.023
PCB Congener 192/172	<0.24	<0.046
PCB Congener 193/180	4.4	0.94
PCB Congener 194	<1.4	0.26
PCB Congener 195	0.69	<0.020
PCB Congener 196/203	2.1	<0.29
PCB Congener 197	<0.039	<0.019
PCB Congener 198	<0.057	<0.028
PCB Congener 199	1.7	<0.27
PCB Congener 2	2.6	2.0
PCB Congener 20/33/21	12 H	11 H
PCB Congener 200	<0.31	<0.019
PCB Congener 201	<0.20	<0.020
PCB Congener 202	<0.42	<0.10
PCB Congener 204	<0.039	<0.019
PCB Congener 205	<0.030	<0.015
PCB Congener 206	<1.1	<0.30
PCB Congener 207	<0.27	<0.019

Analyte	Klamath Estuary - Sediment - Dioxins, Furans, PBDEs, and PCB Congeners	
	Lower CHA-S-001	Upper CHA-S-002
PCB Congener 208	<1.1	<0.16
PCB Congener 209	<1.5	<0.22
PCB Congener 22	8.6 H	7.7 H
PCB Congener 25	1.5 H	1.5 H
PCB Congener 26	2.7 H	2.3 H, V
PCB Congener 27/24	2.8 H	2.0 H
PCB Congener 29	<0.69	0.23
PCB Congener 3	7.3	6.8
PCB Congener 30	<0.091	<0.086
PCB Congener 31/28	39 H	32 H
PCB Congener 34/23	<0.77	<0.23
PCB Congener 35	<0.74	0.86 H
PCB Congener 36	<0.65	0.24
PCB Congener 37	8.4 H	7.6 H
PCB Congener 38	<0.64	<0.30
PCB Congener 39	<0.68	<0.26
PCB Congener 4/10	58 H	65 H
PCB Congener 40/57	<0.63	0.74 H
PCB Congener 41	<0.048	<0.069
PCB Congener 42	2.4 H	2.1 H
PCB Congener 43	<0.088	<0.13
PCB Congener 44	4.9	5.4
PCB Congener 45	1.2 H	1.2 H
PCB Congener 46/69/73	0.31 H	0.39 H
PCB Congener 48/47/75	3.9 H	5.4 H
PCB Congener 49	3.2 H	3.6 H
PCB Congener 50	<0.066	<0.094
PCB Congener 51	0.67	0.67
PCB Congener 52	5.2 H	5.5 H
PCB Congener 53	1.1 H	<0.81
PCB Congener 54	<0.065	<0.099
PCB Congener 55	<0.20	<0.14
PCB Congener 56	2.5 H	2.3 H
PCB Congener 58	0.27	<0.072
PCB Congener 59	2.3	<0.35
PCB Congener 6	11 H	15 H
PCB Congener 60	2.4 H	2.1 H
PCB Congener 62	<0.063	<0.090
PCB Congener 63	<0.047	<0.19
PCB Congener 65	<0.043	<0.062
PCB Congener 66/80	6.1 H	5.1 H
PCB Congener 67	<0.046	<0.27
PCB Congener 71	1.2 H	<1.1
PCB Congener 72/64/68	4.0 H	4.9 H
PCB Congener 74/61	4.1 H	3.8 H
PCB Congener 76/70	7.3 H	5.6 H
PCB Congener 77	0.66	<0.41
PCB Congener 78	<0.071	<0.038
PCB Congener 79	<0.079	<0.042
PCB Congener 8/5	79 H	84 H
PCB Congener 81	<0.076	<0.039
PCB Congener 82	0.62	<0.048
PCB Congener 84/90	<0.93	<0.49
PCB Congener 85/120	1.0	0.43
PCB Congener 86/97/125	1.6	<0.72
PCB Congener 88	<0.097	<0.076
PCB Congener 9/7	10 H	12 H
PCB Congener 91	0.79	0.42
PCB Congener 92	0.98 H	0.58 H
PCB Congener 94	<0.097	<0.076
PCB Congener 95/93/121	3.3 H	1.6 H
PCB Congener 96/103	<0.33	<0.20
PCB Congener 98/102	<0.087	<0.073
PCB Congener 99	2.9 H	<1.2

Qualifiers:
V: result may vary excessively from the true value
H: result may have a high bias
L: result may have a low bias
T: result obtained past the holding time
U: result determined to be an outlier at the time of data validation
- : no data
< : not detected at re¸ ortin¸ limit shown

Appendix B

Results of Elutriate Analyses

(Note: these tables are formatted to print on 11” x 17” paper)

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Analyte	Elutriate - Standard Analytes								
	Copco 1 Reservoir		Iron Gate Reservoir			JC Boyle Reservoir		Klamath Estuary	
	CDH-E-CPN	CDH-E-CPT	CDH-E-IGN	CDH-E-IGT-1	CDH-E-IGT-2	CDH-E-JBN	CDH-E-JBT	Lower CHA-E-001	Upper CHA-E-002
Conventionals (units and methods vary)									
pH (Standard Methods 4500H+B)	7 7	7 8	7 6	7 7	7 7	7 9	8 0	8 0	8 0
EC (umhos/cm, Standard Methods 2510B)	260	460	240	240	280	230	250	1700	140
Calcium (mg/L, EPA Method 200 7)	14	17	14	15	14	12	13	12	16
Calcium (dissolved) (mg/L, EPA Method 200 7)	12	16	14	14	12	8	5	11	15
Chloride (mg/L, EPA Method 300 0)	3 5	4 2	4 3	4 1	3 9	4 2	4 2	470	2 7
Magnesium (mg/L, EPA Method 200 7)	8	10	7	8	8	7	7	24	6
Magnesium (dissolved) (mg/L, EPA Method 200 7)	6	9	6	6	6	3	3	22	5
Ammonia as N (mg/L, EPA Method 350 1)	8 8	25	4 8	7 2	10	12	11	0 44	0 10
Total Nitrogen (mg/L, EPA Method 351 2)	9 7	24	6 7 H	7 6	8 8	14	10	1 0	0 64
Total Phosphorus (mg/L, Standard Methods 4500P-BE)	0 43	0 24	0 13	0 31	0 33	0 54	0 31	<0 05	0 06
Sulfide (mg/L, Standard Methods 9030B/4500S2D)	<0 2	<0 2	<0 2	<0 2	<0 2	<0 2	<0 2	<0 2	<0 2
Cyanide, WAD (ug/L, Standard Methods 4500 CN-I)	<5	<5	<5	<5	<5	<5	<5	<5	<5
BOD (mg/L, Standard Methods 5210)	<3	5	<3	<3	6	<6	<6	5	<3
TDS (mg/L, Standard Methods 2540C)	520 T	380 T	200	270	340 T	530	350	870	100
TOC (mg/L, Standard Methods 5310C)	10	15	12	13	15	9 1	8 7	4 2	2 4
DOC (mg/L, Standard Methods 5310C)	8 8	14	9 1	12	13	7 3	8 7	3 3	2 0
POC (mg/L, Standard Methods 5310C)	<2 5	<2 5	3 1	<2 5	2 7	<2 5	<2 5	0 9	<0 5
Metals & AVS (ug/L, EPA Method 200.8 unless otherwise noted)									
Aluminum	6600	3600	1500	2600	4700	11000	4500	770	780
Aluminum (dissolved)	5 5	6 3	5 0	19	15	12	9 2	52	22
Antimony	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	4 4	<0 5
Antimony (dissolved)	<0 5	0 6	0 5	<0 5	0 5	0 5	0 9	4 3	<0 5
Arsenic	8 9	11	4 8	9 4	20	30	18	6 0	2 2
Arsenic (dissolved)	5 3	8 6	4 9	6 5	12	21	13	5 6	0 8
Cadmium	<0 25	<0 25	<0 25	<0 25	<0 25	<0 25	<0 25	<0 25	<0 25
Cadmium (dissolved)	<0 25	<0 25	<0 25	<0 25	<0 25	<0 25	<0 25	<0 25	<0 25
Chromium	6 5	3 6	1 3	2 4	5 5	13	5 4	2 8	5 9
Chromium (dissolved)	0 8	2 2	1 4	1 6	1 0	<0 5	0 5	0 5	0 9
Copper	12	6 9	4 5	6 8	10	23	12	6 9	7 0
Copper (dissolved)	0 7	0 6	0 6	<0 5	0 5	0 6	0 7	4 0	1 4
Lead	3 6	2 2	0 8	1 4	2 8	6 3	3 5	0 7	1 7
Lead (dissolved)	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5
Mercury (ng/L, EPA Method 1631E)	19	17	6 0	11	14	27	16	7 2	23
Nickel	6 2	4 2	2 6	3 1	5 7	8 3	4 3	11	18
Nickel (dissolved)	<1 0	1 4	1 1	1 0	1 4	<1 0	<1 0	6 2	5 2
Silver	<0 50	<0 50	<0 50	<0 50	<0 50	<0 50	<0 50	<0 50	<0 50
Silver (dissolved)	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5
Zinc	17	9 1	4 2	7 8	12	30	18	3 9	5 2
Zinc (dissolved)	<2 0	<2 0	<2 0	<2 0	2 9	<2 0	<2 0	<2 0	<2 0
Organics									
SVOCs: PAHs (ug/L, EPA Method 525.2 unless otherwise noted)									
2-Methylnaphthalene (EPA Method 8270D)	<5 2 T	<5 2 T, L	<5 0	<5 1	<5 3 T	<5 0	<5 0	<5 2	<5 0
Acenaphthene	<0 1	<0 1	<0 1	<0 2	<0 1	<0 1	<0 1	<0 1	<0 1
Acenaphthylene	<0 1	<0 1	<0 1	<0 2	<0 1	<0 1	<0 1	<0 1	<0 1
Anthracene	<0 02	<0 02	<0 02	<0 04	<0 02	<0 02	<0 02	<0 02	<0 02
Benz(a)Anthracene	<0 05	<0 05	<0 05	<0 1	<0 05	<0 05	<0 05	<0 05	<0 05
Benzo(a)Pyrene	<0 02	<0 02	<0 02	<0 04	<0 02	<0 02	<0 02	<0 02 L	<0 02
Benzo(b)Fluoranthene	<0 02	<0 02	<0 02	<0 04	<0 02	<0 02	<0 02	<0 02 L	<0 02
Benzo(g,h,i) perylene	<0 05	<0 05	<0 05	<0 1	<0 05	<0 05	<0 05	<0 05 L	<0 05
Benzo(k)fluoranthene	<0 02	<0 02	<0 02	<0 04	<0 02	<0 02	<0 02	<0 02 L	<0 02
4-Bromophenyl phenyl ether (EPA Method 8270D)	<5 2 T	<5 2 T	<5 0	<5 1	<5 3 T	<5 0	<5 0	<5 2	<5 0
Chrysene	<0 02	<0 02	<0 02	<0 04	<0 02	<0 02	<0 02	<0 02 L	<0 02
Dibenz(a,h)anthracene	<0 05	<0 05	<0 05	<0 1	<0 05	<0 05	<0 05	<0 05 L	<0 05
Fluoranthene	<0 1	<0 1	<0 1	<0 2	<0 1	<0 1	<0 1	<0 1	<0 1
Fluorene	<0 05	<0 05	<0 05	<0 1	<0 05	<0 05	<0 05	<0 05	<0 05
ndeno(1,2,3-cd)pyrene	<0 05	<0 05	<0 05	<0 1	<0 05	<0 05	<0 05	<0 05 L	<0 05
Naphthalene	<0 3	<0 3	<0 3	<0 6	<0 3	<0 3	<0 3	<0 3	<0 3
Phenanthrene	<0 04	<0 04	<0 04	<0 08	<0 04	<0 04	<0 04	<0 04	<0 04
Pyrene	<0 05	<0 05	<0 05	<0 1	<0 05	<0 05	<0 05	<0 05	<0 05
Organics									
PCBs (ug/L, EPA Method 505 unless otherwise noted)									
Aroclor 1016	<0 08 L	<0 08	<0 08 T	<0 08	<0 08 L	<0 8	<0 8	<0 08	<0 08
Aroclor 1221	<0 1 L	<0 1	<0 1 T	<0 1	<0 1 L	<1	<1	<0 1	<0 1
Aroclor 1232	<0 1 L	<0 1	<0 1 T	<0 1	<0 1 L	<1	<1	<0 1	<0 1
Aroclor 1242	<0 1 L	<0 1	<0 1 T	<0 1	<0 1 L	<1	<1	<0 1	<0 1
Aroclor 1248	<0 1 L	<0 1	<0 1 T	<0 1	<0 1 L	<1	<1	<0 1	<0 1
Aroclor 1254	<0 1 L	<0 1	<0 1 T	<0 1	<0 1 L	<1	<1	<0 1	<0 1
Aroclor 1260	<0 1 L	<0 1	<0 1 T	<0 1	<0 1 L	<1	<1	<0 1	<0 1
Total PCBs (pg/L, EPA Method 1668B for Klamath Estuary samples, EPA Method 1668A for all other samples)	4000 T	3900 T	1700	3400 T	6500 T	3000 T	3000 T	160 T, H	130 T, H
Organics									
Pesticides/Herbicides: Organochlorine Pesticides (ug/L, EPA Method 525.2 unless otherwise noted)									
Aldrin (EPA Method 505)	<0 01 L	<0 01	<0 01 T	<0 01	<0 01 L	<0 1	<0 1	<0 01	<0 01
Chlordane (EPA Method 505)	<0 1 L	<0 1	<0 1 T	<0 1	<0 1 L	<1	<1	<0 1	<0 1
Chlordane (Technical) (EPA Method 8081)	<0 50	<0 50	<0 50 T	<0 50 T	<0 50	<0 50	<0 50	<0 50	<0 50
Chlordane-Alpha	<0 05	<0 05	<0 05	<0 1	<0 05	<0 05	<0 05	<0 05	<0 05
Chlordane-Gamma	<0 05	<0 05	<0 05	<0 1	<0 05	<0 05	<0 05	<0 05	<0 05
4,4'-DDT (EPA Method 8081 for CDH-E-IGT-1 only)	<0 1	<0 1	<0 1	<0 10 T	<0 1	<0 1	<0 1	<0 1	<0 1
4,4'-DDD	<0 1	<0 1	<0 1	<0 2	<0 1	<0 1	<0 1	<0 1	<0 1
4,4'-DDE (EPA Method 8081 for CDH-E-IGT-1 only)	<0 1	<0 1	<0 1	<0 10 T	<0 1	<0 1	<0 1	<0 1	<0 1
2,4'-DDT (EPA Method 8081)	<0 10	<0 10	<0 10 T	<0 10 T	<0 10	<0 10	<0 10	<0 10	<0 10
2,4'-DDD (EPA Method 8081)	<0 20	<0 20	<0 20 T	<0 20 T	<0 20	<0 20	<0 20	<0 20	<0 20
2,4'-DDE (EPA Method 8081)	<0 10	<0 10	<0 10 T	<0 10 T	<0 10	<0 10	<0 10	<0 10	<0 10
Dieldrin (EPA Method 505)	<0 01 L	<0 01	<0 01 T	<0 01	<0 01 L	<0 1	<0 1	<0 01	<0 01
Endosulfan I (EPA Method 8081 for CDH-E-IGT-1 only)	<0 1	<0 1	<0 1	<0 10 T	<0 1	<0 1	<0 1	<0 1	<0 1
Endosulfan II (EPA Method 8081 for CDH-E-IGT-1 only)	<0 1	<0 1	<0 1	<0 10 T	<0 1	<0 1	<0 1	<0 1	<0 1
Endosulfan Sulfate	<0 1	<0 1	<0 1	<0 2	<0 1	<0 1	<0 1	<0 1	<0 1
Endrin (EPA Method 505)	<0 01 L	<0 01	<0 01 T	<0 01	<0 01 L	<0 1	<0 1	<0 01	<0 01
Endrin Aldehyde (EPA Method 8081 for CDH-E-IGT-1 only)	<0 1	<0 1	<0 1	<0 10 T	<0 1	<0 1	<0 1	<0 1	<0 1
Endrin Ketone (EPA Method 8081)	<0 10	<0 10	<0 10 T	<0 10 T	<0 10	<0 10	<0 10	<0 10	<0 10
Gamma-BHC (EPA Method 8081)	<0 010	<0 10	<0 10 T	<0 10 T	<0 10	<0 10	<0 10	<0 10	<0 10
HCH - Alpha (EPA Method 8081 for CDH-E-IGT-1 only)	<0 1	<0 1	<0 1	<0 10 T	<0 1	<0 1	<0 1	<0 1	<0 1
HCH - Beta (EPA Method 8081)	<0 050	<0 050	<0 050 T	<0 050 T	<0 050	<0 050	<0 050	<0 050	<0 050
HCH - Delta (EPA Method 8081)	<0 050	<0 050	<0 050 T	<0 050 T	<0 050	<0 050	<0 050	<0 050	<0 050
Heptachlor (EPA Method 505)	<0 01 L	<0 01	<0 01 T	<0 01 T	<0 01 L	<0 1	<0 1	<0 01	<0 01
Heptachlor Epoxide (EPA Method 505)	<0 01 L	<0 01	<0 01 T	<0 01	<0 01 L	<0 1	<0 1	<0 01	<0 01
Heptachlor Epoxide (Isomer B)	<0 05	<0 05	<0 05	<0 1	<0 05	<0 05	<0 05	<0 05	<0 05
Lindane (EPA Method 505)	<0 01 L	<0 01	<0 01 T	<0 01	<0 01 L	<0 1	<0 1	<0 01	<0 01
Methoxychlor (EPA Method 505)	<0 05 L	<0 05	<0 05 T	<0 05	<0 05 L	<0 5	<0 5	<0 05	<0 05
Toxaphene (EPA Method 505)	<0 5 L	<0 5	<0 5 T	<0 5	<0 5 L	<5	<5	<0 5	<0 5

Qualifiers:

V: result may vary excessively from the true value

H: result may have a high bias

L: result may have a low bias

T: result obtained past the holding time

U: result determined to be an outlier at the time of data validation

- : no data

< : not detected

Analyte	Elutriate - Additional Analytes								
	Copco 1 Reservoir		Iron Gate Reservoir			JC Boyle Reservoir		Klamath Estuary	
	CDH-E-CPN	CDH-E-CPT	CDH-E-IGN	CDH-E-IGT-1	CDH-E-IGT-2	CDH-E-JBN	CDH-E-JBT	Lower CHA-E-001	Upper CHA-E-002
Organics									
Pesticides/Herbicides: Organophosphate Pesticides (ug/L, EPA Method 8141A unless otherwise noted)									
O,O,O-Triethylphosphorothioate	<0 95	<0 95	<0 95	<0 95	<0 96	<0 95	<0 95	<0 95	<0 95
Azinphosmethyl	<0 95	<0 95	<0 95	<0 95	<0 96	<0 95	<0 95	<0 95	<0 95
Bolstar	<0 95	<0 95	<0 95	<0 95	<0 96	<0 95	<0 95	<0 95	<0 95
Chlorpyrifos (EPA Method 525 2)	<0 05	<0 05	<0 05	<0 1	<0 05	<0 05	<0 05	<0 05	<0 05
Coumaphos	<0 95	<0 95	<0 95	<0 95	<0 96	<0 95	<0 95	<0 95	<0 95
Demeton	<0 95	<0 95	<0 95	<0 95	<0 96	<0 95	<0 95	<0 95	<0 95
Demeton-O	<0 95	<0 95	<0 95	<0 95	<0 96	<0 95	<0 95	<0 95	<0 95
Demeton-S	<0 95	<0 95	<0 95	<0 95	<0 96	<0 95	<0 95	<0 95	<0 95
Dichlorvos (EPA Method 525 2)	<0 05	<0 05	<0 05	<0 1	<0 05	<0 05	<0 05	<0 05	<0 05
Dimethoate (EPA Method 525 2)	<0 1	<0 1	<0 1	<0 2	<0 1	<0 1	<0 1	<0 1	<0 1
Disulfoton	<0 95	<0 95	<0 95	<0 95	<0 96	<0 95	<0 95	<0 95	<0 95
EPN	<0 95	<0 95	<0 95	<0 95	<0 96	<0 95	<0 95	<0 95	<0 95
Ethoprop	<0 95	<0 95	<0 95	<0 95	<0 96	<0 95	<0 95	<0 95	<0 95
Famphur	<0 95	<0 95	<0 95	<0 95	<0 96	<0 95	<0 95	<0 95	<0 95
Fensulfothion	<0 95	<0 95	<0 95	<0 95	<0 96	<0 95	<0 95	<0 95	<0 95
Fenthion	<0 95	<0 95	<0 95	<0 95	<0 96	<0 95	<0 95	<0 95	<0 95
Malathion (EPA Method 525 2)	<0 1	<0 1	<0 1	<0 2	<0 1	<0 1	<0 1	<0 1	<0 1
Methyl parathion	<0 95	<0 95	-	<0 95	<0 96	<0 95	<0 95	<0 95	<0 95
Mevinphos	<0 95	<0 95	<0 95	<0 95	<0 96	<0 95	<0 95	<0 95	<0 95
Parathion (EPA Method 525 2)	<0 1	<0 1	<0 1	<0 2	<0 1	<0 1	<0 1	<0 1	<0 1
Phorate	<0 95	<0 95	<0 95	<0 95	<0 96	<0 95	<0 95	<0 95	<0 95
Ronnel	<0 95	<0 95	<0 95	<0 95	<0 96	<0 95	<0 95	<0 95	<0 95
Stirophos	<0 95	<0 95	<0 95	<0 95	<0 96	<0 95	<0 95	<0 95	<0 95
Sulfotep	<0 95	<0 95	<0 95	<0 95	<0 96	<0 95	<0 95	<0 95	<0 95
Thionazin	<0 95	<0 95	<0 95	<0 95	<0 96	<0 95	<0 95	<0 95	<0 95
Tokuthion	<0 95	<0 95	<0 95	<0 95	<0 96	<0 95	<0 95	<0 95	<0 95
Trichloronate	<0 95	<0 95	<0 95	<0 95	<0 96	<0 95	<0 95	<0 95	<0 95
Organics									
Pesticides/Herbicides: Carbamate Pesticides (ug/L, EPA Method 531.2 unless otherwise noted)									
3-Hydroxycarbofuran	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5
Aldicarb	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5
Aldicarb sulfone	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5
Aldicarb sulfoxide	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5
Baygon	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5
Carbaryl	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5
Carbazole (EPA Method 8270D)	<5 2 T	<5 2 T	<5 0	<5 1	<5 3 T	<5 0	<5 0	<5 2	<5 0
Carbofuran	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5
Diazinon (EPA Method 525 2)	<0 1	<0 1	<0 1	<0 2	<0 1	<0 1	<0 1	<0 1	<0 1
EPTC (EPA Method 525 2)	<0 1	<0 1	<0 1	<0 2	<0 1	<0 1	<0 1	<0 1	<0 1
Methiocarb	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5
Methomyl	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5
Molinate (EPA Method 525 2)	<0 1	<0 1	<0 1	<0 2	<0 1	<0 1	<0 1	<0 1	<0 1
Oxamyl	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5
Thiobencarb (EPA Method 525 2)	<0 2	<0 2	<0 2	<0 4	<0 2	<0 2	<0 2	<0 2	<0 2
Organics									
Pesticides/Herbicides: Pyrethroids (Insecticides) (ug/L, EPA Method 525.2)									
Permethrin (Total)	<0 1	<0 1	<0 1	<0 2	<0 1	<0 1	<0 1	<0 1 L	<0 1
Organics									
Other Herbicides (ug/L, EPA Method 525.2 unless otherwise noted)									
Acetochlor	<0 1	<0 1	<0 1	<0 2	<0 1	<0 1	<0 1	<0 1	<0 1
Alachlor (EPA Method 505 for CDH-E-IGT-1 only)	<0 05	<0 05	<0 05	<0 1	<0 05	<0 05	<0 05	<0 05	<0 05
Atrazine	<0 05	<0 05	<0 05	<0 1	<0 05	<0 05	<0 05	<0 05	<0 05
Bromacil	<0 2	<0 2	<0 2	<0 4	<0 2	<0 2	<0 2	<0 2	<0 2
Butachlor	<0 05	<0 05	<0 05	<0 1	<0 05	<0 05	<0 05	<0 05	<0 05
Metolachlor	<0 05	<0 05	<0 05	<0 1	<0 05	<0 05	<0 05	<0 05	<0 05
Metribuzin	<0 05	<0 05	<0 05	<0 1	<0 05	<0 05	<0 05	<0 05	<0 05
Pendimethalin	<0 1	<0 1	<0 1	<0 2	<0 1	<0 1	<0 1	<0 1	<0 1
Propachlor	<0 05	<0 05	<0 05	<0 1	<0 05	<0 05	<0 05	<0 05	<0 05
Simazine	<0 05	<0 05	<0 05	<0 1	<0 05	<0 05	<0 05	<0 05	<0 05
Terbacil	<0 1	<0 1	<0 1	<0 2	<0 1	<0 1	<0 1	<0 1	<0 1
Terbuthylazine	<0 1	<0 1	<0 1	<0 2	<0 1	<0 1	<0 1	<0 1	<0 1
Trans-nonachlor	<0 05	<0 05	<0 05	<0 1	<0 05	<0 05	<0 05	<0 05	<0 05
Trifluralin	<0 1	<0 1	<0 1	<0 2	<0 1	<0 1	<0 1	<0 1	<0 1
Organics									
Phthalates (ug/L, EPA Method 525.2 unless otherwise noted)									
Bis(2-ethylhexyl) phthalate	<0 6	<0 6	<0 6	<1 2	<0 6	<0 6	<0 6	<0 6 L	<0 6
Butyl benzyl phthalate	<0 5	<0 5	<0 5	<1	<0 5	<0 5	<0 5	<0 5	<0 5
Diethyl phthalate	<0 5	<0 5	<0 5	<1	<0 5	<0 5	<0 5	<0 5	<0 5
Dimethyl phthalate	<0 5	<0 5	<0 5	<1	<0 5	<0 5	<0 5	<0 5	<0 5
Di-N-butyl phthalate	<1	<1	<1	<2	<1	<1	<1	<1	<1
Di-N-octyl phthalate	<0 1	<0 1	<0 01 T	<0 2	<0 1	<0 1	<0 1	<0 1 L	<0 1
Organics									
VOCs (ug/L, EPA Method 525.2 unless otherwise noted)									
2,4-Dinitrotoluene	<0 1	<0 1	<0 1	<0 2	<0 1	<0 1	<0 1	<0 1	<0 1
2,6-Dinitrotoluene	<0 1	<0 1	<0 1	<0 2	<0 1	<0 1	<0 1	<0 1	<0 1
Chlorobenzilate	<0 1	<0 1	<0 1	<0 2	<0 1	<0 1	<0 1	<0 1	<0 1
Organics									
SVOCs: Phenols (ug/L, EPA Method 8270D unless otherwise noted)									
2,4,5-Trichlorophenol	<5 2 T	<5 2 T	<5 0	<5 1	<5 3 T	<5 0 L	<5 0 L	<5 2	<5 0
2,4,6-Trichlorophenol	<5 2 T	<5 2 T	<5 0	<5 1	<5 3 T	<5 0 L	<5 0 L	<5 2	<5 0
2,4-Dichlorophenol	<5 2 T	<5 2 T	<5 0	<5 1	<5 3 T	<5 0 L	<5 0 L	<5 2	<5 0
2,4-Dimethylphenol	<5 2 T	<5 2 T	<5 0	<5 1	<5 3 T	<5 0 L	<5 0 L	<5 2	<5 0
2,4-Dinitrophenol	<21 T	<21 T	<20	<20	<21 T	<20 L	<20 L	<21	<20
2-Chlorophenol	<5 2 T	<5 2 T	<5 0	<5 1	<5 3 T	<5 0 L	<5 0 L	<5 2	<5 0
2-Methylphenol	<5 2 T	<5 2 T	<5 0	<5 1	<5 3 T	<5 0 L	<5 0 L	<5 2	<5 0
2-Nitrophenol	<5 2 T	<5 2 T	<5 0	<5 1	<5 3 T	<5 0 L	<5 0 L	<5 2	<5 0
4,6-Dinitro-2-Methylphenol	<21 T	<21 T	<20	<20	<21 T	<20 L	<20 L	<21	<20
4-Chloro-3-Methylphenol	<5 2 T	<5 2 T	<5 0	<5 1	<5 3 T	<5 0 L	<5 0 L	<5 2	<5 0
4-Methylphenol	<5 2 T	<5 2 T	<5 0	<5 1	<5 3 T	<5 0 L	<5 0 L	<5 2	<5 0
4-Nitrophenol	<21 T	<21 T	<20	<20	<21 T	<20 L	<20 L	<21	<20
Pentachlorophenol (EPA Method 8151A)	<0 10 T	<0 10 T	<0 10	<0 10	<0 10 T	<0 10	<0 10	<0 10	<0 10
Phenol	<5 2 T	<5 2 T	<5 0	<5 1	<5 3 T	<5 0 L	<5 0 L	<5 2	<5 0
Organics									
SVOCs: Chlorinated hydrocarbons (ug/L, EPA Method 8270D unless otherwise noted)									
1,2,4-Trichlorobenzene	<5 2 T	<5 2 T	<5 0	<5 1	<5 3 T	<5 0	<5 0	<5 2	<5 0
1,2-Dichlorobenzene	<5 2 T	<5 2 T	<5 0	<5 1	<5 3 T	<5 0	<5 0	<5 2	<5 0
1,3-Dichlorobenzene	<5 2 T	<5 2 T	<5 0	<5 1	<5 3 T	<5 0	<5 0	<5 2	<5 0
1,4-Dichlorobenzene	<5 2 T	<5 2 T	<5 0	<5 1	<5 3 T	<5 0	<5 0	<5 2	<5 0
2-Chloronaphthalene	<5 2 T	<5 2 T, L	<5 0	<5 1	<5 3 T	<5 0	<5 0	<5 2	<5 0
Qualifiers:	<5 2 T	<5 2 T	<5 0	<5 1	<5 3 T	<5 0	<5 0	<5 2	<5 0
4-Chlorophenyl phenyl ether	<5 2 T	<5 2 T	<5 0	<5 1	<5 3 T	<5 0	<5 0	<5 2	<5 0
Bis(2-chloroethoxy) methane	<5 2 T	<5 2 T	<5 0	<5 1	<5 3 T	<5 0	<5 0	<5 2	<5 0
Bis(2-chloroethyl) ether	<5 2 T	<5 2 T	<5 0	<5 1	<5 3 T	<5 0	<5 0	<5 2	<5 0
Bis(2-chloroisopropyl) ether	<5 2 T	<5 2 T	<5 0	<5 1	<5 3 T	<5 0	<5 0	<5 2	<5 0
Hexachlorobenzene (EPA Method 525 2)	<0 05	<0 05	<0 05	<0 1	<0 05	<0 05	<0 05	<0 05	<0 05
Hexachlorobutadiene	<5 2 T	<5 2 T	<5 0	<5 1	<5 3 T	<5 0	<5 0	<5 2	<5 0
Hexachlorocyclopentadiene (EPA Method 525 2)	<0 05	<0 05	<0 05	<0 1	<0 05	<0 05	<0 05	<0 05	<0 05
Hexachloroethane	<5 2 T	<5 2 T	<5 0	<5 1	<5 3 T	<5 0	<5 0	<5 2	<5 0
Organics									
SVOCs: Other SVOCs (ug/L, EPA Method 8270D unless otherwise noted)									
2-Nitroaniline	<5 2 T	<5 2 T	<5 0	<5 1	<5 3 T	<5 0	<5 0	<5 2	<5 0
3-Nitroaniline	<5 2 T	<5 2 T	<5 0	<5 1	<5 3 T	<5 0	<5 0	<5 2	<5 0
4-Chloroaniline	<5 2 T	<5 2 T	<5 0	<5 1	<5 3 T	<5 0	<5 0	<5 2	<5 0
4-Nitroaniline	<5 2 T	<5 2 T	<5 0	<5 1	<5 3 T	<5 0	<5 0	<5 2	<5 0

Analyte	Elutriate - Additional Analytes								
	Copco 1 Reservoir		Iron Gate Reservoir			JC Boyle Reservoir		Klamath Estuary	
	CDH-E-CPN	CDH-E-CPT	CDH-E-IGN	CDH-E-IGT-1	CDH-E-IGT-2	CDH-E-JBN	CDH-E-JBT	Lower CHA-E-001	Upper CHA-E-002
Benzoic acid	<21 T	<21 T	<20	<20	<21 T	<20	<20	<21	<20
Benzyl alcohol	<5 2 T	<5 2 T	<5 0	<5 1	<5 3 T	<5 0	<5 0	<5 2	<5 0
Bis(2-ethylhexyl)adipate (EPA Method 525 2)	<0 6	<0 6	<0 6	<1 2	<0 6	<0 6	<0 6	<0 6	<0 6
Dibenzofuran	<5 2 T	<5 2 T	<5 0	<5 1	<5 3 T	<5 0	<5 0	<5 2	<5 0
sophorone (EPA Method 525 2)	<0 5	<0 5	<0 5	<1	<0 5	<0 5	<0 5	<0 5	<0 5
Nitrobenzene	<5 2 T	<5 2 T	<5 0	<5 1	<5 3 T	<5 0	<5 0	<5 2	<5 0
N-Nitrosodi-N-propylamine	<5 2 T	<5 2 T	<5 0	<5 1	<5 3 T	<5 0	<5 0	<5 2	<5 0
N-Nitrosodiphenylamine	<5 2 T	<5 2 T	<5 0	<5 1	<5 3 T	<5 0	<5 0	<5 2	<5 0
Pyridine	<5 2 T	<5 2 T	<5 0	<5 1	<5 3 T	<5 0	<5 0	<5 2	<5 0

Qualifiers:

V: result may vary excessively from the true value

H: result may have a high bias

L: result may have a low bias

T: result obtained past the holding time

U: result determined to be an outlier at the time of data validation

- : no data

< : not detected

Analyte	Elutriate - PCB Congeners								
	Copco 1 Reservoir		Iron Gate Reservoir			JC Boyle Reservoir		Klamath Estuary	
	CDH-E-CPN	CDH-E-CPT	CDH-E-IGN	CDH-E-IGT-1	CDH-E-IGT-2	CDH-E-JBN	CDH-E-JBT	Lower CHA-E-001	Upper CHA-E-002
Organics									
PCBs (pg/L, EPA Method 1668B for Klamath Estuary sample locations, EPA Method 1668A for all other sample locations)									
PCB Congener 1	<34 T	<25 T	<17	<11 T	<18 T	<11 T	<8 5 T	<1 8 T	2 8 T
PCB Congener 100	<4 2 T	<2 7 T	<0 39	<0 64 T	<3 3 T	<0 81 T	<0 55 T	<0 63 T	<0 55 T
PCB Congener 101/113/89	270 T	260 T	57	96 T	340 T	130 T	170 T	8 1 T	10 T
PCB Congener 104	<2 1 T	<1 3 T	<0 30	<0 46 T	<1 5 T	<0 55 T	<0 32 T	<0 58 T	<0 55 T
PCB Congener 105/127	40 T	42 T	15	<21 T	39 T	<39 T	51 T	<3 7 T	<4 0 T
PCB Congener 108/83	<7 2 T	7 3 T	<2 1	<2 4 T	<2 4 T	<6 9 T	<6 3 T	<0 46 T	<0 48 T
PCB Congener 109/107	<5 3 T	<0 58 T	9 6	15 T	<1 1 T	<19 T	19 T	<0 38 T	<0 37 T
PCB Congener 11	<45 T	<37 T	43	<44 T	<49 T	76 T	65 T	<16 T	<17 T
PCB Congener 110	200 T	190 T	58 H	80 T	200 T	140 T	170 T	12 T, H	14 T, H
PCB Congener 112	<3 7 T	<2 4 T	<0 77	<1 5 T	<2 0 T	<2 1 T	<1 8 T	<0 34 T	<0 35 T
PCB Congener 114	<1 4 T	<0 55 T	<0 81	<0 94 T	<1 2 T	<1 3 T	<1 7 T	<0 48 T	<0 48 T
PCB Congener 115/116/87	53 T	63 T	18	24 T	60 T	53 T	59 T	<3 9 T	5 9 T
PCB Congener 117/111	<3 6 T	<3 4 T	<1 1	<1 6 T	4 1 T	3 4 T	<2 8 T	<0 36 T	<0 38 T
PCB Congener 118/106	<100 T	130 T	43	<56 T	130 T	100 T	130 T	10 T	<13 T
PCB Congener 119	<5 5 T	5 2 T	2 5	3 3 T	<6 6 T	2 9 T	4 8 T	<0 36 T	<0 38 T
PCB Congener 12/13	<32 T	<38 T	<17	<22 T	<50 T	<15 T	<19 T	<14 T	<16 T
PCB Congener 122	<1 2 T	<0 53 T	<0 82	<0 92 T	<1 0 T	<1 2 T	<1 7 T	<0 38 T	<0 37 T
PCB Congener 123	<1 3 T	<3 0 T	<0 80	<0 87 T	<1 1 T	<1 2 T	<1 6 T	<0 47 T	<0 45 T
PCB Congener 124	<1 2 T	<0 54 T	<0 73	<0 82 T	<1 0 T	<1 1 T	<1 5 T	<0 38 T	<0 37 T
PCB Congener 126	<2 0 T	<0 89 T	<1 1	<1 1 T	<1 7 T	<1 6 T	<2 2 T	<0 60 T	<0 56 T
PCB Congener 128	<43 T	44 T	<20	28 T	46 T	50 T	47 T	<0 51 T	<0 50 T
PCB Congener 129	<1 9 T	<1 8 T	<2 2	<3 8 T	<1 9 T	9 6 T	<7 4 T	<0 49 T	<0 48 T
PCB Congener 130	<2 1 T	<2 0 T	<7 5	<13 T	<2 1 T	16 T	<6 3 T	<0 47 T	<0 46 T
PCB Congener 132	110 T	<94 T	39	72 T	150 T	72 T	86 T	<0 44 T	<0 44 T
PCB Congener 133/165/131	<2 5 T	<2 4 T	<1 0	<2 2 T	<2 5 T	<1 7 T	<1 5 T	<0 39 T	<0 38 T
PCB Congener 134	20 T	<2 1 T	7 0	<11 T	35 T	<9 0 T	10 T	<0 47 T	<0 46 T
PCB Congener 135	<20 T	37 T	<15	<33 T	<68 T	<21 T	27 T	<0 40 T	<0 40 T
PCB Congener 136/154	47 T	39 T	20	36 T	110 T	27 T	29 T	<0 80 T	<0 55 T
PCB Congener 137	<1 9 T	<1 8 T	<3 6	<4 0 T	<1 9 T	<10 T	<8 1 T	<0 45 T	<0 44 T
PCB Congener 138/160	210 T	230 T	91	180 T	430 T	160 T	190 T	<0 37 T	<0 37 T
PCB Congener 139/149	260 T	210 T	<110	240 T	590 T	170 T	190 T	<0 37 T	<0 37 T
PCB Congener 14	<31 T	<36 T	<16	<21 T	<48 T	<14 T	<18 T	<15 T	<17 T
PCB Congener 140	<1 8 T	<1 7 T	<0 72	<0 84 T	<1 8 T	<0 93 T	<1 6 T	<0 36 T	<0 36 T
PCB Congener 141	<18 T	<29 T	26	64 T	<120 T	42 T	<41 T	<0 39 T	<0 38 T
PCB Congener 142	<1 9 T	<1 8 T	<1 0	<2 0 T	<7 4 T	4 8 T	<4 3 T	<0 46 T	<0 45 T
PCB Congener 143	<1 7 T	<1 7 T	<0 70	<0 81 T	<1 7 T	<0 90 T	<1 6 T	<0 43 T	<0 42 T
PCB Congener 144	13 T	<1 7 T	<0 68	12 T	29 T	<6 0 T	<8 7 T	<0 39 T	<0 39 T
PCB Congener 145/148	<1 5 T	<1 5 T	<1 0	<0 90 T	<1 5 T	<0 59 T	<1 7 T	<0 32 T	<0 32 T
PCB Congener 147	<1 9 T	<1 8 T	<1 5	<0 83 T	<1 9 T	4 7 T	7 2 T	<0 36 T	<0 36 T
PCB Congener 15	<39 T	<44 T	<17	<22 T	<59 T	<15 T	<20 T	<17 T	<18 T
PCB Congener 150	<1 3 T	<1 3 T	<0 92	<0 81 T	<1 3 T	<0 53 T	<1 5 T	<0 27 T	<0 27 T
PCB Congener 151	66 T	87 T	38	81 T	<160 T	46 T	45 T	<0 40 T	<0 39 T
PCB Congener 152	<1 3 T	<1 2 T	<0 86	<0 76 T	<1 3 T	<0 49 T	<1 4 T	<0 28 T	<0 27 T
PCB Congener 155	<1 6 T	<1 8 T	<0 81	<0 93 T	<1 4 T	<0 89 T	<1 3 T	<1 1 T	<1 3 T
PCB Congener 156	17 T	<14 T	<7 4	14 T	29 T	16 T	18 T	1 3 T, H	0 92 T, H,
PCB Congener 157	<2 7 T	<6 7 T	<1 2	<1 7 T	<1 0 T	3 3 T	4 8 T	<0 22 T	<0 11 T
PCB Congener 158	<12 T	13 T	<8 5	<16 T	<28 T	24 T	<18 T	<0 29 T	<0 29 T
PCB Congener 159	<1 3 T	<1 2 T	<0 52	<0 60 T	<1 3 T	<0 66 T	<1 1 T	<0 34 T	<0 33 T
PCB Congener 16/32	24 H, T	20 H, T	7 4	8 0 T	23 H, T	15 T	14 T	5 2 T, H	<4 0 T
PCB Congener 161/146	39 T	40 T	21	41 T	110 T	29 T	34 T	<0 34 T	<0 33 T
PCB Congener 162	<1 3 T	<1 3 T	<0 58	<0 67 T	<1 3 T	<0 74 T	<1 3 T	<0 35 T	<0 35 T
PCB Congener 164/163	<58 T	88 T	47	89 T	160 T	<47 T	53 T	<0 30 T	<0 30 T
PCB Congener 166	<3 3 T	<1 2 T	<2 0	6 9 T	<1 3 T	<0 66 T	<1 1 T	<0 31 T	<0 30 T
PCB Congener 167	<1 1 T	<1 1 T	<3 0	<3 9 T	<10 T	<6 0 T	6 9 T	<0 44 T	<0 39 T
PCB Congener 168/153	280 T	250 T	130	270 T	720 T	200 T	<210 T	<0 34 T	<0 33 T
PCB Congener 169	<2 1 T	<1 8 T	<0 57	<0 83 T	<1 1 T	<1 6 T	<1 4 T	<0 22 T	<0 11 T
PCB Congener 17	19 T	15 T	<4 4	5 0 T	15 T	11 T	<8 9 T	4 7 T	<3 5 T
PCB Congener 170/190	66 T	63 T	<50	130 T	210 T	51 T	46 T	<0 79 T	<0 62 T
PCB Congener 171	20 T	<14 T	16	35 T	53 T	<11 T	<12 T	<0 44 T	<0 42 T
PCB Congener 173	<3 4 T	<2 5 T	<1 6	<2 4,	<4 7 T	2 0 T	<1 1 T	<0 39 T	<0 38 T
PCB Congener 174	88 T	89 T	74	170 T	270 T	60 T	59 T	<1 4 T	<0 64 T
PCB Congener 175	<2 9 T	<2 7 T	<1 1	<1 3 T	<2 7 T	<2 4 T	<1 8 T	<0 64 T	<0 62 T
PCB Congener 176	<7 7 T	<2 2 T	<6 0	<16 T	<38 T	10 T	<9 3 T	<0 46 T	<0 45 T
PCB Congener 177	50 T	44 T	38	89 T	160 T	32 T	<28 T	<1 2 T	<0 50 T
PCB Congener 178	<13 T	<21 T	<12	<36 T	<60 T	<12 T	19 T	<0 68 T	<0 66 T
PCB Congener 179	<45 T	<38 T	30	<67 T	170 T	<26 T	28 T	<0 47 T	<0 45 T
PCB Congener 18	40 H, T	40 H, T	13 H	14 H, T	46 H, T	30 H, T	24 H, T	9 9 T, H	<8 3 T
PCB Congener 181	<3 6 T	<1 5 T	<0 95	<1 5 T	<2 5 T	<0 63 T	<1 0 T	<1 9 T	<0 88 T
PCB Congener 182/187	170 T	130 T	100	250 T	460 T	100 T	120 T	<0 58 T	<0 56 T
PCB Congener 183	<65 T	<37 T	38	87 T	<160 T	34 T	<38 T	<0 63 T	<0 61 T
PCB Congener 184	<2 3 T	<2 1 T	<0 01 T	<1 0 T	<2 1 T	<1 9 T	<1 4 T	<0 45 T	<0 43 T
PCB Congener 185	<3 2 T	<11 T	10	25 T	<42 T	8 1 T	<7 9 T	<0 63 T	<0 61 T
PCB Congener 186	<2 4 T	<2 2 T	<0 96	<1 1 T	<2 2 T	<2 0 T	<1 5 T	<0 51 T	<0 49 T
PCB Congener 188	<2 5 T	<2 9 T	<1 2	<1 5 T	<2 3 T	<2 3 T	<1 4 T	<1 4 T	<1 4 T
PCB Congener 189	<1 1 T	4 5 T	<1 8	4 1 T	5 1 T	<1 5 T	2 8 T	<0 18 T	<0 18 T
PCB Congener 19	4 9 H, T	4 2 H, T	<2 6	<2 1 T	5 6 H, T	3 5 T	3 3 T	1 9 T	<1 4 T
PCB Congener 191	<2 2 T	<1 4 T	<2 2	6 9 T	<8 0 T	<1 6 T	<1 1 T	<0 32 T	<0 31 T
PCB Congener 192/172	12 T	<11 T	11	22 T	<39 T	10 T	<10 T	0 79 T	<0 36 T
PCB Congener 193/180	150 T	150 T	130	330 T	540 T	120 T	130 T	2 9 T	1 2 T
PCB Congener 194	59 T	<55 T	<34	84 T	<110 T	34 T	35 T	<0 29 T	<0 28 T
PCB Congener 195	<18 T	23 T	16	37 T	<51 T	<8 9 T	<9 5 T	<0 30 T	<0 28 T
PCB Congener 196/203	110 T	<92 T	46	110 T	<160 T	50 T	<56 T	<1 3 T	1 1 T
PCB Congener 197	<1 1 T	<1 1 T	2 0	<2 4 T	<5 5 T	<0 75 T	3 4 T	<0 29 T	<0 27 T
PCB Congener 198	<1 6 T	<10 T	<2 4	7 5 T	<4 6 T	3 3 T	<0 60 T	<0 42 T	<0 39 T
PCB Congener 199	<120 T	150 T	66	130 T	210 T	58 T	<65 T	<1 3 T	<0 35 T
PCB Congener 2	<21 T	<15 T	<22	<19 T	<14 T	<13 T	<12 T	<2 0 T	<2 0 T
PCB Congener 20/33/21	34 H, T	33 H, T	11 H	<10 T	27 H, T	26 H, T	23 H, T	6 5 T	<4 6 T
PCB Congener 200	19 T	<13 T	<4 6	16 T	28 T	8 2 T	<5 4 T	<0 29 T	<0 27 T
PCB Congener 201	<11 T	<10 T	<8 4	<13 T	38 T	<7 8 T	<7 8 T	<0 29 T	<0 27 T
PCB Congener 202	<29 T	38 H, T	<10	19 T	35 H, T	<11 T	<18 T	<0 47 T	<0 44 T
PCB Congener 204	<1 2 T	<1 1 T	<0 58	<0 0 T	<1 1 T	<0 71 T	<0 41 T	<0 28 T	<0 27 T
PCB Congener 205	<2 0 T	<0 84 T	3 7	<5 6 T	<7 6 T	<2 6 T	<2 6 T	<0 22 T	<0 20 T
PCB Congener 206	160 T	<160 T	23	33 T	64 T	41 T	55 T	<0 54 T	<0 47 T
PCB Congener 207	28 T	<24 T	3 4	<4 6 T	<10 T	<4 2 T	<7 1 T	<0 30 T	<0 26 T
PCB Congener 208	70 T	85 T	<9 5	12 T	<22 T	13 T	<14 T	<0 35 T	<0 32 T
PCB Congener 209	260 T	270 T	14	17 T	29 H, T	39 T	47 T	2 4 T	<1 5 T
PCB Congener 22	16 H, T	14 H, T	5 5	<6 4 T	17 H, T	14 T	12 T	4 4 T, H	<2 9 T
PCB Congener 25	2 8 T	3 6 T	1 2	<2 5 T	4 2 T	2 0 T	2 2 T	<0 56 T	<0 85 T
PCB Congener 26	<6 1 T	7 2 T	2 7	<2 6 T	<6 7 T	<5 4 T	5 1 T	<0 49 T	<0 74 T
Qualifiers:	<3 5 T	3 6 T	<1 1	<0 82 T	<3 3 T	2 1 T	<1 4 T	1 1 T	<0 48 T
PCB Congener 29	<2 2 T	<2 4 T	<0 91	<0 85 T	<2 0 T	<1 0 T	<0 94 T	<0 49 T	<0 75 T
PCB Congener 3	<9 8 T	<7 2 T	<9 4	<6 6 T	<7 3 T	5 1 T	<5 1 T	<1 9 T	<2 0 T
PCB Congener 30	<2 1 T	<2 4 T	<0 61	<0 79 T	<2 5 T	<0 71 T	<0 81 T	<0 47 T	<0 47 T
PCB Congener 31/28	68 H, T	62 H, T	28 H	34 H, T	<67 T	63 H, T	57 H, T	16 T, H	15 T, H
PCB Congener 34/23	<2 3 T	<2 5 T	<0 92	<0 86 T	<2 1 T	<1 0 T	<0 95 T	<0 55 T	<0 84 T
PCB Congener 35	<3 0 T	<3 9 T	<1 1	1 7 T	<4 3 T	<2 7 T	3 0 T	<0 53 T	<0 81 T
PCB Congener 36	<2 1 T	<2 2 T	<0 82	<0 77 T	<1 8 T	<0 90 T	<0 85 T	<0 47 T	<0 71 T
PCB Congener 37	11 T	10 T	3 9	4 1 T	<7 9 T	8 6 T	9 0 T	2 3 T	<1 6 T
PCB Congener 38	<2 2 T	<3 5 T	<0 81	<0 76 T	<1 9 T	<0 89 T	1 8 T	<0 46 T	<1 8 T
PCB Congener 39	<4 6 T	4 9 T	0 92	<1 3 T	<3 9 T	<2 4 T	2 2 T	<0 48 T	<0 74 T
PCB Congener 4/10	<55 T	<67 T	<36	<53 T	<89 T	<30 T	<37 T	<24 T	<26 T
PCB Congener 40/57	8 5 T	11 T	<2 0	<2 6 T	11 T	6 8 T	6 5 T	<0 55 T	<0 58 T
PCB Congener 41	<0 78 T	<1 7 T	<0 50	<0 68 T	<0 41 T	<0 84 T	<1 1 T	<0 38 T	<0 36 T
PCB Congener 42	30 T	23 T	<5 2	8 2 T	<21 T	20 T	15 T	<1 5 T	<1 4 T

Analyte	Elutriate - PCB Congeners								
	Copco 1 Reservoir		Iron Gate Reservoir			JC Boyle Reservoir		Klamath Estuary	
	CDH-E-CPN	CDH-E-CPT	CDH-E-IGN	CDH-E-IGT-1	CDH-E-IGT-2	CDH-E-JBN	CDH-E-JBT	Lower CHA-E-001	Upper CHA-E-002
PCB Congener 43	<1 4 T	<2 6 T	<0 82	<1 1 T	<0 75 T	<1 4 T	<1 8 T	<0 70 T	<0 67 T
PCB Congener 44	56 T	63 T	17 H	23 H, T	64 T	52 H, T	51 H, T	6 9 T	<6 1 T
PCB Congener 45	9 2 T	8 5 T	2 3	2 7 T	<7 6 T	5 4 T	4 7 T	<0 87 T	<0 93 T
PCB Congener 46/69/73	<1 1 T	3 7 T	<0 69	<0 89 T	<4 9 T	<1 7 T	<1 4 T	<0 45 T	<0 43 T
PCB Congener 48/47/75	59 H, T	69 H, T	22 H	25 H, T	62 H, T	35 H, T	49 H, T	32 T, H	45 T, H
PCB Congener 49	51 T	47 T	14 H	22 H, T	49 T	40 H, T	39 H, T	<3 9 T	<3 4 T
PCB Congener 50	<1 1 T	<2 0 T	<0 67	<0 91 T	<0 60 T	<1 1 T	<1 5 T	<0 52 T	<0 50 T
PCB Congener 51	6 7 H, T	<7 3 T	2 9	<3 3 T	<7 5 T	<4 2 T	<5 1 T	5 5 T	6 6 T
PCB Congener 52	94 H, T	96 H, T	26	36 T	99 H, T	80 T	83 T	7 3 T, H	<6 1 T
PCB Congener 53	<7 2 T	<6 7 T	<1 8	<2 5 T	8 6 T	5 4 T	<3 9 T	<0 62 T	<0 51 T
PCB Congener 54	<0 70 T	<1 4 T	<0 82	<1 1 T	<0 40 T	<1 2 T	<1 9 T	<0 46 T	<0 51 T
PCB Congener 55	<0 99 T	<1 8 T	<0 57	<0 77 T	<0 52 T	<0 96 T	<1 3 T	<0 43 T	<0 41 T
PCB Congener 56	<15 T	<21 T	7 5	12 T	<23 T	22 T	22 T	<1 3 T	2 1 T
PCB Congener 58	<0 90 T	<1 6 T	<0 57	<0 77 T	<2 5 T	<0 95 T	<1 3 T	<0 39 T	<0 38 T
PCB Congener 59	<0 92 T	<1 6 T	<0 56	<0 76 T	<0 48 T	<0 94 T	<1 2 T	<0 32 T	<0 30 T
PCB Congener 6	<33 T	<38 T	<16	<22 T	<51 T	<14 T	<18 T	<15 T	<16 T
PCB Congener 60	<1 6 T	9 3 T	2 8	3 2 T	<6 0 T	<8 5 T	<8 1 T	<0 84 T	<1 3 T
PCB Congener 62	<0 94 T	<1 7 T	<0 57	<0 78 T	<0 49 T	<0 97 T	<1 3 T	<0 49 T	<0 47 T
PCB Congener 63	<0 82 T	<2 7 T	<0 57	<1 3 T	<3 4 T	2 3 T	2 8 T	<0 37 T	<0 36 T
PCB Congener 65	<1 0 T	<1 9 T	<0 55	<0 75 T	<0 55 T	<0 93 T	<1 2 T	<0 34 T	<0 33 T
PCB Congener 66/80	42 T	45 T	16 H	24 H, T	<52 T	41 H, T	42 H, T	2 8 T, H	3 8 T, H,
PCB Congener 67	<0 91 T	<1 6 T	<0 58	0 87 T	<2 5 T	<1 7 T	<1 3 T	<0 36 T	<0 34 T
PCB Congener 71	18 T	<20 T	4 7	<5 0 T	<16 T	15 T	16 T	<0 38 T	<0 36 T
PCB Congener 72/64/68	43 H, T	43 H, T	15	<18 T	43 H, T	36 T	39 T	9 9 T, H	14 T, H
PCB Congener 74/61	26 T	31 T	9 5	13 T	31 T	25 T	27 T	2 3 T	<2 0 T
PCB Congener 76/70	64 T	74 T	24	33 T	72 T	60 T	66 T	<5 3 T	5 7 T, H,
PCB Congener 77	<4 8 T	<3 6 T	2 1	2 1 T	<4 4 T	<5 3 T	5 1 T	<0 14 T	<0 31 T
PCB Congener 78	<1 4 T	<2 7 T	<0 54	<0 66 T	<1 2 T	1 7 T	<0 91 T	<0 11 T	<0 28 T
PCB Congener 79	<1 4 T	<2 7 T	<0 57	<0 70 T	<1 2 T	<1 2 T	<0 97 T	<0 12 T	<0 30 T
PCB Congener 8/5	<34 T	<39 T	<19	<22 T	<52 T	25 T	26 T	<15 T	<17 T
PCB Congener 81	<1 7 T	<3 1 T	<0 57	<0 70 T	<1 4 T	<1 1 T	<0 97 T	<0 12 T	<0 29 T
PCB Congener 82	24 T	<13 T	<7 3	14 T	16 T	20 T	29 T	<0 60 T	<0 58 T
PCB Congener 84/90	26 T	30 T	14	19 T	28 T	41 T	47 T	<1 9 T	2 2 T
PCB Congener 85/120	28 T	<25 T	7 3	<8 8 T	25 T	23 T	25 T	0 63 T	<2 6 T
PCB Congener 86/97/125	49 T	51 T	16	22 T	48 T	41 T	49 T	3 1 T, H	<3 0 T
PCB Congener 88	<4 6 T	<2 9 T	<0 42	<0 69 T	<3 6 T	<0 87 T	<0 59 T	<0 74 T	<0 66 T
PCB Congener 9/7	<32 T	<37 T	<16	<22 T	<49 T	<15 T	<18 T	<15 T	<16 T
PCB Congener 91	<27 T	25 T	6 3	8 1 T	<21 T	16 T	18 T	<1 1 T	<0 61 T
PCB Congener 92	36 T	40 T	13	22 T	59 T	30 T	35 T	<1 6 T	<0 58 T
PCB Congener 94	<5 1 T	<3 2 T	<0 46	<0 76 T	<4 0 T	<0 96 T	<0 65 T	<0 74 T	<0 66 T
PCB Congener 95/93/121	130 T	130 T	37	60 T	160 T	87 T	96 T	<5 3 T	<4 8 T
PCB Congener 96/103	<3 7 T	<3 7 T	<1 7	2 4 T	<6 4 T	2 4 T	<2 5 T	<0 55 T	<0 48 T
PCB Congener 98/102	<4 6 T	<5 4 T	<1 4	<1 9 T	<5 2 T	<3 6 T	<5 3 T	<0 66 T	<0 58 T
PCB Congener 99	95 T	85 T	28	41 T	95 T	66 T	83 T	<3 5 T	3 4 T

Qualifiers:

V: result may vary excessively from the true value

H: result may have a high bias

L: result may have a low bias

T: result obtained past the holding time

U: result determined to be an outlier at the time of data validation

- : no data

< : not detected

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Appendix C

Quality Assurance Project Plan

Sediment Contaminant Study

For the Klamath River Sediment Sampling Program

JC Boyle, Copco-1, Copco-2, and Iron Gate Reservoirs;

Klamath River Estuary

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RECLAMATION

Managing Water in the West

Quality Assurance Project Plan

Sediment Contaminant Study

For the Klamath River Sediment Sampling Program

JC Boyle, Copco-1, Copco-2, and Iron Gate Reservoirs; Klamath River Estuary

Version 2: April 2011

U.S. Department of the Interior
Bureau of Reclamation, Mid-Pacific Region
Branch of Environmental Monitoring, MP-157

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Abstract

This Quality Assurance Project Plan documents the sampling design and quality assurance guidelines for the Sediment Contaminant Study, Klamath River Sediment Sampling Program. The study is being undertaken to inform the 2012 Secretarial Decision to either remove or retain four Klamath River dams: JC Boyle, Copco 1, Copco 2 and Iron Gate. The chemical, physical and biological analyses undertaken in this investigation will be used to help assess whether chemical constituents are present within reservoir sediments at harmful concentrations. This study will help evaluate the potential for exposing or transporting contaminated sediment should the dams be removed.

List of Acronyms

AVS	Acid Volatile Sulfide
BOD	Biological Oxygen Demand
CDH	Contaminant Drill Hole
CHA	Contaminant Hand Auger
COC	Chain of Custody
CN	Cyanide
DDT	Dichlorodiphenyltrichloroethane
DDD	Dichlorodiphenyldichloroethane
DDE	Dichlorodiphenyldichloroethylene
DMT	Data Management Team
DI	De-ionized water
DOC	Dissolved Organic Carbon
DQO	Data Quality Objective
EC	Electrical conductivity
EMT	Environmental Monitoring Team
EPA	Environmental Protection Agency
FADC	Flight Auger Dry Core
GEC	Gathard Engineering Consulting
HPAH	High molecular weight polynuclear aromatic hydrocarbon
ID	Identification number
LPAH	Low molecular weight polynuclear aromatic hydrocarbon
MP157	Mid-Pacific Region Branch of Environmental Monitoring
MPV	Most probable value
MPN	Most probable number
MTBE	Methyl tertiary butyl ether
NOAA	National Oceanic and Atmospheric Administration
PAH	Polycyclic aromatic hydrocarbon
PBDE	Polybrominated diphenyl ethers
PCB	Polychlorinated biphenyls
PE	Performance evaluation
POC	Particulate Organic Carbon
PR	Percent Recovery
PSDDA	Puget Sound Dredged Disposal Analysis
PTFE	Polytetrafluoroethylene - Teflon®
QAPP	Quality Assurance Project Plan
QA	Quality assurance
QAT	Quality Assurance Team
QC	Quality control
RL	Reporting limit
RPD	Relative Percent Difference
SHPO	State Historic Preservation Office
SL	Screening level
SOW	Scope of Work
	Shannon and Wilson Incorporated

SVOC	Semi volatile organic compounds
TDS	Total Dissolved Solids
TEQ	Toxic equivalent concentration
TCE	Trichloroethene
TOC	Total organic carbon
TVS	Total volatile solids
TMT	Technical Management Team
USACE	United States Army Corp of Engineers
USEPA	United States Environmental Protection Agency
USBR	United States Bureau of Reclamation
VOC	Volatile organic compound
WAD	Weak Acid Dissociable

A. PROJECT MANAGEMENT

A1. Approval Sheet

8-5-2010

Stuart Angerer
US Bureau of Reclamation
Mid Pacific Region
Environmental Monitoring Team Lead

Date

Julia E. Eldridge
signing for Victor Stokmanis

8-5-2010

Victor Stokmanis
US Bureau of Reclamation
Mid Pacific Region
Quality Assurance Team Lead

Date

8-5-2010

Satpal Kalsi
US Bureau of Reclamation
Mid Pacific Region
Data Management Team Lead

Date

8/5/10

John Fields
US Bureau of Reclamation
Mid Pacific Region
Environmental Monitoring Branch Chief

Date

A2. Table of Contents

List of Tables

List of Figures

A3. Distribution List

Each person listed on the approval sheet and each person listed under Project/Task Organization will receive an electronic copy of this Quality Assurance Project Plan (QAPP). Individuals taking part in the project may request additional copies of the QAPP from personnel listed under Section A4.

This document has been prepared according to the United States Environmental Protection Agency publication *EPA Requirements for QAPPs*, March 2001 (QA/G-5), the American National Standard for quality assurance systems (ANSI/ASQC E4-1994), and the USEPA's *Guidance for Quality Assurance Project Plans* (2002).

A4. Project/Task Organization

4.1 Project personnel and roles

Personnel involved in project implementation are listed in Table 1. Laboratory contacts for analytical testing of sediment (Table 2) and sample elutriate (Table 3) follow.

Table 1: Project Implementation Personnel

Individual	Affiliation	Contact Information	Project Role
Program Management:			
Rhea Graham	Reclamation	rgraham@usbr.gov 916 978-5113	Program Manager
Blair Greimann	Reclamation	bgreimann@usbr.gov 303 445-2563	Technical Management Team Lead
Tom Hepler	Reclamation	thepler@usbr.gov 303 445-3261	Program Director
Project Design:			
Chauncey Anderson	U.S. Geological Survey	chauncey@usgs.gov 503 251-3206	Project design
Laura Benninger	Reclamation	lbenninger@usbr.gov 916 978-5286	Project design; field coordination, supervision, and implementation; QAPP generation; technical report assistance
Mike McCulla	Reclamation	mmcculla@usbr.gov 916 978-5307	Project design; drilling operations coordination, geologist
Greg Mongano	Reclamation	gmongano@usbr.gov 916 978-5331	Project design; coordination with the geotechnical study, geologist

Table 1: Project Implementation Personnel

Individual	Affiliation	Contact Information	Project Role
Brian Ross	Environmental Protection Agency	ross.brian@epa.gov 415 972-3475	Project design
Paul Zedonis	Fish and Wildlife Service	paul zedonis@fws.gov 707 825-5119	Project design
Quality Assurance:			
Julie Eldredge	Reclamation	jeldredge@usbr.gov 916 978-5240	Quality assurance (QA) validation and review; QA Summary Report generation
Victor Stokmanis	Reclamation	vstokmanis@usbr.gov 916 978-5285	Quality Assurance Team (QAT) Lead; laboratory coordination and budgeting; QAPP generation; QA validation and review
Field Implementation:			
Stuart Angerer	Reclamation	sangerer@usbr.gov 916 978-5046	Environmental Monitoring Team (EMT) Lead; contaminant sample and water column data collection and handling
Rick Carlson	Reclamation	rcarlson@usbr.gov	Contaminant sample collection and handling
Maria Del Hoyo	Reclamation	mdelhoyo@usbr.gov	Contaminant sample and water column data collection and handling
Harry Horner	Reclamation	hhorner@usbr.gov	Alternate field supervisor; contaminant sample and water column data collection and handling
Tim McLaughlin	Reclamation	tmclaughlin@usbr.gov	Contaminant sample collection and handling
James Ross	Reclamation	jross@usbr.gov	Boat operator
April Tower	Reclamation	atower@usbr.gov	Boat operator
Alison Warren	Reclamation	awarren@usbr.gov	Geologist
Data Management:			
Satpal Kalsi	Reclamation	skalsi@usbr.gov 916 978-5278	Data Management Team (DMT) Lead; website coordination

Table 1: Project Implementation Personnel

Individual	Affiliation	Contact Information	Project Role
Eva Grey	Reclamation	egrey@usbr.gov	Data entry and validation
Rosa Heredia	Reclamation	rheredia@usbr.gov	Data entry and validation
Drilling Operations:			
See geotechnical Sampling and Analysis Plan for details			
Technical Report:			
Kevin Kelly	Reclamation	kkelly@usbr.gov 866 476-4550	Preliminary data review and assessment; technical report generation

Table 2: Laboratory Contact Information - Sediment Analyses

Individual	Affiliation	Contact	Analyte (Role in Project)
Frank Smith	ALS Laboratory Group	801 266-7700	Volatile Organic Compounds, Polyaromatic Hydrocarbons, Phthalates, Phenols, Chlorinated Pesticides, Polychlorinated Biphenyl (PCB) Aroclors, PCB Congeners, Dioxins, Furans, Carbamates, Polybrominated Diphenyl Ethers (PBDE), Gasoline Range Organics, Residual Range Organics
Theresa Rawthorne	Axys Analytical	888 373-0881	Carbamates
Nathan Hawley	Basic Laboratory	530 243-7234	pH, Specific Conductance, Instantaneous Oxygen Demand, Total Percent Solids, Total Volatile Solids, Total Dissolved Solids, Ammonia, Total Nitrogen, Total Phosphorus, Weak Acid Dissociable Cyanide, Total Sulfide, Acid Volatile Sulfide (AVS), Total Solids
David Block	Block Environmental	925 682-7200	10 day Acute Bioassay (Hyalella azteca, Chironomus dilutus), 28 Day Bioaccumulation (Lumbriculus variegatus, Corbicula fluminea)
Bill Svoboda	Caltest Analytical Laboratory	707 258-4000	Pyrethroids
Linda Laver	Test America	916 374-4362	Organophosphorus Compounds, Total Metals
Stephen Wilson	USGS Denver	303 236-2454	Total Organic Carbon

Table 3: Laboratory Contact Information - Elutriate Analyses

Individual	Affiliation	Contact	Analyte (Role in Project)
Frank Smith	ALS Laboratory Group	801 266-7700	Polyaromatic Hydrocarbons, Phthalates, Phenols, PCB Congeners
Nathan Hawley	Basic Laboratory	530 243-7234	pH, Specific Conductance, Biological Oxygen Demand (5 day), Instantaneous Oxygen Demand, Total Dissolved Solids, Ammonia, Chloride, Total Nitrogen, Total Phosphorus, Weak Acid Dissociable Cyanide, Total Sulfide, Chlorinated Pesticides, Total Organic Carbon, Dissolved Organic Carbon, Particulate Organic Carbon, Total Metals, Polyaromatic Hydrocarbons, Phthalates, Phenols, Organophosphorus Compounds, Chlorinated Pesticides, Polychlorinated Biphenyl Aroclors, Polychlorinated Biphenyl Congeners, Carbamates
David Block	Block Environmental	925 682-7200	96 Hour Acute Bioassay (*Oncorhynchus mykiss*)
Linda Geddes	Montgomery Watson Harza	626 386-1163	Organochlorine Pesticides/PCBs, Semi-volatile organics, Aldicarbs
Linda Laver	Test America	916 374-4362	Organophosphorus Compounds

* Basic Laboratory will prepare sample elutriate and send the prepared elutriate to other laboratories for further analysis; Block Environmental will prepare their own elutriate.

4.2 Personnel responsibilities

US Bureau of Reclamation (USBR or Reclamation) Program Manager:

- Conduct outreach with regulated industry and internal/external stakeholders
- Oversee progress of the Klamath Sediment Sampling Program

The USBR Technical Management Team (TMT) Lead:

- Conduct outreach with regulated industry and internal/external stakeholders
- Coordinate major program tasks including overseeing progress of the Klamath Sediment Sampling Program
- Oversee maintenance of official, approved QAPP
- Oversee the scheduling of data collection, QA review, tabulation and analysis

The USBR Geology Team:

- Organize drilling operations using the USBR drill team
- Contract an additional drilling team to assist with additional drilling activities

The USBR Environmental Monitoring Team (EMT):

- In collaboration with the USBR Quality Assurance Team (QAT) and members of the Klamath TMT, develop and maintain this QAPP
- Determine required turnaround times for analytical results
- Under the advisement of the TMT, design the environmental monitoring sampling plan. In particular, determine analytes of interest and appropriate collection methods and determine applicable quality standards and associated data quality objectives
- Organize and coordinate sample collection and field logistics
- Collect environmental monitoring data and samples
- Document sampling methods and explain any deviations from the procedures detailed in this QAPP
- Submit environmental and QA samples for analysis by predetermined analytical laboratories. Ensure proper sample collection, preservation, storage and transportation
- Coordinate with the QAT to incorporate QA references, spikes, duplicates and blanks into sample batches prior to submitting samples to the analytical laboratories
- Organize and present QA-validated analytical results
- In collaboration with the QAT, produce and distribute a data report summarizing 1) program objectives, 2) sampling design, 3) sampling methods, 4) quality assurance methods, 5) QA-approved analytical results, and 6) any data qualifications.
- Estimate the labor and equipment costs for completing EMT tasks. Submit this estimate to the Program Manager and inform the Program Manager if budget estimates need adjustment

The USBR Quality Assurance Team (QAT):

- Specify appropriate analytical methods – those which can meet the minimum reporting limits required by the EMT
- Contact QA-approved analytical laboratories and arrange for sample analysis using the predetermined analytical methods. Contract for data turnaround times specified by EMT members

- Obtain sampling requirements from the analytical laboratories and pass this information on to the EMT in an organized and clear manner (specify sample volume, preservation and handling requirements; verify field and laboratory sample hold times)
- Incorporate external QA samples such as references, spikes, duplicates, and blanks
- Supply EMT staff with QA reference and blank materials for inclusion with environmental samples before batches are submitted for analysis
- Within three weeks of receiving an analytical report, validate resulting analytical data following standard USBR QA protocol (Reclamation, 2009c). If QA criteria are not met, ask the laboratories to reanalyze the data
- Determine whether or not samples were analyzed within hold times
- Produce a QA Summary Report for inclusion with the EMT data report described above. Summarize 1) QA results, 2) QA findings, and 3) discussion of QA issues encountered, and how they were resolved
- Estimate the labor and analytical costs of completing QAT tasks. Submit this estimate to the Program Manager and inform the Program Manager if budget estimates need adjustment

The USBR Data Management Team (DMT):

- Within three weeks of receiving QA-validated analytical reports, enter QA-approved analytical results, and any associated data qualifications, into Reclamation's Environmental Monitoring Branch (MP157) Oracle database
- Within two weeks of data entry, verify accuracy of entered data and post verified results to the USBR web
- Maintain binders containing hard copy documentation of sample records and logs
- Estimate the labor and analytical costs of completing DMT tasks. Submit this estimate to the Program Manager and inform the Program Manager if budget estimates need adjustment

Contract laboratories:

- Analyze constituents as indicated on the Chain of Custody documents
- Deliver analytical results within five weeks of sample receipt
- Reanalyze samples if results do not meet USBR QA criteria
- Archive samples until completion of analysis and re-analysis. Upon project completion, return unused sample material to the USBR

A5. Problem Definition/Background

5.1 Problem statement

Based in part upon the data collected in this study, the Secretary of the Department of the Interior will decide whether to approve removal of four dams along the Klamath River**:** JC Boyle, Copco 1, Copco 2 and Iron Gate. Sediment impounded behind these dams may contain chemical or biological contaminants that if exposed or transported, could threaten local, regional, or down-stream environments. A significant volume of sediment is stored behind the dams and previous studies suggest that the sediments may contain potential

contaminants. The collection of additional data is critical to making an informed and responsible decision for or against dam removal.

5.2 Decisions or outcomes

Combined, the sediment chemistry, elutriate chemistry, and bioassessment studies performed on the Klamath River reservoir and estuary samples will provide a weight-of-evidence to help the Secretary of the Interior determine whether to approve or deny dam removal.

5.3 Sediment and elutriate quality criteria

Sediment quality and bioassessment results will be evaluated by comparing analytical results with appropriate bulk sediment screening levels and bioaccumulation triggers. At the least, quality standards will be drawn from the following documents: the Sediment Evaluation Framework (SEF) for the Pacific Northwest (USACE et al., 2009 and USACE/ et al., 2010 *interim*); the Inland Testing Manual, United States Army Corps of Engineers (EPA/USACE, 1998 and 2001); the Dredge Materials Evaluation and Disposal Procedures User's Manual (EPA/USACE, 2008); and the National Oceanic and Atmospheric Administration (NOAA) Screening Quick Reference Tables (Squirts) (Buchman, 2008).

Elutriate data will be evaluated through comparison with regional, state and federal standards for water quality. *A Compilation of Water Quality Goals* (Marshack, J.B. et. al., 2008) will provide the primary guidance document for elutriate evaluation.

As other applicable sediment and elutriate quality criteria are identified, they will be incorporated into the sediment evaluation.

5.4 Background

Geographic Setting

The Klamath River originates at Upper Klamath Lake, Oregon and flows about 250 miles before emptying into the Pacific Ocean near the town of Klamath, California (Figure 1). The Lower Klamath basin is relatively undeveloped and the lower reaches of the Klamath River remain undammed. In contrast, the Upper Klamath Basin supports mining, agriculture, and other industry and the upper Klamath River is dammed in numerous locations. The most downstream of these dams, JC Boyle, Copco 1, Copco 2, and Iron Gate dams (Figure 2), are privately owned by the PacifiCorp Utility Company, and are the subject of this study.

Copco 1 and Copco 2 dams are located in northern California, about 25 miles northeast of Yreka. Construction of Copco 1 was completed in 1918; Copco 2, which forms a small stilling basin below Copco 1, was finished in 1925. In 1958, JC Boyle was built in southern Oregon, about 15 miles southwest of Klamath Falls and 30 miles upstream from Copco 1. In 1962, Iron Gate dam was built about 20 miles northeast of Yreka, California, approximately six miles downstream from Copco 2.

Sediment Volume Estimates

Altogether, the four PacifiCorp dams contain between 14 and 21 million cubic yards of accumulated sediment (G&G Associates, 2003; Gathard Engineering Consulting, 2006). Estimates agree that Copco 1 and Iron Gate dams retain most of the sediment (Table 4). Note that refined sediment volume estimates will be published in the geotechnical investigation associated with this study.

Table 4: Estimated Volumes of Impounded Sediment

Reservoir Name	Dam Completion	Estimated Volume of Impounded Sediment (10^6 cubic yards)	
		G&G Assoc., 2003	Gathard, 2006
JC Boyle	1958	0.03	1
Copco 1	1918	9.3	11
Copco 2	1925	-	<0.2
Iron Gate	1962	4.7	9
Total Volume		14	21

Previous Investigations

In 2006, a reconnaissance-level contaminant study and associated geologic drilling program were carried out by Shannon and Wilson Incorporated (SWI) under subcontract to Gathard Engineering Consulting (GEC). The study included a literature review and field exploration to identify the existence of historic or current contaminant sources that may have affected PacifiCorp reservoir sediments (Shannon and Wilson, 2006a). Potential contaminant sources were verified by the phase-one study. Soon after, GEC and SWI commenced a geotechnical and contaminant investigation of the sediment impounded behind three of the four PacifiCorp reservoirs: JC Boyle, Copco 1 and Iron Gate (Shannon and Wilson, 2006b).

The Shannon and Wilson contaminant study evaluated sediment from 26 total borings: five at JC Boyle, twelve at Copco 1 and nine at Iron Gate. Sediment from each location was homogenized, composited and submitted as a separate sample. Sediment cores were analyzed for a broad range of physical and chemical constituents (Table 5); data quality and results for conventional analytes were not assessed.

Table 5: Summary of Constituents Analyzed

All Samples	One Sample Per Reservoir
▪ Conventional analytes including pH and calcium carbonate ▪ Acid volatile sulfides ▪ Metals ▪ Organochlorine pesticides (including DDT, DDD and DDE) ▪ Chlorinated-acid herbicides ▪ PCB aroclors ▪ Volatile organic compounds (VOC) and semi-volatile organic compounds (SVOC)	▪ Dioxins and furans ▪ Nitrogen and phosphorus ▪ Organophosphorus pesticides ▪ Cyanide

(after Shannon and Wilson, 2006)

In the SWI study, many analytes were not detected (herbicides, PCB aroclors) and detected analytes were most commonly present at concentrations below available Puget Sound Dredge Disposal Analysis (PSDDA) screening levels (DDE, As, Cr, Cu, Ni, Zn, Hg, several SVOCs and VOCs).

In one Copco 1 sample, Ethylbenzene and Total Xylenes were detected above PSDDA screening levels.

Dioxin and furans were detected in each of the three samples analyzed. Individual dioxin/furans vary in toxicity, so individual concentrations are weighted (multiplied by equivalency factors) to determine their toxic equivalents (TEQs). Total TEQs were determined for the JC Boyle, Copco and Iron Gate samples with results of 4.1 pg/g, 4.8 pg/g and 2.5 pg/g, respectively.

Total cyanide (CN) was detected in two of the three samples analyzed (1.41 µg/kg and 2.01 µg/kg). These samples were reanalyzed to determine concentrations of bioavailable (weak-acid dissociable, or WAD) cyanide. WAD cyanide was not detected; however, the samples were analyzed outside of maximum hold times.

A6. Project/Task Description

6.1 Project overview

In support of a Department of the Interior Secretarial Determination, Reclamation will conduct an investigation of the physical and chemical characteristics of sediment impounded behind four dams on the Klamath River (Figure 1). This investigation will be composed of two independent studies: a geotechnical/geologic investigation, and an investigation of sediment contaminant-potential. Data collected in the geotechnical investigation will support future sediment-erodibility and transport studies; contaminant data will be used to help evaluate the potential for exposing and/or transporting contaminated sediment should the Klamath River dams be removed. These studies will help determine the feasibility of dam removal as an alternative to preserving the dams and upgrading them to provide fish-passage.

Contaminant and geotechnical studies are designed in coordination to allow sample collection for both studies to co-occur. Contaminant and geotechnical study designs, methods and results will be reported separately. The geologic and geotechnical studies will be undertaken by Reclamation's Mid-Pacific Region, Division of Design and Construction, Geology Branch (MP-230). Contaminant studies will be conducted by Reclamation's Mid-Pacific Region, Division of Environmental Affairs, Environmental Monitoring Branch (MP-157).

6.2 Primary objectives

The primary goal of this contaminant study is to provide a quantitative estimate of the magnitude and distribution of potential toxicity contained within sediment currently trapped behind the PacifiCorp dams. Data collected should allow insight into whether potential differences in sediment contaminant character may be associated with differences in sediment stratigraphy, depth, or location within (on-thalweg) or outside of (off-thalweg) the

active reservoir channel. This main study question will be pursued through the following sub-goals:

- Collect sediment samples from the JC Boyle, Copco 1, Copco 2 and Iron Gate reservoirs from two location types:
    1. Sediment located within the active reservoir channel (along the historic Klamath River thalweg)
    2. Sediment located outside of the active reservoir channel (off the historic Klamath River thalweg)
- Collect samples composited from distinct stratigraphic horizons, or if on-site geologists determine that the sediment is massive (homogenous), composite sediment over five foot depth intervals
- Collect samples that can provide insight into levels of background contamination that may currently reside in the Klamath River Estuary. Collect sediment from depositional areas within two location types:
    1. Sediment located in a marine dominated estuary location
    2. Sediment located in a river dominated estuary location
- Quantify concentrations of chemical, physical and biological "contaminants of concern" through laboratory analysis of target constituents identified in Section A7
- Conduct sediment bioassessment testing with target species identified in Section A7.
- Use comparable field and analytical techniques to collect, handle, and analyze samples without introducing or eliminating contaminants
- Obtain analytical data that meet quality objectives and quality assurance criteria
- Present analytical results in a format that promotes data usability and analysis

6.3 Schedule of Major Project Tasks

Drilling investigations are planned to begin late September 2009, starting at JC Boyle Reservoir, Oregon and continuing downstream (Copco 1 and then Iron Gate reservoirs, California) until all scheduled borings have been completed, or until weather conditions become unsafe or impractical for drilling. If one to two borings can be completed each day, drilling collections should be complete by December 1, 2009.

Following conclusion of drilling investigations, sediment will be collected by hand-auger or dredge at Copco 2 and the Klamath River Estuary. These sampling events are anticipated to take one to two days and will most likely occur in December 2009 or January 2010.

Laboratory analyses will be initiated as samples are collected, and analytical reports will be reviewed for quality assurance as they are received by the QAT. Following QA review, approved data will be entered into a relational database and accuracy of data entries verified. Once data entry and review is complete, analytical results and quality assurance findings will be summarized and reported. Major project tasks and a tentative schedule for task completion are indicated below (Table 6). This schedule is not constrained by funding or regulatory deadlines.

Table 6: Anticipated Schedule of Major Project Tasks

Task Name	Task Description	Start Date	End Date
Project Development Meeting(s)	Identify program goals and sub-goals based upon input from technical advisors and stakeholders. Develop a sampling plan that will meet program goals. Identify contaminants of concern and data quality objectives (DQOs). Identify responsible parties. Verify budget allocations.	7/1/2009	Sampling Initiation Date
Identify and Retain Contract Analytical Labs	Based on DQOs, identify and retain analytical laboratories that can meet data quality requirements.	7/1/2009	Sampling Initiation Date
Preliminary QAPP Development	Develop QAPP based upon input from internal review, technical advisors, and stakeholders; accept preliminary QAPP prior to initiating field investigations	8/1/2009	10/1/2009
Drilling Investigation	Collect sediment drill core from JC Boyle, Copco 1 and Iron Gate reservoirs. Measure water column physicals. Follow sampling design and methods outlined in Sections B1 and B2.	10/1/2009	11/30/2009
Copco 2 Sample Collection	Dredge or hand auger sediment from Copco 2 reservoir. Follow sampling design and methods outlined in Sections B1 and B2.	12/1/2009	12/1/2009
Estuary Sample Collection	Dredge or hand auger sediment from the Klamath River Estuary. Follow sampling design and methods outlined in Sections B1 and B2.	1/15/2010	1/16/2010
Water Collection for Elutriation	As soon as sediment sampling has been completed on a reservoir, or at the Estuary, collect water for sediment from the appropriate site. Co-submit water and associated sediment for elutriate chemical testing.	see left for timeline	see left for timeline
Laboratory Analyses	Analyze samples for analytes identified in Section A7, Table 14 using approved analytical methods identified in the same section.	12/2/2009	4/1/2010
QA Review	Review data as outlined in Section B5.	1/15/2010	5/15/2010
Data Entry	Following guidelines indicated in Section B10, enter QA-approved data into the USBR database.	1/31/2010	6/1/2010
Data Validation	Following guidelines indicated in Section B10, verify accuracy of data entries.	2/7/2010	6/7/2010
QAPP Finalization	Finalize QAPP based upon input from internal review, technical advisors, and stakeholders	10/1/2009	1/1/2010
Data Summary Report	Compile data into summary tables. Release summary data to interested parties.	6/7/2010	8/1/2010
QA Summary Report	Summarize QA findings and qualifications. Release summary report to interested parties.	5/15/2010	8/1/2010

Table 6: Anticipated Schedule of Major Project Tasks

Task Name	Task Description	Start Date	End Date
Data Assessment	Assess data with respect to applicable sediment and elutriate screening values.	8/1/2010	10/1/2010

6.4 Resource and time constraints

Reservoir investigations need to be completed before winter weather conditions become unsafe or impractical for drilling. During the winter, JC Boyle Reservoir can freeze and roads to all of the reservoirs can become snowy or icy.

Sampling at the Klamath River Estuary should not occur during storm tides or hazardous weather.

The final investigation report should be completed as soon as possible; at latest, it should be ready for inclusion in the Secretarial Decision Overview Report, which is currently scheduled for November 2010.

6.5 Access agreements and historic preservation

Permission to access reservoir sites was obtained through an access agreement with the PacifiCorp utility company under the Geologic Drilling Program Scope of Work (SOW) (Mongano, 2009). Permission to access Klamath River Estuary sites was obtained through an agreement with the Klamath River Yurok Tribes.

Section 106 Cultural Resources compliance documents were submitted to, and approved by, the Office of Historic Preservation (Donaldson, 2009) and the State Historic Preservation Office (SHPO) of Oregon (Diederich, 2009). Cultural resource "exclusion zones" were identified and sampling locations adjusted to remain outside of sensitive areas.

6.6 Field approach - summary

This section summarizes the field approach to addressing the project objectives identified in Section A6.2. Details of the experimental design and sampling methods are described in Sections B1 and B2.

Thirty five reservoir sampling locations were chosen for this study in order to achieve a robust data set (Table 7). Samples collected within the active reservoir channel will be analyzed separately from those collected outside of the active channel. Sediment will be composited according to three strategies as explained in Section B1.2. Each composite type will be submitted or the analyses indicated in Tables 8 and 9. Tables 10 and 11 indicate analyses and sampling requirements for each sediment composite type. Table 12 indicates analyses and sampling requirements for water to be used in sample elutriation. Table 13 specifies sampling equipment to be used at each sample location.

In addition to collecting reservoir sediment, two Klamath River Estuary samples will be analyzed in order to give a coarse estimate of current (background) Klamath Estuary contaminant concentrations. Dam removal will likely release sediment downstream and this material may

ultimately discharge to the Pacific through the Klamath River Estuary. Estuary sediment analyses will provide a preliminary indication of background contaminant levels at the mouth of the Klamath River. Note that these estuary grab samples are not meant to provide a complete or representative characterization of contaminant concentrations within Klamath River or Klamath Estuary.

Sediment and elutriate samples will be analyzed for potential chemical and physical contaminants. Bioassessment studies will also be conducted and test organisms will be frozen and stored immediately after their growth periods have ended. Chemical and physical test results will be compared with sediment quality screening levels and bioaccumulation triggers in order to identify constituents which might be present at harmful concentrations. If bioaccumulation triggers are exceeded, frozen tissue will be analyzed for relevant constituents (chemicals that were present in sediments at concentrations greater than bioaccumulation trigger threshold values).

With the exception of instantaneous biological oxygen demand (IOD), all analyses will be undertaken using established test procedures published in EPA "Standard Methods" documents. Analytical technique and procedure documents can be accessed on-line by searching for the specific methods names shown in Table 14. Analytical methods and sample selection criteria for IOD analyses are discussed in Stillwater Sciences, 2011 and Zedonis and Anderson, 2010.

Geotechnical sampling and analysis, including physical properties and grain size, are covered by a separate Sampling and Analysis Plan (Mongano, 2009).

Table 7: Sampling Sites: Quantities and Locations

Site	Total Sampling Locations	On-Thalweg Locations	Off-Thalweg Locations
JC Boyle	8	4	4
Copco 1	12	8	4
Copco 2	3	3	-
Iron Gate	12	8	4
Klamath Estuary	2	2	-
Total reservoir samples	35	23	12
Total estuary samples	2	2	-

Table 8. Sample Collection Overview

Sample Category	Analyte Suite[1]	Main Reservoirs[2]	Copco 2	Upper Estuary	Lower Estuary
Interval: Sediment cores homogenized over stratigraphic horizons, or depth intervals ≤ 5 ft	Comprehensive	All			
Total Depth: Sediment from an individual core homogenized in its entirety	Special Concern	Two per reservoir: one proximal to the dam, one distal			
Reservoir Composite – on thalweg: Composite of all Total Depth homogenates (cores) collected from each on-thalweg site within one reservoir	Elutriate Chemistry; Bioassessments	One per reservoir			
Reservoir Composite – off thalweg: Composite of all Total Depth homogenates (cores) collected from each off-thalweg site within one reservoir	Elutriate Chemistry; Bioassessments	One per reservoir			
Area Composite: Composite of all cored or dredged material	Comprehensive; Special Concern; Elutriate Chemistry; Bioassessments (upper Estuary only)		One	One	One

[1] Table 9 summarizes groups of constituents to be analyzed for each analyte suite. For a complete analyte list, see Table 14.
[2] JC Boyle Reservoir, Copco 1 Reservoir and Iron Gate Reservoir

Table 9: Constituent Groupings within Analyte Suites shown in Table 8

Comprehensive (Sediment)	Elutriate Chemistry
Ammonia Chlorinated Pesticides Diesel Range Organics Dissolved organic carbon (DOC) Metals Nitrogen Phenols Phosphate Phthalates pH and electrical conductivity (EC) Polyaromatic hydrocarbons (PAHs) Polychlorinated biphenyl (PCB) Aroclors Residual Range Organics Semi-volatile organic compounds Sulfides Total organic carbon (TOC) Total solids Volatile organic compounds (VOCs) Volatile solids Weak-acid dissociable (WAD) cyanide	<u>Comprehensive:</u> Ammonia Biological oxygen demand (BOD) 5-day Chloride Chlorinated Pesticides Dissolved organic carbon (DOC) Metals Nitrogen Particulate organic carbon (POC) Phenols Phosphate Phthalates Physicals (EC, pH) Polyaromatic hydrocarbons (PAHs) Polychlorinated biphenyl (PCB) Aroclors Semi-volatile organic compounds Sulfides Total dissolved solids (TDS) Total organic carbon (TOC) Weak-acid dissociable (WAD) cyanide <u>Special Concerns:</u> Acid Volatile Sulfides Carbamates Organophosphorus Compounds PCB Congeners
Special Concern (sediment)	**Bioassessment (sediment and elutriate)**
Acid Volatile Sulfides Carbamates Dioxins/Furans Organophosphorus Compounds PCB Congeners Polybrominated diphenyl ethers Pyrethroids	Elutriate bioassay, 4-day, *Onchorhynchus mykiss* Sediment bioassay, 10-day, *Chironomus dilutus* Sediment bioassay, 10-day, *Hyalella azteca* Sediment bioaccumulation study, 28-day, *Corbicula fluminea* Sediment bioaccumulation study, 28-day, *Lumbriculus variegatus*

Table 10: Sediment Collection Overview - Interval and Total Depth Composite Samples

Composite Type	Grouped Analytes	Lab	Volume (oz)[1]	Volume (ml)	Preservation	Field Hold [2]
Interval	Volatile Organic Compounds	ALS	4	125	no head space	10 days
	PAH, Phthalates, Phenols, Chlorinated Pesticides, PCB Aroclors	ALS	8	250	-	2 wks
	Total % Solids, Total Volatile Solids (TVS)	Basic	8 (4)	250	-	7 days
	EC, pH	Basic	8 (4)	250	-	ASAP
	WAD Cyanide, Ammonia, Total N, Total P	Basic	8 (4)	250	-	ASAP
	Total Sulfide	Basic	4	125	Zn acetate, no headspace	ASAP
	Total Organic Carbon	USGS	4	125	-	indefinite
	Total Metals	Test Am.	4 (1)	125	-	6 months
total sediment needed:		**8 jars**	**20**	**1500**		
Total Depth	Dioxins, Furans	ALS	8	250	-	30 days
	PCB Congeners	ALS	8	250	-	2 wks
	Acid Volatile Sulfides	Basic	4	125	-	14 days
	Organophosphorus Compounds	Test Am.	8 (5)	250	-	14 days
	Carbamates	ALS/Axys	8	250	frozen	7 days
	PBDEs	ALS	8	250	-	1 year
	Pyrethroids	Caltest	8 (4)	250	frozen	7 days
total sediment needed:		**7 jars**	**36**	**1625**		

[1] Parentheses indicate minimum volumes
[2] Field hold indicates the maximum time samples can be held prior to elutriation, extraction or analysis

Table 11: Sediment Collection Overview - Reservoir Composite and Area Composite Samples

Composite Type	Sample ID	Analyte Suite	Lab	Volume (oz)[1]	Volume (ml)	Field Hold [2]
On-Thalweg Reservoir Composite (Boyle, Copco 1, Iron Gate)	CDH-E-JBT/CPT/IGT	Elutriate Chemistry	Basic	4	1 four-liter glass	7 days
	CDH-S-JBT/CPT/IGT	Bioassessment	Block	29	8 gallons (plastic buckets are fine)	8 wks
Off-Thalweg Reservoir Composite (Boyle, Copco 1, Iron Gate)	CDH-E-JBN/CPN/IGN	Elutriate Chemistry	Basic	4	1 four-liter glass	2 wks
	CDH-S-JBN/CPN/IGN	Bioassessment	Block	29	8 gallons (plastic buckets are fine)	8 wks
Copco 2 Area Composite	CDH-E-CP2	Elutriate Chemistry	Basic	4	1 four-liter glass	2 wks
	CDH-S-CP2	Bioassessment	Block	29	8 gallons (plastic buckets are fine)	8 wks
		Interval	As indicated in Table 10			
		Total Depth	As indicated in Table 10			
Upper Estuary Area Composite	CHA-E-002	Elutriate Chemistry	Basic	4	1 four-liter glass	2 wks
	CHA-S-002	Bioassessment	Block	29	8 gallons (plastic buckets are fine)	8 wks
		Interval	As indicated in Table 10			
		Total Depth	As indicated in Table 10			
Lower Estuary Area Composite	CHA-S-002	Interval	As indicated in Table 10			
		Total Depth	As indicated in Table 10			

[1] Parentheses indicate minimum volumes
[2] Field hold indicates the maximum time samples can be held prior to elutriation, extraction or analysis

Table 12: Water Collection for Use with Elutriate

Sample ID	Analyses Grouped by Sample Container	Lab	Required Volume (L)	Containers Needed	Extraction Hold	Analysis Hold
JC Boyle	Elutriate Chemistry	Basic	40	10 four-liter glass	3 days	Analyze ASAP
	Elutriate Bioassessment	Block	210	12 five-gallon cubitainers	3 days	Analyze ASAP
Copco 1	Elutriate Chemistry	Basic	40	10 four-liter glass	3 days	Analyze ASAP
	Elutriate Bioassessment	Block	210	12 five-gallon cubitainers	3 days	Analyze ASAP
Iron Gate	Elutriate Chemistry	Basic	40	10 four-liter glass	3 days	Analyze ASAP
	Elutriate Bioassessment	Block	210	12 five-gallon cubitainers	3 days	Analyze ASAP
Upper Estuary	Elutriate Chemistry	Basic	40	10 four-liter glass	3 days	Analyze ASAP
	Elutriate Bioassessment	Block	210	12 five-gallon cubitainers	3 days	Analyze ASAP

Water collections: elutriate chemistry collect in glass; for bioassessment studies plastic is okay
Short hold - send from field.

Table 13: Sample Collection Equipment

Site	Proposed Collection Method	Collection Method Achieved[1]	Analyte Suite/Composite Strategy
JC Boyle	Barge supported flight auger	Barge supported flight auger	Comprehensive/Interval Special Concern/Total Depth
		Barge supported gravity sampler	Bioassessment/Reservoir Composite Elutriate Chemistry/Reservoir Composite
		Manually pushed gravity sampler	Bioassessment/Reservoir Composite Elutriate Chemistry/Reservoir Composite
Copco 1	Barge supported flight auger	Barge supported direct push	Comprehensive/ Interval Special Concern/Total Depth Bioassessment/Reservoir Composite Elutriate Chemistry/Reservoir Composite
		Barge supported Vibracore	Comprehensive/ Interval Special Concern/Total Depth Bioassessment/Reservoir Composite Elutriate Chemistry/Reservoir Composite
Iron Gate	Barge supported flight auger	Barge supported gravity sampler	Comprehensive/ Interval Special Concern/Total Depth Bioassessment/Reservoir Composite Elutriate Chemistry/Reservoir Composite
Copco 2	Clam shell (Ponar) gravity sampler	Clam shell gravity sampler; Manual push gravity sampler	Comprehensive/Area Composite Special Concern/Area Composite Elutriate Chemistry/Area Composite
Klamath Estuary	Clam shell gravity sampler	Manual push gravity sampler	Comprehensive/Area Composite Special Concern/Area Composite
		Manual push gravity sampler; Shovel	Bioassessment/Area Composite Elutriate Chemistry/Area Composite

[1]Acheived sampling methods are included in this updated QAPP they varied significantly from the original plan.

A7. Quality Objectives and Criteria for Laboratory Analytical Data

This section summarizes field and analytical approaches to obtaining analytical results that meet data quality objectives and quality assurance criteria. Measurement performance criteria for analytical data are stated in terms of defining and achieving uncertainty levels that will not compromise study objectives. Measurement performance criteria and associated data quality indicators are detailed below.

7.1 Method Sensitivity

In order to ensure accuracy of low level results, for each analyte, analytical methods were selected to achieve a reporting limit 3-5 times lower than the lowest applicable sediment screening level or water quality criteria. Analytes, analytical methods, and their respective reporting limits are shown in Table 14. Note that stated reporting limits may not be achieved due to method limitations, matrix affects, or required sample dilutions.

Table 14: Analytes and Methods	Sediment (µg/Kg)			Elutriate (µg/L)		
Analyte	**Screening Level**	**RL**	**Analytical Method**	**Criteria**	**RL**	**Analytical Method**
Conventional Analytes						
grain size analysis	--	--	ASTM D 422	--	--	--
pH (units)	--	0.01	EPA 9045	6.5-8.5	0.01	SM4500H+B
Specific Conductance (µS/cm)	--	10	SM2510B	700	10	SM2510B
BOD (5 day)				--	300	SM5210
Ammonia	--	0.25	EPA 350.1	1500	50	EPA 350.1
Chloride				106000	200	EPA 300.0
WAD cyanide	--	500	SM 4500 CN-I	--	5	SM 4500 CN-I
Total Nitrogen	--	25	EPA 351.2	10	200	EPA 351.2
Total Phosphorus	--	50	SM 4500 P Mod	--	50	SM4500P-BE
Total Sulfide	--	0.2	SM 9030B/4500S2D	0.029	20	SM 9030B/4500S2D
AVS	--	500	E821/R-91-100			
TDS				450000	6000	SM2540C
Total Solids	--	0.06	SM 2450 B			
TVS	--	10	SM 2540 G			
TOC	--	0.4	N011, T10, C011, T08	--	300	SM5310C
DOC				--	300	SM5310C
POC				--	--	SM5310C
Total Metals						
Aluminum	--	5	EPA 6020/6010B	87	5	EPA 200.8
Antimony	150	2	EPA 6010B	5.6	0.5	EPA 200.8
Arsenic	57	0.2	EPA 6020	10	0.2	EPA 200.8
Cadmium	5.1	0.1	EPA 6020	varies	0.1	EPA 200.8
Calcium	--	50	EPA 6010B	--	1000	EPA 200.7
Chromium	260	0.2	EPA 6020	50	0.2	EPA 200.8
Copper	390	0.2	EPA 6020	varies	0.2	EPA 200.8
Lead	450	0.1	EPA 6020	varies	0.1	EPA 200.8

Table 14: Analytes and Methods	Sediment (µg/Kg)			Elutriate (µg/L)		
Analyte	**Screening Level**	**RL**	**Analytical Method**	**Criteria**	**RL**	**Analytical Method**
Magnesium	--	50	EPA 6010B	--	1000	EPA 200.7
Mercury	0.41	0.04	EPA 7471A	0.77	0.04	EPA1631E
Nickel	--	0.2	EPA 6020	varies	0.2	EPA 200.8
Selenium	3000	2000	EPA 6020	--	--	--
Silver	6.1	0.1	EPA 6010B	varies	0.1	EPA 200.8
Zinc	410	1	EPA 6020	varies	1	EPA 200.8
PAH compounds						
Acenaphthylene	560	5.1	EPA 8270D	--	0.1 ug/L	EPA 525.2
Acenaphthene	500	5.1	EPA 8270D	670	0.1	EPA 525.2
Anthracene	960	5.1	EPA 8270D	8300	0.02	EPA 525.2/EPA 8270D
Benzo(a)anthracene	1,300	5.1	EPA 8270D	--	0.05	EPA 525.2
Benzo(a)pyrene	1,600	5.1	EPA 8270D	0.0044	0.02	EPA 525.2
Benzo(b,k)fluoranthene	3,200	5.1	EPA 8270D	--	0.02	EPA 525.2
Benzo(g,h,i)perylene	670	5.1	EPA 8270D	--	0.05	EPA 525.2
Chrysene	1,400	5.1	EPA 8270D	0.0044	0.02	EPA 525.2
Dibenz(a,h)anthracene	230	5.1	EPA 8270D	0.0044	0.05	EPA 525.2
Fluoranthene	1,700	5.1	EPA 8270D	130	0.1	EPA 525.2
Fluorene	540	5.1	EPA 8270D	1100	0.05	EPA 525.2
Indeno(1,2,3-cd)pyrene	600	20	EPA 8270D	0.0044	0.05	EPA 525.2
Naphthalene	2,100	20	EPA 8270D/8260C	17	0.1	EPA 525.2
Phenanthrene	1,500	5.1	EPA 8270D	--	0.04	EPA 525.2
Pyrene	2,600	5.1	EPA 8270D	830	0.04	EPA 525.2
Total LPAH	5,200	170	EPA 8270D	960	0.05	EPA 525.2
Total HPAH	12,000	170	EPA 8270D	960	0.05	EPA 525.2
Pthalates						
Dimethyl phthalate	71	167	EPA 8270D	27000	5000	EPA 525.2
Diethyl phthalate	200	167	EPA 8270D	17000	5000	EPA 525.2

Table 14: Analytes and Methods	Sediment (µg/Kg)			Elutriate (µg/L)		
Analyte	**Screening Level**	**RL**	**Analytical Method**	**Criteria**	**RL**	**Analytical Method**
Di-n-butyl phthalate	1,400	167	EPA 8270D	2000	5000	EPA 525.2
Butyl benzyl phthalate	63	167	EPA 8270D	--	5000	EPA 525.2
Bis(2-ethylhexyl)phthalate	1,300	167	EPA 8270D	--	5000	EPA 525.2
D-n-octyl phthalate	6,200	167	EPA 8270D	--	5000	EPA 525.2
Phenols						
Phenol	420	167	EPA 8270D	4200	5000	EPA 8270D
2 Methylphenol	63	167	EPA 8270D	--	5000	EPA 8270D
4 Methylphenol	670	167	EPA 8270D	--	5000	EPA 8270D
2,4-Dimethylphenol	29	167	EPA 8270D	100	5000	EPA 8270D
Pentachlorophenol	400	3.33	EPA 8151A	0.1	20000	EPA 8151A
Chlorinated Pesticides						
2,4'-DDD	--	0.667	ENV by GC-MS Specialty	--	0.02	EPA 8081
4,4'-DDD	9	0.667	EPA 8081A	0.00083	0.02	EPA 8081/EPA 525.2
2,4'-DDE	--	0.667	ENV by GC-MS Specialty	--	0.01	EPA 8081
4,4'-DDE	16	0.667	EPA 8081A	0.00059	0.01	EPA 8081/EPA 525.2
2,4'-DDT	--	0.667	ENV by GC-MS Specialty	--	0.01	EPA 8081
4,4'-DDT	34	0.667	EPA 8081A	0.00059	0.01	EPA 8081/EPA 525.2
Aldrin	--	0.667	EPA 8081A	0.00013	0.02	EPA 505
alpha Chlordane	--	0.667	EPA 8081A	--	0.02	EPA 525.2
technical Chlordane	--	3.33	EPA 8081A	--	0.1	EPA 8081
alpha-BHC	--	0.667	EPA 8081A	0.0039	0.02	EPA 8081/EPA 525.2
beta-BHC	--	0.667	EPA 8081A	0.025	0.02	EPA 8081
delta-BHC	--	0.667	EPA 8081A	--	0.02	EPA 8081
Dieldrin	--	0.667	EPA 8081A	0.002	0.02	EPA 505

Table 14: Analytes and Methods	Sediment (µg/Kg)			Elutriate (µg/L)		
Analyte	**Screening Level**	**RL**	**Analytical Method**	**Criteria**	**RL**	**Analytical Method**
Endosulfan I	--	0.667	EPA 8081A	0.056	0.02	EPA 8081/EPA 525.2
Endosulfan II	--	0.667	EPA 8081A	0.056	0.02	EPA 8081/EPA 525.2
Endosulfan Sulfate	--	0.667	EPA 8081A	0.056	0.02	EPA EPA 525.2
Endrin	--	0.667	EPA 8081A	0.036	0.02	EPA 505
Endrin Aldehyde	--	0.667	EPA 8081A	0.29	0.02	EPA 8081/EPA 525.2
Endrin Ketone	--	0.667	EPA 8081A	--	0.02	EPA 8081
gamma-BHC (lindane)	--	0.667	EPA 8081A	0.2	0.02	EPA 8081/EPA 505
gamma chlordane	--	0.667	EPA 8081A	--	0.02	EPA 8081/EPA 525.2
Heptachlor	--	0.667	EPA 8081A	0.0038	0.02	EPA 505
Heptachlor epoxide	--	0.667	EPA 8081A	0.0038	0.02	EPA 505/EPA525.2
Methoxychlor	--	0.667	EPA 8081A	30	0.02	EPA 505
Toxaphene	--	33.3	EPA 8081A	0.0002	1.0	EPA 505
Organophosphorus Compounds						
Azinphosmethyl	--	33	EPA 8141A	0.01	0.95	EPA 8141A
Bolstar	--	33	EPA 8141A	--	0.95	EPA 8141A
Chlorpyrifos	--	33	EPA 8141A	0.014	0.95	EPA 525.2
Coumaphos	--	33	EPA 8141A	--	0.95	EPA 8141A
Demeton: o,s, total	--	39	EPA 8141A	0.1	0.95	EPA 8141A
Diazinon	--	33	EPA 8141A	0.05	0.95	EPA 525.2
Dichlorvos	--	33	EPA 8141A	--	0.95	EPA 525.2
Dimethoate	--	--	EPA 8141A	--	0.95	EPA 525.2
Disulfoton	--	48	EPA 8141A	0.05	0.95	EPA 8141A
EPN	--	--	EPA 8141A	--	0.95	EPA 8141A
Ethoprop	--	33	EPA 8141A	--	0.95	EPA 8141A
Famphur	--	--	EPA 8141A	--	0.95	EPA 8141A

Table 14: Analytes and Methods	Sediment (µg/Kg)			Elutriate (µg/L)		
Analyte	**Screening Level**	**RL**	**Analytical Method**	**Criteria**	**RL**	**Analytical Method**
Fensulfothion	--	33	EPA 8141A	--	0.95	EPA 8141A
Fenthion	--	33	EPA 8141A	--	0.95	EPA 8141A
Malathion	--	13	EPA 8141A	0.1	0.95	EPA 525.2
Methyl Parathion	--	--	EPA 8141A	--	0.95	EPA 8141A
Mevinphos	--	33	EPA 8141A	--	0.95	EPA 8141A
Parathion	--	33	EPA 8141A	--	0.95	EPA 525.2
Phorate	--	33	EPA 8141A	--	0.95	EPA 8141A
Ronnel	--	16	EPA 8141A	--	0.95	EPA 8141A
Stirophos	--	13	EPA 8141A	--	0.95	EPA 8141A
Sulfotepp	--	--	EPA 8141A	--	0.95	EPA 8141A
Thionazin	--	--	EPA 8141A	--	0.95	EPA 8141A
Tokuthion	--	13	EPA 8141A	--	0.95	EPA 8141A
Trichloronate	--	13	EPA 8141A	--	0.95	EPA 8141A
0,0,0-Triethylephosphorothioate	--	--	EPA 8141A	--	0.95	EPA 8141A
PCBs						
Aroclor PCB-1016	--	33.5	EPA 8082	--	0.08	EPA 505
Aroclor PCB-1221	--	67.1	EPA 8082	--	0.1	EPA 505
Aroclor PCB-1232	--	33.5	EPA 8082	--	0.1	EPA 505
Aroclor PCB-1242	--	33.5	EPA 8082	--	0.1	EPA 505
Aroclor PCB-1248	--	33.5	EPA 8082	--	0.1	EPA 505
Aroclor PCB-1254	--	33.5	EPA 8082	--	0.1	EPA 505
Aroclor PCB-1260	--	33.5	EPA 8082	--	0.1	EPA 505
Total PCBs	--	33.5	EPA 8082	--	0.08	EPA 505
PCB congeners (209 compounds)	--	--	EPA 1668A/1668B	--	--	EPA 1668A
VOCs						
Trichloroethylene (TCE)	--	5	EPA 8260C			
Tetrachloroethene (PCE)	--	5	EPA 8260C			
Ethylbenzene	--	5	EPA 8260C			

Table 14: Analytes and Methods	Sediment (µg/Kg)			Elutriate (µg/L)		
Analyte	**Screening Level**	**RL**	**Analytical Method**	**Criteria**	**RL**	**Analytical Method**
m,p-xylene	--	10	EPA 8260C			
o-xylene	--	5	EPA 8260C			
Benzene	--	5	EPA 8260C			
MTBE	--	5	EPA 8260C			
1,1-Dichloroethene	--	5	EPA 8260C			
Vinyl chloride	--	5	EPA 8260C			
Toluene	--	5	EPA 8260C			
Trans-1,2-dichlorethylene	--	5	EPA 8260C			
1,1,1-Trichloroethane (1,1,1-TCA)	--	5	EPA 8260C			
Chloroform	--	5	EPA 8260C			
Diesel Range Organics	--	5	EPA 8015B DRO			
Residual Range Organics	--	5	EPA 8015B RRO			
Dioxins and Furans						
2,3,7,8-Tetrachlorod benzo-*p*-dioxin (TCDD)	--	0.001	EPA 8290A			
1,2,3,7,8-Pentachlorod benzo-*p*-dioxin (PeCDD)	--	0.001	EPA 8290A			
1,2,3,4,7,8-Hexachlorod benzo-*p*-dioxin (HxCDD)	--	0.001	EPA 8290A			
1,2,3,6,7,8-Hexachlorod benzo-*p*-dioxin (HxCDD)	--	0.001	EPA 8290A			
1,2,3,7,8,9-Hexachlorod benzo-*p*-dioxin (HxCDD)	--	0.001	EPA 8290A			
1,2,3,4,6,7,8-Heptachlorod benzo-*p*-dioxin (HpCDD)	--	0.001	EPA 8290A			
1,2,3,4,5,6,7,8-Octachlorod benzo-*p*-dioxin (OCDD)	--	0.001	EPA 8290A			
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	--	0.001	EPA 8290A			
1,2,3,7,8-Pentachlorodibenzofuran (PeCDF)	--	0.001	EPA 8290A			

Table 14: Analytes and Methods	Sediment (µg/Kg)			Elutriate (µg/L)		
Analyte	**Screening Level**	**RL**	**Analytical Method**	**Criteria**	**RL**	**Analytical Method**
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	--	0.001	EPA 8290A			
1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	--	0.001	EPA 8290A			
1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)	--	0.001	EPA 8290A			
1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	--	0.001	EPA 8290A			
2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)	--	0.001	EPA 8290A			
1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	--	0.001	EPA 8290A			
1,2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)	--	0.001	EPA 8290A			
1,2,3,4,5,6,7,8-Octachlorodibenzofuran (OCDF)	--	0.001	EPA 8290A			
Total Tetrachlorod benzo-*p*-dioxin (TCDD)	--	0.001	EPA 8290A			
Total Pentachlorod benzo-*p*-dioxin (PeCDD)	--	0.001	EPA 8290A			
Total Hexachlorod benzo-*p*-dioxin (HxCDD)	--	0.001	EPA 8290A			
Total Heptachlorod benzo-*p*-dioxin (HpCDD)	--	0.001	EPA 8290A			
Total Tetrachlorodibenzofuran (TCDF)	--	0.001	EPA 8290A			
Total Pentachlorodibenzofuran (PeCDF)	--	0.001	EPA 8290A			
Total Hexachlorodibenzofuran (HxCDF)	--	0.001	EPA 8290A			
Total Heptachlorodibenzofuran (HpCDF)	--	0.001	EPA 8290A			
Carbamates						
3-Hydroxycarbofuran	--	0.1	EPA 8318/ EPA8321/ MLA-047	--	0.5	EPA 531.2
Aldicarb	--	0.1	EPA 8318/ EPA8321/ MLA-047	3	0.5	EPA 531.2

Table 14: Analytes and Methods	Sediment (µg/Kg)			Elutriate (µg/L)		
Analyte	**Screening Level**	**RL**	**Analytical Method**	**Criteria**	**RL**	**Analytical Method**
Aldicarb sulfone	--	0.2	EPA 8318/ EPA8321/ MLA-047	--	0.5	EPA 531.2
Aldicarb sulfoxide	--	0.2	EPA 8318/ EPA8321/ MLA-047	--	0.5	EPA 531.2
Baygon	--	0.1	MLA-047	30	0.5	EPA 531.2
Carbaryl	--	0.1	EPA 8318/ EPA8321/ MLA-047	700	0.5	EPA 531.2
Carbofuran	--	0.1	EPA 8318/ EPA8321/ MLA-047	18	0.5	EPA 531.2
Methiocarb	--	0.2	EPA 8318/ EPA8321/ MLA-047	--	0.5	EPA 531.2
Methomyl	--	0.2	EPA 8318/ EPA8321/ MLA-047	--	0.5	EPA 531.2
Oxamyl	--	0.1	EPA 8318/ EPA8321/ MLA-047	50	0.5	EPA 531.2
Pyrethroids						
Allethrin	--	0.33	GCMS-NCI-SIM			
Bifenthrin	--	0.33	GCMS-NCI-SIM			
Cyfluthrin	--	0.33	GCMS-NCI-SIM			
Lamda-Cyhalothrin	--	0.33	GCMS-NCI-SIM			
Cypermethrin	--	0.33	GCMS-NCI-SIM			
Deltamethrin:Tralomethrin	--	0.33	GCMS-NCI-SIM			
Esfenvalerate:Fenvalerate	--	0.33	GCMS-NCI-SIM			
Fenpropathrin	--	0.33	GCMS-NCI-SIM			
Tau-Fluvalinate	--	0.33	GCMS-NCI-SIM			
Permethrin	--	0.33	GCMS-NCI-SIM			
Phenothrin	--	0.33	GCMS-NCI-SIM			
Resmethrin	--	0.33	GCMS-NCI-SIM			

Table 14: Analytes and Methods	Sediment (µg/Kg)			Elutriate (µg/L)		
Analyte	**Screening Level**	**RL**	**Analytical Method**	**Criteria**	**RL**	**Analytical Method**
Tetramethrin	--	0.33	GCMS-NCI-SIM			
PBDEs						
49 PBDE Compounds	--	--	EPA 1614			

		Bulk Sediment			Elutriate		
Test Organism	**Units**	**Screening Level**	**RL**	**Analytical Method**	**Screening Level**	**RL**	**Analytical Method**
Bioassessment - Bioassays (4 day, acute)							
Oncorhynchus mykiss (Rainbow Trout)	% survival				> 90%	N/A	600/R-99/064
Bioassessment - Bioassays (10 day, acute)							
Hyalella azteca (amphipod)	% survival	> 90%	N/A	600/R-99/064			
Chironomus dilutus (midge)	% survival	> 90%	N/A	600/R-99/064			
Bioaccumulation (28 day, acute)							
Corbicula fluminea (fresh water clam)	% survival	> 90%	N/A	600/R-99/064			
Lumbriculus variegatus (oligochaete worm)	% survival	> 90%	N/A	600/R-99/065			

7.2 Analytical Bias

Analytical bias will be assessed by reviewing the results of the external QA samples as well as the laboratory quality control (QC) samples. Acceptance criteria for external QA samples are below in section 7.4; acceptance criteria for laboratory QC samples can be found in the analytical methods or the laboratory SOP documents. If a QA/QC result does not meet the relevant acceptance criteria, bias to the environmental samples will be assessed based on USBR MP-157 standard operating protocols (Reclamation,

2009) and samples will be qualified as possibly biased high or possibly biased low as appropriate. Any result that is determined to have a bias will be flagged with a data qualifier.

Analytical bias will also be assessed by comparing analytical results for individual constituents that are analyzed by more than one method. For example, sediment will be analyzed using both standard methods 8260 and 8270. Both of these methods can detect Naphthalene; Naphthalene results obtained through alternate methods can be used to help determine the accuracy of the analytical results.

7.3 Quality Control Protocols

Chemical testing protocols are determined by United States Environmental Protection Agency (USEPA) methods or other approved standard methods. Reporting limits and Quality Control (QC) protocols are specified by e analytical method.

7.4 External Quality Assurance Sample Acceptance Criteria

The QA acceptance criteria for external QA checks are based on control limits reported in the MP-157 SOP manual for quality assurance (Reclamation, 2009c). Criteria used to assess data validity are listed below (Table 15).

Table 15: Quality Assurance Acceptance Criteria for Soil and Elutriate

Result Concentration/Reference Certified Value	Precision	Accuracy	Contamination
Soil Matrix			≤ 2 x RL, ≤ 10% of the lowest production sample result or within Vendor's Acceptance Range
≥ 5 x RL	≤ 35% Relative Percent Difference (RPD)	65% - 135% Recovery or within Vendor's Acceptance Range	
< 5 x RL	± 2 x RL	± 2 x RL or within Vendor's Acceptance Range	
Elutriate Matrix			
≥ 5 x RL	≤ 20% RPD	80% - 120% Recovery or within Vendor's Acceptance Range	
< 5 x RL	± 1 x RL	± 1 x RL or within Vendor's Acceptance Range	

7.5 Completeness

To meet data completeness objectives for this project, all attempts will be made to collect greater than 95% of planned samples.

7.6 Comparability

Comparability is achieved by collecting and analyzing samples in the same manner at the same sites over the life of the project. In this study, all samples were collected in accordance with MP-157 sampling protocols. Field personnel received training prior to sample collection in order to ensure use of comparable collection procedures. If field conditions require any deviations from anticipated methods, all deviations will be thoroughly documented in field record books.

Throughout this program, individual constituents will be analyzed by the same laboratories and analytical methods. Consistent use of laboratories (Tables 2 and 3) and analytical methods (Table 14) will help to ensure data comparability.

In future, data collected in this study will be compared with, and evaluated in combination with, contaminant data from the Shannon and Wilson 2006 study. No direct effort was made to match the sampling or analytical methods in this study with the prior study. When the combined data is evaluated, the new dataset will be evaluated for data comparability.

A8. Special Training/Certification

The Environment Monitoring, Quality Assurance and Data Management team leads are responsible for ensuring that all personnel involved with their respective sections have the training and skills needed for successful completion of their assigned tasks. Team leads will verify that tasks are completed in accordance with applicable MP-157 SOP guidelines. No specialized certifications are required for this project.

A9. Documents and Records

9.1 Document and record control

The written, illustrated and photographic recording media for the project will be both paper and electronic. The project will implement proper document and record control procedures for both paper and electronic media, consistent with USBR quality management procedures. For instance, hand-recorded data records will be taken with indelible ink, and changes to such data records will be made by drawing a single line through the error with an initial by the responsible person. The Project Manager will have ultimate responsibility for all changes to records and documents.

The QAT and EMT team leaders will be responsible for approval of the final QAPP and approval of any updates. The EMT lead will be responsible for distribution of the current or updated QAPP. The USBR Branch of Environmental Monitoring shall retain

copies of all sample collection documentation, laboratory reports and correspondence, and any emails associated with project activities.

9.2 Other documents/records

Other records and documents will produced in conjunction with this project:

- Sample Identification (ID)Labels
- Field Record Books
- Field Log Sheets
- Chain of Custody Records
- Core Log
- Spike Book
- Laboratory Analytical Reports
- Project Data and QA Summary Reports

Sample Identification Labels

Sediment samples will be labeled with at least the following information:

- Unique identification number (described below)
- Sample collection date
- Analyses required
- Chemical preservative where applicable (see Table 10)

Water samples (collected for elutriate and biological tests) will be labeled with at least the following information:

- Lake name or estuary location
- Sample collection date and time
- Required analyses

Reservoir samples will be assigned unique IDs in coordination with the contaminant drill hole (CDH) and contaminant hand auger (CHA) identifiers shown in Table 16. These IDs were assigned through the geologic/geotechnical investigation.

Table 16: Proposed Contaminant Sample Locations

	Coordinates		
Drill Hole ID	**Northing**	**Easting**	**Topographic Elevation (feet)**
JC Boyle Reservoir			
CDH-09-001	2666449.1	6554048.5	3793
CDH-09-002	2666153.2	6552000.8	3793
CDH-09-003	2663970.2	6551811.5	3793
CDH-09-004	2663960.5	6552286.4	3793
CDH-09-005	2662282.1	6552787.2	3793
CDH-09-006	2660797.7	6553238.7	3793

Table 16: Proposed Contaminant Sample Locations

	Coordinates		
Drill Hole ID	**Northing**	**Easting**	**Topographic Elevation (feet)**
CDH-09-007	2656810.2	6549292.2	3793
CDH-09-008	2656730.3	6549814.2	3793
Copco 1 Reservoir			
CDH-09-009	2599640.0	6488234.5	2605
CDH-09-010	2601331.0	6484823.0	2605
CDH-09-011	2603678.4	6483434.6	2605
CDH-09-012	2603567.5	6482366.7	2605
CDH-09-013	2605231.2	6479555.7	2605
CDH-09-014	2606869.5	6478576.7	2605
CDH-09-015	2606622.1	6476962.9	2605
CDH-09-016	2605531.2	6475079.8	2605
CDH-09-017	2607114.9	6474673.9	2605
CDH-09-018	2606785.8	6474070.0	2605
CDH-09-019	2606357.1	6472106.2	2605
CDH-09-020	2604978.7	6472087.6	2605
Copco 2 Reservoir			
CHA-09-003	to be arranged	to be arranged	2472
CHA-09-004	to be arranged	to be arranged	2472
CHA-09-005	to be arranged	to be arranged	2472
Iron Gate Reservoir			
CDH-09-021	2601162.0	6459883.1	2325
CDH-09-022	2600274.0	6455224.6	2325
CDH-09-023	2602352.3	6452436.0	2325
CDH-09-024	2601888.6	6451804.8	2325
CDH-09-025	2598982.1	6446338.0	2325
CDH-09-026	2597723.5	6446269.1	2325
CDH-09-027	2599708.7	6443348.8	2325
CDH-09-028	2598746.1	6442283.5	2325
CDH-09-029	2595752.7	6443483.5	2325
CDH-09-030	2592846.3	6444075.9	2325
CDH-09-031	2591964.4	6442822.1	2325
CDH-09-032	2589051.7	6443887.4	2325
Upper Estuary			
CHA-09-002	to be arranged	to be arranged	~5
Lower Estuary			
CHA-09-001	to be arranged	to be arranged	~5

Coordinates and elevations are approximate (CCS83, Zone 1, US Survey Feet), exact locations will be determined at site based on field conditions and water level.

Contaminant sample IDs will be based on sample location, composite strategy (Interval, Total Depth, Reservoir Composite, Area Composite) and sample matrix to be analyzed (sediment or elutriate). Distinction between sediment and elutriate analyses is required for data entry purposes.

There are two basic sample ID formats, one for Interval and Whole-core composite samples and one for Reservoir Composite and Area Composite samples.

For Interval and Total Depth composite samples, use the format indicated in Table 17; for multiple core Reservoir Composite samples, use the format shown in Table 18.

Table 17: Sample Identifiers for Interval and Total Depth Samples

	Sample ID	
Sample Location	**Sediment (S)**	**Elutriate Chemistry (E)**
Reservoirs	CDH-S-### (depth interval)	CDH-E-### (depth interval)
Estuary	CHA-S-###	CHA-E-###

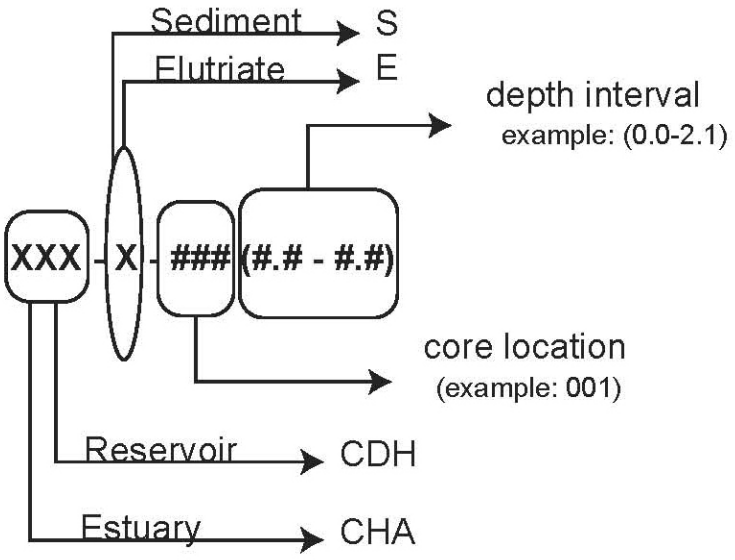

Table 18: Sample Identifiers for Reservoir Composite Samples

		Desired Analyses	
Reservoir Name	**Composite Location**	**Bioassessment**	**Elutriate Chemistry**
JC BOYLE	Thalweg	CDH-S-JBT	CDH-E-JBT
	Off-thalweg	CDH-S-JBN	CDH-E-JBN
COPCO 1	Thalweg	CDH-S-CPT	CDH-E-CPT
	Off-thalweg	CDH-S-CPN	CDH-E-CPN
COPCO 2	Thalweg	CDH-S-CP2	CDH-E-CP2
IRON GATE	Thalweg	CDH-S-IGT	CDH-E-IGT
	Off-thalweg	CDH-S-IGN	CDH-E-IGN

Field Record Book

A bound field notebook will be used to record at least the following information:

- Project name
- Site location/Global Positioning System (GPS) coordinates
- Date
- On site start time
- Off site end time
- Names of sampling personnel and record keeper
- Sample identification number (including depth interval)
- Conditions that may affect sample
- Significant observations
- Sample recovery
- Name of visitors and other persons on site

Field personnel will maintain the field record. Corrections will be made by crossing a line through faulty entries and entering the correct information. Corrections will be initialed and dated by the person making the correction. Logbook entries will be dated, legible, in ink, and contain accurate information. Language used will be objective, factual, and free of personal opinion.

Field Log Sheets and Chain of Custody Records

The following information will be recorded on field log sheets and the chain of custody (COC):

- Project name
- Site location
- Sample identification number (including depth interval)
- Sample matrix
- Sample collection date
- Required laboratory analyses
- Name of field personnel

Instrument Calibration Verification Sheet

The instrument calibration/verification sheet serves as a record showing that either 1) the Sonde multi-probe instrument was properly calibrated prior to collecting water measurements or 2) if proper calibration could not be verified, the instrument was recalibrated.

The following information will be documented on the instrument calibration sheet:

- Project name
- Date and time
- Name of person conducting the calibration/verification
- Instrument brand and model
- Instrument number
- Calibration standard used (value)
- Pre-calibration instrument measurement (value)
- If needed, post-calibration instrument measurement (value)

Core Log

USBR geologists will log a detailed description of each contaminant before core is sampled for contaminant analyses. The following attributes of the core will be recorded:

- Core location
- Sampling method
- Core length
- Date
- Detailed physical description of the core including color, ductility, plasticity, grain size, mineralogy, scent
- Name of geologist

Spike Record Book

The QA specialist is responsible for documenting the necessary information pertaining to the QA samples in the spike book. A spike book is a bound notebook that contains spike worksheets. Documentation on the spike worksheet includes the following information:

- Project name
- Number of samples
- Collection date
- Batch identification number
- Range of sample ID numbers assigned to the batch of samples
- Range of laboratory ID numbers assigned to the batch of samples
- Site name for the selected QA site
- Types of QA samples incorporated
- Field IDs that correspond to the QA samples
- Source ID for reference material used
- Parameters to be spiked
- Measured volumes of spike samples
- Volume and concentration of spike aliquots delivered
- Final concentration of particular parameters in the spike sample
- Reporting limits for parameters
- Dated initials of QA personnel incorporating the external QA samples

Analytical Report

The laboratory produces the analytical report, which contains laboratory data results. The analytical report documents the analytical results for each parameter analyzed on each sample submitted. The analytical report generally includes the following information:

- Case narrative
- Analytical results
- Reporting limits (RL) for parameters
- Methods used to analyze the sample(s)
- Date sample(s) was/were collected, prepared, and analyzed
- Laboratory's quality control results

9.3 Storage of project information

Paper copies of project information will be stored as outlined in the MP-157 *Standard Operating Procedures for Data Management* guidance documents (Reclamation, 2009a). Electronic copies of project information will be stored as outlined in the USBR Information Technology guidance documents.

B DATA ACQUISITION AND GENERATION

B1. Experimental Design/Sampling Process Design

B1.1 Site distribution

Reservoirs

PacifiCorp reservoir sampling sites were planned using a targeted (non-random) strategy in order to meet objectives of the engineering and chemical investigations. Prior to site selection, the path of the historic Klamath River thalweg was estimated from pre-dam topography indicated on USGS topographic maps and available reservoir bathymetry data (Eilers and Gubala, 2003). For each reservoir, locations within the estimated active channel of the historic Klamath River thalweg (referred to as "on-thalweg") were spaced approximately evenly along the length of the estimated thalweg and then adjusted to avoid archeologically sensitive areas. Similarly, sites located outside of the estimated historic Klamath River thalweg (referred to as "off-thalweg") were distributed throughout off-thalweg areas of each reservoir, including submerged tributary mouths, and adjusted to avoid archeological exclusion zones.

In order to facilitate comparison between data collected in this study and data collected by Shannon and Wilson (2006b), at least one site at each reservoir was planned to coincide with a sampling location selected for the previous study.

Site locations are indicated in Table 16 and in Figures 3 through 6.

Copco 2

Copco 2 is very narrow and essentially covers the thalweg of the historic Klamath River. Due to the small size of the reservoir, locations were chosen to have an even areal distribution. On and off thalweg locations were not distinguished as the entire reservoirs is most likely "on thalweg". Three to six sampling locations are to be determined in the field. The sediment cover thickness will determine the number of sites needed. If sediment cover is thin, more sites will be needed in order to fill volume requirements for sample analyses.

Estuary

Two Klamath River Estuary sites are to be sampled, one representing an upper estuary, river-dominated environment and one a lower estuary marine-dominated environment (Figure 6). Exact locations and density of sample sites will be determined on-site. Each sample will be composited from 3 to 6 locations distributed within a half mile radius; if sediment is difficult to capture, numerous very closely spaced sample replicates will be collected to fill volume requirements at each sub-location.

Estuary samples will be analyzed in order to give a coarse estimate of current (background) Klamath Estuary contaminant concentrations. Dam removal will likely release sediment downstream and this material may ultimately discharge to the Pacific through the Klamath River Estuary. Estuary sediment analyses will provide a

preliminary indication of background contaminant levels at the mouth of the Klamath River. Note that these estuary grab samples are not meant to provide a complete or representative characterization of contaminant concentrations within Klamath River or Klamath Estuary.

B1.1 Site density

In order to achieve a data set representative of the entire reservoirs, sample locations were distributed throughout each reservoir and coring locations were situated within 4000 ft of each other.

B1.2 Sediment Collection Strategies

Interval Composite

As indicated in Table 8, "Interval composite" samples will be collected at all reservoir bore-hole locations. This type of sample will be composited by stratigraphic horizon, or if sediment is massive, by five foot depth intervals. For example, imagine recovering a three-foot core composed of one foot of clay underlain by two feet of silty-sand. This core would yield two Interval composite samples: one collected from sediment/water interface to one foot below (0.0 - 1.0), the second composited from sediment collected between one and three feet deep (1.0 – 3.0). Alternately, if the sediment were not stratified, only one Interval composite would be collected (from the zero to three foot depth horizon). A 12 foot long homogeneous core would yield three samples, each composited from sediment collected between the zero to five (0.0-5.0); five to ten (5.0-10.0), and ten to twelve (10.0-12.0) depth intervals.

Compositing stratigraphic or depth horizons at all drill hole locations will help to resolve spatial variations in reservoir sediment chemical composition. This strategy was chosen for the analysis of common sediment characteristics (e.g. EC, pH), contaminants that are widespread in the environment (e.g. heavy metals, polyaromatic hydrocarbons), and certain persistent contaminants with potential local inputs (e.g. chlorinated pesticides, WAD cyanide). Interval composite samples will be collected at each boring location in order to maximize spatial distribution of data points.

Total Depth Composite

"Total Depth" composite samples will be composited over the entire length of a complete core: from the water/sediment interface to the contact between reservoir-sediment and pre-reservoir basement. Contact with basement, as with all cores collected, will be confirmed by on-site geologists.

Total Depth composite samples will not expose chemical heterogeneity, but do provide a reasonable approach for estimating average sediment composition. Total Depth composite samples will be collected at two locations per reservoir. This composite strategy was chosen for the analysis of constituents of emerging concern (e.g. polybrominated diphenyl ethers) and for constituents meriting confirmation or

clarification of prior results (e.g. dioxins/furans, PCB congeners). If constituents in the Whole-core analyte suite are found in significant concentrations, then future studies can be conducted to determine the extent and spatial distribution of their occurrence.

Reservoir Composite

Multiple-core "Reservoir Composite" samples will be composed from whole-core composite samples that were collected from every on-thalweg and every off-thalweg (off-thalweg) borehole location within a reservoir. This is the best approach for determining average sediment composition in all on-thalweg, and all off-thalweg locations lake-wide. Reservoir Composite samples were chosen for analysis of sediment elutriate and for bioassessment studies for two main reasons:

1. Sediment with a reservoir-wide average composition was desired for bioassessment testing. Bioassessment tests are meant to expose concerns that may not be revealed through targeted chemical testing. Analysis of targeted (potentially non-representative) samples would not meet bioassessment-testing goals.
2. Bioassessment and elutriate testing requires large sediment volumes and multiple-core composites are needed to fill volume requirements. Core samples yield approximately three liters of uncontaminated sediment for every five feet of recovery. To complete all of the desired bioassessment and elutriate testing, approximately 6 gallons of sediment are needed per reservoir.

Area Composite

Copco 2 and Klamath Estuary multiple-core "Area Composite" samples will be composed from Total Depth samples collected at every sampling location within Copco 2 and the Estuary respectively. This is the best approach for determining average sediment composition area-wide. These samples will not be segregated according to thalweg/off-thalweg location since the entire Copco 2 stilling basin is an active channel, and since fine-grained estuary sediment will be collected wherever it is found.

B1.3 Water Column Profile Collection

At each sampling site, or once each day that sediment is collected, the overlying water column will be profiled for the following characteristics: turbidity, pH, temperature, dissolved oxygen, and specific conductance. Water column profiles will be collected using a Yellow Springs Instrument (YSI) multi-probe Sonde. The instrument will be deployed from the back of the drilling barge using a reel and 200 ft data cable with a YSI data logger. In water less than fifty feet deep, data will be logged in one foot increments; in deeper water, data will be logged every five feet until the instrument is within ten feet of the bottom, then data will be collected every foot. Calibration of each probe will be verified or re-calibrated prior to each deployment of the instrument.

B2. Sampling Methods

B2.1 Sediment collection equipment

Reservoir

Coring is the preferred sampling method for this project. Coring devices facilitate sampling of thick sediment packages. Coring also allows collection of relatively undisturbed samples and retrieval of samples over discreet intervals.

Two types of coring equipment will be tried while in the field: a barge-supported steel auger (Flight Auger Dry Core or FADC); and a gravity corer with a Lexan (plastic) tube. Collection equipment is described in detail in the QAPP for the companion geotechnical report. The FADC method will be used to sample near-dam regions where thick sediments are anticipated. This method may be slow, requires meticulous decontamination, and can have low sample yield (see Section B2.2). Logistical issues can also preclude sampling in water depths greater than about 80 feet.

In shallow sediment, the gravity sampler may be the preferred sampling device. This sampler may allow for more rapid sample retrieval and may yield a greater volume of uncontaminated sediment due to the greater diameter core-tube used by this device.

Estuary

Estuary sampling will be attempted with the gravity sampler deployed from a small boat. However, gravity core sampling may not be practical - estuary sediment is anticipated to be coarse-grained, sandy or gravelly in many areas. The Lexan gravity core tube has an 2-5/8 inch inside diameter and may become blocked by gravel or cobbles; sandy sediment with low cohesion may not be contained within the sampler, even if a sediment retaining basket (sand fingers) is attached.

While gravity core sampling is good for collecting sub-surface material, it will not be an efficient method for collecting large sample volumes. If attempts with the gravity corer fail, samples will be collected either with a small stainless-steel clam-shell dredge devise, and/or with a stainless steel shovel.

B2.2 Methods for removing sediment from the sampling device and collecting sub-samples

Sediment collected using the FADC method will be extracted and sub-sampled using the following method: Lay the closed auger casing on a wooden surface covered in plastic. Open the split sides to reveal the sediment core. Sample will be described and photographed by on site geologists. When the geologist gives the go-ahead, use a stainless steel or Teflon-coated palette knife to cut the sample in half lengthwise and lay it open. Reserve one of the halves for use with geotechnical studies. Sample the remaining half for contaminant studies by removing material from the center of the core with a stainless steel spoon. Leave a margin at least 0.5 inch thick on all sides in order

to avoid contamination. Place material into a stainless steel bowl and homogenize as described in Section B2.3.

Sediment collected with the gravity devise will be “plunged” from the tube using a flat Teflon disk ("Core Extruding Plug") that sits on top of the sediment and is pushed with a long dowel. Place the Lexan-tube on a wooden bench covered with clean plastic, on a length of aluminum foil, or on an aluminum baking-sheet, and then extrude. Sample description, photographing, and sub sampling will occur as described above.

B2.3 Compositing Procedures

Sample material will be composited before homogenization and distribution into sample jars. Interval samples will be composited over the entire interval designated. Total Depth samples will be composited over the entire length of each individual core. On-Thalweg and Off-thalweg Reservoir Composites will be composited by combining pre-homogenized Total Depth samples. Care will be taken to combine only complete Total Depth samples. For estuary samples, where basement was not reached and "whole cores" cannot be collected, equal volumes of sample will be combined (composited) from each sub-sample location.

B2.4 Homogenization Procedures

Samples will be homogenized by mixing thoroughly and vigorously with a stainless steel spoon, or by mixing with a stainless steel paint mixer head attached to an electric drill. Homogenization procedures are described in the MP-157 *Standard Operating Procedures for Environmental Monitoring* manual (Reclamation, 2009B).

Samples collected for VOC analyses will not be homogenized – instead, small spoonfuls of sediment will be collected along the entire core length and placed in the appropriate sample container until it is full. Care will be taken to make sure that equal volumes of sediment are collected along the entire length of the core and that the container is not filled before the entire core length has been sampled.

B3. Sample Handling and Custody

B3.1 Maximum sample hold times

Maximum holding times allowed from sample collection to extraction and/or analysis for sediment and elutriate analyses are shown in Tables 19 and 20 respectively. Sample handling requirements for bioassessment studies are presented in a separate document.

Table 19: Extraction and Analysis Holding Times – Sediment

Method	Hold Time - Sediment	
	Extract	Analysis
ENV by GC-MS Specialty	14 days	40 days
EPA 8015B	14 days	40 days
EPA 7471A	-	28 days
EPA 6010B	-	6 months
EPA 6020	-	6 months
USGS:N011,T10 USGS:C011,T08	-	indefinite
EPA 1614	1 year	45 days
EPA 8082	14 days	40 days
EPA 8260C	-	14 days
EPA 8290A	30 days	45 days
EPA 8318 and EPA 8321	14 days	40 days
MLA-047 Rev 03	7 days	40 days
GCMS-NCI-SIM	7 days	40 days
SM 9045	-	asap
EPA 8015B	14 days	40 days
E821/R-91-100	-	14 days
SM 2540B	-	7 days
SM 2540G	-	none
EPA 350.1	-	none
SM 4500CN I	-	none
SM 2510B	-	none
EPA 351.2	-	none
EPA 1668A	14 days	40 days
EPA 8081	14 days	40 days
EPA 8141A	14 days	40 days
EPA 8270D	14 days	40 days
EPA 8151A	14 days	40 days
SM 4500P Mod	-	none
SM 9030B/4500S2D	-	asap

Table 20: Extraction and Analysis Holding Times - Elutriate

Method	Hold Time - Elutriate	
	Extract	Analysis
SM 5210	-	48 hours
EPA 300	-	28 days
SM 5310C	-	28 days
EPA 1631E	-	90 days
EPA 200.7	-	6 months
EPA 200.8	-	6 months
EPA 505	14 days for all except heptachlor; heptachlor is 7 days	24 hours
EPA 525.2	14 days for all except the following which must be extracted immediately: carboxin, diazinon, disulfoton, disulfoton sulfoxide, fenamiphos, and terbufos	30 days
EPA 531.2	-	28 days
SM 4500H+B	-	asap
SM 2540C	-	7 days
EPA 350.1	-	28 days
SM 4500CN I	-	14 days
SM 2510B	-	28 days
EPA 351.2	-	28 days
EPA 1668A	7 days	40 days
EPA 8081	7 days	40 days
EPA 8141A	7 days	40 days
EPA 8270D	7 days	40 days
EPA 8151A	7 days	40 days
SM 4500P Mod	-	28 days
SM 9030B/4500S2D	-	7 days

B3.2 Sample handling and decontamination

All sampling equipment and containers will be made of non-contaminating materials (Teflon, stainless steel, or glass for chemical testing; plastic for bioassessment studies) and will be thoroughly clean prior to every use. For chemical testing, pre-cleaned sample containers will be provided by analytical laboratories. If plastic bags are used to contain sediment bound for bioassessment testing, bags will be taken from newly opened boxes. Before drilling and between borings, any part of the drill string that will contact sediment will be cleaned.

The cleaning method for equipment and containers is described as follows. Hold equipment to be cleaned over a catchment bucket and pre-rinse with environmental water to remove visible sediment. Using a large plastic squirt bottle filled with de-ionized water and a small amount of Alconox™ detergent, thoroughly cover equipment surfaces with water/Alconox™ solution and scrub vigorously with a plastic scrub brush. Rinse equipment three times with de-ionized water using a second DI-filled squirt bottle. Collect all waste-water in cubitianers or other covered containers and dispose of on-shore in an appropriate sewer system. Cover all cleaned equipment with aluminum foil or plastic (as appropriate) until use.

Field personnel will wear Nitrile gloves when handling sample material and insure that samples touch only clean or decontaminated sampling equipment before they are placed in appropriate sample containers. Airborne contamination will be minimized by keeping sample containers and sampling equipment covered when not in use (aluminum foil or plastic, as appropriate).

Diesel engines (boat motors) will be turned-off during sampling and cigarette smoking will be discouraged.

The spill hazard analysis for barge drilling operations is outlined in the SOW for the geotechnical study (Mongano, 2009).

Samples will be mailed to contract laboratories if the field hold time is less than one week. For samples with a longer field hold, samples will be mailed to the USBR QA Officer for incorporation of QA samples; the QA officer will then send samples on to the contract laboratories, within the field hold time (Table 10). For the purposes of this project, the "field hold" is determined by the shortest applicable hold time when hold times for elutriation, extraction and analysis are considered.

B3.3 Sample Containers, preservation, and labeling

USBR personnel will contain samples collected for chemical analysis in laboratory-supplied pre-cleaned EPA-approved glass jars with Teflon-lined plastic lids. Container sizes and special requirements are indicated in Section A6, Table 10. Sediment to be analyzed for VOC and sulfide analyses will be collected as soon as possible after each sample has been recovered. Sediment for VOC analyses will be packed into containers, leaving no headspace. Samples collected for sulfide analysis will be preserved with 5 mL of 2-normal zinc acetate, and then capped. All caps and lids will be checked for tightness immediately after capping.

Sediment collected for bioassessment testing will be contained in heavy-duty plastic bags and pre-cleaned five gallon plastic tubs with lids.

Each container will be given a permanent, waterproof sample label written in waterproof ink. At a minimum, each sample label will include sample ID, sample date, and a summary list of analysis required. A container list (Table 10) and secondary

review by a second field sampler will be used to verify that all samples are properly collected and labeled.

B3.4 Sample transport

As soon as possible after collection, all samples will be placed in insulated coolers with blue ice. At the end of each sampling day, samples will be transferred from ice chests to refrigerators and chilled to 4°C. Caps and lids will be checked for tightness. Samples submitted for Carbamate and Pyrethroid analyses will be frozen as soon as possible after collection and kept frozen during transport. Before freezing, bottles should be checked to make sure that there is room for expansion.

Samples will be shipped in insulated coolers directly to the contract laboratories or if hold times permit, to the QA Officer at Reclamation's MP157's facility. All samples will be handled, prepared, transported and stored in a manner so as to minimize bulk loss, analyte loss, contamination, or biological degradation. Prior to transport, samplers will complete and sign COC documents and include them with sample shipments. Sample transport containers will be packed carefully and contents will be secondarily reviewed to insure that all samples correlate with COC records. Ice chests will be checked to make sure lids are secure, then sealed with tape.

Sample transfer will be documented using COC forms filled out in ink; COCs will contain the following information: sample IDs, collection date, sample matrix, number of sample containers, analyses requested, and any additional remarks. When the samples are transferred from one party to another, the individuals will sign, date, and note the time on the form.

Upon sample receipt, samples will be stored in laboratory refrigerators or freezers as appropriate.

To ensure that holding times are not exceeded, samples will be collected, processed, and shipped in a timely manner. The holding times, bottle, and preservation requirements, are listed in Tables 10, 11 and 12, Section A6.

B4. Quality Control

Quality Control requirements are fully documented in the Environmental Monitoring Branch SOP manual for QA (Reclamation, 2009c).

B4.1 External Quality Assurance Samples

Quality assurance samples were incorporated into sample batches before submission to the analytical laboratories as shown in Tables 21 and 22. The QA samples assess the laboratory's ability to process samples with an acceptable level of precision and accuracy without introducing contamination to the sample. If any of the external QA samples do not meet the criteria stated in section 7.4, Table 15, the samples will be reanalyzed. If the laboratory is unable to confirm the original result upon reanalysis, a bracket of samples or the entire batch of samples will be submitted for reanalysis.

Table 21: Constituents with Externally Added QA - Sediment

Inorganic (n=26)				
ALUMINUM	B	D	F	RB
AMMONIA AS N	B	D	F	
ANTIMONY	B	D	F	RB
ARSENIC	B	D	F	RB
CADMIUM	B	D	F	RB
CALCIUM	B	D	F	RB
CHROMIUM	B	D	F	RB
COPPER	B	D	F	RB
CYANIDE, WAD	B			
EC	B	D	F	
IRON	B	D	F	
LEAD	B	D	F	RB
MAGNESIUM	B	D	F	RB
MERCURY	B	D	F	RB
NICKEL	B	D	F	RB
NITROGEN, TOTAL	B	D		
pH		D	F	
PHOSPHORUS, TOTAL AS P	B	D	F	
SELENIUM	B	D	F	
SILVER	B	D	F	RB
SULFIDE	B	D	F	
SULFIDE, ACID VOLATILE	B			
TOC		D	F	
TOTAL SOLIDS	B	D	F	
TOTAL VOLATILE SOLIDS	B			
ZINC	B	D	F	RB

Organic (n=119)				
1,2,3,4,6,7,8-HPCDD				RB
1,2,3,4,6,7,8-HPCDF				RB
1,2,3,4,7,8,9-HPCDF				RB
1,2,3,4,7,8-HXCDD				RB
1,2,3,4,7,8-HXCDF				RB
1,2,3,6,7,8-HXCDD				RB
1,2,3,6,7,8-HXCDF				RB
1,2,3,7,8,9-HXCDD				RB
1,2,3,7,8,9-HXCDF				RB

Organic (n=119)				
1,2,3,7,8-PECDD				RB
1,2,3,7,8-PECDF				RB
2,3,4,6,7,8-HXCDF				RB
2,3,4,7,8-PECDF				RB
2,3,7,8-TCDD				RB
2,3,7,8-TCDF				RB
2,4,5-TRICHLOROPHENOL	B	D	F	RB
2,4,6-TRICHLOROPHENOL	B	D	F	RB
2,4-DICHLOROPHENOL	B	D	F	RB
2,4-DIMETHYLPHENOL	B	D	F	RB
2,4-DINITROPHENOL	B	D	F	RB
2,4-DINITROTOLUENE	B	D	F	RB
2,6-DINITROTOLUENE	B	D	F	RB
2-CHLORONAPHTHALENE	B	D	F	RB
2-CHLOROPHENOL	B	D	F	RB
2-METHYLNAPHTHALENE	B	D	F	RB
2-METHYLPHENOL	B	D	F	RB
2-NITROANILINE	B	D	F	RB
2-NITROPHENOL	B	D	F	RB
3,3'-DICHLOROBENZIDINE	B	D	F	RB
3-NITROANILINE	B	D	F	RB
4,4'-DDD	B	D	F	
4,4'-DDE	B	D	F	
4,4'-DDT	B	D	F	
4,6-DINITRO-2-METHYLPHENOL	B	D	F	RB
4-BROMOPHENYL PHENYL ETHER	B	D	F	RB
4-CHLORO-3-METHYLPHENOL	B	D	F	RB
4-CHLOROANILINE	B	D	F	RB
4-CHLOROPHENYL PHENYL ETHER	B	D	F	RB
4-METHYLPHENOL	B	D	F	RB
4-NITROANILINE	B	D	F	RB
4-NITROPHENOL	B	D	F	RB
ACENAPHTHENE	B	D	F	RB
ACENAPHTHYLENE	B	D	F	RB
ALDRIN	B	D	F	
ANTHRACENE	B	D	F	RB
AROCLOR 1016	B	D	F	
AROCLOR 1221	B	D	F	

Table 21 – Constituents with Externally Added QA - Sediment

Organic (n=119)					Organic (n=119)				
AROCLOR 1232	B	D	F		ENDRIN ALDEHYDE	B	D	F	
AROCLOR 1242	B	D	F		ENDRIN KETONE	B	D	F	
AROCLOR 1248	B	D	F		FLUORANTHENE	B	D	F	RB
AROCLOR 1254	B	D	F		FLUORENE	B	D	F	RB
AROCLOR 1260	B	D	F		GAMMA-BHC	B	D	F	
AROCLOR 1268	B	D			HCH-ALPHA	B	D	F	
BENZ(A)ANTHRACENE	B	D	F	RB	HCH-BETA	B	D	F	
BENZO(A)PYRENE	B	D	F	RB	HCH-DELTA	B	D	F	
BENZO(B)FLUORANTHENE	B	D	F	RB	HEPTACHLOR	B	D	F	
BENZO(G,H,I)PERYLENE	B	D	F	RB	HEPTACHLOR EPOXIDE	B	D	F	
BENZO(K)FLUORANTHENE	B	D	F	RB	HEXACHLOROBENZENE	B	D	F	RB
BENZOIC ACID	B	D	F	RB	HEXACHLOROCYCLOPENTADIENE	B	D	F	RB
BENZYL ALCOHOL	B	D	F	RB	HEXACHLOROETHANE	B	D	F	RB
BIS(2-CHLOROETHOXY) METHANE	B	D	F	RB	INDENO(1,2,3-CD)PYRENE	B	D	F	RB
BIS(2-CHLOROETHYL) ETHER	B	D	F	RB	ISOPHORONE	B	D	F	RB
BIS(2-CHLOROISOPROPYL) ETHER	B	D	F	RB	METHOXYCHLOR	B	D	F	
BIS(2-ETHYLHEXYL) PHTHALATE	B	D	F	RB	NITROBENZENE	B	D	F	RB
BUTYL BENZYL PHTHALATE	B	D	F	RB	N-NITROSODI-N-PROPYLAMINE	B	D	F	RB
CARBAZOLE	B	D	F	RB	N-NITROSODIPHENYLAMINE	B	D	F	RB
CHLORDANE (TECHNICAL)	B	D			OCDD				RB
CHLORDANE-ALPHA	B	D	F		OCDF				RB
CHLORDANE-GAMMA	B	D	F		PENTACHLOROPHENOL	B	D	F	RB
CHRYSENE	B	D	F	RB	PHENANTHRENE	B	D	F	RB
DIBENZ(A,H)ANTHRACENE	B	D	F	RB	PHENOL	B	D	F	RB
DIBENZOFURAN	B	D	F	RB	PYRENE	B	D	F	RB
DIELDRIN	B	D	F		PYRIDINE	B	D	F	RB
DIESEL RANGE ORGANICS	B	D	F		TOTAL HPCDD				RB
DIETHYL PHTHALATE	B	D	F	RB	TOTAL HPCDF				RB
DIMETHYL PHTHALATE	B	D	F	RB	TOTAL HXCDD				RB
DI-N-BUTYL PHTHALATE	B	D	F	RB	TOTAL HXCDF				RB
DI-N-OCTYL PHTHALATE	B	D	F	RB	TOTAL PECDD				RB
ENDOSULFAN I	B	D	F		TOTAL PECDF				RB
ENDOSULFAN II	B	D	F		TOTAL TCDD				RB
ENDOSULFAN SULFATE	B	D	F		TOTAL TCDF				RB
ENDRIN	B	D	F		TOXAPHENE	B	D		

B = Blank D = Duplicate F = Reference or Blank Spike RB = Rinse Blank

Table 22: Constituents with Externally Added QA - Elutriate

Inorganic (n=38)			
ALUMINUM	B	D	F
ALUMINUM (DISSOLVED)	B	D	F
AMMONIA AS N	B	D	F
ANTIMONY	B	D	F
ANTIMONY (DISSOLVED)	B	D	F
ARSENIC	B	D	F
ARSENIC (DISSOLVED)	B	D	F
BOD (5 DAY)	B	D	F
CADMIUM	B	D	F
CADMIUM (DISSOLVED)	B	D	F
CALCIUM	B	D	F
CALCIUM (DISSOLVED)	B	D	F
CHLORIDE	B	D	F
CHROMIUM	B	D	F
CHROMIUM (DISSOLVED)	B	D	F
COPPER	B	D	F
COPPER (DISSOLVED)	B	D	F
CYANIDE, WAD	B		
DOC	B	D	F

Inorganic (n=38)			
EC	B	D	F
LEAD	B	D	F
LEAD (DISSOLVED)	B	D	F
MAGNESIUM	B	D	F
MAGNESIUM (DISSOLVED)	B	D	F
MERCURY	B	D	F
NICKEL	B	D	F
NICKEL (DISSOLVED)	B	D	F
NITROGEN, TOTAL	B	D	F
pH		D	F
PHOSPHORUS, TOTAL AS P	B	D	F
POC	B		
SILVER	B	D	F
SILVER (DISSOLVED)	B	D	F
SULFIDE	B	D	F
TDS	B	D	F
TOC	B	D	F
ZINC	B	D	F
ZINC (DISSOLVED)	B	D	F

Organic (n=0)

B = Blank D = Duplicate F = Reference or Blank Spike RB = Rinse Blank

Accuracy

Certified reference samples or blank spikes are incorporated to assess accuracy. They are incorporated at a rate of 10% of the production samples. If less than 10 production samples are collected, at least one reference sample is incorporated. Accuracy is assessed using percent recovery:

The PR for a reference sample is calculated as follows:

$$PR = \left(\frac{F}{MPVorMPN} \right)(100)$$

PR	=	Percent Recovery
F	=	Reference Sample Result
MPV	=	Most Probable Value
MPN	=	Most Probable Number

$$PR = \frac{(S - R)}{A}(100)$$

PR	=	Percent Recovery
S	=	Spiked Sample Result
R	=	Regular Sample Result
A	=	Amount of Spike Added

Precision

Duplicate samples are incorporated to assess precision. They are incorporated at a rate of 10% of the production samples. If less than 10 production samples are collected, at least one duplicate sample is incorporated. Precision is assessed using relative percent difference:

$$RPD = \frac{|R - D|}{\left((R + D) / 2 \right)}(100)$$

RPD	=	Relative Percent Difference
R	=	Regular Sample Result
D	=	Duplicate Sample Result

Contamination

Blank water samples (DI water) and blank soil references are incorporated to assess laboratory contamination. They are incorporated at a rate of 5% of the production samples. If less than 20 production samples are collected, at least one blank sample is incorporated.

B4.2 Laboratory Quality Control Samples

The laboratory will incorporate QC samples at the frequency specified in the analytical method and the laboratory SOP. The results for the QC samples will be assessed based on the acceptance criteria in the analytical method and the laboratory SOP. If any laboratory QC samples do not meet the established acceptance criteria, the laboratory will follow the corrective action protocol detailed in the analytical methods or the laboratory SOP.

B4.3 Holding Times

The date of the sample extraction/preparation and analysis will be compared to the date the sample was collected to ensure the sample was analyzed for the parameter within its holding time. If the holding times are exceeded, the program manager will determine if re-sampling is required. If re-sampling is not required, the QA Officer will qualify the data as necessary.

B4.4 Missing Data

Procedures for handling data anomalies such as missing data will be handled by QA personnel who will contact the analytical laboratories and secure an explanation of, and remedy for, missing data.

B4.5 Data Outliers

Outlier analysis is a tool that the QAT uses to determine if a result needs to be reanalyzed due to possible laboratory error. The QAT assesses outliers for long-term, routine monitoring programs where the site locations remain constant and the water quality and/or other environmental conditions are expected to remain in stasis over an extended period of time. Since this program is a one-time monitoring event, an outlier assessment was not done.

B5. Instrument/Equipment Testing, Inspection and Maintenance

Maintenance and testing of sample drilling equipment is described in the geotechnical companion report. There is no specific inspection or maintenance requirements for other sediment sampling equipment, field equipment will be inspected and maintained for safety and to prevent sample contamination.

B6. Instrument/Equipment Calibration and Frequency

Instruments used to profile water column profiles will be calibrated according to the methods stated in the Environmental Monitoring SOP documents (RECLAMATION,

2009B). Accuracy of calibration will be verified at the beginning of each day that water column data will be collected.

The laboratory performs instrument calibrations following the procedures and protocols stated in the analytical methods for each parameter.

B7. Inspection/Acceptance for Supplies and Consumables

Level 1 certified bottles that have been pre-preserved (when necessary) are used for sample collection. Calibration standards for calibrating field instruments are inspected prior to using to insure that standards are not out-of-date and that packages have not been tampered with or contaminated. References used for external QA incorporation have certified values from the vendor. Spike solutions used for external QA incorporation will be certified to be within 90%-110% of the expected value prior to use.

B8. Non-Direct Measurements

Secondary data will not be incorporated into this study.

B9. Data Management

9.1 Recordkeeping and tracking

Record keeping and tracking of field sheets, COC, laboratory data reports, field log books and project binders will follow standard MP-157 procedures and document control systems.

Field sheets and COC's will be generated, inspected and signed by the field sampler, and then relinquished to the QA officer. The QA officer will contact any field sampler whose paper work contains significant errors or omissions. The QA officer turns these documents over to the DMT to be entered into the MP-157 Environmental Monitoring Database and filed in the project binder.

Laboratory data reports received by the QA officer will be reviewed to document QA metadata. After the laboratory data reports are reviewed by the QA officer, the data reports will be signed and sent to the DMT for review. The DMT will enter the analytical results and the QA metadata into the Environmental Monitoring Database.

All data will be entered into the database following MP-157 SOP protocol (Reclamation, 2009a). As a QC check, all data entered will be secondarily reviewed by an additional DMT member and initialed. After all data has been entered into the database, the data is signed and filed in project binders.

Field logbooks and project binders are to be locked in a file cabinet and must be signed-out for use.

9.2 Data handling

USBR computers will be used to process, compile, analyze, and transmit electronic data. Paper data records and documents will be filed. Individuals responsible for elements of the data management scheme are listed in Section 4.1

9.3 Data-quality control

Procedures for entering electronic and hand-written data into the database will follow standard USBR MP-157 standard operating procedures (Reclamation, 2009a).

9.4 Archival and retrieval

Data is archived on secure USBR computers. Following QA approval and formal data release, data will be available for public review on the USBR website:

http://www.usbr.gov/mp/mp150/mp157/DM/index.html

C ASSESSMENT AND OVERSIGHT

C1. Assessment and Response Actions

1.1 Audits

Laboratory

The QAT audits laboratories analyzing samples. The three-tier audit consists of reviewing the laboratory's QA Manual, reviewing the laboratory's performance evaluation (PE) sample results, and conducting an intensive, on-site, system audit of the laboratory. The laboratory's expertise in conducting analyses, their capability for generating valid data, their ability to effectively support the data, and the integrity of the QA/QC practices are assessed during the on-site audit. Laboratory audits are conducted every three years. The audit reports are issued to the laboratory. The laboratory then generates a response with corrective actions to MP157. At that time, the QAT determines whether or not to approve the laboratory for use and contacts the laboratory with their decision.

Field

The QAT audits field samplers collecting samples. The field audit consists of reviewing the relevant SOPs, submitting PE samples and reviewing the results, and accompanying the field sampler while they demonstrate the sample collection process. The QAT assesses the field sampler's expertise in collecting representative samples. Field audits are conducted every two years. The field audit reports are sent to the field sampler and the EMT Leader. The EMT Leader is responsible for issuing corrective actions.

Documentation

Yearly, field logbooks, instrument calibration sheets, and field sheets are audited by the QAT to ensure that all the necessary information is correctly documented. The

documentation audit reports are sent to the field sampler and the EMT Leader. The EMT Leader is responsible for issuing corrective actions.

1.2 Pre-sampling review

The Quality Assurance Officer will conduct an informal review immediately prior to beginning field investigations to insure that lab contracts are in place, that the analytical methods chosen meet data quality objectives, and that applicable MP-157 SOPs are current and accurate. The QA Officer will report findings to the Project Manager, who will take corrective action (if any is necessary) before the data collection task begins.

C2. Reports to Management

Three kinds of reports will be prepared: a QAPP, a QA summary report, and a Data Assessment. Informal progress reports will note the status of project activities and identify whether any QA problems were encountered (and, if so, how they will be handled). A preliminary data report will be released as soon as all acceptable results have been compiled. This report will primarily consist of data tables. The QA summary report will discuss the results of the external QA samples, the results of the laboratory's QC samples, holding times, and any other data quality issues. The final data report will analyze and interpret data, present observations, and draw conclusions.

Laboratory reports documenting activities and results associated with sample analyses are to be provided within 6 weeks of sample receipt. Timely results from the laboratories will allow decisions to be made regarding continued biological testing. Laboratories will provide at a minimum:

- Results of the laboratory analysis and QA/QC
- Methods used for analysis
- Date and time each sample was analyzed
- Laboratory reporting limits for all parameters analyzed
- Chain of custody procedures

Table 23: Project Status Reports

Type of Report	Frequency	Preparer	Recipients
Preliminary QAPP	Once, before primary data collection begins	Laura Benninger, USBR	All recipients of original QAPP
Amended QAPP	As needed	Laura Benninger, USBR	Involved agencies, stakeholders
QA Summary Report	Once	Julie Eldredge, USBR	Involved agencies, stakeholders
Data Assessment	Once	Kevin Kelly, USBR	Involved agencies, stakeholders

D DATA VALIDATION AND USABILITY

D1. Data Review, Verification and Validation Outcomes

Data will be accepted as valid if all external QA samples and laboratory QC samples meet their acceptance criteria and all samples are analyzed within their holding times.

If data do not meet external QA criteria for precision, accuracy or contamination, samples will be reanalyzed. If a result is confirmed after reanalysis, the result will be accepted as valid. A result is considered confirmed if it meets the precision acceptance criteria when the reanalyzed result is compared to the original analysis result.

Data will be qualified if results demonstrate unacceptable QA after being analyzed an additional time, if the laboratory QC sample results are unacceptable, or if the holding times were exceeded.

Data that does not meet QA/QC criteria will be released with qualification. Data usability will be determined by the user.

D2. Verification and Validation Methods

The QA Officer will validate the data by following the guidelines in the Environmental Monitoring Branch's *Standard Operating Procedures for Quality Assurance* (2009-05). Validation consists of reviewing the results of external quality assurance samples, laboratory quality control results, and whether the holding times for the parameters were met.

If any of the external QA sample results do not meet the acceptance criteria stated in section 7.4, Table 15, the samples are submitted for reanalysis. If the laboratory confirms the original result, the original value is accepted based on the laboratory demonstrating that sample preparation and instrumentation was performed properly during initial analysis. A result is considered confirmed if it meets the precision acceptance criteria when the reanalyzed result is compared to the original analysis result. If the original result cannot be confirmed, the laboratory must then analyze a bracket of samples or the entire batch of samples an additional time for the parameter. The bracket of samples or the entire batch of samples that has been analyzed an additional time is then evaluated for the parameter to see if the results meet the acceptance criteria in section 7.4, Table 15. Professional judgment is used to decide which set of data to accept and whether or not the data should be qualified if both sets of data demonstrate unacceptable external QA sample results.

D3. Reconciliation with User Requirements

Qualified results will be identified to the data entry staff (DMT) by completing the "Qualified Results" form per MP157 protocol. The data qualifier flag will be entered next to the result in MP-157's Environmental Monitoring database. Additionally, if results are qualified, the result will be marked with a footnote on the data table submitted to the data assessor with the footnote detailing the qualification.

3.1 Meeting user needs

Results of the study will be QA reviewed and evaluated to determine data qualifications. Whether or not data meets user needs will be determined by the user at the time that the data is evaluated.

3.2 Managing unusable data

All data will be stored in the USBR database system. Data that has been qualified will be stored in the database with embedded data qualification comments.

E REFERENCES

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F FIGURES

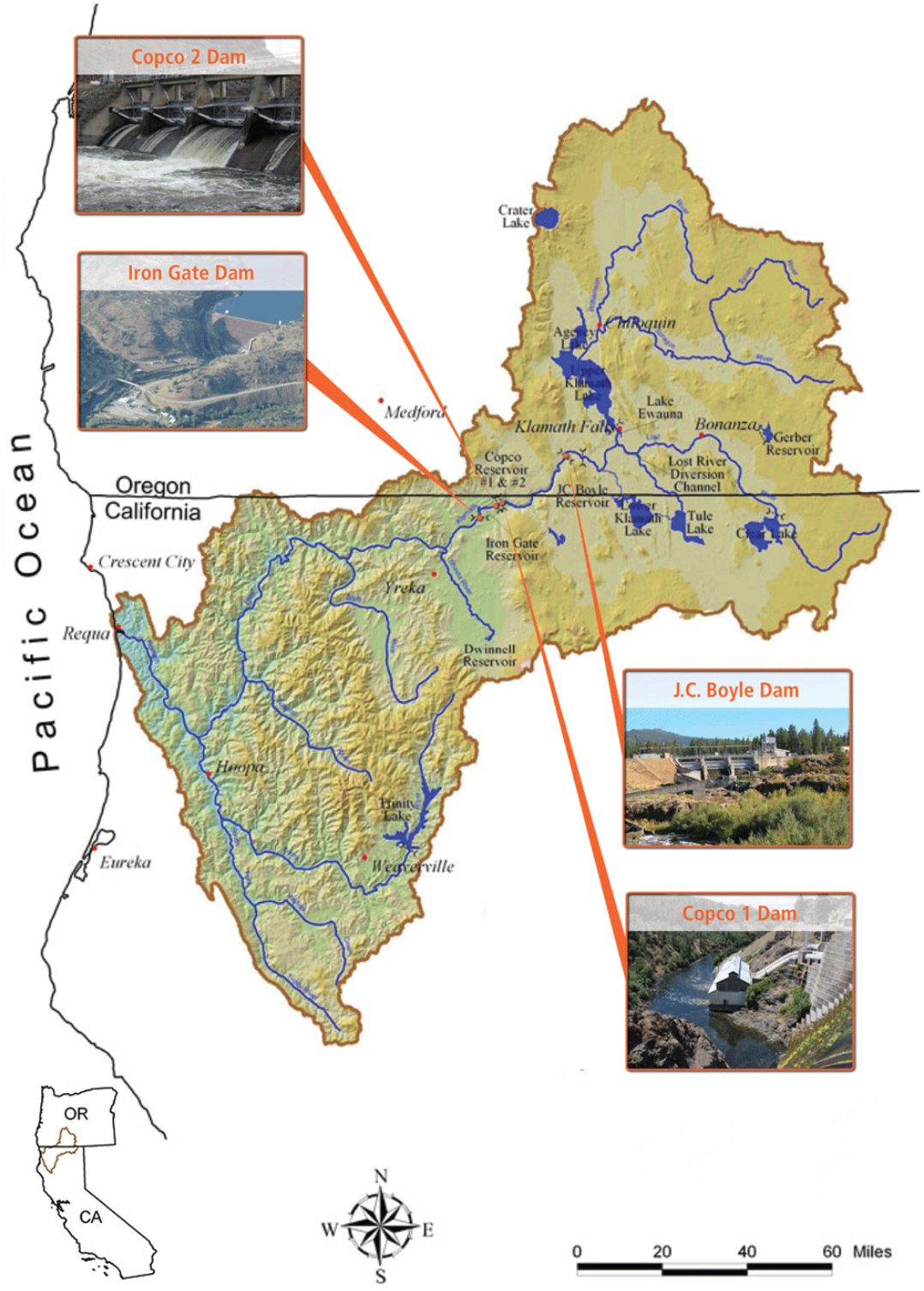


Figure 1: Regional overview of the Klamath River Basin, Oregon and California.

Locations of reservoir study sites JC Boyle, Copco 1 and 2, and Iron Gate.
The Klamath Estuary study site is located near the town of Requa, CA.

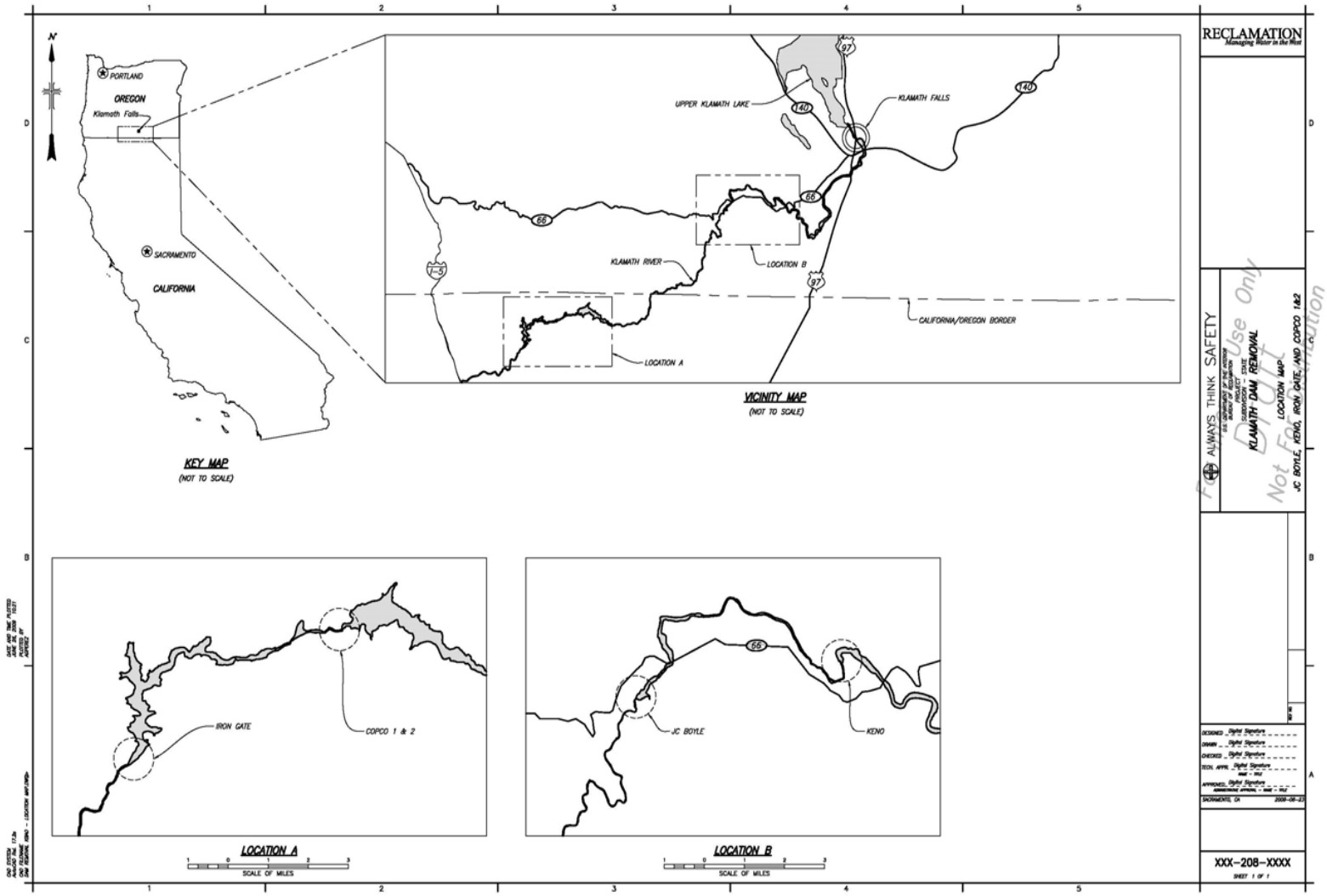
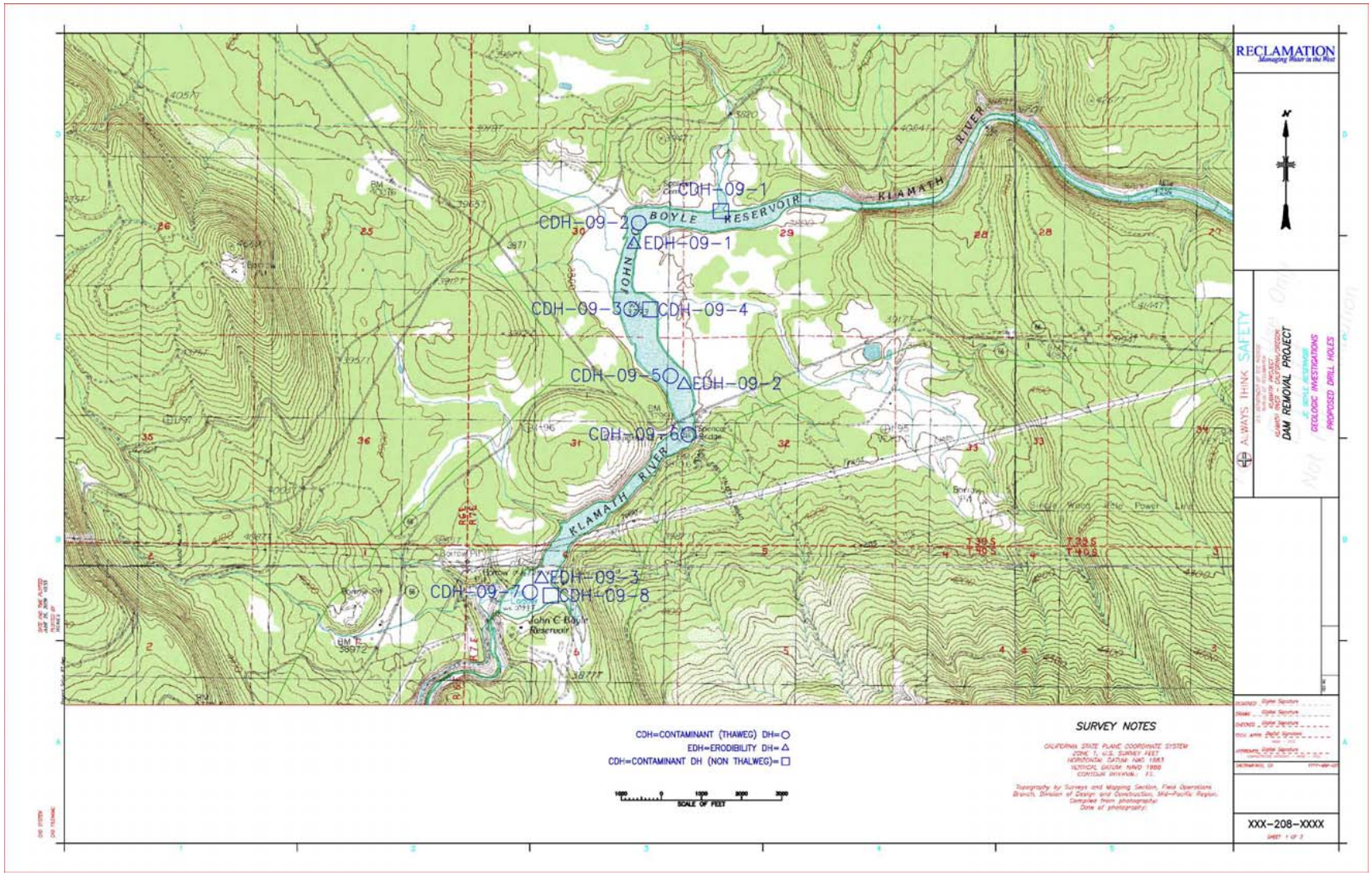
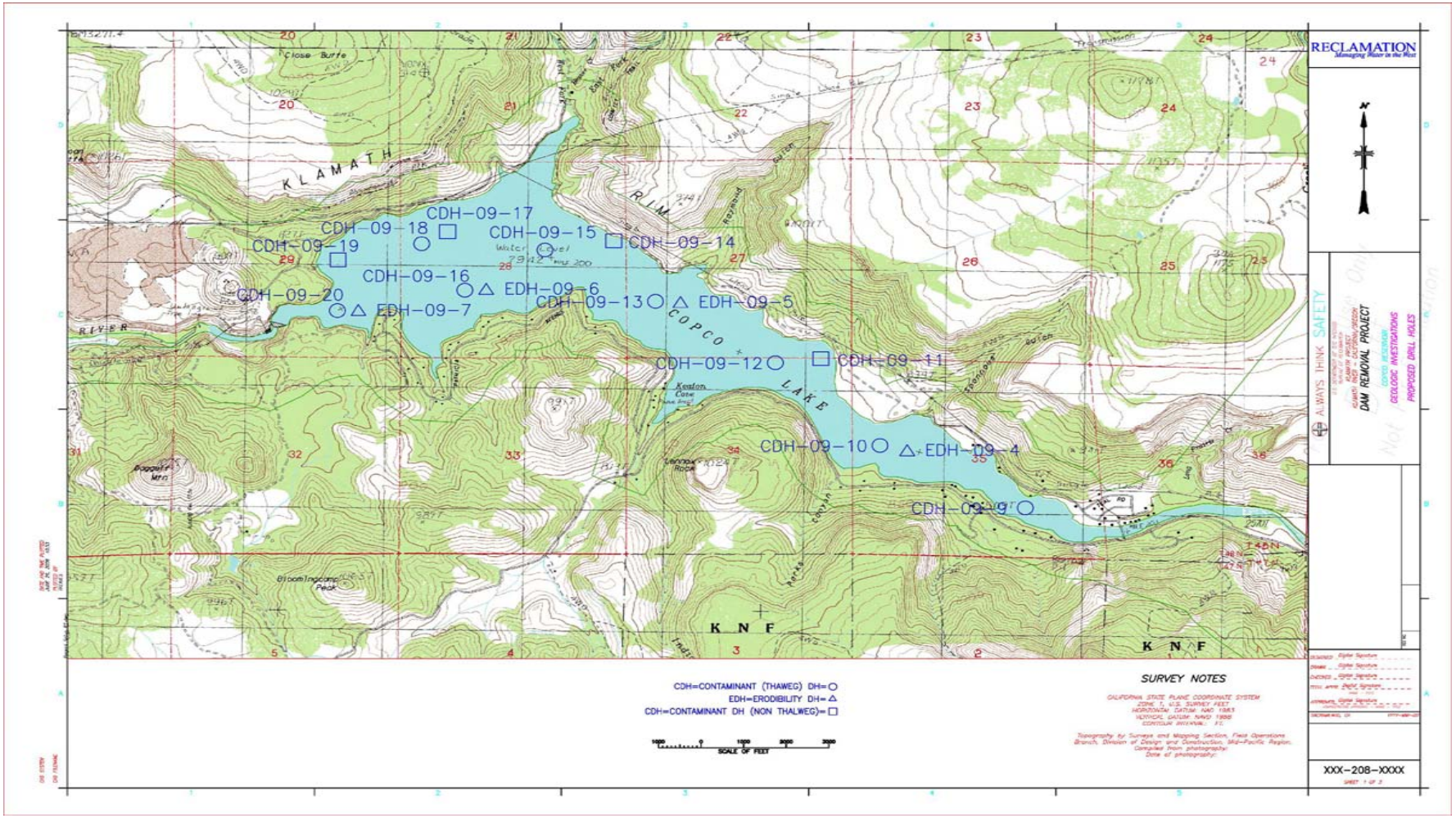


Figure 2: Location Overview - JC Boyle, Copco 1 & 2, and Iron Gate Reservoirs



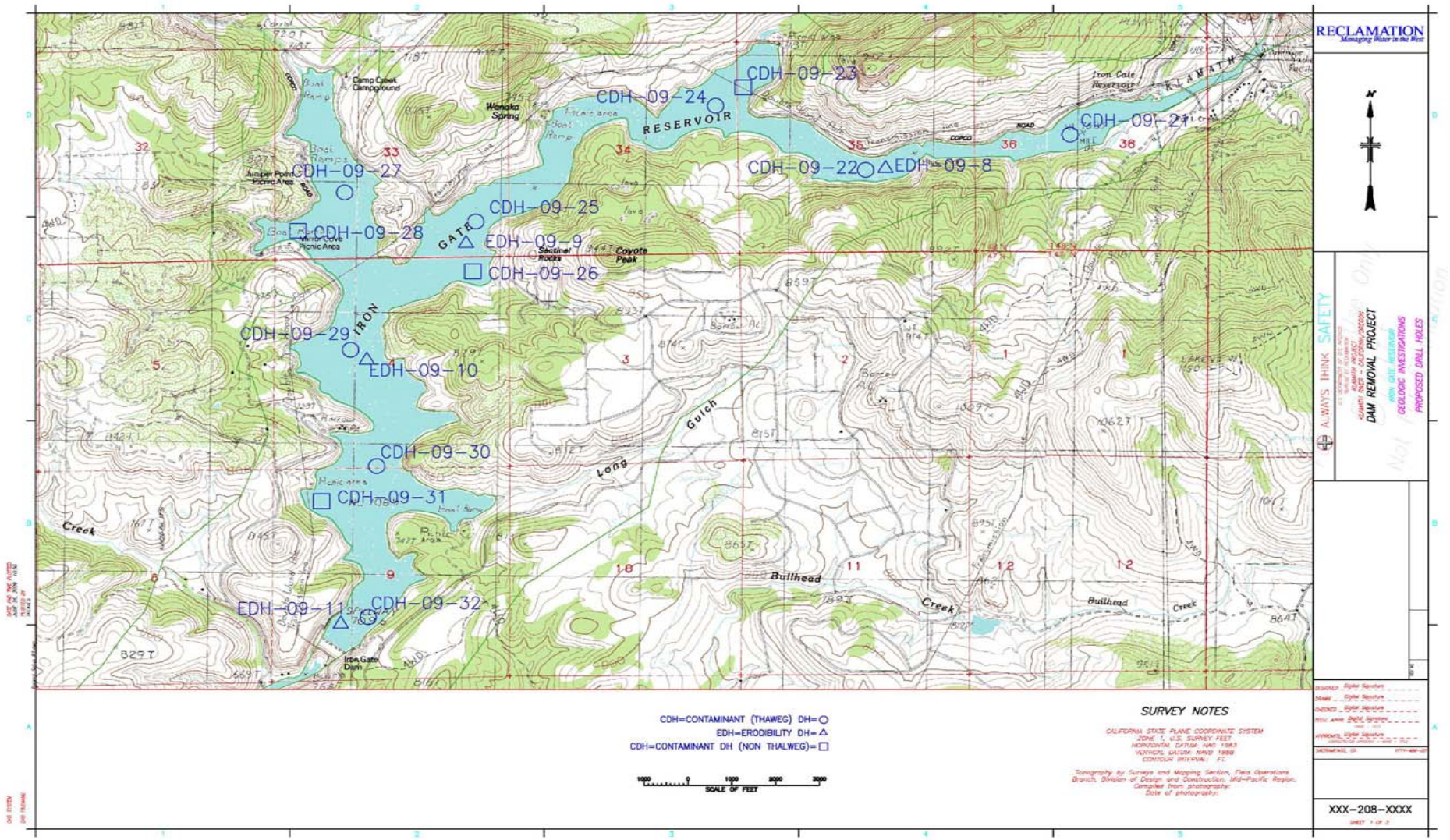
Open circles and open triangles indicate proposed locations for contaminant drill holes

Figure 3: Proposed Drill Hole Locations - JC Boyle Reservoir, CA



Open circles and open triangles indicate proposed locations for contaminant drill holes

Figure 4: Proposed Drill Hole Locations - Copco Reservoir, CA



Open circles and open triangles indicate proposed locations for contaminant drill holes

Figure 5: Proposed Drill Hole Locations - Iron Gate Reservoir, CA

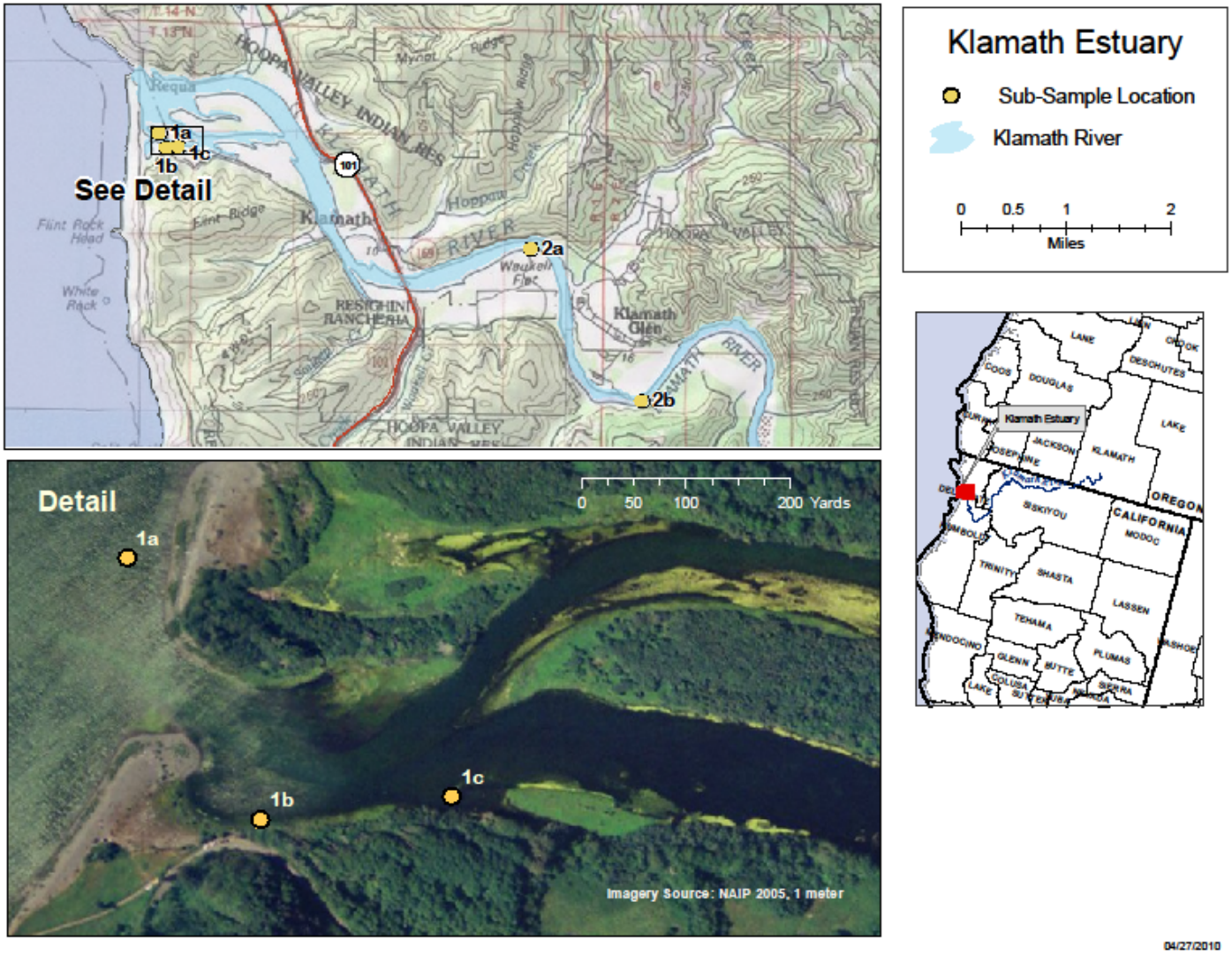


Figure 6: Proposed Sample Locations - Klamath River Estuary, CA

On maps, locations for sample CHA-S-001 are shown as 1a, 1b and 1c; locations for CHA-S-002 are shown as 2a and 2b.

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Appendix D

Quality Assurance Summary for Inorganic Parameters in Sediment Samples

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RECLAMATION

Managing Water in the West

Klamath River Sediment Study

Quality Assurance Summary for

Inorganic Parameters in Sediment Samples

Bureau of Reclamation, Mid-Pacific Region

Environmental Monitoring Branch

U.S. Department of the Interior
Bureau of Reclamation
Mid-Pacific Region

Overview of External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Samples for the Klamath River Sediment Study were collected between October 2009 and January 2010. The Quality Assurance (QA) section of the Environmental Monitoring Branch (EMB) incorporated QA samples with the field samples to assess the laboratory's ability to produce valid data.

Laboratory	Parameter
Basic Laboratory, Inc. (Redding, CA)	Ammonia as N, Cyanide - Weak Acid Dissociable (WAD), EC, Total Nitrogen, pH, Total Phosphorus, Sulfide, Acid Volatile Sulfide, Total Solids, and Total Volatile Solids
Test America Laboratories, Inc. (Sacramento, CA)	Metals
USGS (Denver, CO)	Total Organic Carbon (TOC)

The QA calculations in the following tables (i.e., percent recovery) were performed on data directly from the analytical report; data from the analytical report may have been rounded upon being entered into the database. Data results in the following tables are from the database; therefore, calculations performed on rounded data may not match calculations performed on the analytical report.

The EMB's QA section reviewed and validated the QA sample results as well as the laboratory Quality Control (QC) sample results. The summary of the QA review is discussed in the following pages.

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Summary for Non-metal Inorganic Parameters in Sediment Samples

Precision - Externally Incorporated QA Samples

The following parameters were assessed for precision and had differences within the QA acceptance limits of ≤ 20% relative percent difference (RPD) or a difference within one reporting limit (RL) for water samples and ≤ 35% RPD or a difference within two RL for sediment samples, except where noted.

The RPDs for samples CDH-S-020 (2-4) and CDH-S-032 (10-12) were unacceptable for TOC. These two samples were submitted for reanalysis. The reanalyzed results confirmed the original results. Therefore, the original TOC results were accepted as valid.

Duplicate Results:

Parameter	Duplicate 1 Field ID	Duplicate 2 Field ID	Duplicate 1 Result	Duplicate 2 Result	Percent RPD or Difference	Acceptance Criteria	RL
AMMONIA AS N	CDH-S-005(2-4)	CDH-S-005(10-12)	610	570	6.4%	≤ 35% RPD	20
AMMONIA AS N	CDH-S-006(2-4)	CDH-S-006(10-12)	300	280	5.9%	≤ 35% RPD	20
AMMONIA AS N	CDH-S-007(2-4)	CDH-S-007(10-12)	420	390	5.2%	≤ 35% RPD	20
AMMONIA AS N	CDH-S-009(2-4)	CDH-S-016(10-12)	320	300	9.1%	≤ 35% RPD	10
AMMONIA AS N	CDH-S-018(2-4)	CDH-S-046(10-12)	280	310	13%	≤ 35% RPD	20
AMMONIA AS N	CDH-S-020(2-4)	CDH-S-032(10-12)	280	250	11%	≤ 35% RPD	20
AMMONIA AS N	CDH-S-050(2-4)	CDH-S-050(10-12)	260	270	2.3%	≤ 35% RPD	10
AMMONIA AS N	CHA-S-001A	CHA-S-004	300	310	2.6%	≤ 35% RPD	20
EC	CDH-S-005(2-4)	CDH-S-005(10-12)	160	170	1.2%	≤ 20% RPD	10
EC	CDH-S-006(2-4)	CDH-S-006(10-12)	170	170	3.6%	≤ 20% RPD	10
EC	CDH-S-007(2-4)	CDH-S-007(10-12)	220	220	1.8%	≤ 20% RPD	10

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Duplicate Results (cont.):

Parameter	Duplicate 1 Field ID	Duplicate 2 Field ID	Duplicate 1 Result	Duplicate 2 Result	Percent RPD or Difference	Acceptance Criteria	RL
EC	CDH-S-009(2-4)	CDH-S-016(10-12)	170	170	0%	≤ 20% RPD	10
EC	CDH-S-018(2-4)	CDH-S-046(10-12)	140	140	1.4%	≤ 20% RPD	10
EC	CDH-S-020(2-4)	CDH-S-032(10-12)	170	160	4.3%	≤ 20% RPD	10
EC	CDH-S-050(2-4)	CDH-S-050(10-12)	440	430	1.6%	≤ 20% RPD	10
EC	CHA-S-001A	CHA-S-004	230	220	4.8%	≤ 20% RPD	10
NITROGEN, TOTAL	CDH-S-005(2-4)	CDH-S-005(10-12)	3800	3500	10%	≤ 35% RPD	75
NITROGEN, TOTAL	CDH-S-006(2-4)	CDH-S-006(10-12)	960	1000	8.0%	≤ 35% RPD	30
NITROGEN, TOTAL	CDH-S-007(2-4)	CDH-S-007(10-12)	930	900	3.8%	≤ 35% RPD	30
NITROGEN, TOTAL	CDH-S-009(2-4)	CDH-S-016(10-12)	820	800	3.3%	≤ 35% RPD	30
NITROGEN, TOTAL	CDH-S-018(2-4)	CDH-S-046(10-12)	700	730	5%	≤ 35% RPD	30
NITROGEN, TOTAL	CDH-S-020(2-4)	CDH-S-032(10-12)	690	700	1.3%	≤ 35% RPD	30
NITROGEN, TOTAL	CDH-S-050(2-4)	CDH-S-050(10-12)	720	710	1.7%	≤ 35% RPD	30
NITROGEN, TOTAL	CHA-S-001A	CHA-S-004	940	900	4.3%	≤ 35% RPD	30
pH	CDH-S-005(2-4)	CDH-S-005(10-12)	6.6	7.1	7.5%	≤ 20% RPD	0.01
pH	CDH-S-006(2-4)	CDH-S-006(10-12)	7.5	7.6	4.8%	≤ 20% RPD	0.01
pH	CDH-S-007(2-4)	CDH-S-007(10-12)	7.9	8.0	1.4%	≤ 20% RPD	0.01
pH	CDH-S-009(2-4)	CDH-S-016(10-12)	7.6	7.6	0.1%	≤ 20% RPD	0.01

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Duplicate Results (cont.):

Parameter	Duplicate 1 Field ID	Duplicate 2 Field ID	Duplicate 1 Result	Duplicate 2 Result	Percent RPD or Difference	Acceptance Criteria	RL
pH	CDH-S-018(2-4)	CDH-S-046(10-12)	7.6	7.7	2.0%	≤ 20% RPD	0.01
pH	CDH-S-020(2-4)	CDH-S-032(10-12)	7.5	7.5	0.5%	≤ 20% RPD	0.01
pH	CDH-S-050(2-4)	CDH-S-050(10-12)	8.2	8.0	2.6%	≤ 20% RPD	0.01
pH	CHA-S-001A	CHA-S-004	8.6	8.4	3.4%	≤ 20% RPD	0.01
PHOSPHORUS, TOTAL AS P	CDH-S-005(2-4)	CDH-S-005(10-12)	530	480	11%	≤ 35% RPD	50
PHOSPHORUS, TOTAL AS P	CDH-S-006(2-4)	CDH-S-006(10-12)	570	540	6.8%	≤ 35% RPD	50
PHOSPHORUS, TOTAL AS P	CDH-S-007(2-4)	CDH-S-007(10-12)	590	660	11%	≤ 35% RPD	63
PHOSPHORUS, TOTAL AS P	CDH-S-009(2-4)	CDH-S-016(10-12)	550	630	14%	≤ 35% RPD	50
PHOSPHORUS, TOTAL AS P	CDH-S-018(2-4)	CDH-S-046(10-12)	670	720	8.1%	≤ 35% RPD	50
PHOSPHORUS, TOTAL AS P	CDH-S-020(2-4)	CDH-S-032(10-12)	600	610	1.3%	≤ 35% RPD	50
PHOSPHORUS, TOTAL AS P	CDH-S-050(2-4)	CDH-S-050(10-12)	700	710	1.0%	≤ 35% RPD	25
PHOSPHORUS, TOTAL AS P	CHA-S-001A	CHA-S-004	680	660	2.5%	≤ 35% RPD	25
SULFIDE	CDH-S-005(2-4)	CDH-S-005(10-12)	2.5	2.4	4.1%	≤ 20% RPD	0.4
SULFIDE	CDH-S-006(2-4)	CDH-S-006(10-12)	5.7	5.4	5.4%	≤ 20% RPD	0.4
SULFIDE	CDH-S-007(2-4)	CDH-S-007(10-12)	2.5	3.1	0.6	+/-RL	1.0
SULFIDE	CDH-S-009(2-4)	CDH-S-016(10-12)	1.2	1.1	0.1	+/-RL	1.0
SULFIDE	CDH-S-018(2-4)	CDH-S-046(10-12)	5.9	5.0	0.9	+/-RL	2.0

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Duplicate Results (cont.):

Parameter	Duplicate 1 Field ID	Duplicate 2 Field ID	Duplicate 1 Result	Duplicate 2 Result	Percent RPD or Difference	Acceptance Criteria	RL
SULFIDE	CDH-S-020(2-4)	CDH-S-032(10-12)	4.9	4.5	0.4	+/-RL	2.0
SULFIDE	CDH-S-050(2-4)	CDH-S-050(10-12)	6.2	5.9	0.3	+/-RL	2.0
SULFIDE	CHA-S-001A	CHA-S-004	9.9	9.6	0.3	+/-RL	2.0
TOC	CDH-S-006(2-4)	CDH-S-006(10-12)	0.36	0.28	25%	≤ 35% RPD	--
TOC	CDH-S-007(2-4)	CDH-S-007(10-12)	0.38	0.35	8.0%	≤ 35% RPD	--
TOC	CDH-S-009(2-4)	CDH-S-016(10-12)	0.28	0.26	7.4%	≤ 35% RPD	--
TOC	CDH-S-018(2-4)	CDH-S-046(10-12)	0.25	0.22	13%	≤ 35% RPD	--
TOC	CDH-S-020(2-4)	CDH-S-032(10-12)	**0.21 RC**	**0.31 RC**	**38%**	≤ 35% RPD	--
TOC	CHA-S-001A	CHA-S-004	0.26	0.29	11%	≤ 35% RPD	--
TOTAL SOLIDS	CDH-S-005(2-4)	CDH-S-005(10-12)	350	340	4.1%	≤ 20% RPD	9
TOTAL SOLIDS	CDH-S-006(2-4)	CDH-S-006(10-12)	370	340	7.9%	≤ 20% RPD	9
TOTAL SOLIDS	CDH-S-007(2-4)	CDH-S-007(10-12)	270	260	3.8%	≤ 20% RPD	9
TOTAL SOLIDS	CDH-S-009(2-4)	CDH-S-016(10-12)	450	470	3.7%	≤ 20% RPD	9
TOTAL SOLIDS	CDH-S-018(2-4)	CDH-S-046(10-12)	500	500	0.8%	≤ 20% RPD	9
TOTAL SOLIDS	CDH-S-020(2-4)	CDH-S-032(10-12)	480	510	5.1%	≤ 20% RPD	9
TOTAL SOLIDS	CDH-S-050(2-4)	CDH-S-050(10-12)	630	630	0.2%	≤ 20% RPD	9
TOTAL SOLIDS	CHA-S-001A	CHA-S-004	610	600	1.6%	≤ 20% RPD	9

RC = Reanalyzed and confirmed

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Accuracy - Externally Incorporated QA Samples

The following parameters were assessed for accuracy and had percent recoveries within the QA acceptance limit of 80% - 120% or results within the certified acceptance range provided by the manufacturer of the reference.

Reference Results:

Parameter	Reference Field ID	Reference Result	Reference Certified Value or Range	Percent Recovery	Acceptance Criteria
AMMONIA AS N	CDH-S-005(2-4)	610	362-1280	--	within acceptance range
AMMONIA AS N	CDH-S-005(2-4)A	620	362-1280	--	within acceptance range
AMMONIA AS N	CDH-S-006(2-4)	300	91.6-755	--	within acceptance range
AMMONIA AS N	CDH-S-007(2-4)	420	148-953	--	within acceptance range
AMMONIA AS N	CDH-S-009(2-4)	320	91.6-755	--	within acceptance range
AMMONIA AS N	CDH-S-018(2-4)	280	91.6-755	--	within acceptance range
AMMONIA AS N	CDH-S-020(2-4)	280	91.6-755	--	within acceptance range
AMMONIA AS N	CDH-S-050(2-4)	260	91.6-755	--	within acceptance range
AMMONIA AS N	CHA-S-001A	300	91.6-755	--	within acceptance range
AMMONIA AS N	CDH-S-005(10-12)	570	362-1280	--	within acceptance range
AMMONIA AS N	CDH-S-006(10-12)	280	91.6-755	--	within acceptance range
AMMONIA AS N	CDH-S-007(10-12)	390	148-953	--	within acceptance range

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Reference Results (cont.):

Parameter	Reference Field ID	Reference Result	Reference Certified Value or Range	Percent Recovery	Acceptance Criteria
AMMONIA AS N	CDH-S-016(10-12)	300	91.6-755	--	within acceptance range
AMMONIA AS N	CDH-S-046(10-12)	310	91.6-755	--	within acceptance range
AMMONIA AS N	CDH-S-032(10-12)	250	91.6-755	--	within acceptance range
AMMONIA AS N	CDH-S-050(10-12)	270	91.6-755	--	within acceptance range
AMMONIA AS N	CHA-S-004	310	91.6-755	--	within acceptance range
EC	CDH-S-005(2-4)	160	171	96%	80%-120%
EC	CDHS-S-005(2-4)A	160	171	94%	80%-120%
EC	CDH-S-006(2-4)	170	171	97%	80%-120%
EC	CDH-S-007(2-4)	220	220	101%	80%-120%
EC	CDH-S-009(2-4)	170	157	106%	80%-120%
EC	CDH-S-018(2-4)	140	137	103%	80%-120%
EC	CDH-S-020(2-4)	170	160	104%	80%-120%
EC	CDH-S-050(2-4)	440	440	100%	80%-120%
EC	CHA-S-001A	230	220	106%	80%-120%
EC	CDH-S-005(10-12)	170	171	97%	80%-120%
EC	CDH-S-006(10-12)	170	171	101%	80%-120%
EC	CDH-S-007(10-12)	220	220	99%	80%-120%

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Reference Results (cont.):

Parameter	Reference Field ID	Reference Result	Reference Certified Value or Range	Percent Recovery	Acceptance Criteria
EC	CDH-S-016(10-12)	170	157	106%	80%-120%
EC	CDH-S-046(10-12)	140	137	104%	80%-120%
EC	CDH-S-032(10-12)	160	160	101%	80%-120%
EC	CDH-S-050(10-12)	430	440	98%	80%-120%
EC	CHA-S-004	220	220	101%	80%-120%
pH	CDH-S-005(2-4)	6.6	7.77	85%	80%-120%
pH	CDH-S-005(2-4)A	7.2	7.77	93%	80%-120%
pH	CDH-S-006(2-4)	7.5	7.77	96%	80%-120%
pH	CDH-S-007(2-4)	7.9	9.1	87%	80%-120%
pH	CDH-S-009(2-4)	7.6	8.77	87%	80%-120%
pH	CDH-S-018(2-4)	7.6	7.74	98%	80%-120%
pH	CDH-S-020(2-4)	7.5	7.51	99%	80%-120%
pH	CDH-S-050(2-4)	8.2	7.95	103%	80%-120%
pH	CHA-S-001A	8.6	9.1	95%	80%-120%
pH	CDH-S-005(10-12)	7.1	7.77	91%	80%-120%
pH	CDH-S-006(10-12)	7.6	7.77	98%	80%-120%
pH	CDH-S-007(10-12)	8.0	9.1	88%	80%-120%
pH	CDH-S-016(10-12)	7.6	8.77	87%	80%-120%

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Reference Results (cont.):

Parameter	Reference Field ID	Reference Result	Reference Certified Value or Range	Percent Recovery	Acceptance Criteria
pH	CDH-S-046(10-12)	7.7	7.74	100%	80%-120%
pH	CDH-S-032(10-12)	7.5	7.51	100%	80%-120%
pH	CDH-S-050(10-12)	8.0	7.95	101%	80%-120%
pH	CHA-S-004	8.4	9.1	92%	80%-120%
PHOSPHORUS, TOTAL AS P	CDH-S-005(2-4)	530	177-841	--	within acceptance range
PHOSPHORUS, TOTAL AS P	CDH-S-005(2-4)A	410	177-841	--	within acceptance range
PHOSPHORUS, TOTAL AS P	CDH-S-006(2-4)	570	67.7-1140	--	within acceptance range
PHOSPHORUS, TOTAL AS P	CDH-S-007(2-4)	590	296-891	--	within acceptance range
PHOSPHORUS, TOTAL AS P	CDH-S-009(2-4)	550	67.7-1140	--	within acceptance range
PHOSPHORUS, TOTAL AS P	CDH-S-018(2-4)	670	67.7-1140	--	within acceptance range
PHOSPHORUS, TOTAL AS P	CDH-S-020(2-4)	600	67.7-1140	--	within acceptance range
PHOSPHORUS, TOTAL AS P	CDH-S-050(2-4)	700	67.7-1140	--	within acceptance range
PHOSPHORUS, TOTAL AS P	CHA-S-001A	680	67.7-1140	--	within acceptance range
PHOSPHORUS, TOTAL AS P	CDH-S-005(10-12)	480	177-841	--	within acceptance range
PHOSPHORUS, TOTAL AS P	CDH-S-006(10-12)	540	67.7-1140	--	within acceptance range
PHOSPHORUS, TOTAL AS P	CDH-S-007(10-12)	660	296-891	--	within acceptance range
PHOSPHORUS, TOTAL AS P	CDH-S-016(10-12)	630	67.7-1140	--	within acceptance range

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Reference Results (cont.):

Parameter	Reference Field ID	Reference Result	Reference Certified Value or Range	Percent Recovery	Acceptance Criteria
PHOSPHORUS, TOTAL AS P	CDH-S-046(10-12)	720	67.7-1140	--	within acceptance range
PHOSPHORUS, TOTAL AS P	CDH-S-032(10-12)	610	67.7-1140	--	within acceptance range
PHOSPHORUS, TOTAL AS P	CDH-S-050(10-12)	710	67.7-1140	--	within acceptance range
PHOSPHORUS, TOTAL AS P	CHA-S-004	660	67.7-1140	--	within acceptance range
SULFIDE	CDH-S-005(2-4)	2.5	0.859-4.74	--	within acceptance range
SULFIDE	CDH-S-006(2-4)	5.7	2.07-7.39	--	within acceptance range
SULFIDE	CDH-S-007(2-4)	2.5	0.647-4.27	--	within acceptance range
SULFIDE	CDH-S-009(2-4)	1.2	0.629-4.23	--	within acceptance range
SULFIDE	CDH-S-018(2-4)	5.9	3.33-10.2	--	within acceptance range
SULFIDE	CDH-S-020(2-4)	4.9	1.71-6.61	--	within acceptance range
SULFIDE	CDH-S-050(2-4)	6.2	3.09-9.64	--	within acceptance range
SULFIDE	CHA-S-001A	9.9	4.54-12.8	--	within acceptance range
SULFIDE	CDH-S-005(10-12)	2.4	0.859-4.74	--	within acceptance range
SULFIDE	CDH-S-006(10-12)	5.4	2.07-7.39	--	within acceptance range
SULFIDE	CDH-S-007(10-12)	3.1	0.647-4.27	--	within acceptance range
SULFIDE	CDH-S-016(10-12)	1.1	0.629-4.23	--	within acceptance range

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Reference Results (cont.):

Parameter	Reference Field ID	Reference Result	Reference Certified Value or Range	Percent Recovery	Acceptance Criteria
SULFIDE	CDH-S-046(10-12)	5.0	3.33-10.2	--	within acceptance range
SULFIDE	CDH-S-032(10-12)	4.5	1.71-6.61	--	within acceptance range
SULFIDE	CDH-S-050(10-12)	5.9	3.09-9.64	--	within acceptance range
SULFIDE	CHA-S-004	9.6	4.54-12.8	--	within acceptance range
TOC	CDH-S-006(2-4)	0.36	0.0242-0.715	--	within acceptance range
TOC	CDH-S-007(2-4)	0.38	0.0321-0.821	--	within acceptance range
TOC	CDH-S-009(2-4)	0.28	0.0242-0.715	--	within acceptance range
TOC	CDH-S-018(2-4)	0.25	0.0242-0.715	--	within acceptance range
TOC	CDH-S-020(2-4)	0.21	0.0242-0.715	--	within acceptance range
TOC	CHA-S-001A	0.26	0.0242-0.715	--	within acceptance range
TOC	CDH-S-006(10-12)	0.28	0.0242-0.715	--	within acceptance range
TOC	CDH-S-007(10-12)	0.35	0.0321-0.821	--	within acceptance range
TOC	CDH-S-016(10-12)	0.26	0.0242-0.715	--	within acceptance range
TOC	CDH-S-046(10-12)	0.22	0.0242-0.715	--	within acceptance range
TOC	CDH-S-032(10-12)	0.31	0.0242-0.715	--	within acceptance range
TOC	CHA-S-004	0.29	0.0242-0.715	--	within acceptance range
TOTAL SOLIDS	CDH-S-005(2-4)	350	336	105%	80%-120%

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Reference Results (cont.):

Parameter	Reference Field ID	Reference Result	Reference Certified Value or Range	Percent Recovery	Acceptance Criteria
TOTAL SOLIDS	CDH-S-005(2-4)A	350	336	105%	80%-120%
TOTAL SOLIDS	CDH-S-006(2-4)	370	365	101%	80%-120%
TOTAL SOLIDS	CDH-S-007(2-4)	270	254	107%	80%-120%
TOTAL SOLIDS	CDH-S-009(2-4)	450	499	91%	80%-120%
TOTAL SOLIDS	CDH-S-018(2-4)	500	499	101%	80%-120%
TOTAL SOLIDS	CDH-S-020(2-4)	480	499	96%	80%-120%
TOTAL SOLIDS	CDH-S-050(2-4)	630	606	103%	80%-120%
TOTAL SOLIDS	CHA-S-001A	610	606	101%	80%-120%
TOTAL SOLIDS	CDH-S-005(10-12)	340	336	101%	80%-120%
TOTAL SOLIDS	CDH-S-006(10-12)	340	365	93%	80%-120%
TOTAL SOLIDS	CDH-S-007(10-12)	260	254	103%	80%-120%
TOTAL SOLIDS	CDH-S-016(10-12)	470	499	94%	80%-120%
TOTAL SOLIDS	CDH-S-046(10-12)	500	499	100%	80%-120%
TOTAL SOLIDS	CDH-S-032(10-12)	510	499	101%	80%-120%
TOTAL SOLIDS	CDH-S-050(10-12)	630	606	103%	80%-120%
TOTAL SOLIDS	CHA-S-004	600	606	100%	80%-120%

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Contamination - Externally Incorporated QA Samples

The following parameters were assessed for contamination and met the QA acceptance limits of less than or equal to two times the RL or less than or equal to 10% of the lowest production sample (LPS) result.

Blank Results:

Parameter	Blank Field ID	Blank Result	Reporting Limit	Acceptance Criteria
AMMONIA AS N	CDH-S-005(6-8)	< 0.50	0.50	≤ 2RL
AMMONIA AS N	CDH-S-005(6-8)A	< 0.10	0.10	≤ 2RL
AMMONIA AS N	CDH-S-006(6-8)	< 0.50	0.50	≤ 2RL
AMMONIA AS N	CDH-S-007(6-8)	< 0.50	0.50	≤ 2RL
AMMONIA AS N	CDH-S-011(6-8)	< 0.05	0.05	≤ 2RL
AMMONIA AS N	CDH-S-025(6-8)	< 1.0	1.0	≤ 2RL
AMMONIA AS N	CDH-S-031(6-8)	< 0.50	0.50	≤ 2RL
AMMONIA AS N	CDH-S-050(6-8)	< 0.05	0.05	≤ 2RL
AMMONIA AS N	CHA-S-003	< 0.10	0.10	≤ 2RL
CYANIDE, WAD	CDH-S-005(6-8)	< 0.5	0.5	≤ 2RL
CYANIDE, WAD	CDH-S-005(6-8)A	< 0.5	0.5	≤ 2RL
CYANIDE, WAD	CDH-S-006(6-8)	< 0.5	0.5	≤ 2RL
CYANIDE, WAD	CDH-S-007(6-8)	< 0.5	0.5	≤ 2RL
CYANIDE, WAD	CDH-S-011(6-8)	< 0.5	0.5	≤ 2RL
CYANIDE, WAD	CDH-S-025(6-8)	< 0.5	0.5	≤ 2RL

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Blank Results (cont.):

Parameter	Blank Field ID	Blank Result	Reporting Limit	Acceptance Criteria
CYANIDE, WAD	CDH-S-031(6-8)	< 0.5	0.5	≤ 2RL
CYANIDE, WAD	CDH-S-050(6-8)	< 0.5	0.5	≤ 2RL
CYANIDE, WAD	CHA-S-003	< 0.5	0.5	≤ 2RL
EC	CDH-S-005(6-8)	< 10	10	≤ 2RL
EC	CDH-S-005(6-8)A	<10	10	≤ 2RL
EC	CDH-S-006(6-8)	< 10	10	≤ 2RL
EC	CDH-S-007(6-8)	< 10	10	≤ 2RL
EC	CDH-S-011(6-8)	< 10	10	≤ 2RL
EC	CDH-S-025(6-8)	< 10	10	≤ 2RL
EC	CDH-S-031(6-8)	< 10	10	≤ 2RL
EC	CDH-S-050(6-8)	< 10	10	≤ 2RL
EC	CHA-S-003	< 10	10	≤ 2RL
NITROGEN, TOTAL	CDH-S-005(6-8)	< 0.70	0.70	≤ 2RL
NITROGEN, TOTAL	CDH-S-005(6-8)A	< 0.70	0.70	≤ 2RL
NITROGEN, TOTAL	CDH-S-006(6-8)	< 26	26	≤ 2RL
NITROGEN, TOTAL	CDH-S-007(6-8)	< 26	26	≤ 2RL
NITROGEN, TOTAL	CDH-S-011(6-8)	< 0.25	0.25	≤ 2RL
NITROGEN, TOTAL	CDH-S-025(6-8)	< 25	25	≤ 2RL
NITROGEN, TOTAL	CDH-S-031(6-8)	< 25	25	≤ 2RL

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Blank Results (cont.):

Parameter	Blank Field ID	Blank Result	Reporting Limit	Acceptance Criteria
NITROGEN, TOTAL	CDH-S-050(6-8)	< 0.25	0.25	≤ 2RL
NITROGEN, TOTAL	CHA-S-003	< 25	25	≤ 2RL
PHOSPHORUS, TOTAL AS P	CDH-S-005(6-8)	< 2.5	2.5	≤ 2RL
PHOSPHORUS, TOTAL AS P	CDH-S-005(6-8)A	< 2.5	2.5	≤ 2RL
PHOSPHORUS, TOTAL AS P	CDH-S-006(6-8)	< 2.5	2.5	≤ 2RL
PHOSPHORUS, TOTAL AS P	CDH-S-007(6-8)	< 2.5	2.5	≤ 2RL
PHOSPHORUS, TOTAL AS P	CDH-S-011(6-8)	< 2.5	2.5	≤ 2RL
PHOSPHORUS, TOTAL AS P	CDH-S-025(6-8)	< 2.5	2.5	≤ 2RL
PHOSPHORUS, TOTAL AS P	CDH-S-031(6-8)	< 2.5	2.5	≤ 2RL
PHOSPHORUS, TOTAL AS P	CDH-S-050(6-8)	< 2.5	2.5	≤ 2RL
PHOSPHORUS, TOTAL AS P	CHA-S-003	< 25	25	≤ 2RL
SULFIDE	CDH-S-005(6-8)	< 0.2	0.2	≤ 2RL
SULFIDE	CDH-S-006(6-8)	< 0.2	0.2	≤ 2RL
SULFIDE	CDH-S-007(6-8)	< 0.2	0.2	≤ 2RL
SULFIDE	CDH-S-011(6-8)	< 0.2	0.2	≤ 2RL
SULFIDE	CDH-S-025(6-8)	< 0.2	0.2	≤ 2RL
SULFIDE	CDH-S-031(6-8)	< 0.2	0.2	≤ 2RL
SULFIDE	CDH-S-050(6-8)	< 0.2	0.2	≤ 2RL
SULFIDE	CHA-S-003	< 0.2	0.2	≤ 2RL

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Blank Results (cont.):

Parameter	Blank Field ID	Blank Result	Reporting Limit	Acceptance Criteria
SULFIDE, ACID VOLATILE	CDH-S-007(6-8)	< 0.2	0.2	≤ 2RL
SULFIDE, ACID VOLATILE	CHA-S-003	< 0.2	0.2	≤ 2RL
TOTAL SOLIDS	CDH-S-005(6-8)	< 9	9	≤ 2RL
TOTAL SOLIDS	CDH-S-005(6-8)A	< 9	9	≤ 2RL
TOTAL SOLIDS	CDH-S-006(6-8)	< 9	9	≤ 2RL
TOTAL SOLIDS	CDH-S-007(6-8)	< 9	9	≤ 2RL
TOTAL SOLIDS	CDH-S-011(6-8)	< 9	9	≤ 2RL
TOTAL SOLIDS	CDH-S-025(6-8)	< 9	9	≤ 2RL
TOTAL SOLIDS	CDH-S-031(6-8)	< 9	9	≤ 2RL
TOTAL SOLIDS	CDH-S-050(6-8)	< 9	9	≤ 2RL
TOTAL SOLIDS	CHA-S-003	< 9	9	≤ 2RL
TOTAL VOLATILE SOLIDS	CDH-S-005(6-8)	< 10	10	≤ 2RL
TOTAL VOLATILE SOLIDS	CDH-S-006(6-8)	< 10	10	≤ 2RL
TOTAL VOLATILE SOLIDS	CDH-S-007(6-8)	< 10	10	≤ 2RL
TOTAL VOLATILE SOLIDS	CDH-S-011(6-8)	< 10	10	≤ 2RL
TOTAL VOLATILE SOLIDS	CDH-S-025(6-8)	< 10	10	≤ 2RL

Blank Results (cont.):

Parameter	Blank Field ID	Blank Result	Reporting Limit	Acceptance Criteria
TOTAL VOLATILE SOLIDS	CDH-S-031(6-8)	< 10	10	≤ 2RL
TOTAL VOLATILE SOLIDS	CDH-S-050(6-8)	< 10	10	≤ 2RL
TOTAL VOLATILE SOLIDS	CHA-S-003	< 10	10	≤ 2RL

Holding Time

All non-metal inorganic parameters were analyzed within their recommended holding times.

Laboratory Quality Control

In addition to reviewing the results of the externally incorporated QA samples, the results of the laboratory's QC samples were also reviewed. QC samples included blanks, duplicates, blank spikes, or matrix spikes. The laboratory QC sample results were acceptable.

General Comments

Reference samples were incorporated in duplicate to assess accuracy and precision. Certified references could not be acquired for all parameters; no reference samples were incorporated for WAD cyanide, acid volatile sulfide, and total volatile solids. The accuracy and precision for these parameters was assessed by reviewing the laboratory's QC samples. The reference samples incorporated for ammonia as N were also analyzed for total nitrogen; however, the references did not have certified values for total nitrogen. So, these references were used to assess the precision for total nitrogen, but accuracy for total nitrogen was assessed by reviewing the laboratory's QC samples. Soil reference samples could not be obtained for some parameters; water reference samples were used in place of soil reference samples for these parameters.

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Summary for Metals in Sediment Samples

Precision - Externally Incorporated QA Samples

The following parameters were assessed for precision and had differences within the QA acceptance limits of ≤ 35% relative percent difference (RPD) or a difference within two reporting limits (RL).

Duplicate Results:

Parameter	Duplicate 1 Field ID	Duplicate 2 Field ID	Duplicate 1 Result	Duplicate 2 Result	Percent RPD or Difference	Acceptance Criteria	RL
ALUMINUM	CDH-S-006(2-4)	CDH-S-006(10-12)	9000	10000	12.6%	≤ 35% RPD	25
ALUMINUM	CDH-S-007(2-4)	CDH-S-007(10-12)	11000	9800	6.6%	≤ 35% RPD	25
ALUMINUM	CDH-S-009(2-4)	CDH-S-016(10-12)	11000	10000	3.8%	≤ 35% RPD	25
ALUMINUM	CDH-S-018(2-4)	CDH-S-046(10-12)	11000	10000	12%	≤ 35% RPD	25
ALUMINUM	CDH-S-020(2-4)	CDH-S-032(10-12)	11000	11000	1.8%	≤ 35% RPD	25
ALUMINUM	CHA-S-001A	CHA-S-004	9900	8900	11%	≤ 35% RPD	20
ANTIMONY	CDH-S-006(2-4)	CDH-S-006(10-12)	130	120	0.8%	≤ 35% RPD	0.20
ANTIMONY	CDH-S-007(2-4)	CDH-S-007(10-12)	120	110	6.8%	≤ 35% RPD	0.20
ANTIMONY	CDH-S-009(2-4)	CDH-S-016(10-12)	100	98	6.0%	≤ 35% RPD	0.20
ANTIMONY	CDH-S-018(2-4)	CDH-S-046(10-12)	120	120	3.3%	≤ 35% RPD	0.20
ANTIMONY	CDH-S-020(2-4)	CDH-S-032(10-12)	170	160	9.8%	≤ 35% RPD	0.20
ANTIMONY	CHA-S-001A	CHA-S-004	170	160	7.4%	≤ 35% RPD	0.20
ARSENIC	CDH-S-006(2-4)	CDH-S-006(10-12)	140	140	2.9%	≤ 35% RPD	0.20
ARSENIC	CDH-S-007(2-4)	CDH-S-007(10-12)	140	130	9.7%	≤ 35% RPD	0.20
ARSENIC	CDH-S-009(2-4)	CDH-S-016(10-12)	140	140	0.7%	≤ 35% RPD	0.20

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Duplicate Results (cont.):

Parameter	Duplicate 1 Field ID	Duplicate 2 Field ID	Duplicate 1 Result	Duplicate 2 Result	Percent RPD or Difference	Acceptance Criteria	RL
ARSENIC	CDH-S-018(2-4)	CDH-S-046(10-12)	130	120	8.3%	≤ 35% RPD	0.20
ARSENIC	CDH-S-020(2-4)	CDH-S-032(10-12)	170	150	12%	≤ 35% RPD	0.20
ARSENIC	CHA-S-001A	CHA-S-004	90	90	0.2%	≤ 35% RPD	0.20
CADMIUM	CDH-S-006(2-4)	CDH-S-006(10-12)	180	180	2.2%	≤ 35% RPD	0.10
CADMIUM	CDH-S-007(2-4)	CDH-S-007(10-12)	180	160	15%	≤ 35% RPD	0.10
CADMIUM	CDH-S-009(2-4)	CDH-S-016(10-12)	180	160	7.1%	≤ 35% RPD	0.10
CADMIUM	CDH-S-018(2-4)	CDH-S-046(10-12)	160	160	1.9%	≤ 35% RPD	0.10
CADMIUM	CDH-S-020(2-4)	CDH-S-032(10-12)	130	120	10%	≤ 35% RPD	0.10
CADMIUM	CHA-S-001A	CHA-S-004	210	210	3.3%	≤ 35% RPD	0.10
CALCIUM	CDH-S-006(2-4)	CDH-S-006(10-12)	9100	8700	4.7%	≤ 35% RPD	50
CALCIUM	CDH-S-007(2-4)	CDH-S-007(10-12)	8400	8000	4.9%	≤ 35% RPD	50
CALCIUM	CDH-S-009(2-4)	CDH-S-016(10-12)	9200	10000	12%	≤ 35% RPD	50
CALCIUM	CDH-S-018(2-4)	CDH-S-046(10-12)	9100	8500	7.3%	≤ 35% RPD	50
CALCIUM	CDH-S-020(2-4)	CDH-S-032(10-12)	8200	8300	1.3%	≤ 35% RPD	50
CALCIUM	CHA-S-001A	CHA-S-004	8900	8100	10%	≤ 35% RPD	50
CHROMIUM	CDH-S-006(2-4)	CDH-S-006(10-12)	88	92	3.6%	≤ 35% RPD	0.20
CHROMIUM	CDH-S-007(2-4)	CDH-S-007(10-12)	90	76	16%	≤ 35% RPD	0.20
CHROMIUM	CDH-S-009(2-4)	CDH-S-016(10-12)	95	85	11%	≤ 35% RPD	0.20
CHROMIUM	CDH-S-018(2-4)	CDH-S-046(10-12)	84	82	1.8%	≤ 35% RPD	0.20
CHROMIUM	CDH-S-020(2-4)	CDH-S-032(10-12)	73	68	7.5%	≤ 35% RPD	0.20

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Duplicate Results (cont.):

Parameter	Duplicate 1 Field ID	Duplicate 2 Field ID	Duplicate 1 Result	Duplicate 2 Result	Percent RPD or Difference	Acceptance Criteria	RL
CHROMIUM	CHA-S-001A	CHA-S-004	73	73	0.3%	≤ 35% RPD	0.20
COPPER	CDH-S-006(2-4)	CDH-S-006(10-12)	110	110	2.8%	≤ 35% RPD	0.20
COPPER	CDH-S-007(2-4)	CDH-S-007(10-12)	110	97	14%	≤ 35% RPD	0.20
COPPER	CDH-S-009(2-4)	CDH-S-016(10-12)	100	97	4.1%	≤ 35% RPD	0.20
COPPER	CDH-S-018(2-4)	CDH-S-046(10-12)	97	95	2.3%	≤ 35% RPD	0.20
COPPER	CDH-S-020(2-4)	CDH-S-032(10-12)	55	57	4.1%	≤ 35% RPD	0.20
COPPER	CHA-S-001A	CHA-S-004	49	49	0.8%	≤ 35% RPD	0.20
IRON	CDH-S-006(2-4)	CDH-S-006(10-12)	17000	16000	5.5%	≤ 35% RPD	10
IRON	CDH-S-007(2-4)	CDH-S-007(10-12)	16000	16000	2.5%	≤ 35% RPD	10
IRON	CDH-S-009(2-4)	CDH-S-016(10-12)	16000	15000	7.1%	≤ 35% RPD	10
IRON	CDH-S-018(2-4)	CDH-S-046(10-12)	18000	16000	11%	≤ 35% RPD	10
IRON	CDH-S-020(2-4)	CDH-S-032(10-12)	17000	16000	1.2%	≤ 35% RPD	10
IRON	CHA-S-001A	CHA-S-004	18000	16000	12%	≤ 35% RPD	10
LEAD	CDH-S-006(2-4)	CDH-S-006(10-12)	150	150	2.0%	≤ 35% RPD	0.10
LEAD	CDH-S-007(2-4)	CDH-S-007(10-12)	160	140	11%	≤ 35% RPD	0.10
LEAD	CDH-S-009(2-4)	CDH-S-016(10-12)	130	140	3.0%	≤ 35% RPD	0.10
LEAD	CDH-S-018(2-4)	CDH-S-046(10-12)	140	120	14%	≤ 35% RPD	0.10
LEAD	CDH-S-020(2-4)	CDH-S-032(10-12)	69	58	17%	≤ 35% RPD	0.10
LEAD	CHA-S-001A	CHA-S-004	100	100	0%	≤ 35% RPD	0.10
MAGNESIUM	CDH-S-006(2-4)	CDH-S-006(10-12)	4900	4600	7.2%	≤ 35% RPD	50

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Duplicate Results (cont.):

Parameter	Duplicate 1 Field ID	Duplicate 2 Field ID	Duplicate 1 Result	Duplicate 2 Result	Percent RPD or Difference	Acceptance Criteria	RL
MAGNESIUM	CDH-S-007(2-4)	CDH-S-007(10-12)	4400	4600	2.4%	≤ 35% RPD	50
MAGNESIUM	CDH-S-009(2-4)	CDH-S-016(10-12)	4900	5200	6.4%	≤ 35% RPD	50
MAGNESIUM	CDH-S-018(2-4)	CDH-S-046(10-12)	4800	4400	8.9%	≤ 35% RPD	50
MAGNESIUM	CDH-S-020(2-4)	CDH-S-032(10-12)	3600	3700	3.8%	≤ 35% RPD	50
MAGNESIUM	CHA-S-001A	CHA-S-004	3700	3400	8.4%	≤ 35% RPD	50
MERCURY	CDH-S-006(2-4)	CDH-S-006(10-12)	8.4	7.8	7.4%	≤ 35% RPD	0.8
MERCURY	CDH-S-007(2-4)	CDH-S-007(10-12)	9.0	8.6	4.5%	≤ 35% RPD	0.8
MERCURY	CDH-S-009(2-4)	CDH-S-016(10-12)	8.3	9.2	10%	≤ 35% RPD	0.8
MERCURY	CDH-S-018(2-4)	CDH-S-046(10-12)	7.5	7.8	3.9%	≤ 35% RPD	0.8
MERCURY	CDH-S-020(2-4)	CDH-S-032(10-12)	12	12	1.7%	≤ 35% RPD	0.8
MERCURY	CHA-S-001A	CHA-S-004	3.1	2.9	6.7%	≤ 35% RPD	0.24
NICKEL	CDH-S-006(2-4)	CDH-S-006(10-12)	93	96	3.6%	≤ 35% RPD	0.20
NICKEL	CDH-S-007(2-4)	CDH-S-007(10-12)	95	82	15%	≤ 35% RPD	0.20
NICKEL	CDH-S-009(2-4)	CDH-S-016(10-12)	94	87	8.3%	≤ 35% RPD	0.20
NICKEL	CDH-S-018(2-4)	CDH-S-046(10-12)	85	88	4.4%	≤ 35% RPD	0.20
NICKEL	CDH-S-020(2-4)	CDH-S-032(10-12)	77	72	7.0%	≤ 35% RPD	0.20
NICKEL	CHA-S-001A	CHA-S-004	75	75	0.4%	≤ 35% RPD	0.20
SELENIUM	CDH-S-006(2-4)	CDH-S-006(10-12)	140	140	0%	≤ 35% RPD	0.20
SELENIUM	CDH-S-007(2-4)	CDH-S-007(10-12)	140	120	13%	≤ 35% RPD	0.20
SELENIUM	CDH-S-009(2-4)	CDH-S-016(10-12)	130	130	3.9%	≤ 35% RPD	0.20

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Duplicate Results (cont.):

Parameter	Duplicate 1 Field ID	Duplicate 2 Field ID	Duplicate 1 Result	Duplicate 2 Result	Percent RPD or Difference	Acceptance Criteria	RL
SELENIUM	CDH-S-018(2-4)	CDH-S-046(10-12)	130	130	3.8%	≤ 35% RPD	0.20
SELENIUM	CDH-S-020(2-4)	CDH-S-032(10-12)	180	170	3.4%	≤ 35% RPD	0.20
SELENIUM	CHA-S-001A	CHA-S-004	150	160	1.3%	≤ 35% RPD	0.20
SILVER	CDH-S-006(2-4)	CDH-S-006(10-12)	46	50	7.7%	≤ 35% RPD	0.50
SILVER	CDH-S-007(2-4)	CDH-S-007(10-12)	52	48	7.4%	≤ 35% RPD	0.50
SILVER	CDH-S-009(2-4)	CDH-S-016(10-12)	59	57	3.1%	≤ 35% RPD	0.50
SILVER	CDH-S-018(2-4)	CDH-S-046(10-12)	62	55	12%	≤ 35% RPD	0.50
SILVER	CDH-S-020(2-4)	CDH-S-032(10-12)	41	41	0.7%	≤ 35% RPD	0.50
SILVER	CHA-S-001A	CHA-S-004	41	37	11%	≤ 35% RPD	0.50
ZINC	CDH-S-006(2-4)	CDH-S-006(10-12)	350	370	4.8%	≤ 35% RPD	1.0
ZINC	CDH-S-007(2-4)	CDH-S-007(10-12)	360	320	13%	≤ 35% RPD	1.0
ZINC	CDH-S-009(2-4)	CDH-S-016(10-12)	340	340	1.8%	≤ 35% RPD	1.0
ZINC	CDH-S-018(2-4)	CDH-S-046(10-12)	310	320	1.6%	≤ 35% RPD	1.0
ZINC	CDH-S-020(2-4)	CDH-S-032(10-12)	180	170	9.1%	≤ 35% RPD	1.0
ZINC	CHA-S-001A	CHA-S-004	310	310	1.3%	≤ 35% RPD	1.0

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Accuracy - Externally Incorporated QA Samples

The following parameters were assessed for accuracy and had percent recoveries within the QA acceptance limit of 65% - 135% or results within the certified acceptance range provided by the manufacturer of the reference.

Reference Results:

Parameter	Reference Field ID	Reference Result	Reference Certified Value or Range	Percent Recovery	Acceptance Criteria
ALUMINUM	CDH-S-006(2-4)	9000	11000	82%	65% - 135%
ALUMINUM	CDH-S-007(2-4)	11000	11000	95%	65% - 135%
ALUMINUM	CDH-S-009(2-4)	11000	11000	96%	65% - 135%
ALUMINUM	CDH-S-018(2-4)	11000	11000	104%	65% - 135%
ALUMINUM	CDH-S-020(2-4)	11000	10100	111%	65% - 135%
ALUMINUM	CHA-S-001A	9900	10600	93%	65% - 135%
ALUMINUM	CDH-S-006(10-12)	10000	11000	93%	65% - 135%
ALUMINUM	CDH-S-007(10-12)	9800	11000	89%	65% - 135%
ALUMINUM	CDH-S-016(10-12)	10000	11000	93%	65% - 135%
ALUMINUM	CDH-S-046(10-12)	10000	11000	92%	65% - 135%
ALUMINUM	CDH-S-032(10-12)	11000	10100	109%	65% - 135%
ALUMINUM	CHA-S-004	8900	10600	84%	65% - 135%
ANTIMONY	CDH-S-006(2-4)	130	23.7-261	--	within acceptance range
ANTIMONY	CDH-S-007(2-4)	120	23.7-261	--	within acceptance range
ANTIMONY	CDH-S-009(2-4)	100	81.5	128%	65% - 135%
ANTIMONY	CDH-S-018(2-4)	120	23.7-261	--	within acceptance range

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Reference Results (cont.):

Parameter	Reference Field ID	Reference Result	Reference Certified Value or Range	Percent Recovery	Acceptance Criteria
ANTIMONY	CDH-S-020(2-4)	170	28.2-310	--	within acceptance range
ANTIMONY	CHA-S-001A	170	26.2-288	--	within acceptance range
ANTIMONY	CDH-S-006(10-12)	120	23.7-261	--	within acceptance range
ANTIMONY	CDH-S-007(10-12)	110	23.7-261	--	within acceptance range
ANTIMONY	CDH-S-016(10-12)	98	81.5	120%	65% - 135%
ANTIMONY	CDH-S-046(10-12)	120	23.7-261	--	within acceptance range
ANTIMONY	CDH-S-032(10-12)	160	28.2-310	--	within acceptance range
ANTIMONY	CHA-S-004	160	26.2-288	--	within acceptance range
ARSENIC	CDH-S-006(2-4)	140	158	89%	65% - 135%
ARSENIC	CDH-S-007(2-4)	140	158	89%	65% - 135%
ARSENIC	CDH-S-009(2-4)	140	158	91%	65% - 135%
ARSENIC	CDH-S-018(2-4)	130	158	79%	65% - 135%
ARSENIC	CDH-S-020(2-4)	170	156	106%	65% - 135%
ARSENIC	CHA-S-001A	90	107	84%	65% - 135%
ARSENIC	CDH-S-006(10-12)	140	158	86%	65% - 135%
ARSENIC	CDH-S-007(10-12)	130	158	80%	65% - 135%
ARSENIC	CDH-S-016(10-12)	140	158	90%	65% - 135%
ARSENIC	CDH-S-046(10-12)	120	158	73%	65% - 135%
ARSENIC	CDH-S-032(10-12)	150	156	94%	65% - 135%

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Reference Results (cont.):

Parameter	Reference Field ID	Reference Result	Reference Certified Value or Range	Percent Recovery	Acceptance Criteria
ARSENIC	CHA-S-004	90	107	84%	65% - 135%
CADMIUM	CDH-S-006(2-4)	180	187	95%	65% - 135%
CADMIUM	CDH-S-007(2-4)	180	187	97%	65% - 135%
CADMIUM	CDH-S-009(2-4)	180	187	94%	65% - 135%
CADMIUM	CDH-S-018(2-4)	160	187	86%	65% - 135%
CADMIUM	CDH-S-020(2-4)	130	141	93%	65% - 135%
CADMIUM	CHA-S-001A	210	244	87%	65% - 135%
CADMIUM	CDH-S-006(10-12)	180	187	97%	65% - 135%
CADMIUM	CDH-S-007(10-12)	160	187	82%	65% - 135%
CADMIUM	CDH-S-016(10-12)	160	187	88%	65% - 135%
CADMIUM	CDH-S-046(10-12)	160	187	87%	65% - 135%
CADMIUM	CDH-S-032(10-12)	120	141	84%	65% - 135%
CADMIUM	CHA-S-004	210	244	84%	65% - 135%
CALCIUM	CDH-S-006(2-4)	9100	9650	95%	65% - 135%
CALCIUM	CDH-S-007(2-4)	8400	9650	87%	65% - 135%
CALCIUM	CDH-S-009(2-4)	9200	9650	96%	65% - 135%
CALCIUM	CDH-S-018(2-4)	9100	9650	94%	65% - 135%
CALCIUM	CDH-S-020(2-4)	8200	9770	84%	65% - 135%
CALCIUM	CHA-S-001A	8900	9690	92%	65% - 135%

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Reference Results (cont.):

Parameter	Reference Field ID	Reference Result	Reference Certified Value or Range	Percent Recovery	Acceptance Criteria
CALCIUM	CDH-S-006(10-12)	8700	9650	90%	65% - 135%
CALCIUM	CDH-S-007(10-12)	8000	9650	83%	65% - 135%
CALCIUM	CDH-S-016(10-12)	10000	9650	108%	65% - 135%
CALCIUM	CDH-S-046(10-12)	8500	9650	88%	65% - 135%
CALCIUM	CDH-S-032(10-12)	8300	9770	85%	65% - 135%
CALCIUM	CHA-S-004	8100	9690	83%	65% - 135%
CHROMIUM	CDH-S-006(2-4)	88	89.5	99%	65% - 135%
CHROMIUM	CDH-S-007(2-4)	90	89.5	100%	65% - 135%
CHROMIUM	CDH-S-009(2-4)	95	89.5	107%	65% - 135%
CHROMIUM	CDH-S-018(2-4)	84	89.5	93%	65% - 135%
CHROMIUM	CDH-S-020(2-4)	73	76.3	96%	65% - 135%
CHROMIUM	CHA-S-001A	73	80.6	90%	65% - 135%
CHROMIUM	CDH-S-006(10-12)	92	89.5	102%	65% - 135%
CHROMIUM	CDH-S-007(10-12)	76	89.5	85%	65% - 135%
CHROMIUM	CDH-S-016(10-12)	85	89.5	95%	65% - 135%
CHROMIUM	CDH-S-046(10-12)	82	89.5	92%	65% - 135%
CHROMIUM	CDH-S-032(10-12)	68	76.3	89%	65% - 135%
CHROMIUM	CHA-S-004	73	80.6	91%	65% - 135%
COPPER	CDH-S-006(2-4)	110	129	83%	65% - 135%

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Reference Results (cont.):

Parameter	Reference Field ID	Reference Result	Reference Certified Value or Range	Percent Recovery	Acceptance Criteria
COPPER	CDH-S-007(2-4)	110	129	86%	65% - 135%
COPPER	CDH-S-009(2-4)	100	129	78%	65% - 135%
COPPER	CDH-S-018(2-4)	97	129	75%	65% - 135%
COPPER	CDH-S-020(2-4)	55	77.2	71%	65% - 135%
COPPER	CHA-S-001A	49	65.3	75%	65% - 135%
COPPER	CDH-S-006(10-12)	110	129	85%	65% - 135%
COPPER	CDH-S-007(10-12)	97	129	75%	65% - 135%
COPPER	CDH-S-016(10-12)	97	129	75%	65% - 135%
COPPER	CDH-S-046(10-12)	95	129	73%	65% - 135%
COPPER	CDH-S-032(10-12)	57	77.2	74%	65% - 135%
COPPER	CHA-S-004	49	65.3	75%	65% - 135%
IRON	CDH-S-006(2-4)	17000	18600	90%	65% - 135%
IRON	CDH-S-007(2-4)	16000	18600	85%	65% - 135%
IRON	CDH-S-009(2-4)	16000	18600	87%	65% - 135%
IRON	CDH-S-018(2-4)	18000	18600	95%	65% - 135%
IRON	CDH-S-020(2-4)	17000	17800	93%	65% - 135%
IRON	CHA-S-001A	18000	18400	98%	65% - 135%
IRON	CDH-S-006(10-12)	16000	18600	85%	65% - 135%
IRON	CDH-S-007(10-12)	16000	18600	88%	65% - 135%

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Reference Results (cont.):

Parameter	Reference Field ID	Reference Result	Reference Certified Value or Range	Percent Recovery	Acceptance Criteria
IRON	CDH-S-016(10-12)	15000	18600	81%	65% - 135%
IRON	CDH-S-046(10-12)	16000	18600	84%	65% - 135%
IRON	CDH-S-032(10-12)	16000	17800	92%	65% - 135%
IRON	CHA-S-004	16000	18400	86%	65% - 135%
LEAD	CDH-S-006(2-4)	150	172	87%	65% - 135%
LEAD	CDH-S-007(2-4)	160	172	92%	65% - 135%
LEAD	CDH-S-009(2-4)	130	172	76%	65% - 135%
LEAD	CDH-S-018(2-4)	140	172	81%	65% - 135%
LEAD	CDH-S-020(2-4)	69	72.9	95%	65% - 135%
LEAD	CHA-S-001A	100	107	93%	65% - 135%
LEAD	CDH-S-006(10-12)	150	172	89%	65% - 135%
LEAD	CDH-S-007(10-12)	140	172	83%	65% - 135%
LEAD	CDH-S-016(10-12)	140	172	78%	65% - 135%
LEAD	CDH-S-046(10-12)	120	172	70%	65% - 135%
LEAD	CDH-S-032(10-12)	58	72.9	80%	65% - 135%
LEAD	CHA-S-004	100	107	93%	65% - 135%
MAGNESIUM	CDH-S-006(2-4)	4900	5030	98%	65% - 135%
MAGNESIUM	CDH-S-007(2-4)	4400	5030	88%	65% - 135%
MAGNESIUM	CDH-S-009(2-4)	4900	5030	97%	65% - 135%
MAGNESIUM	CDH-S-018(2-4)	4800	5030	96%	65% - 135%

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Reference Results (cont.):

Parameter	Reference Field ID	Reference Result	Reference Certified Value or Range	Percent Recovery	Acceptance Criteria
MAGNESIUM	CDH-S-020(2-4)	3600	4020	89%	65% - 135%
MAGNESIUM	CHA-S-001A	3700	4100	90%	65% - 135%
MAGNESIUM	CDH-S-006(10-12)	4600	5030	91%	65% - 135%
MAGNESIUM	CDH-S-007(10-12)	4600	5030	90%	65% - 135%
MAGNESIUM	CDH-S-016(10-12)	5200	5030	103%	65% - 135%
MAGNESIUM	CDH-S-046(10-12)	4400	5030	87%	65% - 135%
MAGNESIUM	CDH-S-032(10-12)	3700	4020	92%	65% - 135%
MAGNESIUM	CHA-S-004	3400	4100	83%	65% - 135%
MERCURY	CDH-S-006(2-4)	8.4	7.34	114%	65% - 135%
MERCURY	CDH-S-007(2-4)	9.0	7.34	123%	65% - 135%
MERCURY	CDH-S-009(2-4)	8.3	7.34	113%	65% - 135%
MERCURY	CDH-S-018(2-4)	7.5	7.34	102%	65% - 135%
MERCURY	CDH-S-020(2-4)	12	11.7	98%	65% - 135%
MERCURY	CHA-S-001A	3.1	2.96	105%	65% - 135%
MERCURY	CDH-S-006(10-12)	7.8	7.34	106%	65% - 135%
MERCURY	CDH-S-007(10-12)	8.6	7.34	117%	65% - 135%
MERCURY	CDH-S-016(10-12)	9.2	7.34	125%	65% - 135%
MERCURY	CDH-S-046(10-12)	7.8	7.34	106%	65% - 135%
MERCURY	CDH-S-032(10-12)	12	11.7	100%	65% - 135%
MERCURY	CHA-S-004	2.9	2.96	98%	65% - 135%
NICKEL	CDH-S-006(2-4)	93	99	94%	65% - 135%

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Reference Results (cont.):

Parameter	Reference Field ID	Reference Result	Reference Certified Value or Range	Percent Recovery	Acceptance Criteria
NICKEL	CDH-S-007(2-4)	95	99	96%	65% - 135%
NICKEL	CDH-S-009(2-4)	94	99	95%	65% - 135%
NICKEL	CDH-S-018(2-4)	85	99	85%	65% - 135%
NICKEL	CDH-S-020(2-4)	77	84.3	91%	65% - 135%
NICKEL	CHA-S-001A	75	96.8	78%	65% - 135%
NICKEL	CDH-S-006(10-12)	96	99	97%	65% - 135%
NICKEL	CDH-S-007(10-12)	82	99	83%	65% - 135%
NICKEL	CDH-S-016(10-12)	87	99	88%	65% - 135%
NICKEL	CDH-S-046(10-12)	88	99	89%	65% - 135%
NICKEL	CDH-S-032(10-12)	72	84.3	85%	65% - 135%
NICKEL	CHA-S-004	75	96.8	77%	65% - 135%
SELENIUM	CDH-S-006(2-4)	140	148	92%	65% - 135%
SELENIUM	CDH-S-007(2-4)	140	148	95%	65% - 135%
SELENIUM	CDH-S-009(2-4)	130	148	89%	65% - 135%
SELENIUM	CDH-S-018(2-4)	130	148	87%	65% - 135%
SELENIUM	CDH-S-020(2-4)	180	198	90%	65% - 135%
SELENIUM	CHA-S-001A	150	177	86%	65% - 135%
SELENIUM	CDH-S-006(10-12)	140	148	92%	65% - 135%
SELENIUM	CDH-S-007(10-12)	120	148	83%	65% - 135%
SELENIUM	CDH-S-016(10-12)	130	148	85%	65% - 135%
SELENIUM	CDH-S-046(10-12)	130	148	91%	65% - 135%

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Reference Results (cont.):

Parameter	Reference Field ID	Reference Result	Reference Certified Value or Range	Percent Recovery	Acceptance Criteria
SELENIUM	CDH-S-032(10-12)	170	198	87%	65% - 135%
SELENIUM	CHA-S-004	160	177	88%	65% - 135%
SILVER	CDH-S-006(2-4)	46	66	70%	65% - 135%
SILVER	CDH-S-007(2-4)	52	66	78%	65% - 135%
SILVER	CDH-S-009(2-4)	59	66	90%	65% - 135%
SILVER	CDH-S-018(2-4)	62	66	94%	65% - 135%
SILVER	CDH-S-020(2-4)	41	46.9	88%	65% - 135%
SILVER	CHA-S-001A	41	46.2	89%	65% - 135%
SILVER	CDH-S-006(10-12)	50	66	76%	65% - 135%
SILVER	CDH-S-007(10-12)	48	66	73%	65% - 135%
SILVER	CDH-S-016(10-12)	57	66	87%	65% - 135%
SILVER	CDH-S-046(10-12)	55	66	84%	65% - 135%
SILVER	CDH-S-032(10-12)	41	46.9	87%	65% - 135%
SILVER	CHA-S-004	37	46.2	80%	65% - 135%
ZINC	CDH-S-006(2-4)	350	394	88%	65% - 135%
ZINC	CDH-S-007(2-4)	360	394	91%	65% - 135%
ZINC	CDH-S-009(2-4)	340	394	87%	65% - 135%
ZINC	CDH-S-018(2-4)	310	394	79%	65% - 135%
ZINC	CDH-S-020(2-4)	180	204	90%	65% - 135%
ZINC	CHA-S-001A	310	378	82%	65% - 135%
ZINC	CDH-S-006(10-12)	370	394	93%	65% - 135%

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Reference Results (cont.):

Parameter	Reference Field ID	Reference Result	Reference Certified Value or Range	Percent Recovery	Acceptance Criteria
ZINC	CDH-S-007(10-12)	320	394	80%	65% - 135%
ZINC	CDH-S-016(10-12)	340	394	86%	65% - 135%
ZINC	CDH-S-046(10-12)	320	394	80%	65% - 135%
ZINC	CDH-S-032(10-12)	170	204	82%	65% - 135%
ZINC	CHA-S-004	310	378	83%	65% - 135%

Contamination - Externally Incorporated QA Samples

The following parameters were assessed for contamination and met the QA acceptance limits of less than or equal to two times the RL or less than or equal to 10% of the lowest production sample (LPS) result.

Blank Results:

Parameter	Blank Field ID	Blank Result	Reporting Limit	Acceptance Criteria
ALUMINUM	CDH-S-006(6-8)	38	5	≤ 10% of LPS
ALUMINUM	CDH-S-007(6-8)	29	5	≤ 10% of LPS
ALUMINUM	CDH-S-011(6-8)	40	5	≤ 10% of LPS
ALUMINUM	CDH-S-025(6-8)	58	5	≤ 10% of LPS
ALUMINUM	CDH-S-031(6-8)	48	5	≤ 10% of LPS
ALUMINUM	CHA-S-003	31	20	≤ 2RL
ANTIMONY	CDH-S-006(6-8)	< 0.20	0.20	≤ 2RL
ANTIMONY	CDH-S-007(6-8)	< 0.20	0.20	≤ 2RL
ANTIMONY	CDH-S-011(6-8)	< 0.20	0.20	≤ 2RL

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Blank Results (cont.):

Parameter	Blank Field ID	Blank Result	Reporting Limit	Acceptance Criteria
ANTIMONY	CDH-S-025(6-8)	< 0.20	0.20	≤ 2RL
ANTIMONY	CDH-S-031(6-8)	< 0.20	0.20	≤ 2RL
ANTIMONY	CHA-S-003	< 0.20	0.20	≤ 2RL
ARSENIC	CDH-S-006(6-8)	< 0.20	0.20	≤ 2RL
ARSENIC	CDH-S-007(6-8)	< 0.20	0.20	≤ 2RL
ARSENIC	CDH-S-011(6-8)	< 0.20	0.20	≤ 2RL
ARSENIC	CDH-S-025(6-8)	< 0.20	0.20	≤ 2RL
ARSENIC	CDH-S-031(6-8)	< 0.20	0.20	≤ 2RL
ARSENIC	CHA-S-003	< 0.20	0.20	≤ 2RL
CADMIUM	CDH-S-006(6-8)	< 0.10	0.10	≤ 2RL
CADMIUM	CDH-S-007(6-8)	< 0.10	0.10	≤ 2RL
CADMIUM	CDH-S-011(6-8)	< 0.10	0.10	≤ 2RL
CADMIUM	CDH-S-025(6-8)	< 0.10	0.10	≤ 2RL
CADMIUM	CDH-S-031(6-8)	< 0.10	0.10	≤ 2RL
CADMIUM	CHA-S-003	< 0.10	0.10	≤ 2RL
CALCIUM	CDH-S-006(6-8)	100	50	≤ 2RL
CALCIUM	CDH-S-007(6-8)	190	50	≤ 10% of LPS
CALCIUM	CDH-S-011(6-8)	120	50	≤ 10% of LPS
CALCIUM	CDH-S-025(6-8)	250	50	≤ 10% of LPS
CALCIUM	CDH-S-031(6-8)	170	50	≤ 10% of LPS
CALCIUM	CHA-S-003	190	50	≤ 10% of LPS
CHROMIUM	CDH-S-006(6-8)	0.28	0.20	≤ 2RL
CHROMIUM	CDH-S-007(6-8)	0.20	0.20	≤ 2RL

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Blank Results (cont.):

Parameter	Blank Field ID	Blank Result	Reporting Limit	Acceptance Criteria
CHROMIUM	CDH-S-011(6-8)	0.37	0.20	≤ 2RL
CHROMIUM	CDH-S-025(6-8)	0.49	0.20	≤ 2RL
CHROMIUM	CDH-S-031(6-8)	0.77	0.20	≤ 10% of LPS
CHROMIUM	CHA-S-003	0.21	0.20	≤ 2RL
COPPER	CDH-S-006(6-8)	< 0.20	0.20	≤ 2RL
COPPER	CDH-S-007(6-8)	< 0.20	0.20	≤ 2RL
COPPER	CDH-S-011(6-8)	< 0.20	0.20	≤ 2RL
COPPER	CDH-S-025(6-8)	< 0.20	0.20	≤ 2RL
COPPER	CDH-S-031(6-8)	< 0.20	0.20	≤ 2RL
COPPER	CHA-S-003	< 0.20	0.20	≤ 2RL
IRON	CDH-S-006(6-8)	34	10	≤ 10% of LPS
IRON	CDH-S-007(6-8)	37	10	≤ 10% of LPS
IRON	CDH-S-011(6-8)	43	10	≤ 10% of LPS
IRON	CDH-S-025(6-8)	40	10	≤ 10% of LPS
IRON	CDH-S-031(6-8)	30	10	≤ 10% of LPS
IRON	CHA-S-003	32	10	≤ 10% of LPS
LEAD	CDH-S-006(6-8)	0.12	0.10	≤ 2RL
LEAD	CDH-S-007(6-8)	< 0.10	0.10	≤ 2RL
LEAD	CDH-S-011(6-8)	0.11	0.10	≤ 2RL
LEAD	CDH-S-025(6-8)	0.19	0.10	≤ 2RL
LEAD	CDH-S-031(6-8)	0.14	0.10	≤ 2RL
LEAD	CHA-S-003	0.14	0.10	≤ 2RL
MAGNESIUM	CDH-S-006(6-8)	< 50	50	≤ 2RL
MAGNESIUM	CDH-S-007(6-8)	< 50	50	≤ 2RL

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Blank Results (cont.):

Parameter	Blank Field ID	Blank Result	Reporting Limit	Acceptance Criteria
MAGNESIUM	CDH-S-011(6-8)	< 50	50	≤ 2RL
MAGNESIUM	CDH-S-025(6-8)	< 50	50	≤ 2RL
MAGNESIUM	CDH-S-031(6-8)	< 50	50	≤ 2RL
MAGNESIUM	CHA-S-003	< 50	50	≤ 2RL
MERCURY	CDH-S-006(6-8)	< 0.040	0.040	≤ 2RL
MERCURY	CDH-S-007(6-8)	< 0.040	0.040	≤ 2RL
MERCURY	CDH-S-011(6-8)	< 0.040	0.040	≤ 2RL
MERCURY	CDH-S-025(6-8)	< 0.040	0.040	≤ 2RL
MERCURY	CDH-S-031(6-8)	< 0.040	0.040	≤ 2RL
MERCURY	CHA-S-003	< 0.040	0.040	≤ 2RL
NICKEL	CDH-S-006(6-8)	< 0.20	0.20	≤ 2RL
NICKEL	CDH-S-007(6-8)	< 0.20	0.20	≤ 2RL
NICKEL	CDH-S-011(6-8)	< 0.20	0.20	≤ 2RL
NICKEL	CDH-S-025(6-8)	< 0.20	0.20	≤ 2RL
NICKEL	CDH-S-031(6-8)	< 0.20	0.20	≤ 2RL
NICKEL	CHA-S-003	< 0.20	0.20	≤ 2RL
SELENIUM	CDH-S-006(6-8)	< 0.20	0.20	≤ 2RL
SELENIUM	CDH-S-007(6-8)	< 0.20	0.20	≤ 2RL
SELENIUM	CDH-S-011(6-8)	< 0.20	0.20	≤ 2RL
SELENIUM	CDH-S-025(6-8)	< 0.20	0.20	≤ 2RL
SELENIUM	CDH-S-031(6-8)	< 0.20	0.20	≤ 2RL
SELENIUM	CHA-S-003	< 0.20	0.20	≤ 2RL

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Blank Results (cont.):

Parameter	Blank Field ID	Blank Result	Reporting Limit	Acceptance Criteria
SILVER	CDH-S-006(6-8)	< 0.50	0.50	≤ 2RL
SILVER	CDH-S-007(6-8)	< 0.50	0.50	≤ 2RL
SILVER	CDH-S-011(6-8)	< 0.50	0.50	≤ 2RL
SILVER	CDH-S-025(6-8)	< 0.50	0.50	≤ 2RL
SILVER	CDH-S-031(6-8)	< 0.50	0.50	≤ 2RL
SILVER	CHA-S-003	< 0.50	0.50	≤ 2RL
ZINC	CDH-S-006(6-8)	< 1.0	1.0	≤ 2RL
ZINC	CDH-S-007(6-8)	< 1.0	1.0	≤ 2RL
ZINC	CDH-S-011(6-8)	< 1.0	1.0	≤ 2RL
ZINC	CDH-S-025(6-8)	< 1.0	1.0	≤ 2RL
ZINC	CDH-S-031(6-8)	< 1.0	1.0	≤ 2RL
ZINC	CHA-S-003	< 1.0	1.0	≤ 2RL

Rinse Blank Results:

Parameter	Rinse Blank Field ID	Rinse Blank Result	Reporting Limit	Acceptance Criteria
ALUMINUM	CDH-W-GEB	< 50	50	≤ 2RL
ANTIMONY	CDH-W-GEB	< 2.0	2.0	≤ 2RL
ARSENIC	CDH-W-GEB	< 2.0	2.0	≤ 2RL
CADMIUM	CDH-W-GEB	< 1.0	1.0	≤ 2RL
CALCIUM	CDH-W-GEB	< 0.050	0.050	≤ 2RL
CHROMIUM	CDH-W-GEB	< 2.0	2.0	≤ 2RL
COPPER	CDH-W-GEB	< 2.0	2.0	≤ 2RL
LEAD	CDH-W-GEB	< 1.0	1.0	≤ 2RL
MAGNESIUM	CDH-W-GEB	< 0.050	0.050	≤ 2RL

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Rinse Blank Results (cont.):

Parameter	Rinse Blank Field ID	Rinse Blank Result	Reporting Limit	Acceptance Criteria
MERCURY	CDH-W-GEB	< 200	200	≤ 2RL
NICKEL	CDH-W-GEB	< 2.0	2.0	≤ 2RL
SILVER	CDH-W-GEB	< 1.0	1.0	≤ 2RL
ZINC	CDH-W-GEB	< 5.0	5.0	≤ 2RL

Holding Time

All metal parameters were analyzed within their recommended holding times.

Laboratory Quality Control

In addition to reviewing the results of the externally incorporated QA samples, the results of the laboratory's QC samples were also reviewed. QC samples included blanks, duplicates, blank spikes, or matrix spikes. The laboratory QC sample results were acceptable except for the following:

Sample CDH-S-017 (0.0-1.2) was qualified as possibly biased low for zinc based on a low recovery in the laboratory's matrix spike.

Appendix E

Quality Assurance Summary for Inorganic Parameters in Elutriate Samples

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RECLAMATION

Managing Water in the West

Klamath River Sediment Study

Quality Assurance Summary for

Inorganic Parameters in Elutriate Samples

Bureau of Reclamation, Mid-Pacific Region

Environmental Monitoring Branch

U.S. Department of the Interior
Bureau of Reclamation
Mid-Pacific Region

Overview of External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Samples for the Klamath River Sediment Study were collected between October 2009 and January 2010. The Quality Assurance (QA) section of the Environmental Monitoring Branch (EMB) incorporated QA samples with the field samples to assess the laboratory's ability to produce valid data.

Laboratory	Parameter
Basic Laboratory, Inc. (Redding, CA)	Ammonia as N, Biological Oxygen Demand (BOD) (5 day), Chloride, Cyanide - Weak Acid Dissociable (WAD), Dissolved Organic Carbon (DOC), Specific Conductance (EC), Metals, Total Nitrogen, pH, Total Phosphorus, Particulate Organic Carbon (POC), Sulfide, Total Dissolved Solids (TDS) and Total Organic Carbon (TOC)

The QA calculations in the following tables (i.e., percent recovery) were performed on data directly from the analytical report; data from the analytical report may have been rounded upon being entered into the database. Data results in the following tables are from the database; therefore, calculations performed on rounded data may not match calculations performed on the analytical report.

The EMB's QA section reviewed and validated the QA sample results as well as the laboratory Quality Control (QC) sample results. The summary of the QA review is discussed in the following pages.

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Summary for Non-metal Inorganic Parameters in Elutriate Samples

Precision - Externally Incorporated QA Samples

The following parameters were assessed for precision and had differences within the QA acceptance limits of ≤ 20% relative percent difference (RPD) or a difference within one reporting limit (RL), except where noted.

The RPDs for samples CHA-W-001 and CHA-W-003 were unacceptable for DOC and TOC. These two samples were submitted for reanalysis for both DOC and TOC. The reanalyzed results confirmed the original results. Therefore, the original DOC and TOC results were accepted as valid.

Duplicate Results:

Parameter	Duplicate 1 Field ID	Duplicate 2 Field ID	Duplicate 1 Result	Duplicate 2 Result	Percent RPD or Difference	Acceptance Criteria	RL
AMMONIA AS N	CDH-W-CPT	CDH-W-CPN	2.2	2.2	0%	≤ 20%	0.05
AMMONIA AS N	CDH-W-IGN-1	CDH-W-IGN-3	1.4	1.3	4.5%	≤ 20%	0.05
AMMONIA AS N	CDH-W-IGT-1	CDH-W-IGT-3	1.3	1.2	5.5%	≤ 20%	0.05
AMMONIA AS N	CDH-W-JBT	CDH-W-JBN	2.6	2.8	7.3%	≤ 20%	0.05
AMMONIA AS N	CHA-W-001	CHA-W-003	1.3	1.1	14%	≤ 20%	0.05
BOD (5 DAY)	CDH-W-CPT	CDH-W-CPN	82	83	1.2%	≤ 20%	3
BOD (5 DAY)	CDH-W-IGN-1	CDH-W-IGN-3	50	59	17%	≤ 20%	3
BOD (5 DAY)	CDH-W-IGT-1	CDH-W-IGT-3	46	53	14%	≤ 20%	3
BOD (5 DAY)	CDH-W-JBT	CDH-W-JBN	46	47	2.2%	≤ 20%	3
BOD (5 DAY)	CHA-W-001	CHA-W-003	86	83	3.6%	≤ 20%	3
CHLORIDE	CDH-W-CPT	CDH-W-CPN	72	71	1.0%	≤ 20%	1

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Duplicate Results (cont.):

Parameter	Duplicate 1 Field ID	Duplicate 2 Field ID	Duplicate 1 Result	Duplicate 2 Result	Percent RPD or Difference	Acceptance Criteria	RL
CHLORIDE	CDH-W-IGN-1	CDH-W-IGN-3	17	17	0.6%	≤ 20%	0.40
CHLORIDE	CDH-W-IGT-1	CDH-W-IGT-3	17	18	1.7%	≤ 20%	0.40
CHLORIDE	CDH-W-JBT	CDH-W-JBN	18	18	1.1%	≤ 20%	0.40
CHLORIDE	CHA-W-001	CHA-W-003	19	19	0.5%	≤ 20%	0.20
DOC	CDH-W-CPT	CDH-W-CPN	47	46	1.3%	≤ 20%	2.5
DOC	CDH-W-IGN-1	CDH-W-IGN-3	45	46	3.3%	≤ 20%	2.5
DOC	CDH-W-IGT-1	CDH-W-IGT-3	30	32	8.7%	≤ 20%	1
DOC	CDH-W-JBT	CDH-W-JBN	29	29	1.0%	≤ 20%	1.0
DOC	CHA-W-001	CHA-W-003	**57 RC**	**44 RC**	**25%**	≤ 20%	2.5
EC	CDH-W-CPT	CDH-W-CPN	450	450	0.2%	≤ 20%	10
EC	CDH-W-IGN-1	CDH-W-IGN-3	170	170	0.6%	≤ 20%	10
EC	CDH-W-IGT-1	CDH-W-IGT-3	170	170	1.2%	≤ 20%	10
EC	CDH-W-JBT	CDH-W-JBN	170	170	1.2%	≤ 20%	10
EC	CHA-W-001	CHA-W-003	180	180	0%	≤ 20%	10
NITROGEN, TOTAL	CDH-W-CPT	CDH-W-CPN	21	21	1.5%	≤ 20%	0.7
NITROGEN, TOTAL	CDH-W-IGN-1	CDH-W-IGN-3	2.7	2.8	0.7%	≤ 20%	0.25

RC = Reanalyzed and confirmed

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Duplicate Results (cont.):

Parameter	Duplicate 1 Field ID	Duplicate 2 Field ID	Duplicate 1 Result	Duplicate 2 Result	Percent RPD or Difference	Acceptance Criteria	RL
NITROGEN, TOTAL	CDH-W-IGT-1	CDH-W-IGT-3	2.9	3.0	1.0%	≤ 20%	0.25
NITROGEN, TOTAL	CDH-W-JBT	CDH-W-JBN	6.0	6.0	0.2%	≤ 20%	0.25
NITROGEN, TOTAL	CHA-W-001	CHA-W-003	2.8	2.7	3.6%	≤ 20%	0.25
pH	CDH-W-CPT	CDH-W-CPN	8.0	8.0	0.1%	≤ 20%	0.01
pH	CDH-W-IGN-1	CDH-W-IGN-3	7.8	7.8	0.5%	≤ 20%	0.01
pH	CDH-W-IGT-1	CDH-W-IGT-3	7.7	7.7	0.3%	≤ 20%	0.01
pH	CDH-W-JBT	CDH-W-JBN	8.0	7.9	0.6%	≤ 20%	0.01
pH	CHA-W-001	CHA-W-003	8.0	7.9	1.4%	≤ 20%	0.01
PHOSPHORUS, TOTAL AS P	CDH-W-CPT	CDH-W-CPN	1.8	1.8	0%	≤ 20%	0.05
PHOSPHORUS, TOTAL AS P	CDH-W-IGN-1	CDH-W-IGN-3	1.5	1.5	1.3%	≤ 20%	0.25
PHOSPHORUS, TOTAL AS P	CDH-W-IGT-1	CDH-W-IGT-3	1.6	1.6	1.3%	≤ 20%	0.25
PHOSPHORUS, TOTAL AS P	CDH-W-JBT	CDH-W-JBN	3.3	3.5	4.1%	≤ 20%	0.25
PHOSPHORUS, TOTAL AS P	CHA-W-001	CHA-W-003	1.9	1.8	1.6%	≤ 20%	0.05
SULFIDE	CDH-W-CPT	CDH-W-CPN	1.3	1.4	0.1	+/-RL	0.4
SULFIDE	CDH-W-IGN-1	CDH-W-IGN-3	1.3	1.4	0.1	+/-RL	1.0
SULFIDE	CDH-W-IGT-1	CDH-W-IGT-3	1.6	1.4	0.2	+/-RL	1.0
SULFIDE	CDH-W-JBT	CDH-W-JBN	12	11	1.0	+/-RL	4.0

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Duplicate Results (cont.):

Parameter	Duplicate 1 Field ID	Duplicate 2 Field ID	Duplicate 1 Result	Duplicate 2 Result	Percent RPD or Difference	Acceptance Criteria	RL
SULFIDE	CHA-W-001	CHA-W-003	3.2	3.1	0.1	+/-RL	2.0
TDS	CDH-W-CPT	CDH-W-CPN	250	250	0.8%	≤ 20%	6
TDS	CDH-W-IGN-1	CDH-W-IGN-3	93	77	19%	≤ 20%	6
TDS	CDH-W-IGT-1	CDH-W-IGT-3	83	86	3.6%	≤ 20%	6
TDS	CDH-W-JBT	CDH-W-JBN	79	83	4.9%	≤ 20%	6
TDS	CHA-W-001	CHA-W-003	80	90	12%	≤ 20%	6
TOC	CDH-W-CPT	CDH-W-CPN	48	46	4.3%	≤ 20%	2.5
TOC	CDH-W-IGN-1	CDH-W-IGN-3	41	45	10%	≤ 20%	2.5
TOC	CDH-W-IGT-1	CDH-W-IGT-3	31	29	6.9%	≤ 20%	1.0
TOC	CDH-W-JBT	CDH-W-JBN	30	30	0.3%	≤ 20%	1.0
TOC	CHA-W-001	CHA-W-003	**56 RC**	**45 RC**	**21%**	≤ 20%	2.5

RC = Reanalyzed and confirmed

Accuracy - Externally Incorporated QA Samples

The following parameters were assessed for accuracy and had percent recoveries within the QA acceptance limits of 80% - 120% or results within the certified acceptance range provided by the manufacturer of the reference, except where noted.

The percent recoveries for sample CHA-W-001 were unacceptable for DOC and TOC. This sample was submitted for reanalysis for both DOC and TOC. The reanalyzed results confirmed the original results. Therefore, the original DOC and TOC results were accepted as valid.

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Reference Results:

Parameter	Reference Field ID	Reference Result	Reference Certified Value or Range	Percent Recovery	Acceptance Criteria
AMMONIA AS N	CDH-W-CPN	2.2	2.29	96%	80%-120%
AMMONIA AS N	CDH-W-CPT	2.2	2.29	96%	80%-120%
AMMONIA AS N	CDH-W-IGN-1	1.4	1.38	98%	80%-120%
AMMONIA AS N	CDH-W-IGN-3	1.3	1.38	93%	80%-120%
AMMONIA AS N	CDH-W-IGT-1	1.3	1.38	95%	80%-120%
AMMONIA AS N	CDH-W-IGT-3	1.2	1.38	90%	80%-120%
AMMONIA AS N	CDH-W-JBN	2.8	2.75	103%	80%-120%
AMMONIA AS N	CDH-W-JBT	2.6	2.75	96%	80%-120%
AMMONIA AS N	CHA-W-001	1.3	1.38	95%	80%-120%
AMMONIA AS N	CHA-W-003	1.1	1.38	83%	80%-120%
BOD (5 DAY)	CDH-W-CPN	83	70.2	118%	80%-120%
BOD (5 DAY)	CDH-W-CPT	82	70.2	117%	80%-120%
BOD (5 DAY)	CDH-W-IGN-1	50	35.4-105	--	within acceptance range
BOD (5 DAY)	CDH-W-IGN-3	59	35.4-105	--	within acceptance range
BOD (5 DAY)	CDH-W-IGT-1	46	47.7	96%	80%-120%
BOD (5 DAY)	CDH-W-IGT-3	53	47.7	111%	80%-120%

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Reference Results (cont.):

Parameter	Reference Field ID	Reference Result	Reference Certified Value or Range	Percent Recovery	Acceptance Criteria
BOD (5 DAY)	CDH-W-JBN	47	47.7	99%	80%-120%
BOD (5 DAY)	CDH-W-JBT	46	47.7	96%	80%-120%
BOD (5 DAY)	CHA-W-001	86	35.4-105	--	within acceptance range
BOD (5 DAY)	CHA-W-003	83	35.4-105	--	within acceptance range
CHLORIDE	CDH-W-CPN	71	64.7	110%	80%-120%
CHLORIDE	CDH-W-CPT	72	64.7	111%	80%-120%
CHLORIDE	CDH-W-IGN-1	17	16.0	103%	80%-120%
CHLORIDE	CDH-W-IGN-3	17	16.0	104%	80%-120%
CHLORIDE	CDH-W-IGT-1	17	16.8	102%	80%-120%
CHLORIDE	CDH-W-IGT-3	18	16.8	104%	80%-120%
CHLORIDE	CDH-W-JBN	18	16.8	105%	80%-120%
CHLORIDE	CDH-W-JBT	18	16.8	104%	80%-120%
CHLORIDE	CHA-W-001	19	17.0	114%	80%-120%
CHLORIDE	CHA-W-003	19	17.0	113%	80%-120%
DOC	CDH-W-CPN	46	44.7	103%	80%-120%
DOC	CDH-W-CPT	47	44.7	104%	80%-120%
DOC	CDH-W-IGN-1	45	44.7	100%	80%-120%

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Reference Results (cont.):

Parameter	Reference Field ID	Reference Result	Reference Certified Value or Range	Percent Recovery	Acceptance Criteria
DOC	CDH-W-IGN-3	46	44.7	103%	80%-120%
DOC	CDH-W-IGT-1	30	30.4	98%	80%-120%
DOC	CDH-W-IGT-3	32	30.4	107%	80%-120%
DOC	CDH-W-JBN	29	30.4	95%	80%-120%
DOC	CDH-W-JBT	29	30.4	96%	80%-120%
DOC	CHA-W-001	**57 RC**	**44.7**	**127%**	80%-120%
DOC	CHA-W-003	44	44.7	99%	80%-120%
EC	CDH-W-CPN	450	440	102%	80%-120%
EC	CDH-W-CPT	450	440	101%	80%-120%
EC	CDH-W-IGN-1	170	171	101%	80%-120%
EC	CDH-W-IGN-3	170	171	102%	80%-120%
EC	CDH-W-IGT-1	170	171	99%	80%-120%
EC	CDH-W-IGT-3	170	171	101%	80%-120%
EC	CDH-W-JBN	170	171	102%	80%-120%
EC	CDH-W-JBT	170	171	101%	80%-120%
EC	CHA-W-001	180	171	102%	80%-120%
EC	CHA-W-003	180	171	102%	80%-120%

RC = Reanalyzed and confirmed

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Reference Results (cont.):

Parameter	Reference Field ID	Reference Result	Reference Certified Value or Range	Percent Recovery	Acceptance Criteria
NITROGEN, TOTAL	CDH-W-IGN-1	2.7	2.88	95%	80%-120%
NITROGEN, TOTAL	CDH-W-IGN-3	2.8	2.88	95%	80%-120%
NITROGEN, TOTAL	CDH-W-IGT-1	2.9	2.88	102%	80%-120%
NITROGEN, TOTAL	CDH-W-IGT-3	3.0	2.88	103%	80%-120%
NITROGEN, TOTAL	CDH-W-JBN	6.0	5.75	105%	80%-120%
NITROGEN, TOTAL	CDH-W-JBT	6.0	5.75	105%	80%-120%
NITROGEN, TOTAL	CHA-W-001	2.8	2.88	99%	80%-120%
NITROGEN, TOTAL	CHA-W-003	2.7	2.88	95%	80%-120%
pH	CDH-W-CPN	8.0	7.95	101%	80%-120%
pH	CDH-W-CPT	8.0	7.95	101%	80%-120%
pH	CDH-W-IGN-1	7.8	7.77	100%	80%-120%
pH	CDH-W-IGN-3	7.8	7.77	100%	80%-120%
pH	CDH-W-IGT-1	7.7	7.77	99%	80%-120%
pH	CDH-W-IGT-3	7.7	7.77	99%	80%-120%
pH	CDH-W-JBN	7.9	7.77	102%	80%-120%
pH	CDH-W-JBT	8.0	7.77	103%	80%-120%

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Reference Results (cont.):

Parameter	Reference Field ID	Reference Result	Reference Certified Value or Range	Percent Recovery	Acceptance Criteria
pH	CHA-W-001	8.0	7.77	103%	80%-120%
pH	CHA-W-003	7.9	7.77	102%	80%-120%
PHOSPHORUS, TOTAL AS P	CDH-W-CPN	1.8	1.78	101%	80%-120%
PHOSPHORUS, TOTAL AS P	CDH-W-CPT	1.8	1.78	101%	80%-120%
PHOSPHORUS, TOTAL AS P	CDH-W-IGN-1	1.5	1.75	87%	80%-120%
PHOSPHORUS, TOTAL AS P	CDH-W-IGN-3	1.5	1.75	86%	80%-120%
PHOSPHORUS, TOTAL AS P	CDH-W-IGT-1	1.6	1.75	91%	80%-120%
PHOSPHORUS, TOTAL AS P	CDH-W-IGT-3	1.6	1.75	90%	80%-120%
PHOSPHORUS, TOTAL AS P	CDH-W-JBN	3.5	3.50	99%	80%-120%
PHOSPHORUS, TOTAL AS P	CDH-W-JBT	3.3	3.50	95%	80%-120%
PHOSPHORUS, TOTAL AS P	CHA-W-001	1.9	1.75	106%	80%-120%
PHOSPHORUS, TOTAL AS P	CHA-W-003	1.8	1.75	105%	80%-120%
SULFIDE	CDH-W-CPN	1.4	1.22-5.52	--	within acceptance range
SULFIDE	CDH-W-CPT	1.3	1.22-5.52	--	within acceptance range
SULFIDE	CDH-W-IGN-1	1.3	0.629-4.23	--	within acceptance range
SULFIDE	CDH-W-IGN-3	1.4	0.629-4.23	--	within acceptance range

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Reference Results (cont.):

Parameter	Reference Field ID	Reference Result	Reference Certified Value or Range	Percent Recovery	Acceptance Criteria
SULFIDE	CDH-W-IGT-1	1.6	0.629-4.23	--	within acceptance range
SULFIDE	CDH-W-IGT-3	1.4	0.629-4.23	--	within acceptance range
SULFIDE	CDH-W-JBN	11	4.54-12.8	--	within acceptance range
SULFIDE	CDH-W-JBT	12	4.54-12.8	--	within acceptance range
SULFIDE	CHA-W-001	3.2	1.22-5.52	--	within acceptance range
SULFIDE	CHA-W-003	3.1	1.22-5.52	--	within acceptance range
TDS	CDH-W-CPN	250	244	100%	80%-120%
TDS	CDH-W-CPT	250	244	101%	80%-120%
TDS	CDH-W-IGN-1	93	95.5	97%	80%-120%
TDS	CDH-W-IGN-3	77	95.5	81%	80%-120%
TDS	CDH-W-IGT-1	83	91	91%	80%-120%
TDS	CDH-W-IGT-3	86	91	95%	80%-120%
TDS	CDH-W-JBN	83	91	91%	80%-120%
TDS	CDH-W-JBT	79	91	87%	80%-120%
TDS	CHA-W-001	80	86	93%	80%-120%
TDS	CHA-W-003	90	86	105%	80%-120%
TOC	CDH-W-CPN	46	44.7	102%	80%-120%
TOC	CDH-W-CPT	48	44.7	106%	80%-120%

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Reference Results (cont.):

Parameter	Reference Field ID	Reference Result	Reference Certified Value or Range	Percent Recovery	Acceptance Criteria
TOC	CDH-W-IGN-1	41	44.7	91%	80%-120%
TOC	CDH-W-IGN-3	45	44.7	100%	80%-120%
TOC	CDH-W-IGT-1	31	30.4	103%	80%-120%
TOC	CDH-W-IGT-3	29	30.4	96%	80%-120%
TOC	CDH-W-JBN	30	30.4	100%	80%-120%
TOC	CDH-W-JBT	30	30.4	99%	80%-120%
TOC	CHA-W-001	**56 RC**	**44.7**	**125%**	80%-120%
TOC	CHA-W-003	45	44.7	101%	80%-120%

RC = Reanalyzed and confirmed

Contamination - Externally Incorporated QA Samples

The following parameters were assessed for contamination and met the QA acceptance limits of less than or equal to two times the RL.

Blank Results:

Parameter	Blank Field ID	Blank Result	Reporting Limit	Acceptance Criteria
AMMONIA AS N	CDH-W-IGT-2	0.05	0.05	$\leq$ 2RL
AMMONIA AS N	CDH-W-IGT-4	0.06	0.05	$\leq$ 2RL

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Blank Results (cont.):

Parameter	Blank Field ID	Blank Result	Reporting Limit	Acceptance Criteria
AMMONIA AS N	CHA-W-002	0.06	0.05	≤ 2RL
AMMONIA AS N	CDH-W-JBS	0.09	0.05	≤ 2RL
AMMONIA AS N	CDH-W-IGN-2	0.05	0.05	≤ 2RL
BOD (5 DAY)	CDH-W-IGT-2	< 3	3	≤ 2RL
BOD (5 DAY)	CDH-W-IGT-4	< 3	3	≤ 2RL
BOD (5 DAY)	CHA-W-002	< 3	3	≤ 2RL
BOD (5 DAY)	CDH-W-JBS	< 3	3	≤ 2RL
BOD (5 DAY)	CDH-W-IGN-2	< 3	3	≤ 2RL
CHLORIDE	CDH-W-IGT-2	< 0.20	0.20	≤ 2RL
CHLORIDE	CDH-W-IGT-4	< 0.20	0.20	≤ 2RL
CHLORIDE	CHA-W-002	< 0.20	0.20	≤ 2RL
CHLORIDE	CDH-W-JBS	< 0.20	0.20	≤ 2RL
CHLORIDE	CDH-W-IGN-2	< 0.20	0.20	≤ 2RL
CYANIDE, WAD	CDH-W-IGT-2	< 5	5	≤ 2RL
CYANIDE, WAD	CDH-W-IGT-4	< 5	5	≤ 2RL
CYANIDE, WAD	CHA-W-002	< 5	5	≤ 2RL
CYANIDE, WAD	CDH-W-JBS	< 5	5	≤ 2RL
CYANIDE, WAD	CDH-W-IGN-2	< 5	5	≤ 2RL

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Blank Results (cont.):

Parameter	Blank Field ID	Blank Result	Reporting Limit	Acceptance Criteria
DOC	CDH-W-IGT-2	< 0.5	0.5	≤ 2RL
DOC	CDH-W-IGT-4	< 0.5	0.5	≤ 2RL
DOC	CHA-W-002	< 0.5	0.5	≤ 2RL
DOC	CDH-W-JBS	< 0.5	0.5	≤ 2RL
DOC	CDH-W-IGN-2	< 0.5	0.5	≤ 2RL
EC	CDH-W-IGT-2	< 10	10	≤ 2RL
EC	CDH-W-IGT-4	< 10	10	≤ 2RL
EC	CHA-W-002	< 10	10	≤ 2RL
EC	CDH-W-JBS	< 10	10	≤ 2RL
EC	CDH-W-IGN-2	< 10	10	≤ 2RL
NITROGEN, TOTAL	CDH-W-IGT-2	< 0.25	0.25	≤ 2RL
NITROGEN, TOTAL	CDH-W-IGT-4	< 0.25	0.25	≤ 2RL
NITROGEN, TOTAL	CHA-W-002	< 0.25	0.25	≤ 2RL
NITROGEN, TOTAL	CDH-W-JBS	< 0.25	0.25	≤ 2RL
NITROGEN, TOTAL	CDH-W-IGN-2	< 0.25	0.25	≤ 2RL
PHOSPHORUS, TOTAL AS P	CDH-W-IGT-2	< 0.05	0.05	≤ 2RL
PHOSPHORUS, TOTAL AS P	CDH-W-IGT-4	< 0.05	0.05	≤ 2RL
PHOSPHORUS, TOTAL AS P	CHA-W-002	< 0.05	0.05	≤ 2RL

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Blank Results (cont.):

Parameter	Blank Field ID	Blank Result	Reporting Limit	Acceptance Criteria
PHOSPHORUS, TOTAL AS P	CDH-W-IGN-2	< 0.05	0.05	≤ 2RL
POC	CDH-W-IGT-2	< 0.5	0.5	≤ 2RL
POC	CDH-W-IGT-4	< 0.5	0.5	≤ 2RL
POC	CHA-W-002	< 0.5	0.5	≤ 2RL
POC	CDH-W-JBS	< 0.5	0.5	≤ 2RL
POC	CDH-W-IGN-2	< 0.5	0.5	≤ 2RL
SULFIDE	CDH-W-IGT-2	< 0.2	0.2	≤ 2RL
SULFIDE	CDH-W-IGT-4	< 0.2	0.2	≤ 2RL
SULFIDE	CHA-W-002	< 0.2	0.2	≤ 2RL
SULFIDE	CDH-W-JBS	< 0.2	0.2	≤ 2RL
SULFIDE	CDH-W-IGN-2	< 0.2	0.2	≤ 2RL
TDS	CDH-W-IGT-2	< 6	6	≤ 2RL
TDS	CDH-W-IGT-4	< 6	6	≤ 2RL
TDS	CHA-W-002	< 6	6	≤ 2RL
TDS	CDH-W-JBS	< 6	6	≤ 2RL
TDS	CDH-W-IGN-2	< 6	6	≤ 2RL
TOC	CDH-W-IGT-2	< 0.5	0.5	≤ 2RL
TOC	CDH-W-IGT-4	< 0.5	0.5	≤ 2RL
TOC	CHA-W-002	< 0.5	0.5	≤ 2RL
TOC	CDH-W-JBS	< 0.5	0.5	≤ 2RL
TOC	CDH-W-IGN-2	< 0.5	0.5	≤ 2RL

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Holding Time

All non-metal inorganic parameters were analyzed within their recommended holding times except for the following:

Samples CDH-E-CPT, CDH-E-IGT-2, and CDH-E-CPN were analyzed past the hold time for TDS. The original analysis was within the hold time. However, the samples were reanalyzed due to unacceptable QA results on the original analysis. The reanalyzed results demonstrated acceptable QA results and were accepted as valid although they were analyzed past the hold time.

Laboratory Quality Control

In addition to reviewing the results of the externally incorporated QA samples, the results of the laboratory's QC samples were also reviewed. QC samples included blanks, duplicates, blank spikes, or matrix spikes. The laboratory QC sample results were acceptable except for the following:

Sample CDH-E-IGN was qualified as possibly biased high for total nitrogen based on a high recovery in the laboratory's matrix spike.

General Comments

Reference samples were incorporated in duplicate to assess accuracy and precision. Certified references could not be acquired for all parameters; no reference samples were incorporated for WAD cyanide or POC. The accuracy and precision for these parameters were assessed by reviewing the laboratory's QC samples.

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Summary for Metal Parameters in Elutriate Samples

Precision - Externally Incorporated QA Samples

The following parameters were assessed for precision and had differences within the QA acceptance limits of ≤ 20% relative percent difference (RPD) or a difference within one reporting limit (RL).

Duplicate Results:

Parameter	Duplicate 1 Field ID	Duplicate 2 Field ID	Duplicate 1 Result	Duplicate 2 Result	Percent RPD or Difference	Acceptance Criteria	RL
ALUMINUM	CDH-W-CPT	CDH-W-CPN	190	220	14%	≤ 20%	5.0
ALUMINUM	CDH-W-IGN-1	CDH-W-IGN-3	31	32	4.8%	≤ 20%	5.0
ALUMINUM	CDH-W-IGT-1	CDH-W-IGT-3	33	31	7.0%	≤ 20%	5.0
ALUMINUM	CDH-W-JBT	CDH-W-JBN	190	190	1.1%	≤ 20%	5.0
ALUMINUM	CHA-W-001	CHA-W-003	31	34	9.5%	≤ 20%	5.0
ALUMINUM (DISSOLVED)	CDH-W-CPT	CDH-W-CPN	210	200	4.3%	≤ 20%	5.0
ALUMINUM (DISSOLVED)	CDH-W-IGN-1	CDH-W-IGN-3	31	31	1.3%	≤ 20%	5.0
ALUMINUM (DISSOLVED)	CDH-W-IGT-1	CDH-W-IGT-3	29	29	1.4%	≤ 20%	5.0
ALUMINUM (DISSOLVED)	CDH-W-JBT	CDH-W-JBN	190	190	2.6%	≤ 20%	5.0
ALUMINUM (DISSOLVED)	CHA-W-001	CHA-W-003	32	30	8.4%	≤ 20%	5.0
ANTIMONY	CDH-W-CPT	CDH-W-CPN	8.2	9.3	13%	≤ 20%	0.5
ANTIMONY	CDH-W-IGN-1	CDH-W-IGN-3	14	14	1.4%	≤ 20%	0.5

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Duplicate Results (cont.):

Parameter	Duplicate 1 Field ID	Duplicate 2 Field ID	Duplicate 1 Result	Duplicate 2 Result	Percent RPD or Difference	Acceptance Criteria	RL
ANTIMONY	CDH-W-IGT-1	CDH-W-IGT-3	13	14	1.5%	≤ 20%	0.5
ANTIMONY	CDH-W-JBT	CDH-W-JBN	7.8	8.1	3.8%	≤ 20%	0.5
ANTIMONY	CHA-W-001	CHA-W-003	15	15	0%	≤ 20%	0.5
ANTIMONY (DISSOLVED)	CDH-W-CPT	CDH-W-CPN	8.1	8.1	0%	≤ 20%	0.5
ANTIMONY (DISSOLVED)	CDH-W-IGN-1	CDH-W-IGN-3	15	15	0%	≤ 20%	0.5
ANTIMONY (DISSOLVED)	CDH-W-IGT-1	CDH-W-IGT-3	14	13	3.0%	≤ 20%	0.5
ANTIMONY (DISSOLVED)	CDH-W-JBT	CDH-W-JBN	7.4	7.2	2.7%	≤ 20%	0.5
ANTIMONY (DISSOLVED)	CHA-W-001	CHA-W-003	14	14	3.6%	≤ 20%	0.5
ARSENIC	CDH-W-CPT	CDH-W-CPN	7.7	9.0	16%	≤ 20%	0.5
ARSENIC	CDH-W-IGN-1	CDH-W-IGN-3	27	27	1.1%	≤ 20%	0.5
ARSENIC	CDH-W-IGT-1	CDH-W-IGT-3	28	27	1.4%	≤ 20%	0.5
ARSENIC	CDH-W-JBT	CDH-W-JBN	7.8	7.8	0%	≤ 20%	0.5
ARSENIC	CHA-W-001	CHA-W-003	30	30	0.3%	≤ 20%	0.5
ARSENIC (DISSOLVED)	CDH-W-CPT	CDH-W-CPN	7.9	7.9	0%	≤ 20%	0.5
ARSENIC (DISSOLVED)	CDH-W-IGN-1	CDH-W-IGN-3	28	28	0.4%	≤ 20%	0.5
ARSENIC (DISSOLVED)	CDH-W-IGT-1	CDH-W-IGT-3	28	28	0.4%	≤ 20%	0.5

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Duplicate Results (cont.):

Parameter	Duplicate 1 Field ID	Duplicate 2 Field ID	Duplicate 1 Result	Duplicate 2 Result	Percent RPD or Difference	Acceptance Criteria	RL
ARSENIC (DISSOLVED)	CDH-W-JBT	CDH-W-JBN	7.6	7.6	0%	≤ 20%	0.5
ARSENIC (DISSOLVED)	CHA-W-001	CHA-W-003	28	28	1.1%	≤ 20%	0.5
CADMIUM	CDH-W-CPT	CDH-W-CPN	4.0	4.6	13%	≤ 20%	0.25
CADMIUM	CDH-W-IGN-1	CDH-W-IGN-3	24	24	1.7%	≤ 20%	0.25
CADMIUM	CDH-W-IGT-1	CDH-W-IGT-3	24	24	1.3%	≤ 20%	0.25
CADMIUM	CDH-W-JBT	CDH-W-JBN	3.9	3.9	1.3%	≤ 20%	0.25
CADMIUM	CHA-W-001	CHA-W-003	25	25	0%	≤ 20%	0.25
CADMIUM (DISSOLVED)	CDH-W-CPT	CDH-W-CPN	4.1	3.9	2.8%	≤ 20%	0.25
CADMIUM (DISSOLVED)	CDH-W-IGN-1	CDH-W-IGN-3	24	25	1.2%	≤ 20%	0.25
CADMIUM (DISSOLVED)	CDH-W-IGT-1	CDH-W-IGT-3	24	24	1.7%	≤ 20%	0.25
CADMIUM (DISSOLVED)	CDH-W-JBT	CDH-W-JBN	3.8	3.7	1.3%	≤ 20%	0.25
CADMIUM (DISSOLVED)	CHA-W-001	CHA-W-003	24	24	2.5%	≤ 20%	0.25
CALCIUM	CDH-W-CPT	CDH-W-CPN	10	10	0%	≤ 20%	1
CALCIUM	CDH-W-IGN-1	CDH-W-IGN-3	26	26	0%	≤ 20%	1
CALCIUM	CDH-W-IGT-1	CDH-W-IGT-3	25	26	3.9%	≤ 20%	1
CALCIUM	CDH-W-JBT	CDH-W-JBN	10	10	0%	≤ 20%	1

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Duplicate Results (cont.):

Parameter	Duplicate 1 Field ID	Duplicate 2 Field ID	Duplicate 1 Result	Duplicate 2 Result	Percent RPD or Difference	Acceptance Criteria	RL
CALCIUM	CHA-W-001	CHA-W-003	26	26	0%	≤ 20%	1
CALCIUM (DISSOLVED)	CDH-W-CPT	CDH-W-CPN	10	10	0%	≤ 20%	1
CALCIUM (DISSOLVED)	CDH-W-IGN-1	CDH-W-IGN-3	26	26	0%	≤ 20%	1
CALCIUM (DISSOLVED)	CDH-W-IGT-1	CDH-W-IGT-3	26	26	0%	≤ 20%	1
CALCIUM (DISSOLVED)	CDH-W-JBT	CDH-W-JBN	10	10	0.0%	≤ 20%	1
CALCIUM (DISSOLVED)	CHA-W-001	CHA-W-003	24	25	4.1%	≤ 20%	1
CHROMIUM	CDH-W-CPT	CDH-W-CPN	8.3	9.7	16%	≤ 20%	0.5
CHROMIUM	CDH-W-IGN-1	CDH-W-IGN-3	27	27	0.7%	≤ 20%	0.5
CHROMIUM	CDH-W-IGT-1	CDH-W-IGT-3	28	26	4.8%	≤ 20%	0.5
CHROMIUM	CDH-W-JBT	CDH-W-JBN	7.7	7.8	1.3%	≤ 20%	0.5
CHROMIUM	CHA-W-001	CHA-W-003	29	28	2.8%	≤ 20%	0.5
CHROMIUM (DISSOLVED)	CDH-W-CPT	CDH-W-CPN	8.0	8.0	0%	≤ 20%	0.5
CHROMIUM (DISSOLVED)	CDH-W-IGN-1	CDH-W-IGN-3	26	27	2.3%	≤ 20%	0.5
CHROMIUM (DISSOLVED)	CDH-W-IGT-1	CDH-W-IGT-3	27	27	0.4%	≤ 20%	0.5
CHROMIUM (DISSOLVED)	CDH-W-JBT	CDH-W-JBN	7.9	7.5	5.2%	≤ 20%	0.5
CHROMIUM (DISSOLVED)	CHA-W-001	CHA-W-003	27	27	2.2%	≤ 20%	0.5

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Duplicate Results (cont.):

Parameter	Duplicate 1 Field ID	Duplicate 2 Field ID	Duplicate 1 Result	Duplicate 2 Result	Percent RPD or Difference	Acceptance Criteria	RL
COPPER	CDH-W-CPT	CDH-W-CPN	7.7	8.9	14%	≤ 20%	0.5
COPPER	CDH-W-IGN-1	CDH-W-IGN-3	32	32	1.6%	≤ 20%	0.5
COPPER	CDH-W-IGT-1	CDH-W-IGT-3	33	31	4.7%	≤ 20%	0.5
COPPER	CDH-W-JBT	CDH-W-JBN	7.3	7.4	1.4%	≤ 20%	0.5
COPPER	CHA-W-001	CHA-W-003	36	33	7.3%	≤ 20%	0.5
COPPER (DISSOLVED)	CDH-W-CPT	CDH-W-CPN	7.6	7.6	0%	≤ 20%	0.5
COPPER (DISSOLVED)	CDH-W-IGN-1	CDH-W-IGN-3	32	32	1.3%	≤ 20%	0.5
COPPER (DISSOLVED)	CDH-W-IGT-1	CDH-W-IGT-3	31	31	0.6%	≤ 20%	0.5
COPPER (DISSOLVED)	CDH-W-JBT	CDH-W-JBN	7.6	7.1	6.8%	≤ 20%	0.5
COPPER (DISSOLVED)	CHA-W-001	CHA-W-003	33	31	3.4%	≤ 20%	0.5
LEAD	CDH-W-CPT	CDH-W-CPN	3.9	4.5	14%	≤ 20%	0.5
LEAD	CDH-W-IGN-1	CDH-W-IGN-3	16	16	1.9%	≤ 20%	0.5
LEAD	CDH-W-IGT-1	CDH-W-IGT-3	16	16	0.6%	≤ 20%	0.5
LEAD	CDH-W-JBT	CDH-W-JBN	3.7	3.7	0%	≤ 20%	0.5
LEAD	CHA-W-001	CHA-W-003	19	18	5.6%	≤ 20%	0.5
LEAD (DISSOLVED)	CDH-W-CPT	CDH-W-CPN	4.0	4.0	0%	≤ 20%	0.5

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Duplicate Results (cont.):

Parameter	Duplicate 1 Field ID	Duplicate 2 Field ID	Duplicate 1 Result	Duplicate 2 Result	Percent RPD or Difference	Acceptance Criteria	RL
LEAD (DISSOLVED)	CDH-W-IGN-1	CDH-W-IGN-3	16	17	3.0%	≤ 20%	0.5
LEAD (DISSOLVED)	CDH-W-IGT-1	CDH-W-IGT-3	17	16	0.6%	≤ 20%	0.5
LEAD (DISSOLVED)	CDH-W-JBT	CDH-W-JBN	3.6	3.6	0%	≤ 20%	0.5
LEAD (DISSOLVED)	CHA-W-001	CHA-W-003	17	16	6.1%	≤ 20%	0.5
MAGNESIUM	CDH-W-CPT	CDH-W-CPN	10	10	0%	≤ 20%	1
MAGNESIUM	CDH-W-IGN-1	CDH-W-IGN-3	5	5	0%	≤ 20%	1
MAGNESIUM	CDH-W-IGT-1	CDH-W-IGT-3	5	5	0%	≤ 20%	1
MAGNESIUM	CDH-W-JBT	CDH-W-JBN	10	10	0%	≤ 20%	1
MAGNESIUM	CHA-W-001	CHA-W-003	6	6	0%	≤ 20%	1
MAGNESIUM (DISSOLVED)	CDH-W-CPT	CDH-W-CPN	10	10	0%	≤ 20%	1
MAGNESIUM (DISSOLVED)	CDH-W-IGN-1	CDH-W-IGN-3	5	5	0%	≤ 20%	1
MAGNESIUM (DISSOLVED)	CDH-W-IGT-1	CDH-W-IGT-3	5	5	0%	≤ 20%	1
MAGNESIUM (DISSOLVED)	CDH-W-JBT	CDH-W-JBN	10	10	0%	≤ 20%	1
MAGNESIUM (DISSOLVED)	CHA-W-001	CHA-W-003	5	5	0%	≤ 20%	1
MERCURY	CDH-W-CPT	CDH-W-CPN	19	16	16%	≤ 20%	2.0
MERCURY	CDH-W-IGN-1	CDH-W-IGN-3	20	19	6.8%	≤ 20%	2.0
MERCURY	CDH-W-IGT-1	CDH-W-IGT-3	19	19	3.2%	≤ 20%	2.0

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Duplicate Results (cont.):

Parameter	Duplicate 1 Field ID	Duplicate 2 Field ID	Duplicate 1 Result	Duplicate 2 Result	Percent RPD or Difference	Acceptance Criteria	RL
MERCURY	CDH-W-JBT	CDH-W-JBN	13	14	13%	≤ 20%	2.0
MERCURY	CHA-W-001	CHA-W-003	12	12	2.5%	≤ 20%	2.0
NICKEL	CDH-W-CPT	CDH-W-CPN	160	180	15%	≤ 20%	1.0
NICKEL	CDH-W-IGN-1	CDH-W-IGN-3	22	23	2.7%	≤ 20%	1.0
NICKEL	CDH-W-IGT-1	CDH-W-IGT-3	23	22	4.9%	≤ 20%	1.0
NICKEL	CDH-W-JBT	CDH-W-JBN	150	150	0.7%	≤ 20%	1.0
NICKEL	CHA-W-001	CHA-W-003	24	22	7.8%	≤ 20%	1.0
NICKEL (DISSOLVED)	CDH-W-CPT	CDH-W-CPN	150	150	0.7%	≤ 20%	1.0
NICKEL (DISSOLVED)	CDH-W-IGN-1	CDH-W-IGN-3	22	23	2.7%	≤ 20%	1.0
NICKEL (DISSOLVED)	CDH-W-IGT-1	CDH-W-IGT-3	21	21	0.9%	≤ 20%	1.0
NICKEL (DISSOLVED)	CDH-W-JBT	CDH-W-JBN	150	140	8.1%	≤ 20%	1.0
NICKEL (DISSOLVED)	CHA-W-001	CHA-W-003	22	22	4.1%	≤ 20%	1.0
SILVER	CDH-W-CPT	CDH-W-CPN	3.4	3.4	0.3%	≤ 20%	0.50
SILVER	CDH-W-IGN-1	CDH-W-IGN-3	9.1	9.0	1.1%	≤ 20%	0.50
SILVER	CDH-W-IGT-1	CDH-W-IGT-3	9.2	8.9	3.0%	≤ 20%	0.50
SILVER	CDH-W-JBT	CDH-W-JBN	3.9	4.1	4.2%	≤ 20%	0.50
SILVER	CHA-W-001	CHA-W-003	9.2	9.2	0.4%	≤ 20%	0.50

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Duplicate Results (cont.):

Parameter	Duplicate 1 Field ID	Duplicate 2 Field ID	Duplicate 1 Result	Duplicate 2 Result	Percent RPD or Difference	Acceptance Criteria	RL
SILVER (DISSOLVED)	CDH-W-CPT	CDH-W-CPN	3.8	3.6	5.4%	≤ 20%	0.5
SILVER (DISSOLVED)	CDH-W-IGN-1	CDH-W-IGN-3	9.2	9.2	0%	≤ 20%	0.5
SILVER (DISSOLVED)	CDH-W-IGT-1	CDH-W-IGT-3	9.3	9.1	2.2%	≤ 20%	0.5
SILVER (DISSOLVED)	CDH-W-JBT	CDH-W-JBN	3.8	3.8	0%	≤ 20%	0.5
SILVER (DISSOLVED)	CHA-W-001	CHA-W-003	9.3	9.1	2.2%	≤ 20%	0.5
ZINC	CDH-W-CPT	CDH-W-CPN	80	91	13%	≤ 20%	2.0
ZINC	CDH-W-IGN-1	CDH-W-IGN-3	20	19	6.1%	≤ 20%	2.0
ZINC	CDH-W-IGT-1	CDH-W-IGT-3	20	19	3.6%	≤ 20%	2.0
ZINC	CDH-W-JBT	CDH-W-JBN	78	78	0.1%	≤ 20%	2.0
ZINC	CHA-W-001	CHA-W-003	21	21	0.9%	≤ 20%	2.0
ZINC (DISSOLVED)	CDH-W-CPT	CDH-W-CPN	83	81	2.5%	≤ 20%	2.0
ZINC (DISSOLVED)	CDH-W-IGN-1	CDH-W-IGN-3	21	19	5.5%	≤ 20%	2.0
ZINC (DISSOLVED)	CDH-W-IGT-1	CDH-W-IGT-3	18	18	0%	≤ 20%	2.0
ZINC (DISSOLVED)	CDH-W-JBT	CDH-W-JBN	76	75	0.8%	≤ 20%	2.0
ZINC (DISSOLVED)	CHA-W-001	CHA-W-003	20	19	4.7%	≤ 20%	2.0

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Accuracy - Externally Incorporated QA Samples

The following parameters were assessed for accuracy and had percent recoveries within the QA acceptance limits of 80% - 120% or results within the certified acceptance range provided by the manufacturer of the reference, except where noted.

The percent recoveries for sample CDH-W-CPN were unacceptably high for chromium, mercury, and zinc. The percent recovery for sample CDH-W-CPT was unacceptably high for mercury. These samples were submitted for reanalysis. The reanalyzed results confirmed the original results. Therefore, the original chromium, mercury, and zinc results for CDH-W-CPN were accepted as valid and the original mercury result for CDH-W-CPT was accepted as valid.

The percent recovery for sample CDH-W-CPN was unacceptably high for antimony. The environmental sample results analyzed with this sample were non-detect for antimony. Therefore, reanalysis was not requested and the data for antimony was not qualified.

Blank Spike or Reference Results:

Parameter	Blank Spike/ Reference Field ID	Blank Spike/ Reference Result	Spike Concentration or Reference Certified Value	Percent Recovery	Acceptance Criteria
ALUMINUM	CDH-W-CPN	220	188	116%	80%-120%
ALUMINUM	CDH-W-CPT	190	188	101%	80%-120%
ALUMINUM	CDH-W-IGN-1	31	31.9	96%	80%-120%
ALUMINUM	CDH-W-IGN-3	32	31.9	101%	80%-120%
ALUMINUM	CDH-W-IGT-1	33	31.9	103%	80%-120%
ALUMINUM	CDH-W-IGT-3	31	31.9	96%	80%-120%
ALUMINUM	CDH-W-JBN	190	188	101%	80%-120%

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Blank Spike or Reference Results (cont.):

Parameter	Blank Spike/ Reference Field ID	Blank Spike/ Reference Result	Spike Concentration or Reference Certified Value	Percent Recovery	Acceptance Criteria
ALUMINUM	CDH-W-JBT	190	188	100%	80%-120%
ALUMINUM	CHA-W-001	31	31.9	97%	80%-120%
ALUMINUM	CHA-W-003	34	31.9	107%	80%-120%
ALUMINUM (DISSOLVED)	CDH-W-CPN	200	188	108%	80%-120%
ALUMINUM (DISSOLVED)	CDH-W-CPT	210	188	113%	80%-120%
ALUMINUM (DISSOLVED)	CDH-W-IGN-1	31	31.9	98%	80%-120%
ALUMINUM (DISSOLVED)	CDH-W-IGN-3	31	31.9	97%	80%-120%
ALUMINUM (DISSOLVED)	CDH-W-IGT-1	29	31.9	92%	80%-120%
ALUMINUM (DISSOLVED)	CDH-W-IGT-3	29	31.9	91%	80%-120%
ALUMINUM (DISSOLVED)	CDH-W-JBN	190	188	103%	80%-120%
ALUMINUM (DISSOLVED)	CDH-W-JBT	190	188	101%	80%-120%
ALUMINUM (DISSOLVED)	CHA-W-001	32	31.9	101%	80%-120%
ALUMINUM (DISSOLVED)	CHA-W-003	30	31.9	93%	80%-120%
ANTIMONY	CDH-W-CPN	**9.3**	7.5	**124%**	80%-120%
ANTIMONY	CDH-W-CPT	8.2	7.5	109%	80%-120%
ANTIMONY	CDH-W-IGN-1	14	13.9	100%	80%-120%

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Blank Spike or Reference Results (cont.):

Parameter	Blank Spike/ Reference Field ID	Blank Spike/ Reference Result	Spike Concentration or Reference Certified Value	Percent Recovery	Acceptance Criteria
ANTIMONY	CDH-W-IGN-3	14	13.9	99%	80%-120%
ANTIMONY	CDH-W-IGT-1	13	13.9	96%	80%-120%
ANTIMONY	CDH-W-IGT-3	14	13.9	98%	80%-120%
ANTIMONY	CDH-W-JBN	8.1	7.5	108%	80%-120%
ANTIMONY	CDH-W-JBT	7.8	7.5	104%	80%-120%
ANTIMONY	CHA-W-001	15	13.9	104%	80%-120%
ANTIMONY	CHA-W-003	15	13.9	104%	80%-120%
ANTIMONY (DISSOLVED)	CDH-W-CPN	8.1	7.5	108%	80%-120%
ANTIMONY (DISSOLVED)	CDH-W-CPT	8.1	7.5	108%	80%-120%
ANTIMONY (DISSOLVED)	CDH-W-IGN-1	15	13.9	104%	80%-120%
ANTIMONY (DISSOLVED)	CDH-W-IGN-3	15	13.9	104%	80%-120%
ANTIMONY (DISSOLVED)	CDH-W-IGT-1	14	13.9	97%	80%-120%
ANTIMONY (DISSOLVED)	CDH-W-IGT-3	13	13.9	94%	80%-120%
ANTIMONY (DISSOLVED)	CDH-W-JBN	7.2	7.5	96%	80%-120%
ANTIMONY (DISSOLVED)	CDH-W-JBT	7.4	7.5	99%	80%-120%
ANTIMONY (DISSOLVED)	CHA-W-001	14	13.9	101%	80%-120%

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Blank Spike or Reference Results (cont.):

Parameter	Blank Spike/ Reference Field ID	Blank Spike/ Reference Result	Spike Concentration or Reference Certified Value	Percent Recovery	Acceptance Criteria
ANTIMONY (DISSOLVED)	CHA-W-003	14	13.9	97%	80%-120%
ARSENIC	CDH-W-CPN	9.0	7.5	120%	80%-120%
ARSENIC	CDH-W-CPT	7.7	7.5	103%	80%-120%
ARSENIC	CDH-W-IGN-1	27	28.4	96%	80%-120%
ARSENIC	CDH-W-IGN-3	27	28.4	95%	80%-120%
ARSENIC	CDH-W-IGT-1	28	28.4	98%	80%-120%
ARSENIC	CDH-W-IGT-3	27	28.4	96%	80%-120%
ARSENIC	CDH-W-JBN	7.8	7.5	104%	80%-120%
ARSENIC	CDH-W-JBT	7.8	7.5	104%	80%-120%
ARSENIC	CHA-W-001	30	28.4	105%	80%-120%
ARSENIC	CHA-W-003	30	28.4	104%	80%-120%
ARSENIC (DISSOLVED)	CDH-W-CPN	7.9	7.5	105%	80%-120%
ARSENIC (DISSOLVED)	CDH-W-CPT	7.9	7.5	105%	80%-120%
ARSENIC (DISSOLVED)	CDH-W-IGN-1	28	28.4	100%	80%-120%
ARSENIC (DISSOLVED)	CDH-W-IGN-3	28	28.4	100%	80%-120%
ARSENIC (DISSOLVED)	CDH-W-IGT-1	28	28.4	97%	80%-120%

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Blank Spike or Reference Results (cont.):

Parameter	Blank Spike/ Reference Field ID	Blank Spike/ Reference Result	Spike Concentration or Reference Certified Value	Percent Recovery	Acceptance Criteria
ARSENIC (DISSOLVED)	CDH-W-IGT-3	28	28.4	97%	80%-120%
ARSENIC (DISSOLVED)	CDH-W-JBN	7.6	7.5	101%	80%-120%
ARSENIC (DISSOLVED)	CDH-W-JBT	7.6	7.5	101%	80%-120%
ARSENIC (DISSOLVED)	CHA-W-001	28	28.4	100%	80%-120%
ARSENIC (DISSOLVED)	CHA-W-003	28	28.4	99%	80%-120%
CADMIUM	CDH-W-CPN	4.6	3.8	120%	80%-120%
CADMIUM	CDH-W-CPT	4.0	3.8	105%	80%-120%
CADMIUM	CDH-W-IGN-1	24	24.0	101%	80%-120%
CADMIUM	CDH-W-IGN-3	24	24.0	99%	80%-120%
CADMIUM	CDH-W-IGT-1	24	24.0	99%	80%-120%
CADMIUM	CDH-W-IGT-3	24	24.0	100%	80%-120%
CADMIUM	CDH-W-JBN	3.9	3.8	103%	80%-120%
CADMIUM	CDH-W-JBT	3.9	3.8	102%	80%-120%
CADMIUM	CHA-W-001	25	24.0	105%	80%-120%
CADMIUM	CHA-W-003	25	24.0	105%	80%-120%
CADMIUM (DISSOLVED)	CDH-W-CPN	3.9	3.8	104%	80%-120%
CADMIUM (DISSOLVED)	CDH-W-CPT	4.1	3.8	107%	80%-120%

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Blank Spike or Reference Results (cont.):

Parameter	Blank Spike/ Reference Field ID	Blank Spike/ Reference Result	Spike Concentration or Reference Certified Value	Percent Recovery	Acceptance Criteria
CADMIUM (DISSOLVED)	CDH-W-IGN-1	24	24.0	101%	80%-120%
CADMIUM (DISSOLVED)	CDH-W-IGN-3	25	24.0	103%	80%-120%
CADMIUM (DISSOLVED)	CDH-W-IGT-1	24	24.0	100%	80%-120%
CADMIUM (DISSOLVED)	CDH-W-IGT-3	24	24.0	99%	80%-120%
CADMIUM (DISSOLVED)	CDH-W-JBN	3.7	3.8	98%	80%-120%
CADMIUM (DISSOLVED)	CDH-W-JBT	3.8	3.8	99%	80%-120%
CADMIUM (DISSOLVED)	CHA-W-001	24	24.0	101%	80%-120%
CADMIUM (DISSOLVED)	CHA-W-003	24	24.0	99%	80%-120%
CALCIUM	CDH-W-CPN	10	10	100%	80%-120%
CALCIUM	CDH-W-CPT	10	10	100%	80%-120%
CALCIUM	CDH-W-IGN-1	26	25.5	102%	80%-120%
CALCIUM	CDH-W-IGN-3	26	25.5	102%	80%-120%
CALCIUM	CDH-W-IGT-1	25	25.5	98%	80%-120%
CALCIUM	CDH-W-IGT-3	26	25.5	102%	80%-120%

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Blank Spike or Reference Results (cont.):

Parameter	Blank Spike/ Reference Field ID	Blank Spike/ Reference Result	Spike Concentration or Reference Certified Value	Percent Recovery	Acceptance Criteria
CALCIUM	CDH-W-JBN	10	10	100%	80%-120%
CALCIUM	CDH-W-JBT	10	10	100%	80%-120%
CALCIUM	CHA-W-001	26	25.5	102%	80%-120%
CALCIUM	CHA-W-003	26	25.5	102%	80%-120%
CALCIUM (DISSOLVED)	CDH-W-CPN	10	10	100%	80%-120%
CALCIUM (DISSOLVED)	CDH-W-CPT	10	10	100%	80%-120%
CALCIUM (DISSOLVED)	CDH-W-IGN-1	26	25.5	102%	80%-120%
CALCIUM (DISSOLVED)	CDH-W-IGN-3	26	25.5	102%	80%-120%
CALCIUM (DISSOLVED)	CDH-W-IGT-1	26	25.5	102%	80%-120%
CALCIUM (DISSOLVED)	CDH-W-IGT-3	26	25.5	102%	80%-120%
CALCIUM (DISSOLVED)	CDH-W-JBN	10	10	100%	80%-120%
CALCIUM (DISSOLVED)	CDH-W-JBT	10	10	100%	80%-120%
CALCIUM (DISSOLVED)	CHA-W-001	24	25.5	94%	80%-120%
CALCIUM (DISSOLVED)	CHA-W-003	25	25.5	98%	80%-120%
CHROMIUM	CDH-W-CPN	**9.7 RC**	7.5	**129%**	80%-120%

RC = Reanalyzed and confirmed

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Blank Spike or Reference Results (cont.):

Parameter	Blank Spike/ Reference Field ID	Blank Spike/ Reference Result	Spike Concentration or Reference Certified Value	Percent Recovery	Acceptance Criteria
CHROMIUM	CDH-W-CPT	8.3	7.5	111%	80%-120%
CHROMIUM	CDH-W-IGN-1	27	26.8	100%	80%-120%
CHROMIUM	CDH-W-IGN-3	27	26.8	101%	80%-120%
CHROMIUM	CDH-W-IGT-1	28	26.8	103%	80%-120%
CHROMIUM	CDH-W-IGT-3	26	26.8	98%	80%-120%
CHROMIUM	CDH-W-JBN	7.8	7.5	104%	80%-120%
CHROMIUM	CDH-W-JBT	7.7	7.5	103%	80%-120%
CHROMIUM	CHA-W-001	29	26.8	106%	80%-120%
CHROMIUM	CHA-W-003	28	26.8	103%	80%-120%
CHROMIUM (DISSOLVED)	CDH-W-CPN	8.0	7.5	107%	80%-120%
CHROMIUM (DISSOLVED)	CDH-W-CPT	8.0	7.5	107%	80%-120%
CHROMIUM (DISSOLVED)	CDH-W-IGN-1	26	26.8	97%	80%-120%
CHROMIUM (DISSOLVED)	CDH-W-IGN-3	27	26.8	99%	80%-120%
CHROMIUM (DISSOLVED)	CDH-W-IGT-1	27	26.8	101%	80%-120%
CHROMIUM (DISSOLVED)	CDH-W-IGT-3	27	26.8	101%	80%-120%
CHROMIUM (DISSOLVED)	CDH-W-JBN	7.5	7.5	100%	80%-120%
CHROMIUM (DISSOLVED)	CDH-W-JBT	7.9	7.5	105%	80%-120%

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Blank Spike or Reference Results (cont.):

Parameter	Blank Spike/ Reference Field ID	Blank Spike/ Reference Result	Spike Concentration or Reference Certified Value	Percent Recovery	Acceptance Criteria
CHROMIUM (DISSOLVED)	CHA-W-001	27	26.8	102%	80%-120%
CHROMIUM (DISSOLVED)	CHA-W-003	27	26.8	100%	80%-120%
COPPER	CDH-W-CPN	8.9	7.5	119%	80%-120%
COPPER	CDH-W-CPT	7.7	7.5	103%	80%-120%
COPPER	CDH-W-IGN-1	32	33.4	95%	80%-120%
COPPER	CDH-W-IGN-3	32	33.4	96%	80%-120%
COPPER	CDH-W-IGT-1	33	33.4	97%	80%-120%
COPPER	CDH-W-IGT-3	31	33.4	93%	80%-120%
COPPER	CDH-W-JBN	7.4	7.5	99%	80%-120%
COPPER	CDH-W-JBT	7.3	7.5	97%	80%-120%
COPPER	CHA-W-001	36	33.4	107%	80%-120%
COPPER	CHA-W-003	33	33.4	99%	80%-120%
COPPER (DISSOLVED)	CDH-W-CPN	7.6	7.5	101%	80%-120%
COPPER (DISSOLVED)	CDH-W-CPT	7.6	7.5	101%	80%-120%
COPPER (DISSOLVED)	CDH-W-IGN-1	32	33.4	95%	80%-120%
COPPER (DISSOLVED)	CDH-W-IGN-3	32	33.4	96%	80%-120%
COPPER (DISSOLVED)	CDH-W-IGT-1	31	33.4	93%	80%-120%

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Blank Spike or Reference Results (cont.):

Parameter	Blank Spike/ Reference Field ID	Blank Spike/ Reference Result	Spike Concentration or Reference Certified Value	Percent Recovery	Acceptance Criteria
COPPER (DISSOLVED)	CDH-W-IGT-3	31	33.4	92%	80%-120%
COPPER (DISSOLVED)	CDH-W-JBN	7.1	7.5	95%	80%-120%
COPPER (DISSOLVED)	CDH-W-JBT	7.6	7.5	101%	80%-120%
COPPER (DISSOLVED)	CHA-W-001	33	33.4	98%	80%-120%
COPPER (DISSOLVED)	CHA-W-003	31	33.4	94%	80%-120%
LEAD	CDH-W-CPN	4.5	3.8	118%	80%-120%
LEAD	CDH-W-CPT	3.9	3.8	103%	80%-120%
LEAD	CDH-W-IGN-1	16	16.6	96%	80%-120%
LEAD	CDH-W-IGN-3	16	16.6	98%	80%-120%
LEAD	CDH-W-IGT-1	16	16.6	96%	80%-120%
LEAD	CDH-W-IGT-3	16	16.6	95%	80%-120%
LEAD	CDH-W-JBN	3.7	3.8	97%	80%-120%
LEAD	CDH-W-JBT	3.7	3.8	97%	80%-120%
LEAD	CHA-W-001	19	16.6	111%	80%-120%
LEAD	CHA-W-003	18	16.6	105%	80%-120%
LEAD (DISSOLVED)	CDH-W-CPN	4.0	3.8	105%	80%-120%
LEAD (DISSOLVED)	CDH-W-CPT	4.0	3.8	105%	80%-120%

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Blank Spike or Reference Results (cont.):

Parameter	Blank Spike/ Reference Field ID	Blank Spike/ Reference Result	Spike Concentration or Reference Certified Value	Percent Recovery	Acceptance Criteria
LEAD (DISSOLVED)	CDH-W-IGN-1	16	16.6	98%	80%-120%
LEAD (DISSOLVED)	CDH-W-IGN-3	17	16.6	101%	80%-120%
LEAD (DISSOLVED)	CDH-W-IGT-1	17	16.6	99%	80%-120%
LEAD (DISSOLVED)	CDH-W-IGT-3	16	16.6	99%	80%-120%
LEAD (DISSOLVED)	CDH-W-JBN	3.6	3.8	95%	80%-120%
LEAD (DISSOLVED)	CDH-W-JBT	3.6	3.8	95%	80%-120%
LEAD (DISSOLVED)	CHA-W-001	17	16.6	102%	80%-120%
LEAD (DISSOLVED)	CHA-W-003	16	16.6	96%	80%-120%
MAGNESIUM	CDH-W-CPN	10	10	100%	80%-120%
MAGNESIUM	CDH-W-CPT	10	10	100%	80%-120%
MAGNESIUM	CDH-W-IGN-1	5.0	5.6	89%	80%-120%
MAGNESIUM	CDH-W-IGN-3	5.0	5.6	89%	80%-120%
MAGNESIUM	CDH-W-IGT-1	5.0	5.6	89%	80%-120%
MAGNESIUM	CDH-W-IGT-3	5.0	5.6	89%	80%-120%
MAGNESIUM	CDH-W-JBN	10	10	100%	80%-120%
MAGNESIUM	CDH-W-JBT	10	10	100%	80%-120%
MAGNESIUM	CHA-W-001	6.0	5.6	107%	80%-120%

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Blank Spike or Reference Results (cont.):

Parameter	Blank Spike/ Reference Field ID	Blank Spike/ Reference Result	Spike Concentration or Reference Certified Value	Percent Recovery	Acceptance Criteria
MAGNESIUM	CHA-W-003	6.0	5.6	107%	80%-120%
MAGNESIUM (DISSOLVED)	CDH-W-CPN	10	10	100%	80%-120%
MAGNESIUM (DISSOLVED)	CDH-W-CPT	10	10	100%	80%-120%
MAGNESIUM (DISSOLVED)	CDH-W-IGN-1	5.0	5.6	89%	80%-120%
MAGNESIUM (DISSOLVED)	CDH-W-IGN-3	5.0	5.6	89%	80%-120%
MAGNESIUM (DISSOLVED)	CDH-W-IGT-1	5.0	5.6	89%	80%-120%
MAGNESIUM (DISSOLVED)	CDH-W-IGT-3	5.0	5.6	89%	80%-120%
MAGNESIUM (DISSOLVED)	CDH-W-JBN	10	10	100%	80%-120%
MAGNESIUM (DISSOLVED)	CDH-W-JBT	10	10	100%	80%-120%
MAGNESIUM (DISSOLVED)	CHA-W-001	5.0	5.6	89%	80%-120%
MAGNESIUM (DISSOLVED)	CHA-W-003	5.0	5.6	89%	80%-120%
MERCURY	CDH-W-CPN	**16 RC**	12.5	**127%**	80%-120%
MERCURY	CDH-W-CPT	**19 RC**	12.5	**149%**	80%-120%
MERCURY	CDH-W-IGN-1	20	18.0	111%	80%-120%
MERCURY	CDH-W-IGN-3	19	18.0	103%	80%-120%
MERCURY	CDH-W-IGT-1	19	18.0	107%	80%-120%
MERCURY	CDH-W-IGT-3	19	18.0	103%	80%-120%

RC = Reanalyzed and confirmed

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Blank Spike or Reference Results (cont.):

Parameter	Blank Spike/ Reference Field ID	Blank Spike/ Reference Result	Spike Concentration or Reference Certified Value	Percent Recovery	Acceptance Criteria
MERCURY	CDH-W-JBN	14	12.5	115%	80%-120%
MERCURY	CDH-W-JBT	13	12.5	102%	80%-120%
MERCURY	CHA-W-001	12	12.0	100%	80%-120%
MERCURY	CHA-W-003	12	12.0	98%	80%-120%
NICKEL	CDH-W-CPN	180	150	120%	80%-120%
NICKEL	CDH-W-CPT	160	150	103%	80%-120%
NICKEL	CDH-W-IGN-1	22	22.2	99%	80%-120%
NICKEL	CDH-W-IGN-3	23	22.2	101%	80%-120%
NICKEL	CDH-W-IGT-1	23	22.2	103%	80%-120%
NICKEL	CDH-W-IGT-3	22	22.2	98%	80%-120%
NICKEL	CDH-W-JBN	150	150	98%	80%-120%
NICKEL	CDH-W-JBT	150	150	97%	80%-120%
NICKEL	CHA-W-001	24	22.2	109%	80%-120%
NICKEL	CHA-W-003	22	22.2	100%	80%-120%
NICKEL (DISSOLVED)	CDH-W-CPN	150	150	102%	80%-120%
NICKEL (DISSOLVED)	CDH-W-CPT	150	150	103%	80%-120%
NICKEL (DISSOLVED)	CDH-W-IGN-1	22	22.2	99%	80%-120%

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Blank Spike or Reference Results (cont.):

Parameter	Blank Spike/ Reference Field ID	Blank Spike/ Reference Result	Spike Concentration or Reference Certified Value	Percent Recovery	Acceptance Criteria
NICKEL (DISSOLVED)	CDH-W-IGN-3	23	22.2	101%	80%-120%
NICKEL (DISSOLVED)	CDH-W-IGT-1	21	22.2	95%	80%-120%
NICKEL (DISSOLVED)	CDH-W-IGT-3	21	22.2	95%	80%-120%
NICKEL (DISSOLVED)	CDH-W-JBN	140	150	95%	80%-120%
NICKEL (DISSOLVED)	CDH-W-JBT	150	150	103%	80%-120%
NICKEL (DISSOLVED)	CHA-W-001	22	22.2	101%	80%-120%
NICKEL (DISSOLVED)	CHA-W-003	22	22.2	97%	80%-120%
SILVER	CDH-W-CPN	3.4	3.8	89%	80%-120%
SILVER	CDH-W-CPT	3.4	3.8	90%	80%-120%
SILVER	CDH-W-IGN-1	9.1	9.67	94%	80%-120%
SILVER	CDH-W-IGN-3	9.0	9.67	93%	80%-120%
SILVER	CDH-W-IGT-1	9.2	9.67	95%	80%-120%
SILVER	CDH-W-IGT-3	8.9	9.67	92%	80%-120%
SILVER	CDH-W-JBN	4.1	3.8	108%	80%-120%
SILVER	CDH-W-JBT	3.9	3.8	103%	80%-120%
SILVER	CHA-W-001	9.2	9.67	95%	80%-120%
SILVER	CHA-W-003	9.2	9.67	95%	80%-120%
SILVER (DISSOLVED)	CDH-W-CPN	3.6	3.8	95%	80%-120%

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Blank Spike or Reference Results (cont.):

Parameter	Blank Spike/ Reference Field ID	Blank Spike/ Reference Result	Spike Concentration or Reference Certified Value	Percent Recovery	Acceptance Criteria
SILVER (DISSOLVED)	CDH-W-CPT	3.8	3.8	100%	80%-120%
SILVER (DISSOLVED)	CDH-W-IGN-1	9.2	9.67	95%	80%-120%
SILVER (DISSOLVED)	CDH-W-IGN-3	9.2	9.67	95%	80%-120%
SILVER (DISSOLVED)	CDH-W-IGT-1	9.3	9.67	96%	80%-120%
SILVER (DISSOLVED)	CDH-W-IGT-3	9.1	9.67	94%	80%-120%
SILVER (DISSOLVED)	CDH-W-JBN	3.8	3.8	100%	80%-120%
SILVER (DISSOLVED)	CDH-W-JBT	3.8	3.8	100%	80%-120%
SILVER (DISSOLVED)	CHA-W-001	9.3	9.67	96%	80%-120%
SILVER (DISSOLVED)	CHA-W-003	9.1	9.67	94%	80%-120%
ZINC	CDH-W-CPN	**91 RC**	75	**122%**	80%-120%
ZINC	CDH-W-CPT	80	75	106%	80%-120%
ZINC	CDH-W-IGN-1	20	19.2	105%	80%-120%
ZINC	CDH-W-IGN-3	19	19.2	99%	80%-120%
ZINC	CDH-W-IGT-1	20	19.2	102%	80%-120%
ZINC	CDH-W-IGT-3	19	19.2	98%	80%-120%
ZINC	CDH-W-JBN	78	75	104%	80%-120%
ZINC	CDH-W-JBT	78	75	104%	80%-120%
ZINC	CHA-W-001	21	19.2	109%	80%-120%

RC = Reanalyzed and confirmed

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Blank Spike or Reference Results (cont.):

Parameter	Blank Spike/ Reference Field ID	Blank Spike/ Reference Result	Spike Concentration or Reference Certified Value	Percent Recovery	Acceptance Criteria
ZINC	CHA-W-003	21	19.2	110%	80%-120%
ZINC (DISSOLVED)	CDH-W-CPN	81	75	107%	80%-120%
ZINC (DISSOLVED)	CDH-W-CPT	83	75	110%	80%-120%
ZINC (DISSOLVED)	CDH-W-IGN-1	21	19.2	107%	80%-120%
ZINC (DISSOLVED)	CDH-W-IGN-3	19	19.2	101%	80%-120%
ZINC (DISSOLVED)	CDH-W-IGT-1	18	19.2	95%	80%-120%
ZINC (DISSOLVED)	CDH-W-IGT-3	18	19.2	95%	80%-120%
ZINC (DISSOLVED)	CDH-W-JBN	75	75	100%	80%-120%
ZINC (DISSOLVED)	CDH-W-JBT	76	75	101%	80%-120%
ZINC (DISSOLVED)	CHA-W-001	20	19.2	102%	80%-120%
ZINC (DISSOLVED)	CHA-W-003	19	19.2	97%	80%-120%

Contamination - Externally Incorporated QA Samples

The following parameters were assessed for contamination and met the QA acceptance limits of less than or equal to two times the RL, except where noted.

Sample CDH-W-IGT-4 had an unacceptable blank result for mercury. This sample was submitted for reanalysis, and the reanalyzed result confirmed the original result. Therefore, the original mercury result for CDH-W-IGT-4 was accepted as valid.

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Blank Results:

Parameter	Blank Field ID	Blank Result	Reporting Limit	Acceptance Criteria
ALUMINUM	CDH-W-IGN-2	< 5.0	5.0	≤ 2RL
ALUMINUM	CDH-W-IGT-2	< 5.0	5.0	≤ 2RL
ALUMINUM	CDH-W-IGT-4	< 5.0	5.0	≤ 2RL
ALUMINUM	CDH-W-JBS	< 5.0	5.0	≤ 2RL
ALUMINUM	CHA-W-002	< 5.0	5.0	≤ 2RL
ALUMINUM (DISSOLVED)	CDH-W-IGN-2	< 5.0	5.0	≤ 2RL
ALUMINUM (DISSOLVED)	CDH-W-IGT-2	< 5.0	5.0	≤ 2RL
ALUMINUM (DISSOLVED)	CDH-W-IGT-4	< 5.0	5.0	≤ 2RL
ALUMINUM (DISSOLVED)	CDH-W-JBS	< 5.0	5.0	≤ 2RL
ALUMINUM (DISSOLVED)	CHA-W-002	< 5.0	5.0	≤ 2RL
ANTIMONY	CDH-W-IGN-2	< 0.5	0.5	≤ 2RL
ANTIMONY	CDH-W-IGT-2	< 0.5	0.5	≤ 2RL
ANTIMONY	CDH-W-IGT-4	< 0.5	0.5	≤ 2RL
ANTIMONY	CDH-W-JBS	<0.5	0.5	≤ 2RL
ANTIMONY	CHA-W-002	< 0.5	0.5	≤ 2RL
ANTIMONY (DISSOLVED)	CDH-W-IGN-2	< 0.5	0.5	≤ 2RL
ANTIMONY (DISSOLVED)	CDH-W-IGT-2	< 0.5	0.5	≤ 2RL
ANTIMONY (DISSOLVED)	CDH-W-IGT-4	< 0.5	0.5	≤ 2RL
ANTIMONY (DISSOLVED)	CDH-W-JBS	< 0.5	0.5	≤ 2RL

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Blank Results (cont.):

Parameter	Blank Field ID	Blank Result	Reporting Limit	Acceptance Criteria
ANTIMONY (DISSOLVED)	CHA-W-002	< 0.5	0.5	≤ 2RL
ARSENIC	CDH-W-IGN-2	< 0.5	0.5	≤ 2RL
ARSENIC	CDH-W-IGT-2	< 0.5	0.5	≤ 2RL
ARSENIC	CDH-W-IGT-4	< 0.5	0.5	≤ 2RL
ARSENIC	CDH-W-JBS	< 0.5	0.5	≤ 2RL
ARSENIC	CHA-W-002	< 0.5	0.5	≤ 2RL
ARSENIC (DISSOLVED)	CDH-W-IGN-2	< 0.5	0.5	≤ 2RL
ARSENIC (DISSOLVED)	CDH-W-IGT-2	< 0.5	0.5	≤ 2RL
ARSENIC (DISSOLVED)	CDH-W-IGT-4	< 0.5	0.5	≤ 2RL
ARSENIC (DISSOLVED)	CDH-W-JBS	< 0.5	0.5	≤ 2RL
ARSENIC (DISSOLVED)	CHA-W-002	< 0.5	0.5	≤ 2RL
CADMIUM	CDH-W-IGN-2	< 0.25	0.25	≤ 2RL
CADMIUM	CDH-W-IGT-2	< 0.25	0.25	≤ 2RL
CADMIUM	CDH-W-IGT-4	< 0.25	0.25	≤ 2RL
CADMIUM	CDH-W-JBS	< 0.25	0.25	≤ 2RL
CADMIUM	CHA-W-002	< 0.25	0.25	≤ 2RL
CADMIUM (DISSOLVED)	CDH-W-IGN-2	< 0.25	0.25	≤ 2RL
CADMIUM (DISSOLVED)	CDH-W-IGT-2	< 0.25	0.25	≤ 2RL
CADMIUM (DISSOLVED)	CDH-W-IGT-4	< 0.25	0.25	≤ 2RL

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Blank Results (cont.):

Parameter	Blank Field ID	Blank Result	Reporting Limit	Acceptance Criteria
CADMIUM (DISSOLVED)	CDH-W-JBS	< 0.25	0.25	≤ 2RL
CADMIUM (DISSOLVED)	CHA-W-002	< 0.25	0.25	≤ 2RL
CALCIUM	CDH-W-IGN-2	< 1	1	≤ 2RL
CALCIUM	CDH-W-IGT-2	< 1	1	≤ 2RL
CALCIUM	CDH-W-IGT-4	< 1	1	≤ 2RL
CALCIUM	CDH-W-JBS	< 1	1	≤ 2RL
CALCIUM	CHA-W-002	< 1	1	≤ 2RL
CALCIUM (DISSOLVED)	CDH-W-IGN-2	< 1	1	≤ 2RL
CALCIUM (DISSOLVED)	CDH-W-IGT-2	< 1	1	≤ 2RL
CALCIUM (DISSOLVED)	CDH-W-IGT-4	< 1	1	≤ 2RL
CALCIUM (DISSOLVED)	CDH-W-JBS	< 1	1	≤ 2RL
CALCIUM (DISSOLVED)	CHA-W-002	< 1	1	≤ 2RL
CHROMIUM	CDH-W-IGN-2	< 0.5	0.5	≤ 2RL
CHROMIUM	CDH-W-IGT-2	< 0.5	0.5	≤ 2RL
CHROMIUM	CDH-W-IGT-4	< 0.5	0.5	≤ 2RL
CHROMIUM	CDH-W-JBS	< 0.5	0.5	≤ 2RL
CHROMIUM	CHA-W-002	< 0.5	0.5	≤ 2RL
CHROMIUM (DISSOLVED)	CDH-W-IGN-2	< 0.5	0.5	≤ 2RL
CHROMIUM (DISSOLVED)	CDH-W-IGT-2	< 0.5	0.5	≤ 2RL

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Blank Results (cont.):

Parameter	Blank Field ID	Blank Result	Reporting Limit	Acceptance Criteria
CHROMIUM (DISSOLVED)	CDH-W-IGT-4	< 0.5	0.5	≤ 2RL
CHROMIUM (DISSOLVED)	CDH-W-JBS	< 0.5	0.5	≤ 2RL
CHROMIUM (DISSOLVED)	CHA-W-002	< 0.5	0.5	≤ 2RL
COPPER	CDH-W-IGN-2	< 0.5	0.5	≤ 2RL
COPPER	CDH-W-IGT-2	< 0.5	0.5	≤ 2RL
COPPER	CDH-W-IGT-4	< 0.5	0.5	≤ 2RL
COPPER	CDH-W-JBS	< 0.5	0.5	≤ 2RL
COPPER	CHA-W-002	< 0.5	0.5	≤ 2RL
COPPER (DISSOLVED)	CDH-W-IGN-2	< 0.5	0.5	≤ 2RL
COPPER (DISSOLVED)	CDH-W-IGT-2	< 0.5	0.5	≤ 2RL
COPPER (DISSOLVED)	CDH-W-IGT-4	< 0.5	0.5	≤ 2RL
COPPER (DISSOLVED)	CDH-W-JBS	< 0.5	0.5	≤ 2RL
COPPER (DISSOLVED)	CHA-W-002	< 0.5	0.5	≤ 2RL
LEAD	CDH-W-IGN-2	< 0.5	0.5	≤ 2RL
LEAD	CDH-W-IGT-2	< 0.5	0.5	≤ 2RL
LEAD	CDH-W-IGT-4	< 0.5	0.5	≤ 2RL
LEAD	CDH-W-JBS	< 0.5	0.5	≤ 2RL
LEAD	CHA-W-002	< 0.5	0.5	≤ 2RL
LEAD (DISSOLVED)	CDH-W-IGN-2	< 0.5	0.5	≤ 2RL
LEAD (DISSOLVED)	CDH-W-IGT-2	< 0.5	0.5	≤ 2RL

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Blank Results (cont.):

Parameter	Blank Field ID	Blank Result	Reporting Limit	Acceptance Criteria
LEAD (DISSOLVED)	CDH-W-IGT-4	< 0.5	0.5	≤ 2RL
LEAD (DISSOLVED)	CDH-W-JBS	< 0.5	0.5	≤ 2RL
LEAD (DISSOLVED)	CHA-W-002	< 0.5	0.5	≤ 2RL
MAGNESIUM	CDH-W-IGN-2	< 1	1	≤ 2RL
MAGNESIUM	CDH-W-IGT-2	< 1	1	≤ 2RL
MAGNESIUM	CDH-W-IGT-4	< 1	1	≤ 2RL
MAGNESIUM	CDH-W-JBS	< 1	1	≤ 2RL
MAGNESIUM	CHA-W-002	< 1	1	≤ 2RL
MAGNESIUM (DISSOLVED)	CDH-W-IGN-2	< 1	1	≤ 2RL
MAGNESIUM (DISSOLVED)	CDH-W-IGT-2	< 1	1	≤ 2RL
MAGNESIUM (DISSOLVED)	CDH-W-IGT-4	< 1	1	≤ 2RL
MAGNESIUM (DISSOLVED)	CDH-W-JBS	< 1	1	≤ 2RL
MAGNESIUM (DISSOLVED)	CHA-W-002	< 1	1	≤ 2RL
MERCURY	CDH-W-IGN-2	< 2.0	2.0	≤ 2RL
MERCURY	CDH-W-IGT-2	< 2.0	2.0	≤ 2RL
MERCURY	CDH-W-IGT-4	**4.5 RC**	2.0	≤ 2RL
MERCURY	CDH-W-JBS	< 2.0	2.0	≤ 2RL
MERCURY	CHA-W-002	< 2.0	2.0	≤ 2RL
NICKEL	CDH-W-IGN-2	< 1.0	1.0	≤ 2RL

RC = Reanalyzed and confirmed

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Blank Results (cont.):

Parameter	Blank Field ID	Blank Result	Reporting Limit	Acceptance Criteria
NICKEL	CDH-W-IGT-2	< 1.0	1.0	≤ 2RL
NICKEL	CDH-W-IGT-4	< 1.0	1.0	≤ 2RL
NICKEL	CDH-W-JBS	< 1.0	1.0	≤ 2RL
NICKEL	CHA-W-002	< 1.0	1.0	≤ 2RL
NICKEL (DISSOLVED)	CDH-W-IGN-2	< 1.0	1.0	≤ 2RL
NICKEL (DISSOLVED)	CDH-W-IGT-2	< 1.0	1.0	≤ 2RL
NICKEL (DISSOLVED)	CDH-W-IGT-4	< 1.0	1.0	≤ 2RL
NICKEL (DISSOLVED)	CDH-W-JBS	< 1.0	1.0	≤ 2RL
NICKEL (DISSOLVED)	CHA-W-002	< 1.0	1.0	≤ 2RL
SILVER	CDH-W-IGN-2	< 0.50	0.50	≤ 2RL
SILVER	CDH-W-IGT-2	< 0.50	0.50	≤ 2RL
SILVER	CDH-W-IGT-4	< 0.50	0.50	≤ 2RL
SILVER	CDH-W-JBS	< 0.50	0.50	≤ 2RL
SILVER	CHA-W-002	< 0.50	0.50	≤ 2RL
SILVER (DISSOLVED)	CDH-W-IGN-2	< 0.5	0.5	≤ 2RL
SILVER (DISSOLVED)	CDH-W-IGT-2	< 0.5	0.5	≤ 2RL
SILVER (DISSOLVED)	CDH-W-IGT-4	< 0.5	0.5	≤ 2RL
SILVER (DISSOLVED)	CDH-W-JBS	< 0.5	0.5	≤ 2RL
SILVER (DISSOLVED)	CHA-W-002	< 0.5	0.5	≤ 2RL

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Blank Results (cont.):

Parameter	Blank Field ID	Blank Result	Reporting Limit	Acceptance Criteria
ZINC	CDH-W-IGN-2	< 2.0	2.0	≤ 2RL
ZINC	CDH-W-IGT-2	< 2.0	2.0	≤ 2RL
ZINC	CDH-W-IGT-4	< 2.0	2.0	≤ 2RL
ZINC	CDH-W-JBS	< 2.0	2.0	≤ 2RL
ZINC	CHA-W-002	< 2.0	2.0	≤ 2RL
ZINC (DISSOLVED)	CDH-W-IGN-2	< 2.0	2.0	≤ 2RL
ZINC (DISSOLVED)	CDH-W-IGT-2	< 2.0	2.0	≤ 2RL
ZINC (DISSOLVED)	CDH-W-IGT-4	< 2.0	2.0	≤ 2RL
ZINC (DISSOLVED)	CDH-W-JBS	< 2.0	2.0	≤ 2RL
ZINC (DISSOLVED)	CHA-W-002	< 2.0	2.0	≤ 2RL

Holding Time

All metal parameters were analyzed within their recommended holding times.

Laboratory Quality Control

In addition to reviewing the results of the externally incorporated QA samples, the results of the laboratory's QC samples were also reviewed. QC samples included blanks, duplicates, blank spikes, or matrix spikes. The laboratory QC sample results were acceptable.

Appendix F

Quality Assurance Summary for Organic Parameters in Sediment Samples

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RECLAMATION

Managing Water in the West

Klamath River Sediment Study

Quality Assurance Summary for

Organic Parameters in Sediment Samples

Bureau of Reclamation, Mid-Pacific Region

Environmental Monitoring Branch

U.S. Department of the Interior
Bureau of Reclamation
Mid-Pacific Region

Overview of External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Samples for the Klamath River Sediment Study were collected between October 2009 and January 2010. The Quality Assurance (QA) section of the Environmental Monitoring Branch (EMB) incorporated QA samples with the field samples to assess the laboratory's ability to produce valid data.

Laboratory	Methods
ALS Laboratory Group (Salt Lake City, UT)	EPA 8270, EPA 8081, EPA 8082, EPA 8260, EPA 8015, EPA 8151, EPA 8318, and EPA 8321
ALS Laboratory Group (Burlington, Ontario)	EPA 1668, EPA 8290A, EPA 1614
Axys Analytical (Sidney, British Columbia)	MLA-047
Caltest Analytical (Napa, CA)	GCMS-NCI-SIM
Test America Laboratories, Inc. (Sacramento, CA)	EPA 8015
Test America Laboratories, Inc. (Pittsburgh, PA)	EPA 8141A

The QA calculations in the following tables (i.e., percent recovery) were performed on data directly from the analytical report; data from the analytical report may have been rounded upon being entered into the database. Data results in the following tables are from the database; therefore, calculations performed on rounded data may not match calculations performed on the analytical report.

The EMB's QA section reviewed and validated the QA sample results as well as the laboratory Quality Control (QC) sample results. The summary of the QA review is discussed in the following pages.

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Summary for Organic Parameters in Sediment Samples

Precision - Externally Incorporated QA Samples

The following parameters were assessed for precision and had differences within the QA acceptance limits of ≤ 35% relative percent difference (RPD) or a difference within two reporting limits (RL), except where noted.

The EPA 8081 results for duplicate samples CDH-S-005 (2-4) and CDH-S-005 (10-12) demonstrated unacceptable precision. Reanalysis was requested; the laboratory confirmed the original results upon reanalysis. Therefore, the original EPA 8081 results were accepted as valid.

The di-n-octylphthalate results for duplicate samples CDH-S-009 (2-4) and CDH-S-016 (10-12) demonstrated unacceptable precision. Reanalysis was requested, but the laboratory did not have sample left to conduct reanalysis. Therefore, the following samples are qualified as possibly varying excessively from their true values for di-n-octylphthalate: CDH-S-009 (2-4), CDH-S-009A (0.0-4.6), CDH-S-010 (0.0-5.0), CDH-S-010 (5.0-8.0), CDH-S-023 (0.0-5.4), CDH-S-023 (5.4-7.7), CDH-S-025 (6-8), CDH-S-026 (0.0-2.0), CDH-S-028 (0.0-1.0), CDH-S-031 (0.0-4.8), CDH-S-015A (0.0-5.0), CDH-S-015A (5.0-9.7), CDH-S-016 (10-12), CDH-S-016 (0.0-5.0), CDH-S-016 (5.0-7.5), CDH-S-018 (0.0-5.0), CDH-S-018 (5.0-8.9), CDH-S-012 (0.0-5.4), and CDH-S-013 (0.0-5.7).

Duplicate Results:

Parameter	Duplicate 1 Field ID	Duplicate 2 Field ID	Duplicate 1 Result	Duplicate 2 Result	Percent RPD or Difference	Acceptance Criteria	RL
2,4,5-TRICHLOROPHENOL	CDH-S-005(2-4)	CDH-S-005(10-12)	5600	6600	1000	+/-2RL	1400
2,4,5-TRICHLOROPHENOL	CDH-S-007(2-4)	CDH-S-007(10-12)	5600	4900	13%	≤ 35% RPD	670
2,4,5-TRICHLOROPHENOL	CDH-S-009(2-4)	CDH-S-016(10-12)	7100	6600	7.3%	≤ 35% RPD	830
2,4,5-TRICHLOROPHENOL	CDH-S-018(2-4)	CDH-S-046(10-12)	6900 H	7000 H	1.4%	≤ 35% RPD	840
2,4,5-TRICHLOROPHENOL	CDH-S-020(2-4)	CDH-S-032(10-12)	5000	5000	0%	≤ 35% RPD	840
2,4,5-TRICHLOROPHENOL	CHA-S-001A	CHA-S-004	6700	6500	3.0%	≤ 35% RPD	830
2,4,6-TRICHLOROPHENOL	CDH-S-005(2-4)	CDH-S-005(10-12)	2500	2900	400	+/-2RL	1400
2,4,6-TRICHLOROPHENOL	CDH-S-007(2-4)	CDH-S-007(10-12)	3000	2500	500	+/-2RL	670
2,4,6-TRICHLOROPHENOL	CDH-S-009(2-4)	CDH-S-016(10-12)	3300	3000	300	+/-2RL	830

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Duplicate Results (cont).:

Parameter	Duplicate 1 Field ID	Duplicate 2 Field ID	Duplicate 1 Result	Duplicate 2 Result	Percent RPD or Difference	Acceptance Criteria	RL
2,4,6-TRICHLOROPHENOL	CDH-S-018(2-4)	CDH-S-046(10-12)	3100 H	3200 H	100	+/-2RL	840
2,4,6-TRICHLOROPHENOL	CDH-S-020(2-4)	CDH-S-032(10-12)	8000	8300	3.7%	≤ 35% RPD	840
2,4,6-TRICHLOROPHENOL	CHA-S-001A	CHA-S-004	3200	3100	100	+/-2RL	830
2,4-DICHLOROPHENOL	CDH-S-005(2-4)	CDH-S-005(10-12)	4500	5200	700	+/-2RL	1400
2,4-DICHLOROPHENOL	CDH-S-007(2-4)	CDH-S-007(10-12)	5000	4100	20%	≤ 35% RPD	670
2,4-DICHLOROPHENOL	CDH-S-009(2-4)	CDH-S-016(10-12)	5500	5300	3.7%	≤ 35% RPD	830
2,4-DICHLOROPHENOL	CDH-S-018(2-4)	CDH-S-046(10-12)	5400 H	5600 H	3.6%	≤ 35% RPD	840
2,4-DICHLOROPHENOL	CDH-S-020(2-4)	CDH-S-032(10-12)	2000	2000	0	+/-2RL	840
2,4-DICHLOROPHENOL	CHA-S-001A	CHA-S-004	5800	5900	1.7%	≤ 35% RPD	830
2,4-DIMETHYLPHENOL	CDH-S-005(2-4)	CDH-S-005(10-12)	< 1400	< 1000	0	+/-2RL	1400
2,4-DIMETHYLPHENOL	CDH-S-007(2-4)	CDH-S-007(10-12)	< 670	< 660	0	+/-2RL	670
2,4-DIMETHYLPHENOL	CDH-S-009(2-4)	CDH-S-016(10-12)	< 830	< 830	0	+/-2RL	830
2,4-DIMETHYLPHENOL	CDH-S-018(2-4)	CDH-S-046(10-12)	< 840	< 830	0	+/-2RL	840
2,4-DIMETHYLPHENOL	CDH-S-020(2-4)	CDH-S-032(10-12)	< 830	< 840	0	+/-2RL	840
2,4-DIMETHYLPHENOL	CHA-S-001A	CHA-S-004	< 830	< 830	0	+/-2RL	830
2,4-DINITROPHENOL	CDH-S-005(2-4)	CDH-S-005(10-12)	< 5700	< 4100	0	+/-2RL	5700
2,4-DINITROPHENOL	CDH-S-007(2-4)	CDH-S-007(10-12)	< 2700	< 2700	0	+/-2RL	2700
2,4-DINITROPHENOL	CDH-S-009(2-4)	CDH-S-016(10-12)	< 3300	< 3300	0	+/-2RL	3300
2,4-DINITROPHENOL	CDH-S-018(2-4)	CDH-S-046(10-12)	< 3300	< 3300	0	+/-2RL	3300
2,4-DINITROPHENOL	CDH-S-020(2-4)	CDH-S-032(10-12)	< 3300	< 3300	0	+/-2RL	3300
2,4-DINITROPHENOL	CHA-S-001A	CHA-S-004	< 3300	< 3300	0	+/-2RL	3300

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Duplicate Results (cont).:

Parameter	Duplicate 1 Field ID	Duplicate 2 Field ID	Duplicate 1 Result	Duplicate 2 Result	Percent RPD or Difference	Acceptance Criteria	RL
2,4-DINITROTOLUENE	CDH-S-005(2-4)	CDH-S-005(10-12)	< 1400	< 1000	0	+/-2RL	1400
2,4-DINITROTOLUENE	CDH-S-007(2-4)	CDH-S-007(10-12)	< 670	< 660	0	+/-2RL	670
2,4-DINITROTOLUENE	CDH-S-009(2-4)	CDH-S-016(10-12)	< 830	< 830	0	+/-2RL	830
2,4-DINITROTOLUENE	CDH-S-018(2-4)	CDH-S-046(10-12)	< 840	< 830	0	+/-2RL	840
2,4-DINITROTOLUENE	CDH-S-020(2-4)	CDH-S-032(10-12)	4900	4900	0%	≤ 35% RPD	840
2,4-DINITROTOLUENE	CHA-S-001A	CHA-S-004	< 830	< 830	0	+/-2RL	830
2,6-DINITROTOLUENE	CDH-S-005(2-4)	CDH-S-005(10-12)	6200	6900	700	+/-2RL	1400
2,6-DINITROTOLUENE	CDH-S-007(2-4)	CDH-S-007(10-12)	7500	6400	16%	≤ 35% RPD	670
2,6-DINITROTOLUENE	CDH-S-009(2-4)	CDH-S-016(10-12)	6800	6600	3.0%	≤ 35% RPD	830
2,6-DINITROTOLUENE	CDH-S-018(2-4)	CDH-S-046(10-12)	6400	6700	4.6%	≤ 35% RPD	840
2,6-DINITROTOLUENE	CDH-S-020(2-4)	CDH-S-032(10-12)	4700	4800	2.1%	≤ 35% RPD	840
2,6-DINITROTOLUENE	CHA-S-001A	CHA-S-004	7800	7700	1.3%	≤ 35% RPD	830
2-CHLORONAPHTHALENE	CDH-S-005(2-4)	CDH-S-005(10-12)	2300	2500	200	+/-2RL	1400
2-CHLORONAPHTHALENE	CDH-S-007(2-4)	CDH-S-007(10-12)	2600	2200	400	+/-2RL	670
2-CHLORONAPHTHALENE	CDH-S-009(2-4)	CDH-S-016(10-12)	2600	2400	200	+/-2RL	830
2-CHLORONAPHTHALENE	CDH-S-018(2-4)	CDH-S-046(10-12)	2400	2500	100	+/-2RL	840
2-CHLORONAPHTHALENE	CDH-S-020(2-4)	CDH-S-032(10-12)	1600	1600	0	+/-2RL	840
2-CHLORONAPHTHALENE	CHA-S-001A	CHA-S-004	2800	2800	0	+/-2RL	830
2-CHLOROPHENOL	CDH-S-005(2-4)	CDH-S-005(10-12)	3400	3700	300	+/-2RL	1400
2-CHLOROPHENOL	CDH-S-007(2-4)	CDH-S-007(10-12)	3700	2900	800	+/-2RL	670
2-CHLOROPHENOL	CDH-S-009(2-4)	CDH-S-016(10-12)	4300	4100	4.8%	≤ 35% RPD	830

Results for External Quality Assurance Samples
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Duplicate Results (cont.):

Parameter	Duplicate 1 Field ID	Duplicate 2 Field ID	Duplicate 1 Result	Duplicate 2 Result	Percent RPD or Difference	Acceptance Criteria	RL
2-CHLOROPHENOL	CDH-S-018(2-4)	CDH-S-046(10-12)	3900	4200	300	+/-2RL	840
2-CHLOROPHENOL	CDH-S-020(2-4)	CDH-S-032(10-12)	5900	5900	0%	≤ 35% RPD	840
2-CHLOROPHENOL	CHA-S-001A	CHA-S-004	4900	5100	4.0%	≤ 35% RPD	830
2-METHYLNAPHTHALENE	CDH-S-005(2-4)	CDH-S-005(10-12)	< 1400	< 1000	0	+/-2RL	1400
2-METHYLNAPHTHALENE	CDH-S-007(2-4)	CDH-S-007(10-12)	< 670	< 660	0	+/-2RL	670
2-METHYLNAPHTHALENE	CDH-S-009(2-4)	CDH-S-016(10-12)	< 830	< 830	0	+/-2RL	830
2-METHYLNAPHTHALENE	CDH-S-018(2-4)	CDH-S-046(10-12)	< 840	< 830	0	+/-2RL	840
2-METHYLNAPHTHALENE	CDH-S-020(2-4)	CDH-S-032(10-12)	2900	2900	0	+/-2RL	840
2-METHYLNAPHTHALENE	CHA-S-001A	CHA-S-004	< 830	< 830	0	+/-2RL	830
2-METHYLPHENOL	CDH-S-005(2-4)	CDH-S-005(10-12)	< 1400	< 1000	0	+/-2RL	1400
2-METHYLPHENOL	CDH-S-007(2-4)	CDH-S-007(10-12)	800	680	120	+/-2RL	670
2-METHYLPHENOL	CDH-S-009(2-4)	CDH-S-016(10-12)	1000	890	110	+/-2RL	830
2-METHYLPHENOL	CDH-S-018(2-4)	CDH-S-046(10-12)	< 840	970	130	+/-2RL	840
2-METHYLPHENOL	CDH-S-020(2-4)	CDH-S-032(10-12)	2100	2400	300	+/-2RL	840
2-METHYLPHENOL	CHA-S-001A	CHA-S-004	1000	1000	0	+/-2RL	830
2-NITROANILINE	CDH-S-005(2-4)	CDH-S-005(10-12)	< 1400 L	< 1000 L	0	+/-2RL	1400
2-NITROANILINE	CDH-S-007(2-4)	CDH-S-007(10-12)	< 670	< 660	0	+/-2RL	670
2-NITROANILINE	CDH-S-009(2-4)	CDH-S-016(10-12)	< 830	< 830	0	+/-2RL	830
2-NITROANILINE	CDH-S-018(2-4)	CDH-S-046(10-12)	< 840	< 830	0	+/-2RL	840
2-NITROANILINE	CDH-S-020(2-4)	CDH-S-032(10-12)	< 830	< 840	0	+/-2RL	840
2-NITROANILINE	CHA-S-001A	CHA-S-004	< 830	< 830	0	+/-2RL	830
2-NITROPHENOL	CDH-S-005(2-4)	CDH-S-005(10-12)	2900	3500	600	+/-2RL	1400

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Duplicate Results (cont.):

Parameter	Duplicate 1 Field ID	Duplicate 2 Field ID	Duplicate 1 Result	Duplicate 2 Result	Percent RPD or Difference	Acceptance Criteria	RL
2-NITROPHENOL	CDH-S-007(2-4)	CDH-S-007(10-12)	3400	2600	800	+/-2RL	670
2-NITROPHENOL	CDH-S-009(2-4)	CDH-S-016(10-12)	3800	3800	0	+/-2RL	830
2-NITROPHENOL	CDH-S-018(2-4)	CDH-S-046(10-12)	3600 H	3700 H	100	+/-2RL	840
2-NITROPHENOL	CDH-S-020(2-4)	CDH-S-032(10-12)	4800	4700	2.1%	≤ 35% RPD	840
2-NITROPHENOL	CHA-S-001A	CHA-S-004	4000	4100	100	+/-2RL	830
3,3'-DICHLOROBENZIDINE	CDH-S-005(2-4)	CDH-S-005(10-12)	< 1400	< 1000	0	+/-2RL	1400
3,3'-DICHLOROBENZIDINE	CDH-S-007(2-4)	CDH-S-007(10-12)	< 670	< 660	0	+/-2RL	670
3,3'-DICHLOROBENZIDINE	CDH-S-009(2-4)	CDH-S-016(10-12)	< 830	< 830	0	+/-2RL	830
3,3'-DICHLOROBENZIDINE	CDH-S-018(2-4)	CDH-S-046(10-12)	< 840	< 830	0	+/-2RL	840
3,3'-DICHLOROBENZIDINE	CDH-S-020(2-4)	CDH-S-032(10-12)	< 830	< 840	0	+/-2RL	840
3,3'-DICHLOROBENZIDINE	CHA-S-001A	CHA-S-004	< 830	< 830	0	+/-2RL	830
3-NITROANILINE	CDH-S-005(2-4)	CDH-S-005(10-12)	< 1400	< 1000	0	+/-2RL	1400
3-NITROANILINE	CDH-S-007(2-4)	CDH-S-007(10-12)	< 670	< 660	0	+/-2RL	670
3-NITROANILINE	CDH-S-009(2-4)	CDH-S-016(10-12)	< 830	< 830	0	+/-2RL	830
3-NITROANILINE	CDH-S-018(2-4)	CDH-S-046(10-12)	< 840	< 830	0	+/-2RL	840
3-NITROANILINE	CDH-S-020(2-4)	CDH-S-032(10-12)	< 830	< 840	0	+/-2RL	840
3-NITROANILINE	CHA-S-001A	CHA-S-004	< 830	< 830	0	+/-2RL	830
4,4'-DDD	CDH-S-005(2-4)	CDH-S-005(10-12)	**< 0.67 RC**	**300 RC**	**199%**	≤ 35% RPD	6.7
4,4'-DDD	CDH-S-007(2-4)	CDH-S-007(10-12)	250	280	11%	≤ 35% RPD	6.7
4,4'-DDD	CDH-S-009(2-4)	CDH-S-016(10-12)	310	340	9.2%	≤ 35% RPD	6.7
4,4'-DDD	CDH-S-009(2-4)B	CDH-S-016(10-12)	310	340	9.2%	≤ 35% RPD	6.7

RC = Reanalyzed and confirmed

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Duplicate Results (cont.):

Parameter	Duplicate 1 Field ID	Duplicate 2 Field ID	Duplicate 1 Result	Duplicate 2 Result	Percent RPD or Difference	Acceptance Criteria	RL
4,4'-DDD	CDH-S-018(2-4)	CDH-S-046(10-12)	270	260	3.8%	≤ 35% RPD	6.7
4,4'-DDD	CDH-S-020(2-4)	CDH-S-032(10-12)	320	320	0%	≤ 35% RPD	6.7
4,4'-DDD	CHA-S-001A	CHA-S-004	190	180	10	+/-2RL	67
4,4'-DDE	CDH-S-005(2-4)	CDH-S-005(10-12)	**< 0.67 RC**	**270 RC**	**199%**	≤ 35% RPD	6.7
4,4'-DDE	CDH-S-007(2-4)	CDH-S-007(10-12)	240	260	8.0%	≤ 35% RPD	6.7
4,4'-DDE	CDH-S-009(2-4)	CDH-S-016(10-12)	290	320	9.8%	≤ 35% RPD	6.7
4,4'-DDE	CDH-S-009(2-4)B	CDH-S-016(10-12)	290	320	9.8%	≤ 35% RPD	6.7
4,4'-DDE	CDH-S-018(2-4)	CDH-S-046(10-12)	250	240	4.1%	≤ 35% RPD	6.7
4,4'-DDE	CDH-S-020(2-4)	CDH-S-032(10-12)	300	300	0%	≤ 35% RPD	6.7
4,4'-DDE	CHA-S-001A	CHA-S-004	180	180	0	+/-2RL	67
4,4'-DDT	CDH-S-005(2-4)	CDH-S-005(10-12)	**< 0.67 RC**	**150 RC**	**198%**	≤ 35% RPD	6.7
4,4'-DDT	CDH-S-007(2-4)	CDH-S-007(10-12)	120	130	8.0%	≤ 35% RPD	6.7
4,4'-DDT	CDH-S-009(2-4)	CDH-S-016(10-12)	150	170	13%	≤ 35% RPD	6.7
4,4'-DDT	CDH-S-009(2-4)B	CDH-S-016(10-12)	150	170	13%	≤ 35% RPD	6.7
4,4'-DDT	CDH-S-018(2-4)	CDH-S-046(10-12)	140	140	0%	≤ 35% RPD	6.7
4,4'-DDT	CDH-S-020(2-4)	CDH-S-032(10-12)	170	160	6.1%	≤ 35% RPD	6.7
4,4'-DDT	CHA-S-001A	CHA-S-004	84 V	84	0	+/-2RL	67
4,6-DINITRO-2-METHYLPHENOL	CDH-S-005(2-4)	CDH-S-005(10-12)	< 5700	< 4100	0	+/-2RL	5700
4,6-DINITRO-2-METHYLPHENOL	CDH-S-007(2-4)	CDH-S-007(10-12)	< 2700	< 2700	0	+/-2RL	2700
4,6-DINITRO-2-METHYLPHENOL	CDH-S-009(2-4)	CDH-S-016(10-12)	< 3300	< 3300	0	+/-2RL	3300
4,6-DINITRO-2-METHYLPHENOL	CDH-S-018(2-4)	CDH-S-046(10-12)	< 3300	< 3300	0	+/-2RL	3300

RC = Reanalyzed and confirmed

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Duplicate Results (cont.):

Parameter	Duplicate 1 Field ID	Duplicate 2 Field ID	Duplicate 1 Result	Duplicate 2 Result	Percent RPD or Difference	Acceptance Criteria	RL
4,6-DINITRO-2-METHYLPHENOL	CDH-S-020(2-4)	CDH-S-032(10-12)	< 3300	< 3300	0	+/-2RL	3300
4,6-DINITRO-2-METHYLPHENOL	CHA-S-001A	CHA-S-004	< 3300	< 3300	0	+/-2RL	3300
4-BROMOPHENYL PHENYL ETHER	CDH-S-005(2-4)	CDH-S-005(10-12)	< 1400	< 1000	0	+/-2RL	1400
4-BROMOPHENYL PHENYL ETHER	CDH-S-007(2-4)	CDH-S-007(10-12)	< 670	< 660	0	+/-2RL	670
4-BROMOPHENYL PHENYL ETHER	CDH-S-009(2-4)	CDH-S-016(10-12)	< 830	< 830	0	+/-2RL	830
4-BROMOPHENYL PHENYL ETHER	CDH-S-018(2-4)	CDH-S-046(10-12)	< 840	< 830	0	+/-2RL	840
4-BROMOPHENYL PHENYL ETHER	CDH-S-020(2-4)	CDH-S-032(10-12)	7200	7500	4.1%	≤ 35% RPD	840
4-BROMOPHENYL PHENYL ETHER	CHA-S-001A	CHA-S-004	< 830	< 830	0	+/-2RL	830
4-CHLORO-3-METHYLPHENOL	CDH-S-005(2-4)	CDH-S-005(10-12)	4900	5800	900	+/-2RL	1400
4-CHLORO-3-METHYLPHENOL	CDH-S-007(2-4)	CDH-S-007(10-12)	6600	5500	18%	≤ 35% RPD	670
4-CHLORO-3-METHYLPHENOL	CDH-S-009(2-4)	CDH-S-016(10-12)	7000	6200	12%	≤ 35% RPD	830
4-CHLORO-3-METHYLPHENOL	CDH-S-018(2-4)	CDH-S-046(10-12)	6100	6300	3.2%	≤ 35% RPD	840
4-CHLORO-3-METHYLPHENOL	CDH-S-020(2-4)	CDH-S-032(10-12)	5800	5600	3.5%	≤ 35% RPD	840
4-CHLORO-3-METHYLPHENOL	CHA-S-001A	CHA-S-004	7100	7100	0%	≤ 35% RPD	830
4-CHLOROANILINE	CDH-S-005(2-4)	CDH-S-005(10-12)	< 1400	< 1000	0	+/-2RL	1400
4-CHLOROANILINE	CDH-S-007(2-4)	CDH-S-007(10-12)	< 670	< 660	0	+/-2RL	670
4-CHLOROANILINE	CDH-S-009(2-4)	CDH-S-016(10-12)	< 830	< 830	0	+/-2RL	830
4-CHLOROANILINE	CDH-S-018(2-4)	CDH-S-046(10-12)	< 840	< 830	0	+/-2RL	840
4-CHLOROANILINE	CDH-S-020(2-4)	CDH-S-032(10-12)	< 830	< 840	0	+/-2RL	840
4-CHLOROANILINE	CHA-S-001A	CHA-S-004	< 830	< 830	0	+/-2RL	830

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Duplicate Results (cont.):

Parameter	Duplicate 1 Field ID	Duplicate 2 Field ID	Duplicate 1 Result	Duplicate 2 Result	Percent RPD or Difference	Acceptance Criteria	RL
4-CHLOROPHENYL PHENYL ETHER	CDH-S-005(2-4)	CDH-S-005(10-12)	7400	8300	11%	≤ 35% RPD	1400
4-CHLOROPHENYL PHENYL ETHER	CDH-S-007(2-4)	CDH-S-007(10-12)	7500	6500	14%	≤ 35% RPD	670
4-CHLOROPHENYL PHENYL ETHER	CDH-S-009(2-4)	CDH-S-016(10-12)	8400	7500	11%	≤ 35% RPD	830
4-CHLOROPHENYL PHENYL ETHER	CDH-S-018(2-4)	CDH-S-046(10-12)	7700	8100	5.1%	≤ 35% RPD	840
4-CHLOROPHENYL PHENYL ETHER	CDH-S-020(2-4)	CDH-S-032(10-12)	< 830	< 840	0	+/-2RL	840
4-CHLOROPHENYL PHENYL ETHER	CHA-S-001A	CHA-S-004	8500	8600	1.2%	≤ 35% RPD	830
4-METHYLPHENOL	CDH-S-005(2-4)	CDH-S-005(10-12)	1400	1800	400	+/-2RL	1400
4-METHYLPHENOL	CDH-S-007(2-4)	CDH-S-007(10-12)	2300	1800	500	+/-2RL	670
4-METHYLPHENOL	CDH-S-009(2-4)	CDH-S-016(10-12)	3000	2700	300	+/-2RL	830
4-METHYLPHENOL	CDH-S-018(2-4)	CDH-S-046(10-12)	2300	2700	400	+/-2RL	840
4-METHYLPHENOL	CDH-S-020(2-4)	CDH-S-032(10-12)	1400	1500	100	+/-2RL	840
4-METHYLPHENOL	CHA-S-001A	CHA-S-004	2500	2700	200	+/-2RL	830
4-NITROANILINE	CDH-S-005(2-4)	CDH-S-005(10-12)	< 1400	< 1000	0	+/-2RL	1400
4-NITROANILINE	CDH-S-007(2-4)	CDH-S-007(10-12)	< 670	< 660	0	+/-2RL	670
4-NITROANILINE	CDH-S-009(2-4)	CDH-S-016(10-12)	< 830	< 830	0	+/-2RL	830
4-NITROANILINE	CDH-S-018(2-4)	CDH-S-046(10-12)	< 840	< 830	0	+/-2RL	840
4-NITROANILINE	CDH-S-020(2-4)	CDH-S-032(10-12)	< 830 L	< 840 L	0	+/-2RL	840
4-NITROANILINE	CHA-S-001A	CHA-S-004	< 830	< 830	0	+/-2RL	830
4-NITROPHENOL	CDH-S-005(2-4)	CDH-S-005(10-12)	< 5700	< 4100	0	+/-2RL	5700
4-NITROPHENOL	CDH-S-007(2-4)	CDH-S-007(10-12)	< 2700	< 2700	0	+/-2RL	2700

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Duplicate Results (cont.):

Parameter	Duplicate 1 Field ID	Duplicate 2 Field ID	Duplicate 1 Result	Duplicate 2 Result	Percent RPD or Difference	Acceptance Criteria	RL
4-NITROPHENOL	CDH-S-009(2-4)	CDH-S-016(10-12)	< 3300	< 3300	0	+/-2RL	3300
4-NITROPHENOL	CDH-S-018(2-4)	CDH-S-046(10-12)	< 3300	< 3300	0	+/-2RL	3300
4-NITROPHENOL	CDH-S-020(2-4)	CDH-S-032(10-12)	7500	7200	300	+/-2RL	3300
4-NITROPHENOL	CHA-S-001A	CHA-S-004	< 3300	< 3300	0	+/-2RL	3300
ACENAPHTHENE	CDH-S-005(2-4)	CDH-S-005(10-12)	5200	5700	500	+/-2RL	1400
ACENAPHTHENE	CDH-S-007(2-4)	CDH-S-007(10-12)	6000	5200	14%	≤ 35% RPD	670
ACENAPHTHENE	CDH-S-009(2-4)	CDH-S-016(10-12)	6000	5300	12%	≤ 35% RPD	830
ACENAPHTHENE	CDH-S-018(2-4)	CDH-S-046(10-12)	5400	5700	5.4%	≤ 35% RPD	840
ACENAPHTHENE	CDH-S-020(2-4)	CDH-S-032(10-12)	6300	6500	3.1%	≤ 35% RPD	840
ACENAPHTHENE	CHA-S-001A	CHA-S-004	6400	6600	3.1%	≤ 35% RPD	830
ACENAPHTHYLENE	CDH-S-005(2-4)	CDH-S-005(10-12)	< 1400	< 1000	0	+/-2RL	1400
ACENAPHTHYLENE	CDH-S-007(2-4)	CDH-S-007(10-12)	< 670	< 660	0	+/-2RL	670
ACENAPHTHYLENE	CDH-S-009(2-4)	CDH-S-016(10-12)	< 830	< 830	0	+/-2RL	830
ACENAPHTHYLENE	CDH-S-018(2-4)	CDH-S-046(10-12)	< 840	< 830	0	+/-2RL	840
ACENAPHTHYLENE	CDH-S-020(2-4)	CDH-S-032(10-12)	4400	4500	2.2%	≤ 35% RPD	840
ACENAPHTHYLENE	CHA-S-001A	CHA-S-004	< 830	< 830	0	+/-2RL	830
ALDRIN	CDH-S-005(2-4)	CDH-S-005(10-12)	**< 0.67 RC**	**130 RC**	**198%**	≤ 35% RPD	6.7
ALDRIN	CDH-S-007(2-4)	CDH-S-007(10-12)	110	120	8.7%	≤ 35% RPD	6.7
ALDRIN	CDH-S-009(2-4)	CDH-S-016(10-12)	130	150	14%	≤ 35% RPD	6.7
ALDRIN	CDH-S-009(2-4)B	CDH-S-016(10-12)	130	150	14%	≤ 35% RPD	6.7

RC = Reanalyzed and confirmed

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Duplicate Results (cont.):

Parameter	Duplicate 1 Field ID	Duplicate 2 Field ID	Duplicate 1 Result	Duplicate 2 Result	Percent RPD or Difference	Acceptance Criteria	RL
ALDRIN	CDH-S-018(2-4)	CDH-S-046(10-12)	120	110	8.7%	≤ 35% RPD	6.7
ALDRIN	CDH-S-020(2-4)	CDH-S-032(10-12)	140	140	0%	≤ 35% RPD	6.7
ALDRIN	CHA-S-001A	CHA-S-004	160	150	10	+/-2RL	67
ANTHRACENE	CDH-S-005(2-4)	CDH-S-005(10-12)	3600	4000	400	+/-2RL	1400
ANTHRACENE	CDH-S-007(2-4)	CDH-S-007(10-12)	4600	4000	14%	≤ 35% RPD	670
ANTHRACENE	CDH-S-009(2-4)	CDH-S-016(10-12)	4400	4000	9.5%	≤ 35% RPD	830
ANTHRACENE	CDH-S-018(2-4)	CDH-S-046(10-12)	4000	4200	200	+/-2RL	840
ANTHRACENE	CDH-S-020(2-4)	CDH-S-032(10-12)	6100	6200	1.6%	≤ 35% RPD	840
ANTHRACENE	CHA-S-001A	CHA-S-004	4600	4700	2.2%	≤ 35% RPD	830
AROCLOR 1016	CDH-S-005(2-4)	CDH-S-005(10-12)	< 0.033	< 0.033	0	+/-2RL	0.033
AROCLOR 1016	CDH-S-007(2-4)	CDH-S-007(10-12)	< 0.33	< 0.33	0	+/-2RL	0.33
AROCLOR 1016	CDH-S-009(2-4)	CDH-S-016(10-12)	< 0.033	< 0.033	0	+/-2RL	0.033
AROCLOR 1016	CDH-S-009(2-4)B	CDH-S-016(10-12)	< 0.033	< 0.033	0	+/-2RL	0.033
AROCLOR 1016	CDH-S-018(2-4)	CDH-S-046(10-12)	3.3	3.3	0%	≤ 35% RPD	0.033
AROCLOR 1016	CDH-S-020(2-4)	CDH-S-032(10-12)	< 0.033	< 0.033	0	+/-2RL	0.033
AROCLOR 1016	CHA-S-001A	CHA-S-004	< 0.33	< 0.33	0	+/-2RL	0.33

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Duplicate Results (cont.):

Parameter	Duplicate 1 Field ID	Duplicate 2 Field ID	Duplicate 1 Result	Duplicate 2 Result	Percent RPD or Difference	Acceptance Criteria	RL
AROCLOR 1221	CDH-S-005(2-4)	CDH-S-005(10-12)	< 0.067	< 0.067	0	+/-2RL	0.067
AROCLOR 1221	CDH-S-007(2-4)	CDH-S-007(10-12)	< 0.67	< 0.67	0	+/-2RL	0.67
AROCLOR 1221	CDH-S-009(2-4)	CDH-S-016(10-12)	< 0.067	< 0.067	0	+/-2RL	0.067
AROCLOR 1221	CDH-S-009(2-4)B	CDH-S-016(10-12)	< 0.067	< 0.067	0	+/-2RL	0.067
AROCLOR 1221	CDH-S-018(2-4)	CDH-S-046(10-12)	< 0.067	< 0.067	0	+/-2RL	0.067
AROCLOR 1221	CDH-S-020(2-4)	CDH-S-032(10-12)	< 0.067	< 0.067	0	+/-2RL	0.067
AROCLOR 1221	CHA-S-001A	CHA-S-004	< 0.65	< 0.66	0	+/-2RL	0.66
AROCLOR 1232	CDH-S-005(2-4)	CDH-S-005(10-12)	< 0.033	< 0.033	0	+/-2RL	0.033
AROCLOR 1232	CDH-S-007(2-4)	CDH-S-007(10-12)	< 0.33	< 0.33	0	+/-2RL	0.33
AROCLOR 1232	CDH-S-009(2-4)	CDH-S-016(10-12)	< 0.033	< 0.033	0	+/-2RL	0.033
AROCLOR 1232	CDH-S-009(2-4)B	CDH-S-016(10-12)	< 0.033	< 0.033	0	+/-2RL	0.033
AROCLOR 1232	CDH-S-018(2-4)	CDH-S-046(10-12)	< 0.033	< 0.033	0	+/-2RL	0.033
AROCLOR 1232	CDH-S-020(2-4)	CDH-S-032(10-12)	< 0.033	< 0.033	0	+/-2RL	0.033
AROCLOR 1232	CHA-S-001A	CHA-S-004	< 0.33	< 0.33	0	+/-2RL	0.33
AROCLOR 1242	CDH-S-005(2-4)	CDH-S-005(10-12)	2.9	3.5	19%	≤ 35% RPD	0.033
AROCLOR 1242	CDH-S-007(2-4)	CDH-S-007(10-12)	< 0.33	< 0.33	0	+/-2RL	0.33
AROCLOR 1242	CDH-S-009(2-4)	CDH-S-016(10-12)	2.6	2.9	11%	≤ 35% RPD	0.033
AROCLOR 1242	CDH-S-009(2-4)B	CDH-S-016(10-12)	2.5	2.9	15%	≤ 35% RPD	0.033
AROCLOR 1242	CDH-S-018(2-4)	CDH-S-046(10-12)	< 0.033 L	< 0.033 L	0	+/-2RL	0.033
AROCLOR 1242	CDH-S-020(2-4)	CDH-S-032(10-12)	2.7	2.8	3.6%	≤ 35% RPD	0.033
AROCLOR 1242	CHA-S-001A	CHA-S-004	6.7	6.6	1.5%	≤ 35% RPD	0.33

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Duplicate Results (cont.):

Parameter	Duplicate 1 Field ID	Duplicate 2 Field ID	Duplicate 1 Result	Duplicate 2 Result	Percent RPD or Difference	Acceptance Criteria	RL
AROCLOR 1248	CDH-S-005(2-4)	CDH-S-005(10-12)	< 0.033	< 0.033	0	+/-2RL	0.033
AROCLOR 1248	CDH-S-007(2-4)	CDH-S-007(10-12)	27	31	14%	≤ 35% RPD	0.33
AROCLOR 1248	CDH-S-009(2-4)	CDH-S-016(10-12)	< 0.033	< 0.033	0	+/-2RL	0.033
AROCLOR 1248	CDH-S-009(2-4)B	CDH-S-016(10-12)	< 0.033	< 0.033	0	+/-2RL	0.033
AROCLOR 1248	CDH-S-018(2-4)	CDH-S-046(10-12)	< 0.033	< 0.033	0	+/-2RL	0.033
AROCLOR 1248	CDH-S-020(2-4)	CDH-S-032(10-12)	< 0.033	< 0.033	0	+/-2RL	0.033
AROCLOR 1248	CHA-S-001A	CHA-S-004	< 0.33	< 0.33	0	+/-2RL	0.33
AROCLOR 1254	CDH-S-005(2-4)	CDH-S-005(10-12)	< 0.033	< 0.033	0	+/-2RL	0.033
AROCLOR 1254	CDH-S-007(2-4)	CDH-S-007(10-12)	< 0.33	< 0.33	0	+/-2RL	0.33
AROCLOR 1254	CDH-S-009(2-4)	CDH-S-016(10-12)	< 0.033	< 0.033	0	+/-2RL	0.033
AROCLOR 1254	CDH-S-009(2-4)B	CDH-S-016(10-12)	< 0.033	< 0.033	0	+/-2RL	0.033
AROCLOR 1254	CDH-S-018(2-4)	CDH-S-046(10-12)	< 0.033	< 0.033	0	+/-2RL	0.033
AROCLOR 1254	CDH-S-020(2-4)	CDH-S-032(10-12)	< 0.033	< 0.033	0	+/-2RL	0.033
AROCLOR 1254	CHA-S-001A	CHA-S-004	< 0.33	< 0.33	0	+/-2RL	0.33
AROCLOR 1260	CDH-S-005(2-4)	CDH-S-005(10-12)	< 0.033	< 0.033	0	+/-2RL	0.033
AROCLOR 1260	CDH-S-007(2-4)	CDH-S-007(10-12)	< 0.33	< 0.33	0	+/-2RL	0.33
AROCLOR 1260	CDH-S-009(2-4)	CDH-S-016(10-12)	< 0.033	< 0.033	0	+/-2RL	0.033
AROCLOR 1260	CDH-S-009(2-4)B	CDH-S-016(10-12)	< 0.033	< 0.033	0	+/-2RL	0.033
AROCLOR 1260	CDH-S-018(2-4)	CDH-S-046(10-12)	< 0.033	< 0.033	0	+/-2RL	0.033

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Duplicate Results (cont.):

Parameter	Duplicate 1 Field ID	Duplicate 2 Field ID	Duplicate 1 Result	Duplicate 2 Result	Percent RPD or Difference	Acceptance Criteria	RL
AROCLOR 1260	CDH-S-020(2-4)	CDH-S-032(10-12)	< 0.033	< 0.033	0	+/-2RL	0.033
AROCLOR 1260	CHA-S-001A	CHA-S-004	< 0.33	< 0.33	0	+/-2RL	0.33
AROCLOR 1268	CDH-S-005(2-4)	CDH-S-005(10-12)	< 0.033	< 0.033	0	+/-2RL	0.033
AROCLOR 1268	CDH-S-007(2-4)	CDH-S-007(10-12)	< 0.33	< 0.33	0	+/-2RL	0.33
AROCLOR 1268	CDH-S-009(2-4)	CDH-S-016(10-12)	< 0.033	< 0.033	0	+/-2RL	0.033
AROCLOR 1268	CDH-S-009(2-4)B	CDH-S-016(10-12)	< 0.033	< 0.033	0	+/-2RL	0.033
AROCLOR 1268	CDH-S-018(2-4)	CDH-S-046(10-12)	< 0.033	< 0.033	0	+/-2RL	0.033
AROCLOR 1268	CDH-S-020(2-4)	CDH-S-032(10-12)	< 0.033	< 0.033	0	+/-2RL	0.033
AROCLOR 1268	CHA-S-001A	CHA-S-004	< 0.33	< 0.33	0	+/-2RL	0.33
BENZ(A)ANTHRACENE	CDH-S-005(2-4)	CDH-S-005(10-12)	< 1400	< 1000	0	+/-2RL	1400
BENZ(A)ANTHRACENE	CDH-S-007(2-4)	CDH-S-007(10-12)	860	730	130	+/-2RL	670
BENZ(A)ANTHRACENE	CDH-S-009(2-4)	CDH-S-016(10-12)	< 830	< 830	0	+/-2RL	830
BENZ(A)ANTHRACENE	CDH-S-018(2-4)	CDH-S-046(10-12)	< 840	< 830	0	+/-2RL	840
BENZ(A)ANTHRACENE	CDH-S-020(2-4)	CDH-S-032(10-12)	1700	1700	0	+/-2RL	840
BENZ(A)ANTHRACENE	CHA-S-001A	CHA-S-004	840	850	10	+/-2RL	830
BENZO(A)PYRENE	CDH-S-005(2-4)	CDH-S-005(10-12)	3000	3300	300	+/-2RL	1400
BENZO(A)PYRENE	CDH-S-007(2-4)	CDH-S-007(10-12)	4000	3300	19%	≤ 35% RPD	670
BENZO(A)PYRENE	CDH-S-009(2-4)	CDH-S-016(10-12)	4000	3500	500	+/-2RL	830
BENZO(A)PYRENE	CDH-S-018(2-4)	CDH-S-046(10-12)	3700	4100	400	+/-2RL	840
BENZO(A)PYRENE	CDH-S-020(2-4)	CDH-S-032(10-12)	2200	2400	200	+/-2RL	840
BENZO(A)PYRENE	CHA-S-001A	CHA-S-004	4000	4200	200	+/-2RL	830

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Duplicate Results (cont.):

Parameter	Duplicate 1 Field ID	Duplicate 2 Field ID	Duplicate 1 Result	Duplicate 2 Result	Percent RPD or Difference	Acceptance Criteria	RL
BENZO(B)FLUORANTHENE	CDH-S-005(2-4)	CDH-S-005(10-12)	2500	2700	200	+/-2RL	1400
BENZO(B)FLUORANTHENE	CDH-S-007(2-4)	CDH-S-007(10-12)	2900	2400	500	+/-2RL	670
BENZO(B)FLUORANTHENE	CDH-S-009(2-4)	CDH-S-016(10-12)	3200	2200	1000	+/-2RL	830
BENZO(B)FLUORANTHENE	CDH-S-018(2-4)	CDH-S-046(10-12)	2700	2900	200	+/-2RL	840
BENZO(B)FLUORANTHENE	CDH-S-020(2-4)	CDH-S-032(10-12)	7100	7300	2.8%	≤ 35% RPD	840
BENZO(B)FLUORANTHENE	CHA-S-001A	CHA-S-004	2600	2600	0	+/-2RL	830
BENZO(G,H,I)PERYLENE	CDH-S-005(2-4)	CDH-S-005(10-12)	< 1400	< 1000	0	+/-2RL	1400
BENZO(G,H,I)PERYLENE	CDH-S-007(2-4)	CDH-S-007(10-12)	< 670	< 660	0	+/-2RL	670
BENZO(G,H,I)PERYLENE	CDH-S-009(2-4)	CDH-S-016(10-12)	< 830	< 830	0	+/-2RL	830
BENZO(G,H,I)PERYLENE	CDH-S-018(2-4)	CDH-S-046(10-12)	< 840	< 830	0	+/-2RL	840
BENZO(G,H,I)PERYLENE	CDH-S-020(2-4)	CDH-S-032(10-12)	3400	3600	5.7%	≤ 35% RPD	840
BENZO(G,H,I)PERYLENE	CHA-S-001A	CHA-S-004	< 830	< 830	0	+/-2RL	830
BENZO(K)FLUORANTHENE	CDH-S-005(2-4)	CDH-S-005(10-12)	2600	2500	100	+/-2RL	1400
BENZO(K)FLUORANTHENE	CDH-S-007(2-4)	CDH-S-007(10-12)	3200	2800	400	+/-2RL	670
BENZO(K)FLUORANTHENE	CDH-S-009(2-4)	CDH-S-016(10-12)	2800	2900	100	+/-2RL	830
BENZO(K)FLUORANTHENE	CDH-S-018(2-4)	CDH-S-046(10-12)	2700	3000	300	+/-2RL	840
BENZO(K)FLUORANTHENE	CDH-S-020(2-4)	CDH-S-032(10-12)	4200	4300	2.4%	≤ 35% RPD	840
BENZO(K)FLUORANTHENE	CHA-S-001A	CHA-S-004	3000	3400	400	+/-2RL	830
BENZOIC ACID	CDH-S-005(2-4)	CDH-S-005(10-12)	< 5700 V	< 4100 V	0	+/-2RL	5700
BENZOIC ACID	CDH-S-007(2-4)	CDH-S-007(10-12)	< 2700	< 2700	0	+/-2RL	2700

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Duplicate Results (cont.):

Parameter	Duplicate 1 Field ID	Duplicate 2 Field ID	Duplicate 1 Result	Duplicate 2 Result	Percent RPD or Difference	Acceptance Criteria	RL
BENZOIC ACID	CDH-S-009(2-4)	CDH-S-016(10-12)	< 3300	< 3300	0	+/-2RL	3300
BENZOIC ACID	CDH-S-018(2-4)	CDH-S-046(10-12)	< 3300	< 3300	0	+/-2RL	3300
BENZOIC ACID	CDH-S-020(2-4)	CDH-S-032(10-12)	< 3300	< 3300	0	+/-2RL	3300
BENZOIC ACID	CHA-S-001A	CHA-S-004	< 3300	< 3300	0	+/-2RL	3300
BENZYL ALCOHOL	CDH-S-005(2-4)	CDH-S-005(10-12)	< 1400	< 1000	0	+/-2RL	1400
BENZYL ALCOHOL	CDH-S-007(2-4)	CDH-S-007(10-12)	< 670	< 660	0	+/-2RL	670
BENZYL ALCOHOL	CDH-S-009(2-4)	CDH-S-016(10-12)	< 830	< 830	0	+/-2RL	830
BENZYL ALCOHOL	CDH-S-018(2-4)	CDH-S-046(10-12)	< 840	< 830	0	+/-2RL	840
BENZYL ALCOHOL	CDH-S-020(2-4)	CDH-S-032(10-12)	< 830	< 840	0	+/-2RL	840
BENZYL ALCOHOL	CHA-S-001A	CHA-S-004	< 830	< 830	0	+/-2RL	830
BIS(2-CHLOROETHOXY) METHANE	CDH-S-018(2-4)	CDH-S-046(10-12)	4800	4800	0%	≤ 35% RPD	840
BIS(2-CHLOROETHOXY)METHANE	CDH-S-005(2-4)	CDH-S-005(10-12)	4600	4900	300	+/-2RL	1400
BIS(2-CHLOROETHOXY)METHANE	CDH-S-007(2-4)	CDH-S-007(10-12)	5600	4600	20%	≤ 35% RPD	670
BIS(2-CHLOROETHOXY)METHANE	CDH-S-009(2-4)	CDH-S-016(10-12)	5300	5000	5.8%	≤ 35% RPD	830
BIS(2-CHLOROETHOXY)METHANE	CDH-S-020(2-4)	CDH-S-032(10-12)	9900	10000	1.0%	≤ 35% RPD	840
BIS(2-CHLOROETHOXY)METHANE	CHA-S-001A	CHA-S-004	6000	6100	1.7%	≤ 35% RPD	830
BIS(2-CHLOROETHYL) ETHER	CDH-S-005(2-4)	CDH-S-005(10-12)	5700	6100	400	+/-2RL	1400
BIS(2-CHLOROETHYL) ETHER	CDH-S-007(2-4)	CDH-S-007(10-12)	7600	6000	24%	≤ 35% RPD	670

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Duplicate Results (cont.):

Parameter	Duplicate 1 Field ID	Duplicate 2 Field ID	Duplicate 1 Result	Duplicate 2 Result	Percent RPD or Difference	Acceptance Criteria	RL
BIS(2-CHLOROETHYL) ETHER	CDH-S-009(2-4)	CDH-S-016(10-12)	6700	6200	7.8%	≤ 35% RPD	830
BIS(2-CHLOROETHYL) ETHER	CDH-S-018(2-4)	CDH-S-046(10-12)	5900	6000	1.7%	≤ 35% RPD	840
BIS(2-CHLOROETHYL) ETHER	CDH-S-020(2-4)	CDH-S-032(10-12)	5800	6000	3.4%	≤ 35% RPD	840
BIS(2-CHLOROETHYL) ETHER	CHA-S-001A	CHA-S-004	8300	8800	5.8%	≤ 35% RPD	830
BIS(2-CHLOROISOPROPYL) ETHER	CDH-S-005(2-4)	CDH-S-005(10-12)	< 1400	< 1000	0	+/-2RL	1400
BIS(2-CHLOROISOPROPYL) ETHER	CDH-S-007(2-4)	CDH-S-007(10-12)	< 670	< 660	0	+/-2RL	670
BIS(2-CHLOROISOPROPYL) ETHER	CDH-S-009(2-4)	CDH-S-016(10-12)	< 830	< 830	0	+/-2RL	830
BIS(2-CHLOROISOPROPYL) ETHER	CDH-S-018(2-4)	CDH-S-046(10-12)	< 840	< 830	0	+/-2RL	840
BIS(2-CHLOROISOPROPYL) ETHER	CDH-S-020(2-4)	CDH-S-032(10-12)	4700	4700	0%	≤ 35% RPD	840
BIS(2-CHLOROISOPROPYL) ETHER	CHA-S-001A	CHA-S-004	< 830	< 830	0	+/-2RL	830
BIS(2-ETHYLHEXYL) PHTHALATE	CDH-S-005(2-4)	CDH-S-005(10-12)	6000	5900	100	+/-2RL	1400
BIS(2-ETHYLHEXYL) PHTHALATE	CDH-S-007(2-4)	CDH-S-007(10-12)	6500	6000	8.0%	≤ 35% RPD	670
BIS(2-ETHYLHEXYL) PHTHALATE	CDH-S-009(2-4)	CDH-S-016(10-12)	6700	5500	20%	≤ 35% RPD	830
BIS(2-ETHYLHEXYL) PHTHALATE	CDH-S-018(2-4)	CDH-S-046(10-12)	6000	5500	8.7%	≤ 35% RPD	840
BIS(2-ETHYLHEXYL) PHTHALATE	CDH-S-020(2-4)	CDH-S-032(10-12)	< 830	< 840	0	+/-2RL	840
BIS(2-ETHYLHEXYL) PHTHALATE	CHA-S-001A	CHA-S-004	6700	6900	2.9%	≤ 35% RPD	830

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Duplicate Results (cont.):

Parameter	Duplicate 1 Field ID	Duplicate 2 Field ID	Duplicate 1 Result	Duplicate 2 Result	Percent RPD or Difference	Acceptance Criteria	RL
BUTYL BENZYL PHTHALATE	CDH-S-005(2-4)	CDH-S-005(10-12)	< 1400	< 1000	0	+/-2RL	1400
BUTYL BENZYL PHTHALATE	CDH-S-007(2-4)	CDH-S-007(10-12)	< 670	< 660	0	+/-2RL	670
BUTYL BENZYL PHTHALATE	CDH-S-009(2-4)	CDH-S-016(10-12)	< 830	< 830	0	+/-2RL	830
BUTYL BENZYL PHTHALATE	CDH-S-018(2-4)	CDH-S-046(10-12)	< 840	< 830	0	+/-2RL	840
BUTYL BENZYL PHTHALATE	CDH-S-020(2-4)	CDH-S-032(10-12)	< 830	< 840	0	+/-2RL	840
BUTYL BENZYL PHTHALATE	CHA-S-001A	CHA-S-004	< 830	< 830	0	+/-2RL	830
CARBAZOLE	CDH-S-005(2-4)	CDH-S-005(10-12)	< 1400 L	< 1000 L	0	+/-2RL	1400
CARBAZOLE	CDH-S-007(2-4)	CDH-S-007(10-12)	< 670	< 660	0	+/-2RL	670
CARBAZOLE	CDH-S-009(2-4)	CDH-S-016(10-12)	< 830	< 830	0	+/-2RL	830
CARBAZOLE	CDH-S-018(2-4)	CDH-S-046(10-12)	< 840	< 830	0	+/-2RL	840
CARBAZOLE	CDH-S-020(2-4)	CDH-S-032(10-12)	< 830	< 840	0	+/-2RL	840
CARBAZOLE	CHA-S-001A	CHA-S-004	< 830 L	< 830 L	0	+/-2RL	830
CHLORDANE (TECHNICAL)	CDH-S-005(2-4)	CDH-S-005(10-12)	**< 3.3 RC**	**< 33 RC**	**0**	+/-2RL	33
CHLORDANE (TECHNICAL)	CDH-S-007(2-4)	CDH-S-007(10-12)	< 33	< 33	0	+/-2RL	33
CHLORDANE (TECHNICAL)	CDH-S-009(2-4)	CDH-S-016(10-12)	< 33	< 33	0	+/-2RL	33
CHLORDANE (TECHNICAL)	CDH-S-009(2-4)B	CDH-S-016(10-12)	< 33	< 33	0	+/-2RL	33
CHLORDANE (TECHNICAL)	CDH-S-018(2-4)	CDH-S-046(10-12)	< 33	< 33	0	+/-2RL	33
CHLORDANE (TECHNICAL)	CDH-S-020(2-4)	CDH-S-032(10-12)	< 34	< 33	0	+/-2RL	34
CHLORDANE (TECHNICAL)	CHA-S-001A	CHA-S-004	< 330	< 330	0	+/-2RL	330

RC = Reanalyzed and confirmed

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Duplicate Results (cont.):

Parameter	Duplicate 1 Field ID	Duplicate 2 Field ID	Duplicate 1 Result	Duplicate 2 Result	Percent RPD or Difference	Acceptance Criteria	RL
CHLORDANE-ALPHA	CDH-S-005(2-4)	CDH-S-005(10-12)	**< 0.67 RC**	**240 RC**	**199%**	≤ 35% RPD	6.7
CHLORDANE-ALPHA	CDH-S-007(2-4)	CDH-S-007(10-12)	210	230	9.1%	≤ 35% RPD	6.7
CHLORDANE-ALPHA	CDH-S-009(2-4)	CDH-S-016(10-12)	250	280	11%	≤ 35% RPD	6.7
CHLORDANE-ALPHA	CDH-S-009(2-4)B	CDH-S-016(10-12)	250	280	11%	≤ 35% RPD	6.7
CHLORDANE-ALPHA	CDH-S-018(2-4)	CDH-S-046(10-12)	210	210	0%	≤ 35% RPD	6.7
CHLORDANE-ALPHA	CDH-S-020(2-4)	CDH-S-032(10-12)	260	260	0%	≤ 35% RPD	6.7
CHLORDANE-ALPHA	CHA-S-001A	CHA-S-004	91	89	2	+/-2RL	67
CHLORDANE-GAMMA	CDH-S-005(2-4)	CDH-S-005(10-12)	**< 0.67 RC**	**160 RC**	**198%**	≤ 35% RPD	6.7
CHLORDANE-GAMMA	CDH-S-007(2-4)	CDH-S-007(10-12)	140	150	6.9%	≤ 35% RPD	6.7
CHLORDANE-GAMMA	CDH-S-009(2-4)	CDH-S-016(10-12)	160	180	12%	≤ 35% RPD	6.7
CHLORDANE-GAMMA	CDH-S-009(2-4)B	CDH-S-016(10-12)	160	180	12%	≤ 35% RPD	6.7
CHLORDANE-GAMMA	CDH-S-018(2-4)	CDH-S-046(10-12)	140	140	0%	≤ 35% RPD	6.7
CHLORDANE-GAMMA	CDH-S-020(2-4)	CDH-S-032(10-12)	170	170	0%	≤ 35% RPD	6.7
CHLORDANE-GAMMA	CHA-S-001A	CHA-S-004	< 67	< 67	0	+/-2RL	67
CHRYSENE	CDH-S-005(2-4)	CDH-S-005(10-12)	< 1400	< 1000	0	+/-2RL	1400
CHRYSENE	CDH-S-007(2-4)	CDH-S-007(10-12)	1200	1100	100	+/-2RL	670
CHRYSENE	CDH-S-009(2-4)	CDH-S-016(10-12)	1100	990	110	+/-2RL	830
CHRYSENE	CDH-S-018(2-4)	CDH-S-046(10-12)	990	1000	10	+/-2RL	840
CHRYSENE	CDH-S-020(2-4)	CDH-S-032(10-12)	1700	1800	100	+/-2RL	840
CHRYSENE	CHA-S-001A	CHA-S-004	1100	1200	100	+/-2RL	830
DIBENZ(A,H)ANTHRACENE	CDH-S-005(2-4)	CDH-S-005(10-12)	< 1400	< 1000	0	+/-2RL	1400

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Results for External Quality Assurance Samples
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Duplicate Results (cont.):

Parameter	Duplicate 1 Field ID	Duplicate 2 Field ID	Duplicate 1 Result	Duplicate 2 Result	Percent RPD or Difference	Acceptance Criteria	RL
DIBENZ(A,H)ANTHRACENE	CDH-S-007(2-4)	CDH-S-007(10-12)	< 670	< 660	0	+/-2RL	670
DIBENZ(A,H)ANTHRACENE	CDH-S-009(2-4)	CDH-S-016(10-12)	< 830	< 830	0	+/-2RL	830
DIBENZ(A,H)ANTHRACENE	CDH-S-018(2-4)	CDH-S-046(10-12)	< 840	< 830	0	+/-2RL	840
DIBENZ(A,H)ANTHRACENE	CDH-S-020(2-4)	CDH-S-032(10-12)	1500	1600	100	+/-2RL	840
DIBENZ(A,H)ANTHRACENE	CHA-S-001A	CHA-S-004	< 830	< 830	0	+/-2RL	830
DIBENZOFURAN	CDH-S-005(2-4)	CDH-S-005(10-12)	6100	6800	700	+/-2RL	1400
DIBENZOFURAN	CDH-S-007(2-4)	CDH-S-007(10-12)	6500	5500	17%	≤ 35% RPD	670
DIBENZOFURAN	CDH-S-009(2-4)	CDH-S-016(10-12)	6900	6300	9.1%	≤ 35% RPD	830
DIBENZOFURAN	CDH-S-018(2-4)	CDH-S-046(10-12)	6300	6600	4.7%	≤ 35% RPD	840
DIBENZOFURAN	CDH-S-020(2-4)	CDH-S-032(10-12)	6600	6800	3.0%	≤ 35% RPD	840
DIBENZOFURAN	CHA-S-001A	CHA-S-004	7100	7200	1.4%	≤ 35% RPD	830
DIELDRIN	CDH-S-005(2-4)	CDH-S-005(10-12)	**< 0.67 RC**	**320 RC**	**199%**	≤ 35% RPD	6.7
DIELDRIN	CDH-S-007(2-4)	CDH-S-007(10-12)	280	290	3.5%	≤ 35% RPD	6.7
DIELDRIN	CDH-S-009(2-4)	CDH-S-016(10-12)	330	360	8.7%	≤ 35% RPD	6.7
DIELDRIN	CDH-S-009(2-4)B	CDH-S-016(10-12)	330	360	8.7%	≤ 35% RPD	6.7
DIELDRIN	CDH-S-018(2-4)	CDH-S-046(10-12)	290	290	0%	≤ 35% RPD	6.7
DIELDRIN	CDH-S-020(2-4)	CDH-S-032(10-12)	330	330	0%	≤ 35% RPD	6.7
DIELDRIN	CHA-S-001A	CHA-S-004	170	160	10	+/-2RL	67
DIESEL RANGE ORGANICS	CDH-S-005(2-4)	CDH-S-005(10-12)	880	830	5.8%	≤ 35% RPD	4.0
DIESEL RANGE ORGANICS	CDH-S-007(2-4)	CDH-S-007(10-12)	1100	800	32%	≤ 35% RPD	4.0
DIESEL RANGE ORGANICS	CDH-S-009(2-4)	CDH-S-016(10-12)	910	900	1.1%	≤ 35% RPD	4.0

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Duplicate Results (cont.):

Parameter	Duplicate 1 Field ID	Duplicate 2 Field ID	Duplicate 1 Result	Duplicate 2 Result	Percent RPD or Difference	Acceptance Criteria	RL
DIESEL RANGE ORGANICS	CDH-S-009(2-4)B	CDH-S-016(10-12)	930	900	3.3%	≤ 35% RPD	4.0
DIESEL RANGE ORGANICS	CDH-S-018(2-4)	CDH-S-046(10-12)	720	970	30%	≤ 35% RPD	4.0
DIESEL RANGE ORGANICS	CDH-S-020(2-4)	CDH-S-032(10-12)	920	820	11%	≤ 35% RPD	4.0
DIESEL RANGE ORGANICS	CHA-S-001A	CHA-S-004	1200	1200	0%	≤ 35% RPD	5.2
DIETHYL PHTHALATE	CDH-S-005(2-4)	CDH-S-005(10-12)	6300	6800	500	+/-2RL	1400
DIETHYL PHTHALATE	CDH-S-007(2-4)	CDH-S-007(10-12)	6200	5700	8.4%	≤ 35% RPD	670
DIETHYL PHTHALATE	CDH-S-009(2-4)	CDH-S-016(10-12)	6700	5900	13%	≤ 35% RPD	830
DIETHYL PHTHALATE	CDH-S-018(2-4)	CDH-S-046(10-12)	6100	5600	8.5%	≤ 35% RPD	840
DIETHYL PHTHALATE	CDH-S-020(2-4)	CDH-S-032(10-12)	< 830	< 840	0	+/-2RL	840
DIETHYL PHTHALATE	CHA-S-001A	CHA-S-004	6900	7000	1.4%	≤ 35% RPD	830
DIMETHYL PHTHALATE	CDH-S-005(2-4)	CDH-S-005(10-12)	3800	4100	300	+/-2RL	1400
DIMETHYL PHTHALATE	CDH-S-007(2-4)	CDH-S-007(10-12)	4100	3800	7.6%	≤ 35% RPD	670
DIMETHYL PHTHALATE	CDH-S-009(2-4)	CDH-S-016(10-12)	4200	3800	400	+/-2RL	830
DIMETHYL PHTHALATE	CDH-S-018(2-4)	CDH-S-046(10-12)	3900	3400	500	+/-2RL	840
DIMETHYL PHTHALATE	CDH-S-020(2-4)	CDH-S-032(10-12)	5600	5700	1.8%	≤ 35% RPD	840
DIMETHYL PHTHALATE	CHA-S-001A	CHA-S-004	4400	4400	0%	≤ 35% RPD	830
DI-N-BUTYL PHTHALATE	CDH-S-005(2-4)	CDH-S-005(10-12)	6400	6300	100	+/-2RL	1400
DI-N-BUTYL PHTHALATE	CDH-S-007(2-4)	CDH-S-007(10-12)	6500	5900	9.7%	≤ 35% RPD	670
DI-N-BUTYL PHTHALATE	CDH-S-009(2-4)	CDH-S-016(10-12)	6500	5600	15%	≤ 35% RPD	830
DI-N-BUTYL PHTHALATE	CDH-S-018(2-4)	CDH-S-046(10-12)	6000	5700	5.1%	≤ 35% RPD	840
DI-N-BUTYL PHTHALATE	CDH-S-020(2-4)	CDH-S-032(10-12)	< 830	< 840	0	+/-2RL	840

Results for External Quality Assurance Samples
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Duplicate Results (cont.):

Parameter	Duplicate 1 Field ID	Duplicate 2 Field ID	Duplicate 1 Result	Duplicate 2 Result	Percent RPD or Difference	Acceptance Criteria	RL
DI-N-BUTYL PHTHALATE	CHA-S-001A	CHA-S-004	6600	7000	5.9%	≤ 35% RPD	830
DI-N-OCTYL PHTHALATE	CDH-S-005(2-4)	CDH-S-005(10-12)	7100	7200	1.4%	≤ 35% RPD	1400
DI-N-OCTYL PHTHALATE	CDH-S-007(2-4)	CDH-S-007(10-12)	7300	6700	8.6%	≤ 35% RPD	670
DI-N-OCTYL PHTHALATE	CDH-S-009(2-4)	CDH-S-016(10-12)	**9600 V**	**6500 V**	**39%**	≤ 35% RPD	830
DI-N-OCTYL PHTHALATE	CDH-S-018(2-4)	CDH-S-046(10-12)	7600	6500	16%	≤ 35% RPD	840
DI-N-OCTYL PHTHALATE	CDH-S-020(2-4)	CDH-S-032(10-12)	9100	8400	8.0%	≤ 35% RPD	840
DI-N-OCTYL PHTHALATE	CHA-S-001A	CHA-S-004	7700	8000	3.8%	≤ 35% RPD	830
ENDOSULFAN I	CDH-S-005(2-4)	CDH-S-005(10-12)	**< 0.67 RC**	**52 RC**	**51.33**	+/-2RL	6.7
ENDOSULFAN I	CDH-S-007(2-4)	CDH-S-007(10-12)	33 L	39 L	17%	≤ 35% RPD	6.7
ENDOSULFAN I	CDH-S-009(2-4)	CDH-S-016(10-12)	34 L	40 L	16%	≤ 35% RPD	6.7
ENDOSULFAN I	CDH-S-009(2-4)B	CDH-S-016(10-12)	35 L	40 L	13%	≤ 35% RPD	6.7
ENDOSULFAN I	CDH-S-018(2-4)	CDH-S-046(10-12)	29 L	27 L	2.0	+/-2RL	6.7
ENDOSULFAN I	CDH-S-020(2-4)	CDH-S-032(10-12)	38 L	31 L	20%	≤ 35% RPD	6.7
ENDOSULFAN I	CHA-S-001A	CHA-S-004	< 67	< 67	0	+/-2RL	67
ENDOSULFAN II	CDH-S-005(2-4)	CDH-S-005(10-12)	**< 0.67 RC**	**86 RC**	**197%**	≤ 35% RPD	6.7
ENDOSULFAN II	CDH-S-007(2-4)	CDH-S-007(10-12)	54 L	66 L	20%	≤ 35% RPD	6.7
ENDOSULFAN II	CDH-S-009(2-4)	CDH-S-016(10-12)	69 L	71 L	2.9%	≤ 35% RPD	6.7
ENDOSULFAN II	CDH-S-009(2-4)B	CDH-S-016(10-12)	69 L	71 L	2.9%	≤ 35% RPD	6.7
ENDOSULFAN II	CDH-S-018(2-4)	CDH-S-046(10-12)	56 L	59 L	5.2%	≤ 35% RPD	6.7
ENDOSULFAN II	CDH-S-020(2-4)	CDH-S-032(10-12)	64 L	54 L	17%	≤ 35% RPD	6.7
ENDOSULFAN II	CHA-S-001A	CHA-S-004	69	< 67	2	+/-2RL	67

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Duplicate Results (cont.):

Parameter	Duplicate 1 Field ID	Duplicate 2 Field ID	Duplicate 1 Result	Duplicate 2 Result	Percent RPD or Difference	Acceptance Criteria	RL
ENDOSULFAN SULFATE	CDH-S-005(2-4)	CDH-S-005(10-12)	**< 0.67 RC**	**200 RC**	**199%**	≤ 35% RPD	6.7
ENDOSULFAN SULFATE	CDH-S-007(2-4)	CDH-S-007(10-12)	170	190	11%	≤ 35% RPD	6.7
ENDOSULFAN SULFATE	CDH-S-009(2-4)	CDH-S-016(10-12)	210	240	13%	≤ 35% RPD	6.7
ENDOSULFAN SULFATE	CDH-S-009(2-4)B	CDH-S-016(10-12)	210	240	13%	≤ 35% RPD	6.7
ENDOSULFAN SULFATE	CDH-S-018(2-4)	CDH-S-046(10-12)	180	180	0%	≤ 35% RPD	6.7
ENDOSULFAN SULFATE	CDH-S-020(2-4)	CDH-S-032(10-12)	220	210	4.7%	≤ 35% RPD	6.7
ENDOSULFAN SULFATE	CHA-S-001A	CHA-S-004	140	130	10	+/-2RL	67
ENDRIN	CDH-S-005(2-4)	CDH-S-005(10-12)	**< 0.67 RC**	**190 RC**	**199%**	≤ 35% RPD	6.7
ENDRIN	CDH-S-007(2-4)	CDH-S-007(10-12)	160	170	6.1%	≤ 35% RPD	6.7
ENDRIN	CDH-S-009(2-4)	CDH-S-016(10-12)	190	220	15%	≤ 35% RPD	6.7
ENDRIN	CDH-S-009(2-4)B	CDH-S-016(10-12)	190	220	15%	≤ 35% RPD	6.7
ENDRIN	CDH-S-018(2-4)	CDH-S-046(10-12)	170	170	0%	≤ 35% RPD	6.7
ENDRIN	CDH-S-020(2-4)	CDH-S-032(10-12)	200	200	0%	≤ 35% RPD	6.7
ENDRIN	CHA-S-001A	CHA-S-004	110	110	0	+/-2RL	67
ENDRIN ALDEHYDE	CDH-S-005(2-4)	CDH-S-005(10-12)	**< 0.67 RC**	**190 RC**	**199%**	≤ 35% RPD	6.7
ENDRIN ALDEHYDE	CDH-S-007(2-4)	CDH-S-007(10-12)	150	160	6.5%	≤ 35% RPD	6.7
ENDRIN ALDEHYDE	CDH-S-009(2-4)	CDH-S-016(10-12)	190	220	15%	≤ 35% RPD	6.7
ENDRIN ALDEHYDE	CDH-S-009(2-4)B	CDH-S-016(10-12)	180	220	20%	≤ 35% RPD	6.7
ENDRIN ALDEHYDE	CDH-S-018(2-4)	CDH-S-046(10-12)	160	150	6.5%	≤ 35% RPD	6.7
ENDRIN ALDEHYDE	CDH-S-020(2-4)	CDH-S-032(10-12)	190	190	0%	≤ 35% RPD	6.7
ENDRIN ALDEHYDE	CHA-S-001A	CHA-S-004	140	130	10	+/-2RL	67

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Duplicate Results (cont.):

Parameter	Duplicate 1 Field ID	Duplicate 2 Field ID	Duplicate 1 Result	Duplicate 2 Result	Percent RPD or Difference	Acceptance Criteria	RL
ENDRIN KETONE	CDH-S-005(2-4)	CDH-S-005(10-12)	**< 0.67 RC**	**260 RC**	**199%**	≤ 35% RPD	6.7
ENDRIN KETONE	CDH-S-007(2-4)	CDH-S-007(10-12)	190	210	10%	≤ 35% RPD	6.7
ENDRIN KETONE	CDH-S-009(2-4)	CDH-S-016(10-12)	270	300	11%	≤ 35% RPD	6.7
ENDRIN KETONE	CDH-S-009(2-4)B	CDH-S-016(10-12)	260	300	14%	≤ 35% RPD	6.7
ENDRIN KETONE	CDH-S-018(2-4)	CDH-S-046(10-12)	210	200	4.9%	≤ 35% RPD	6.7
ENDRIN KETONE	CDH-S-020(2-4)	CDH-S-032(10-12)	270	280	3.6%	≤ 35% RPD	6.7
ENDRIN KETONE	CHA-S-001A	CHA-S-004	230	220	10	+/-2RL	67
FLUORANTHENE	CDH-S-005(2-4)	CDH-S-005(10-12)	< 1400	< 1000	0	+/-2RL	1400
FLUORANTHENE	CDH-S-007(2-4)	CDH-S-007(10-12)	< 670	< 660	0	+/-2RL	670
FLUORANTHENE	CDH-S-009(2-4)	CDH-S-016(10-12)	< 830	< 830	0	+/-2RL	830
FLUORANTHENE	CDH-S-018(2-4)	CDH-S-046(10-12)	< 840	< 830	0	+/-2RL	840
FLUORANTHENE	CDH-S-020(2-4)	CDH-S-032(10-12)	3400	3500	100	+/-2RL	840
FLUORANTHENE	CHA-S-001A	CHA-S-004	< 830	< 830	0	+/-2RL	830
FLUORENE	CDH-S-005(2-4)	CDH-S-005(10-12)	6800	7600	11%	≤ 35% RPD	1400
FLUORENE	CDH-S-007(2-4)	CDH-S-007(10-12)	7200	6200	15%	≤ 35% RPD	670
FLUORENE	CDH-S-009(2-4)	CDH-S-016(10-12)	7900	6900	14%	≤ 35% RPD	830
FLUORENE	CDH-S-018(2-4)	CDH-S-046(10-12)	7200	7400	2.7%	≤ 35% RPD	840
FLUORENE	CDH-S-020(2-4)	CDH-S-032(10-12)	4600	4700	2.2%	≤ 35% RPD	840
FLUORENE	CHA-S-001A	CHA-S-004	8100	8200	1.2%	≤ 35% RPD	830
GAMMA-BHC	CDH-S-005(2-4)	CDH-S-005(10-12)	**< 0.67 RC**	**270 RC**	**199%**	≤ 35% RPD	6.7
GAMMA-BHC	CDH-S-007(2-4)	CDH-S-007(10-12)	230	240	4.3%	≤ 35% RPD	6.7

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Duplicate Results (cont.):

Parameter	Duplicate 1 Field ID	Duplicate 2 Field ID	Duplicate 1 Result	Duplicate 2 Result	Percent RPD or Difference	Acceptance Criteria	RL
GAMMA-BHC	CDH-S-009(2-4)	CDH-S-016(10-12)	280	310	10%	≤ 35% RPD	6.7
GAMMA-BHC	CDH-S-009(2-4)B	CDH-S-016(10-12)	280	310	10%	≤ 35% RPD	6.7
GAMMA-BHC	CDH-S-018(2-4)	CDH-S-046(10-12)	220	220	0%	≤ 35% RPD	6.7
GAMMA-BHC	CDH-S-020(2-4)	CDH-S-032(10-12)	280	280	0%	≤ 35% RPD	6.7
GAMMA-BHC	CHA-S-001A	CHA-S-004	180	170	10	+/-2RL	67
HCH-ALPHA	CDH-S-005(2-4)	CDH-S-005(10-12)	**< 0.67 RC**	**130 RC**	**198%**	≤ 35% RPD	6.7
HCH-ALPHA	CDH-S-007(2-4)	CDH-S-007(10-12)	110	110	0%	≤ 35% RPD	6.7
HCH-ALPHA	CDH-S-009(2-4)	CDH-S-016(10-12)	130	150	14%	≤ 35% RPD	6.7
HCH-ALPHA	CDH-S-009(2-4)B	CDH-S-016(10-12)	130	150	14%	≤ 35% RPD	6.7
HCH-ALPHA	CDH-S-018(2-4)	CDH-S-046(10-12)	100	99	1.0%	≤ 35% RPD	6.7
HCH-ALPHA	CDH-S-020(2-4)	CDH-S-032(10-12)	140	130	7.4%	≤ 35% RPD	6.7
HCH-ALPHA	CHA-S-001A	CHA-S-004	86	82	4	+/-2RL	67
HCH-BETA	CDH-S-005(2-4)	CDH-S-005(10-12)	**< 0.67 RC**	**240 RC**	**199%**	≤ 35% RPD	6.7
HCH-BETA	CDH-S-007(2-4)	CDH-S-007(10-12)	210	220	4.7%	≤ 35% RPD	6.7
HCH-BETA	CDH-S-009(2-4)	CDH-S-016(10-12)	250	280	11%	≤ 35% RPD	6.7
HCH-BETA	CDH-S-009(2-4)B	CDH-S-016(10-12)	250	280	11%	≤ 35% RPD	6.7
HCH-BETA	CDH-S-018(2-4)	CDH-S-046(10-12)	210	210	0%	≤ 35% RPD	6.7
HCH-BETA	CDH-S-020(2-4)	CDH-S-032(10-12)	260	260	0%	≤ 35% RPD	6.7
HCH-BETA	CHA-S-001A	CHA-S-004	190	180	10	+/-2RL	67
HCH-DELTA	CDH-S-005(2-4)	CDH-S-005(10-12)	**< 0.67 RC**	**270 RC**	**199%**	≤ 35% RPD	6.7
HCH-DELTA	CDH-S-007(2-4)	CDH-S-007(10-12)	220	240	8.7%	≤ 35% RPD	6.7

RC = Reanalyzed and confirmed

Results for External Quality Assurance Samples
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Duplicate Results (cont.):

Parameter	Duplicate 1 Field ID	Duplicate 2 Field ID	Duplicate 1 Result	Duplicate 2 Result	Percent RPD or Difference	Acceptance Criteria	RL
HCH-DELTA	CDH-S-009(2-4)	CDH-S-016(10-12)	260	300	14%	≤ 35% RPD	6.7
HCH-DELTA	CDH-S-009(2-4)B	CDH-S-016(10-12)	270	300	11%	≤ 35% RPD	6.7
HCH-DELTA	CDH-S-018(2-4)	CDH-S-046(10-12)	210	210	0%	≤ 35% RPD	6.7
HCH-DELTA	CDH-S-020(2-4)	CDH-S-032(10-12)	280	280	0%	≤ 35% RPD	6.7
HCH-DELTA	CHA-S-001A	CHA-S-004	210	200	10	+/-2RL	67
HEPTACHLOR	CDH-S-005(2-4)	CDH-S-005(10-12)	**< 0.67 RC**	**120 RC**	**198%**	≤ 35% RPD	6.7
HEPTACHLOR	CDH-S-007(2-4)	CDH-S-007(10-12)	100	110	9.5%	≤ 35% RPD	6.7
HEPTACHLOR	CDH-S-009(2-4)	CDH-S-016(10-12)	120	140	15%	≤ 35% RPD	6.7
HEPTACHLOR	CDH-S-009(2-4)B	CDH-S-016(10-12)	120	140	15%	≤ 35% RPD	6.7
HEPTACHLOR	CDH-S-018(2-4)	CDH-S-046(10-12)	110	110	0%	≤ 35% RPD	6.7
HEPTACHLOR	CDH-S-020(2-4)	CDH-S-032(10-12)	130	120	8.0%	≤ 35% RPD	6.7
HEPTACHLOR	CHA-S-001A	CHA-S-004	190	180	10	+/-2RL	67
HEPTACHLOR EPOXIDE	CDH-S-005(2-4)	CDH-S-005(10-12)	**0.81 V, RC**	**140 RC**	**198%**	≤ 35% RPD	6.7
HEPTACHLOR EPOXIDE	CDH-S-007(2-4)	CDH-S-007(10-12)	120	130	8.0%	≤ 35% RPD	6.7
HEPTACHLOR EPOXIDE	CDH-S-009(2-4)	CDH-S-016(10-12)	140	160	13%	≤ 35% RPD	6.7
HEPTACHLOR EPOXIDE	CDH-S-009(2-4)B	CDH-S-016(10-12)	140	160	13%	≤ 35% RPD	6.7
HEPTACHLOR EPOXIDE	CDH-S-018(2-4)	CDH-S-046(10-12)	130	120	8.0%	≤ 35% RPD	6.7
HEPTACHLOR EPOXIDE	CDH-S-020(2-4)	CDH-S-032(10-12)	150	150	0%	≤ 35% RPD	6.7
HEPTACHLOR EPOXIDE	CHA-S-001A	CHA-S-004	< 67	< 67	0	+/-2RL	67
HEXACHLOROBENZENE	CDH-S-005(2-4)	CDH-S-005(10-12)	8800	9200	4.4%	≤ 35% RPD	1400
HEXACHLOROBENZENE	CDH-S-007(2-4)	CDH-S-007(10-12)	8100	7300	10%	≤ 35% RPD	670

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Results for External Quality Assurance Samples
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Duplicate Results (cont.):

Parameter	Duplicate 1 Field ID	Duplicate 2 Field ID	Duplicate 1 Result	Duplicate 2 Result	Percent RPD or Difference	Acceptance Criteria	RL
HEXACHLOROBENZENE	CDH-S-009(2-4)	CDH-S-016(10-12)	8600	7700	11%	≤ 35% RPD	830
HEXACHLOROBENZENE	CDH-S-018(2-4)	CDH-S-046(10-12)	8500	9300	9.0%	≤ 35% RPD	840
HEXACHLOROBENZENE	CDH-S-020(2-4)	CDH-S-032(10-12)	< 830	< 840	0	+/-2RL	840
HEXACHLOROBENZENE	CHA-S-001A	CHA-S-004	9000	9400	4.3%	≤ 35% RPD	830
HEXACHLOROCYCLOPENTADIENE	CDH-S-018(2-4)	CDH-S-046(10-12)	< 840	< 830	0	+/-2RL	840
HEXACHLOROCYCLOPENTADIENE	CDH-S-005(2-4)	CDH-S-005(10-12)	< 1400	< 1000	0	+/-2RL	1400
HEXACHLOROCYCLOPENTADIENE	CDH-S-007(2-4)	CDH-S-007(10-12)	< 670	< 660	0	+/-2RL	670
HEXACHLOROCYCLOPENTADIENE	CDH-S-009(2-4)	CDH-S-016(10-12)	< 830	< 830	0	+/-2RL	830
HEXACHLOROCYCLOPENTADIENE	CDH-S-020(2-4)	CDH-S-032(10-12)	< 830	< 840	0	+/-2RL	840
HEXACHLOROCYCLOPENTADIENE	CHA-S-001A	CHA-S-004	< 830	< 830	0	+/-2RL	830
HEXACHLOROETHANE	CDH-S-005(2-4)	CDH-S-005(10-12)	1500	1700	200	+/-2RL	1400
HEXACHLOROETHANE	CDH-S-007(2-4)	CDH-S-007(10-12)	< 670	670	0	+/-2RL	670
HEXACHLOROETHANE	CDH-S-009(2-4)	CDH-S-016(10-12)	1100	1900	800	+/-2RL	830
HEXACHLOROETHANE	CDH-S-018(2-4)	CDH-S-046(10-12)	1200	2000	800	+/-2RL	840
HEXACHLOROETHANE	CDH-S-020(2-4)	CDH-S-032(10-12)	< 830	< 840	0	+/-2RL	840
HEXACHLOROETHANE	CHA-S-001A	CHA-S-004	2900	3100	200	+/-2RL	830
INDENO(1,2,3-CD)PYRENE	CDH-S-005(2-4)	CDH-S-005(10-12)	1700	1700	0	+/-2RL	1400
INDENO(1,2,3-CD)PYRENE	CDH-S-007(2-4)	CDH-S-007(10-12)	1900	1500	400	+/-2RL	670
INDENO(1,2,3-CD)PYRENE	CDH-S-009(2-4)	CDH-S-016(10-12)	1400	1600	200	+/-2RL	830
INDENO(1,2,3-CD)PYRENE	CDH-S-018(2-4)	CDH-S-046(10-12)	1700 H	2000 H	300	+/-2RL	840
INDENO(1,2,3-CD)PYRENE	CDH-S-020(2-4)	CDH-S-032(10-12)	< 830	< 840	0	+/-2RL	840

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Duplicate Results (cont.):

Parameter	Duplicate 1 Field ID	Duplicate 2 Field ID	Duplicate 1 Result	Duplicate 2 Result	Percent RPD or Difference	Acceptance Criteria	RL
INDENO(1,2,3-CD)PYRENE	CHA-S-001A	CHA-S-004	1600	1700	100	+/-2RL	830
ISOPHORONE	CDH-S-005(2-4)	CDH-S-005(10-12)	4500	4800	300	+/-2RL	1400
ISOPHORONE	CDH-S-007(2-4)	CDH-S-007(10-12)	5800	5100	13%	≤ 35% RPD	670
ISOPHORONE	CDH-S-009(2-4)	CDH-S-016(10-12)	5500	4800	14%	≤ 35% RPD	830
ISOPHORONE	CDH-S-018(2-4)	CDH-S-046(10-12)	4500	4500	0%	≤ 35% RPD	840
ISOPHORONE	CDH-S-020(2-4)	CDH-S-032(10-12)	< 830	< 840	0	+/-2RL	840
ISOPHORONE	CHA-S-001A	CHA-S-004	6200	6600	6.3%	≤ 35% RPD	830
METHOXYCHLOR	CDH-S-005(2-4)	CDH-S-005(10-12)	**3.9 V, RC**	**270 RC**	**194%**	≤ 35% RPD	6.7
METHOXYCHLOR	CDH-S-007(2-4)	CDH-S-007(10-12)	230	250	8.0%	≤ 35% RPD	6.7
METHOXYCHLOR	CDH-S-009(2-4)	CDH-S-016(10-12)	260	300	14%	≤ 35% RPD	6.7
METHOXYCHLOR	CDH-S-009(2-4)B	CDH-S-016(10-12)	260	300	14%	≤ 35% RPD	6.7
METHOXYCHLOR	CDH-S-018(2-4)	CDH-S-046(10-12)	280	280	0%	≤ 35% RPD	6.7
METHOXYCHLOR	CDH-S-020(2-4)	CDH-S-032(10-12)	300	310	3.3%	≤ 35% RPD	6.7
METHOXYCHLOR	CHA-S-001A	CHA-S-004	200	200	0	+/-2RL	67
NITROBENZENE	CDH-S-005(2-4)	CDH-S-005(10-12)	3500	3700	200	+/-2RL	1400
NITROBENZENE	CDH-S-007(2-4)	CDH-S-007(10-12)	4200	3300	24%	≤ 35% RPD	670
NITROBENZENE	CDH-S-009(2-4)	CDH-S-016(10-12)	4500	4100	9.3%	≤ 35% RPD	830
NITROBENZENE	CDH-S-018(2-4)	CDH-S-046(10-12)	3800	3900	100	+/-2RL	840
NITROBENZENE	CDH-S-020(2-4)	CDH-S-032(10-12)	7400	7300	1.4%	≤ 35% RPD	840
NITROBENZENE	CHA-S-001A	CHA-S-004	5100	5200	1.9%	≤ 35% RPD	830
N-NITROSODI-N-PROPYLAMINE	CDH-S-005(2-4)	CDH-S-005(10-12)	< 1400	< 1000	0	+/-2RL	1400

RC=reanalyzed and confirmed

Results for External Quality Assurance Samples
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Duplicate Results (cont.):

Parameter	Duplicate 1 Field ID	Duplicate 2 Field ID	Duplicate 1 Result	Duplicate 2 Result	Percent RPD or Difference	Acceptance Criteria	RL
N-NITROSODI-N-PROPYLAMINE	CDH-S-007(2-4)	CDH-S-007(10-12)	< 670	< 660	0	+/-2RL	670
N-NITROSODI-N-PROPYLAMINE	CDH-S-009(2-4)	CDH-S-016(10-12)	< 830	< 830	0	+/-2RL	830
N-NITROSODI-N-PROPYLAMINE	CDH-S-018(2-4)	CDH-S-046(10-12)	< 840	< 830	0	+/-2RL	840
N-NITROSODI-N-PROPYLAMINE	CDH-S-020(2-4)	CDH-S-032(10-12)	< 830	< 840	0	+/-2RL	840
N-NITROSODI-N-PROPYLAMINE	CHA-S-001A	CHA-S-004	< 830	< 830	0	+/-2RL	830
N-NITROSODIPHENYLAMINE	CDH-S-005(2-4)	CDH-S-005(10-12)	< 1400	< 1000	0	+/-2RL	1400
N-NITROSODIPHENYLAMINE	CDH-S-007(2-4)	CDH-S-007(10-12)	< 670	< 660	0	+/-2RL	670
N-NITROSODIPHENYLAMINE	CDH-S-009(2-4)	CDH-S-016(10-12)	< 830	< 830	0	+/-2RL	830
N-NITROSODIPHENYLAMINE	CDH-S-018(2-4)	CDH-S-046(10-12)	< 840	< 830	0	+/-2RL	840
N-NITROSODIPHENYLAMINE	CDH-S-020(2-4)	CDH-S-032(10-12)	< 830	< 840	0	+/-2RL	840
N-NITROSODIPHENYLAMINE	CHA-S-001A	CHA-S-004	< 830	< 830	0	+/-2RL	830
PENTACHLOROPHENOL	CDH-S-005(2-4)	CDH-S-005(10-12)	5300 H	5100 H	3.8%	≤ 35% RPD	330
PENTACHLOROPHENOL	CDH-S-007(2-4)	CDH-S-007(10-12)	170 L	240 L	34%	≤ 35% RPD	33
PENTACHLOROPHENOL	CDH-S-009(2-4)	CDH-S-016(10-12)	4200	3500	18%	≤ 35% RPD	330
PENTACHLOROPHENOL	CDH-S-009(2-4)B	CDH-S-016(10-12)	3900	3500	11%	≤ 35% RPD	330
PENTACHLOROPHENOL	CDH-S-018(2-4)	CDH-S-046(10-12)	5200 H	5300 H	1.90%	≤ 35% RPD	330
PENTACHLOROPHENOL	CDH-S-020(2-4)	CDH-S-032(10-12)	4100	3700	10%	≤ 35% RPD	330
PENTACHLOROPHENOL	CHA-S-001A	CHA-S-004	8100	7000	1100	+/-2RL	3300
PHENANTHRENE	CDH-S-005(2-4)	CDH-S-005(10-12)	< 1400	< 1000	0	+/-2RL	1400
PHENANTHRENE	CDH-S-007(2-4)	CDH-S-007(10-12)	< 670	< 660	0	+/-2RL	670

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Duplicate Results (cont.):

Parameter	Duplicate 1 Field ID	Duplicate 2 Field ID	Duplicate 1 Result	Duplicate 2 Result	Percent RPD or Difference	Acceptance Criteria	RL
PHENANTHRENE	CDH-S-009(2-4)	CDH-S-016(10-12)	< 830	< 830	0	+/-2RL	830
PHENANTHRENE	CDH-S-018(2-4)	CDH-S-046(10-12)	< 840	< 830	0	+/-2RL	840
PHENANTHRENE	CDH-S-020(2-4)	CDH-S-032(10-12)	6200	6400	3.2%	≤ 35% RPD	840
PHENANTHRENE	CHA-S-001A	CHA-S-004	< 830	< 830	0	+/-2RL	830
PHENOL	CDH-S-005(2-4)	CDH-S-005(10-12)	5100	5700	600	+/-2RL	1400
PHENOL	CDH-S-007(2-4)	CDH-S-007(10-12)	6100	4700	26%	≤ 35% RPD	670
PHENOL	CDH-S-009(2-4)	CDH-S-016(10-12)	7000	6500	7.4%	≤ 35% RPD	830
PHENOL	CDH-S-018(2-4)	CDH-S-046(10-12)	6000	6100	1.7%	≤ 35% RPD	840
PHENOL	CDH-S-020(2-4)	CDH-S-032(10-12)	7000	7000	0%	≤ 35% RPD	840
PHENOL	CHA-S-001A	CHA-S-004	7300	7500	2.7%	≤ 35% RPD	830
PYRENE	CDH-S-005(2-4)	CDH-S-005(10-12)	3100	3300	200	+/-2RL	1400
PYRENE	CDH-S-007(2-4)	CDH-S-007(10-12)	3900	3500	11%	≤ 35% RPD	670
PYRENE	CDH-S-009(2-4)	CDH-S-016(10-12)	3600	3200	400	+/-2RL	830
PYRENE	CDH-S-018(2-4)	CDH-S-046(10-12)	3400	3400	0	+/-2RL	840
PYRENE	CDH-S-020(2-4)	CDH-S-032(10-12)	6400	6400	0%	≤ 35% RPD	840
PYRENE	CHA-S-001A	CHA-S-004	3900	4100	200	+/-2RL	830
PYRIDINE	CDH-S-005(2-4)	CDH-S-005(10-12)	< 1400	< 1000	0	+/-2RL	1400
PYRIDINE	CDH-S-007(2-4)	CDH-S-007(10-12)	< 670	< 660	0	+/-2RL	670
PYRIDINE	CDH-S-009(2-4)	CDH-S-016(10-12)	< 830 L	< 830 L	0	+/-2RL	830
PYRIDINE	CDH-S-018(2-4)	CDH-S-046(10-12)	< 840 L	< 830 L	0	+/-2RL	840
PYRIDINE	CDH-S-020(2-4)	CDH-S-032(10-12)	< 830	< 840	0	+/-2RL	840

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Duplicate Results (cont.):

Parameter	Duplicate 1 Field ID	Duplicate 2 Field ID	Duplicate 1 Result	Duplicate 2 Result	Percent RPD or Difference	Acceptance Criteria	RL
PYRIDINE	CHA-S-001A	CHA-S-004	< 830	< 830	0	+/-2RL	830
TOXAPHENE	CDH-S-005(2-4)	CDH-S-005(10-12)	**< 33 RC**	**< 330 RC**	**0**	+/-2RL	330
TOXAPHENE	CDH-S-007(2-4)	CDH-S-007(10-12)	< 330	< 330	0	+/-2RL	330
TOXAPHENE	CDH-S-009(2-4)	CDH-S-016(10-12)	< 330	< 330	0	+/-2RL	330
TOXAPHENE	CDH-S-009(2-4)B	CDH-S-016(10-12)	< 330	< 330	0	+/-2RL	330
TOXAPHENE	CDH-S-018(2-4)	CDH-S-046(10-12)	< 330	< 330	0	+/-2RL	330
TOXAPHENE	CDH-S-020(2-4)	CDH-S-032(10-12)	< 340	< 330	0	+/-2RL	340
TOXAPHENE	CHA-S-001A	CHA-S-004	< 3300	< 3300	0	+/-2RL	3300

RC = Reanalyzed and confirmed

Accuracy - Externally Incorporated QA Samples

The following parameters were assessed for accuracy and had percent recoveries within the QA acceptance limit of 65% - 135% or results within the certified acceptance range provided by the manufacturer of the reference, except where noted.

Samples CDH-S-005 (2-4) and CDH-S-005 (10-12) had unacceptably low recoveries for EPA 8081 parameters. Reanalysis was requested, and the laboratory confirmed the original results. Therefore, the original EPA 8081 results were accepted as valid.

Samples CDH-S-007 (2-4) and CDH-S-007 (10-12) had unacceptably low recoveries for endosulfan I and endosulfan II. Reanalysis was requested, but the laboratory did not have sample left to conduct the reanalysis. Therefore, the following samples are qualified as possibly biased low for endosulfan I and endosulfan II: CDH-S-007 (2-4), CDH-S-007 (0-5), CDH-S-007 (12-17), CDH-S-007 (4.2-9.2), CDH-S-007 (9.2-12), CDH-S-007 (17-18.7), CDH-S-007 (6-8), CDH-S-006A (0.0-0.3), CDH-S-004 (0-6), CDH-S-004 (5.8-9), CDH-S-005 (0.0-0.3), CDH-S-008 (0-1.7), CDH-S-007 (10-12).

Samples CDH-S-007 (2-4) and CDH-S-007 (10-12) had unacceptably low recoveries for pentachlorophenol. Reanalysis was requested, but the laboratory did not have sample left to conduct the reanalysis. Therefore, the following samples are qualified as possibly biased low for pentachlorophenol: CDH-S-007 (2-4), CDH-S-007 (0-5), CDH-S-007 (12-17), CDH-S-007 (4.2-9.2), CDH-S-007 (9.2-12), CDH-S-007 (17-18.7), CDH-S-007 (6-8), CDH-S-006A (0.0-0.3), CDH-S-004 (0-6), CDH-S-005 (0.0-0.3), CDH-S-008 (0-1.7), CDH-S-007 (10-12).

Accuracy - Externally Incorporated QA Samples (cont.)

Samples CDH-S-009 (2-4), CDH-S-009 (2-4)B and CDH-S-016 (10-12) had unacceptably low recoveries for endosulfan I and endosulfan II. Reanalysis was requested, but the laboratory did not have sample left to conduct the reanalysis. Therefore, the following samples are qualified as possibly biased low for endosulfan I and endosulfan II: CDH-S-009 (2-4), CDH-S-009A (0.0-4.6), CDH-S-010 (0.0-5.0), CDH-S-010 (5.0-8.0), CDH-S-023 (0.0-5.4), CDH-S-023 (5.4-7.7), CDH-S-025 (6-8), CDH-S-026 (0.0-2.0), CDH-S-028 (0.0-1.0), CDH-S-031 (0.0-4.8), CDH-S-015A (0.0-5.0), CDH-S-015A (5.0-9.7), CDH-S-016 (10-12), CDH-S-016 (0.0-5.0), CDH-S-016 (5.0-7.5), CDH-S-018 (0.0-5.0), CDH-S-018 (5.0-8.9), CDH-S-012 (0.0-5.4), CDH-S-013 (0.0-5.7), and CDH-S-009 (2-4)B.

Samples CDH-S-018 (2-4) and CDH-S-046 (10-12) had unacceptably low recoveries for endosulfan I, endosulfan II, and aroclor 1242. Reanalysis was requested, but the laboratory did not have sample left to conduct the reanalysis. Therefore, the following samples are qualified as possibly biased low for endosulfan I, endosulfan II, and aroclor 1242: CDH-S-018 (2-4), CDH-S-017 (0.0-1.2), CDH-S-019 (0.0-4.8), CDH-S-020 (0.0-5.0), CDH-S-020 (5.0-7.0), CDH-S-011(0.0-1.3), CDH-S-011 (6-8), CDH-S-046 (0.0-2.5), CDH-S-014 (0.0-5.3), CDH-S-032 (0.0-3.4), CDH-S-029 (0.0-4.8), CDH-S-025 (0.0-4.7), and CDH-S-046 (10-12).

Samples CDH-S-018 (2-4) and CDH-S-046 (10-12) had unacceptably high recoveries for aroclor 1016. The environmental sample results analyzed with these reference samples were all non-detect for aroclor 1016. Therefore, reanalysis was not requested and the data for aroclor 1016 was not qualified.

Accuracy - Externally Incorporated QA Samples (cont.)

Samples CDH-S-020 (2-4) and CDH-S-032 (10-12) had unacceptably low recoveries for endosulfan I and endosulfan II. Reanalysis was requested, but the laboratory did not have sample left to conduct the reanalysis. Therefore, the following samples are qualified as possibly biased low for endosulfan I and endosulfan II: CDH-S-020 (2-4), CDH-S-022 (0.0-1.4), CDH-S-024 (0.0-4.1), CDH-S-027 (0.0-1.9), CDH-S-030 (0.0-2.9), CDH-S-031 (6-8), and CDH-S-032 (10-12).

Reference Results:

Parameter	Reference Field ID	Reference Result	Reference Certified Value or Range	Percent Recovery	Acceptance Criteria
2,4,5-TRICHLOROPHENOL	CDH-S-005(10-12)	6600	1620-12700	--	In range
2,4,5-TRICHLOROPHENOL	CDH-S-005(2-4)	5600	1620-12700	--	In range
2,4,5-TRICHLOROPHENOL	CDH-S-007(10-12)	4900	1620-12700	--	In range
2,4,5-TRICHLOROPHENOL	CDH-S-007(2-4)	5600	1620-12700	--	In range
2,4,5-TRICHLOROPHENOL	CDH-S-009(2-4)	7100	1620-12700	--	In range
2,4,5-TRICHLOROPHENOL	CDH-S-016(10-12)	6600	1620-12700	--	In range
2,4,5-TRICHLOROPHENOL	CDH-S-018(2-4)	6900 H	1620-12700	--	In range
2,4,5-TRICHLOROPHENOL	CDH-S-020(2-4)	5000	7240	69%	65%-135%
2,4,5-TRICHLOROPHENOL	CDH-S-032(10-12)	5000	7240	69%	65%-135%
2,4,5-TRICHLOROPHENOL	CDH-S-046(10-12)	7000 H	1620-12700	--	In range
2,4,5-TRICHLOROPHENOL	CHA-S-001A	6700	1620-12700	--	In range
2,4,5-TRICHLOROPHENOL	CHA-S-004	6500	1620-12700	--	In range
2,4,6-TRICHLOROPHENOL	CDH-S-005(10-12)	2900	764-5640	--	In range
2,4,6-TRICHLOROPHENOL	CDH-S-005(2-4)	2500	764-5640	--	In range
2,4,6-TRICHLOROPHENOL	CDH-S-007(10-12)	2500	764-5640	--	In range
2,4,6-TRICHLOROPHENOL	CDH-S-007(2-4)	3000	764-5640	--	In range
2,4,6-TRICHLOROPHENOL	CDH-S-009(2-4)	3300	764-5640	--	In range
2,4,6-TRICHLOROPHENOL	CDH-S-016(10-12)	3000	764-5640	--	In range
2,4,6-TRICHLOROPHENOL	CDH-S-018(2-4)	3100 H	764-5640	--	In range
2,4,6-TRICHLOROPHENOL	CDH-S-020(2-4)	8000	2830-14800	--	In range
2,4,6-TRICHLOROPHENOL	CDH-S-032(10-12)	8300	2830-14800	--	In range

Results for External Quality Assurance Samples
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Reference Results (cont.):

Parameter	Reference Field ID	Reference Result	Reference Certified Value or Range	Percent Recovery	Acceptance Criteria
2,4,6-TRICHLOROPHENOL	CDH-S-046(10-12)	3200 H	764-5640	--	In range
2,4,6-TRICHLOROPHENOL	CHA-S-001A	3200	764-5640	--	In range
2,4,6-TRICHLOROPHENOL	CHA-S-004	3100	764-5640	--	In range
2,4-DICHLOROPHENOL	CDH-S-005(10-12)	5200	1490-10200	--	In range
2,4-DICHLOROPHENOL	CDH-S-005(2-4)	4500	1490-10200	--	In range
2,4-DICHLOROPHENOL	CDH-S-007(10-12)	4100	1490-10200	--	In range
2,4-DICHLOROPHENOL	CDH-S-007(2-4)	5000	1490-10200	--	In range
2,4-DICHLOROPHENOL	CDH-S-009(2-4)	5500	1490-10200	--	In range
2,4-DICHLOROPHENOL	CDH-S-016(10-12)	5300	1490-10200	--	In range
2,4-DICHLOROPHENOL	CDH-S-018(2-4)	5400 H	1490-10200	--	In range
2,4-DICHLOROPHENOL	CDH-S-020(2-4)	2000	300-3690	--	In range
2,4-DICHLOROPHENOL	CDH-S-032(10-12)	2000	300-3690	--	In range
2,4-DICHLOROPHENOL	CDH-S-046(10-12)	5600 H	1490-10200	--	In range
2,4-DICHLOROPHENOL	CHA-S-001A	5800	1490-10200	--	In range
2,4-DICHLOROPHENOL	CHA-S-004	5900	1490-10200	--	In range
2,4-DIMETHYLPHENOL	CDH-S-005(10-12)	< 1000	< 1000	--	In range
2,4-DIMETHYLPHENOL	CDH-S-005(2-4)	< 1400	0-3800	--	In range
2,4-DIMETHYLPHENOL	CDH-S-007(10-12)	< 660	< 1000	--	In range
2,4-DIMETHYLPHENOL	CDH-S-007(2-4)	< 670	< 1000	--	In range
2,4-DIMETHYLPHENOL	CDH-S-009(2-4)	< 830	< 1000	--	In range
2,4-DIMETHYLPHENOL	CDH-S-016(10-12)	< 830	< 1000	--	In range
2,4-DIMETHYLPHENOL	CDH-S-018(2-4)	< 840	< 1000	--	In range
2,4-DIMETHYLPHENOL	CDH-S-020(2-4)	< 830	< 1000	--	In range
2,4-DIMETHYLPHENOL	CDH-S-032(10-12)	< 840	< 1000	--	In range
2,4-DIMETHYLPHENOL	CDH-S-046(10-12)	< 830	< 1000	--	In range
2,4-DIMETHYLPHENOL	CHA-S-001A	< 830	< 1000	--	In range
2,4-DIMETHYLPHENOL	CHA-S-004	< 830	< 1000	--	In range

Results for External Quality Assurance Samples
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Reference Results (cont.):

Parameter	Reference Field ID	Reference Result	Reference Certified Value or Range	Percent Recovery	Acceptance Criteria
2,4-DINITROPHENOL	CDH-S-005(10-12)	< 4100	0.0-6560	--	In range
2,4-DINITROPHENOL	CDH-S-005(2-4)	< 5700	0.0-6560	--	In range
2,4-DINITROPHENOL	CDH-S-007(10-12)	< 2700	0.0-6560	--	In range
2,4-DINITROPHENOL	CDH-S-007(2-4)	< 2700	0.0-6560	--	In range
2,4-DINITROPHENOL	CDH-S-009(2-4)	< 3300	0.0-6560	--	In range
2,4-DINITROPHENOL	CDH-S-016(10-12)	< 3300	0.0-6560	--	In range
2,4-DINITROPHENOL	CDH-S-018(2-4)	< 3300	0-6560	--	In range
2,4-DINITROPHENOL	CDH-S-020(2-4)	< 3300	0-12500	--	In range
2,4-DINITROPHENOL	CDH-S-032(10-12)	< 3300	0-12500	--	In range
2,4-DINITROPHENOL	CDH-S-046(10-12)	< 3300	0-6560	--	In range
2,4-DINITROPHENOL	CHA-S-001A	< 3300	0.0-6560	--	In range
2,4-DINITROPHENOL	CHA-S-004	< 3300	0.0-6560	--	In range
2,4-DINITROTOLUENE	CDH-S-005(10-12)	< 1000	< 1000	--	In range
2,4-DINITROTOLUENE	CDH-S-005(2-4)	< 1400	0-3800	--	In range
2,4-DINITROTOLUENE	CDH-S-007(10-12)	< 660	< 1000	--	In range
2,4-DINITROTOLUENE	CDH-S-007(2-4)	< 670	< 1000	--	In range
2,4-DINITROTOLUENE	CDH-S-009(2-4)	< 830	< 1000	--	In range
2,4-DINITROTOLUENE	CDH-S-016(10-12)	< 830	< 1000	--	In range
2,4-DINITROTOLUENE	CDH-S-018(2-4)	< 840	< 1000	--	In range
2,4-DINITROTOLUENE	CDH-S-020(2-4)	4900	6530	75%	65%-135%
2,4-DINITROTOLUENE	CDH-S-032(10-12)	4900	6530	75%	65%-135%
2,4-DINITROTOLUENE	CDH-S-046(10-12)	< 830	< 1000	--	In range
2,4-DINITROTOLUENE	CHA-S-001A	< 830	< 1000	--	In range
2,4-DINITROTOLUENE	CHA-S-004	< 830	< 1000	--	In range
2,6-DINITROTOLUENE	CDH-S-005(10-12)	6900	9290	74%	65%-135%
2,6-DINITROTOLUENE	CDH-S-005(2-4)	6200	9290	67%	65%-135%
2,6-DINITROTOLUENE	CDH-S-007(10-12)	6400	9290	69%	65%-135%

Results for External Quality Assurance Samples
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Reference Results (cont.):

Parameter	Reference Field ID	Reference Result	Reference Certified Value or Range	Percent Recovery	Acceptance Criteria
2,6-DINITROTOLUENE	CDH-S-007(2-4)	7500	9290	81%	65%-135%
2,6-DINITROTOLUENE	CDH-S-009(2-4)	6800	9290	73%	65%-135%
2,6-DINITROTOLUENE	CDH-S-016(10-12)	6600	9290	71%	65%-135%
2,6-DINITROTOLUENE	CDH-S-018(2-4)	6400	9290	69%	65%-135%
2,6-DINITROTOLUENE	CDH-S-020(2-4)	4700	6030	78%	65%-135%
2,6-DINITROTOLUENE	CDH-S-032(10-12)	4800	6030	80%	65%-135%
2,6-DINITROTOLUENE	CDH-S-046(10-12)	6700	9290	72%	65%-135%
2,6-DINITROTOLUENE	CHA-S-001A	7800	9290	84%	65%-135%
2,6-DINITROTOLUENE	CHA-S-004	7700	9290	83%	65%-135%
2-CHLORONAPHTHALENE	CDH-S-005(10-12)	2500	649-3980	--	In range
2-CHLORONAPHTHALENE	CDH-S-005(2-4)	2300	649-3980	--	In range
2-CHLORONAPHTHALENE	CDH-S-007(10-12)	2200	649-3980	--	In range
2-CHLORONAPHTHALENE	CDH-S-007(2-4)	2600	649-3980	--	In range
2-CHLORONAPHTHALENE	CDH-S-009(2-4)	2600	649-3980	--	In range
2-CHLORONAPHTHALENE	CDH-S-016(10-12)	2400	649-3980	--	In range
2-CHLORONAPHTHALENE	CDH-S-018(2-4)	2400	649-3980	--	In range
2-CHLORONAPHTHALENE	CDH-S-020(2-4)	1600	337-2490	--	In range
2-CHLORONAPHTHALENE	CDH-S-032(10-12)	1600	337-2490	--	In range
2-CHLORONAPHTHALENE	CDH-S-046(10-12)	2500	649-3980	--	In range
2-CHLORONAPHTHALENE	CHA-S-001A	2800	649-3980	--	In range
2-CHLORONAPHTHALENE	CHA-S-004	2800	649-3980	--	In range
2-CHLOROPHENOL	CDH-S-005(10-12)	3700	1120-8620	--	In range
2-CHLOROPHENOL	CDH-S-005(2-4)	3400	1120-8620	--	In range
2-CHLOROPHENOL	CDH-S-007(10-12)	2900	1120-8620	--	In range
2-CHLOROPHENOL	CDH-S-007(2-4)	3700	1120-8620	--	In range
2-CHLOROPHENOL	CDH-S-009(2-4)	4300	1120-8620	--	In range
2-CHLOROPHENOL	CDH-S-016(10-12)	4100	1120-8620	--	In range
2-CHLOROPHENOL	CDH-S-018(2-4)	3900	1120-8620	--	In range

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Reference Results (cont.):

Parameter	Reference Field ID	Reference Result	Reference Certified Value or Range	Percent Recovery	Acceptance Criteria
2-CHLOROPHENOL	CDH-S-020(2-4)	5900	1760-11900	--	In range
2-CHLOROPHENOL	CDH-S-032(10-12)	5900	1760-11900	--	In range
2-CHLOROPHENOL	CDH-S-046(10-12)	4200	1120-8620	--	In range
2-CHLOROPHENOL	CHA-S-001A	4900	1120-8620	--	In range
2-CHLOROPHENOL	CHA-S-004	5100	1120-8620	--	In range
2-METHYLNAPHTHALENE	CDH-S-005(10-12)	< 1000	< 1000	--	In range
2-METHYLNAPHTHALENE	CDH-S-005(2-4)	< 1400	0-3800	--	In range
2-METHYLNAPHTHALENE	CDH-S-007(10-12)	< 660	< 1000	--	In range
2-METHYLNAPHTHALENE	CDH-S-007(2-4)	< 670	< 1000	--	In range
2-METHYLNAPHTHALENE	CDH-S-009(2-4)	< 830	< 1000	--	In range
2-METHYLNAPHTHALENE	CDH-S-016(10-12)	< 830	< 1000	--	In range
2-METHYLNAPHTHALENE	CDH-S-018(2-4)	< 840	< 1000	--	In range
2-METHYLNAPHTHALENE	CDH-S-020(2-4)	2900	1120-4420	--	In range
2-METHYLNAPHTHALENE	CDH-S-032(10-12)	2900	1120-4420	--	In range
2-METHYLNAPHTHALENE	CDH-S-046(10-12)	< 830	< 1000	--	In range
2-METHYLNAPHTHALENE	CHA-S-001A	< 830	< 1000	--	In range
2-METHYLNAPHTHALENE	CHA-S-004	< 830	< 1000	--	In range
2-METHYLPHENOL	CDH-S-005(10-12)	< 1000	600-6260	--	In range
2-METHYLPHENOL	CDH-S-005(2-4)	< 1400	600-6260	--	In range
2-METHYLPHENOL	CDH-S-007(10-12)	680	600-6260	--	In range
2-METHYLPHENOL	CDH-S-007(2-4)	800	600-6260	--	In range
2-METHYLPHENOL	CDH-S-009(2-4)	1000	600-6260	--	In range
2-METHYLPHENOL	CDH-S-016(10-12)	890	600-6260	--	In range
2-METHYLPHENOL	CDH-S-018(2-4)	< 840	600-6260	--	In range
2-METHYLPHENOL	CDH-S-020(2-4)	2100	1070-11800	--	In range
2-METHYLPHENOL	CDH-S-032(10-12)	2400	1070-11800	--	In range
2-METHYLPHENOL	CDH-S-046(10-12)	970	600-6260	--	In range

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Incorporated by the Environmental Monitoring Branch

Reference Results (cont.):

Parameter	Reference Field ID	Reference Result	Reference Certified Value or Range	Percent Recovery	Acceptance Criteria
2-METHYLPHENOL	CHA-S-001A	1000	600-6260	--	In range
2-METHYLPHENOL	CHA-S-004	1000	600-6260	--	In range
2-NITROANILINE	CDH-S-005(10-12)	< 1000 L	< 1000	--	In range
2-NITROANILINE	CDH-S-005(2-4)	< 1400 L	0-3800	--	In range
2-NITROANILINE	CDH-S-007(10-12)	< 660	< 1000	--	In range
2-NITROANILINE	CDH-S-007(2-4)	< 670	< 1000	--	In range
2-NITROANILINE	CDH-S-009(2-4)	< 830	< 1000	--	In range
2-NITROANILINE	CDH-S-016(10-12)	< 830	< 1000	--	In range
2-NITROANILINE	CDH-S-018(2-4)	< 840	< 1000	--	In range
2-NITROANILINE	CDH-S-020(2-4)	< 830	< 1000	--	In range
2-NITROANILINE	CDH-S-032(10-12)	< 840	< 1000	--	In range
2-NITROANILINE	CDH-S-046(10-12)	< 830	< 1000	--	In range
2-NITROANILINE	CHA-S-001A	< 830	< 1000	--	In range
2-NITROANILINE	CHA-S-004	< 830	< 1000	--	In range
2-NITROPHENOL	CDH-S-005(10-12)	3500	669-7490	--	In range
2-NITROPHENOL	CDH-S-005(2-4)	2900	669-7490	--	In range
2-NITROPHENOL	CDH-S-007(10-12)	2600	669-7490	--	In range
2-NITROPHENOL	CDH-S-007(2-4)	3400	669-7490	--	In range
2-NITROPHENOL	CDH-S-009(2-4)	3800	669-7490	--	In range
2-NITROPHENOL	CDH-S-016(10-12)	3800	669-7490	--	In range
2-NITROPHENOL	CDH-S-018(2-4)	3600 H	669-7490	--	In range
2-NITROPHENOL	CDH-S-020(2-4)	4800	6980	69%	65%-135%
2-NITROPHENOL	CDH-S-032(10-12)	4700	6980	67%	65%-135%
2-NITROPHENOL	CDH-S-046(10-12)	3700 H	669-7490	--	In range
2-NITROPHENOL	CHA-S-001A	4000	669-7490	--	In range
2-NITROPHENOL	CHA-S-004	4100	669-7490	--	In range
3,3'-DICHLOROBENZIDINE	CDH-S-005(10-12)	< 1000	< 1000	--	In range

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Reference Results (cont.):

Parameter	Reference Field ID	Reference Result	Reference Certified Value or Range	Percent Recovery	Acceptance Criteria
3,3'-DICHLOROBENZIDINE	CDH-S-005(2-4)	< 1400	0-3800	--	In range
3,3'-DICHLOROBENZIDINE	CDH-S-007(10-12)	< 660	< 1000	--	In range
3,3'-DICHLOROBENZIDINE	CDH-S-007(2-4)	< 670	< 1000	--	In range
3,3'-DICHLOROBENZIDINE	CDH-S-009(2-4)	< 830	< 1000	--	In range
3,3'-DICHLOROBENZIDINE	CDH-S-016(10-12)	< 830	< 1000	--	In range
3,3'-DICHLOROBENZIDINE	CDH-S-018(2-4)	< 840	< 1000	--	In range
3,3'-DICHLOROBENZIDINE	CDH-S-020(2-4)	< 830	< 1000	--	In range
3,3'-DICHLOROBENZIDINE	CDH-S-032(10-12)	< 840	< 1000	--	In range
3,3'-DICHLOROBENZIDINE	CDH-S-046(10-12)	< 830	< 1000	--	In range
3,3'-DICHLOROBENZIDINE	CHA-S-001A	< 830	< 1000	--	In range
3,3'-DICHLOROBENZIDINE	CHA-S-004	< 830	< 1000	--	In range
3-NITROANILINE	CDH-S-005(10-12)	< 1000	< 1000	--	In range
3-NITROANILINE	CDH-S-005(2-4)	< 1400	0-3800	--	In range
3-NITROANILINE	CDH-S-007(10-12)	< 660	< 1000	--	In range
3-NITROANILINE	CDH-S-007(2-4)	< 670	< 1000	--	In range
3-NITROANILINE	CDH-S-009(2-4)	< 830	< 1000	--	In range
3-NITROANILINE	CDH-S-016(10-12)	< 830	< 1000	--	In range
3-NITROANILINE	CDH-S-018(2-4)	< 840	< 1000	--	In range
3-NITROANILINE	CDH-S-020(2-4)	< 830	< 1000	--	In range
3-NITROANILINE	CDH-S-032(10-12)	< 840	< 1000	--	In range
3-NITROANILINE	CDH-S-046(10-12)	< 830	< 1000	--	In range
3-NITROANILINE	CHA-S-001A	< 830	< 1000	--	In range
3-NITROANILINE	CHA-S-004	< 830	< 1000	--	In range
4,4'-DDD	CDH-S-005(10-12)	300 RC	442	68%	65%-135%
4,4'-DDD	CDH-S-005(2-4)	**< 0.67 RC**	442	--	**Out of range**
4,4'-DDD	CDH-S-007(10-12)	280	150-563	--	In range
4,4'-DDD	CDH-S-007(2-4)	250	150-563	--	In range
4,4'-DDD	CDH-S-009(2-4)	310	442	70%	65%-135%

RC = Reanalyzed and confirmed

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Reference Results (cont.):

Parameter	Reference Field ID	Reference Result	Reference Certified Value or Range	Percent Recovery	Acceptance Criteria
4,4'-DDD	CDH-S-009(2-4)B	310	442	70%	65%-135%
4,4'-DDD	CDH-S-016(10-12)	340	442	77%	65%-135%
4,4'-DDD	CDH-S-018(2-4)	270	150-563	--	In range
4,4'-DDD	CDH-S-020(2-4)	320	442	72%	65%-135%
4,4'-DDD	CDH-S-032(10-12)	320	442	72%	65%-135%
4,4'-DDD	CDH-S-046(10-12)	260	150-563	--	In range
4,4'-DDD	CHA-S-001A	190	106-427	--	In range
4,4'-DDD	CHA-S-004	180	106-427	--	In range
4,4'-DDE	CDH-S-005(10-12)	270 RC	407	66%	65%-135%
4,4'-DDE	CDH-S-005(2-4)	**< 0.67 RC**	407	--	**Out of range**
4,4'-DDE	CDH-S-007(10-12)	260	139-532	--	In range
4,4'-DDE	CDH-S-007(2-4)	240	139-532	--	In range
4,4'-DDE	CDH-S-009(2-4)	290	407	71%	65%-135%
4,4'-DDE	CDH-S-009(2-4)B	290	407	71%	65%-135%
4,4'-DDE	CDH-S-016(10-12)	320	407	79%	65%-135%
4,4'-DDE	CDH-S-018(2-4)	250	139-532	--	In range
4,4'-DDE	CDH-S-020(2-4)	300	407	74%	65%-135%
4,4'-DDE	CDH-S-032(10-12)	300	407	74%	65%-135%
4,4'-DDE	CDH-S-046(10-12)	240	139-532	--	In range
4,4'-DDE	CHA-S-001A	180	115-449	--	In range
4,4'-DDE	CHA-S-004	180	115-449	--	In range
4,4'-DDT	CDH-S-005(10-12)	150 RC	217	69%	65%-135%
4,4'-DDT	CDH-S-005(2-4)	**< 0.67 RC**	217	--	**Out of range**
4,4'-DDT	CDH-S-007(10-12)	130	48.2-295	--	In range
4,4'-DDT	CDH-S-007(2-4)	120	48.2-295	--	In range
4,4'-DDT	CDH-S-009(2-4)	150	217	69%	65%-135%
4,4'-DDT	CDH-S-009(2-4)B	150	217	69%	65%-135%
4,4'-DDT	CDH-S-016(10-12)	170	217	78%	65%-135%

RC = Reanalyzed and confirmed

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Reference Results (cont.):

Parameter	Reference Field ID	Reference Result	Reference Certified Value or Range	Percent Recovery	Acceptance Criteria
4,4'-DDT	CDH-S-018(2-4)	140	48.2-295	--	In range
4,4'-DDT	CDH-S-020(2-4)	170	217	78%	65%-135%
4,4'-DDT	CDH-S-032(10-12)	160	217	74%	65%-135%
4,4'-DDT	CDH-S-046(10-12)	140	48.2-295	--	In range
4,4'-DDT	CHA-S-001A	84 V	16.9-135	--	In range
4,4'-DDT	CHA-S-004	84	16.9-135	--	In range
4,6-DINITRO-2-METHYLPHENOL	CDH-S-005(10-12)	< 4100	0.0-6540	--	In range
4,6-DINITRO-2-METHYLPHENOL	CDH-S-005(2-4)	< 5700	0.0-6540	--	In range
4,6-DINITRO-2-METHYLPHENOL	CDH-S-007(10-12)	< 2700	0.0-6540	--	In range
4,6-DINITRO-2-METHYLPHENOL	CDH-S-007(2-4)	< 2700	0.0-6540	--	In range
4,6-DINITRO-2-METHYLPHENOL	CDH-S-009(2-4)	< 3300	0.0-6540	--	In range
4,6-DINITRO-2-METHYLPHENOL	CDH-S-016(10-12)	< 3300	0.0-6540	--	In range
4,6-DINITRO-2-METHYLPHENOL	CDH-S-018(2-4)	< 3300	0.0-6540	--	In range
4,6-DINITRO-2-METHYLPHENOL	CDH-S-020(2-4)	< 3300	0-7600	--	In range
4,6-DINITRO-2-METHYLPHENOL	CDH-S-032(10-12)	< 3300	0-7600	--	In range
4,6-DINITRO-2-METHYLPHENOL	CDH-S-046(10-12)	< 3300	0.0-6540	--	In range
4,6-DINITRO-2-METHYLPHENOL	CHA-S-001A	< 3300	0.0-6540	--	In range
4,6-DINITRO-2-METHYLPHENOL	CHA-S-004	< 3300	0.0-6540	--	In range
4-BROMOPHENYL PHENYL ETHER	CDH-S-005(10-12)	< 1000	< 1000	--	In range
4-BROMOPHENYL PHENYL ETHER	CDH-S-005(2-4)	< 1400	0-3800	--	In range
4-BROMOPHENYL PHENYL ETHER	CDH-S-007(10-12)	< 660	< 1000	--	In range

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Reference Results (cont.):

Parameter	Reference Field ID	Reference Result	Reference Certified Value or Range	Percent Recovery	Acceptance Criteria
4-BROMOPHENYL PHENYL ETHER	CDH-S-007(2-4)	< 670	< 1000	--	In range
4-BROMOPHENYL PHENYL ETHER	CDH-S-009(2-4)	< 830	< 1000	--	In range
4-BROMOPHENYL PHENYL ETHER	CDH-S-016(10-12)	< 830	< 1000	--	In range
4-BROMOPHENYL PHENYL ETHER	CDH-S-018(2-4)	< 840	< 1000	--	In range
4-BROMOPHENYL PHENYL ETHER	CDH-S-020(2-4)	7200	9560	75%	65%-135%
4-BROMOPHENYL PHENYL ETHER	CDH-S-032(10-12)	7500	9560	78%	65%-135%
4-BROMOPHENYL PHENYL ETHER	CDH-S-046(10-12)	< 830	< 1000	--	In range
4-BROMOPHENYL PHENYL ETHER	CHA-S-001A	< 830	< 1000	--	In range
4-BROMOPHENYL PHENYL ETHER	CHA-S-004	< 830	< 1000	--	In range
4-CHLORO-3-METHYLPHENOL	CDH-S-005(10-12)	5800	2760-11700	--	In range
4-CHLORO-3-METHYLPHENOL	CDH-S-005(2-4)	4900	2760-11700	--	In range
4-CHLORO-3-METHYLPHENOL	CDH-S-007(10-12)	5500	2760-11700	--	In range
4-CHLORO-3-METHYLPHENOL	CDH-S-007(2-4)	6600	2760-11700	--	In range
4-CHLORO-3-METHYLPHENOL	CDH-S-009(2-4)	7000	2760-11700	--	In range
4-CHLORO-3-METHYLPHENOL	CDH-S-016(10-12)	6200	2760-11700	--	In range
4-CHLORO-3-METHYLPHENOL	CDH-S-018(2-4)	6100	2760-11700	--	In range
4-CHLORO-3-METHYLPHENOL	CDH-S-020(2-4)	5800	8460	69%	65%-135%
4-CHLORO-3-METHYLPHENOL	CDH-S-032(10-12)	5600	8460	66%	65%-135%
4-CHLORO-3-METHYLPHENOL	CDH-S-046(10-12)	6300	2760-11700	--	In range

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Reference Results (cont.):

Parameter	Reference Field ID	Reference Result	Reference Certified Value or Range	Percent Recovery	Acceptance Criteria
4-CHLORO-3-METHYLPHENOL	CHA-S-001A	7100	10600	67%	65%-135%
4-CHLORO-3-METHYLPHENOL	CHA-S-004	7100	10600	67%	65%-135%
4-CHLOROANILINE	CDH-S-005(10-12)	< 1000	< 1000	--	In range
4-CHLOROANILINE	CDH-S-005(2-4)	< 1400	0-3800	--	In range
4-CHLOROANILINE	CDH-S-007(10-12)	< 660	< 1000	--	In range
4-CHLOROANILINE	CDH-S-007(2-4)	< 670	< 1000	--	In range
4-CHLOROANILINE	CDH-S-009(2-4)	< 830	< 1000	--	In range
4-CHLOROANILINE	CDH-S-016(10-12)	< 830	< 1000	--	In range
4-CHLOROANILINE	CDH-S-018(2-4)	< 840	< 1000	--	In range
4-CHLOROANILINE	CDH-S-020(2-4)	< 830	< 1000	--	In range
4-CHLOROANILINE	CDH-S-032(10-12)	< 840	< 1000	--	In range
4-CHLOROANILINE	CDH-S-046(10-12)	< 830	< 1000	--	In range
4-CHLOROANILINE	CHA-S-001A	< 830	< 1000	--	In range
4-CHLOROANILINE	CHA-S-004	< 830	< 1000	--	In range
4-CHLOROPHENYL PHENYL ETHER	CDH-S-005(10-12)	8300	10400	80%	65%-135%
4-CHLOROPHENYL PHENYL ETHER	CDH-S-005(2-4)	7400	10400	71%	65%-135%
4-CHLOROPHENYL PHENYL ETHER	CDH-S-007(10-12)	6500	2690-12500	--	In range
4-CHLOROPHENYL PHENYL ETHER	CDH-S-007(2-4)	7500	2690-12500	--	In range
4-CHLOROPHENYL PHENYL ETHER	CDH-S-009(2-4)	8400	10400	81%	65%-135%
4-CHLOROPHENYL PHENYL ETHER	CDH-S-016(10-12)	7500	10400	72%	65%-135%
4-CHLOROPHENYL PHENYL ETHER	CDH-S-018(2-4)	7700	10400	68%	65%-135%
4-CHLOROPHENYL PHENYL ETHER	CDH-S-020(2-4)	< 830	< 1000	--	In range

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Reference Results (cont.):

Parameter	Reference Field ID	Reference Result	Reference Certified Value or Range	Percent Recovery	Acceptance Criteria
4-CHLOROPHENYL PHENYL ETHER	CDH-S-032(10-12)	< 840	< 1000	--	In range
4-CHLOROPHENYL PHENYL ETHER	CDH-S-046(10-12)	8100	10400	78%	65%-135%
4-CHLOROPHENYL PHENYL ETHER	CHA-S-001A	8500	10400	82%	65%-135%
4-CHLOROPHENYL PHENYL ETHER	CHA-S-004	8600	10400	83%	65%-135%
4-METHYLPHENOL	CDH-S-005(10-12)	1800	996-10700	--	In range
4-METHYLPHENOL	CDH-S-005(2-4)	1400	996-10700	--	In range
4-METHYLPHENOL	CDH-S-007(10-12)	1800	996-10700	--	In range
4-METHYLPHENOL	CDH-S-007(2-4)	2300	996-10700	--	In range
4-METHYLPHENOL	CDH-S-009(2-4)	3000	996-10700	--	In range
4-METHYLPHENOL	CDH-S-016(10-12)	2700	996-10700	--	In range
4-METHYLPHENOL	CDH-S-018(2-4)	2300	996-10700	--	In range
4-METHYLPHENOL	CDH-S-020(2-4)	1400	421-5190	--	In range
4-METHYLPHENOL	CDH-S-032(10-12)	1500	421-5190	--	In range
4-METHYLPHENOL	CDH-S-046(10-12)	2700	996-10700	--	In range
4-METHYLPHENOL	CHA-S-001A	2500	996-10700	--	In range
4-METHYLPHENOL	CHA-S-004	2700	996-10700	--	In range
4-NITROANILINE	CDH-S-005(10-12)	< 1000	< 1000	--	In range
4-NITROANILINE	CDH-S-005(2-4)	< 1400	0-3800	--	In range
4-NITROANILINE	CDH-S-007(10-12)	< 660	< 1000	--	In range
4-NITROANILINE	CDH-S-007(2-4)	< 670	< 1000	--	In range
4-NITROANILINE	CDH-S-009(2-4)	< 830	< 1000	--	In range
4-NITROANILINE	CDH-S-016(10-12)	< 830	< 1000	--	In range
4-NITROANILINE	CDH-S-018(2-4)	< 840	< 1000	--	In range
4-NITROANILINE	CDH-S-020(2-4)	< 830 L	< 1000	--	In range
4-NITROANILINE	CDH-S-032(10-12)	< 840 L	< 1000	--	In range

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Reference Results (cont.):

Parameter	Reference Field ID	Reference Result	Reference Certified Value or Range	Percent Recovery	Acceptance Criteria
4-NITROANILINE	CDH-S-046(10-12)	< 830	< 1000	--	In range
4-NITROANILINE	CHA-S-001A	< 830	< 1000	--	In range
4-NITROANILINE	CHA-S-004	< 830	< 1000	--	In range
4-NITROPHENOL	CDH-S-005(10-12)	< 4100	0-9200	--	In range
4-NITROPHENOL	CDH-S-005(2-4)	< 5700	0-12400	--	In range
4-NITROPHENOL	CDH-S-007(10-12)	< 2700	0-6400	--	In range
4-NITROPHENOL	CDH-S-007(2-4)	< 2700	0-6400	--	In range
4-NITROPHENOL	CDH-S-009(2-4)	< 3300	0-7600	--	In range
4-NITROPHENOL	CDH-S-016(10-12)	< 3300	0-7600	--	In range
4-NITROPHENOL	CDH-S-018(2-4)	< 3300	0-7600	--	In range
4-NITROPHENOL	CDH-S-020(2-4)	7500	1340-18000	--	In range
4-NITROPHENOL	CDH-S-032(10-12)	7200	1340-18000	--	In range
4-NITROPHENOL	CDH-S-046(10-12)	< 3300	0-7600	--	In range
4-NITROPHENOL	CHA-S-001A	< 3300	0-7600	--	In range
4-NITROPHENOL	CHA-S-004	< 3300	0-7600	--	In range
ACENAPHTHENE	CDH-S-005(10-12)	5700	7890	72%	65%-135%
ACENAPHTHENE	CDH-S-005(2-4)	5200	7890	66%	65%-135%
ACENAPHTHENE	CDH-S-007(10-12)	5200	7890	66%	65%-135%
ACENAPHTHENE	CDH-S-007(2-4)	6000	7890	76%	65%-135%
ACENAPHTHENE	CDH-S-009(2-4)	6000	7890	76%	65%-135%
ACENAPHTHENE	CDH-S-016(10-12)	5300	7890	67%	65%-135%
ACENAPHTHENE	CDH-S-018(2-4)	5400	7890	68%	65%-135%
ACENAPHTHENE	CDH-S-020(2-4)	6300	8700	72%	65%-135%
ACENAPHTHENE	CDH-S-032(10-12)	6500	8700	75%	65%-135%
ACENAPHTHENE	CDH-S-046(10-12)	5700	7890	72%	65%-135%
ACENAPHTHENE	CHA-S-001A	6400	7890	81%	65%-135%
ACENAPHTHENE	CHA-S-004	6600	7890	84%	65%-135%

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Reference Results (cont.):

Parameter	Reference Field ID	Reference Result	Reference Certified Value or Range	Percent Recovery	Acceptance Criteria
ACENAPHTHYLENE	CDH-S-005(10-12)	< 1000	< 1000	--	In range
ACENAPHTHYLENE	CDH-S-005(2-4)	< 1400	0-3800	--	In range
ACENAPHTHYLENE	CDH-S-007(10-12)	< 660	< 1000	--	In range
ACENAPHTHYLENE	CDH-S-007(2-4)	< 670	< 1000	--	In range
ACENAPHTHYLENE	CDH-S-009(2-4)	< 830	< 1000	--	In range
ACENAPHTHYLENE	CDH-S-016(10-12)	< 830	< 1000	--	In range
ACENAPHTHYLENE	CDH-S-018(2-4)	< 840	< 1000	--	In range
ACENAPHTHYLENE	CDH-S-020(2-4)	4400	5920	74%	65%-135%
ACENAPHTHYLENE	CDH-S-032(10-12)	4500	5920	76%	65%-135%
ACENAPHTHYLENE	CDH-S-046(10-12)	< 830	< 1000	--	In range
ACENAPHTHYLENE	CHA-S-001A	< 830	< 1000	--	In range
ACENAPHTHYLENE	CHA-S-004	< 830	< 1000	--	In range
ALDRIN	CDH-S-005(10-12)	130 RC	180	72%	65%-135%
ALDRIN	CDH-S-005(2-4)	**< 0.67 RC**	180	--	**Out of range**
ALDRIN	CDH-S-007(10-12)	120	50.6-236	--	In range
ALDRIN	CDH-S-007(2-4)	110	50.6-236	--	In range
ALDRIN	CDH-S-009(2-4)	130	180	72%	65%-135%
ALDRIN	CDH-S-009(2-4)B	130	180	72%	65%-135%
ALDRIN	CDH-S-016(10-12)	150	180	83%	65%-135%
ALDRIN	CDH-S-018(2-4)	120	50.6-236	--	In range
ALDRIN	CDH-S-020(2-4)	140	180	78%	65%-135%
ALDRIN	CDH-S-032(10-12)	140	180	78%	65%-135%
ALDRIN	CDH-S-046(10-12)	110	50.6-236	--	In range
ALDRIN	CHA-S-001A	160	81.8-363	--	In range
ALDRIN	CHA-S-004	150	81.8-363	--	In range
ANTHRACENE	CDH-S-005(10-12)	4000	1440-7400	--	In range
ANTHRACENE	CDH-S-005(2-4)	3600	1440-7400	--	In range

RC = Reanalyzed and confirmed

Results for External Quality Assurance Samples
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Reference Results (cont.):

Parameter	Reference Field ID	Reference Result	Reference Certified Value or Range	Percent Recovery	Acceptance Criteria
ANTHRACENE	CDH-S-007(10-12)	4000	5780	69%	65%-135%
ANTHRACENE	CDH-S-007(2-4)	4600	5780	80%	65%-135%
ANTHRACENE	CDH-S-009(2-4)	4400	5780	76%	65%-135%
ANTHRACENE	CDH-S-016(10-12)	4000	5780	69%	65%-135%
ANTHRACENE	CDH-S-018(2-4)	4000	5780	69%	65%-135%
ANTHRACENE	CDH-S-020(2-4)	6100	8340	73%	65%-135%
ANTHRACENE	CDH-S-032(10-12)	6200	8340	74%	65%-135%
ANTHRACENE	CDH-S-046(10-12)	4200	5780	73%	65%-135%
ANTHRACENE	CHA-S-001A	4600	5780	80%	65%-135%
ANTHRACENE	CHA-S-004	4700	5780	81%	65%-135%
AROCLOR 1016	CDH-S-005(10-12)	< 0.033	< 1	--	In range
AROCLOR 1016	CDH-S-005(2-4)	< 0.033	< 1	--	In range
AROCLOR 1016	CDH-S-007(10-12)	< 0.33	< 0.5	--	In range
AROCLOR 1016	CDH-S-007(2-4)	< 0.33	< 0.5	--	In range
AROCLOR 1016	CDH-S-009(2-4)	< 0.033	< 1	--	In range
AROCLOR 1016	CDH-S-009(2-4)B	< 0.033	< 1	--	In range
AROCLOR 1016	CDH-S-016(10-12)	< 0.033	< 1	--	In range
AROCLOR 1016	CDH-S-018(2-4)	3.3	< 1	--	**Out of range**
AROCLOR 1016	CDH-S-020(2-4)	< 0.033	< 1	--	In range
AROCLOR 1016	CDH-S-032(10-12)	< 0.033	< 1	--	In range
AROCLOR 1016	CDH-S-046(10-12)	3.3	< 1	--	**Out of range**
AROCLOR 1016	CHA-S-001A	< 0.33	< 1	--	In range
AROCLOR 1016	CHA-S-004	< 0.33	< 1	--	In range
AROCLOR 1221	CDH-S-005(10-12)	< 0.067	< 1	--	In range
AROCLOR 1221	CDH-S-005(2-4)	< 0.067	< 1	--	In range
AROCLOR 1221	CDH-S-007(10-12)	< 0.67	0-1.84	--	In range
AROCLOR 1221	CDH-S-007(2-4)	< 0.67	0-1.84	--	In range
AROCLOR 1221	CDH-S-009(2-4)	< 0.067	< 1	--	In range

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Reference Results (cont.):

Parameter	Reference Field ID	Reference Result	Reference Certified Value or Range	Percent Recovery	Acceptance Criteria
AROCLOR 1221	CDH-S-009(2-4)B	< 0.067	< 1	--	In range
AROCLOR 1221	CDH-S-016(10-12)	< 0.067	< 1	--	In range
AROCLOR 1221	CDH-S-018(2-4)	< 0.067	< 1	--	In range
AROCLOR 1221	CDH-S-020(2-4)	< 0.067	< 1	--	In range
AROCLOR 1221	CDH-S-032(10-12)	< 0.067	< 1	--	In range
AROCLOR 1221	CDH-S-046(10-12)	< 0.067	< 1	--	In range
AROCLOR 1221	CHA-S-001A	< 0.65	< 1	--	In range
AROCLOR 1221	CHA-S-004	< 0.66	< 1	--	In range
AROCLOR 1232	CDH-S-005(10-12)	< 0.033	< 1	--	In range
AROCLOR 1232	CDH-S-005(2-4)	< 0.033	< 1	--	In range
AROCLOR 1232	CDH-S-007(10-12)	< 0.33	< 0.5	--	In range
AROCLOR 1232	CDH-S-007(2-4)	< 0.33	< 0.5	--	In range
AROCLOR 1232	CDH-S-009(2-4)	< 0.033	< 1	--	In range
AROCLOR 1232	CDH-S-009(2-4)B	< 0.033	< 1	--	In range
AROCLOR 1232	CDH-S-016(10-12)	< 0.033	< 1	--	In range
AROCLOR 1232	CDH-S-018(2-4)	< 0.033	< 1	--	In range
AROCLOR 1232	CDH-S-020(2-4)	< 0.033	< 1	--	In range
AROCLOR 1232	CDH-S-032(10-12)	< 0.033	< 1	--	In range
AROCLOR 1232	CDH-S-046(10-12)	< 0.033	< 1	--	In range
AROCLOR 1232	CHA-S-001A	< 0.33	< 1	--	In range
AROCLOR 1232	CHA-S-004	< 0.33	< 1	--	In range
AROCLOR 1242	CDH-S-005(10-12)	3.5	1.33-8.94	--	In range
AROCLOR 1242	CDH-S-005(2-4)	2.9	1.33-8.94	--	In range
AROCLOR 1242	CDH-S-007(10-12)	< 0.33	< 0.5	--	In range
AROCLOR 1242	CDH-S-007(2-4)	< 0.33	< 0.5	--	In range
AROCLOR 1242	CDH-S-009(2-4)	2.6	1.33-8.94	--	In range
AROCLOR 1242	CDH-S-009(2-4)B	2.5	1.33-8.94	--	In range

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Reference Results (cont.):

Parameter	Reference Field ID	Reference Result	Reference Certified Value or Range	Percent Recovery	Acceptance Criteria
AROCLOR 1242	CDH-S-016(10-12)	2.9	1.33-8.94	--	In range
AROCLOR 1242	CDH-S-018(2-4)	**< 0.033 L**	1.33-8.94	--	**Out of range**
AROCLOR 1242	CDH-S-020(2-4)	2.7	1.33-8.94	--	In range
AROCLOR 1242	CDH-S-032(10-12)	2.8	1.33-8.94	--	In range
AROCLOR 1242	CDH-S-046(10-12)	**< 0.033 L**	1.33-8.94	--	**Out of range**
AROCLOR 1242	CHA-S-001A	6.7	6.16	109%	65%-135%
AROCLOR 1242	CHA-S-004	6.6	6.16	107%	65%-135%
AROCLOR 1248	CDH-S-005(10-12)	< 0.033	< 1	--	In range
AROCLOR 1248	CDH-S-005(2-4)	< 0.033	< 1	--	In range
AROCLOR 1248	CDH-S-007(10-12)	31	35.7	87%	65%-135%
AROCLOR 1248	CDH-S-007(2-4)	27	35.7	76%	65%-135%
AROCLOR 1248	CDH-S-009(2-4)	< 0.033	< 1	--	In range
AROCLOR 1248	CDH-S-009(2-4)B	< 0.033	< 1	--	In range
AROCLOR 1248	CDH-S-016(10-12)	< 0.033	< 1	--	In range
AROCLOR 1248	CDH-S-018(2-4)	< 0.033	< 1	--	In range
AROCLOR 1248	CDH-S-020(2-4)	< 0.033	< 1	--	In range
AROCLOR 1248	CDH-S-032(10-12)	< 0.033	< 1	--	In range
AROCLOR 1248	CDH-S-046(10-12)	< 0.033	< 1	--	In range
AROCLOR 1248	CHA-S-001A	< 0.33	< 1	--	In range
AROCLOR 1248	CHA-S-004	< 0.33	< 1	--	In range
AROCLOR 1254	CDH-S-005(10-12)	< 0.033	< 1	--	In range
AROCLOR 1254	CDH-S-005(2-4)	< 0.033	< 1	--	In range
AROCLOR 1254	CDH-S-007(10-12)	< 0.33	< 0.5	--	In range
AROCLOR 1254	CDH-S-007(2-4)	< 0.33	< 0.5	--	In range
AROCLOR 1254	CDH-S-009(2-4)	< 0.033	< 1	--	In range
AROCLOR 1254	CDH-S-009(2-4)B	< 0.033	< 1	--	In range

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Reference Results (cont.):

Parameter	Reference Field ID	Reference Result	Reference Certified Value or Range	Percent Recovery	Acceptance Criteria
AROCLOR 1254	CDH-S-016(10-12)	< 0.033	< 1	--	In range
AROCLOR 1254	CDH-S-018(2-4)	< 0.033	< 1	--	In range
AROCLOR 1254	CDH-S-020(2-4)	< 0.033	< 1	--	In range
AROCLOR 1254	CDH-S-032(10-12)	< 0.033	< 1	--	In range
AROCLOR 1254	CDH-S-046(10-12)	< 0.033	< 1	--	In range
AROCLOR 1254	CHA-S-001A	< 0.33	< 1	--	In range
AROCLOR 1254	CHA-S-004	< 0.33	< 1	--	In range
AROCLOR 1260	CDH-S-005(10-12)	< 0.033	< 1	--	In range
AROCLOR 1260	CDH-S-005(2-4)	< 0.033	< 1	--	In range
AROCLOR 1260	CDH-S-007(10-12)	< 0.33	< 0.5	--	In range
AROCLOR 1260	CDH-S-007(2-4)	< 0.33	< 0.5	--	In range
AROCLOR 1260	CDH-S-009(2-4)	< 0.033	< 1	--	In range
AROCLOR 1260	CDH-S-009(2-4)B	< 0.033	< 1	--	In range
AROCLOR 1260	CDH-S-016(10-12)	< 0.033	< 1	--	In range
AROCLOR 1260	CDH-S-018(2-4)	< 0.033	< 1	--	In range
AROCLOR 1260	CDH-S-020(2-4)	< 0.033	< 1	--	In range
AROCLOR 1260	CDH-S-032(10-12)	< 0.033	< 1	--	In range
AROCLOR 1260	CDH-S-046(10-12)	< 0.033	< 1	--	In range
AROCLOR 1260	CHA-S-001A	< 0.33	< 1	--	In range
AROCLOR 1260	CHA-S-004	< 0.33	< 1	--	In range
BENZ(A)ANTHRACENE	CDH-S-005(10-12)	< 1000	218-1380	--	In range
BENZ(A)ANTHRACENE	CDH-S-005(2-4)	< 1400	218-1380	--	In range
BENZ(A)ANTHRACENE	CDH-S-007(10-12)	730	218-1380	--	In range
BENZ(A)ANTHRACENE	CDH-S-007(2-4)	860	218-1380	--	In range
BENZ(A)ANTHRACENE	CDH-S-009(2-4)	< 830	218-1380	--	In range
BENZ(A)ANTHRACENE	CDH-S-016(10-12)	< 830	218-1380	--	In range
BENZ(A)ANTHRACENE	CDH-S-018(2-4)	< 840	218-1380	--	In range

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Reference Results (cont.):

Parameter	Reference Field ID	Reference Result	Reference Certified Value or Range	Percent Recovery	Acceptance Criteria
BENZ(A)ANTHRACENE	CDH-S-020(2-4)	1700	639-2850	--	In range
BENZ(A)ANTHRACENE	CDH-S-032(10-12)	1700	639-2850	--	In range
BENZ(A)ANTHRACENE	CDH-S-046(10-12)	< 830	218-1380	--	In range
BENZ(A)ANTHRACENE	CHA-S-001A	840	218-1380	--	In range
BENZ(A)ANTHRACENE	CHA-S-004	850	218-1380	--	In range
BENZO(A)PYRENE	CDH-S-005(10-12)	3300	1300-7170	--	In range
BENZO(A)PYRENE	CDH-S-005(2-4)	3000	1300-7170	--	In range
BENZO(A)PYRENE	CDH-S-007(10-12)	3300	1300-7170	--	In range
BENZO(A)PYRENE	CDH-S-007(2-4)	4000	1300-7170	--	In range
BENZO(A)PYRENE	CDH-S-009(2-4)	4000	1300-7170	--	In range
BENZO(A)PYRENE	CDH-S-016(10-12)	3500	1300-7170	--	In range
BENZO(A)PYRENE	CDH-S-018(2-4)	3700	5590	66%	65%-135%
BENZO(A)PYRENE	CDH-S-020(2-4)	2200	757-4230	--	In range
BENZO(A)PYRENE	CDH-S-032(10-12)	2400	757-4230	--	In range
BENZO(A)PYRENE	CDH-S-046(10-12)	4100	5590	73%	65%-135%
BENZO(A)PYRENE	CHA-S-001A	4000	1300-7170	--	In range
BENZO(A)PYRENE	CHA-S-004	4200	1300-7170	--	65%-135%
BENZO(B)FLUORANTHENE	CDH-S-005(10-12)	2700	908-4710	--	In range
BENZO(B)FLUORANTHENE	CDH-S-005(2-4)	2500	908-4710	--	In range
BENZO(B)FLUORANTHENE	CDH-S-007(10-12)	2400	1640-4180	--	In range
BENZO(B)FLUORANTHENE	CDH-S-007(2-4)	2900	1640-4180	--	In range
BENZO(B)FLUORANTHENE	CDH-S-009(2-4)	3200	908-4710	--	In range
BENZO(B)FLUORANTHENE	CDH-S-016(10-12)	2200	908-4710	--	In range
BENZO(B)FLUORANTHENE	CDH-S-018(2-4)	2700	908-4710	--	In range
BENZO(B)FLUORANTHENE	CDH-S-020(2-4)	7100	9310	76%	65%-135%
BENZO(B)FLUORANTHENE	CDH-S-032(10-12)	7300	9310	78%	65%-135%
BENZO(B)FLUORANTHENE	CDH-S-046(10-12)	2900	908-4710	--	In range

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Reference Results (cont.):

Parameter	Reference Field ID	Reference Result	Reference Certified Value or Range	Percent Recovery	Acceptance Criteria
BENZO(B)FLUORANTHENE	CHA-S-001A	2600	908-4710	--	In range
BENZO(B)FLUORANTHENE	CHA-S-004	2600	908-4710	--	In range
BENZO(G,H,I)PERYLENE	CDH-S-005(10-12)	< 1000	< 1000	--	In range
BENZO(G,H,I)PERYLENE	CDH-S-005(2-4)	< 1400	0-3800	--	In range
BENZO(G,H,I)PERYLENE	CDH-S-007(10-12)	< 660	< 1000	--	In range
BENZO(G,H,I)PERYLENE	CDH-S-007(2-4)	< 670	< 1000	--	In range
BENZO(G,H,I)PERYLENE	CDH-S-009(2-4)	< 830	< 1000	--	In range
BENZO(G,H,I)PERYLENE	CDH-S-016(10-12)	< 830	< 1000	--	In range
BENZO(G,H,I)PERYLENE	CDH-S-018(2-4)	< 840	< 1000	--	In range
BENZO(G,H,I)PERYLENE	CDH-S-020(2-4)	3400	4240	80%	65%-135%
BENZO(G,H,I)PERYLENE	CDH-S-032(10-12)	3600	4240	85%	65%-135%
BENZO(G,H,I)PERYLENE	CDH-S-046(10-12)	< 830	< 1000	--	In range
BENZO(G,H,I)PERYLENE	CHA-S-001A	< 830	< 1000	--	In range
BENZO(G,H,I)PERYLENE	CHA-S-004	< 830	< 1000	--	In range
BENZO(K)FLUORANTHENE	CDH-S-005(10-12)	2500	970-4680	--	In range
BENZO(K)FLUORANTHENE	CDH-S-005(2-4)	2600	970-4680	--	In range
BENZO(K)FLUORANTHENE	CDH-S-007(10-12)	2800	970-4680	--	In range
BENZO(K)FLUORANTHENE	CDH-S-007(2-4)	3200	970-4680	--	In range
BENZO(K)FLUORANTHENE	CDH-S-009(2-4)	2800	970-4680	--	In range
BENZO(K)FLUORANTHENE	CDH-S-016(10-12)	2900	970-4680	--	In range
BENZO(K)FLUORANTHENE	CDH-S-018(2-4)	2700	970-4680	--	In range
BENZO(K)FLUORANTHENE	CDH-S-020(2-4)	4200	5420	77%	65%-135%
BENZO(K)FLUORANTHENE	CDH-S-032(10-12)	4300	5420	79%	65%-135%
BENZO(K)FLUORANTHENE	CDH-S-046(10-12)	3000	970-4680	--	In range
BENZO(K)FLUORANTHENE	CHA-S-001A	3000	970-4680	--	In range
BENZO(K)FLUORANTHENE	CHA-S-004	3400	970-4680	--	In range
BENZOIC ACID	CDH-S-005(10-12)	< 4100 V	0-9200	--	In range

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Reference Results (cont.):

Parameter	Reference Field ID	Reference Result	Reference Certified Value or Range	Percent Recovery	Acceptance Criteria
BENZOIC ACID	CDH-S-005(2-4)	< 5700 V	0-12400	--	In range
BENZOIC ACID	CDH-S-007(10-12)	< 2700	0-6400	--	In range
BENZOIC ACID	CDH-S-007(2-4)	< 2700	0-6400	--	In range
BENZOIC ACID	CDH-S-009(2-4)	< 3300	0-7600	--	In range
BENZOIC ACID	CDH-S-016(10-12)	< 3300	0-7600	--	In range
BENZOIC ACID	CDH-S-018(2-4)	< 3300	0-7600	--	In range
BENZOIC ACID	CDH-S-020(2-4)	< 3300	0-7600	--	In range
BENZOIC ACID	CDH-S-032(10-12)	< 3300	0-7600	--	In range
BENZOIC ACID	CDH-S-046(10-12)	< 3300	0-7600	--	In range
BENZOIC ACID	CHA-S-001A	< 3300	0-7600	--	In range
BENZOIC ACID	CHA-S-004	< 3300	0-7600	--	In range
BENZYL ALCOHOL	CDH-S-005(10-12)	< 1000	< 1000	--	In range
BENZYL ALCOHOL	CDH-S-005(2-4)	< 1400	0-3800	--	In range
BENZYL ALCOHOL	CDH-S-007(10-12)	< 660	< 1000	--	In range
BENZYL ALCOHOL	CDH-S-007(2-4)	< 670	< 1000	--	In range
BENZYL ALCOHOL	CDH-S-009(2-4)	< 830	< 1000	--	In range
BENZYL ALCOHOL	CDH-S-016(10-12)	< 830	< 1000	--	In range
BENZYL ALCOHOL	CDH-S-018(2-4)	< 840	< 1000	--	In range
BENZYL ALCOHOL	CDH-S-020(2-4)	< 830	< 1000	--	In range
BENZYL ALCOHOL	CDH-S-032(10-12)	< 840	< 1000	--	In range
BENZYL ALCOHOL	CDH-S-046(10-12)	< 830	< 1000	--	In range
BENZYL ALCOHOL	CHA-S-001A	< 830	< 1000	--	In range
BENZYL ALCOHOL	CHA-S-004	< 830	< 1000	--	In range
BIS(2-CHLOROETHOXY) METHANE	CDH-S-018(2-4)	4800	6990	69%	65%-135%
BIS(2-CHLOROETHOXY)METHANE	CDH-S-005(10-12)	4900	1320-8160	--	In range

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Reference Results (cont.):

Parameter	Reference Field ID	Reference Result	Reference Certified Value or Range	Percent Recovery	Acceptance Criteria
BIS(2-CHLOROETHOXY)METHANE	CDH-S-005(2-4)	4600	1320-8160	--	In range
BIS(2-CHLOROETHOXY)METHANE	CDH-S-007(10-12)	4600	6990	66%	65%-135%
BIS(2-CHLOROETHOXY)METHANE	CDH-S-007(2-4)	5600	6990	80%	65%-135%
BIS(2-CHLOROETHOXY)METHANE	CDH-S-009(2-4)	5300	6990	76%	65%-135%
BIS(2-CHLOROETHOXY)METHANE	CDH-S-016(10-12)	5000	6990	72%	65%-135%
BIS(2-CHLOROETHOXY)METHANE	CDH-S-020(2-4)	9900	13600	73%	65%-135%
BIS(2-CHLOROETHOXY)METHANE	CDH-S-032(10-12)	10000	13600	74%	65%-135%
BIS(2-CHLOROETHOXY)METHANE	CDH-S-046(10-12)	4800	6990	69%	65%-135%
BIS(2-CHLOROETHOXY)METHANE	CHA-S-001A	6000	6990	86%	65%-135%
BIS(2-CHLOROETHOXY)METHANE	CHA-S-004	6100	6990	87%	65%-135%
BIS(2-CHLOROETHYL) ETHER	CDH-S-005(10-12)	6100	451-12600	--	In range
BIS(2-CHLOROETHYL) ETHER	CDH-S-005(2-4)	5700	451-12600	--	In range
BIS(2-CHLOROETHYL) ETHER	CDH-S-007(10-12)	6000	451-12600	--	In range
BIS(2-CHLOROETHYL) ETHER	CDH-S-007(2-4)	7600	451-12600	--	In range

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Reference Results (cont.):

Parameter	Reference Field ID	Reference Result	Reference Certified Value or Range	Percent Recovery	Acceptance Criteria
BIS(2-CHLOROETHYL) ETHER	CDH-S-009(2-4)	6700	451-12600	--	In range
BIS(2-CHLOROETHYL) ETHER	CDH-S-016(10-12)	6200	451-12600	--	In range
BIS(2-CHLOROETHYL) ETHER	CDH-S-018(2-4)	5900	451-12600	--	In range
BIS(2-CHLOROETHYL) ETHER	CDH-S-020(2-4)	5800	1770-10500	--	In range
BIS(2-CHLOROETHYL) ETHER	CDH-S-032(10-12)	6000	1770-10500	--	In range
BIS(2-CHLOROETHYL) ETHER	CDH-S-046(10-12)	6000	451-12600	--	In range
BIS(2-CHLOROETHYL) ETHER	CHA-S-001A	8300	11000	75%	65%-135%
BIS(2-CHLOROETHYL) ETHER	CHA-S-004	8800	11000	80%	65%-135%
BIS(2-CHLOROISOPROPYL) ETHER	CDH-S-005(10-12)	< 1000	< 1000	--	In range
BIS(2-CHLOROISOPROPYL) ETHER	CDH-S-005(2-4)	< 1400	0-3800	--	In range
BIS(2-CHLOROISOPROPYL) ETHER	CDH-S-007(10-12)	< 660	< 1000	--	In range
BIS(2-CHLOROISOPROPYL) ETHER	CDH-S-007(2-4)	< 670	< 1000	--	In range
BIS(2-CHLOROISOPROPYL) ETHER	CDH-S-009(2-4)	< 830	< 1000	--	In range
BIS(2-CHLOROISOPROPYL) ETHER	CDH-S-016(10-12)	< 830	< 1000	--	In range
BIS(2-CHLOROISOPROPYL) ETHER	CDH-S-018(2-4)	< 840	< 1000	--	In range

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Reference Results (cont.):

Parameter	Reference Field ID	Reference Result	Reference Certified Value or Range	Percent Recovery	Acceptance Criteria
BIS(2-CHLOROISOPROPYL) ETHER	CDH-S-020(2-4)	4700	6730	70%	65%-135%
BIS(2-CHLOROISOPROPYL) ETHER	CDH-S-032(10-12)	4700	6730	70%	65%-135%
BIS(2-CHLOROISOPROPYL) ETHER	CDH-S-046(10-12)	< 830	< 1000	--	In range
BIS(2-CHLOROISOPROPYL) ETHER	CHA-S-001A	< 830	< 1000	--	In range
BIS(2-CHLOROISOPROPYL) ETHER	CHA-S-004	< 830	< 1000	--	In range
BIS(2-ETHYLHEXYL) PHTHALATE	CDH-S-005(10-12)	5900	7970	74%	65%-135%
BIS(2-ETHYLHEXYL) PHTHALATE	CDH-S-005(2-4)	6000	7970	75%	65%-135%
BIS(2-ETHYLHEXYL) PHTHALATE	CDH-S-007(10-12)	6000	7970	75%	65%-135%
BIS(2-ETHYLHEXYL) PHTHALATE	CDH-S-007(2-4)	6500	7970	82%	65%-135%
BIS(2-ETHYLHEXYL) PHTHALATE	CDH-S-009(2-4)	6700	7970	84%	65%-135%
BIS(2-ETHYLHEXYL) PHTHALATE	CDH-S-016(10-12)	5500	7970	69%	65%-135%
BIS(2-ETHYLHEXYL) PHTHALATE	CDH-S-018(2-4)	6000	7970	75%	65%-135%
BIS(2-ETHYLHEXYL) PHTHALATE	CDH-S-020(2-4)	< 830	< 1000	--	In range
BIS(2-ETHYLHEXYL) PHTHALATE	CDH-S-032(10-12)	< 840	< 1000	--	In range
BIS(2-ETHYLHEXYL) PHTHALATE	CDH-S-046(10-12)	5500	7970	69%	65%-135%
BIS(2-ETHYLHEXYL) PHTHALATE	CHA-S-001A	6700	7970	84%	65%-135%
BIS(2-ETHYLHEXYL) PHTHALATE	CHA-S-004	6900	7970	87%	65%-135%

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Reference Results (cont.):

Parameter	Reference Field ID	Reference Result	Reference Certified Value or Range	Percent Recovery	Acceptance Criteria
BUTYL BENZYL PHTHALATE	CDH-S-005(10-12)	< 1000	< 1000	--	In range
BUTYL BENZYL PHTHALATE	CDH-S-005(2-4)	< 1400	0-3800	--	In range
BUTYL BENZYL PHTHALATE	CDH-S-007(10-12)	< 660	< 1000	--	In range
BUTYL BENZYL PHTHALATE	CDH-S-007(2-4)	< 670	< 1000	--	In range
BUTYL BENZYL PHTHALATE	CDH-S-009(2-4)	< 830	< 1000	--	In range
BUTYL BENZYL PHTHALATE	CDH-S-016(10-12)	< 830	< 1000	--	In range
BUTYL BENZYL PHTHALATE	CDH-S-018(2-4)	< 840	< 1000	--	In range
BUTYL BENZYL PHTHALATE	CDH-S-020(2-4)	< 830	< 1000	--	In range
BUTYL BENZYL PHTHALATE	CDH-S-032(10-12)	< 840	< 1000	--	In range
BUTYL BENZYL PHTHALATE	CDH-S-046(10-12)	< 830	< 1000	--	In range
BUTYL BENZYL PHTHALATE	CHA-S-001A	< 830	< 1000	--	In range
BUTYL BENZYL PHTHALATE	CHA-S-004	< 830	< 1000	--	In range
CARBAZOLE	CDH-S-005(10-12)	< 1000 L	< 1000	--	In range
CARBAZOLE	CDH-S-005(2-4)	< 1400 L	0-3800	--	In range
CARBAZOLE	CDH-S-007(10-12)	< 660	< 1000	--	In range
CARBAZOLE	CDH-S-007(2-4)	< 670	< 1000	--	In range
CARBAZOLE	CDH-S-009(2-4)	< 830	< 1000	--	In range
CARBAZOLE	CDH-S-016(10-12)	< 830	< 1000	--	In range
CARBAZOLE	CDH-S-018(2-4)	< 840	< 1000	--	In range
CARBAZOLE	CDH-S-020(2-4)	< 830	< 1000	--	In range
CARBAZOLE	CDH-S-032(10-12)	< 840	< 1000	--	In range
CARBAZOLE	CDH-S-046(10-12)	< 830	< 1000	--	In range

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Reference Results (cont.):

Parameter	Reference Field ID	Reference Result	Reference Certified Value or Range	Percent Recovery	Acceptance Criteria
CARBAZOLE	CHA-S-001A	< 830 L	< 1000	--	In range
CARBAZOLE	CHA-S-004	< 830 L	< 1000	--	In range
CHLORDANE-ALPHA	CDH-S-005(10-12)	240 RC	362	66%	65%-135%
CHLORDANE-ALPHA	CDH-S-005(2-4)	**< 0.67 RC**	362	--	**Out of range**
CHLORDANE-ALPHA	CDH-S-007(10-12)	230	118-460	--	In range
CHLORDANE-ALPHA	CDH-S-007(2-4)	210	118-460	--	In range
CHLORDANE-ALPHA	CDH-S-009(2-4)	250	362	69%	65%-135%
CHLORDANE-ALPHA	CDH-S-009(2-4)B	250	362	69%	65%-135%
CHLORDANE-ALPHA	CDH-S-016(10-12)	280	362	77%	65%-135%
CHLORDANE-ALPHA	CDH-S-018(2-4)	210	118-460	--	In range
CHLORDANE-ALPHA	CDH-S-020(2-4)	260	362	72%	65%-135%
CHLORDANE-ALPHA	CDH-S-032(10-12)	260	362	72%	65%-135%
CHLORDANE-ALPHA	CDH-S-046(10-12)	210	118-460	--	In range
CHLORDANE-ALPHA	CHA-S-001A	91	49.7-203	--	In range
CHLORDANE-ALPHA	CHA-S-004	89	49.7-203	--	In range
CHLORDANE-GAMMA	CDH-S-005(10-12)	160 RC	231	69%	65%-135%
CHLORDANE-GAMMA	CDH-S-005(2-4)	**< 0.67 RC**	231	--	**Out of range**
CHLORDANE-GAMMA	CDH-S-007(10-12)	150	87.9-285	--	In range
CHLORDANE-GAMMA	CDH-S-007(2-4)	140	87.9-285	--	In range
CHLORDANE-GAMMA	CDH-S-009(2-4)	160	231	69%	65%-135%
CHLORDANE-GAMMA	CDH-S-009(2-4)B	160	231	69%	65%-135%
CHLORDANE-GAMMA	CDH-S-016(10-12)	180	231	78%	65%-135%
CHLORDANE-GAMMA	CDH-S-018(2-4)	140	87.9-285	--	In range
CHLORDANE-GAMMA	CDH-S-020(2-4)	170	231	74%	65%-135%
CHLORDANE-GAMMA	CDH-S-032(10-12)	170	231	74%	65%-135%
CHLORDANE-GAMMA	CDH-S-046(10-12)	140	87.9-285	--	In range
CHLORDANE-GAMMA	CHA-S-001A	< 67	30.9-126	--	In range
CHLORDANE-GAMMA	CHA-S-004	< 67	30.9-126	--	In range

RC = Reanalyzed and confirmed

Results for External Quality Assurance Samples
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Reference Results (cont.):

Parameter	Reference Field ID	Reference Result	Reference Certified Value or Range	Percent Recovery	Acceptance Criteria
CHRYSENE	CDH-S-005(10-12)	< 1000	360-1700	--	In range
CHRYSENE	CDH-S-005(2-4)	< 1400	360-1700	--	In range
CHRYSENE	CDH-S-007(10-12)	1100	1220	--	+/-2RL
CHRYSENE	CDH-S-007(2-4)	1200	1220	--	+/-2RL
CHRYSENE	CDH-S-009(2-4)	1100	360-1700	--	In range
CHRYSENE	CDH-S-016(10-12)	990	360-1700	--	In range
CHRYSENE	CDH-S-018(2-4)	990	360-1700	--	In range
CHRYSENE	CDH-S-020(2-4)	1700	612-2810	--	In range
CHRYSENE	CDH-S-032(10-12)	1800	612-2810	--	In range
CHRYSENE	CDH-S-046(10-12)	1000	360-1700	--	In range
CHRYSENE	CHA-S-001A	1100	360-1700	--	In range
CHRYSENE	CHA-S-004	1200	360-1700	--	In range
DIBENZ(A,H)ANTHRACENE	CDH-S-005(10-12)	< 1000	< 1000	--	In range
DIBENZ(A,H)ANTHRACENE	CDH-S-005(2-4)	< 1400	0-3800	--	In range
DIBENZ(A,H)ANTHRACENE	CDH-S-007(10-12)	< 660	< 1000	--	In range
DIBENZ(A,H)ANTHRACENE	CDH-S-007(2-4)	< 670	< 1000	--	In range
DIBENZ(A,H)ANTHRACENE	CDH-S-009(2-4)	< 830	< 1000	--	In range
DIBENZ(A,H)ANTHRACENE	CDH-S-016(10-12)	< 830	< 1000	--	In range
DIBENZ(A,H)ANTHRACENE	CDH-S-018(2-4)	< 840	< 1000	--	In range
DIBENZ(A,H)ANTHRACENE	CDH-S-020(2-4)	1500	237-2720	--	In range
DIBENZ(A,H)ANTHRACENE	CDH-S-032(10-12)	1600	237-2720	--	In range
DIBENZ(A,H)ANTHRACENE	CDH-S-046(10-12)	< 830	< 1000	--	In range
DIBENZ(A,H)ANTHRACENE	CHA-S-001A	< 830	< 1000	--	In range
DIBENZ(A,H)ANTHRACENE	CHA-S-004	< 830	< 1000	--	In range
DIBENZOFURAN	CDH-S-005(10-12)	6800	8670	78%	65%-135%
DIBENZOFURAN	CDH-S-005(2-4)	6100	8670	70%	65%-135%
DIBENZOFURAN	CDH-S-007(10-12)	5500	2270-10400	--	In range

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Reference Results (cont.):

Parameter	Reference Field ID	Reference Result	Reference Certified Value or Range	Percent Recovery	Acceptance Criteria
DIBENZOFURAN	CDH-S-007(2-4)	6500	2270-10400	--	In range
DIBENZOFURAN	CDH-S-009(2-4)	6900	8670	80%	65%-135%
DIBENZOFURAN	CDH-S-016(10-12)	6300	8670	73%	65%-135%
DIBENZOFURAN	CDH-S-018(2-4)	6300	8670	73%	65%-135%
DIBENZOFURAN	CDH-S-020(2-4)	6600	9040	73%	65%-135%
DIBENZOFURAN	CDH-S-032(10-12)	6800	9040	75%	65%-135%
DIBENZOFURAN	CDH-S-046(10-12)	6600	8670	76%	65%-135%
DIBENZOFURAN	CHA-S-001A	7100	8670	82%	65%-135%
DIBENZOFURAN	CHA-S-004	7200	8670	83%	65%-135%
DIELDRIN	CDH-S-005(10-12)	320 RC	478	67%	65%-135%
DIELDRIN	CDH-S-005(2-4)	**< 0.67 RC**	478	--	**Out of range**
DIELDRIN	CDH-S-007(10-12)	290	171-597	--	In range
DIELDRIN	CDH-S-007(2-4)	280	171-597	--	In range
DIELDRIN	CDH-S-009(2-4)	330	478	69%	65%-135%
DIELDRIN	CDH-S-009(2-4)B	330	478	69%	65%-135%
DIELDRIN	CDH-S-016(10-12)	360	478	75%	65%-135%
DIELDRIN	CDH-S-018(2-4)	290	171-597	--	In range
DIELDRIN	CDH-S-020(2-4)	330	478	69%	65%-135%
DIELDRIN	CDH-S-032(10-12)	330	478	69%	65%-135%
DIELDRIN	CDH-S-046(10-12)	290	171-597	--	In range
DIELDRIN	CHA-S-001A	170	93.4-359	--	In range
DIELDRIN	CHA-S-004	160	93.4-359	--	In range
DIESEL RANGE ORGANICS	CDH-S-005(10-12)	830	1190	70%	65%-135%
DIESEL RANGE ORGANICS	CDH-S-005(2-4)	880	1190	74%	65%-135%
DIESEL RANGE ORGANICS	CDH-S-007(10-12)	800	1190	67%	65%-135%
DIESEL RANGE ORGANICS	CDH-S-007(2-4)	1100	1190	92%	65%-135%

RC = Reanalyzed and confirmed

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Reference Results (cont.):

Parameter	Reference Field ID	Reference Result	Reference Certified Value or Range	Percent Recovery	Acceptance Criteria
DIESEL RANGE ORGANICS	CDH-S-009(2-4)	910	1190	76%	65%-135%
DIESEL RANGE ORGANICS	CDH-S-009(2-4)B	930	1190	78%	65%-135%
DIESEL RANGE ORGANICS	CDH-S-016(10-12)	900	1190	76%	65%-135%
DIESEL RANGE ORGANICS	CDH-S-018(2-4)	720	397-1680	--	In range
DIESEL RANGE ORGANICS	CDH-S-020(2-4)	920	1190	77%	65%-135%
DIESEL RANGE ORGANICS	CDH-S-032(10-12)	820	1190	69%	65%-135%
DIESEL RANGE ORGANICS	CDH-S-046(10-12)	970	397-1680	--	In range
DIESEL RANGE ORGANICS	CHA-S-001A	1200	1190	99%	65%-135%
DIESEL RANGE ORGANICS	CHA-S-004	1200	1190	99%	65%-135%
DIETHYL PHTHALATE	CDH-S-005(10-12)	6800	9050	75%	65%-135%
DIETHYL PHTHALATE	CDH-S-005(2-4)	6300	9050	70%	65%-135%
DIETHYL PHTHALATE	CDH-S-007(10-12)	5700	1920-11600	--	In range
DIETHYL PHTHALATE	CDH-S-007(2-4)	6200	1920-11600	--	In range
DIETHYL PHTHALATE	CDH-S-009(2-4)	6700	9050	74%	65%-135%
DIETHYL PHTHALATE	CDH-S-016(10-12)	5900	9050	65%	65%-135%
DIETHYL PHTHALATE	CDH-S-018(2-4)	6100	1920-11600	--	In range
DIETHYL PHTHALATE	CDH-S-020(2-4)	< 830	< 1000	--	In range
DIETHYL PHTHALATE	CDH-S-032(10-12)	< 840	< 1000	--	In range
DIETHYL PHTHALATE	CDH-S-046(10-12)	5600	1920-11600	--	In range
DIETHYL PHTHALATE	CHA-S-001A	6900	9050	76%	65%-135%
DIETHYL PHTHALATE	CHA-S-004	7000	9050	77%	65%-135%
DIMETHYL PHTHALATE	CDH-S-005(10-12)	4100	1500-7070	--	In range
DIMETHYL PHTHALATE	CDH-S-005(2-4)	3800	1500-7070	--	In range

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Reference Results (cont.):

Parameter	Reference Field ID	Reference Result	Reference Certified Value or Range	Percent Recovery	Acceptance Criteria
DIMETHYL PHTHALATE	CDH-S-007(10-12)	3800	5690	67%	65%-135%
DIMETHYL PHTHALATE	CDH-S-007(2-4)	4100	5690	72%	65%-135%
DIMETHYL PHTHALATE	CDH-S-009(2-4)	4200	5690	74%	65%-135%
DIMETHYL PHTHALATE	CDH-S-016(10-12)	3800	5690	67%	65%-135%
DIMETHYL PHTHALATE	CDH-S-018(2-4)	3900	1500-7070	--	In range
DIMETHYL PHTHALATE	CDH-S-020(2-4)	5600	7820	72%	65%-135%
DIMETHYL PHTHALATE	CDH-S-032(10-12)	5700	7820	73%	65%-135%
DIMETHYL PHTHALATE	CDH-S-046(10-12)	3400	1500-7070	--	In range
DIMETHYL PHTHALATE	CHA-S-001A	4400	5690	77%	65%-135%
DIMETHYL PHTHALATE	CHA-S-004	4400	5690	77%	65%-135%
DI-N-BUTYL PHTHALATE	CDH-S-005(10-12)	6300	8160	77%	65%-135%
DI-N-BUTYL PHTHALATE	CDH-S-005(2-4)	6400	8160	78%	65%-135%
DI-N-BUTYL PHTHALATE	CDH-S-007(10-12)	5900	8160	72%	65%-135%
DI-N-BUTYL PHTHALATE	CDH-S-007(2-4)	6500	8160	80%	65%-135%
DI-N-BUTYL PHTHALATE	CDH-S-009(2-4)	6500	8160	80%	65%-135%
DI-N-BUTYL PHTHALATE	CDH-S-016(10-12)	5600	8160	69%	65%-135%
DI-N-BUTYL PHTHALATE	CDH-S-018(2-4)	6000	8160	74%	65%-135%
DI-N-BUTYL PHTHALATE	CDH-S-020(2-4)	< 830	< 1000	--	In range
DI-N-BUTYL PHTHALATE	CDH-S-032(10-12)	< 840	< 1000	--	In range
DI-N-BUTYL PHTHALATE	CDH-S-046(10-12)	5700	8160	70%	65%-135%
DI-N-BUTYL PHTHALATE	CHA-S-001A	6600	8160	81%	65%-135%
DI-N-BUTYL PHTHALATE	CHA-S-004	7000	8160	86%	65%-135%
DI-N-OCTYL PHTHALATE	CDH-S-005(10-12)	7200	9760	74%	65%-135%
DI-N-OCTYL PHTHALATE	CDH-S-005(2-4)	7100	9760	72%	65%-135%
DI-N-OCTYL PHTHALATE	CDH-S-007(10-12)	6700	9760	69%	65%-135%
DI-N-OCTYL PHTHALATE	CDH-S-007(2-4)	7300	9760	75%	65%-135%
DI-N-OCTYL PHTHALATE	CDH-S-009(2-4)	9600 V	9760	98%	65%-135%

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Reference Results (cont.):

Parameter	Reference Field ID	Reference Result	Reference Certified Value or Range	Percent Recovery	Acceptance Criteria
DI-N-OCTYL PHTHALATE	CDH-S-016(10-12)	6500 V	9760	67%	65%-135%
DI-N-OCTYL PHTHALATE	CDH-S-018(2-4)	7600	9760	78%	65%-135%
DI-N-OCTYL PHTHALATE	CDH-S-020(2-4)	9100	11300	81%	65%-135%
DI-N-OCTYL PHTHALATE	CDH-S-032(10-12)	8400	11300	74%	65%-135%
DI-N-OCTYL PHTHALATE	CDH-S-046(10-12)	6500	9760	67%	65%-135%
DI-N-OCTYL PHTHALATE	CHA-S-001A	7700	9760	79%	65%-135%
DI-N-OCTYL PHTHALATE	CHA-S-004	8000	9760	82%	65%-135%
ENDOSULFAN I	CDH-S-005(10-12)	**52 RC**	71.4-486	--	**Out of range**
ENDOSULFAN I	CDH-S-005(2-4)	**< 0.67 RC**	71.4-486	--	**Out of range**
ENDOSULFAN I	CDH-S-007(10-12)	**39 L**	71.4-486	--	**Out of range**
ENDOSULFAN I	CDH-S-007(2-4)	**33 L**	71.4-486	--	**Out of range**
ENDOSULFAN I	CDH-S-009(2-4)	**34 L**	71.4-486	--	**Out of range**
ENDOSULFAN I	CDH-S-009(2-4)B	**35 L**	71.4-486	--	**Out of Range**
ENDOSULFAN I	CDH-S-016(10-12)	**40 L**	71.4-486	--	**Out of range**
ENDOSULFAN I	CDH-S-018(2-4)	**29 L**	71.4-486	--	**Out of range**
ENDOSULFAN I	CDH-S-020(2-4)	**38 L**	71.4-486	--	**Out of range**
ENDOSULFAN I	CDH-S-032(10-12)	**31 L**	71.4-486	--	**Out of range**
ENDOSULFAN I	CDH-S-046(10-12)	**27 L**	71.4-486	--	**Out of range**
ENDOSULFAN I	CHA-S-001A	< 67	25.5-199	--	In range
ENDOSULFAN I	CHA-S-004	< 67	25.5-199	--	In range
ENDOSULFAN II	CDH-S-005(10-12)	86 RC	78.2-521	--	In range

RC = Reanalyzed and confirmed

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Reference Results (cont.):

Parameter	Reference Field ID	Reference Result	Reference Certified Value or Range	Percent Recovery	Acceptance Criteria
ENDOSULFAN II	CDH-S-005(2-4)	**< 0.67 RC**	78.2-521	--	**Out of range**
ENDOSULFAN II	CDH-S-007(10-12)	**66 L**	78.2-521	--	**Out of range**
ENDOSULFAN II	CDH-S-007(2-4)	**54 L**	78.2-521	--	**Out of range**
ENDOSULFAN II	CDH-S-009(2-4)	**69 L**	78.2-521	--	**Out of range**
ENDOSULFAN II	CDH-S-009(2-4)B	**69 L**	78.2-521	--	**Out of Range**
ENDOSULFAN II	CDH-S-016(10-12)	**71 L**	78.2-521	--	**Out of range**
ENDOSULFAN II	CDH-S-018(2-4)	**56 L**	78.2-521	--	**Out of range**
ENDOSULFAN II	CDH-S-020(2-4)	**64 L**	78.2-521	--	**Out of range**
ENDOSULFAN II	CDH-S-032(10-12)	**54 L**	78.2-521	--	**Out of range**
ENDOSULFAN II	CDH-S-046(10-12)	**59 L**	78.2-521	--	**Out of range**
ENDOSULFAN II	CHA-S-001A	69	35.6-246	--	In range
ENDOSULFAN II	CHA-S-004	< 67	35.6-246	--	In range
ENDOSULFAN SULFATE	CDH-S-005(10-12)	200 RC	293	68%	65%-135%
ENDOSULFAN SULFATE	CDH-S-005(2-4)	**< 0.67 RC**	293	--	**Out of range**
ENDOSULFAN SULFATE	CDH-S-007(10-12)	190	60.7-407	--	In range
ENDOSULFAN SULFATE	CDH-S-007(2-4)	170	60.7-407	--	In range
ENDOSULFAN SULFATE	CDH-S-009(2-4)	210	293	72%	65%-135%
ENDOSULFAN SULFATE	CDH-S-009(2-4)B	210	293	72%	65%-135%
ENDOSULFAN SULFATE	CDH-S-016(10-12)	240	293	82%	65%-135%
ENDOSULFAN SULFATE	CDH-S-018(2-4)	180	60.7-407	--	In range
ENDOSULFAN SULFATE	CDH-S-020(2-4)	220	293	75%	65%-135%
ENDOSULFAN SULFATE	CDH-S-032(10-12)	210	293	72%	65%-135%
ENDOSULFAN SULFATE	CDH-S-046(10-12)	180	60.7-407	--	In range

RC = Reanalyzed and confirmed

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Reference Results (cont.):

Parameter	Reference Field ID	Reference Result	Reference Certified Value or Range	Percent Recovery	Acceptance Criteria
ENDOSULFAN SULFATE	CHA-S-001A	140	49.1-339	--	In range
ENDOSULFAN SULFATE	CHA-S-004	130	49.1-339	--	In range
ENDRIN	CDH-S-005(10-12)	190 RC	262	73%	65%-135%
ENDRIN	CDH-S-005(2-4)	**< 0.67 RC**	262	--	**Out of range**
ENDRIN	CDH-S-007(10-12)	170	107-345	--	In range
ENDRIN	CDH-S-007(2-4)	160	107-345	--	In range
ENDRIN	CDH-S-009(2-4)	190	262	73%	65%-135%
ENDRIN	CDH-S-009(2-4)B	190	262	73%	65%-135%
ENDRIN	CDH-S-016(10-12)	220	262	84%	65%-135%
ENDRIN	CDH-S-018(2-4)	170	107-345	--	In range
ENDRIN	CDH-S-020(2-4)	200	262	76%	65%-135%
ENDRIN	CDH-S-032(10-12)	200	262	76%	65%-135%
ENDRIN	CDH-S-046(10-12)	170	107-345	--	In range
ENDRIN	CHA-S-001A	110	47.5-195	--	In range
ENDRIN	CHA-S-004	110	47.5-195	--	In range
ENDRIN ALDEHYDE	CDH-S-005(10-12)	190 RC	38.1-407	--	In range
ENDRIN ALDEHYDE	CDH-S-005(2-4)	**< 0.67 RC**	38.1-407	--	**Out of range**
ENDRIN ALDEHYDE	CDH-S-007(10-12)	160	38.1-407	--	In range
ENDRIN ALDEHYDE	CDH-S-007(2-4)	150	38.1-407	--	In range
ENDRIN ALDEHYDE	CDH-S-009(2-4)	190	38.1-407	--	In range
ENDRIN ALDEHYDE	CDH-S-009(2-4)B	180	38.1-407	--	In range
ENDRIN ALDEHYDE	CDH-S-016(10-12)	220	38.1-407	--	In range
ENDRIN ALDEHYDE	CDH-S-018(2-4)	160	38.1-407	--	In range
ENDRIN ALDEHYDE	CDH-S-020(2-4)	190	38.1-407	--	In range
ENDRIN ALDEHYDE	CDH-S-032(10-12)	190	38.1-407	--	In range
ENDRIN ALDEHYDE	CDH-S-046(10-12)	150	38.1-407	--	In range
ENDRIN ALDEHYDE	CHA-S-001A	140	31.2-344	--	In range
ENDRIN ALDEHYDE	CHA-S-004	130	31.2-344	--	In range

RC = Reanalyzed and confirmed

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Reference Results (cont.):

Parameter	Reference Field ID	Reference Result	Reference Certified Value or Range	Percent Recovery	Acceptance Criteria
ENDRIN KETONE	CDH-S-005(10-12)	260 RC	334	78%	65%-135%
ENDRIN KETONE	CDH-S-005(2-4)	**< 0.67 RC**	334	--	**Out of range**
ENDRIN KETONE	CDH-S-007(10-12)	210	85.4-460	--	In range
ENDRIN KETONE	CDH-S-007(2-4)	190	85.4-460	--	In range
ENDRIN KETONE	CDH-S-009(2-4)	270	334	81%	65%-135%
ENDRIN KETONE	CDH-S-009(2-4)B	260	334	78%	65%-135%
ENDRIN KETONE	CDH-S-016(10-12)	300	334	90%	65%-135%
ENDRIN KETONE	CDH-S-018(2-4)	210	85.4-460	--	In range
ENDRIN KETONE	CDH-S-020(2-4)	270	334	81%	65%-135%
ENDRIN KETONE	CDH-S-032(10-12)	280	334	84%	65%-135%
ENDRIN KETONE	CDH-S-046(10-12)	200	85.4-460	--	In range
ENDRIN KETONE	CHA-S-001A	230	98.3-522	--	In range
ENDRIN KETONE	CHA-S-004	220	98.3-522	--	In range
FLUORANTHENE	CDH-S-005(10-12)	< 1000	< 1000	--	In range
FLUORANTHENE	CDH-S-005(2-4)	< 1400	0-3800	--	In range
FLUORANTHENE	CDH-S-007(10-12)	< 660	< 1000	--	In range
FLUORANTHENE	CDH-S-007(2-4)	< 670	< 1000	--	In range
FLUORANTHENE	CDH-S-009(2-4)	< 830	< 1000	--	In range
FLUORANTHENE	CDH-S-016(10-12)	< 830	< 1000	--	In range
FLUORANTHENE	CDH-S-018(2-4)	< 840	< 1000	--	In range
FLUORANTHENE	CDH-S-020(2-4)	3400	1360-5410	--	In range
FLUORANTHENE	CDH-S-032(10-12)	3500	1360-5410	--	In range
FLUORANTHENE	CDH-S-046(10-12)	< 830	< 1000	--	In range
FLUORANTHENE	CHA-S-001A	< 830	< 1000	--	In range
FLUORANTHENE	CHA-S-004	< 830	< 1000	--	In range
FLUORENE	CDH-S-005(10-12)	7600	9820	77%	65%-135%
FLUORENE	CDH-S-005(2-4)	6800	9820	69%	65%-135%
FLUORENE	CDH-S-007(10-12)	6200	3080-11200	--	In range
FLUORENE	CDH-S-007(2-4)	7200	3080-11200	--	In range

RC = Reanalyzed and confirmed

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Reference Results (cont.):

Parameter	Reference Field ID	Reference Result	Reference Certified Value or Range	Percent Recovery	Acceptance Criteria
FLUORENE	CDH-S-009(2-4)	7900	9820	80%	65%-135%
FLUORENE	CDH-S-016(10-12)	6900	9820	70%	65%-135%
FLUORENE	CDH-S-018(2-4)	7200	9820	73%	65%-135%
FLUORENE	CDH-S-020(2-4)	4600	5740	80%	65%-135%
FLUORENE	CDH-S-032(10-12)	4700	5740	82%	65%-135%
FLUORENE	CDH-S-046(10-12)	7400	9820	75%	65%-135%
FLUORENE	CHA-S-001A	8100	9820	82%	65%-135%
FLUORENE	CHA-S-004	8200	9820	84%	65%-135%
GAMMA-BHC	CDH-S-005(10-12)	270 RC	113-520	--	In range
GAMMA-BHC	CDH-S-005(2-4)	**< 0.67 RC**	113-520	--	**Out of range**
GAMMA-BHC	CDH-S-007(10-12)	240	113-520	--	In range
GAMMA-BHC	CDH-S-007(2-4)	230	113-520	--	In range
GAMMA-BHC	CDH-S-009(2-4)	280	420	67%	65%-135%
GAMMA-BHC	CDH-S-009(2-4)B	280	420	67%	65%-135%
GAMMA-BHC	CDH-S-016(10-12)	310	420	74%	65%-135%
GAMMA-BHC	CDH-S-018(2-4)	220	113-520	--	In range
GAMMA-BHC	CDH-S-020(2-4)	280	420	67%	65%-135%
GAMMA-BHC	CDH-S-032(10-12)	280	420	67%	65%-135%
GAMMA-BHC	CDH-S-046(10-12)	220	113-520	--	In range
GAMMA-BHC	CHA-S-001A	180	98.4-465	--	In range
GAMMA-BHC	CHA-S-004	170	98.4-465	--	In range
HCH-ALPHA	CDH-S-005(10-12)	130 RC	187	70%	65%-135%
HCH-ALPHA	CDH-S-005(2-4)	**< 0.67 RC**	187	--	**Out of range**
HCH-ALPHA	CDH-S-007(10-12)	110	45.4-230	--	In range
HCH-ALPHA	CDH-S-007(2-4)	110	45.4-230	--	In range
HCH-ALPHA	CDH-S-009(2-4)	130	187	70%	65%-135%
HCH-ALPHA	CDH-S-009(2-4)B	130	187	70%	65%-135%
HCH-ALPHA	CDH-S-016(10-12)	150	187	80%	65%-135%
HCH-ALPHA	CDH-S-018(2-4)	100	45.4-230	--	In range

RC = Reanalyzed and confirmed

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Reference Results (cont.):

Parameter	Reference Field ID	Reference Result	Reference Certified Value or Range	Percent Recovery	Acceptance Criteria
HCH-ALPHA	CDH-S-020(2-4)	140	187	75%	65%-135%
HCH-ALPHA	CDH-S-032(10-12)	130	187	70%	65%-135%
HCH-ALPHA	CDH-S-046(10-12)	99	45.4-230	--	In range
HCH-ALPHA	CHA-S-001A	86	42.4-218	--	In range
HCH-ALPHA	CHA-S-004	82	42.4-218	--	In range
HCH-BETA	CDH-S-005(10-12)	240 RC	76.6-531	--	In range
HCH-BETA	CDH-S-005(2-4)	**< 0.67 RC**	76.6-531	--	**Out of range**
HCH-BETA	CDH-S-007(10-12)	220	76.6-531	--	In range
HCH-BETA	CDH-S-007(2-4)	210	76.6-531	--	In range
HCH-BETA	CDH-S-009(2-4)	250	76.6-531	--	In range
HCH-BETA	CDH-S-009(2-4)B	250	76.6-531	--	In range
HCH-BETA	CDH-S-016(10-12)	280	76.6-531	--	In range
HCH-BETA	CDH-S-018(2-4)	210	76.6-531	--	In range
HCH-BETA	CDH-S-020(2-4)	260	397	65%	65%-135%
HCH-BETA	CDH-S-032(10-12)	260	397	65%	65%-135%
HCH-BETA	CDH-S-046(10-12)	210	76.6-531	--	In range
HCH-BETA	CHA-S-001A	190	71.6-502	--	In range
HCH-BETA	CHA-S-004	180	71.6-502	--	In range
HCH-DELTA	CDH-S-005(10-12)	270 RC	387	70%	65%-135%
HCH-DELTA	CDH-S-005(2-4)	**< 0.67 RC**	387	--	**Out of range**
HCH-DELTA	CDH-S-007(10-12)	240	94.4-507	--	In range
HCH-DELTA	CDH-S-007(2-4)	220	94.4-507	--	In range
HCH-DELTA	CDH-S-009(2-4)	260	387	67%	65%-135%
HCH-DELTA	CDH-S-009(2-4)B	270	387	70%	65%-135%
HCH-DELTA	CDH-S-016(10-12)	300	387	78%	65%-135%
HCH-DELTA	CDH-S-018(2-4)	210	94.4-507	--	In range
HCH-DELTA	CDH-S-020(2-4)	280	387	72%	65%-135%
HCH-DELTA	CDH-S-032(10-12)	280	387	72%	65%-135%

RC = Reanalyzed and confirmed

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Reference Results (cont.):

Parameter	Reference Field ID	Reference Result	Reference Certified Value or Range	Percent Recovery	Acceptance Criteria
HCH-DELTA	CDH-S-046(10-12)	210	94.4-507	--	In range
HCH-DELTA	CHA-S-001A	210	94.3-506	--	In range
HCH-DELTA	CHA-S-004	200	94.3-506	--	In range
HEPTACHLOR	CDH-S-005(10-12)	120 RC	168	71%	65%-135%
HEPTACHLOR	CDH-S-005(2-4)	**< 0.67 RC**	168	--	**Out of range**
HEPTACHLOR	CDH-S-007(10-12)	110	47.7-225	--	In range
HEPTACHLOR	CDH-S-007(2-4)	100	47.7-225	--	In range
HEPTACHLOR	CDH-S-009(2-4)	120	168	71%	65%-135%
HEPTACHLOR	CDH-S-009(2-4)B	120	168	71%	65%-135%
HEPTACHLOR	CDH-S-016(10-12)	140	168	83%	65%-135%
HEPTACHLOR	CDH-S-018(2-4)	110	168	65%	65%-135%
HEPTACHLOR	CDH-S-020(2-4)	130	168	77%	65%-135%
HEPTACHLOR	CDH-S-032(10-12)	120	168	71%	65%-135%
HEPTACHLOR	CDH-S-046(10-12)	110	168	65%	65%-135%
HEPTACHLOR	CHA-S-001A	190	96.5-435	--	In range
HEPTACHLOR	CHA-S-004	180	96.5-435	--	In range
HEPTACHLOR EPOXIDE	CDH-S-005(10-12)	140 RC	178	79%	65%-135%
HEPTACHLOR EPOXIDE	CDH-S-005(2-4)	**0.81 V, RC**	178	--	**Out of range**
HEPTACHLOR EPOXIDE	CDH-S-007(10-12)	130	178	73%	65%-135%
HEPTACHLOR EPOXIDE	CDH-S-007(2-4)	120	178	67%	65%-135%
HEPTACHLOR EPOXIDE	CDH-S-009(2-4)	140	178	79%	65%-135%
HEPTACHLOR EPOXIDE	CDH-S-009(2-4)B	140	178	79%	65%-135%
HEPTACHLOR EPOXIDE	CDH-S-016(10-12)	160	178	90%	65%-135%
HEPTACHLOR EPOXIDE	CDH-S-018(2-4)	130	178	73%	65%-135%
HEPTACHLOR EPOXIDE	CDH-S-020(2-4)	150	178	84%	65%-135%
HEPTACHLOR EPOXIDE	CDH-S-032(10-12)	150	178	84%	65%-135%
HEPTACHLOR EPOXIDE	CDH-S-046(10-12)	120	178	67%	65%-135%
HEPTACHLOR EPOXIDE	CHA-S-001A	< 67	21.8-97.9	--	In range

RC = Reanalyzed and confirmed

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Reference Results (cont.):

Parameter	Reference Field ID	Reference Result	Reference Certified Value or Range	Percent Recovery	Acceptance Criteria
HEPTACHLOR EPOXIDE	CHA-S-004	< 67	21.8-97.9	--	In range
HEXACHLOROBENZENE	CDH-S-005(10-12)	9200	10900	84%	65%-135%
HEXACHLOROBENZENE	CDH-S-005(2-4)	8800	10900	81%	65%-135%
HEXACHLOROBENZENE	CDH-S-007(10-12)	7300	10900	67%	65%-135%
HEXACHLOROBENZENE	CDH-S-007(2-4)	8100	10900	74%	65%-135%
HEXACHLOROBENZENE	CDH-S-009(2-4)	8600	10900	79%	65%-135%
HEXACHLOROBENZENE	CDH-S-016(10-12)	7700	10900	71%	65%-135%
HEXACHLOROBENZENE	CDH-S-018(2-4)	8500	10900	78%	65%-135%
HEXACHLOROBENZENE	CDH-S-020(2-4)	< 830	< 1000	--	In range
HEXACHLOROBENZENE	CDH-S-032(10-12)	< 840	< 1000	--	In range
HEXACHLOROBENZENE	CDH-S-046(10-12)	9300	10900	85%	65%-135%
HEXACHLOROBENZENE	CHA-S-001A	9000	10900	83%	65%-135%
HEXACHLOROBENZENE	CHA-S-004	9400	10900	86%	65%-135%
HEXACHLOROCYCLOPENTADIENE	CDH-S-018(2-4)	< 840	< 1000	--	In range
HEXACHLOROCYCLOPENTADIENE	CDH-S-005(10-12)	< 1000	< 1000	--	In range
HEXACHLOROCYCLOPENTADIENE	CDH-S-005(2-4)	< 1400	0-3800	--	In range
HEXACHLOROCYCLOPENTADIENE	CDH-S-007(10-12)	< 660	< 1000	--	In range
HEXACHLOROCYCLOPENTADIENE	CDH-S-007(2-4)	< 670	< 1000	--	In range
HEXACHLOROCYCLOPENTADIENE	CDH-S-009(2-4)	< 830	< 1000	--	In range
HEXACHLOROCYCLOPENTADIENE	CDH-S-016(10-12)	< 830	< 1000	--	In range
HEXACHLOROCYCLOPENTADIENE	CDH-S-020(2-4)	< 830	< 1000	--	In range
HEXACHLOROCYCLOPENTADIENE	CDH-S-032(10-12)	< 840	< 1000	--	In range
HEXACHLOROCYCLOPENTADIENE	CDH-S-046(10-12)	< 830	< 1000	--	In range
HEXACHLOROCYCLOPENTADIENE	CHA-S-001A	< 830	< 1000	--	In range
HEXACHLOROCYCLOPENTADIENE	CHA-S-004	< 830	< 1000	--	In range

Reference Results (cont.):

Parameter	Reference Field ID	Reference Result	Reference Certified Value or Range	Percent Recovery	Acceptance Criteria
HEXACHLOROETHANE	CDH-S-005(10-12)	1700	0.0-4850	--	In range
HEXACHLOROETHANE	CDH-S-005(2-4)	1500	0.0-4850	--	In range
HEXACHLOROETHANE	CDH-S-007(10-12)	670	0.0-4850	--	In range
HEXACHLOROETHANE	CDH-S-007(2-4)	< 670	0.0-4850	--	In range
HEXACHLOROETHANE	CDH-S-009(2-4)	1100	0.0-4850	--	In range
HEXACHLOROETHANE	CDH-S-016(10-12)	1900	0.0-4850	--	In range
HEXACHLOROETHANE	CDH-S-018(2-4)	1200	0.0-4850	--	In range
HEXACHLOROETHANE	CDH-S-020(2-4)	< 830	< 1000	--	In range
HEXACHLOROETHANE	CDH-S-032(10-12)	< 840	< 1000	--	In range
HEXACHLOROETHANE	CDH-S-046(10-12)	2000	0.0-4850	--	In range
HEXACHLOROETHANE	CHA-S-001A	2900	0.0-4850	--	In range
HEXACHLOROETHANE	CHA-S-004	3100	0.0-4850	--	In range
INDENO(1,2,3-CD)PYRENE	CDH-S-005(10-12)	1700	216-2900	--	In range
INDENO(1,2,3-CD)PYRENE	CDH-S-005(2-4)	1700	216-2900	--	In range
INDENO(1,2,3-CD)PYRENE	CDH-S-007(10-12)	1500	216-2900	--	In range
INDENO(1,2,3-CD)PYRENE	CDH-S-007(2-4)	1900	216-2900	--	In range
INDENO(1,2,3-CD)PYRENE	CDH-S-009(2-4)	1400	216-2900	--	In range
INDENO(1,2,3-CD)PYRENE	CDH-S-016(10-12)	1600	216-2900	--	In range
INDENO(1,2,3-CD)PYRENE	CDH-S-018(2-4)	1700 H	216-2900	--	In range
INDENO(1,2,3-CD)PYRENE	CDH-S-020(2-4)	< 830	< 1000	--	In range
INDENO(1,2,3-CD)PYRENE	CDH-S-032(10-12)	< 840	< 1000	--	In range
INDENO(1,2,3-CD)PYRENE	CDH-S-046(10-12)	2000 H	216-2900	--	In range
INDENO(1,2,3-CD)PYRENE	CHA-S-001A	1600	216-2900	--	In range
INDENO(1,2,3-CD)PYRENE	CHA-S-004	1700	216-2900	--	In range
ISOPHORONE	CDH-S-005(10-12)	4800	1650-10000	--	In range
ISOPHORONE	CDH-S-005(2-4)	4500	1650-10000	--	In range
ISOPHORONE	CDH-S-007(10-12)	5100	1650-10000	--	In range
ISOPHORONE	CDH-S-007(2-4)	5800	1650-10000	--	In range
ISOPHORONE	CDH-S-009(2-4)	5500	1650-10000	--	In range
ISOPHORONE	CDH-S-016(10-12)	4800	1650-10000	--	In range

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Reference Results (cont.):

Parameter	Reference Field ID	Reference Result	Reference Certified Value or Range	Percent Recovery	Acceptance Criteria
ISOPHORONE	CDH-S-018(2-4)	4500	1650-10000	--	In range
ISOPHORONE	CDH-S-020(2-4)	< 830	< 1000	--	In range
ISOPHORONE	CDH-S-032(10-12)	< 840	< 1000	--	In range
ISOPHORONE	CDH-S-046(10-12)	4500	1650-10000	--	In range
ISOPHORONE	CHA-S-001A	6200	8420	74%	65%-135%
ISOPHORONE	CHA-S-004	6600	8420	78%	65%-135%
METHOXYCHLOR	CDH-S-005(10-12)	270 RC	403	67%	65%-135%
METHOXYCHLOR	CDH-S-005(2-4)	**3.9 V, RC**	403	--	**Out of range**
METHOXYCHLOR	CDH-S-007(10-12)	250	44.8-615	--	In range
METHOXYCHLOR	CDH-S-007(2-4)	230	44.8-615	--	In range
METHOXYCHLOR	CDH-S-009(2-4)	260	44.8-615	--	In range
METHOXYCHLOR	CDH-S-009(2-4)B	260	44.8-615	--	In range
METHOXYCHLOR	CDH-S-016(10-12)	300	44.8-615	--	In range
METHOXYCHLOR	CDH-S-018(2-4)	280	403	69%	65%-135%
METHOXYCHLOR	CDH-S-020(2-4)	300	403	74%	65%-135%
METHOXYCHLOR	CDH-S-032(10-12)	310	403	77%	65%-135%
METHOXYCHLOR	CDH-S-046(10-12)	280	403	69%	65%-135%
METHOXYCHLOR	CHA-S-001A	200	40.2-572	--	In range
METHOXYCHLOR	CHA-S-004	200	40.2-572	--	In range
NITROBENZENE	CDH-S-005(10-12)	3700	950-7280	--	In range
NITROBENZENE	CDH-S-005(2-4)	3500	950-7280	--	In range
NITROBENZENE	CDH-S-007(10-12)	3300	950-7280	--	In range
NITROBENZENE	CDH-S-007(2-4)	4200	950-7280	--	In range
NITROBENZENE	CDH-S-009(2-4)	4500	950-7280	--	In range
NITROBENZENE	CDH-S-016(10-12)	4100	950-7280	--	In range
NITROBENZENE	CDH-S-018(2-4)	3800	950-7280	--	In range
NITROBENZENE	CDH-S-020(2-4)	7400	11000	67%	65%-135%
NITROBENZENE	CDH-S-032(10-12)	7300	11000	66%	65%-135%
NITROBENZENE	CDH-S-046(10-12)	3900	950-7280	--	In range

RC = Reanalyzed and confirmed

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Reference Results (cont.):

Parameter	Reference Field ID	Reference Result	Reference Certified Value or Range	Percent Recovery	Acceptance Criteria
NITROBENZENE	CHA-S-001A	5100	6400	80%	65%-135%
NITROBENZENE	CHA-S-004	5200	6400	81%	65%-135%
N-NITROSODI-N-PROPYLAMINE	CDH-S-005(10-12)	< 1000	< 1000	--	In range
N-NITROSODI-N-PROPYLAMINE	CDH-S-005(2-4)	< 1400	0-3800	--	In range
N-NITROSODI-N-PROPYLAMINE	CDH-S-007(10-12)	< 660	< 1000	--	In range
N-NITROSODI-N-PROPYLAMINE	CDH-S-007(2-4)	< 670	< 1000	--	In range
N-NITROSODI-N-PROPYLAMINE	CDH-S-009(2-4)	< 830	< 1000	--	In range
N-NITROSODI-N-PROPYLAMINE	CDH-S-016(10-12)	< 830	< 1000	--	In range
N-NITROSODI-N-PROPYLAMINE	CDH-S-018(2-4)	< 840	< 1000	--	In range
N-NITROSODI-N-PROPYLAMINE	CDH-S-020(2-4)	< 830	< 1000	--	In range
N-NITROSODI-N-PROPYLAMINE	CDH-S-032(10-12)	< 840	< 1000	--	In range
N-NITROSODI-N-PROPYLAMINE	CDH-S-046(10-12)	< 830	< 1000	--	In range
N-NITROSODI-N-PROPYLAMINE	CHA-S-001A	< 830	< 1000	--	In range
N-NITROSODI-N-PROPYLAMINE	CHA-S-004	< 830	< 1000	--	In range
N-NITROSODIPHENYLAMINE	CDH-S-005(10-12)	< 1000	< 1000	--	In range
N-NITROSODIPHENYLAMINE	CDH-S-005(2-4)	< 1400	0-3800	--	In range
N-NITROSODIPHENYLAMINE	CDH-S-007(10-12)	< 660	< 1000	--	In range
N-NITROSODIPHENYLAMINE	CDH-S-007(2-4)	< 670	< 1000	--	In range
N-NITROSODIPHENYLAMINE	CDH-S-009(2-4)	< 830	< 1000	--	In range
N-NITROSODIPHENYLAMINE	CDH-S-016(10-12)	< 830	< 1000	--	In range
N-NITROSODIPHENYLAMINE	CDH-S-018(2-4)	< 840	< 1000	--	In range
N-NITROSODIPHENYLAMINE	CDH-S-020(2-4)	< 830	< 1000	--	In range

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Reference Results (cont.):

Parameter	Reference Field ID	Reference Result	Reference Certified Value or Range	Percent Recovery	Acceptance Criteria
N-NITROSODIPHENYLAMINE	CDH-S-032(10-12)	< 840	< 1000	--	In range
N-NITROSODIPHENYLAMINE	CDH-S-046(10-12)	< 830	< 1000	--	In range
N-NITROSODIPHENYLAMINE	CHA-S-001A	< 830	< 1000	--	In range
N-NITROSODIPHENYLAMINE	CHA-S-004	< 830	< 1000	--	In range
PENTACHLOROPHENOL	CDH-S-005(10-12)	5100 H	824-9060	--	In range
PENTACHLOROPHENOL	CDH-S-005(2-4)	5300 H	824-9060	--	In range
PENTACHLOROPHENOL	CDH-S-007(10-12)	**240 L**	1040-11400	--	**Out of range**
PENTACHLOROPHENOL	CDH-S-007(2-4)	**170 L**	1040-11400	--	**Out of range**
PENTACHLOROPHENOL	CDH-S-009(2-4)	4200	1040-11400	--	In range
PENTACHLOROPHENOL	CDH-S-009(2-4)B	3900	1040-11400	--	In range
PENTACHLOROPHENOL	CDH-S-016(10-12)	3500	1040-11400	--	In range
PENTACHLOROPHENOL	CDH-S-018(2-4)	5200 H	1040-11400	--	In range
PENTACHLOROPHENOL	CDH-S-020(2-4)	4100	824-9060	--	In range
PENTACHLOROPHENOL	CDH-S-032(10-12)	3700	824-9060	--	In range
PENTACHLOROPHENOL	CDH-S-046(10-12)	5300 H	1040-11400	--	In range
PENTACHLOROPHENOL	CHA-S-001A	8100	1040-11400	--	In range
PENTACHLOROPHENOL	CHA-S-004	7000	1040-11400	--	In range
PHENANTHRENE	CDH-S-005(10-12)	< 1000	< 1000	--	In range
PHENANTHRENE	CDH-S-005(2-4)	< 1400	0-3800	--	In range
PHENANTHRENE	CDH-S-007(10-12)	< 660	< 1000	--	In range
PHENANTHRENE	CDH-S-007(2-4)	< 670	< 1000	--	In range
PHENANTHRENE	CDH-S-009(2-4)	< 830	< 1000	--	In range
PHENANTHRENE	CDH-S-016(10-12)	< 830	< 1000	--	In range
PHENANTHRENE	CDH-S-018(2-4)	< 840	< 1000	--	In range
PHENANTHRENE	CDH-S-020(2-4)	6200	8060	77%	65%-135%
PHENANTHRENE	CDH-S-032(10-12)	6400	8060	79%	65%-135%
PHENANTHRENE	CDH-S-046(10-12)	< 830	< 1000	--	In range

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Reference Results (cont.):

Parameter	Reference Field ID	Reference Result	Reference Certified Value or Range	Percent Recovery	Acceptance Criteria
PHENANTHRENE	CHA-S-001A	< 830	< 1000	--	In range
PHENANTHRENE	CHA-S-004	< 830	< 1000	--	In range
PHENOL	CDH-S-005(10-12)	5700	1110-12800	--	In range
PHENOL	CDH-S-005(2-4)	5100	1110-12800	--	In range
PHENOL	CDH-S-007(10-12)	4700	1110-12800	--	In range
PHENOL	CDH-S-007(2-4)	6100	1110-12800	--	In range
PHENOL	CDH-S-009(2-4)	7000	1110-12800	--	In range
PHENOL	CDH-S-016(10-12)	6500	1110-12800	--	In range
PHENOL	CDH-S-018(2-4)	6000	1110-12800	--	In range
PHENOL	CDH-S-020(2-4)	7000	1140-13400	--	In range
PHENOL	CDH-S-032(10-12)	7000	1140-13400	--	In range
PHENOL	CDH-S-046(10-12)	6100	1110-12800	--	In range
PHENOL	CHA-S-001A	7300	11100	66%	65%-135%
PHENOL	CHA-S-004	7500	11100	68%	65%-135%
PYRENE	CDH-S-005(10-12)	3300	1330-5680	--	In range
PYRENE	CDH-S-005(2-4)	3100	1330-5680	--	In range
PYRENE	CDH-S-007(10-12)	3500	4500	78%	65%-135%
PYRENE	CDH-S-007(2-4)	3900	4500	87%	65%-135%
PYRENE	CDH-S-009(2-4)	3600	4500	80%	65%-135%
PYRENE	CDH-S-016(10-12)	3200	4500	71%	65%-135%
PYRENE	CDH-S-018(2-4)	3400	4500	76%	65%-135%
PYRENE	CDH-S-020(2-4)	6400	8450	76%	65%-135%
PYRENE	CDH-S-032(10-12)	6400	8450	76%	65%-135%
PYRENE	CDH-S-046(10-12)	3400	4500	76%	65%-135%
PYRENE	CHA-S-001A	3900	1330-5680	--	In range
PYRENE	CHA-S-004	4100	1330-5680	--	In range
PYRIDINE	CDH-S-005(10-12)	< 1000	< 1000	--	In range
PYRIDINE	CDH-S-005(2-4)	< 1400	0-3800	--	In range
PYRIDINE	CDH-S-007(10-12)	< 660	< 1000	--	In range
PYRIDINE	CDH-S-007(2-4)	< 670	< 1000	--	In range

Reference Results (cont.):

Parameter	Reference Field ID	Reference Result	Reference Certified Value or Range	Percent Recovery	Acceptance Criteria
PYRIDINE	CDH-S-009(2-4)	< 830 L	< 1000	--	In range
PYRIDINE	CDH-S-016(10-12)	< 830 L	< 1000	--	In range
PYRIDINE	CDH-S-018(2-4)	< 840 L	< 1000	--	In range
PYRIDINE	CDH-S-020(2-4)	< 830	< 1000	--	In range
PYRIDINE	CDH-S-032(10-12)	< 840	< 1000	--	In range
PYRIDINE	CDH-S-046(10-12)	< 830 L	< 1000	--	In range
PYRIDINE	CHA-S-001A	< 830	< 1000	--	In range
PYRIDINE	CHA-S-004	< 830	< 1000	--	In range

Contamination - Externally Incorporated QA Samples

The following parameters were assessed for contamination and met the QA acceptance limits of less than or equal to two times the RL, less than or equal to 10% of the lowest production sample (LPS) result, or less than the manufacturer's certified value.

Blank Results:

Parameter	Blank Field ID	Blank Result	Reporting Limit	Acceptance Criteria
2,4,5-TRICHLOROPHENOL	CDH-S-005(6-8)	< 170	170	≤ 2RL
2,4,5-TRICHLOROPHENOL	CDH-S-007(6-8)	< 160	160	≤ 2RL
2,4,5-TRICHLOROPHENOL	CDH-S-011(6-8)	< 170	170	≤ 2RL
2,4,5-TRICHLOROPHENOL	CDH-S-021(6-8)	< 170	170	≤ 2RL
2,4,5-TRICHLOROPHENOL	CDH-S-025(6-8)	< 170	170	≤ 2RL
2,4,5-TRICHLOROPHENOL	CDH-S-031(6-8)	< 170	170	≤ 2RL
2,4,5-TRICHLOROPHENOL	CHA-S-003	< 170	170	≤ 2RL
2,4,6-TRICHLOROPHENOL	CDH-S-005(6-8)	< 170	170	≤ 2RL
2,4,6-TRICHLOROPHENOL	CDH-S-007(6-8)	< 160	160	≤ 2RL
2,4,6-TRICHLOROPHENOL	CDH-S-011(6-8)	< 170	170	≤ 2RL
2,4,6-TRICHLOROPHENOL	CDH-S-021(6-8)	< 170	170	≤ 2RL
2,4,6-TRICHLOROPHENOL	CDH-S-025(6-8)	< 170	170	≤ 2RL
2,4,6-TRICHLOROPHENOL	CDH-S-031(6-8)	< 170	170	≤ 2RL
2,4,6-TRICHLOROPHENOL	CHA-S-003	< 170	170	≤ 2RL
2,4-DICHLOROPHENOL	CDH-S-005(6-8)	< 170	170	≤ 2RL
2,4-DICHLOROPHENOL	CDH-S-007(6-8)	< 160	160	≤ 2RL
2,4-DICHLOROPHENOL	CDH-S-011(6-8)	< 170	170	≤ 2RL
2,4-DICHLOROPHENOL	CDH-S-021(6-8)	< 170	170	≤ 2RL
2,4-DICHLOROPHENOL	CDH-S-025(6-8)	< 170	170	≤ 2RL
2,4-DICHLOROPHENOL	CDH-S-031(6-8)	< 170	170	≤ 2RL

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Blank Results (cont.):

Parameter	Blank Field ID	Blank Result	Reporting Limit	Acceptance Criteria
2,4-DICHLOROPHENOL	CHA-S-003	< 170	170	≤ 2RL
2,4-DIMETHYLPHENOL	CDH-S-005(6-8)	< 170	170	≤ 2RL
2,4-DIMETHYLPHENOL	CDH-S-007(6-8)	< 160	160	≤ 2RL
2,4-DIMETHYLPHENOL	CDH-S-011(6-8)	< 170	170	≤ 2RL
2,4-DIMETHYLPHENOL	CDH-S-021(6-8)	< 170	170	≤ 2RL
2,4-DIMETHYLPHENOL	CDH-S-025(6-8)	< 170	170	≤ 2RL
2,4-DIMETHYLPHENOL	CDH-S-031(6-8)	< 170	170	≤ 2RL
2,4-DIMETHYLPHENOL	CHA-S-003	< 170	170	≤ 2RL
2,4-DINITROPHENOL	CDH-S-005(6-8)	< 670	670	≤ 2RL
2,4-DINITROPHENOL	CDH-S-007(6-8)	< 650	650	≤ 2RL
2,4-DINITROPHENOL	CDH-S-011(6-8)	< 670	670	≤ 2RL
2,4-DINITROPHENOL	CDH-S-021(6-8)	< 670	670	≤ 2RL
2,4-DINITROPHENOL	CDH-S-025(6-8)	< 670	670	≤ 2RL
2,4-DINITROPHENOL	CDH-S-031(6-8)	< 660	660	≤ 2RL
2,4-DINITROPHENOL	CHA-S-003	< 670	670	≤ 2RL
2,4-DINITROTOLUENE	CDH-S-005(6-8)	< 170	170	≤ 2RL
2,4-DINITROTOLUENE	CDH-S-007(6-8)	< 160	160	≤ 2RL
2,4-DINITROTOLUENE	CDH-S-011(6-8)	< 170	170	≤ 2RL
2,4-DINITROTOLUENE	CDH-S-021(6-8)	< 170	170	≤ 2RL
2,4-DINITROTOLUENE	CDH-S-025(6-8)	< 170	170	≤ 2RL
2,4-DINITROTOLUENE	CDH-S-031(6-8)	< 170	170	≤ 2RL
2,4-DINITROTOLUENE	CHA-S-003	< 170	170	≤ 2RL
2,6-DINITROTOLUENE	CDH-S-005(6-8)	< 170	170	≤ 2RL
2,6-DINITROTOLUENE	CDH-S-007(6-8)	< 160	160	≤ 2RL
2,6-DINITROTOLUENE	CDH-S-011(6-8)	< 170	170	≤ 2RL
2,6-DINITROTOLUENE	CDH-S-021(6-8)	< 170	170	≤ 2RL
2,6-DINITROTOLUENE	CDH-S-025(6-8)	< 170	170	≤ 2RL
2,6-DINITROTOLUENE	CDH-S-031(6-8)	< 170	170	≤ 2RL
2,6-DINITROTOLUENE	CHA-S-003	< 170	170	≤ 2RL
2-CHLORONAPHTHALENE	CDH-S-005(6-8)	< 170	170	≤ 2RL
2-CHLORONAPHTHALENE	CDH-S-007(6-8)	< 160	160	≤ 2RL
2-CHLORONAPHTHALENE	CDH-S-011(6-8)	< 170	170	≤ 2RL
2-CHLORONAPHTHALENE	CDH-S-021(6-8)	< 170	170	≤ 2RL
2-CHLORONAPHTHALENE	CDH-S-025(6-8)	< 170	170	≤ 2RL
2-CHLORONAPHTHALENE	CDH-S-031(6-8)	< 170	170	≤ 2RL
2-CHLORONAPHTHALENE	CHA-S-003	< 170	170	≤ 2RL
2-CHLOROPHENOL	CDH-S-005(6-8)	< 170	170	≤ 2RL
2-CHLOROPHENOL	CDH-S-007(6-8)	< 160	160	≤ 2RL
2-CHLOROPHENOL	CDH-S-011(6-8)	< 170	170	≤ 2RL
2-CHLOROPHENOL	CDH-S-021(6-8)	< 170	170	≤ 2RL
2-CHLOROPHENOL	CDH-S-025(6-8)	< 170	170	≤ 2RL
2-CHLOROPHENOL	CDH-S-031(6-8)	< 170	170	≤ 2RL
2-CHLOROPHENOL	CHA-S-003	< 170	170	≤ 2RL
2-METHYLNAPHTHALENE	CDH-S-005(6-8)	< 170	170	≤ 2RL

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Blank Results (cont.):

Parameter	Blank Field ID	Blank Result	Reporting Limit	Acceptance Criteria
2-METHYLNAPHTHALENE	CDH-S-007(6-8)	< 160	160	≤ 2RL
2-METHYLNAPHTHALENE	CDH-S-011(6-8)	< 170	170	≤ 2RL
2-METHYLNAPHTHALENE	CDH-S-021(6-8)	< 170	170	≤ 2RL
2-METHYLNAPHTHALENE	CDH-S-025(6-8)	< 170	170	≤ 2RL
2-METHYLNAPHTHALENE	CDH-S-031(6-8)	< 170	170	≤ 2RL
2-METHYLNAPHTHALENE	CHA-S-003	< 170	170	≤ 2RL
2-METHYLPHENOL	CDH-S-005(6-8)	< 170	170	≤ 2RL
2-METHYLPHENOL	CDH-S-007(6-8)	< 160	160	≤ 2RL
2-METHYLPHENOL	CDH-S-011(6-8)	< 170	170	≤ 2RL
2-METHYLPHENOL	CDH-S-021(6-8)	< 170	170	≤ 2RL
2-METHYLPHENOL	CDH-S-025(6-8)	< 170	170	≤ 2RL
2-METHYLPHENOL	CDH-S-031(6-8)	< 170	170	≤ 2RL
2-METHYLPHENOL	CHA-S-003	< 170	170	≤ 2RL
2-NITROANILINE	CDH-S-005(6-8)	< 170 L	170	≤ 2RL
2-NITROANILINE	CDH-S-007(6-8)	< 160	160	≤ 2RL
2-NITROANILINE	CDH-S-011(6-8)	< 170	170	≤ 2RL
2-NITROANILINE	CDH-S-021(6-8)	< 170	170	≤ 2RL
2-NITROANILINE	CDH-S-025(6-8)	< 170	170	≤ 2RL
2-NITROANILINE	CDH-S-031(6-8)	< 170	170	≤ 2RL
2-NITROANILINE	CHA-S-003	< 170	170	≤ 2RL
2-NITROPHENOL	CDH-S-005(6-8)	< 170	170	≤ 2RL
2-NITROPHENOL	CDH-S-007(6-8)	< 160	160	≤ 2RL
2-NITROPHENOL	CDH-S-011(6-8)	< 170	170	≤ 2RL
2-NITROPHENOL	CDH-S-021(6-8)	< 170	170	≤ 2RL
2-NITROPHENOL	CDH-S-025(6-8)	< 170	170	≤ 2RL
2-NITROPHENOL	CDH-S-031(6-8)	< 170	170	≤ 2RL
2-NITROPHENOL	CHA-S-003	< 170	170	≤ 2RL
3,3'-DICHLOROBENZIDINE	CDH-S-005(6-8)	< 170	170	≤ 2RL
3,3'-DICHLOROBENZIDINE	CDH-S-007(6-8)	< 160	160	≤ 2RL
3,3'-DICHLOROBENZIDINE	CDH-S-011(6-8)	< 170	170	≤ 2RL
3,3'-DICHLOROBENZIDINE	CDH-S-021(6-8)	< 170	170	≤ 2RL
3,3'-DICHLOROBENZIDINE	CDH-S-025(6-8)	< 170	170	≤ 2RL
3,3'-DICHLOROBENZIDINE	CDH-S-031(6-8)	< 170	170	≤ 2RL
3,3'-DICHLOROBENZIDINE	CHA-S-003	< 170	170	≤ 2RL
3-NITROANILINE	CDH-S-005(6-8)	< 170	170	≤ 2RL
3-NITROANILINE	CDH-S-007(6-8)	< 160	160	≤ 2RL
3-NITROANILINE	CDH-S-011(6-8)	< 170	170	≤ 2RL
3-NITROANILINE	CDH-S-021(6-8)	< 170	170	≤ 2RL
3-NITROANILINE	CDH-S-025(6-8)	< 170	170	≤ 2RL
3-NITROANILINE	CDH-S-031(6-8)	< 170	170	≤ 2RL
3-NITROANILINE	CHA-S-003	< 170	170	≤ 2RL
4,4'-DDD	CDH-S-005(6-8)	< 0.67	0.67	≤ 2RL
4,4'-DDD	CDH-S-007(6-8)	< 0.67	0.67	≤ 2RL
4,4'-DDD	CDH-S-011(6-8)	< 0.67	0.67	≤ 2RL

Results for External Quality Assurance Samples
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Blank Results (cont.):

Parameter	Blank Field ID	Blank Result	Reporting Limit	Acceptance Criteria
4,4'-DDD	CDH-S-021(6-8)	< 0.67	0.67	≤ 2RL
4,4'-DDD	CDH-S-025(6-8)	< 0.67	0.67	≤ 2RL
4,4'-DDD	CDH-S-031(6-8)	< 0.67	0.67	≤ 2RL
4,4'-DDD	CHA-S-003	< 0.67	0.67	≤ 2RL
4,4'-DDE	CDH-S-005(6-8)	< 0.67	0.67	≤ 2RL
4,4'-DDE	CDH-S-007(6-8)	< 0.67	0.67	≤ 2RL
4,4'-DDE	CDH-S-011(6-8)	< 0.67	0.67	≤ 2RL
4,4'-DDE	CDH-S-021(6-8)	< 0.67	0.67	≤ 2RL
4,4'-DDE	CDH-S-025(6-8)	< 0.67	0.67	≤ 2RL
4,4'-DDE	CDH-S-031(6-8)	< 0.67	0.67	≤ 2RL
4,4'-DDE	CHA-S-003	< 0.67	0.67	≤ 2RL
4,4'-DDT	CDH-S-005(6-8)	< 0.67	0.67	≤ 2RL
4,4'-DDT	CDH-S-007(6-8)	< 0.67	0.67	≤ 2RL
4,4'-DDT	CDH-S-011(6-8)	< 0.67	0.67	≤ 2RL
4,4'-DDT	CDH-S-021(6-8)	< 0.67	0.67	≤ 2RL
4,4'-DDT	CDH-S-025(6-8)	< 0.67	0.67	≤ 2RL
4,4'-DDT	CDH-S-031(6-8)	< 0.67	0.67	≤ 2RL
4,4'-DDT	CHA-S-003	< 0.67	0.67	≤ 2RL
4,6-DINITRO-2-METHYLPHENOL	CDH-S-005(6-8)	< 670	670	≤ 2RL
4,6-DINITRO-2-METHYLPHENOL	CDH-S-007(6-8)	< 650	650	≤ 2RL
4,6-DINITRO-2-METHYLPHENOL	CDH-S-011(6-8)	< 670	670	≤ 2RL
4,6-DINITRO-2-METHYLPHENOL	CDH-S-021(6-8)	< 670	670	≤ 2RL
4,6-DINITRO-2-METHYLPHENOL	CDH-S-025(6-8)	< 670	670	≤ 2RL
4,6-DINITRO-2-METHYLPHENOL	CDH-S-031(6-8)	< 660	660	≤ 2RL
4,6-DINITRO-2-METHYLPHENOL	CHA-S-003	< 670	670	≤ 2RL
4-BROMOPHENYL PHENYL ETHER	CDH-S-005(6-8)	< 170	170	≤ 2RL
4-BROMOPHENYL PHENYL ETHER	CDH-S-007(6-8)	< 160	160	≤ 2RL
4-BROMOPHENYL PHENYL ETHER	CDH-S-011(6-8)	< 170	170	≤ 2RL
4-BROMOPHENYL PHENYL ETHER	CDH-S-021(6-8)	< 170	170	≤ 2RL
4-BROMOPHENYL PHENYL ETHER	CDH-S-025(6-8)	< 170	170	≤ 2RL

Blank Results (cont.):

Parameter	Blank Field ID	Blank Result	Reporting Limit	Acceptance Criteria
4-BROMOPHENYL PHENYL ETHER	CDH-S-031(6-8)	< 170	170	≤ 2RL
4-BROMOPHENYL PHENYL ETHER	CHA-S-003	< 170	170	≤ 2RL
4-CHLORO-3-METHYLPHENOL	CDH-S-005(6-8)	< 170	170	≤ 2RL
4-CHLORO-3-METHYLPHENOL	CDH-S-007(6-8)	< 160	160	≤ 2RL
4-CHLORO-3-METHYLPHENOL	CDH-S-011(6-8)	< 170	170	≤ 2RL
4-CHLORO-3-METHYLPHENOL	CDH-S-021(6-8)	< 170	170	≤ 2RL
4-CHLORO-3-METHYLPHENOL	CDH-S-025(6-8)	< 170	170	≤ 2RL
4-CHLORO-3-METHYLPHENOL	CDH-S-031(6-8)	< 170	170	≤ 2RL
4-CHLORO-3-METHYLPHENOL	CHA-S-003	< 170	170	≤ 2RL
4-CHLOROANILINE	CDH-S-005(6-8)	< 170	170	≤ 2RL
4-CHLOROANILINE	CDH-S-007(6-8)	< 160	160	≤ 2RL
4-CHLOROANILINE	CDH-S-011(6-8)	< 170	170	≤ 2RL
4-CHLOROANILINE	CDH-S-021(6-8)	< 170	170	≤ 2RL
4-CHLOROANILINE	CDH-S-025(6-8)	< 170	170	≤ 2RL
4-CHLOROANILINE	CDH-S-031(6-8)	< 170	170	≤ 2RL
4-CHLOROANILINE	CHA-S-003	< 170	170	≤ 2RL
4-CHLOROPHENYL PHENYL ETHER	CDH-S-005(6-8)	< 170	170	≤ 2RL
4-CHLOROPHENYL PHENYL ETHER	CDH-S-007(6-8)	< 160	160	≤ 2RL
4-CHLOROPHENYL PHENYL ETHER	CDH-S-011(6-8)	< 170	170	≤ 2RL
4-CHLOROPHENYL PHENYL ETHER	CDH-S-021(6-8)	< 170	170	≤ 2RL
4-CHLOROPHENYL PHENYL ETHER	CDH-S-025(6-8)	< 170	170	≤ 2RL
4-CHLOROPHENYL PHENYL ETHER	CDH-S-031(6-8)	< 170	170	≤ 2RL
4-CHLOROPHENYL PHENYL ETHER	CHA-S-003	< 170	170	≤ 2RL
4-METHYLPHENOL	CDH-S-005(6-8)	< 170	170	≤ 2RL
4-METHYLPHENOL	CDH-S-007(6-8)	< 160	160	≤ 2RL
4-METHYLPHENOL	CDH-S-011(6-8)	< 170	170	≤ 2RL
4-METHYLPHENOL	CDH-S-021(6-8)	< 170	170	≤ 2RL
4-METHYLPHENOL	CDH-S-025(6-8)	< 170	170	≤ 2RL

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Blank Results (cont.):

Parameter	Blank Field ID	Blank Result	Reporting Limit	Acceptance Criteria
4-METHYLPHENOL	CDH-S-031(6-8)	< 170	170	≤ 2RL
4-METHYLPHENOL	CHA-S-003	< 170	170	≤ 2RL
4-NITROANILINE	CDH-S-005(6-8)	< 170	170	≤ 2RL
4-NITROANILINE	CDH-S-007(6-8)	< 160	160	≤ 2RL
4-NITROANILINE	CDH-S-011(6-8)	< 170	170	≤ 2RL
4-NITROANILINE	CDH-S-021(6-8)	< 170	170	≤ 2RL
4-NITROANILINE	CDH-S-025(6-8)	< 170	170	≤ 2RL
4-NITROANILINE	CDH-S-031(6-8)	< 170 L	170	≤ 2RL
4-NITROANILINE	CHA-S-003	< 170	170	≤ 2RL
4-NITROPHENOL	CDH-S-005(6-8)	< 670	670	≤ 2RL
4-NITROPHENOL	CDH-S-007(6-8)	< 650	650	≤ 2RL
4-NITROPHENOL	CDH-S-011(6-8)	< 670	670	≤ 2RL
4-NITROPHENOL	CDH-S-021(6-8)	< 670	670	≤ 2RL
4-NITROPHENOL	CDH-S-025(6-8)	< 670	670	≤ 2RL
4-NITROPHENOL	CDH-S-031(6-8)	< 660	660	≤ 2RL
4-NITROPHENOL	CHA-S-003	< 670	670	≤ 2RL
ACENAPHTHENE	CDH-S-005(6-8)	< 170	170	≤ 2RL
ACENAPHTHENE	CDH-S-007(6-8)	< 160	160	≤ 2RL
ACENAPHTHENE	CDH-S-011(6-8)	< 170	170	≤ 2RL
ACENAPHTHENE	CDH-S-021(6-8)	< 170	170	≤ 2RL
ACENAPHTHENE	CDH-S-025(6-8)	< 170	170	≤ 2RL
ACENAPHTHENE	CDH-S-031(6-8)	< 170	170	≤ 2RL
ACENAPHTHENE	CHA-S-003	< 170	170	≤ 2RL
ACENAPHTHYLENE	CDH-S-005(6-8)	< 170	170	≤ 2RL
ACENAPHTHYLENE	CDH-S-007(6-8)	< 160	160	≤ 2RL
ACENAPHTHYLENE	CDH-S-011(6-8)	< 170	170	≤ 2RL
ACENAPHTHYLENE	CDH-S-021(6-8)	< 170	170	≤ 2RL
ACENAPHTHYLENE	CDH-S-025(6-8)	< 170	170	≤ 2RL
ACENAPHTHYLENE	CDH-S-031(6-8)	< 170	170	≤ 2RL
ACENAPHTHYLENE	CHA-S-003	< 170	170	≤ 2RL
ALDRIN	CDH-S-005(6-8)	< 0.67	0.67	≤ 2RL
ALDRIN	CDH-S-007(6-8)	< 0.67	0.67	≤ 2RL
ALDRIN	CDH-S-011(6-8)	< 0.67	0.67	≤ 2RL
ALDRIN	CDH-S-021(6-8)	< 0.67	0.67	≤ 2RL
ALDRIN	CDH-S-025(6-8)	< 0.67	0.67	≤ 2RL
ALDRIN	CDH-S-031(6-8)	< 0.67	0.67	≤ 2RL
ALDRIN	CHA-S-003	< 0.67	0.67	≤ 2RL
ANTHRACENE	CDH-S-005(6-8)	< 170	170	≤ 2RL
ANTHRACENE	CDH-S-007(6-8)	< 160	160	≤ 2RL
ANTHRACENE	CDH-S-011(6-8)	< 170	170	≤ 2RL
ANTHRACENE	CDH-S-021(6-8)	< 170	170	≤ 2RL
ANTHRACENE	CDH-S-025(6-8)	< 170	170	≤ 2RL
ANTHRACENE	CDH-S-031(6-8)	< 170	170	≤ 2RL
ANTHRACENE	CHA-S-003	< 170	170	≤ 2RL

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Blank Results (cont.):

Parameter	Blank Field ID	Blank Result	Reporting Limit	Acceptance Criteria
AROCLOR 1016	CDH-S-005(6-8)	< 0.033	0.033	≤ 2RL
AROCLOR 1016	CDH-S-007(6-8)	< 0.033	0.033	≤ 2RL
AROCLOR 1016	CDH-S-011(6-8)	< 0.033	0.033	≤ 2RL
AROCLOR 1016	CDH-S-025(6-8)	< 0.033	0.033	≤ 2RL
AROCLOR 1016	CDH-S-031(6-8)	< 0.033	0.033	≤ 2RL
AROCLOR 1016	CHA-S-003	< 0.033	0.033	≤ 2RL
AROCLOR 1221	CDH-S-005(6-8)	< 0.067	0.067	≤ 2RL
AROCLOR 1221	CDH-S-007(6-8)	< 0.067	0.067	≤ 2RL
AROCLOR 1221	CDH-S-011(6-8)	< 0.067	0.067	≤ 2RL
AROCLOR 1221	CDH-S-025(6-8)	< 0.067	0.067	≤ 2RL
AROCLOR 1221	CDH-S-031(6-8)	< 0.067	0.067	≤ 2RL
AROCLOR 1221	CHA-S-003	< 0.067	0.067	≤ 2RL
AROCLOR 1232	CDH-S-005(6-8)	< 0.033	0.033	≤ 2RL
AROCLOR 1232	CDH-S-007(6-8)	< 0.033	0.033	≤ 2RL
AROCLOR 1232	CDH-S-011(6-8)	< 0.033	0.033	≤ 2RL
AROCLOR 1232	CDH-S-025(6-8)	< 0.033	0.033	≤ 2RL
AROCLOR 1232	CDH-S-031(6-8)	< 0.033	0.033	≤ 2RL
AROCLOR 1232	CHA-S-003	< 0.033	0.033	≤ 2RL
AROCLOR 1242	CDH-S-005(6-8)	< 0.033	0.033	≤ 2RL
AROCLOR 1242	CDH-S-007(6-8)	< 0.033	0.033	≤ 2RL
AROCLOR 1242	CDH-S-011(6-8)	< 0.033 L	0.033	≤ 2RL
AROCLOR 1242	CDH-S-025(6-8)	< 0.033	0.033	≤ 2RL
AROCLOR 1242	CDH-S-031(6-8)	< 0.033	0.033	≤ 2RL
AROCLOR 1242	CHA-S-003	< 0.033	0.033	≤ 2RL
AROCLOR 1248	CDH-S-005(6-8)	< 0.033	0.033	≤ 2RL
AROCLOR 1248	CDH-S-007(6-8)	< 0.033	0.033	≤ 2RL
AROCLOR 1248	CDH-S-011(6-8)	< 0.033	0.033	≤ 2RL
AROCLOR 1248	CDH-S-025(6-8)	< 0.033	0.033	≤ 2RL
AROCLOR 1248	CDH-S-031(6-8)	< 0.033	0.033	≤ 2RL
AROCLOR 1248	CHA-S-003	< 0.033	0.033	≤ 2RL
AROCLOR 1254	CDH-S-005(6-8)	< 0.033	0.033	≤ 2RL
AROCLOR 1254	CDH-S-007(6-8)	< 0.033	0.033	≤ 2RL
AROCLOR 1254	CDH-S-011(6-8)	< 0.033	0.033	≤ 2RL
AROCLOR 1254	CDH-S-025(6-8)	< 0.033	0.033	≤ 2RL
AROCLOR 1254	CDH-S-031(6-8)	< 0.033	0.033	≤ 2RL
AROCLOR 1254	CHA-S-003	< 0.033	0.033	≤ 2RL
AROCLOR 1260	CDH-S-005(6-8)	< 0.033	0.033	≤ 2RL
AROCLOR 1260	CDH-S-007(6-8)	< 0.033	0.033	≤ 2RL
AROCLOR 1260	CDH-S-011(6-8)	< 0.033	0.033	≤ 2RL
AROCLOR 1260	CDH-S-025(6-8)	< 0.033	0.033	≤ 2RL
AROCLOR 1260	CDH-S-031(6-8)	< 0.033	0.033	≤ 2RL
AROCLOR 1260	CHA-S-003	< 0.033	0.033	≤ 2RL
AROCLOR 1268	CDH-S-005(6-8)	< 0.033	0.033	≤ 2RL
AROCLOR 1268	CDH-S-007(6-8)	< 0.033	0.033	≤ 2RL

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Blank Results (cont.):

Parameter	Blank Field ID	Blank Result	Reporting Limit	Acceptance Criteria
AROCLOR 1268	CDH-S-011(6-8)	< 0.033	0.033	≤ 2RL
AROCLOR 1268	CDH-S-025(6-8)	< 0.033	0.033	≤ 2RL
AROCLOR 1268	CDH-S-031(6-8)	< 0.033	0.033	≤ 2RL
AROCLOR 1268	CHA-S-003	< 0.033	0.033	≤ 2RL
BENZ(A)ANTHRACENE	CDH-S-005(6-8)	< 170	170	≤ 2RL
BENZ(A)ANTHRACENE	CDH-S-007(6-8)	< 160	160	≤ 2RL
BENZ(A)ANTHRACENE	CDH-S-011(6-8)	< 170	170	≤ 2RL
BENZ(A)ANTHRACENE	CDH-S-021(6-8)	< 170	170	≤ 2RL
BENZ(A)ANTHRACENE	CDH-S-025(6-8)	< 170	170	≤ 2RL
BENZ(A)ANTHRACENE	CDH-S-031(6-8)	< 170	170	≤ 2RL
BENZ(A)ANTHRACENE	CHA-S-003	< 170	170	≤ 2RL
BENZO(A)PYRENE	CDH-S-005(6-8)	< 170	170	≤ 2RL
BENZO(A)PYRENE	CDH-S-007(6-8)	< 160	160	≤ 2RL
BENZO(A)PYRENE	CDH-S-011(6-8)	< 170	170	≤ 2RL
BENZO(A)PYRENE	CDH-S-021(6-8)	< 170	170	≤ 2RL
BENZO(A)PYRENE	CDH-S-025(6-8)	< 170	170	≤ 2RL
BENZO(A)PYRENE	CDH-S-031(6-8)	< 170	170	≤ 2RL
BENZO(A)PYRENE	CHA-S-003	< 170	170	≤ 2RL
BENZO(B)FLUORANTHENE	CDH-S-005(6-8)	< 170	170	≤ 2RL
BENZO(B)FLUORANTHENE	CDH-S-007(6-8)	< 160	160	≤ 2RL
BENZO(B)FLUORANTHENE	CDH-S-011(6-8)	< 170	170	≤ 2RL
BENZO(B)FLUORANTHENE	CDH-S-021(6-8)	< 170	170	≤ 2RL
BENZO(B)FLUORANTHENE	CDH-S-025(6-8)	< 170	170	≤ 2RL
BENZO(B)FLUORANTHENE	CDH-S-031(6-8)	< 170	170	≤ 2RL
BENZO(B)FLUORANTHENE	CHA-S-003	< 170	170	≤ 2RL
BENZO(G,H,I)PERYLENE	CDH-S-005(6-8)	< 170	170	≤ 2RL
BENZO(G,H,I)PERYLENE	CDH-S-007(6-8)	< 160	160	≤ 2RL
BENZO(G,H,I)PERYLENE	CDH-S-011(6-8)	< 170	170	≤ 2RL
BENZO(G,H,I)PERYLENE	CDH-S-021(6-8)	< 170	170	≤ 2RL
BENZO(G,H,I)PERYLENE	CDH-S-025(6-8)	< 170	170	≤ 2RL
BENZO(G,H,I)PERYLENE	CDH-S-031(6-8)	< 170	170	≤ 2RL
BENZO(G,H,I)PERYLENE	CHA-S-003	< 170	170	≤ 2RL
BENZO(K)FLUORANTHENE	CDH-S-005(6-8)	< 170	170	≤ 2RL
BENZO(K)FLUORANTHENE	CDH-S-007(6-8)	< 160	160	≤ 2RL
BENZO(K)FLUORANTHENE	CDH-S-011(6-8)	< 170	170	≤ 2RL
BENZO(K)FLUORANTHENE	CDH-S-021(6-8)	< 170	170	≤ 2RL
BENZO(K)FLUORANTHENE	CDH-S-025(6-8)	< 170	170	≤ 2RL
BENZO(K)FLUORANTHENE	CDH-S-031(6-8)	< 170	170	≤ 2RL
BENZO(K)FLUORANTHENE	CHA-S-003	< 170	170	≤ 2RL
BENZOIC ACID	CDH-S-005(6-8)	< 670 V	670	≤ 2RL
BENZOIC ACID	CDH-S-007(6-8)	< 650	650	≤ 2RL
BENZOIC ACID	CDH-S-011(6-8)	< 670	670	≤ 2RL
BENZOIC ACID	CDH-S-021(6-8)	< 670	670	≤ 2RL
BENZOIC ACID	CDH-S-025(6-8)	< 670	670	≤ 2RL

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Blank Results (cont.):

Parameter	Blank Field ID	Blank Result	Reporting Limit	Acceptance Criteria
BENZOIC ACID	CDH-S-031(6-8)	< 660	660	≤ 2RL
BENZOIC ACID	CHA-S-003	< 670	670	≤ 2RL
BENZYL ALCOHOL	CDH-S-005(6-8)	< 170	170	≤ 2RL
BENZYL ALCOHOL	CDH-S-007(6-8)	< 160	160	≤ 2RL
BENZYL ALCOHOL	CDH-S-011(6-8)	< 170	170	≤ 2RL
BENZYL ALCOHOL	CDH-S-021(6-8)	< 170	170	≤ 2RL
BENZYL ALCOHOL	CDH-S-025(6-8)	< 170	170	≤ 2RL
BENZYL ALCOHOL	CDH-S-031(6-8)	< 170	170	≤ 2RL
BENZYL ALCOHOL	CHA-S-003	< 170	170	≤ 2RL
BIS(2-CHLOROETHOXY)METHAN	CDH-S-005(6-8)	< 170	170	≤ 2RL
BIS(2-CHLOROETHOXY)METHAN	CDH-S-007(6-8)	< 160	160	≤ 2RL
BIS(2-CHLOROETHOXY)METHAN	CDH-S-011(6-8)	< 170	170	≤ 2RL
BIS(2-CHLOROETHOXY)METHAN	CDH-S-021(6-8)	< 170	170	≤ 2RL
BIS(2-CHLOROETHOXY)METHAN	CDH-S-025(6-8)	< 170	170	≤ 2RL
BIS(2-CHLOROETHOXY)METHAN	CDH-S-031(6-8)	< 170	170	≤ 2RL
BIS(2-CHLOROETHOXY)METHAN	CHA-S-003	< 170	170	≤ 2RL
BIS(2-CHLOROETHYL) ETHER	CDH-S-005(6-8)	< 170	170	≤ 2RL
BIS(2-CHLOROETHYL) ETHER	CDH-S-007(6-8)	< 160	160	≤ 2RL
BIS(2-CHLOROETHYL) ETHER	CDH-S-011(6-8)	< 170	170	≤ 2RL
BIS(2-CHLOROETHYL) ETHER	CDH-S-021(6-8)	< 170	170	≤ 2RL
BIS(2-CHLOROETHYL) ETHER	CDH-S-025(6-8)	< 170	170	≤ 2RL
BIS(2-CHLOROETHYL) ETHER	CDH-S-031(6-8)	< 170	170	≤ 2RL
BIS(2-CHLOROETHYL) ETHER	CHA-S-003	< 170	170	≤ 2RL
BIS(2-CHLOROISOPROPYL) ETHER	CDH-S-005(6-8)	< 170	170	≤ 2RL
BIS(2-CHLOROISOPROPYL) ETHER	CDH-S-007(6-8)	< 160	160	≤ 2RL
BIS(2-CHLOROISOPROPYL) ETHER	CDH-S-011(6-8)	< 170	170	≤ 2RL
BIS(2-CHLOROISOPROPYL) ETHER	CDH-S-021(6-8)	< 170	170	≤ 2RL

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Blank Results (cont.):

Parameter	Blank Field ID	Blank Result	Reporting Limit	Acceptance Criteria
BIS(2-CHLOROISOPROPYL) ETHER	CDH-S-025(6-8)	< 170	170	≤ 2RL
BIS(2-CHLOROISOPROPYL) ETHER	CDH-S-031(6-8)	< 170	170	≤ 2RL
BIS(2-CHLOROISOPROPYL) ETHER	CHA-S-003	< 170	170	≤ 2RL
BIS(2-ETHYLHEXYL) PHTHALATE	CDH-S-005(6-8)	< 170	170	≤ 2RL
BIS(2-ETHYLHEXYL) PHTHALATE	CDH-S-007(6-8)	< 160	160	≤ 2RL
BIS(2-ETHYLHEXYL) PHTHALATE	CDH-S-011(6-8)	< 170	170	≤ 2RL
BIS(2-ETHYLHEXYL) PHTHALATE	CDH-S-021(6-8)	< 170	170	≤ 2RL
BIS(2-ETHYLHEXYL) PHTHALATE	CDH-S-025(6-8)	< 170	170	≤ 2RL
BIS(2-ETHYLHEXYL) PHTHALATE	CDH-S-031(6-8)	< 170	170	≤ 2RL
BIS(2-ETHYLHEXYL) PHTHALATE	CHA-S-003	< 170	170	≤ 2RL
BUTYL BENZYL PHTHALATE	CDH-S-005(6-8)	< 170	170	≤ 2RL
BUTYL BENZYL PHTHALATE	CDH-S-007(6-8)	< 160	160	≤ 2RL
BUTYL BENZYL PHTHALATE	CDH-S-011(6-8)	< 170	170	≤ 2RL
BUTYL BENZYL PHTHALATE	CDH-S-021(6-8)	< 170	170	≤ 2RL
BUTYL BENZYL PHTHALATE	CDH-S-025(6-8)	< 170	170	≤ 2RL
BUTYL BENZYL PHTHALATE	CDH-S-031(6-8)	< 170	170	≤ 2RL
BUTYL BENZYL PHTHALATE	CHA-S-003	< 170	170	≤ 2RL
CARBAZOLE	CDH-S-005(6-8)	< 170 L	170	≤ 2RL
CARBAZOLE	CDH-S-007(6-8)	< 160	160	≤ 2RL
CARBAZOLE	CDH-S-011(6-8)	< 170	170	≤ 2RL
CARBAZOLE	CDH-S-021(6-8)	< 170	170	≤ 2RL
CARBAZOLE	CDH-S-025(6-8)	< 170	170	≤ 2RL
CARBAZOLE	CDH-S-031(6-8)	< 170	170	≤ 2RL
CARBAZOLE	CHA-S-003	< 170 L	170	≤ 2RL
CHLORDANE (TECHNICAL)	CDH-S-005(6-8)	< 3.3	3.3	≤ 2RL
CHLORDANE (TECHNICAL)	CDH-S-007(6-8)	< 3.3	3.3	≤ 2RL
CHLORDANE (TECHNICAL)	CDH-S-011(6-8)	< 3.3	3.3	≤ 2RL

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Blank Results (cont.):

Parameter	Blank Field ID	Blank Result	Reporting Limit	Acceptance Criteria
CHLORDANE (TECHNICAL)	CDH-S-021(6-8)	< 3.3	3.3	≤ 2RL
CHLORDANE (TECHNICAL)	CDH-S-025(6-8)	< 3.3	3.3	≤ 2RL
CHLORDANE (TECHNICAL)	CDH-S-031(6-8)	< 3.3	3.3	≤ 2RL
CHLORDANE (TECHNICAL)	CHA-S-003	< 3.3	3.3	≤ 2RL
CHLORDANE-ALPHA	CDH-S-005(6-8)	< 0.67	0.67	≤ 2RL
CHLORDANE-ALPHA	CDH-S-007(6-8)	< 0.67	0.67	≤ 2RL
CHLORDANE-ALPHA	CDH-S-011(6-8)	< 0.67	0.67	≤ 2RL
CHLORDANE-ALPHA	CDH-S-021(6-8)	< 0.67	0.67	≤ 2RL
CHLORDANE-ALPHA	CDH-S-025(6-8)	< 0.67	0.67	≤ 2RL
CHLORDANE-ALPHA	CDH-S-031(6-8)	< 0.67	0.67	≤ 2RL
CHLORDANE-ALPHA	CHA-S-003	< 0.67	0.67	≤ 2RL
CHLORDANE-GAMMA	CDH-S-005(6-8)	< 0.67	0.67	≤ 2RL
CHLORDANE-GAMMA	CDH-S-007(6-8)	< 0.67	0.67	≤ 2RL
CHLORDANE-GAMMA	CDH-S-011(6-8)	< 0.67	0.67	≤ 2RL
CHLORDANE-GAMMA	CDH-S-021(6-8)	< 0.67	0.67	≤ 2RL
CHLORDANE-GAMMA	CDH-S-025(6-8)	< 0.67	0.67	≤ 2RL
CHLORDANE-GAMMA	CDH-S-031(6-8)	< 0.67	0.67	≤ 2RL
CHLORDANE-GAMMA	CHA-S-003	< 0.67	0.67	≤ 2RL
CHRYSENE	CDH-S-005(6-8)	< 170	170	≤ 2RL
CHRYSENE	CDH-S-007(6-8)	< 160	160	≤ 2RL
CHRYSENE	CDH-S-011(6-8)	< 170	170	≤ 2RL
CHRYSENE	CDH-S-021(6-8)	< 170	170	≤ 2RL
CHRYSENE	CDH-S-025(6-8)	< 170	170	≤ 2RL
CHRYSENE	CDH-S-031(6-8)	< 170	170	≤ 2RL
CHRYSENE	CHA-S-003	< 170	170	≤ 2RL
DIBENZ(A,H)ANTHRACENE	CDH-S-005(6-8)	< 170	170	≤ 2RL
DIBENZ(A,H)ANTHRACENE	CDH-S-007(6-8)	< 160	160	≤ 2RL
DIBENZ(A,H)ANTHRACENE	CDH-S-011(6-8)	< 170	170	≤ 2RL
DIBENZ(A,H)ANTHRACENE	CDH-S-021(6-8)	< 170	170	≤ 2RL
DIBENZ(A,H)ANTHRACENE	CDH-S-025(6-8)	< 170	170	≤ 2RL
DIBENZ(A,H)ANTHRACENE	CDH-S-031(6-8)	< 170	170	≤ 2RL
DIBENZ(A,H)ANTHRACENE	CHA-S-003	< 170	170	≤ 2RL
DIBENZOFURAN	CDH-S-005(6-8)	< 170	170	≤ 2RL
DIBENZOFURAN	CDH-S-007(6-8)	< 160	160	≤ 2RL
DIBENZOFURAN	CDH-S-011(6-8)	< 170	170	≤ 2RL
DIBENZOFURAN	CDH-S-021(6-8)	< 170	170	≤ 2RL
DIBENZOFURAN	CDH-S-025(6-8)	< 170	170	≤ 2RL
DIBENZOFURAN	CDH-S-031(6-8)	< 170	170	≤ 2RL
DIBENZOFURAN	CHA-S-003	< 170	170	≤ 2RL
DIELDRIN	CDH-S-005(6-8)	< 0.67	0.67	≤ 2RL
DIELDRIN	CDH-S-007(6-8)	< 0.67	0.67	≤ 2RL
DIELDRIN	CDH-S-011(6-8)	< 0.67	0.67	≤ 2RL
DIELDRIN	CDH-S-021(6-8)	< 0.67	0.67	≤ 2RL
DIELDRIN	CDH-S-025(6-8)	< 0.67	0.67	≤ 2RL
DIELDRIN	CDH-S-031(6-8)	< 0.67	0.67	≤ 2RL

Results for External Quality Assurance Samples
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Blank Results (cont.):

Parameter	Blank Field ID	Blank Result	Reporting Limit	Acceptance Criteria
DIELDRIN	CHA-S-003	< 0.67	0.67	≤ 2RL
DIESEL RANGE ORGANICS	CDH-S-005(6-8)	4.1	4.0	≤ 2RL
DIESEL RANGE ORGANICS	CDH-S-007(6-8)	< 4.0	4.0	≤ 2RL
DIESEL RANGE ORGANICS	CDH-S-011(6-8)	11	4.0	In range (acceptance range = <20)
DIESEL RANGE ORGANICS	CDH-S-025(6-8)	< 4.0	4.0	≤ 2RL
DIESEL RANGE ORGANICS	CDH-S-031(6-8)	< 4.0	4.0	≤ 2RL
DIESEL RANGE ORGANICS	CHA-S-003	6.4	4.0	≤ 2RL
DIETHYL PHTHALATE	CDH-S-005(6-8)	< 170	170	≤ 2RL
DIETHYL PHTHALATE	CDH-S-007(6-8)	< 160	160	≤ 2RL
DIETHYL PHTHALATE	CDH-S-011(6-8)	< 170	170	≤ 2RL
DIETHYL PHTHALATE	CDH-S-021(6-8)	< 170	170	≤ 2RL
DIETHYL PHTHALATE	CDH-S-025(6-8)	< 170	170	≤ 2RL
DIETHYL PHTHALATE	CDH-S-031(6-8)	< 170	170	≤ 2RL
DIETHYL PHTHALATE	CHA-S-003	< 170	170	≤ 2RL
DIMETHYL PHTHALATE	CDH-S-005(6-8)	< 170	170	≤ 2RL
DIMETHYL PHTHALATE	CDH-S-007(6-8)	< 160	160	≤ 2RL
DIMETHYL PHTHALATE	CDH-S-011(6-8)	< 170	170	≤ 2RL
DIMETHYL PHTHALATE	CDH-S-021(6-8)	< 170	170	≤ 2RL
DIMETHYL PHTHALATE	CDH-S-025(6-8)	< 170	170	≤ 2RL
DIMETHYL PHTHALATE	CDH-S-031(6-8)	< 170	170	≤ 2RL
DIMETHYL PHTHALATE	CHA-S-003	< 170	170	≤ 2RL
DI-N-BUTYL PHTHALATE	CDH-S-005(6-8)	< 170	170	≤ 2RL
DI-N-BUTYL PHTHALATE	CDH-S-007(6-8)	< 160	160	≤ 2RL
DI-N-BUTYL PHTHALATE	CDH-S-011(6-8)	< 170	170	≤ 2RL
DI-N-BUTYL PHTHALATE	CDH-S-021(6-8)	< 170	170	≤ 2RL
DI-N-BUTYL PHTHALATE	CDH-S-025(6-8)	< 170	170	≤ 2RL
DI-N-BUTYL PHTHALATE	CDH-S-031(6-8)	< 170	170	≤ 2RL
DI-N-BUTYL PHTHALATE	CHA-S-003	< 170	170	≤ 2RL
DI-N-OCTYL PHTHALATE	CDH-S-005(6-8)	< 170	170	≤ 2RL
DI-N-OCTYL PHTHALATE	CDH-S-007(6-8)	< 160	160	≤ 2RL
DI-N-OCTYL PHTHALATE	CDH-S-011(6-8)	< 170	170	≤ 2RL
DI-N-OCTYL PHTHALATE	CDH-S-021(6-8)	< 170	170	≤ 2RL
DI-N-OCTYL PHTHALATE	CDH-S-025(6-8)	< 170 V	170	≤ 2RL
DI-N-OCTYL PHTHALATE	CDH-S-031(6-8)	< 170	170	≤ 2RL
DI-N-OCTYL PHTHALATE	CHA-S-003	< 170	170	≤ 2RL
ENDOSULFAN I	CDH-S-005(6-8)	< 0.67	0.67	≤ 2RL
ENDOSULFAN I	CDH-S-007(6-8)	< 0.67 L	0.67	≤ 2RL
ENDOSULFAN I	CDH-S-011(6-8)	< 0.67 L	0.67	≤ 2RL
ENDOSULFAN I	CDH-S-021(6-8)	< 0.67	0.67	≤ 2RL
ENDOSULFAN I	CDH-S-025(6-8)	< 0.67 L	0.67	≤ 2RL
ENDOSULFAN I	CDH-S-031(6-8)	< 0.67 L	0.67	≤ 2RL
ENDOSULFAN I	CHA-S-003	< 0.67	0.67	≤ 2RL
ENDOSULFAN II	CDH-S-005(6-8)	< 0.67	0.67	≤ 2RL

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Blank Results (cont.):

Parameter	Blank Field ID	Blank Result	Reporting Limit	Acceptance Criteria
ENDOSULFAN II	CDH-S-007(6-8)	< 0.67 L	0.67	≤ 2RL
ENDOSULFAN II	CDH-S-011(6-8)	< 0.67 L	0.67	≤ 2RL
ENDOSULFAN II	CDH-S-021(6-8)	1.4	0.67	In range (< 1.7)
ENDOSULFAN II	CDH-S-025(6-8)	< 0.67 L	0.67	≤ 2RL
ENDOSULFAN II	CDH-S-031(6-8)	< 0.67 L	0.67	≤ 2RL
ENDOSULFAN II	CHA-S-003	< 0.67	0.67	≤ 2RL
ENDOSULFAN SULFATE	CDH-S-005(6-8)	< 0.67	0.67	≤ 2RL
ENDOSULFAN SULFATE	CDH-S-007(6-8)	< 0.67	0.67	≤ 2RL
ENDOSULFAN SULFATE	CDH-S-011(6-8)	< 0.67	0.67	≤ 2RL
ENDOSULFAN SULFATE	CDH-S-021(6-8)	< 0.67	0.67	≤ 2RL
ENDOSULFAN SULFATE	CDH-S-025(6-8)	< 0.67	0.67	≤ 2RL
ENDOSULFAN SULFATE	CDH-S-031(6-8)	< 0.67	0.67	≤ 2RL
ENDOSULFAN SULFATE	CHA-S-003	< 0.67	0.67	≤ 2RL
ENDRIN	CDH-S-005(6-8)	< 0.67	0.67	≤ 2RL
ENDRIN	CDH-S-007(6-8)	< 0.67	0.67	≤ 2RL
ENDRIN	CDH-S-011(6-8)	< 0.67	0.67	≤ 2RL
ENDRIN	CDH-S-021(6-8)	< 0.67	0.67	≤ 2RL
ENDRIN	CDH-S-025(6-8)	< 0.67	0.67	≤ 2RL
ENDRIN	CDH-S-031(6-8)	< 0.67	0.67	≤ 2RL
ENDRIN	CHA-S-003	< 0.67	0.67	≤ 2RL
ENDRIN ALDEHYDE	CDH-S-005(6-8)	< 0.67	0.67	≤ 2RL
ENDRIN ALDEHYDE	CDH-S-007(6-8)	< 0.67	0.67	≤ 2RL
ENDRIN ALDEHYDE	CDH-S-011(6-8)	< 0.67	0.67	≤ 2RL
ENDRIN ALDEHYDE	CDH-S-021(6-8)	< 0.67	0.67	≤ 2RL
ENDRIN ALDEHYDE	CDH-S-025(6-8)	< 0.67	0.67	≤ 2RL
ENDRIN ALDEHYDE	CDH-S-031(6-8)	< 0.67	0.67	≤ 2RL
ENDRIN ALDEHYDE	CHA-S-003	< 0.67	0.67	≤ 2RL
ENDRIN KETONE	CDH-S-005(6-8)	< 0.67	0.67	≤ 2RL
ENDRIN KETONE	CDH-S-007(6-8)	< 0.67	0.67	≤ 2RL
ENDRIN KETONE	CDH-S-011(6-8)	< 0.67	0.67	≤ 2RL
ENDRIN KETONE	CDH-S-021(6-8)	< 0.67	0.67	≤ 2RL
ENDRIN KETONE	CDH-S-025(6-8)	< 0.67	0.67	≤ 2RL
ENDRIN KETONE	CDH-S-031(6-8)	< 0.67	0.67	≤ 2RL
ENDRIN KETONE	CHA-S-003	< 0.67	0.67	≤ 2RL
FLUORANTHENE	CDH-S-005(6-8)	< 170	170	≤ 2RL
FLUORANTHENE	CDH-S-007(6-8)	< 160	160	≤ 2RL
FLUORANTHENE	CDH-S-011(6-8)	< 170	170	≤ 2RL
FLUORANTHENE	CDH-S-021(6-8)	< 170	170	≤ 2RL
FLUORANTHENE	CDH-S-025(6-8)	< 170	170	≤ 2RL
FLUORANTHENE	CDH-S-031(6-8)	< 170	170	≤ 2RL
FLUORANTHENE	CHA-S-003	< 170	170	≤ 2RL
FLUORENE	CDH-S-005(6-8)	< 170	170	≤ 2RL
FLUORENE	CDH-S-007(6-8)	< 160	160	≤ 2RL

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Blank Results (cont.):

Parameter	Blank Field ID	Blank Result	Reporting Limit	Acceptance Criteria
FLUORENE	CDH-S-011(6-8)	< 170	170	≤ 2RL
FLUORENE	CDH-S-021(6-8)	< 170	170	≤ 2RL
FLUORENE	CDH-S-025(6-8)	< 170	170	≤ 2RL
FLUORENE	CDH-S-031(6-8)	< 170	170	≤ 2RL
FLUORENE	CHA-S-003	< 170	170	≤ 2RL
GAMMA-BHC	CDH-S-005(6-8)	< 0.67	0.67	≤ 2RL
GAMMA-BHC	CDH-S-007(6-8)	< 0.67 V	0.67	≤ 2RL
GAMMA-BHC	CDH-S-011(6-8)	< 0.67	0.67	≤ 2RL
GAMMA-BHC	CDH-S-021(6-8)	< 0.67	0.67	≤ 2RL
GAMMA-BHC	CDH-S-025(6-8)	< 0.67	0.67	≤ 2RL
GAMMA-BHC	CDH-S-031(6-8)	< 0.67	0.67	≤ 2RL
GAMMA-BHC	CHA-S-003	< 0.67 V	0.67	≤ 2RL
HCH-ALPHA	CDH-S-005(6-8)	< 0.67	0.67	≤ 2RL
HCH-ALPHA	CDH-S-007(6-8)	< 0.67	0.67	≤ 2RL
HCH-ALPHA	CDH-S-011(6-8)	< 0.67	0.67	≤ 2RL
HCH-ALPHA	CDH-S-021(6-8)	< 0.67	0.67	≤ 2RL
HCH-ALPHA	CDH-S-025(6-8)	< 0.67	0.67	≤ 2RL
HCH-ALPHA	CDH-S-031(6-8)	< 0.67	0.67	≤ 2RL
HCH-ALPHA	CHA-S-003	< 0.67	0.67	≤ 2RL
HCH-BETA	CDH-S-005(6-8)	< 0.67	0.67	≤ 2RL
HCH-BETA	CDH-S-007(6-8)	< 0.67	0.67	≤ 2RL
HCH-BETA	CDH-S-011(6-8)	< 0.67	0.67	≤ 2RL
HCH-BETA	CDH-S-021(6-8)	< 0.67	0.67	≤ 2RL
HCH-BETA	CDH-S-025(6-8)	< 0.67	0.67	≤ 2RL
HCH-BETA	CDH-S-031(6-8)	< 0.67	0.67	≤ 2RL
HCH-BETA	CHA-S-003	< 0.67	0.67	≤ 2RL
HCH-DELTA	CDH-S-005(6-8)	< 0.67	0.67	≤ 2RL
HCH-DELTA	CDH-S-007(6-8)	< 0.67	0.67	≤ 2RL
HCH-DELTA	CDH-S-011(6-8)	< 0.67	0.67	≤ 2RL
HCH-DELTA	CDH-S-021(6-8)	< 0.67	0.67	≤ 2RL
HCH-DELTA	CDH-S-025(6-8)	< 0.67	0.67	≤ 2RL
HCH-DELTA	CDH-S-031(6-8)	< 0.67	0.67	≤ 2RL
HCH-DELTA	CHA-S-003	< 0.67	0.67	≤ 2RL
HEPTACHLOR	CDH-S-005(6-8)	< 0.67	0.67	≤ 2RL
HEPTACHLOR	CDH-S-007(6-8)	< 0.67	0.67	≤ 2RL
HEPTACHLOR	CDH-S-011(6-8)	< 0.67	0.67	≤ 2RL
HEPTACHLOR	CDH-S-021(6-8)	< 0.67	0.67	≤ 2RL
HEPTACHLOR	CDH-S-025(6-8)	< 0.67	0.67	≤ 2RL
HEPTACHLOR	CDH-S-031(6-8)	< 0.67	0.67	≤ 2RL
HEPTACHLOR	CHA-S-003	< 0.67	0.67	≤ 2RL
HEPTACHLOR EPOXIDE	CDH-S-005(6-8)	< 0.67	0.67	≤ 2RL
HEPTACHLOR EPOXIDE	CDH-S-007(6-8)	< 0.67	0.67	≤ 2RL
HEPTACHLOR EPOXIDE	CDH-S-011(6-8)	< 0.67	0.67	≤ 2RL
HEPTACHLOR EPOXIDE	CDH-S-021(6-8)	< 0.67	0.67	≤ 2RL
HEPTACHLOR EPOXIDE	CDH-S-025(6-8)	< 0.67	0.67	≤ 2RL

Results for External Quality Assurance Samples
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Blank Results (cont.):

Parameter	Blank Field ID	Blank Result	Reporting Limit	Acceptance Criteria
HEPTACHLOR EPOXIDE	CDH-S-031(6-8)	< 0.67	0.67	≤ 2RL
HEPTACHLOR EPOXIDE	CHA-S-003	< 0.67	0.67	≤ 2RL
HEXACHLOROBENZENE	CDH-S-005(6-8)	< 170	170	≤ 2RL
HEXACHLOROBENZENE	CDH-S-007(6-8)	< 160	160	≤ 2RL
HEXACHLOROBENZENE	CDH-S-011(6-8)	< 170	170	≤ 2RL
HEXACHLOROBENZENE	CDH-S-021(6-8)	< 170	170	≤ 2RL
HEXACHLOROBENZENE	CDH-S-025(6-8)	< 170	170	≤ 2RL
HEXACHLOROBENZENE	CDH-S-031(6-8)	< 170	170	≤ 2RL
HEXACHLOROBENZENE	CHA-S-003	< 170	170	≤ 2RL
HEXACHLOROCYCLOPENTADIENE	CDH-S-011(6-8)	< 170	170	≤ 2RL
HEXACHLOROCYCLOPENTADIENE	CDH-S-021(6-8)	< 170	170	≤ 2RL
HEXACHLOROCYCLOPENTADIENE	CDH-S-025(6-8)	< 170	170	≤ 2RL
HEXACHLOROCYCLOPENTADIENE	CDH-S-031(6-8)	< 170	170	≤ 2RL
HEXACHLOROCYCLOPENTADIENE	CDH-S-005(6-8)	< 170	170	≤ 2RL
HEXACHLOROCYCLOPENTADIENE	CDH-S-007(6-8)	< 160	160	≤ 2RL
HEXACHLOROCYCLOPENTADIENE	CHA-S-003	< 170	170	≤ 2RL
HEXACHLOROETHANE	CDH-S-005(6-8)	< 170	170	≤ 2RL
HEXACHLOROETHANE	CDH-S-007(6-8)	< 160	160	≤ 2RL
HEXACHLOROETHANE	CDH-S-011(6-8)	< 170	170	≤ 2RL
HEXACHLOROETHANE	CDH-S-021(6-8)	< 170	170	≤ 2RL
HEXACHLOROETHANE	CDH-S-025(6-8)	< 170	170	≤ 2RL
HEXACHLOROETHANE	CDH-S-031(6-8)	< 170	170	≤ 2RL
HEXACHLOROETHANE	CHA-S-003	< 170	170	≤ 2RL
INDENO(1,2,3-CD)PYRENE	CDH-S-005(6-8)	< 170	170	≤ 2RL
INDENO(1,2,3-CD)PYRENE	CDH-S-007(6-8)	< 160	160	≤ 2RL
INDENO(1,2,3-CD)PYRENE	CDH-S-011(6-8)	< 170	170	≤ 2RL
INDENO(1,2,3-CD)PYRENE	CDH-S-021(6-8)	< 170	170	≤ 2RL
INDENO(1,2,3-CD)PYRENE	CDH-S-025(6-8)	< 170	170	≤ 2RL
INDENO(1,2,3-CD)PYRENE	CDH-S-031(6-8)	< 170	170	≤ 2RL
INDENO(1,2,3-CD)PYRENE	CHA-S-003	< 170	170	≤ 2RL
ISOPHORONE	CDH-S-005(6-8)	< 170	170	≤ 2RL
ISOPHORONE	CDH-S-007(6-8)	< 160	160	≤ 2RL
ISOPHORONE	CDH-S-011(6-8)	< 170	170	≤ 2RL
ISOPHORONE	CDH-S-021(6-8)	< 170	170	≤ 2RL
ISOPHORONE	CDH-S-025(6-8)	< 170	170	≤ 2RL
ISOPHORONE	CDH-S-031(6-8)	< 170	170	≤ 2RL
ISOPHORONE	CHA-S-003	< 170	170	≤ 2RL
METHOXYCHLOR	CDH-S-005(6-8)	< 0.67	0.67	≤ 2RL

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Blank Results (cont.):

Parameter	Blank Field ID	Blank Result	Reporting Limit	Acceptance Criteria
METHOXYCHLOR	CDH-S-007(6-8)	< 0.67 V	0.67	≤ 2RL
METHOXYCHLOR	CDH-S-011(6-8)	< 0.67	0.67	≤ 2RL
METHOXYCHLOR	CDH-S-021(6-8)	< 0.67	0.67	≤ 2RL
METHOXYCHLOR	CDH-S-025(6-8)	< 0.67	0.67	≤ 2RL
METHOXYCHLOR	CDH-S-031(6-8)	< 0.67	0.67	≤ 2RL
METHOXYCHLOR	CHA-S-003	< 0.67	0.67	≤ 2RL
NITROBENZENE	CDH-S-005(6-8)	< 170	170	≤ 2RL
NITROBENZENE	CDH-S-007(6-8)	< 160	160	≤ 2RL
NITROBENZENE	CDH-S-011(6-8)	< 170	170	≤ 2RL
NITROBENZENE	CDH-S-021(6-8)	< 170	170	≤ 2RL
NITROBENZENE	CDH-S-025(6-8)	< 170	170	≤ 2RL
NITROBENZENE	CDH-S-031(6-8)	< 170	170	≤ 2RL
NITROBENZENE	CHA-S-003	< 170	170	≤ 2RL
N-NITROSODI-N-PROPYLAMINE	CDH-S-005(6-8)	< 170	170	≤ 2RL
N-NITROSODI-N-PROPYLAMINE	CDH-S-007(6-8)	< 160	160	≤ 2RL
N-NITROSODI-N-PROPYLAMINE	CDH-S-011(6-8)	< 170	170	≤ 2RL
N-NITROSODI-N-PROPYLAMINE	CDH-S-021(6-8)	< 170	170	≤ 2RL
N-NITROSODI-N-PROPYLAMINE	CDH-S-025(6-8)	< 170	170	≤ 2RL
N-NITROSODI-N-PROPYLAMINE	CDH-S-031(6-8)	< 170	170	≤ 2RL
N-NITROSODI-N-PROPYLAMINE	CHA-S-003	< 170	170	≤ 2RL
N-NITROSODIPHENYLAMINE	CDH-S-005(6-8)	< 170	170	≤ 2RL
N-NITROSODIPHENYLAMINE	CDH-S-007(6-8)	< 160	160	≤ 2RL
N-NITROSODIPHENYLAMINE	CDH-S-011(6-8)	< 170	170	≤ 2RL
N-NITROSODIPHENYLAMINE	CDH-S-021(6-8)	< 170	170	≤ 2RL
N-NITROSODIPHENYLAMINE	CDH-S-025(6-8)	< 170	170	≤ 2RL
N-NITROSODIPHENYLAMINE	CDH-S-031(6-8)	< 170	170	≤ 2RL
N-NITROSODIPHENYLAMINE	CHA-S-003	< 170	170	≤ 2RL
PENTACHLOROPHENOL	CDH-S-005(6-8)	6	3.3	≤ 2RL
PENTACHLOROPHENOL	CDH-S-007(6-8)	11 L	3.3	In range (<330)

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Blank Results (cont.):

Parameter	Blank Field ID	Blank Result	Reporting Limit	Acceptance Criteria
PENTACHLOROPHENOL	CDH-S-011(6-8)	5.9	3.3	≤ 2RL
PENTACHLOROPHENOL	CDH-S-021(6-8)	< 17	17	≤ 2RL
PENTACHLOROPHENOL	CDH-S-025(6-8)	7.6	3.3	In range (<330)
PENTACHLOROPHENOL	CDH-S-031(6-8)	27	3.3	In Range (<330)
PENTACHLOROPHENOL	CHA-S-003	< 3.3	3.3	≤ 2RL
PHENANTHRENE	CDH-S-005(6-8)	< 170	170	≤ 2RL
PHENANTHRENE	CDH-S-007(6-8)	< 160	160	≤ 2RL
PHENANTHRENE	CDH-S-011(6-8)	< 170	170	≤ 2RL
PHENANTHRENE	CDH-S-021(6-8)	< 170	170	≤ 2RL
PHENANTHRENE	CDH-S-025(6-8)	< 170	170	≤ 2RL
PHENANTHRENE	CDH-S-031(6-8)	< 170	170	≤ 2RL
PHENANTHRENE	CHA-S-003	< 170	170	≤ 2RL
PHENOL	CDH-S-005(6-8)	< 170	170	≤ 2RL
PHENOL	CDH-S-007(6-8)	< 160	160	≤ 2RL
PHENOL	CDH-S-011(6-8)	< 170	170	≤ 2RL
PHENOL	CDH-S-021(6-8)	< 170	170	≤ 2RL
PHENOL	CDH-S-025(6-8)	< 170	170	≤ 2RL
PHENOL	CDH-S-031(6-8)	< 170	170	≤ 2RL
PHENOL	CHA-S-003	< 170	170	≤ 2RL
PYRENE	CDH-S-005(6-8)	< 170	170	≤ 2RL
PYRENE	CDH-S-007(6-8)	< 160	160	≤ 2RL
PYRENE	CDH-S-011(6-8)	< 170	170	≤ 2RL
PYRENE	CDH-S-021(6-8)	< 170	170	≤ 2RL
PYRENE	CDH-S-025(6-8)	< 170	170	≤ 2RL
PYRENE	CDH-S-031(6-8)	< 170	170	≤ 2RL
PYRENE	CHA-S-003	< 170	170	≤ 2RL
PYRIDINE	CDH-S-005(6-8)	< 170	170	≤ 2RL
PYRIDINE	CDH-S-007(6-8)	< 160	160	≤ 2RL
PYRIDINE	CDH-S-011(6-8)	< 170 L	170	≤ 2RL
PYRIDINE	CDH-S-021(6-8)	< 170	170	≤ 2RL
PYRIDINE	CDH-S-025(6-8)	< 170 L	170	≤ 2RL
PYRIDINE	CDH-S-031(6-8)	< 170	170	≤ 2RL
PYRIDINE	CHA-S-003	< 170	170	≤ 2RL
TOXAPHENE	CDH-S-005(6-8)	< 33	33	≤ 2RL
TOXAPHENE	CDH-S-007(6-8)	< 33	33	≤ 2RL
TOXAPHENE	CDH-S-011(6-8)	< 33	33	≤ 2RL
TOXAPHENE	CDH-S-021(6-8)	< 33	33	≤ 2RL
TOXAPHENE	CDH-S-025(6-8)	< 33	33	≤ 2RL

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Blank Results (cont.):

Parameter	Blank Field ID	Blank Result	Reporting Limit	Acceptance Criteria
TOXAPHENE	CDH-S-031(6-8)	< 33	33	≤ 2RL
TOXAPHENE	CHA-S-003	< 33	33	≤ 2RL

Rinse Blank Results:

Parameter	Rinse Blank Field ID	Rinse Blank Result	Reporting Limit	Acceptance Criteria
1,2,3,4,6,7,8-HPCDD	CDH-W-GEB	< 0.37	0.37	≤ 2RL
1,2,3,4,6,7,8-HPCDD	CDH-W-REB	< 0.92	0.92	≤ 2RL
1,2,3,4,6,7,8-HPCDF	CDH-W-GEB	< 0.54	0.54	≤ 2RL
1,2,3,4,6,7,8-HPCDF	CDH-W-REB	< 0.24	0.24	≤ 2RL
1,2,3,4,7,8,9-HPCDF	CDH-W-GEB	< 0.36	0.36	≤ 2RL
1,2,3,4,7,8,9-HPCDF	CDH-W-REB	< 0.35	0.35	≤ 2RL
1,2,3,4,7,8-HXCDD	CDH-W-GEB	< 0.40	0.40	≤ 2RL
1,2,3,4,7,8-HXCDD	CDH-W-REB	< 0.42	0.42	≤ 2RL
1,2,3,4,7,8-HXCDF	CDH-W-GEB	< 0.23	0.23	≤ 2RL
1,2,3,4,7,8-HXCDF	CDH-W-REB	< 0.19	0.19	≤ 2RL
1,2,3,6,7,8-HXCDD	CDH-W-GEB	< 0.40	0.40	≤ 2RL
1,2,3,6,7,8-HXCDD	CDH-W-REB	< 0.43	0.43	≤ 2RL
1,2,3,6,7,8-HXCDF	CDH-W-GEB	< 0.22	0.22	≤ 2RL
1,2,3,6,7,8-HXCDF	CDH-W-REB	< 0.18	0.18	≤ 2RL
1,2,3,7,8,9-HXCDD	CDH-W-GEB	< 0.40	0.40	≤ 2RL
1,2,3,7,8,9-HXCDD	CDH-W-REB	< 0.43	0.43	≤ 2RL
1,2,3,7,8,9-HXCDF	CDH-W-GEB	< 0.29	0.29	≤ 2RL
1,2,3,7,8,9-HXCDF	CDH-W-REB	< 0.27	0.27	≤ 2RL
1,2,3,7,8-PECDD	CDH-W-GEB	< 0.23	0.23	≤ 2RL
1,2,3,7,8-PECDD	CDH-W-REB	< 0.51	0.51	≤ 2RL
1,2,3,7,8-PECDF	CDH-W-GEB	< 0.31	0.31	≤ 2RL
1,2,3,7,8-PECDF	CDH-W-REB	< 0.20	0.20	≤ 2RL
2,3,4,6,7,8-HXCDF	CDH-W-GEB	< 0.24	0.24	≤ 2RL
2,3,4,6,7,8-HXCDF	CDH-W-REB	< 0.21	0.21	≤ 2RL
2,3,4,7,8-PECDF	CDH-W-GEB	< 0.29	0.29	≤ 2RL
2,3,4,7,8-PECDF	CDH-W-REB	< 0.51	0.20	≤ 2RL
2,3,7,8-TCDD	CDH-W-GEB	< 0.57	0.57	≤ 2RL
2,3,7,8-TCDD	CDH-W-REB	< 0.58	0.58	≤ 2RL
2,3,7,8-TCDF	CDH-W-GEB	< 0.25	0.25	≤ 2RL
2,3,7,8-TCDF	CDH-W-REB	< 0.41	0.41	≤ 2RL
2,4,5-TRICHLOROPHENOL	CDH-W-GEB	< 5.0	5.0	≤ 2RL
2,4,5-TRICHLOROPHENOL	CDH-W-REB	< 5.1 L	5.1	≤ 2RL
2,4,6-TRICHLOROPHENOL	CDH-W-GEB	< 5.0	5.0	≤ 2RL
2,4,6-TRICHLOROPHENOL	CDH-W-REB	< 5.1 L	5.1	≤ 2RL
2,4-DICHLOROPHENOL	CDH-W-GEB	< 5.0	5.0	≤ 2RL
2,4-DICHLOROPHENOL	CDH-W-REB	< 5.1 L	5.1	≤ 2RL
2,4-DIMETHYLPHENOL	CDH-W-GEB	< 5.0	5.0	≤ 2RL

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Rinse Blank Results (cont.):

Parameter	Rinse Blank Field ID	Rinse Blank Result	Reporting Limit	Acceptance Criteria
2,4-DIMETHYLPHENOL	CDH-W-REB	< 5.1 L	5.1	≤ 2RL
2,4-DINITROPHENOL	CDH-W-GEB	< 20	20	≤ 2RL
2,4-DINITROPHENOL	CDH-W-REB	< 20 L	20	≤ 2RL
2,4-DINITROTOLUENE	CDH-W-GEB	< 5.0	5.0	≤ 2RL
2,4-DINITROTOLUENE	CDH-W-REB	< 5.1	5.1	≤ 2RL
2,6-DINITROTOLUENE	CDH-W-GEB	< 5.0	5.0	≤ 2RL
2,6-DINITROTOLUENE	CDH-W-REB	< 5.1	5.1	≤ 2RL
2-CHLORONAPHTHALENE	CDH-W-GEB	< 5.0	5.0	≤ 2RL
2-CHLORONAPHTHALENE	CDH-W-REB	< 5.1	5.1	≤ 2RL
2-CHLOROPHENOL	CDH-W-GEB	< 5.0	5.0	≤ 2RL
2-CHLOROPHENOL	CDH-W-REB	< 5.1 L	5.1	≤ 2RL
2-METHYLNAPHTHALENE	CDH-W-GEB	< 5.0	5.0	≤ 2RL
2-METHYLNAPHTHALENE	CDH-W-REB	< 5.1	5.1	≤ 2RL
2-METHYLPHENOL	CDH-W-GEB	< 5.0	5.0	≤ 2RL
2-METHYLPHENOL	CDH-W-REB	< 5.1 L	5.1	≤ 2RL
2-NITROANILINE	CDH-W-GEB	< 5.0	5.0	≤ 2RL
2-NITROANILINE	CDH-W-REB	< 5.1	5.1	≤ 2RL
2-NITROPHENOL	CDH-W-GEB	< 5.0	5.0	≤ 2RL
2-NITROPHENOL	CDH-W-REB	< 5.1 L	5.1	≤ 2RL
3,3'-DICHLOROBENZIDINE	CDH-W-GEB	< 5.0	5.0	≤ 2RL
3,3'-DICHLOROBENZIDINE	CDH-W-REB	< 5.1	5.1	≤ 2RL
3-NITROANILINE	CDH-W-GEB	< 5.0	5.0	≤ 2RL
3-NITROANILINE	CDH-W-REB	< 5.1	5.1	≤ 2RL
4,6-DINITRO-2-METHYLPHENOL	CDH-W-GEB	< 20	20	≤ 2RL
4,6-DINITRO-2-METHYLPHENOL	CDH-W-REB	< 20 L	20	≤ 2RL
4-BROMOPHENYL PHENYL ETHER	CDH-W-GEB	< 5.0	5.0	≤ 2RL
4-BROMOPHENYL PHENYL ETHER	CDH-W-REB	< 5.1	5.1	≤ 2RL
4-CHLORO-3-METHYLPHENOL	CDH-W-GEB	< 5.0	5.0	≤ 2RL
4-CHLORO-3-METHYLPHENOL	CDH-W-REB	< 5.1 L	5.1	≤ 2RL
4-CHLOROANILINE	CDH-W-GEB	< 5.0	5.0	≤ 2RL
4-CHLOROANILINE	CDH-W-REB	< 5.1	5.1	≤ 2RL
4-CHLOROPHENYL PHENYL ETHER	CDH-W-GEB	< 5.0	5.0	≤ 2RL
4-CHLOROPHENYL PHENYL ETHER	CDH-W-REB	< 5.1	5.1	≤ 2RL
4-METHYLPHENOL	CDH-W-GEB	< 5.0	5.0	≤ 2RL
4-METHYLPHENOL	CDH-W-REB	< 5.1 L	5.1	≤ 2RL
4-NITROANILINE	CDH-W-GEB	< 5.0	5.0	≤ 2RL
4-NITROANILINE	CDH-W-REB	< 5.1	5.1	≤ 2RL

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Rinse Blank Results (cont.):

Parameter	Rinse Blank Field ID	Rinse Blank Result	Reporting Limit	Acceptance Criteria
4-NITROPHENOL	CDH-W-GEB	< 20	20	≤ 2RL
4-NITROPHENOL	CDH-W-REB	< 20 L	20	≤ 2RL
ACENAPHTHENE	CDH-W-GEB	< 5.0	5.0	≤ 2RL
ACENAPHTHENE	CDH-W-REB	< 5.1	5.1	≤ 2RL
ACENAPHTHYLENE	CDH-W-GEB	< 5.0	5.0	≤ 2RL
ACENAPHTHYLENE	CDH-W-REB	< 5.1	5.1	≤ 2RL
ANTHRACENE	CDH-W-GEB	< 5.0	5.0	≤ 2RL
ANTHRACENE	CDH-W-REB	< 5.1	5.1	≤ 2RL
BENZ(A)ANTHRACENE	CDH-W-GEB	< 5.0	5.0	≤ 2RL
BENZ(A)ANTHRACENE	CDH-W-REB	< 5.1	5.1	≤ 2RL
BENZO(A)PYRENE	CDH-W-GEB	< 5.0	5.0	≤ 2RL
BENZO(A)PYRENE	CDH-W-REB	< 5.1	5.1	≤ 2RL
BENZO(B)FLUORANTHENE	CDH-W-GEB	< 5.0	5.0	≤ 2RL
BENZO(B)FLUORANTHENE	CDH-W-REB	< 5.1	5.1	≤ 2RL
BENZO(G,H,I)PERYLENE	CDH-W-GEB	< 5.0	5.0	≤ 2RL
BENZO(G,H,I)PERYLENE	CDH-W-REB	< 5.1	5.1	≤ 2RL
BENZO(K)FLUORANTHENE	CDH-W-GEB	< 5.0	5.0	≤ 2RL
BENZO(K)FLUORANTHENE	CDH-W-REB	< 5.1	5.1	≤ 2RL
BENZOIC ACID	CDH-W-GEB	< 20	20	≤ 2RL
BENZOIC ACID	CDH-W-REB	< 20	20	≤ 2RL
BENZYL ALCOHOL	CDH-W-GEB	< 5.0	5.0	≤ 2RL
BENZYL ALCOHOL	CDH-W-REB	< 5.1	5.1	≤ 2RL
BIS(2-CHLOROETHOXY)METHAN	CDH-W-GEB	< 5.0	5.0	≤ 2RL
BIS(2-CHLOROETHOXY)METHAN	CDH-W-REB	< 5.1	5.1	≤ 2RL
BIS(2-CHLOROETHYL) ETHER	CDH-W-GEB	< 5.0	5.0	≤ 2RL
BIS(2-CHLOROETHYL) ETHER	CDH-W-REB	< 5.1	5.1	≤ 2RL
BIS(2-CHLOROISOPROPYL) ETHER	CDH-W-GEB	< 5.0	5.0	≤ 2RL
BIS(2-CHLOROISOPROPYL) ETHER	CDH-W-REB	< 5.1	5.1	≤ 2RL
BIS(2-ETHYLHEXYL) PHTHALATE	CDH-W-GEB	< 5.0	5.0	≤ 2RL
BIS(2-ETHYLHEXYL) PHTHALATE	CDH-W-REB	< 5.1	5.1	≤ 2RL
BUTYL BENZYL PHTHALATE	CDH-W-GEB	< 5.0	5.0	≤ 2RL
BUTYL BENZYL PHTHALATE	CDH-W-REB	< 5.1	5.1	≤ 2RL
CARBAZOLE	CDH-W-GEB	< 5.0 V	5.0	≤ 2RL
CARBAZOLE	CDH-W-REB	< 5.1 V	5.1	≤ 2RL
CHRYSENE	CDH-W-GEB	< 5.0	5.0	≤ 2RL

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Rinse Blank Results (cont.):

Parameter	Rinse Blank Field ID	Rinse Blank Result	Reporting Limit	Acceptance Criteria
CHRYSENE	CDH-W-REB	< 5.1	5.1	≤ 2RL
DIBENZ(A,H)ANTHRACENE	CDH-W-GEB	< 5.0	5.0	≤ 2RL
DIBENZ(A,H)ANTHRACENE	CDH-W-REB	< 5.1	5.1	≤ 2RL
DIBENZOFURAN	CDH-W-GEB	< 5.0	5.0	≤ 2RL
DIBENZOFURAN	CDH-W-REB	< 5.1	5.1	≤ 2RL
DIETHYL PHTHALATE	CDH-W-GEB	< 5.0	5.0	≤ 2RL
DIETHYL PHTHALATE	CDH-W-REB	< 5.1	5.1	≤ 2RL
DIMETHYL PHTHALATE	CDH-W-GEB	< 5.0	5.0	≤ 2RL
DIMETHYL PHTHALATE	CDH-W-REB	< 5.1	5.1	≤ 2RL
DI-N-BUTYL PHTHALATE	CDH-W-GEB	< 5.0	5.0	≤ 2RL
DI-N-BUTYL PHTHALATE	CDH-W-REB	< 5.1	5.1	≤ 2RL
DI-N-OCTYL PHTHALATE	CDH-W-GEB	< 5.0	5.0	≤ 2RL
DI-N-OCTYL PHTHALATE	CDH-W-REB	< 5.1	5.1	≤ 2RL
FLUORANTHENE	CDH-W-GEB	< 5.0	5.0	≤ 2RL
FLUORANTHENE	CDH-W-REB	< 5.1	5.1	≤ 2RL
FLUORENE	CDH-W-GEB	< 5.0	5.0	≤ 2RL
FLUORENE	CDH-W-REB	< 5.1	5.1	≤ 2RL
HEXACHLOROBENZENE	CDH-W-GEB	< 5.0	5.0	≤ 2RL
HEXACHLOROBENZENE	CDH-W-REB	< 5.1	5.1	≤ 2RL
HEXACHLOROCYCLOPENTADIENE	CDH-W-GEB	< 5.0	5.0	≤ 2RL
HEXACHLOROCYCLOPENTADIENE	CDH-W-REB	< 5.1	5.1	≤ 2RL
HEXACHLOROETHANE	CDH-W-GEB	< 5.0	5.0	≤ 2RL
HEXACHLOROETHANE	CDH-W-REB	< 5.1	5.1	≤ 2RL
INDENO(1,2,3-CD)PYRENE	CDH-W-GEB	< 5.0	5.0	≤ 2RL
INDENO(1,2,3-CD)PYRENE	CDH-W-REB	< 5.1	5.1	≤ 2RL
ISOPHORONE	CDH-W-GEB	< 5.0	5.0	≤ 2RL
ISOPHORONE	CDH-W-REB	< 5.1	5.1	≤ 2RL
NITROBENZENE	CDH-W-GEB	< 5.0	5.0	≤ 2RL
NITROBENZENE	CDH-W-REB	< 5.1	5.1	≤ 2RL
N-NITROSODI-N-PROPYLAMINE	CDH-W-GEB	< 5.0	5.0	≤ 2RL
N-NITROSODI-N-PROPYLAMINE	CDH-W-REB	< 5.1	5.1	≤ 2RL
N-NITROSODIPHENYLAMINE	CDH-W-GEB	< 5.0	5.0	≤ 2RL
N-NITROSODIPHENYLAMINE	CDH-W-REB	< 5.1	5.1	≤ 2RL
OCDD	CDH-W-GEB	< 2.1	2.1	≤ 2RL
OCDD	CDH-W-REB	3.7	2.5	≤ 2RL
OCDF	CDH-W-GEB	< 0.79	0.79	≤ 2RL
OCDF	CDH-W-REB	< 1.4	1.4	≤ 2RL
PENTACHLOROPHENOL	CDH-W-GEB	< 20	20	≤ 2RL
PENTACHLOROPHENOL	CDH-W-REB	< 20 L	20	≤ 2RL

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Rinse Blank Results (cont.):

Parameter	Rinse Blank Field ID	Rinse Blank Result	Reporting Limit	Acceptance Criteria
PHENANTHRENE	CDH-W-GEB	< 5.0	5.0	≤ 2RL
PHENANTHRENE	CDH-W-REB	< 5.1	5.1	≤ 2RL
PHENOL	CDH-W-GEB	< 5.0	5.0	≤ 2RL
PHENOL	CDH-W-REB	< 5.1 L	5.1	≤ 2RL
PYRENE	CDH-W-GEB	< 5.0	5.0	≤ 2RL
PYRENE	CDH-W-REB	< 5.1	5.1	≤ 2RL
PYRIDINE	CDH-W-GEB	< 5.0	5.0	≤ 2RL
PYRIDINE	CDH-W-REB	< 5.1	5.1	≤ 2RL
TOTAL HPCDD	CDH-W-GEB	< 0.37	0.37	≤ 2RL
TOTAL HPCDD	CDH-W-REB	< 0.92	0.92	≤ 2RL
TOTAL HPCDF	CDH-W-GEB	< 0.54	0.54	≤ 2RL
TOTAL HPCDF	CDH-W-REB	< 0.35	0.35	≤ 2RL
TOTAL HXCDD	CDH-W-GEB	< 0.40	0.40	≤ 2RL
TOTAL HXCDD	CDH-W-REB	< 0.43	0.43	≤ 2RL
TOTAL HXCDF	CDH-W-GEB	< 0.29	0.29	≤ 2RL
TOTAL HXCDF	CDH-W-REB	< 0.27	0.27	≤ 2RL
TOTAL PECDD	CDH-W-GEB	< 0.23	0.23	≤ 2RL
TOTAL PECDD	CDH-W-REB	< 0.51	0.51	≤ 2RL
TOTAL PECDF	CDH-W-GEB	< 0.31	0.31	≤ 2RL
TOTAL PECDF	CDH-W-REB	< 0.20	0.20	≤ 2RL
TOTAL TCDD	CDH-W-GEB	< 0.57	0.57	≤ 2RL
TOTAL TCDD	CDH-W-REB	< 0.58	0.58	≤ 2RL
TOTAL TCDF	CDH-W-GEB	< 0.25	0.25	≤ 2RL
TOTAL TCDF	CDH-W-REB	< 0.41	0.41	≤ 2RL
TPH-Extractable (Diesel)	CDH-W-GEB	< 50	50	≤ 2RL

Holding Time

All parameters were extracted and analyzed within their recommended holding times except for the following:

Results Analyzed Past the Holding Time:

Sample ID	Parameter
CDH-S-002 (0-5)	all parameters analyzed by EPA 8270
CDH-S-003 (0-3.8)	all parameters analyzed by EPA 8270
CDH-S-004 (0.0-6.0)	all parameters analyzed by 8081
CDH-S-004 (0.0-6.0)	all parameters analyzed by EPA 8260
CDH-S-004 (0.0-6.0)	Diesel Range Organics
CDH-S-004 (0.0-6.0)	Residual Range Organics
CDH-S-004 (5.8-9.0)	all parameters analyzed by 8081
CDH-S-004 (5.8-9.0)	all parameters analyzed by EPA 8260

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Results Analyzed Past the Holding Time (cont.):

Sample ID	Parameter
CDH-S-004 (5.8-9.0)	Pentachlorophenol
CDH-S-005 (0.0-0.3)	2,4'-DDD
CDH-S-005 (0.0-0.3)	2,4'-DDE
CDH-S-005 (0.0-0.3)	2,4'-DDT
CDH-S-005 (0.0-0.3)	all parameters analyzed by 8081
CDH-S-005 (0.0-0.3)	all parameters analyzed by EPA 8260
CDH-S-005 (0.0-0.3)	all parameters analyzed by EPA 8270
CDH-S-005 (0.0-0.3)	Diesel Range Organics
CDH-S-005 (0.0-0.3)	Pentachlorophenol
CDH-S-005 (0.0-0.3)	Residual Range Organics
CDH-S-006A (0.0-0.3)	all parameters analyzed by 8081
CDH-S-006A (0.0-0.3)	all parameters analyzed by EPA 8260
CDH-S-007 (0.0-18.7)	all parameters analyzed by EPA 1668A
CDH-S-007 (0-5)	2,4'-DDD
CDH-S-007 (0-5)	2,4'-DDE
CDH-S-007 (0-5)	2,4'-DDT
CDH-S-007 (0-5)	all parameters analyzed by 8081
CDH-S-007 (0-5)	all parameters analyzed by EPA 8082
CDH-S-007 (0-5)	all parameters analyzed by EPA 8260
CDH-S-007 (0-5)	all parameters analyzed by EPA 8270
CDH-S-007 (0-5)	Diesel Range Organics
CDH-S-007 (0-5)	Pentachlorophenol
CDH-S-007 (0-5)	Residual Range Organics
CDH-S-007 (12-17)	2,4'-DDD
CDH-S-007 (12-17)	2,4'-DDE
CDH-S-007 (12-17)	2,4'-DDT
CDH-S-007 (12-17)	all parameters analyzed by 8081
CDH-S-007 (12-17)	all parameters analyzed by EPA 8082
CDH-S-007 (12-17)	all parameters analyzed by EPA 8260
CDH-S-007 (12-17)	all parameters analyzed by EPA 8270
CDH-S-007 (12-17)	Diesel Range Organics
CDH-S-007 (12-17)	Pentachlorophenol
CDH-S-007 (12-17)	Residual Range Organics
CDH-S-007 (17.0-18.7)	2,4'-DDD
CDH-S-007 (17.0-18.7)	2,4'-DDE
CDH-S-007 (17.0-18.7)	2,4'-DDT
CDH-S-007 (17.0-18.7)	all parameters analyzed by 8081
CDH-S-007 (17.0-18.7)	all parameters analyzed by EPA 8082

Results Analyzed Past the Holding Time (cont.):

Sample ID	Parameter
CDH-S-007 (17.0-18.7)	all parameters analyzed by EPA 8260
CDH-S-007 (17.0-18.7)	all parameters analyzed by EPA 8270
CDH-S-007 (17.0-18.7)	Diesel Range Organics
CDH-S-007 (17.0-18.7)	Pentachlorophenol
CDH-S-007 (17.0-18.7)	Residual Range Organics
CDH-S-007 (4.2-9.2)	2,4'-DDD
CDH-S-007 (4.2-9.2)	2,4'-DDE
CDH-S-007 (4.2-9.2)	2,4'-DDT
CDH-S-007 (4.2-9.2)	all parameters analyzed by 8081
CDH-S-007 (4.2-9.2)	all parameters analyzed by EPA 8082
CDH-S-007 (4.2-9.2)	all parameters analyzed by EPA 8260
CDH-S-007 (4.2-9.2)	all parameters analyzed by EPA 8270
CDH-S-007 (4.2-9.2)	Diesel Range Organics
CDH-S-007 (4.2-9.2)	Pentachlorophenol
CDH-S-007 (4.2-9.2)	Residual Range Organics
CDH-S-007 (9.2-12.0)	2,4'-DDD
CDH-S-007 (9.2-12.0)	2,4'-DDE
CDH-S-007 (9.2-12.0)	2,4'-DDT
CDH-S-007 (9.2-12.0)	all parameters analyzed by 8081
CDH-S-007 (9.2-12.0)	all parameters analyzed by EPA 8082
CDH-S-007 (9.2-12.0)	all parameters analyzed by EPA 8260
CDH-S-007 (9.2-12.0)	all parameters analyzed by EPA 8270
CDH-S-007 (9.2-12.0)	Diesel Range Organics
CDH-S-007 (9.2-12.0)	Pentachlorophenol
CDH-S-007 (9.2-12.0)	Residual Range Organics
CDH-S-008 (0.0-1.7)	2,4'-DDD
CDH-S-008 (0.0-1.7)	2,4'-DDE
CDH-S-008 (0.0-1.7)	2,4'-DDT
CDH-S-008 (0.0-1.7)	3-Hydroxycarbofuran
CDH-S-008 (0.0-1.7)	Aldicarb
CDH-S-008 (0.0-1.7)	Aldicarb sulfone
CDH-S-008 (0.0-1.7)	Aldicarb sulfoxide
CDH-S-008 (0.0-1.7)	all parameters analyzed by 8081
CDH-S-008 (0.0-1.7)	all parameters analyzed by EPA 1668A
CDH-S-008 (0.0-1.7)	all parameters analyzed by EPA 8082
CDH-S-008 (0.0-1.7)	all parameters analyzed by EPA 8260
CDH-S-008 (0.0-1.7)	all parameters analyzed by EPA 8270
CDH-S-008 (0.0-1.7)	Carbaryl

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Results Analyzed Past the Holding Time (cont.):

Sample ID	Parameter
CDH-S-008 (0.0-1.7)	Carbofuran
CDH-S-008 (0.0-1.7)	Diesel Range Organics
CDH-S-008 (0.0-1.7)	Methiocarb
CDH-S-008 (0.0-1.7)	Methomyl
CDH-S-008 (0.0-1.7)	Oxamyl
CDH-S-008 (0.0-1.7)	Pentachlorophenol
CDH-S-008 (0.0-1.7)	Propoxur
CDH-S-008 (0.0-1.7)	Residual Range Organics
CDH-S-014 (0.0-5.3)	all parameters analyzed by EPA 1668A
CDH-S-015A (0.0-9.7)	all parameters analyzed by EPA 1668A
CDH-S-017 (0.0-1.2)	2,4'-DDD
CDH-S-017 (0.0-1.2)	2,4'-DDE
CDH-S-017 (0.0-1.2)	2,4'-DDT
CDH-S-017 (0.0-1.2)	Residual Range Organics
CDH-S-019 (0.0-4.8)	2,4'-DDD
CDH-S-019 (0.0-4.8)	2,4'-DDE
CDH-S-019 (0.0-4.8)	2,4'-DDT
CDH-S-019 (0.0-4.8)	Residual Range Organics
CDH-S-020 (0.0-5.0)	2,4'-DDD
CDH-S-020 (0.0-5.0)	2,4'-DDE
CDH-S-020 (0.0-5.0)	2,4'-DDT
CDH-S-020 (0.0-5.0)	Residual Range Organics
CDH-S-020 (5.0-7.0)	2,4'-DDD
CDH-S-020 (5.0-7.0)	2,4'-DDE
CDH-S-020 (5.0-7.0)	2,4'-DDT
CDH-S-020 (5.0-7.0)	Residual Range Organics
CDH-S-021 (0.0-0.5)	all parameters analyzed by EPA 8081
CDH-S-021 (0.0-0.5)	all parameters analyzed by EPA 8270
CDH-S-021 (0.0-0.5)	Pentachlorophenol
CDH-S-029 (0.0-4.8)	all parameters analyzed by EPA 1668A
CDH-S-031 (0.0-4.8)	all parameters analyzed by EPA 1668A
CDH-S-043 (0-2)	all parameters analyzed by EPA 8270
CDH-S-046 (0.0-2.5)	all parameters analyzed by EPA 1668A
CDH-S-046 (0.0-2.5)	all parameters analyzed by EPA 8290A
CHA-S-001	all parameters analyzed by EPA 8290A
CHA-S-002	all parameters analyzed by EPA 8290A

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Laboratory Quality Control

In addition to reviewing the results of the externally incorporated QA samples, the results of the laboratory's QC samples were reviewed. QC samples included blanks, duplicates, blank spikes, matrix spikes, or surrogates. The laboratory QC sample results were acceptable except for the following:

Results Qualified Based on Laboratory QC:

Sample ID	Parameter	Qualification
CDH-S-002 (0-5)	2-Nitroaniline	Result is possibly biased low based on LCS recovery
CDH-S-002 (0-5)	Benzoic Acid	Result may vary from true value based on LCS/LCSD
CDH-S-002 (0-5)	Carbazole	Result is possibly biased low based on LCS recovery
CDH-S-003 (0-3.8)	2-Nitroaniline	Result is possibly biased low based on LCS recovery
CDH-S-003 (0-3.8)	Benzoic Acid	Result may vary from true value based on LCS/LCSD
CDH-S-003 (0-3.8)	Carbazole	Result is possibly biased low based on LCS recovery
CDH-S-005 (10-12)	2-Nitroaniline	Result is possibly biased low based on LCS recovery
CDH-S-005 (10-12)	Benzoic Acid	Result may vary from true value based on LCS/LCSD
CDH-S-005 (10-12)	Carbazole	Result is possibly biased low based on LCS recovery
CDH-S-005 (10-12)	Pentachlorophenol	Result is possibly biased high based on surrogate recovery
CDH-S-005 (2-4)	2-Nitroaniline	Result is possibly biased low based on LCS recovery
CDH-S-005 (2-4)	Benzoic Acid	Result may vary from true value based on LCS/LCSD
CDH-S-005 (2-4)	Carbazole	Result is possibly biased low based on LCS recovery
CDH-S-005 (2-4)	Heptachlor Epoxide	Result may vary from true value based on the RPD between the two columns
CDH-S-005 (2-4)	Methoxychlor	Result may vary from true value based on the RPD between the two columns
CDH-S-005 (2-4)	Pentachlorophenol	Result is possibly biased high based on surrogate recovery
CDH-S-005 (6-8)	2-Nitroaniline	Result is possibly biased low based on LCS recovery
CDH-S-005 (6-8)	Benzoic Acid	Result may vary from true value based on LCS/LCSD
CDH-S-005 (6-8)	Carbazole	Result is possibly biased low based on LCS recovery
CDH-S-007 (0.0-18.7)	BDE-206	Result may vary from true value based on unacceptable precision in duplicate samples
CDH-S-007 (0.0-18.7)	BDE-209	Result may vary from true value based on unacceptable precision in duplicate samples
CDH-S-007 (0.0-18.7)	BDE-99	Result is possibly biased high based on method blank
CDH-S-007 (0.0-18.7)	Methomyl	Result is possibly biased low based on surrogate recovery
CDH-S-007 (0.0-18.7)	OCDF	Result may vary from true value based on unacceptable precision in duplicate samples
CDH-S-007 (0.0-18.7)	PCB Congener 140	Result may vary from true value based on unacceptable precision in duplicate samples
CDH-S-007 (0.0-18.7)	Total-TCDD	Result may vary from true value based on unacceptable precision in duplicate samples

Results Qualified Based on Laboratory QC (cont.):

Sample ID	Parameter	Qualification
CDH-S-007 (0-5)	delta-BHC	Result may vary from true value based on the RPD between the two columns
CDH-S-007 (0-5)	Endrin aldehyde	Result may vary from true value based on the RPD between the two columns
CDH-S-007 (0-5)	Heptachlor epoxide	Result may vary from true value based on the RPD between the two columns
CDH-S-007 (12-17)	Methoxychlor	Result may vary from true value based on the RPD between the two columns
CDH-S-007 (17.0-18.7)	delta-BHC	Result may vary from true value based on the RPD between the two columns
CDH-S-007 (17.0-18.7)	Methoxychlor	Result may vary from true value based on the RPD between the two columns
CDH-S-007 (4.2-9.2)	Endrin aldehyde	Result may vary from true value based on the RPD between the two columns
CDH-S-007 (4.2-9.2)	Heptachlor epoxide	Result may vary from true value based on the RPD between the two columns
CDH-S-007 (6-8)	gamma-BHC	Result may vary from true value based on the RPD between the two columns
CDH-S-007 (6-8)	Methoxychlor	Result may vary from true value based on the RPD between the two columns
CDH-S-008 (0.0-1.7)	3-Hydroxycarbofuran	Result is possibly biased low based on LCS recovery
CDH-S-008 (0.0-1.7)	Aldicarb sulfoxide	Result is possibly biased low based on LCS recovery
CDH-S-008 (0.0-1.7)	BDE-99	Result is possibly biased high based on method blank
CDH-S-008 (0.0-1.7)	Carbaryl	Result is possibly biased low based on LCS recovery
CDH-S-008 (0.0-1.7)	Methiocarb	Result is possibly biased low based on LCS recovery
CDH-S-008 (0.0-1.7)	PCB Congener 20/33/21	Result is possibly biased high based on method blank
CDH-S-008 (0.0-1.7)	PCB Congener 37	Result is possibly biased high based on method blank
CDH-S-008 (0.0-1.7)	Permethrin	Result is possibly biased high based on matrix spike recovery
CDH-S-009A (0.0-4.6)	Pyridine	Result is possibly biased low based on LCS recovery
CDH-S-009 (2-4)	Pyridine	Result is possibly biased low based on LCS recovery
CDH-S-010 (0.0-5.0)	Pyridine	Result is possibly biased low based on LCS recovery
CDH-S-010 (5.0-8.0)	Pyridine	Result is possibly biased low based on LCS recovery
CDH-S-011 (0.0-1.3)	alpha-BHC	Result may vary from true value based on the RPD between the two columns
CDH-S-011 (0.0-1.3)	Pyridine	Result is possibly biased low based on LCS recovery
CDH-S-011 (6-8)	Pyridine	Result is possibly biased low based on LCS recovery
CDH-S-012 (0.0-5.4)	Pyridine	Result is possibly biased low based on LCS recovery
CDH-S-013 (0.0-5.7)	Pyridine	Result is possibly biased low based on LCS recovery
CDH-S-014 (0.0-5.3)	alpha-BHC	Result may vary from true value based on the RPD between the two columns

Results Qualified Based on Laboratory QC (cont.):

Sample ID	Parameter	Qualification
CDH-S-014 (0.0-5.3)	BDE-208	Result is possibly biased low based on LCS recovery
CDH-S-014 (0.0-5.3)	Dichlorobiphenyls	Result is possibly biased high based on method blank
CDH-S-014 (0.0-5.3)	Methomyl	Result is possibly biased low based on surrogate recovery
CDH-S-014 (0.0-5.3)	Monochlorobiphenyls	Result is possibly biased high based on method blank
CDH-S-014 (0.0-5.3)	Oxamyl	Result is possibly biased low based on surrogate recovery
CDH-S-014 (0.0-5.3)	PCB Congener 1	Result is possibly biased high based on method blank
CDH-S-014 (0.0-5.3)	PCB Congener 11	Result is possibly biased high based on method blank
CDH-S-014 (0.0-5.3)	PCB Congener 15	Result is possibly biased high based on method blank
CDH-S-014 (0.0-5.3)	PCB Congener 16/32	Result is possibly biased high based on method blank
CDH-S-014 (0.0-5.3)	PCB Congener 17	Result is possibly biased high based on method blank
CDH-S-014 (0.0-5.3)	PCB Congener 18	Result is possibly biased high based on method blank
CDH-S-014 (0.0-5.3)	PCB Congener 20/33/21	Result is possibly biased high based on method blank
CDH-S-014 (0.0-5.3)	PCB Congener 22	Result is possibly biased high based on method blank
CDH-S-014 (0.0-5.3)	PCB Congener 25	Result is possibly biased high based on method blank
CDH-S-014 (0.0-5.3)	PCB Congener 26	Result is possibly biased high based on method blank
CDH-S-014 (0.0-5.3)	PCB Congener 31/28	Result is possibly biased high based on method blank
CDH-S-014 (0.0-5.3)	PCB Congener 35	Result is possibly biased high based on method blank
CDH-S-014 (0.0-5.3)	PCB Congener 37	Result is possibly biased high based on method blank
CDH-S-014 (0.0-5.3)	PCB Congener 4/10	Result is possibly biased high based on method blank
CDH-S-014 (0.0-5.3)	PCB Congener 45	Result is possibly biased high based on method blank
CDH-S-014 (0.0-5.3)	PCB Congener 48/47/75	Result is possibly biased high based on method blank
CDH-S-014 (0.0-5.3)	PCB Congener 53	Result is possibly biased high based on method blank
CDH-S-014 (0.0-5.3)	PCB Congener 55	Result is possibly biased high based on method blank
CDH-S-014 (0.0-5.3)	PCB Congener 60	Result is possibly biased high based on method blank
CDH-S-014 (0.0-5.3)	PCB Congener 8/5	Result is possibly biased high based on method blank
CDH-S-014 (0.0-5.3)	Pyridine	Result is possibly biased low based on LCS recovery
CDH-S-014 (0.0-5.3)	Trichlorobiphenyls	Result is possibly biased high based on method blank
CDH-S-015A (0.0-5.0)	Pyridine	Result is possibly biased low based on LCS recovery
CDH-S-015A (0.0-9.7)	Allethrin	Result is possibly biased low based on matrix spike recovery
CDH-S-015A (0.0-9.7)	BDE-208	Result is possibly biased low based on LCS recovery
CDH-S-015A (0.0-9.7)	Dichlorobiphenyls	Result is possibly biased high based on method blank
CDH-S-015A (0.0-9.7)	Methomyl	Result is possibly biased low based on surrogate recovery
CDH-S-015A (0.0-9.7)	Oxamyl	Result is possibly biased low based on surrogate recovery
CDH-S-015A (0.0-9.7)	PCB Congener 1	Result is possibly biased high based on method blank
CDH-S-015A (0.0-9.7)	PCB Congener 11	Result is possibly biased high based on method blank
CDH-S-015A (0.0-9.7)	PCB Congener 132	Result may vary from true value based on unacceptable precision in duplicate samples

Results Qualified Based on Laboratory QC (cont.):

Sample ID	Parameter	Qualification
CDH-S-015A (0.0-9.7)	PCB Congener 15	Result is possibly biased high based on method blank
CDH-S-015A (0.0-9.7)	PCB Congener 16/32	Result is possibly biased high based on method blank
CDH-S-015A (0.0-9.7)	PCB Congener 17	Result is possibly biased high based on method blank
CDH-S-015A (0.0-9.7)	PCB Congener 18	Result is possibly biased high based on method blank
CDH-S-015A (0.0-9.7)	PCB Congener 20/33/21	Result is possibly biased high based on method blank
CDH-S-015A (0.0-9.7)	PCB Congener 22	Result is possibly biased high based on method blank
CDH-S-015A (0.0-9.7)	PCB Congener 25	Result is possibly biased high based on method blank
CDH-S-015A (0.0-9.7)	PCB Congener 26	Result is possibly biased high based on method blank
CDH-S-015A (0.0-9.7)	PCB Congener 27/24	Result is possibly biased high based on method blank
CDH-S-015A (0.0-9.7)	PCB Congener 31/28	Result is possibly biased high based on method blank
CDH-S-015A (0.0-9.7)	PCB Congener 37	Result is possibly biased high based on method blank
CDH-S-015A (0.0-9.7)	PCB Congener 40/57	Result is possibly biased high based on method blank
CDH-S-015A (0.0-9.7)	PCB Congener 42	Result is possibly biased high based on method blank
CDH-S-015A (0.0-9.7)	PCB Congener 44	Result is possibly biased high based on method blank
CDH-S-015A (0.0-9.7)	PCB Congener 45	Result is possibly biased high based on method blank
CDH-S-015A (0.0-9.7)	PCB Congener 48/47/75	Result is possibly biased high based on method blank
CDH-S-015A (0.0-9.7)	PCB Congener 53	Result is possibly biased high based on method blank
CDH-S-015A (0.0-9.7)	PCB Congener 60	Result is possibly biased high based on method blank
CDH-S-015A (0.0-9.7)	PCB Congener 67	Result is possibly biased high based on method blank
CDH-S-015A (0.0-9.7)	PCB Congener 71	Result is possibly biased high based on method blank
CDH-S-015A (0.0-9.7)	PCB Congener 72/64/68	Result is possibly biased high based on method blank
CDH-S-015A (0.0-9.7)	PCB Congener 79	Result may vary from true value based on unacceptable precision in duplicate samples
CDH-S-015A (0.0-9.7)	PCB Congener 8/5	Result is possibly biased high based on method blank
CDH-S-015A (0.0-9.7)	Pentachlorobiphenyls	Result is possibly biased high based on method blank
CDH-S-015A (0.0-9.7)	Total-PeCDD	Result may vary from true value based on unacceptable precision in duplicate samples
CDH-S-015A (0.0-9.7)	Trichlorobiphenlys	Result is possibly biased high based on method blank
CDH-S-015A (5.0-9.7)	Pyridine	Result is possibly biased low based on LCS recovery
CDH-S-016 (0.0-5.0)	alpha-BHC	Result may vary from true value based on the RPD between the two columns
CDH-S-016 (0.0-5.0)	Endrin	Result may vary from true value based on the RPD between the two columns
CDH-S-016 (0.0-5.0)	gamma-Chlordane	Result may vary from true value based on the RPD between the two columns
CDH-S-016 (0.0-5.0)	Pyridine	Result is possibly biased low based on LCS recovery
CDH-S-016 (10-12)	Pyridine	Result is possibly biased low based on LCS recovery

Results Qualified Based on Laboratory QC (cont.):

Sample ID	Parameter	Qualification
CDH-S-016 (5.0-7.5)	alpha-BHC	Result may vary from true value based on the RPD between the two columns
CDH-S-016 (5.0-7.5)	gamma-Chlordane	Result may vary from true value based on the RPD between the two columns
CDH-S-016 (5.0-7.5)	Methoxychlor	Result may vary from true value based on the RPD between the two columns
CDH-S-016 (5.0-7.5)	Pyridine	Result is possibly biased low based on LCS recovery
CDH-S-017 (0.0-1.2)	Endrin Aldehyde	Result may vary from true value based on the RPD between the two columns
CDH-S-017 (0.0-1.2)	Pyridine	Result is possibly biased low based on LCS recovery
CDH-S-018 (0.0-5.0)	Pyridine	Result is possibly biased low based on LCS recovery
CDH-S-018 (2-4)	2,4,5-Trichlorophenol	Result is possibly biased high based on LCS recovery
CDH-S-018 (2-4)	2,4,6-Trichlorophenol	Result is possibly biased high based on LCS recovery
CDH-S-018 (2-4)	2,4-Dichlorophenol	Result is possibly biased high based on LCS recovery
CDH-S-018 (2-4)	2-Nitrophenol	Result is possibly biased high based on LCS recovery
CDH-S-018 (2-4)	Indeno (1,2,3-c,d)pyrene	Result is possibly biased high based on LCS recovery
CDH-S-018 (2-4)	Pentachlorophenol	Result is possibly biased high based on surrogate recovery
CDH-S-018 (2-4)	Pyridine	Result is possibly biased low based on LCS recovery
CDH-S-018 (5.0-8.9)	Pyridine	Result is possibly biased low based on LCS recovery
CDH-S-019 (0.0-4.8)	Pyridine	Result is possibly biased low based on LCS recovery
CDH-S-020 (0.0-5.0)	Pyridine	Result is possibly biased low based on LCS recovery
CDH-S-020 (2-4)	4-Nitroaniline	Result is possibly biased low based on LCS recovery
CDH-S-020 (5.0-7.0)	Pyridine	Result is possibly biased low based on LCS recovery
CDH-S-021 (0.0-0.5)	Benzyl Alcohol	Result may vary from true value based on LCS/LCSD
CDH-S-021 (0.0-0.5)	Carbazole	Result may vary from true value based on LCS/LCSD
CDH-S-021 (0.0-0.9)	Hexachlorocyclopentadiene	Result is possibly biased low based on LCS recovery
CDH-S-022 (0.0-1.4)	4-Nitroaniline	Result is possibly biased low based on LCS recovery
CDH-S-023 (0.0-5.4)	Pyridine	Result is possibly biased low based on LCS recovery
CDH-S-023 (5.4-7.7)	Pyridine	Result is possibly biased low based on LCS recovery
CDH-S-024 (0.0-4.1)	4-Nitroaniline	Result is possibly biased low based on LCS recovery
CDH-S-025 (0.0-4.7)	Endrin	Result may vary from true value based on the RPD between the two columns
CDH-S-025 (0.0-4.7)	Pyridine	Result is possibly biased low based on LCS recovery
CDH-S-025 (6-8)	Pyridine	Result is possibly biased low based on LCS recovery
CDH-S-026 (0.0-2.0)	Pyridine	Result is possibly biased low based on LCS recovery
CDH-S-027 (0.0-1.9)	4-Nitroaniline	Result is possibly biased low based on LCS recovery
CDH-S-028 (0.0-1.0)	Pyridine	Result is possibly biased low based on LCS recovery

Results Qualified Based on Laboratory QC (cont.):

Sample ID	Parameter	Qualification
CDH-S-029 (0.0-4.8)	Allethrin	Result is possibly biased low based on matrix spike recovery; result may vary from true value based on precision in matrix spikes
CDH-S-029 (0.0-4.8)	alpha-BHC	Result may vary from true value based on the RPD between the two columns
CDH-S-029 (0.0-4.8)	BDE-208	Result is possibly biased low based on LCS recovery
CDH-S-029 (0.0-4.8)	Bifenthrin	Result may vary from true value based on precision in matrix spikes
CDH-S-029 (0.0-4.8)	Chlorpyrifos	Result is possibly biased low based on matrix spike recovery; result may vary from true value based on precision in matrix spikes
CDH-S-029 (0.0-4.8)	Cyfluthrin	Result may vary from true value based on precision in matrix spikes
CDH-S-029 (0.0-4.8)	Cypermethrin	Result may vary from true value based on precision in matrix spikes
CDH-S-029 (0.0-4.8)	Deltamethrin-Tralomethrin	Result may vary from true value based on precision in matrix spikes
CDH-S-029 (0.0-4.8)	Dichlorobiphenyls	Result is possibly biased high based on method blank
CDH-S-029 (0.0-4.8)	Dimethoate	Result is possibly biased low based on matrix spike recovery; result may vary from true value based on precision in matrix spikes
CDH-S-029 (0.0-4.8)	Esfenvalerate-Fenvalerate	Result may vary from true value based on precision in matrix spikes
CDH-S-029 (0.0-4.8)	Famphur	Result is possibly biased low based on matrix spike recovery
CDH-S-029 (0.0-4.8)	Fenpropathrin	Result may vary from true value based on precision in matrix spikes
CDH-S-029 (0.0-4.8)	Lambda-Cyhalothrin	Result may vary from true value based on precision in matrix spikes
CDH-S-029 (0.0-4.8)	Methomyl	Result is possibly biased low based on surrogate recovery
CDH-S-029 (0.0-4.8)	Monochlorobiphenyls	Result is possibly biased high based on method blank
CDH-S-029 (0.0-4.8)	Oxamyl	Result is possibly biased low based on surrogate recovery
CDH-S-029 (0.0-4.8)	PCB Congener 1	Result is possibly biased high based on method blank
CDH-S-029 (0.0-4.8)	PCB Congener 11	Result is possibly biased high based on method blank
CDH-S-029 (0.0-4.8)	PCB Congener 15	Result is possibly biased high based on method blank
CDH-S-029 (0.0-4.8)	PCB Congener 16/32	Result is possibly biased high based on method blank
CDH-S-029 (0.0-4.8)	PCB Congener 17	Result is possibly biased high based on method blank
CDH-S-029 (0.0-4.8)	PCB Congener 18	Result is possibly biased high based on method blank
CDH-S-029 (0.0-4.8)	PCB Congener 2	Result is possibly biased high based on method blank
CDH-S-029 (0.0-4.8)	PCB Congener 20/33/21	Result is possibly biased high based on method blank
CDH-S-029 (0.0-4.8)	PCB Congener 22	Result is possibly biased high based on method blank

Results Qualified Based on Laboratory QC (cont.):

Sample ID	Parameter	Qualification
CDH-S-029 (0.0-4.8)	PCB Congener 25	Result is possibly biased high based on method blank
CDH-S-029 (0.0-4.8)	PCB Congener 26	Result is possibly biased high based on method blank
CDH-S-029 (0.0-4.8)	PCB Congener 27/24	Result is possibly biased high based on method blank
CDH-S-029 (0.0-4.8)	PCB Congener 31/28	Result is possibly biased high based on method blank
CDH-S-029 (0.0-4.8)	PCB Congener 35	Result is possibly biased high based on method blank
CDH-S-029 (0.0-4.8)	PCB Congener 37	Result is possibly biased high based on method blank
CDH-S-029 (0.0-4.8)	PCB Congener 40/57	Result is possibly biased high based on method blank
CDH-S-029 (0.0-4.8)	PCB Congener 42	Result is possibly biased high based on method blank
CDH-S-029 (0.0-4.8)	PCB Congener 44	Result is possibly biased high based on method blank
CDH-S-029 (0.0-4.8)	PCB Congener 45	Result is possibly biased high based on method blank
CDH-S-029 (0.0-4.8)	PCB Congener 46/69/73	Result is possibly biased high based on method blank
CDH-S-029 (0.0-4.8)	PCB Congener 48/47/75	Result is possibly biased high based on method blank
CDH-S-029 (0.0-4.8)	PCB Congener 53	Result is possibly biased high based on method blank
CDH-S-029 (0.0-4.8)	PCB Congener 56	Result is possibly biased high based on method blank
CDH-S-029 (0.0-4.8)	PCB Congener 60	Result is possibly biased high based on method blank
CDH-S-029 (0.0-4.8)	PCB Congener 71	Result is possibly biased high based on method blank
CDH-S-029 (0.0-4.8)	PCB Congener 72/64/68	Result is possibly biased high based on method blank
CDH-S-029 (0.0-4.8)	PCB Congener 74/61	Result is possibly biased high based on method blank
CDH-S-029 (0.0-4.8)	PCB Congener 8/5	Result is possibly biased high based on method blank
CDH-S-029 (0.0-4.8)	Permethrin	Result may vary from true value based on precision in matrix spikes
CDH-S-029 (0.0-4.8)	Pyridine	Result is possibly biased low based on LCS recovery
CDH-S-029 (0.0-4.8)	Tau-Fluvalinate	Result may vary from true value based on precision in matrix spikes
CDH-S-029 (0.0-4.8)	Tetrachlorobiphenyls	Result is possibly biased high based on method blank
CDH-S-029 (0.0-4.8)	Tetramethrin	Result may vary from true value based on precision in matrix spikes
CDH-S-029 (0.0-4.8)	Total-HxCDD	Result is possibly biased high based on method blank
CDH-S-029 (0.0-4.8)	Trichlorobiphenyls	Result is possibly biased high based on method blank
CDH-S-030 (0.0-2.9)	4-Nitroaniline	Result is possibly biased low based on LCS recovery
CDH-S-031 (0.0-4.8)	3-Hydroxycarbofuran	Result is possibly biased low based on LCS recovery
CDH-S-031 (0.0-4.8)	Aldicarb	Result is possibly biased low based on LCS recovery
CDH-S-031 (0.0-4.8)	Aldicarb sulfone	Result is possibly biased low based on LCS recovery
CDH-S-031 (0.0-4.8)	Allethrin	Result is possibly biased low based on matrix spike recovery
CDH-S-031 (0.0-4.8)	BDE-208	Result is possibly biased low based on LCS recovery
CDH-S-031 (0.0-4.8)	Carbaryl	Result is possibly biased low based on LCS recovery

Results Qualified Based on Laboratory QC (cont.):

Sample ID	Parameter	Qualification
CDH-S-031 (0.0-4.8)	Carbofuran	Result is possibly biased low based on LCS recovery; result may vary from true value based on LCS/LCSD
CDH-S-031 (0.0-4.8)	Chlorpyrifos	Result is possibly biased high based on LCS and surrogate recoveries
CDH-S-031 (0.0-4.8)	Dichlorobiphenyls	Result is possibly biased high based on method blank
CDH-S-031 (0.0-4.8)	Lambda-Cyhalothrin	Result is possibly biased low based on LCS and matrix spike recoveries
CDH-S-031 (0.0-4.8)	Methiocarb	Result is possibly biased low based on LCS recovery
CDH-S-031 (0.0-4.8)	Methomyl	Result is possibly biased low based on LCS recovery
CDH-S-031 (0.0-4.8)	Monochlorobiphenyls	Result is possibly biased high based on method blank
CDH-S-031 (0.0-4.8)	PCB Congener 1	Result is possibly biased high based on method blank
CDH-S-031 (0.0-4.8)	PCB Congener 11	Result is possibly biased high based on method blank
CDH-S-031 (0.0-4.8)	PCB Congener 132	Result may vary from true value based on unacceptable precision in duplicate samples
CDH-S-031 (0.0-4.8)	PCB Congener 15	Result is possibly biased high based on method blank
CDH-S-031 (0.0-4.8)	PCB Congener 16/32	Result is possibly biased high based on method blank
CDH-S-031 (0.0-4.8)	PCB Congener 17	Result is possibly biased high based on method blank
CDH-S-031 (0.0-4.8)	PCB Congener 18	Result is possibly biased high based on method blank
CDH-S-031 (0.0-4.8)	PCB Congener 20/33/21	Result is possibly biased high based on method blank
CDH-S-031 (0.0-4.8)	PCB Congener 22	Result is possibly biased high based on method blank
CDH-S-031 (0.0-4.8)	PCB Congener 25	Result is possibly biased high based on method blank
CDH-S-031 (0.0-4.8)	PCB Congener 26	Result is possibly biased high based on method blank
CDH-S-031 (0.0-4.8)	PCB Congener 31/28	Result is possibly biased high based on method blank
CDH-S-031 (0.0-4.8)	PCB Congener 35	Result is possibly biased high based on method blank
CDH-S-031 (0.0-4.8)	PCB Congener 37	Result is possibly biased high based on method blank
CDH-S-031 (0.0-4.8)	PCB Congener 4/10	Result is possibly biased high based on method blank
CDH-S-031 (0.0-4.8)	PCB Congener 40/57	Result is possibly biased high based on method blank
CDH-S-031 (0.0-4.8)	PCB Congener 42	Result is possibly biased high based on method blank
CDH-S-031 (0.0-4.8)	PCB Congener 44	Result is possibly biased high based on method blank
CDH-S-031 (0.0-4.8)	PCB Congener 45	Result is possibly biased high based on method blank
CDH-S-031 (0.0-4.8)	PCB Congener 48/47/75	Result is possibly biased high based on method blank
CDH-S-031 (0.0-4.8)	PCB Congener 53	Result is possibly biased high based on method blank
CDH-S-031 (0.0-4.8)	PCB Congener 56	Result is possibly biased high based on method blank
CDH-S-031 (0.0-4.8)	PCB Congener 60	Result is possibly biased high based on method blank
CDH-S-031 (0.0-4.8)	PCB Congener 67	Result is possibly biased high based on method blank
CDH-S-031 (0.0-4.8)	PCB Congener 71	Result is possibly biased high based on method blank
CDH-S-031 (0.0-4.8)	PCB Congener 72/64/68	Result is possibly biased high based on method blank
CDH-S-031 (0.0-4.8)	PCB Congener 74/61	Result is possibly biased high based on method blank

Results Qualified Based on Laboratory QC (cont.):

Sample ID	Parameter	Qualification
CDH-S-031 (0.0-4.8)	PCB Congener 79	Result may vary from true value based on unacceptable precision in duplicate samples
CDH-S-031 (0.0-4.8)	PCB Congener 8/5	Result is possibly biased high based on method blank
CDH-S-031 (0.0-4.8)	Pentachlorobiphenyls	Result is possibly biased high based on method blank
CDH-S-031 (0.0-4.8)	Permethrin	Result is possibly biased high based on LCS and surrogate recoveries
CDH-S-031 (0.0-4.8)	Propoxur	Result is possibly biased low based on LCS recovery
CDH-S-031 (0.0-4.8)	Pyridine	Result is possibly biased low based on LCS recovery
CDH-S-031 (0.0-4.8)	Tetrachlorobiphenyls	Result is possibly biased high based on method blank
CDH-S-031 (0.0-4.8)	Tetramethrin	Result is possibly biased low based on LCS and matrix spike recoveries
CDH-S-031 (0.0-4.8)	Total-HxCDD	Result is possibly biased high based on method blank
CDH-S-031 (0.0-4.8)	Total-PeCDD	Result may vary from true value based on unacceptable precision in duplicate samples
CDH-S-031 (0.0-4.8)	Trichlorobiphenlys	Result is possibly biased high based on method blank
CDH-S-031 (6-8)	4-Nitroaniline	Result is possibly biased low based on LCS recovery
CDH-S-032 (0.0-3.4)	alpha-BHC	Result may vary from true value based on the RPD between the two columns
CDH-S-032 (0.0-3.4)	Pyridine	Result is possibly biased low based on LCS recovery
CDH-S-032 (10-12)	4-Nitroaniline	Result is possibly biased low based on LCS recovery
CDH-S-043 (0-2)	2-Nitroaniline	Result is possibly biased low based on LCS recovery
CDH-S-043 (0-2)	Benzoic Acid	Result may vary from true value based on LCS/LCSD
CDH-S-043 (0-2)	Carbazole	Result is possibly biased low based on LCS recovery
CDH-S-046 (0.0-2.5)	alpha-BHC	Result may vary from true value based on the RPD between the two columns
CDH-S-046 (0.0-2.5)	Dichlorobiphenyls	Result is possibly biased high based on method blank
CDH-S-046 (0.0-2.5)	Monochlorobiphenyls	Result is possibly biased high based on method blank
CDH-S-046 (0.0-2.5)	PCB Congener 1	Result is possibly biased high based on method blank
CDH-S-046 (0.0-2.5)	PCB Congener 11	Result is possibly biased high based on method blank
CDH-S-046 (0.0-2.5)	PCB Congener 15	Result is possibly biased high based on method blank
CDH-S-046 (0.0-2.5)	PCB Congener 16/32	Result is possibly biased high based on method blank
CDH-S-046 (0.0-2.5)	PCB Congener 17	Result is possibly biased high based on method blank
CDH-S-046 (0.0-2.5)	PCB Congener 18	Result is possibly biased high based on method blank
CDH-S-046 (0.0-2.5)	PCB Congener 2	Result is possibly biased high based on method blank
CDH-S-046 (0.0-2.5)	PCB Congener 20/33/21	Result is possibly biased high based on method blank
CDH-S-046 (0.0-2.5)	PCB Congener 22	Result is possibly biased high based on method blank
CDH-S-046 (0.0-2.5)	PCB Congener 26	Result is possibly biased high based on method blank
CDH-S-046 (0.0-2.5)	PCB Congener 27/24	Result is possibly biased high based on method blank
CDH-S-046 (0.0-2.5)	PCB Congener 31/28	Result is possibly biased high based on method blank

Results Qualified Based on Laboratory QC (cont.):

Sample ID	Parameter	Qualification
CDH-S-046 (0.0-2.5)	PCB Congener 37	Result is possibly biased high based on method blank
CDH-S-046 (0.0-2.5)	PCB Congener 40/57	Result is possibly biased high based on method blank
CDH-S-046 (0.0-2.5)	PCB Congener 42	Result is possibly biased high based on method blank
CDH-S-046 (0.0-2.5)	PCB Congener 44	Result is possibly biased high based on method blank
CDH-S-046 (0.0-2.5)	PCB Congener 45	Result is possibly biased high based on method blank
CDH-S-046 (0.0-2.5)	PCB Congener 48/47/75	Result is possibly biased high based on method blank
CDH-S-046 (0.0-2.5)	PCB Congener 49	Result is possibly biased high based on method blank
CDH-S-046 (0.0-2.5)	PCB Congener 52	Result is possibly biased high based on method blank
CDH-S-046 (0.0-2.5)	PCB Congener 53	Result is possibly biased high based on method blank
CDH-S-046 (0.0-2.5)	PCB Congener 56	Result is possibly biased high based on method blank
CDH-S-046 (0.0-2.5)	PCB Congener 60	Result is possibly biased high based on method blank
CDH-S-046 (0.0-2.5)	PCB Congener 66/80	Result is possibly biased high based on method blank
CDH-S-046 (0.0-2.5)	PCB Congener 67	Result is possibly biased high based on method blank
CDH-S-046 (0.0-2.5)	PCB Congener 71	Result is possibly biased high based on method blank
CDH-S-046 (0.0-2.5)	PCB Congener 72/64/68	Result is possibly biased high based on method blank
CDH-S-046 (0.0-2.5)	PCB Congener 74/61	Result is possibly biased high based on method blank
CDH-S-046 (0.0-2.5)	PCB Congener 76/70	Result is possibly biased high based on method blank
CDH-S-046 (0.0-2.5)	PCB Congener 77	Result is possibly biased high based on method blank
CDH-S-046 (0.0-2.5)	PCB Congener 8/5	Result is possibly biased high based on method blank
CDH-S-046 (0.0-2.5)	Pyridine	Result is possibly biased low based on LCS recovery
CDH-S-046 (0.0-2.5)	Tetrachlorobiphenyls	Result is possibly biased high based on method blank
CDH-S-046 (0.0-2.5)	Total-HxCDD	Result is possibly biased high based on method blank
CDH-S-046 (0.0-2.5)	Trichlorobiphenyls	Result is possibly biased high based on method blank
CDH-S-046 (10-12)	2,4,5-Trichlorophenol	Result is possibly biased high based on LCS recovery
CDH-S-046 (10-12)	2,4,6-Trichlorophenol	Result is possibly biased high based on LCS recovery
CDH-S-046 (10-12)	2,4-Dichlorophenol	Result is possibly biased high based on LCS recovery
CDH-S-046 (10-12)	2-Nitrophenol	Result is possibly biased high based on LCS recovery
CDH-S-046 (10-12)	Indeno (1,2,3-c,d)pyrene	Result is possibly biased high based on LCS recovery
CDH-S-046 (10-12)	Pentachlorophenol	Result is possibly biased high based on surrogate recovery
CDH-S-046 (10-12)	Pyridine	Result is possibly biased low based on LCS recovery
CDH-W-GEB	Carbazole	Result may vary from true value based on LCS/LCSD
CDH-W-REB	2,4,5-Trichlorophenol	Result is possibly biased low based on surrogate recovery
CDH-W-REB	2,4,6-Trichlorophenol	Result is possibly biased low based on surrogate recovery
CDH-W-REB	2,4-Dichlorophenol	Result is possibly biased low based on surrogate recovery
CDH-W-REB	2,4-Dimethylphenol	Result is possibly biased low based on surrogate recovery
CDH-W-REB	2,4-Dinitrophenol	Result is possibly biased low based on surrogate recovery
CDH-W-REB	2-Chlorophenol	Result is possibly biased low based on surrogate recovery

Results Qualified Based on Laboratory QC (cont.):

Sample ID	Parameter	Qualification
CDH-W-REB	2-Methylphenol	Result is possibly biased low based on surrogate recovery
CDH-W-REB	2-Nitrophenol	Result is possibly biased low based on surrogate recovery
CDH-W-REB	4,6-Dinitro-2-methylphenol	Result is possibly biased low based on surrogate recovery
CDH-W-REB	4-Chloro-3-methylphenol	Result is possibly biased low based on surrogate recovery
CDH-W-REB	4-Methylphenol	Result is possibly biased low based on surrogate recovery
CDH-W-REB	4-Nitrophenol	Result is possibly biased low based on surrogate recovery
CDH-W-REB	Carbazole	Result may vary from true value based on LCS/LCSD
CDH-W-REB	Pentachlorophenol	Result is possibly biased low based on surrogate recovery
CDH-W-REB	Phenol	Result is possibly biased low based on surrogate recovery
CHA-S-001	1,2,3-Trichlorobenzene	Result is possibly biased low based on matrix spike recovery
CHA-S-001	1,2,4-Trichlorobenzene	Result is possibly biased low based on matrix spike recovery
CHA-S-001	4,4'-DDE	Result may vary from true value based on the RPD between the two columns
CHA-S-001	Allethrin	Result is possibly biased low based on LCS recovery
CHA-S-001	BDE-100	Result is possibly biased high based on method blank
CHA-S-001	BDE-209	Result is possibly biased high based on method blank
CHA-S-001	BDE-47	Result is possibly biased high based on method blank
CHA-S-001	BDE-99	Result is possibly biased high based on method blank
CHA-S-001	Carbazole	Result is possibly biased low based on LCS recovery
CHA-S-001	cis-1,3-Dichloropropene	Result is possibly biased low based on matrix spike recovery
CHA-S-001	Cyfluthrin	Result is possibly biased low based on LCS recovery
CHA-S-001	Dibromochloromethane	Result is possibly biased low based on matrix spike recovery
CHA-S-001	Dichlorobiphenyls	Result is possibly biased high based on method blank
CHA-S-001	Dieldrin	Result may vary from true value based on the RPD between the two columns
CHA-S-001	Ethyl methacrylate	Result is possibly biased low based on matrix spike recovery
CHA-S-001	Hexachlorobutadiene	Result is possibly biased low based on matrix spike recovery
CHA-S-001	Lambda-Cyhalothrin	Result is possibly biased low based on LCS and matrix spike recoveries
CHA-S-001	Methomyl	Result is possibly biased low based on surrogate recovery
CHA-S-001	Methoxychlor	Result may vary from true value based on the RPD between the two columns
CHA-S-001	Monochlorobiphenyls	Result is possibly biased high based on method blank
CHA-S-001	n-Butylbenzene	Result is possibly biased low based on matrix spike recovery
CHA-S-001	PCB Congener 1	Result is possibly biased high based on method blank
CHA-S-001	PCB Congener 4/10	Result is possibly biased high based on method blank
CHA-S-001	PCB Congener 9/7	Result is possibly biased high based on method blank
CHA-S-001	PCB Congener 6	Result is possibly biased high based on method blank

Results Qualified Based on Laboratory QC (cont.):

Sample ID	Parameter	Qualification
CHA-S-001	PCB Congener 8/5	Result is possibly biased high based on method blank
CHA-S-001	PCB Congener 11	Result is possibly biased high based on method blank
CHA-S-001	PCB Congener 15	Result is possibly biased high based on method blank
CHA-S-001	PCB Congener 19	Result is possibly biased high based on method blank
CHA-S-001	PCB Congener 18	Result is possibly biased high based on method blank
CHA-S-001	PCB Congener 17	Result is possibly biased high based on method blank
CHA-S-001	PCB Congener 27/24	Result is possibly biased high based on method blank
CHA-S-001	PCB Congener 16/32	Result is possibly biased high based on method blank
CHA-S-001	PCB Congener 26	Result is possibly biased high based on method blank
CHA-S-001	PCB Congener 25	Result is possibly biased high based on method blank
CHA-S-001	PCB Congener 31/28	Result is possibly biased high based on method blank
CHA-S-001	PCB Congener 20/33/21	Result is possibly biased high based on method blank
CHA-S-001	PCB Congener 22	Result is possibly biased high based on method blank
CHA-S-001	PCB Congener 37	Result is possibly biased high based on method blank
CHA-S-001	PCB Congener 53	Result is possibly biased high based on method blank
CHA-S-001	PCB Congener 45	Result is possibly biased high based on method blank
CHA-S-001	PCB Congener 46/69/73	Result is possibly biased high based on method blank
CHA-S-001	PCB Congener 52	Result is possibly biased high based on method blank
CHA-S-001	PCB Congener 49	Result is possibly biased high based on method blank
CHA-S-001	PCB Congener 48/47/75	Result is possibly biased high based on method blank
CHA-S-001	PCB Congener 42	Result is possibly biased high based on method blank
CHA-S-001	PCB Congener 71	Result is possibly biased high based on method blank
CHA-S-001	PCB Congener 72/64/68	Result is possibly biased high based on method blank
CHA-S-001	PCB Congener 74/61	Result is possibly biased high based on method blank
CHA-S-001	PCB Congener 76/70	Result is possibly biased high based on method blank
CHA-S-001	PCB Congener 66/80	Result is possibly biased high based on method blank
CHA-S-001	PCB Congener 56	Result is possibly biased high based on method blank
CHA-S-001	PCB Congener 60	Result is possibly biased high based on method blank
CHA-S-001	PCB Congener 95/93/121	Result is possibly biased high based on method blank
CHA-S-001	PCB Congener 92	Result is possibly biased high based on method blank
CHA-S-001	PCB Congener 101/113/89	Result is possibly biased high based on method blank
CHA-S-001	PCB Congener 99	Result is possibly biased high based on method blank
CHA-S-001	PCB Congener 115/116/87	Result is possibly biased high based on method blank
CHA-S-001	PCB Congener 110	Result is possibly biased high based on method blank
CHA-S-001	PCB Congener 118/106	Result is possibly biased high based on method blank
CHA-S-001	PCB Congener 105/127	Result is possibly biased high based on method blank

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Results Qualified Based on Laboratory QC (cont.):

Sample ID	Parameter	Qualification
CHA-S-001	Pentachlorobiphenyls	Result is possibly biased high based on method blank
CHA-S-001	Permethrin	Result is possibly biased low based on LCS and matrix spike recoveries
CHA-S-001	Styrene	Result is possibly biased low based on matrix spike recovery
CHA-S-001	Tetrachlorobiphenyls	Result is possibly biased high based on method blank
CHA-S-001	Tetramethrin	Result is possibly biased low based on LCS recovery
CHA-S-001	Total PCB	Result is possibly biased high based on method blank
CHA-S-001	trans-1,3-Dichloropropene	Result is possibly biased low based on matrix spike recovery
CHA-S-001	trans-1,4-Dichloro-2-butene	Result is possibly biased low based on matrix spike recovery
CHA-S-001	Trichlorobiphenyls	Result is possibly biased high based on method blank
CHA-S-001A	4,4'-DDT	Result may vary from true value based on the RPD between the two columns
CHA-S-001A	Carbazole	Result is possibly biased low based on LCS recovery
CHA-S-002	Allethrin	Result is possibly biased low based on LCS recovery
CHA-S-002	Carbazole	Result is possibly biased low based on LCS recovery
CHA-S-002	Cyfluthrin	Result is possibly biased low based on LCS recovery
CHA-S-002	Decachlorobiphenyls	Result may vary from true value based on unacceptable precision in duplicate samples
CHA-S-002	Dichlorobiphenyls	Result is possibly biased high based on method blank
CHA-S-002	Dimethoate	Result is possibly biased low based on matrix spike recovery
CHA-S-002	Famphur	Result is possibly biased low based on matrix spike recovery
CHA-S-002	HBB	Result is possibly biased high based on method blank
CHA-S-002	Heptachlorobiphenyls	Result may vary from true value based on unacceptable precision in duplicate samples
CHA-S-002	Hexachlorobiphenyls	Result is possibly biased high based on method blank; result may vary from true value based on unacceptable precision in duplicate samples
CHA-S-002	Lambda-Cyhalothrin	Result is possibly biased low based on LCS and matrix spike recoveries
CHA-S-002	Monochlorobiphenyls	Result is possibly biased high based on method blank
CHA-S-002	Octachlorobiphenyls	Result may vary from true value based on unacceptable precision in duplicate samples
CHA-S-002	PCB Congener 1	Result is possibly biased high based on method blank
CHA-S-002	PCB Congener 4/10	Result is possibly biased high based on method blank
CHA-S-002	PCB Congener 9/7	Result is possibly biased high based on method blank
CHA-S-002	PCB Congener 6	Result is possibly biased high based on method blank
CHA-S-002	PCB Congener 8/5	Result is possibly biased high based on method blank
CHA-S-002	PCB Congener 11	Result is possibly biased high based on method blank

Results Qualified Based on Laboratory QC (cont.):

Sample ID	Parameter	Qualification
CHA-S-002	PCB Congener 15	Result is possibly biased high based on method blank
CHA-S-002	PCB Congener 19	Result is possibly biased high based on method blank
CHA-S-002	PCB Congener 18	Result is possibly biased high based on method blank; result may vary from true value based on unacceptable precision in duplicate samples
CHA-S-002	PCB Congener 17	Result is possibly biased high based on method blank
CHA-S-002	PCB Congener 27/24	Result is possibly biased high based on method blank
CHA-S-002	PCB Congener 16/32	Result is possibly biased high based on method blank
CHA-S-002	PCB Congener 26	Result is possibly biased high based on method blank; result may vary from true value based on unacceptable precision in duplicate samples
CHA-S-002	PCB Congener 25	Result is possibly biased high based on method blank
CHA-S-002	PCB Congener 31/28	Result is possibly biased high based on method blank
CHA-S-002	PCB Congener 20/33/21	Result is possibly biased high based on method blank
CHA-S-002	PCB Congener 22	Result is possibly biased high based on method blank
CHA-S-002	PCB Congener 35	Result is possibly biased high based on method blank
CHA-S-002	PCB Congener 37	Result is possibly biased high based on method blank
CHA-S-002	PCB Congener 45	Result is possibly biased high based on method blank
CHA-S-002	PCB Congener 46/69/73	Result is possibly biased high based on method blank
CHA-S-002	PCB Congener 52	Result is possibly biased high based on method blank
CHA-S-002	PCB Congener 49	Result is possibly biased high based on method blank
CHA-S-002	PCB Congener 48/47/75	Result is possibly biased high based on method blank
CHA-S-002	PCB Congener 42	Result is possibly biased high based on method blank
CHA-S-002	PCB Congener 72/64/68	Result is possibly biased high based on method blank
CHA-S-002	PCB Congener 40/57	Result is possibly biased high based on method blank
CHA-S-002	PCB Congener 74/61	Result is possibly biased high based on method blank
CHA-S-002	PCB Congener 76/70	Result is possibly biased high based on method blank
CHA-S-002	PCB Congener 66/80	Result is possibly biased high based on method blank
CHA-S-002	PCB Congener 56	Result is possibly biased high based on method blank
CHA-S-002	PCB Congener 60	Result is possibly biased high based on method blank
CHA-S-002	PCB Congener 95/93/121	Result is possibly biased high based on method blank
CHA-S-002	PCB Congener 92	Result is possibly biased high based on method blank
CHA-S-002	PCB Congener 101/113/89	Result is possibly biased high based on method blank
CHA-S-002	PCB Congener 108/83	Result is possibly biased high based on method blank
CHA-S-002	PCB Congener 110	Result is possibly biased high based on method blank
CHA-S-002	PCB Congener 118/106	Result is possibly biased high based on method blank
CHA-S-002	PCB Congener 105/127	Result is possibly biased high based on method blank

Results Qualified Based on Laboratory QC (cont.):

Sample ID	Parameter	Qualification
CHA-S-002	PCB Congener 144	Result may vary from true value based on unacceptable precision in duplicate samples
CHA-S-002	PCB Congener 161/146	Result may vary from true value based on unacceptable precision in duplicate samples
CHA-S-002	PCB Congener 132	Result may vary from true value based on unacceptable precision in duplicate samples
CHA-S-002	PCB Congener 179	Result may vary from true value based on unacceptable precision in duplicate samples
CHA-S-002	PCB Congener 178	Result may vary from true value based on unacceptable precision in duplicate samples
CHA-S-002	PCB Congener 181	Result may vary from true value based on unacceptable precision in duplicate samples
CHA-S-002	PCB Congener 177	Result is possibly biased high based on method blank
CHA-S-002	Pentachlorobiphenyls	Result is possibly biased high based on method blank
CHA-S-002	Permethrin	Result is possibly biased low based on LCS and matrix spike recoveries
CHA-S-002	Tetrachlorobiphenyls	Result is possibly biased high based on method blank
CHA-S-002	Tetramethrin	Result is possibly biased low based on LCS recovery
CHA-S-002	Thionazin	Result is possibly biased low based on matrix spike recovery
CHA-S-002	Total PCB	Result is possibly biased high based on method blank
CHA-S-002	Trichlorobiphenyls	Result is possibly biased high based on method blank
CHA-S-003	Carbazole	Result is possibly biased low based on LCS recovery
CHA-S-003	gamma-BHC	Result may vary from true value based on the RPD between the two columns
CHA-S-004	Carbazole	Result is possibly biased low based on LCS recovery

General Comments

The laboratory flagged the following results because the ion abundance ratio did not meet the acceptance criterion; these results should be considered estimates:

Estimated Results:

Sample ID	Parameter
CDH-S-007 (0.0-18.7)	BDE-100
CDH-S-007 (0.0-18.7)	BDE-154
CDH-S-007 (0.0-18.7)	BDE-207
CDH-S-007 (0.0-18.7)	BDE-51
CDH-S-007 (0.0-18.7)	BDE-7
CDH-S-007 (0.0-18.7)	BDE-8/BDE-11

Sample ID	Parameter
CDH-S-029 (0.0-4.8)	BDE-35
CDH-S-029 (0.0-4.8)	BDE-7
CDH-S-029 (0.0-4.8)	PCB Congener 114
CDH-S-029 (0.0-4.8)	PCB Congener 124
CDH-S-029 (0.0-4.8)	PCB Congener 129
CDH-S-029 (0.0-4.8)	PCB Congener 133/165/131

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Estimated Results (cont.):

Sample ID	Parameter
CDH-S-007 (0.0-18.7)	BDE-99
CDH-S-007 (0.0-18.7)	PCB Congener 119
CDH-S-007 (0.0-18.7)	PCB Congener 12/13
CDH-S-007 (0.0-18.7)	PCB Congener 122
CDH-S-007 (0.0-18.7)	PCB Congener 128
CDH-S-007 (0.0-18.7)	PCB Congener 129
CDH-S-007 (0.0-18.7)	PCB Congener 133/165/131
CDH-S-007 (0.0-18.7)	PCB Congener 134
CDH-S-007 (0.0-18.7)	PCB Congener 142
CDH-S-007 (0.0-18.7)	PCB Congener 143
CDH-S-007 (0.0-18.7)	PCB Congener 147
CDH-S-007 (0.0-18.7)	PCB Congener 175
CDH-S-007 (0.0-18.7)	PCB Congener 176
CDH-S-007 (0.0-18.7)	PCB Congener 182/187
CDH-S-007 (0.0-18.7)	PCB Congener 185
CDH-S-007 (0.0-18.7)	PCB Congener 19
CDH-S-007 (0.0-18.7)	PCB Congener 198
CDH-S-007 (0.0-18.7)	PCB Congener 201
CDH-S-007 (0.0-18.7)	PCB Congener 202
CDH-S-007 (0.0-18.7)	PCB Congener 207
CDH-S-007 (0.0-18.7)	PCB Congener 4/10
CDH-S-007 (0.0-18.7)	PCB Congener 55
CDH-S-007 (0.0-18.7)	PCB Congener 6
CDH-S-007 (0.0-18.7)	PCB Congener 74/61
CDH-S-007 (0.0-18.7)	PCB Congener 9/7
CDH-S-007 (0.0-18.7)	PCB Congener 94
CDH-S-007 (0.0-18.7)	PCB Congener 96/103
CDH-S-007 (0.0-18.7)	PCB Congener 98/102
CDH-S-007 (0.0-18.7)	2,3,7,8-TCDD
CDH-S-008 (0.0-1.7)	1,2,3,7,8-PeCDD
CDH-S-008 (0.0-1.7)	BDE-100
CDH-S-008 (0.0-1.7)	BDE-12/BDE-13
CDH-S-008 (0.0-1.7)	BDE-15
CDH-S-008 (0.0-1.7)	BDE-17/BDE-25
CDH-S-008 (0.0-1.7)	BDE-37
CDH-S-008 (0.0-1.7)	BDE-47
CDH-S-008 (0.0-1.7)	BDE-49
CDH-S-008 (0.0-1.7)	BDE-8/BDE-11
CDH-S-008 (0.0-1.7)	BDE-99
CDH-S-008 (0.0-1.7)	PCB Congener 100
CDH-S-008 (0.0-1.7)	PCB Congener 104
CDH-S-008 (0.0-1.7)	PCB Congener 114
CDH-S-008 (0.0-1.7)	PCB Congener 119
CDH-S-008 (0.0-1.7)	PCB Congener 124
CDH-S-008 (0.0-1.7)	PCB Congener 130

Sample ID	Parameter
CDH-S-029 (0.0-4.8)	PCB Congener 134
CDH-S-029 (0.0-4.8)	PCB Congener 137
CDH-S-029 (0.0-4.8)	PCB Congener 140
CDH-S-029 (0.0-4.8)	PCB Congener 142
CDH-S-029 (0.0-4.8)	PCB Congener 147
CDH-S-029 (0.0-4.8)	PCB Congener 167
CDH-S-029 (0.0-4.8)	PCB Congener 175
CDH-S-029 (0.0-4.8)	PCB Congener 176
CDH-S-029 (0.0-4.8)	PCB Congener 191
CDH-S-029 (0.0-4.8)	PCB Congener 194
CDH-S-029 (0.0-4.8)	PCB Congener 196/203
CDH-S-029 (0.0-4.8)	PCB Congener 197
CDH-S-029 (0.0-4.8)	PCB Congener 198
CDH-S-029 (0.0-4.8)	PCB Congener 202
CDH-S-029 (0.0-4.8)	PCB Congener 205
CDH-S-029 (0.0-4.8)	PCB Congener 207
CDH-S-029 (0.0-4.8)	PCB Congener 208
CDH-S-029 (0.0-4.8)	PCB Congener 209
CDH-S-029 (0.0-4.8)	PCB Congener 58
CDH-S-029 (0.0-4.8)	PCB Congener 67
CDH-S-029 (0.0-4.8)	PCB Congener 96/103
CDH-S-031 (0.0-4.8)	1,2,3,4,7,8,9-HpCDF
CDH-S-031 (0.0-4.8)	1,2,3,7,8-PeCDF
CDH-S-031 (0.0-4.8)	2,3,4,7,8-PeCDF
CDH-S-031 (0.0-4.8)	BDE-154
CDH-S-031 (0.0-4.8)	BDE-17/BDE-25
CDH-S-031 (0.0-4.8)	BDE-28/BDE-33
CDH-S-031 (0.0-4.8)	BDE-49
CDH-S-031 (0.0-4.8)	BDE-51
CDH-S-031 (0.0-4.8)	BDE-7
CDH-S-031 (0.0-4.8)	PCB Congener 100
CDH-S-031 (0.0-4.8)	PCB Congener 114
CDH-S-031 (0.0-4.8)	PCB Congener 12/13
CDH-S-031 (0.0-4.8)	PCB Congener 123
CDH-S-031 (0.0-4.8)	PCB Congener 124
CDH-S-031 (0.0-4.8)	PCB Congener 126
CDH-S-031 (0.0-4.8)	PCB Congener 130
CDH-S-031 (0.0-4.8)	PCB Congener 133/165/131
CDH-S-031 (0.0-4.8)	PCB Congener 137
CDH-S-031 (0.0-4.8)	PCB Congener 140
CDH-S-031 (0.0-4.8)	PCB Congener 142
CDH-S-031 (0.0-4.8)	PCB Congener 144
CDH-S-031 (0.0-4.8)	PCB Congener 147
CDH-S-031 (0.0-4.8)	PCB Congener 157
CDH-S-031 (0.0-4.8)	PCB Congener 158

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Estimated Results (cont.):

Sample ID	Parameter
CDH-S-008 (0.0-1.7)	PCB Congener 142
CDH-S-008 (0.0-1.7)	PCB Congener 144
CDH-S-008 (0.0-1.7)	PCB Congener 151
CDH-S-008 (0.0-1.7)	PCB Congener 161/146
CDH-S-008 (0.0-1.7)	PCB Congener 173
CDH-S-008 (0.0-1.7)	PCB Congener 175
CDH-S-008 (0.0-1.7)	PCB Congener 178
CDH-S-008 (0.0-1.7)	PCB Congener 183
CDH-S-008 (0.0-1.7)	PCB Congener 185
CDH-S-008 (0.0-1.7)	PCB Congener 197
CDH-S-008 (0.0-1.7)	PCB Congener 198
CDH-S-008 (0.0-1.7)	PCB Congener 200
CDH-S-008 (0.0-1.7)	PCB Congener 201
CDH-S-008 (0.0-1.7)	PCB Congener 202
CDH-S-008 (0.0-1.7)	PCB Congener 207
CDH-S-008 (0.0-1.7)	PCB Congener 208
CDH-S-008 (0.0-1.7)	PCB Congener 27/24
CDH-S-008 (0.0-1.7)	PCB Congener 51
CDH-S-008 (0.0-1.7)	PCB Congener 58
CDH-S-008 (0.0-1.7)	PCB Congener 6
CDH-S-014 (0.0-5.3)	1,2,3,4,7,8,9-HpCDF
CDH-S-014 (0.0-5.3)	BDE-100
CDH-S-014 (0.0-5.3)	BDE-15
CDH-S-014 (0.0-5.3)	BDE-17/BDE-25
CDH-S-014 (0.0-5.3)	BDE-51
CDH-S-014 (0.0-5.3)	BDE-8/BDE-11
CDH-S-014 (0.0-5.3)	PCB Congener 114
CDH-S-014 (0.0-5.3)	PCB Congener 12/13
CDH-S-014 (0.0-5.3)	PCB Congener 124
CDH-S-014 (0.0-5.3)	PCB Congener 142
CDH-S-014 (0.0-5.3)	PCB Congener 166
CDH-S-014 (0.0-5.3)	PCB Congener 171
CDH-S-014 (0.0-5.3)	PCB Congener 176
CDH-S-014 (0.0-5.3)	PCB Congener 178
CDH-S-014 (0.0-5.3)	PCB Congener 183
CDH-S-014 (0.0-5.3)	PCB Congener 189
CDH-S-014 (0.0-5.3)	PCB Congener 191
CDH-S-014 (0.0-5.3)	PCB Congener 197
CDH-S-014 (0.0-5.3)	PCB Congener 198
CDH-S-014 (0.0-5.3)	PCB Congener 201
CDH-S-014 (0.0-5.3)	PCB Congener 202
CDH-S-014 (0.0-5.3)	PCB Congener 205
CDH-S-014 (0.0-5.3)	PCB Congener 207
CDH-S-014 (0.0-5.3)	PCB Congener 208
CDH-S-014 (0.0-5.3)	PCB Congener 27/24

Sample ID	Parameter
CDH-S-031 (0.0-4.8)	PCB Congener 166
CDH-S-031 (0.0-4.8)	PCB Congener 175
CDH-S-031 (0.0-4.8)	PCB Congener 176
CDH-S-031 (0.0-4.8)	PCB Congener 189
CDH-S-031 (0.0-4.8)	PCB Congener 207
CDH-S-031 (0.0-4.8)	PCB Congener 27/24
CDH-S-031 (0.0-4.8)	PCB Congener 46/69/73
CDH-S-031 (0.0-4.8)	PCB Congener 6
CDH-S-031 (0.0-4.8)	PCB Congener 94
CDH-S-031 (0.0-4.8)	PCB Congener 96/103
CDH-S-031 (0.0-4.8)	PCB Congener 98/102
CDH-S-046 (0.0-2.5)	1,2,3,4,7,8-HxCDD
CDH-S-046 (0.0-2.5)	1,2,3,4,7,8-HxCDF
CDH-S-046 (0.0-2.5)	1,2,3,7,8,9-HxCDF
CDH-S-046 (0.0-2.5)	2,3,4,7,8-PeCDF
CDH-S-046 (0.0-2.5)	PCB Congener 100
CDH-S-046 (0.0-2.5)	PCB Congener 104
CDH-S-046 (0.0-2.5)	PCB Congener 123
CDH-S-046 (0.0-2.5)	PCB Congener 124
CDH-S-046 (0.0-2.5)	PCB Congener 133/165/131
CDH-S-046 (0.0-2.5)	PCB Congener 134
CDH-S-046 (0.0-2.5)	PCB Congener 140
CDH-S-046 (0.0-2.5)	PCB Congener 157
CDH-S-046 (0.0-2.5)	PCB Congener 162
CDH-S-046 (0.0-2.5)	PCB Congener 173
CDH-S-046 (0.0-2.5)	PCB Congener 185
CDH-S-046 (0.0-2.5)	PCB Congener 189
CDH-S-046 (0.0-2.5)	PCB Congener 198
CDH-S-046 (0.0-2.5)	PCB Congener 46/69/73
CDH-S-046 (0.0-2.5)	PCB Congener 55
CDH-W-REB	2,3,4,7,8-PeCDF
CHA-S-001	1,2,3,4,6,7,8-HpCDF
CHA-S-001	2,3,7,8-TCDF
CHA-S-001	PCB Congener 108/83
CHA-S-001	PCB Congener 119
CHA-S-001	PCB Congener 132
CHA-S-001	PCB Congener 151
CHA-S-001	PCB Congener 157
CHA-S-001	PCB Congener 161/146
CHA-S-001	PCB Congener 164/163
CHA-S-001	PCB Congener 182/187
CHA-S-001	PCB Congener 183
CHA-S-001	PCB Congener 192/172
CHA-S-001	PCB Congener 194
CHA-S-001	PCB Congener 200

Results for External Quality Assurance Samples
Incorporated by the Environmental Monitoring Branch

Estimated Results (cont.):

Sample ID	Parameter
CDH-S-014 (0.0-5.3)	PCB Congener 58
CDH-S-014 (0.0-5.3)	PCB Congener 6
CDH-S-014 (0.0-5.3)	PCB Congener 67
CDH-S-014 (0.0-5.3)	PCB Congener 94
CDH-S-014 (0.0-5.3)	PCB Congener 96/103
CDH-S-014 (0.0-5.3)	PCB Congener 98/102
CDH-S-015A (0.0-9.7)	1,2,3,4,7,8,9-HpCDF
CDH-S-015A (0.0-9.7)	1,2,3,7,8-PeCDF
CDH-S-015A (0.0-9.7)	BDE-100
CDH-S-015A (0.0-9.7)	BDE-15
CDH-S-015A (0.0-9.7)	BDE-17/BDE-25
CDH-S-015A (0.0-9.7)	BDE-47
CDH-S-015A (0.0-9.7)	BDE-51
CDH-S-015A (0.0-9.7)	BDE-8/BDE-11
CDH-S-015A (0.0-9.7)	BDE-99
CDH-S-015A (0.0-9.7)	PCB Congener 100
CDH-S-015A (0.0-9.7)	PCB Congener 124
CDH-S-015A (0.0-9.7)	PCB Congener 130
CDH-S-015A (0.0-9.7)	PCB Congener 135
CDH-S-015A (0.0-9.7)	PCB Congener 137
CDH-S-015A (0.0-9.7)	PCB Congener 147
CDH-S-015A (0.0-9.7)	PCB Congener 151
CDH-S-015A (0.0-9.7)	PCB Congener 175
CDH-S-015A (0.0-9.7)	PCB Congener 178
CDH-S-015A (0.0-9.7)	PCB Congener 179
CDH-S-015A (0.0-9.7)	PCB Congener 189
CDH-S-015A (0.0-9.7)	PCB Congener 19
CDH-S-015A (0.0-9.7)	PCB Congener 198
CDH-S-015A (0.0-9.7)	PCB Congener 200
CDH-S-015A (0.0-9.7)	PCB Congener 4/10
CDH-S-015A (0.0-9.7)	PCB Congener 46/69/73
CDH-S-015A (0.0-9.7)	PCB Congener 6
CDH-S-015A (0.0-9.7)	PCB Congener 63
CDH-S-015A (0.0-9.7)	PCB Congener 9/7
CDH-S-015A (0.0-9.7)	PCB Congener 94
CDH-S-015A (0.0-9.7)	PCB Congener 98/102
CDH-S-029 (0.0-4.8)	1,2,3,4,7,8,9-HpCDF
CDH-S-029 (0.0-4.8)	1,2,3,4,7,8-HxCDD
CDH-S-029 (0.0-4.8)	1,2,3,4,7,8-HxCDF
CDH-S-029 (0.0-4.8)	1,2,3,7,8,9-HxCDF
CDH-S-029 (0.0-4.8)	2,3,7,8-TCDF
CDH-S-029 (0.0-4.8)	BDE-100
CDH-S-029 (0.0-4.8)	BDE-12/BDE-13
CDH-S-029 (0.0-4.8)	BDE-15
CDH-S-029 (0.0-4.8)	BDE-32

Sample ID	Parameter
CHA-S-001	PCB Congener 201
CHA-S-001	PCB Congener 202
CHA-S-001	PCB Congener 206
CHA-S-001	PCB Congener 207
CHA-S-001	PCB Congener 208
CHA-S-001	PCB Congener 209
CHA-S-001	PCB Congener 40/57
CHA-S-001	PCB Congener 50
CHA-S-001	PCB Congener 54
CHA-S-001	PCB Congener 55
CHA-S-001	PCB Congener 84/90
CHA-S-001	PCB Congener 96/103
CHA-S-002	1,2,3,4,6,7,8-HpCDD
CHA-S-002	BDE-118
CHA-S-002	BDE-209
CHA-S-002	BDE-37
CHA-S-002	OCDF
CHA-S-002	PCB Congener 115/116/87
CHA-S-002	PCB Congener 138/160
CHA-S-002	PCB Congener 139/149
CHA-S-002	PCB Congener 151
CHA-S-002	PCB Congener 168/153
CHA-S-002	PCB Congener 170/190
CHA-S-002	PCB Congener 171
CHA-S-002	PCB Congener 192/172
CHA-S-002	PCB Congener 196/203
CHA-S-002	PCB Congener 199
CHA-S-002	PCB Congener 202
CHA-S-002	PCB Congener 206
CHA-S-002	PCB Congener 208
CHA-S-002	PCB Congener 209
CHA-S-002	PCB Congener 38
CHA-S-002	PCB Congener 39
CHA-S-002	PCB Congener 53
CHA-S-002	PCB Congener 55
CHA-S-002	PCB Congener 59
CHA-S-002	PCB Congener 63
CHA-S-002	PCB Congener 67
CHA-S-002	PCB Congener 71
CHA-S-002	PCB Congener 77
CHA-S-002	PCB Congener 84/90
CHA-S-002	PCB Congener 86/97/125
CHA-S-002	PCB Congener 96/103
CHA-S-002	PCB Congener 98/102
CHA-S-002	PCB Congener 99

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Appendix G

Quality Assurance Summary for Organic Parameters in Elutriate Samples

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RECLAMATION

Managing Water in the West

Klamath River Sediment Study

Quality Assurance Summary for

Organic Parameters in Elutriate Samples

Bureau of Reclamation, Mid-Pacific Region

Environmental Monitoring Branch

U.S. Department of the Interior
Bureau of Reclamation
Mid-Pacific Region

Overview of Quality Assurance Review
by the Environmental Monitoring Branch

Samples for the Klamath River Sediment Study were collected between October 2009 and January 2010. The Environmental Monitoring Branch's Quality Assurance (QA) section reviewed and validated the laboratory Quality Control (QC) sample results. External QA samples were not incorporated for organic parameters in elutriate samples. The summary of the QA review is discussed in the following pages.

Laboratory	Methods
MWH Laboratories (Monrovia, CA)	EPA 505, EPA 525.2, and EPA 531.2
Basic Laboratory, Inc. (Redding, CA)	EPA 8081
ALS Laboratory Group (Salt Lake City, UT)	EPA 8151A and EPA 8270D
ALS Laboratory Group (Burlington, Ontario)	EPA 1668A and EPA 1668B
Test America Laboratories, Inc. (Pittsburgh, PA)	EPA 8141A

Quality Assurance Review
by the Environmental Monitoring Branch

Summary for Organic Parameters in Elutriate Samples

Holding Time

All parameters were extracted and analyzed within their recommended holding times except for the following:

Results Analyzed Past the Holding Time:

Sample ID	Parameter
CDH-E-CPN	All parameters analyzed by EPA 1668A
CDH-E-CPN	All parameters analyzed by EPA 8270
CDH-E-CPN	Heptachlor
CDH-E-CPN	Pentachlorophenol
CDH-E-CPT	All parameters analyzed by EPA 1668A
CDH-E-CPT	All parameters analyzed by EPA 8270
CDH-E-CPT	Heptachlor
CDH-E-CPT	Pentachlorophenol
CDH-E-IGN	All parameters analyzed by EPA 1668A
CDH-E-IGN	All parameters analyzed by EPA 8081
CDH-E-IGN	Aldrin
CDH-E-IGN	Aroclor 1016
CDH-E-IGN	Aroclor 1221
CDH-E-IGN	Aroclor 1232
CDH-E-IGN	Aroclor 1242
CDH-E-IGN	Aroclor 1248
CDH-E-IGN	Aroclor 1254
CDH-E-IGN	Aroclor 1260
CDH-E-IGN	Chlordane

Sample ID	Parameter
CDH-E-IGN	Dieldrin
CDH-E-IGN	Endrin
CDH-E-IGN	Heptachlor
CDH-E-IGN	Heptachlor Epoxide
CDH-E-IGN	Lindane
CDH-E-IGN	Methoxychlor
CDH-E-IGN	Total PCBs
CDH-E-IGN	Toxaphene
CDH-E-IGT-1	All parameters analyzed by EPA 8081
CDH-E-IGT-1	All parameters analyzed by EPA 1668A
CDH-E-IGT-1	Heptachlor
CDH-E-IGT-2	All parameters analyzed by EPA 1668A
CDH-E-IGT-2	All parameters analyzed by EPA 8270
CDH-E-IGT-2	Heptachlor
CDH-E-IGT-2	Pentachlorophenol
CDH-E-JBN	All parameters analyzed by EPA 1668A
CDH-E-JBT	All parameters analyzed by EPA 1668A
CHA-E-001	All parameters analyzed by EPA 1668B
CHA-E-002	All parameters analyzed by EPA 1668B

Quality Assurance Review
by the Environmental Monitoring Branch

Laboratory Quality Control

The results of the laboratory's QC samples were reviewed. QC samples included blanks, duplicates, blank spikes, matrix spikes, or surrogates. The laboratory QC sample results were acceptable except for the following:

Results Qualified Based on Laboratory QC:

Sample ID	Parameter	Qualification
CDH-E-CPN	Aldrin	Result is possibly biased low based on low recovery of surrogate
CDH-E-CPN	Aroclor 1016	Result is possibly biased low based on low recovery of surrogate
CDH-E-CPN	Aroclor 1221	Result is possibly biased low based on low recovery of surrogate
CDH-E-CPN	Aroclor 1232	Result is possibly biased low based on low recovery of surrogate
CDH-E-CPN	Aroclor 1242	Result is possibly biased low based on low recovery of surrogate
CDH-E-CPN	Aroclor 1248	Result is possibly biased low based on low recovery of surrogate
CDH-E-CPN	Aroclor 1254	Result is possibly biased low based on low recovery of surrogate
CDH-E-CPN	Aroclor 1260	Result is possibly biased low based on low recovery of surrogate
CDH-E-CPN	Chlordane	Result is possibly biased low based on low recovery of surrogate
CDH-E-CPN	Dieldrin	Result is possibly biased low based on low recovery of surrogate
CDH-E-CPN	Endrin	Result is possibly biased low based on low recovery of surrogate
CDH-E-CPN	Heptachlor	Result is possibly biased low based on low recovery of surrogate
CDH-E-CPN	Heptachlor Epoxide	Result is possibly biased low based on low recovery of surrogate
CDH-E-CPN	Lindane	Result is possibly biased low based on low recovery of surrogate
CDH-E-CPN	Methoxychlor	Result is possibly biased low based on low recovery of surrogate

Results Qualified Based on Laboratory QC (cont.):

Sample ID	Parameter	Qualification
CDH-E-CPN	PCB Congener 16/32	Result is possibly biased high based on method blank result
CDH-E-CPN	PCB Congener 18	Result is possibly biased high based on method blank result
CDH-E-CPN	PCB Congener 19	Result is possibly biased high based on method blank result
CDH-E-CPN	PCB Congener 20/33/21	Result is possibly biased high based on method blank result
CDH-E-CPN	PCB Congener 22	Result is possibly biased high based on method blank result
CDH-E-CPN	PCB Congener 31/28	Result is possibly biased high based on method blank result
CDH-E-CPN	PCB Congener 48/47/75	Result is possibly biased high based on method blank result
CDH-E-CPN	PCB Congener 51	Result is possibly biased high based on method blank result
CDH-E-CPN	PCB Congener 52	Result is possibly biased high based on method blank result
CDH-E-CPN	PCB Congener 72/64/68	Result is possibly biased high based on method blank result
CDH-E-CPN	Tetrachlorobiphenyls	Result is possibly biased high based on method blank result
CDH-E-CPN	Total PCBs	Result is possibly biased low based on low recovery of surrogate
CDH-E-CPN	Toxaphene	Result is possibly biased low based on low recovery of surrogate
CDH-E-CPN	Trichlorobiphenyls	Result is possibly biased high based on method blank result
CDH-E-CPT	2-Chloronapththalene	Result is possibly biased low based on low recovery of surrogate
CDH-E-CPT	2-Methylnaphthalene	Result is possibly biased low based on low recovery of surrogate
CDH-E-CPT	PCB Congener 16/32	Result is possibly biased high based on method blank result
CDH-E-CPT	PCB Congener 18	Result is possibly biased high based on method blank result
CDH-E-CPT	PCB Congener 19	Result is possibly biased high based on method blank result
CDH-E-CPT	PCB Congener 20/33/21	Result is possibly biased high based on method blank result
CDH-E-CPT	PCB Congener 202	Result is possibly biased high based on method blank result
CDH-E-CPT	PCB Congener 22	Result is possibly biased high based on method blank result
CDH-E-CPT	PCB Congener 31/28	Result is possibly biased high based on method blank result
CDH-E-CPT	PCB Congener 48/47/75	Result is possibly biased high based on method blank result

Results Qualified Based on Laboratory QC (cont.):

Sample ID	Parameter	Qualification
CDH-E-CPT	PCB Congener 52	Result is possibly biased high based on method blank result
CDH-E-CPT	PCB Congener 72/64/68	Result is possibly biased high based on method blank result
CDH-E-CPT	Tetrachlorobiphenyls	Result is possibly biased high based on method blank result
CDH-E-CPT	Trichlorobiphenyls	Result is possibly biased high based on method blank result
CDH-E-IGN	PCB Congener 110	Result is possibly biased high based on method blank result
CDH-E-IGN	PCB Congener 18	Result is possibly biased high based on method blank result
CDH-E-IGN	PCB Congener 20/33/21	Result is possibly biased high based on method blank result
CDH-E-IGN	PCB Congener 31/28	Result is possibly biased high based on method blank result
CDH-E-IGN	PCB Congener 44	Result is possibly biased high based on method blank result
CDH-E-IGN	PCB Congener 48/47/75	Result is possibly biased high based on method blank result
CDH-E-IGN	PCB Congener 49	Result is possibly biased high based on method blank result
CDH-E-IGN	PCB Congener 66/80	Result is possibly biased high based on method blank result
CDH-E-IGN	Tetrachlorobiphenyls	Result is possibly biased high based on method blank result
CDH-E-IGN	Trichlorobiphenyls	Result is possibly biased high based on method blank result
CDH-E-IGT-1	PCB Congener 18	Result is possibly biased high based on method blank result
CDH-E-IGT-1	PCB Congener 31/28	Result is possibly biased high based on method blank result
CDH-E-IGT-1	PCB Congener 44	Result is possibly biased high based on method blank result
CDH-E-IGT-1	PCB Congener 48/47/75	Result is possibly biased high based on method blank result
CDH-E-IGT-1	PCB Congener 49	Result is possibly biased high based on method blank result
CDH-E-IGT-1	PCB Congener 66/80	Result is possibly biased high based on method blank result
CDH-E-IGT-1	Tetrachlorobiphenyls	Result is possibly biased high based on method blank result
CDH-E-IGT-1	Trichlorobiphenyls	Result is possibly biased high based on method blank result

Results Qualified Based on Laboratory QC (cont.):

Sample ID	Parameter	Qualification
CDH-E-IGT-2	Aldrin	Result is possibly biased low based on low recovery of surrogate
CDH-E-IGT-2	Aroclor 1016	Result is possibly biased low based on low recovery of surrogate
CDH-E-IGT-2	Aroclor 1221	Result is possibly biased low based on low recovery of surrogate
CDH-E-IGT-2	Aroclor 1232	Result is possibly biased low based on low recovery of surrogate
CDH-E-IGT-2	Aroclor 1242	Result is possibly biased low based on low recovery of surrogate
CDH-E-IGT-2	Aroclor 1248	Result is possibly biased low based on low recovery of surrogate
CDH-E-IGT-2	Aroclor 1254	Result is possibly biased low based on low recovery of surrogate
CDH-E-IGT-2	Aroclor 1260	Result is possibly biased low based on low recovery of surrogate
CDH-E-IGT-2	Chlordane	Result is possibly biased low based on low recovery of surrogate
CDH-E-IGT-2	Decachlorobiphenyl	Result is possibly biased high based on method blank result
CDH-E-IGT-2	Dieldrin	Result is possibly biased low based on low recovery of surrogate
CDH-E-IGT-2	Endrin	Result is possibly biased low based on low recovery of surrogate
CDH-E-IGT-2	Heptachlor	Result is possibly biased low based on low recovery of surrogate
CDH-E-IGT-2	Heptachlor Epoxide	Result is possibly biased low based on low recovery of surrogate
CDH-E-IGT-2	Lindane	Result is possibly biased low based on low recovery of surrogate
CDH-E-IGT-2	Methoxychlor	Result is possibly biased low based on low recovery of surrogate
CDH-E-IGT-2	PCB Congener 16/32	Result is possibly biased high based on method blank result
CDH-E-IGT-2	PCB Congener 18	Result is possibly biased high based on method blank result
CDH-E-IGT-2	PCB Congener 19	Result is possibly biased high based on method blank result
CDH-E-IGT-2	PCB Congener 20/33/21	Result is possibly biased high based on method blank result
CDH-E-IGT-2	PCB Congener 202	Result is possibly biased high based on method blank result

Results Qualified Based on Laboratory QC (cont.):

Sample ID	Parameter	Qualification
CDH-E-IGT-2	PCB Congener 209	Result is possibly biased high based on method blank result
CDH-E-IGT-2	PCB Congener 22	Result is possibly biased high based on method blank result
CDH-E-IGT-2	PCB Congener 48/47/75	Result is possibly biased high based on method blank result
CDH-E-IGT-2	PCB Congener 52	Result is possibly biased high based on method blank result
CDH-E-IGT-2	PCB Congener 72/64/68	Result is possibly biased high based on method blank result
CDH-E-IGT-2	Tetrachlorobiphenyls	Result is possibly biased high based on method blank result
CDH-E-IGT-2	Total PCBs	Result is possibly biased low based on low recovery of surrogate
CDH-E-IGT-2	Toxaphene	Result is possibly biased low based on low recovery of surrogate
CDH-E-IGT-2	Trichlorobiphenyls	Result is possibly biased high based on method blank result
CDH-E-JBN	2,4,5-Trichlorophenol	Result is possibly biased low based on low recovery of surrogate
CDH-E-JBN	2,4,6-Trichlorophenol	Result is possibly biased low based on low recovery of surrogate
CDH-E-JBN	2,4-Dichlorophenol	Result is possibly biased low based on low recovery of surrogate
CDH-E-JBN	2,4-Dimethylphenol	Result is possibly biased low based on low recovery of surrogate
CDH-E-JBN	2,4-Dinitrophenol	Result is possibly biased low based on low recovery of surrogate
CDH-E-JBN	2-Chlorophenol	Result is possibly biased low based on low recovery of surrogate
CDH-E-JBN	2-Methylphenol	Result is possibly biased low based on low recovery of surrogate
CDH-E-JBN	2-Nitrophenol	Result is possibly biased low based on low recovery of surrogate
CDH-E-JBN	4,6-Dinitro-2-methylphenol	Result is possibly biased low based on low recovery of surrogate
CDH-E-JBN	4-Chloro-3-methylphenol	Result is possibly biased low based on low recovery of surrogate
CDH-E-JBN	4-Methylphenol	Result is possibly biased low based on low recovery of surrogate
CDH-E-JBN	4-Nitrophenol	Result is possibly biased low based on low recovery of surrogate

Results Qualified Based on Laboratory QC (cont.):

Sample ID	Parameter	Qualification
CDH-E-JBN	PCB Congener 18	Result is possibly biased high based on method blank result
CDH-E-JBN	PCB Congener 20/33/21	Result is possibly biased high based on method blank result
CDH-E-JBN	PCB Congener 31/28	Result is possibly biased high based on method blank result
CDH-E-JBN	PCB Congener 44	Result is possibly biased high based on method blank result
CDH-E-JBN	PCB Congener 48/47/75	Result is possibly biased high based on method blank result
CDH-E-JBN	PCB Congener 49	Result is possibly biased high based on method blank result
CDH-E-JBN	PCB Congener 66/80	Result is possibly biased high based on method blank result
CDH-E-JBN	Phenol	Result is possibly biased low based on low recovery of surrogate
CDH-E-JBN	Trichlorobiphenyls	Result is possibly biased high based on method blank result
CDH-E-JBT	2,4,5-Trichlorophenol	Result is possibly biased low based on low recovery of surrogate
CDH-E-JBT	2,4,6-Trichlorophenol	Result is possibly biased low based on low recovery of surrogate
CDH-E-JBT	2,4-Dichlorophenol	Result is possibly biased low based on low recovery of surrogate
CDH-E-JBT	2,4-Dimethylphenol	Result is possibly biased low based on low recovery of surrogate
CDH-E-JBT	2,4-Dinitrophenol	Result is possibly biased low based on low recovery of surrogate
CDH-E-JBT	2-Chlorophenol	Result is possibly biased low based on low recovery of surrogate
CDH-E-JBT	2-Methylphenol	Result is possibly biased low based on low recovery of surrogate
CDH-E-JBT	2-Nitrophenol	Result is possibly biased low based on low recovery of surrogate
CDH-E-JBT	4,6-Dinitro-2-methylphenol	Result is possibly biased low based on low recovery of surrogate
CDH-E-JBT	4-Chloro-3-methylphenol	Result is possibly biased low based on low recovery of surrogate
CDH-E-JBT	4-Methylphenol	Result is possibly biased low based on low recovery of surrogate
CDH-E-JBT	4-Nitrophenol	Result is possibly biased low based on low recovery of surrogate

Results Qualified Based on Laboratory QC (cont.):

Sample ID	Parameter	Qualification
CDH-E-JBT	PCB Congener 18	Result is possibly biased high based on method blank result
CDH-E-JBT	PCB Congener 20/33/21	Result is possibly biased high based on method blank result
CDH-E-JBT	PCB Congener 31/28	Result is possibly biased high based on method blank result
CDH-E-JBT	PCB Congener 44	Result is possibly biased high based on method blank result
CDH-E-JBT	PCB Congener 48/47/75	Result is possibly biased high based on method blank result
CDH-E-JBT	PCB Congener 49	Result is possibly biased high based on method blank result
CDH-E-JBT	PCB Congener 66/80	Result is possibly biased high based on method blank result
CDH-E-JBT	Phenol	Result is possibly biased low based on low recovery of surrogate
CDH-E-JBT	Trichlorobiphenyls	Result is possibly biased high based on method blank result
CHA-E-001	Benzo(a)pyrene	Result is possibly biased low based on low recovery of surrogate
CHA-E-001	Benzo(b)fluoranthene	Result is possibly biased low based on low recovery of surrogate
CHA-E-001	Benzo(g,h,i)perylene	Result is possibly biased low based on low recovery of surrogate
CHA-E-001	Benzo(k)fluoranthene	Result is possibly biased low based on low recovery of surrogate
CHA-E-001	Chrysene	Result is possibly biased low based on low recovery of surrogate
CHA-E-001	Bis(2-Ethylhexyl)phthalate	Result is possibly biased low based on low recovery of surrogate
CHA-E-001	Dibenz(a,h)anthracene	Result is possibly biased low based on low recovery of surrogate
CHA-E-001	Di-N-octylphthalate	Result is possibly biased low based on low recovery of surrogate
CHA-E-001	Hexachlorobiphenyls	Result is possibly biased high based on method blank result
CHA-E-001	Indeno(1,2,3-cd)pyrene	Result is possibly biased low based on low recovery of surrogate
CHA-E-001	PCB Congener 110	Result is possibly biased high based on method blank result

Results Qualified Based on Laboratory QC (cont.):

Sample ID	Parameter	Qualification
CHA-E-001	PCB Congener 156	Result is possibly biased high based on method blank result
CHA-E-001	PCB Congener 16/32	Result is possibly biased high based on method blank result
CHA-E-001	PCB Congener 18	Result is possibly biased high based on method blank result
CHA-E-001	PCB Congener 22	Result is possibly biased high based on method blank result
CHA-E-001	PCB Congener 31/28	Result is possibly biased high based on method blank result
CHA-E-001	PCB Congener 48/47/75	Result is possibly biased high based on method blank result
CHA-E-001	PCB Congener 52	Result is possibly biased high based on method blank result
CHA-E-001	PCB Congener 66/80	Result is possibly biased high based on method blank result
CHA-E-001	PCB Congener 72/64/68	Result is possibly biased high based on method blank result
CHA-E-001	PCB Congener 86/97/125	Result is possibly biased high based on method blank result
CHA-E-001	Pentachlorobiphenyls	Result is possibly biased high based on method blank result
CHA-E-001	Permethrin	Result is possibly biased low based on low recovery of surrogate
CHA-E-001	Tetrachlorobiphenyls	Result is possibly biased high based on method blank result
CHA-E-001	Total PCB	Result is possibly biased high based on method blank result
CHA-E-001	Trichlorobiphenyls	Result is possibly biased high based on method blank result
CHA-E-002	Hexachlorobiphenyls	Result is possibly biased high based on method blank result
CHA-E-002	PCB Congener 110	Result is possibly biased high based on method blank result
CHA-E-002	PCB Congener 156	Result is possibly biased high based on method blank result
CHA-E-002	PCB Congener 31/28	Result is possibly biased high based on method blank result
CHA-E-002	PCB Congener 48/47/75	Result is possibly biased high based on method blank result
CHA-E-002	PCB Congener 66/80	Result is possibly biased high based on method blank result

Results Qualified Based on Laboratory QC (cont.):

Sample ID	Parameter	Qualification
CHA-E-002	PCB Congener 72/64/68	Result is possibly biased high based on method blank result
CHA-E-002	PCB Congener 76/70	Result is possibly biased high based on method blank result
CHA-E-002	Pentachlorobiphenyls	Result is possibly biased high based on method blank result
CHA-E-002	Tetrachlorobiphenyls	Result is possibly biased high based on method blank result
CHA-E-002	Total PCB	Result is possibly biased high based on method blank result
CHA-E-002	Trichlorobiphenyls	Result is possibly biased high based on method blank result

General Comments

Diazinon results were reported as qualitative. Diazinon must be extracted immediately after sample collection which was not possible for this sampling effort.

The laboratory flagged the following results because the ion abundance ratio did not meet the acceptance criterion; these results should be considered estimates:

Estimated Results:

Sample ID	Parameter
CDH-E-CPN	PCB Congener 108/83
CDH-E-CPN	PCB Congener 109/107
CDH-E-CPN	PCB Congener 11
CDH-E-CPN	PCB Congener 118/106
CDH-E-CPN	PCB Congener 119
CDH-E-CPN	PCB Congener 128
CDH-E-CPN	PCB Congener 135
CDH-E-CPN	PCB Congener 141
CDH-E-CPN	PCB Congener 157
CDH-E-CPN	PCB Congener 158

Sample ID	Parameter
CDH-E-IGT-2	PCB Congener 176
CDH-E-IGT-2	PCB Congener 178
CDH-E-IGT-2	PCB Congener 183
CDH-E-IGT-2	PCB Congener 185
CDH-E-IGT-2	PCB Congener 191
CDH-E-IGT-2	PCB Congener 192/172
CDH-E-IGT-2	PCB Congener 194
CDH-E-IGT-2	PCB Congener 195
CDH-E-IGT-2	PCB Congener 196/203
CDH-E-IGT-2	PCB Congener 197

Estimated Results (cont.):

Sample ID	Parameter
CDH-E-CPN	PCB Congener 164/163
CDH-E-CPN	PCB Congener 166
CDH-E-CPN	PCB Congener 169
CDH-E-CPN	PCB Congener 176
CDH-E-CPN	PCB Congener 178
CDH-E-CPN	PCB Congener 179
CDH-E-CPN	PCB Congener 183
CDH-E-CPN	PCB Congener 195
CDH-E-CPN	PCB Congener 199
CDH-E-CPN	PCB Congener 201
CDH-E-CPN	PCB Congener 202
CDH-E-CPN	PCB Congener 205
CDH-E-CPN	PCB Congener 26
CDH-E-CPN	PCB Congener 27/24
CDH-E-CPN	PCB Congener 35
CDH-E-CPN	PCB Congener 39
CDH-E-CPN	PCB Congener 53
CDH-E-CPN	PCB Congener 56
CDH-E-CPN	PCB Congener 77
CDH-E-CPN	PCB Congener 91
CDH-E-CPN	PCB Congener 98/102
CDH-E-CPT	PCB Congener 117/111
CDH-E-CPT	PCB Congener 123

Sample ID	Parameter
CDH-E-IGT-2	PCB Congener 198
CDH-E-IGT-2	PCB Congener 205
CDH-E-IGT-2	PCB Congener 207
CDH-E-IGT-2	PCB Congener 208
CDH-E-IGT-2	PCB Congener 26
CDH-E-IGT-2	PCB Congener 27/24
CDH-E-IGT-2	PCB Congener 31/28
CDH-E-IGT-2	PCB Congener 35
CDH-E-IGT-2	PCB Congener 37
CDH-E-IGT-2	PCB Congener 39
CDH-E-IGT-2	PCB Congener 42
CDH-E-IGT-2	PCB Congener 45
CDH-E-IGT-2	PCB Congener 46/69/73
CDH-E-IGT-2	PCB Congener 51
CDH-E-IGT-2	PCB Congener 56
CDH-E-IGT-2	PCB Congener 58
CDH-E-IGT-2	PCB Congener 60
CDH-E-IGT-2	PCB Congener 63
CDH-E-IGT-2	PCB Congener 66/80
CDH-E-IGT-2	PCB Congener 67
CDH-E-IGT-2	PCB Congener 71
CDH-E-IGT-2	PCB Congener 77
CDH-E-IGT-2	PCB Congener 91

Estimated Results (cont.):

Sample ID	Parameter
CDH-E-CPT	PCB Congener 132
CDH-E-CPT	PCB Congener 141
CDH-E-CPT	PCB Congener 156
CDH-E-CPT	PCB Congener 157
CDH-E-CPT	PCB Congener 171
CDH-E-CPT	PCB Congener 173
CDH-E-CPT	PCB Congener 178
CDH-E-CPT	PCB Congener 179
CDH-E-CPT	PCB Congener 183
CDH-E-CPT	PCB Congener 185
CDH-E-CPT	PCB Congener 191
CDH-E-CPT	PCB Congener 192/172
CDH-E-CPT	PCB Congener 194
CDH-E-CPT	PCB Congener 196/203
CDH-E-CPT	PCB Congener 198
CDH-E-CPT	PCB Congener 200
CDH-E-CPT	PCB Congener 201
CDH-E-CPT	PCB Congener 206
CDH-E-CPT	PCB Congener 207
CDH-E-CPT	PCB Congener 35
CDH-E-CPT	PCB Congener 38
CDH-E-CPT	PCB Congener 41
CDH-E-CPT	PCB Congener 51
CDH-E-CPT	PCB Congener 53
CDH-E-CPT	PCB Congener 56

Sample ID	Parameter
CDH-E-IGT-2	PCB Congener 96/103
CDH-E-IGT-2	PCB Congener 98/102
CDH-E-JBN	PCB Congener 1
CDH-E-JBN	PCB Congener 105/127
CDH-E-JBN	PCB Congener 108/83
CDH-E-JBN	PCB Congener 109/107
CDH-E-JBN	PCB Congener 133/165/131
CDH-E-JBN	PCB Congener 134
CDH-E-JBN	PCB Congener 135
CDH-E-JBN	PCB Congener 137
CDH-E-JBN	PCB Congener 144
CDH-E-JBN	PCB Congener 164/163
CDH-E-JBN	PCB Congener 167
CDH-E-JBN	PCB Congener 171
CDH-E-JBN	PCB Congener 178
CDH-E-JBN	PCB Congener 179
CDH-E-JBN	PCB Congener 189
CDH-E-JBN	PCB Congener 191
CDH-E-JBN	PCB Congener 195
CDH-E-JBN	PCB Congener 2
CDH-E-JBN	PCB Congener 201
CDH-E-JBN	PCB Congener 202
CDH-E-JBN	PCB Congener 205
CDH-E-JBN	PCB Congener 207
CDH-E-JBN	PCB Congener 26

Estimated Results (cont.):

Sample ID	Parameter
CDH-E-CPT	PCB Congener 63
CDH-E-CPT	PCB Congener 71
CDH-E-CPT	PCB Congener 82
CDH-E-CPT	PCB Congener 85/120
CDH-E-CPT	PCB Congener 96/103
CDH-E-CPT	PCB Congener 98/102
CDH-E-IGN	PCB Congener 108/83
CDH-E-IGN	PCB Congener 117/111
CDH-E-IGN	PCB Congener 128
CDH-E-IGN	PCB Congener 129
CDH-E-IGN	PCB Congener 130
CDH-E-IGN	PCB Congener 133/165/131
CDH-E-IGN	PCB Congener 135
CDH-E-IGN	PCB Congener 137
CDH-E-IGN	PCB Congener 139/149
CDH-E-IGN	PCB Congener 142
CDH-E-IGN	PCB Congener 147
CDH-E-IGN	PCB Congener 156
CDH-E-IGN	PCB Congener 157
CDH-E-IGN	PCB Congener 158
CDH-E-IGN	PCB Congener 166
CDH-E-IGN	PCB Congener 167
CDH-E-IGN	PCB Congener 17
CDH-E-IGN	PCB Congener 170/190
CDH-E-IGN	PCB Congener 173
CDH-E-IGN	PCB Congener 176
CDH-E-IGN	PCB Congener 178

Sample ID	Parameter
CDH-E-JBN	PCB Congener 35
CDH-E-JBN	PCB Congener 39
CDH-E-JBN	PCB Congener 46/69/73
CDH-E-JBN	PCB Congener 51
CDH-E-JBN	PCB Congener 60
CDH-E-JBN	PCB Congener 67
CDH-E-JBN	PCB Congener 77
CDH-E-JBN	PCB Congener 98/102
CDH-E-JBT	PCB Congener 1
CDH-E-JBT	PCB Congener 108/83
CDH-E-JBT	PCB Congener 117/111
CDH-E-JBT	PCB Congener 129
CDH-E-JBT	PCB Congener 130
CDH-E-JBT	PCB Congener 137
CDH-E-JBT	PCB Congener 141
CDH-E-JBT	PCB Congener 142
CDH-E-JBT	PCB Congener 144
CDH-E-JBT	PCB Congener 158
CDH-E-JBT	PCB Congener 168/153
CDH-E-JBT	PCB Congener 17
CDH-E-JBT	PCB Congener 171
CDH-E-JBT	PCB Congener 176
CDH-E-JBT	PCB Congener 177
CDH-E-JBT	PCB Congener 183
CDH-E-JBT	PCB Congener 185
CDH-E-JBT	PCB Congener 191
CDH-E-JBT	PCB Congener 192/172

Estimated Results (cont.):

Sample ID	Parameter
CDH-E-IGN	PCB Congener 189
CDH-E-IGN	PCB Congener 19
CDH-E-IGN	PCB Congener 191
CDH-E-IGN	PCB Congener 194
CDH-E-IGN	PCB Congener 198
CDH-E-IGN	PCB Congener 2
CDH-E-IGN	PCB Congener 200
CDH-E-IGN	PCB Congener 201
CDH-E-IGN	PCB Congener 202
CDH-E-IGN	PCB Congener 27/24
CDH-E-IGN	PCB Congener 35
CDH-E-IGN	PCB Congener 40/57
CDH-E-IGN	PCB Congener 42
CDH-E-IGN	PCB Congener 46/69/73
CDH-E-IGN	PCB Congener 53
CDH-E-IGN	PCB Congener 63
CDH-E-IGN	PCB Congener 67
CDH-E-IGN	PCB Congener 8/5
CDH-E-IGN	PCB Congener 82
CDH-E-IGN	PCB Congener 96/103
CDH-E-IGN	PCB Congener 98/102
CDH-E-IGN	PCB Congener 208

Sample ID	Parameter
CDH-E-JBT	PCB Congener 195
CDH-E-JBT	PCB Congener 196/203
CDH-E-JBT	PCB Congener 199
CDH-E-JBT	PCB Congener 2
CDH-E-JBT	PCB Congener 200
CDH-E-JBT	PCB Congener 201
CDH-E-JBT	PCB Congener 202
CDH-E-JBT	PCB Congener 207
CDH-E-JBT	PCB Congener 208
CDH-E-JBT	PCB Congener 27/24
CDH-E-JBT	PCB Congener 46/69/73
CDH-E-JBT	PCB Congener 51
CDH-E-JBT	PCB Congener 53
CDH-E-JBT	PCB Congener 60
CDH-E-JBT	PCB Congener 67
CDH-E-JBT	PCB Congener 96/103
CDH-E-JBT	PCB Congener 98/102
CHA-E-001	PCB Congener 105/127
CHA-E-001	PCB Congener 115/116/87
CHA-E-001	PCB Congener 119
CHA-E-001	PCB Congener 136/154
CHA-E-001	PCB Congener 170/190

Estimated Results (cont.):

Sample ID	Parameter
CDH-E-IGT-1	PCB Congener 105/127
CDH-E-IGT-1	PCB Congener 108/83
CDH-E-IGT-1	PCB Congener 11
CDH-E-IGT-1	PCB Congener 117/111
CDH-E-IGT-1	PCB Congener 118/106
CDH-E-IGT-1	PCB Congener 129
CDH-E-IGT-1	PCB Congener 130
CDH-E-IGT-1	PCB Congener 133/165/131
CDH-E-IGT-1	PCB Congener 134
CDH-E-IGT-1	PCB Congener 135
CDH-E-IGT-1	PCB Congener 137
CDH-E-IGT-1	PCB Congener 142
CDH-E-IGT-1	PCB Congener 157
CDH-E-IGT-1	PCB Congener 158
CDH-E-IGT-1	PCB Congener 167
CDH-E-IGT-1	PCB Congener 173
CDH-E-IGT-1	PCB Congener 176
CDH-E-IGT-1	PCB Congener 178
CDH-E-IGT-1	PCB Congener 179
CDH-E-IGT-1	PCB Congener 19
CDH-E-IGT-1	PCB Congener 197
CDH-E-IGT-1	PCB Congener 2

Sample ID	Parameter
CHA-E-001	PCB Congener 174
CHA-E-001	PCB Congener 177
CHA-E-001	PCB Congener 181
CHA-E-001	PCB Congener 196/203
CHA-E-001	PCB Congener 199
CHA-E-001	PCB Congener 40/57
CHA-E-001	PCB Congener 42
CHA-E-001	PCB Congener 45
CHA-E-001	PCB Congener 49
CHA-E-001	PCB Congener 53
CHA-E-001	PCB Congener 56
CHA-E-001	PCB Congener 60
CHA-E-001	PCB Congener 76/70
CHA-E-001	PCB Congener 84/90
CHA-E-001	PCB Congener 91
CHA-E-001	PCB Congener 92
CHA-E-001	PCB Congener 95/93/121
CHA-E-001	PCB Congener 99
CHA-E-002	PCB Congener 105/127
CHA-E-002	PCB Congener 108/83
CHA-E-002	PCB Congener 118/106
CHA-E-002	PCB Congener 136/154

Estimated Results (cont.):

Sample ID	Parameter
CDH-E-IGT-1	PCB Congener 20/33/21
CDH-E-IGT-1	PCB Congener 201
CDH-E-IGT-1	PCB Congener 205
CDH-E-IGT-1	PCB Congener 207
CDH-E-IGT-1	PCB Congener 22
CDH-E-IGT-1	PCB Congener 25
CDH-E-IGT-1	PCB Congener 26
CDH-E-IGT-1	PCB Congener 27/24
CDH-E-IGT-1	PCB Congener 38
CDH-E-IGT-1	PCB Congener 39
CDH-E-IGT-1	PCB Congener 40/57
CDH-E-IGT-1	PCB Congener 46/69/73
CDH-E-IGT-1	PCB Congener 51
CDH-E-IGT-1	PCB Congener 53
CDH-E-IGT-1	PCB Congener 63
CDH-E-IGT-1	PCB Congener 71
CDH-E-IGT-1	PCB Congener 72/64/68
CDH-E-IGT-1	PCB Congener 85/120
CDH-E-IGT-1	PCB Congener 98/102
CDH-E-IGT-2	PCB Congener 119
CDH-E-IGT-2	PCB Congener 135
CDH-E-IGT-2	PCB Congener 141

Sample ID	Parameter
CHA-E-002	PCB Congener 16/32
CHA-E-002	PCB Congener 17
CHA-E-002	PCB Congener 170/190
CHA-E-002	PCB Congener 174
CHA-E-002	PCB Congener 177
CHA-E-002	PCB Congener 18
CHA-E-002	PCB Congener 181
CHA-E-002	PCB Congener 19
CHA-E-002	PCB Congener 20/33/21
CHA-E-002	PCB Congener 209
CHA-E-002	PCB Congener 22
CHA-E-002	PCB Congener 27/24
CHA-E-002	PCB Congener 37
CHA-E-002	PCB Congener 38
CHA-E-002	PCB Congener 40/57
CHA-E-002	PCB Congener 42
CHA-E-002	PCB Congener 44
CHA-E-002	PCB Congener 45
CHA-E-002	PCB Congener 49
CHA-E-002	PCB Congener 52
CHA-E-002	PCB Congener 53
CHA-E-002	PCB Congener 60

Estimated Results (cont.):

Sample ID	Parameter
CDH-E-IGT-2	PCB Congener 142
CDH-E-IGT-2	PCB Congener 151
CDH-E-IGT-2	PCB Congener 158
CDH-E-IGT-2	PCB Congener 167
CDH-E-IGT-2	PCB Congener 173

Sample ID	Parameter
CHA-E-002	PCB Congener 74/61
CHA-E-002	PCB Congener 85/120
CHA-E-002	PCB Congener 86/97/125
CHA-E-002	PCB Congener 95/93/121

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Appendix H

Quality Assurance Summary for Microcystin Parameters in Sediment Samples

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RECLAMATION

Managing Water in the West

Klamath River Sediment Study

Quality Assurance Summary for

Mycrocystin Parameters in Sediment Samples

Bureau of Reclamation, Mid-Pacific Region

Environmental Monitoring Branch

U.S. Department of the Interior
Bureau of Reclamation
Mid-Pacific Region

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Overview of Quality Assurance Review by the Environmental Monitoring Branch

Samples for the Klamath River Sediment Study were collected in November 2009 for mycrocystin analysis in sediment samples. The Environmental Monitoring Branch's Quality Assurance (QA) section reviewed and validated the laboratory Quality Control (QC) sample results. External QA samples were not incorporated for mycrocystin parameters in sediment samples. The summary of the QA review is discussed in the following pages.

Laboratory	Methods
Department of Fish and Game, Fish and Wildlife Water Pollution Control Laboratory (Rancho Cordova, CA)	Mycrocystins analysis by LC-MSMS

Quality Assurance Review
by the Environmental Monitoring Branch

Summary for Mycrocystin Parameters in Sediment Samples

Holding Time

All parameters were extracted and analyzed within their recommended holding times.

Laboratory Quality Control

The results of the laboratory's QC samples were reviewed. QC samples included blanks, duplicates, blank spikes, and matrix spikes. The laboratory QC sample results were acceptable.

Appendix I

Standard Operating Procedures for Environmental Monitoring

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Environmental Monitoring Branch

Standard Operating Procedures for Environmental Monitoring

A Partial List of Sediment and Water Sampling Procedures Used In Support of the Secretarial Determination on Klamath River Dam Removal and Basin Restoration, Klamath River, Oregon and California

U.S. Department of the Interior
Bureau of Reclamation
Sacramento, California

August 2009

Contents

SOP# 3.2 Cooler Cleaning Procedure

USBR, Branch of Environmental Monitoring (MP-157)

SUMMARY

This SOP describes MP-157 approved methods for cleaning coolers.

EQUIPMENT

1. De-Ionized (DI) water
2. Cooler
3. Alconox detergent
4. Scrub brush

PROCEDURE

1. If needed, empty the cooler and put items in their respective places. (e.g. place blue ice in the freezer)
2. Inspect cooler condition. Broken coolers should be cleaned (see procedure below) and repaired. Discard irreparable coolers.
3. Pull off any tape that may be on the outside of the cooler.
4. If the cooler is not visibly dirty, rinse with DI water and skip to step 7.
5. If visibly soiled, fill the cooler with about an inch of DI water and sprinkle in about one tablespoon of Alconox detergent. Scrub the sides, lid, bottom and outside of the cooler with the brush.
6. When clean, pour out the soapy water and rinse off all suds.
7. Pour off any excess water, and then place wet coolers on the floor to drip dry. Coolers should be placed across from the sink, face down, with lids open.
8. When dry (a day or so), close coolers and put them away on the appropriate shelves.

RECOMMENDED PERSONAL PROTECTIVE EQUIPMENT

1. dishwashing gloves
2. closed toe shoes

SOP# 3.3 Hand Dishwashing – Glass, Plastic or Ceramic

USBR, Branch of Environmental Monitoring (MP-157)
(Modified from EPA Region 9 Laboratory SOP 130, Glassware Cleaning Procedures)

SUMMARY

This method describes procedures for hand washing of glass, plastic, or ceramic sampling equipment that will be used to collect samples for analysis of organic or inorganic constituents.

REAGENTS

1. Acetone, pesticide grade
2. Alquinox® or other commercial laboratory-grade detergent in a plastic squirt bottle
3. Plastic scrub brush
4. Bucket or other catch basin
5. Nitric Acid, concentrated, ACS grade, CAS # 7697-37-2, or better
6. De-ionized (DI) water

PROCEDURE

1. If needed, remove any labels or stickers from the items to be washed.
2. If needed, use acetone to remove any glue or label residue.
3. Remove all visible sample and solvent residues by scrubbing and rinsing both equipment and scrub brush at least 3 times with tap or environmental water to.
4. Squirt a small amount of Alquinox® onto the brush, scrub equipment thoroughly, then rinse equipment and brush three times with DI water.
5. Catch all rinse water in the wash basin and save for appropriate disposal.
6. If equipment will **NOT** be used to collect samples for metals analysis, go to step 7. If equipment **WILL** be used to collect samples for low-level metals analysis, rinse once with 10% nitric acid, then three times with DI water. Save all rinse water as in Step 5.
7. Air-dry clean items. To prevent contamination from dust or metals, store dried items either covered, or enclosed in a non-metallic cabinet.

WASTE DISPOSAL

3. Dispose of soapy rinse water in an appropriate septic or sewer system. Dilute acidic water before disposal.

REQUIRED PERSONAL PROTECTIVE EQUIPMENT

1. If using HNO3: lab coat, lab glasses, goggles or eye shield
2. Chemical resistant gloves
3. Closed toe shoes

SOP# 3.8 Field Decontamination Procedures

USBR, Branch of Environmental Monitoring (MP-157)

SUMMARY

This method covers decontamination procedures for cleaning equipment while in the field. Whenever possible, clean equipment at the 112 Laboratory (lab cleaning can be more thorough). **Note:** Decontamination of pumping equipment is covered in SOP#8.1 "Water Filtration for Collection of Dissolved Analytes".

EQUIPMENT

5. De-Ionized (DI) water
6. Plastic scrub brush or large Kim wipe®, Tech wipe® or Chem wipe®
7. Clean bottle or bottle with squeeze-type dispenser cap.
8. Large bucket or other catch basin
9. Alconox ® soap

PROCEDURE

1. Scrub and rinse away any visible contamination using the scrub brush and environmental water. Swab with new Kimwipes® as needed.
2. When no visible contamination remains, use environmental water to rinse both the equipment and the scrub brush. Repeat for a total of three rinses.
3. Squirt a small amount of Alconox ® onto the scrub brush, then scrub equipment thoroughly with the soapy brush.
4. Hold equipment over a catch basin and rinse brush and equipment three times with de-ionized water. Capture all rinse water in the catch basin and save for appropriate disposal (see below).
5. Store cleaned equipment covered (e.i. store the sample churn splitter with its top on, place tubing in a clean plastic bag, cover metal bowls with aluminum foil or a glass lid).

WASTE DISPOSAL

4. Dispose of soapy water in an appropriate septic or sewer system.

RECOMMENDED PERSONAL PROTECTIVE EQUIPMENT

5. Closed toe shoes
6. If prone to dry skin, wear gloves while cleaning and thoroughly dry skin afterward.

SOP# 4.3A YSI 6-Series Multi-Parameter Sondes – Calibration

USBR, Branch of Environmental Monitoring (MP-157)

SUMMARY

This SOP describes the calibration procedures for the Yellow Springs Instruments (YSI) 6-series water quality sondes, in connection with the YSI 650 data logger. The 6-series of water quality instruments includes but is not limited to the 600XL, 6600EDS, and 6600V2 EMS sondes.

REAGENTS

1. Electrical conductivity standard solution – 1,000 *µS/cm*
2. pH standard solution – 7.0 (yellow)
3. pH standard solution – 10.0 (blue)
4. Turbidity standard solution – 0.0 NTU
5. Turbidity standard solution – 123 NTU or 12.7 NTU
6. Deionized (DI) water

EQUIPMENT

1. Sonde multiprobe
2. Field cable
3. YSI calibration cup
4. Replacement probes
5. YSI tool (similar to Allen wrench)
6. Probe removal tool
7. Maintenance equipment – brush, o-rings, o-ring grease, wiper blades, DO membranes (if applicable)
8. MDS 650 display/data logger
9. Eight Size "C" alkaline batteries (6600 Sonde only)

PROCEDURE

INITIAL SETUP – ATTACHING SONDE TO 650

1. Remove plastic cap from bulkhead connector and carefully attach field cable to the sonde by screwing the stainless steel cap onto bulkhead.
2. Tighten stainless steel cap until 1-2 threads are showing.
3. Gently clean probe end of sonde with a mild detergent and soft cloth. Use YSI pipe cleaner brush to clean electrodes of EC probe.
4. Thoroughly rinse with DI water prior to start of calibration
5. Carefully attach calibration cup over probes.

Note: All calibration cups should have a black cap at one end. This is critical for proper calibration of the turbidity sensor. The 6600V2 has a slightly elongated calibration cup.*

CALIBRATION AND CALIBRATION VERIFICATION

Always use fresh clean standards when calibrating. Check expiration date*

Before sampling, verify the instrument calibration for each physical constituent to be measured. If the calibration cannot be verified, the instrument must be recalibrated for that measurement. Since some calibrations are interdependent, perform verifications and calibrations in the following order:

Specific conductance (EC) – 1 point calibration
pH – 2 point calibration (first 7 then 10)
Turbidity – 2 point calibration (first 0 then 12.7 or 123)
Dissolved oxygen (DO) – 1 point calibration
Depth – 1 point calibration
Oxidation/reduction potential (ORP) – 1 point calibration

1. Document the verification and/or calibration on an Instrument Calibration Sheet.

CONDUCTIVITY (EC)

1. Press the green button (upper left) to turn on 650.
2. Using up/down arrow keys, select “Sonde Menu” and press “Enter” (←)
3. Select “Calibrate” then press “Enter” (←)
4. Select “Conductivity” then press “Enter” (←)
5. Select “SpCond” the press “Enter” (←)
6. Type in “1” (if using 1,000 *µS/cm* standard) and press “Enter”. The sonde requires the input in milli-siemens.
7. Pre-rinse the cal cup and sensors with a small amount of the 1.0 mS/cm (1,000 *µS/cm*) calibration standard and discard. Repeat three times.
8. Fill the cal cup with standard ensuring that conductivity probe is completely submerged. The hole in the side of the probe must be under the surface of the solution.

9. Record the pre-calibrated reading on an "Instrument Calibration Sheet" (see Quality Assurance SOP Manual).
10. Press "Enter" (←) to accept the calibration and record calibrated reading on calibration sheet.
11. If the sonde should report "Out Of Range", investigate the cause. *Never override a calibration error message!* This error message can result from: 1) low fluid level, 2) air bubbles in the probe cell, and/or 3) an incorrect entry. For example, entering 1000 (for *micro*siemens) instead of 1.0 (for *milli*siemens) will result in an Out of Range error.
12. Press "Enter" (←) again to continue
13. Press "Esc" to return to calibration list to calibrate the next parameter.

pH

To properly calibrate pH, the conductivity must first be calibrated. The pH sensor compensates for temperature based on readings from the electrical conductance sensor*

1. In the calibration menu, use up/down arrow keys to highlight "pH" and press "Enter" (←).
2. Select "2 point" and press "Enter" (←)
3. Enter 7 as first value. (*Always calibrate first with 7 and then move to either 10 or 4 buffer solutions)*
4. Pre-rinse the cal cup and sensors with a small amount of the calibration standard and discard. Repeat three times.
5. Fill the cal cup with standard. Ensure that the pH and EC probes are completely submerged.
6. Let the pH mV stabilize.

The acceptance level for each buffer is:

Buffer	Millivolt Reading	Tolerance
4	180	± 50 mV
7	0	
10	180	

7. Record the pre-calibrated pH and pH mV readings on an Instrument Calibration Sheet.
8. Press "Enter" (←) to calibrate.
9. Record calibrated values on calibration sheet.
10. "Enter" (←) to continue.
11. Determine the difference between the mV recorded for the 7 and 10 calibration points. For example, if buffer 7 gave a 3 mV reading and buffer 10 gave a -177 mV reading, the difference is 180mV. The acceptable range for the mV difference is 165 to 180. If the mV difference is outside of this range, the pH probe should be replaced.
12. Do not use a probe that has given a "Calibration Error" or "Out of Range" message.

13. Refer to section 6 of YSI manual for troubleshooting.

DISSOLVED OXYGEN (DO) (OPTICAL)

1. Put approximately ½ cm of water in the cal cup and set the lid on the cup. Tighten cup 1 thread, do not tighten completely.
2. Allow sonde to sit for approximately 10 minutes to facilitate saturated environment.
3. From the sonde calibration menu, use up/down arrows and scroll to "Dissolved Oxy"
4. Press "Enter" (←)
5. Select "ODOsat %"
6. Press "Enter" (←)
7. Record barometric pressure.
8. Press "Enter" (←)
9. Use down arrow to select "clean optics" in upper right-hand part of screen.
10. Press "Enter" (←)
11. When cleaning has finished, record ODO % on calibration sheet
12. Use up arrow to select calibrate (just above "clean optics")
13. Press "Enter" (←) to calibrate. Record calibrated values on calibration sheet.
14. Press "Enter" (←) to continue.
15. Press "Esc" to return to calibration menu.
16. Calibrate the Sonde in DO%.

TURBIDITY (6600 ONLY)

The calibration of all YSI turbidity sensors must be done with either YSI distributed standards, Hach StablCal, Diluted Hach 4000 NTU formazin or standards that have been prepared according to instructions in Standard Methods (Section 2130B). ***

1. From the calibration menu select "Turbidity" using up/down arrows
2. Press "Enter" (←)
3. Select "2 Point" calibration and press "Enter" (←)
4. Enter first NTU value, this will always be 0!
5. Rinse probes with DI water and fill calibration cup by pouring down the side to avoid aerating the sample. (If using 6600V2 sonde, larger calibration cup must be used!)
6. Confirm that all submerged parts of the sonde, wipers, and optics are clean and clear of fingerprints.
7. Set the sonde on top of the calibration cup, do not engage the threads. Verify that there are no air bubbles on the probe face.
8. Select "clean optics" and press "Enter" (←)
9. Once optics have finished cleaning, double check for bubbles blocking optical sensor.
10. Record the pre-calibrated reading on an Instrument Calibration Sheet
11. Select calibrate and press "Enter" (←)
12. Record final calibrated values on calibration sheet.

13. Press “Enter” (←) to continue.
14. When prompted for second NTU calibration point, enter either 12.6 or 123 depending on standard used.
15. Repeat steps 5-13 while using desired standard.
16. Once two point calibration has been completed, select “1 point” and press Enter” (←). (This will create an offset for the 0 NTU calibration)
17. Type in “0.5” for NTU value.
18. Rinse probes and calibration cup with DI water. Fill calibration cup with DI water as described in step 5.
19. Follow steps 6-13.
20. Once calibration is complete, press “Esc” to return to calibration menu.

When activating the wiper mechanism, verify the following: 1) that wiper on the turbidity probe is parking approximately 180 degrees opposite of the optics, 2) wiper reverses direction during the wipe cycle.*

DEPTH

To calibrate, the depth sensor module must be in air and the sensor channel must be free of dirt. (2 port holes located just above threads where probe guard attaches) If the channel needs cleaning, use a syringe to flush water through it.*

1. From the Calibration menu, select “Pressure-Abs” and press “Enter” (←)
2. Enter 0.00 or some known offset in feet.
3. Press “Enter” (←) and monitor the stabilization of the depth readings with time.
4. When no significant change occurs, record the pre-calibrated reading on an Instrument Calibration Sheet.
5. Press “Enter” (←) to confirm calibration.
6. Then press “Enter” (←) again to return to the Calibration menu.

OXIDATION REDUCTION POTENTIAL (ORP)

The ORP and PH sensors are combined on all current YSI Sondes. You must calibrate the pH sensor first. If the pH probe will not calibrate for any reason, then the ORP cannot be used.

1. Refer to Section 5 of YSI manual for detailed steps on proper ORP calibration.

CALIBRATION CHART

Temperature Celsius	Zobell Solution Value, mV
-5	270.0
0	263.5
5	257.0
10	250.5
15	244.0

20	237.5
25	231.0
30	224.5
35	218.0
40	211.5
45	205.0
50	198.5

RECORDING CALIBRATION CONSTANTS

1. From “Sonde Menu” use the up/down arrows to select “Advanced”
2. Press “Enter” (←)
3. Check the conductivity cell constant. Record the value on the calibration sheet. If the cell constant is out of range (5.0 ± 0.45) the probe may need replacing.
4. Scroll down and record the DO gain on the Calibration Sheet. The gain should be between -0.7 and +1.4.
5. Record the pressure offset on the Calibration Sheet.
6. Press “Esc” to return to the previous menus.

EMPLOYEE SAFETY

1. Handle standards with care; do not ingest.
2. When handling batteries, check for corrosion with gloved hands.

POLLUTION PREVENTION AND WASTE MANAGEMENT

1. Place used batteries in recycle bin at the 112 lab. Tape battery ends before binning them.

SOP# 4.3B YSI 6-Series Multi-Parameter Sondes – Operation

USBR, Branch of Environmental Monitoring (MP-157)

SUMMARY

This SOP describes the operation procedures for the Yellow Springs Instruments (YSI) 6-series water quality sondes in connection with the YSI 650 data logger. The 6-series of water quality instruments includes but is not limited to the 600XL, 6600EDS, and 6600V2 EMS sondes.

EQUIPMENT

10. YSI multi-parameter sonde
11. Field cable
12. YSI threaded probe guard (use weighted guard when collecting water column profiles)
13. YSI calibration cup
14. MDS 650 display/data logger
15. Additional reel and field cable (for depths greater than 100 feet)
16. 12 spare size "C" alkaline batteries (6600 Sonde and 650 data logger)
17. Replacement probes
18. YSI tool (similar to Allen wrench)
19. Probe removal tool
20. Maintenance equipment – brush, o-rings, o-ring grease, wiper blades, DO membranes (if applicable)

PROCEDURE

Prior to operation, calibration must be verified to ensure data values are accurate. Calibrate if values are outside acceptable range or if instrument has been idle. Refer to SOP #_____ YSI 6-Series Multi-Parameter Sondes – Calibration*

INITIAL SETUP – ATTACHING SONDE TO 650

6. Remove plastic cap from bulkhead connector and carefully attach field cable to the sonde by screwing the stainless steel cap onto bulkhead.
7. Tighten stainless steel cap until 1-2 threads are showing. (Stainless steel cap must be tightened completely to prevent moisture from corroding bulkhead pins!)
8. Attach cable tension support to sonde

9. Insert other end of field cable into port on the YSI 650. Cable will only fit in one direction, twist locking mechanism to secure cable to the 650.
10. Remove calibration cub and screw perforated probe guard in its place. Use probe guard with optional stainless steel weight if sampling in a strong current or at depths greater than 100 feet.

OPERATION – DISCRETE SAMPLING

1. Submerge the probe end of the unit approximately one foot under surface of water.
2. To turn the on the display unit, press the green button (upper left).
3. Use the up/down arrow keys to select "System Setup" from the main screen. When selected, press "Enter" (symbolized as return key ←).
4. If using the 600XL or a sonde without internal batteries, the 650 data logger is used to power the device. Scroll down to "power sonde" and press "Enter" (←) to check/uncheck the box. Box must be "checked" to power sonde. **IMPORTANT: Always use sonde's internal batteries whenever possible, only power sonde with 650 if sonde's batteries are dead and no replacements are available or if the sonde doesn't use internal batteries.**
5. Press the "Esc" button to return to the previous menu.
6. Use the up/down arrow keys "Run" from the file menu. When selected, press "Enter" (←).
7. Wait for readings to stabilize and for optical probes to finish cleaning cycle. (A countdown with the message "cleaning" will appear at the top of the screen)
8. Using the arrow keys select "log one sample" under either the "650" or "sonde" list located at top of screen. Press "Enter" (←) to select desired option.
9. Enter file name information using keypad.
10. Press "Enter" (←) when desired filename has been entered.
11. Press "Enter" (←) again to log sample
12. Continue to "log one sample" at each desired depth interval.
13. Record physical measurements in the Field Log Book and on the Field Sheet.
14. When finished, turn the unit off by pressing the green button.
15. If collecting measurements over an extended time period (longer than 4 hours), conduct a post calibration to verify instrument accuracy. Document the instrument verification on the Instrument Calibration Sheet. (See SOP Sonde Multiprobe (YSI) – Calibration for guidance)

OPERATION – UNATTENDED SAMPLING

When using the unattended sampling function, "autosleep" must be turned on to conserve battery life. Refer to Section 5 of YSI manual.

1. From start screen, use arrow keys to select "Sonde Menu"
2. Press "Enter" (←)
3. Select "Run" at top of menu list
4. Press "Enter" (←)
5. Select "Unattended Sampling"

6. Press “Enter” (←)
7. In each attribute field (ie: date, time, file name, site name etc.) press “Enter” (←) to edit the field.
8. Use number pad to select desired numbers or letters.
9. After completing each attribute, press “Enter” (←) and then use arrow keys to continue with remaining fields.
10. Verify adequate battery life and free memory remains to complete sampling event.
11. Scroll to bottom of screen using arrow keys and select “start logging” by pressing the “Enter” (←) key.
12. To stop sampling, return to “Run” menu as described in steps 1-4, scroll to bottom of display using the arrow keys, and select “stop logging” by using the “Enter” (←) key.
13. Verify the status of sonde by selecting “Status” in the “Sonde Menu”. If starting a sampling event, status should read “Active”. If stopping an event, status should read “Inactive”.

OPERATION – DOWNLOADING A FILE (SONDE TO 650)

***Before downloading a file from sonde, confirm any unattended sampling events have been halted. (Refer to steps 1-10 of previous section of this SOP)** *

1. From main menu, select “Sonde Menu” by using the arrow keys and pressing “Enter” (←).
2. Scroll down to “File” with the arrow keys and press “Enter” (←).
3. Highlight “Upload”
4. Press “Enter” (←).
5. Use arrow keys to highlight desired file.
6. Press “Enter” (←).
7. Select PC6000 and press “Enter” (←).
8. Once file is transfer is complete, press “Esc” to move back to previous menus.

EMPLOYEE SAFETY

3. Handle batteries with care. Check for corrosion with gloves, dispose of batteries properly.
4. When collecting water profiles, keep feet/legs away from field cable.

POLLUTION PREVENTION AND WASTE MANAGEMENT

2. Place used batteries in recycle bin at the 112 lab. Tape battery ends before binning them.

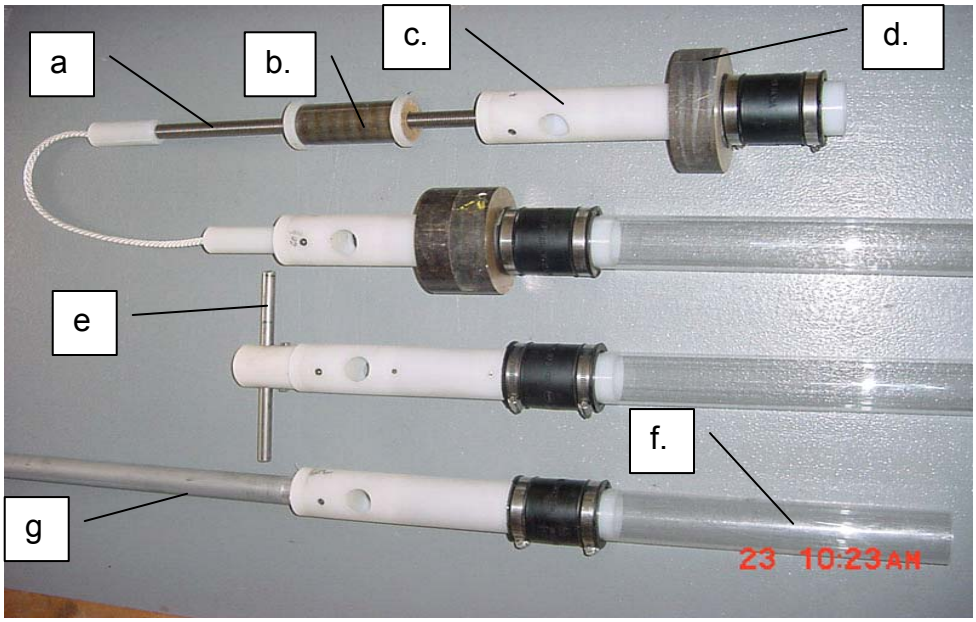
SOP# 7.2 Sample Collection – Gravity Corer

USBR, Branch of Environmental Monitoring (MP-157)

SUMMARY:
This method describes procedures for deploying a gravity corer and removing sample from the coring device. This method is appropriate for collecting cores of fine to medium grained material up to 6 to 8 feet long. For water less than about 10 ft deep, assemble the corer for use as a push corer. For deeper water, assemble the corer as a gravity corer.

APPARATUS / EQUIPMENT:

1. Gravity corer – parts are identified in the photo below.
    a. Steel rod
    b. Slide hammer
    c. Body
    d. Weights (brass)
    e. T-handle (aluminum)
    f. Core tube (Lexan™ plastic)
    g. Extension rod (aluminum)
2. Heavy line or cable >20 ft longer than the maximum water depth (for deploying the corer)
3. Secondary line> 10 ft longer than the max water depth (for operating the slide hammer)
4. Core tube caps
5. Winch or reel (optional, recommended for water > 15 ft deep)
6. Nut driver
7. Core removal disk



PROCEDURE:

For shallow water push coring:

1. For very shallow water, attach the T-handle to the core body. In greater water depths, attach the aluminum extension rod.
2. Select a Lexan core tube of appropriate length. You will need a tube that is longer than the anticipated sediment thickness. If the water depth is greater than about 5 ft, choose the shortest possible core tube – this will make it easier to achieve a vertical deployment.
3. Attach the core tube to the core body by loosening the lower hose clamp and sliding the tube under the rubber sleeve. Securely tighten the hose clamp using a nut driver.
4. Push the corer vertically into the sediment until the desired depth has been reached. Retrieve and empty the corer as described in Steps 12-18 below.

For deeper water gravity coring:

5. Thread the rifled steel rod into the plastic core body. Take care to avoid cross threading.
6. Slide the doughnut shaped weight over the steel rod until it rests on the core body. If the substrate is resistant to coring, add more weights as needed.
7. When corering deep sediment, slide hammer with weights should be attached at all times. Attach a second line (parachute cord) onto slide hammer by fastening it onto the lifting eye of the slide hammer.
8. Attach a reel or winch to the corer by using a steel cable and connecting it to the eye hook at the stop of the steel rod.
9. Attach the second (light) line to the eye hook on the slide hammer

10. Lower the coring device through the water column taking care to minimize disturbance of sediment when striking the bottom. Within 2-3 meters, lower corer at approximately 1 meter per second.
11. Use line attached to the slide hammer to drive the corer into the sediment. To do this: pull the line up a few inches, then drop the line. Repeat as needed.
12. When corer appears to hit refusal, reel in the steel cable to retrieve gravity corer, leaving it slightly submerged below surface of the water.
13. Cap the core tube while it is still in the water.
    a. If no sediment is collected, add more weight until core is collected.
    b. If sample is still not retrieved, reposition and try again.
14. Photograph the core. Include a scale and sample ID.
15. Decant water from the top of the core.
16. If cores are to be processed onsight, place bottom of core tube over processing tray/bowl and remove cap. If sediment does not flow out automatically, then remove tube from gravity core body and insert core removal disc.
17. If intact core is required, lay out desired length of aluminum foil (if extruding on an uncleaned surface) and extrude core but gently tapping the core tube exterior with a hammer/mallet.
18. If the cores are to be transported to a lab for processing, cap both ends of the sample tube and place into a refrigerated icechest.
19. Decontaminate corer before next use and / or replace core tube with clean one.

PERSONAL PROTECTIVE EQUIPMENT:

1. Closed toe shoes
2. Personal flotation device (PFD).

EMPLOYEE SAFETY:

1. Applicable water safety rules.

POLLUTION PREVENTION AND WASTE MANAGEMENT:

1. Avoid dumping large quantities of unwanted sediments back into the water column.

SOP# 7.3 Sample Collection – Ponar Dredge

USBR, Branch of Environmental Monitoring (MP-157)

SUMMARY

This method describes procedures for collecting a benthic sediment grab sample(s) using a stainless steel Ponar® sampler.

EQUIPMENT

1. Ponar® benthic sampler
2. Lowering line (rope or cable)

PROCEDURE

1. Visually inspect the Ponar for cleanliness. If you are not sure if the equipment is clean, pre-clean the Ponar following the decontamination procedures outlined in Field Decontamination SOP #3.6.
2. Attach the pre-cleaned Ponar to a line of sufficient length for sampling (the line should be at least 1 meter longer than needed to touch bottom).
3. Lower the Ponar until it reaches bottom and mark the distance to bottom on the sample line. Make a second mark, 1 meter shallower, to indicate proximity to the bottom so that when near bottom, the lowering rate can be reduced and unnecessary bottom disturbance prevented.
4. Open sampler jaws until latched. From this point on, support sampler by its lift line or the sampler will be tripped and the jaws will close.
5. Tie free end of sample line to fixed support to prevent accidental loss of sampler.
6. Begin lowering the sampler until the proximity mark is reached.
7. Slow rate of descent through last meter until contact is felt.
8. Allow sample line to slack several centimeters. In strong currents more slack may be necessary to release mechanism.
9. Slowly raise Ponar clear of surface.
10. Drain excess liquid through screen.

11. Orient the Ponar over a stainless steel or Teflon® tray and open by holding with both hands on the sides of the Ponar at the block where the lifting arms attach. Lift up with your hands slightly as the Ponar is lowered, this force will open the jaws and the sample will begin to fall out into the tray.
12. Collect your sample with pre-cleaned stainless steel spoon (or equivalent) and place into the appropriate sample container(s). Care should be taken to collect material which has not contacted the Ponar sides.

REQUIRED PERSONAL PROTECTIVE EQUIPMENT

1. Closed toe shoes
2. Personal floatation device

POLLUTION PREVENTION AND WASTE MANAGEMENT

1. Avoid dumping large quantities of unwanted sediment back into the water column.

SOP# 7.4 Sample Collection – Scoops, Shovels and Spades

USBR, Branch of Environmental Monitoring (MP-157)

MODIFIED FROM:
EPA Region 9 Field Sampling Guidance Document 1205, Soil Sampling

SUMMARY:
This method describes the procedures for sampling dry soil (not covered with an aqueous layer) from the surface portion of the soil profile. Stainless steel instruments will suffice in most applications. **Note:** care should be exercised to avoid the use of devices plated with chrome or other materials.

REAGENTS:
1. Acetone, pesticide grade, CAS # 67-64-1. (Depending on analysis required)

APPARATUS / EQUIPMENT:
3. scoop, spade or shovel - stainless steel
4. collection bowl – stainless steel
5. Sieves
6. Mortar and pestle (metal or ceramic, depending on analyses)
7. Cleaning brush
8. Wide-mouth glass containers with Teflon-lined caps
9. Ice chest and blue ice

PROCEDURE:
1. Using a pre-cleaned stainless steel spade or scoop, remove vegetation and top layer of soil, then loosen and collect the desired volume of soil from the sampling area.
2. Transfer the sample to a stainless steel collection bowl.
3. If sample contains rocks, vegetation, or debris, pass material through an appropriately size sieve; follow MP-157 Sieving SOP protocol
4. Grind and homogenize the sample using following SOP# 7.7 and # 7.8
5. If compositing, do so following SOP# 7.6.
6. Label sampling jars following SOP# 9.4
7. Use a stainless steel spatula to transfer the sample to wide-mouth glass jar with Teflon-lined caps and label appropriately.
8. Store and transport samples following SOP# 9.5
9. Decontaminate all equipment according to SOP# 3.7. If analyzing soil for organic compounds, rinse all equipment with pesticide-grade acetone and allow to air dry.
10. Fill out all paper work, following SOP# 10.2

PERSONAL PROTECTIVE EQUIPMENT:

3. Safety glasses, goggles, or eye shield
4. Chemical resistant gloves
5. Closed toe shoes
6. Dust mask

EMPLOYEE SAFETY:

5. Before proceeding, read and understand the laboratory Chemical Hygiene Plan
6. Before proceeding, review pertinent emergency procedures, verify locations of emergency equipment and emergency phone number list

POLLUTION PREVENTION AND WASTE MANAGEMENT:

3. Disposal of waste acetone – follow SOP# 11.1
4. Disposal of broken glass – follow SOP# 11.3

SOP# 7.8 Sample Processing - Homogenizing

USBR, Branch of Environmental Monitoring (MP-157)

SUMMARY:

This method outlines MP-157 procedures for homogenizing sediments and soils - in order to provide uniform distribution of constituents throughout the sample. Note: do not homogenize samples for volatile organic compound (VOC) analysis.

REAGENTS:

Acetone, pesticide grade, CAS # 67-64-1 (if analyzing for organics)

APPARATUS / EQUIPMENT:

1. Stainless steel collection bowl
2. 2mm sieve
3. Electric drill with stainless steel paint mixing head
4. Mortar and pestle (metal only if metals will not be analyzed)
5. Cleaning brush

PROCEDURE:

1. Do not homogenize samples for volatile organic compound (VOC) analysis.
2. Pre-clean stainless-steel mixing bowl, sieves, and mortar and pestle following MP-157 protocol (SOP # 3.5). If analyzing soil for organic constituents rinse with pesticide-grade acetone and allow to air dry.
3. Label bowl on the outside using a label marked with permanent marking pen.
4. Collect sample material in the clean, labeled bowl
5. Remove and discard vegetation and large non-representative rocks.
6. If needed, grind material with a mortar and pestle (Mortar and Pestle SOP # 7.7) until particles are uniform in size and can be passed through a 2 mm sieve.
7. Mix thoroughly by swirling and folding material until homogenous, or using the electric drill with stainless steel paint-mixer attachment.
8. Decontaminate all equipment according to MP-157 Decontamination SOP #3.7 protocol. If analyzing soil for organic constituents rinse with pesticide-grade acetone and allow to air dry.

PERSONAL PROTECTIVE EQUIPMENT:

1. Safety glasses, goggles, or eye shield
2. Chemical resistant gloves
3. Dust mask for dry sediment only
4. Closed toe shoes

EMPLOYEE SAFETY:

1. Before proceeding, read and understand the laboratory Chemical Hygiene Plan, review pertinent emergency procedures, verify locations of emergency equipment, verify emergency phone list

POLLUTION PREVENTION AND WASTE MANAGEMENT:

1. Disposal of waste acetone – follow SOP# 11.1
2. Disposal of broken glass – follow SOP# 11.3

SOP# 8.5 Collecting Water for Toxicity Analysis

USBR, Branch of Environmental Monitoring (MP-157)

SUMMARY:

This method outlines MP-157 protocol for collecting water samples that will be used to test the acute (one time exposure) and chronic toxicity of the water to biological organisms.

APPARATUS/EQUIPMENT:

1. Glass or plastic bottle
2. LDPE plastic Cubitainers (see QAPP for number of gallons to collect)

PROCEDURE:

1. Following MP-157 protocol (SOP # 3.3), pre-clean the “fill” bottle that you will use to transfer water from the source to the Cubitainers.
2. Expand (open out) Cubitainers. It is easier to do this with dry hands, so open all containers before you begin. **Avoid contaminating the inside of the container; do not blow into the cubitainer to expand it.** Try opening the lid, pulling the sides apart from the outside, recapping, and then using the trapped air to push the corners out.
3. Using the fill bottle, collect a grab sample following SOP# 8.11. Hold the neck of the Cubitainer and pour the contents of the fill bottle into the cubitainer. Repeat this step until the Cubitainer is full.
4. Cubitainers must be filled to capacity with zero head space. When cubitainer appears full, pull the neck of the cubitainer up firmly to ensure entire capacity is filled and there is no air remaining.
5. If there is no air, cap cubitainer tightly. If air remains, continue filling until no air remains, then cap tightly.
6. Decontaminate all equipment according to MP-157 Decontamination SOP# 3.7.

PERSONAL PROTECTIVE EQUIPMENT:

7. Personal flotation devise if collecting directly from moving water.

SOP# 9.1 Creating Sample Identification Numbers for New Projects

USBR, Branch of Environmental Monitoring (MP-157)

SUMMARY:
This method describes the procedures for creating unique, alpha-numeric sample identification numbers for new projects. Each project will be identified by the alpha-portion of the field ID (**ABC**_001). Each sample within a given project will be identified by the unique numeric-portion of the field ID (**ABC**_001).

PROCEDURE:

1. Choose an appropriate alpha abbreviation for the project title followed by the first letter of the type of media collected (e.g. S for Soil). It is best to use the first letter of each word in the project title (e.g. Delta-Mendota Canal Selenium Loading is abbreviated DMCSL_W (for Water)
2. Verify with the Data Management Team that this identification number has not already been used for a different project. If it has, choose a different alpha abbreviation that is representative of the project title.
3. When collecting samples for a given project, follow the alpha abbreviation with a unique number for each sample.

SOP# 9.2 Documentation

USBR, Branch of Environmental Monitoring (MP-157)

SUMMARY

This standard operation procedure (SOP) describes the requirements associated with documenting MP-157 field investigation and remediation activities.The procedures described in this SOP are applicable to field logbooks, sample labels, and chain-of-custody documentation.

EQUIPMENT

7. Log Books
8. Field Sheets
9. Sample Labels
10. Chain of Custodies

PROCEDURE

The following sections describe the procedures for field documentation. In the event these procedures cannot be performed as written in this SOP, field personnel must contact the immediate supervisor to get approval for the deviation to the procedure prior to conducting field activities.

CONSIDERATIONS

Proper documentation of field activities is a crucial part of the field investigation process. Documentation must be maintained to trace the possession and handling of samples from the time of collection through submittal to the laboratory, to allow sampling locations to be located in the future, to record sampling methods and equipment, and to identify field personnel responsibilities (among other important information). Field documentation procedures are important both from both a technical and a legal perspective

Field Logbook

Field logbooks are carried in the field, and entries are made by field personnel at the time of sample collection. Logbook entries document:

- Project name
- Site name
- Sample collection date
- Start and end times for sample collection
- Weather/sampling conditions
- QA samples collected
- Sample IDs
- Sampling methods
- Decontamination
- Parameters and matrices collected
- Field measurements

- Water clarity
- Unusual conditions that might affect the samples
- Presence or absence of faucet screens on faucets sampled

After entering the required information, logbook pages are signed by all field personnel. The logbooks will be securely stored in the MP-157 branch office.

Field Sheet

Field sheets are generated from field logbook entries by field personnel and document:

- Project name
- Sampler name
- Sample IDs
- Sample collection date
- Site name
- Field measurements
- QA type
- Parameters and matrices collected

Field sheets are filed in the EMB office and are used by database personnel to make entries into the Environmental Monitoring database. When older than two years, field sheets are stored at the EMB's El Camino Plaza facility.

Sample Labels

Sample labels should include the unique sample ID and sample location, parameter sampled, date and time sampled, sampler's initials, preservative, and site name or location. Ideally sample containers are pre-labeled with as much of this information as possible before departing for the field. Any remaining information (such as sample time) would then be filled out immediately prior to sample collection.

Chain of Custodies

Chain of Custody forms (COCs) document the custody of samples from the time samples are collected to the time they are delivered to the laboratory. EMB personnel initiate COC documentation while in the field. Information recorded on the COC includes:

- Project name
- Project manager
- Title and signature of sample collector
- Name of the designated analytical laboratory
- List of sample IDs

- Date and time samples were collected
- Sample matrix type
- Number of containers per sample ID
- Analyses requested
- Point of contact phone number
- Date, time, and signatures of all parties responsible for receiving and relinquishing the samples from the time of collection to the time of delivery to the laboratory

Signed COCs accompany all samples to the laboratory. A copy of each COC is returned by the laboratory to the EMB, and then filed with the field sheets in the EMB office. After two years, COCs are transferred to the EMB's El Camino Plaza facility for long term storage.

REQUIRED PERSONAL PROTECTIVE EQUIPMENT

Not applicable

EMPLOYEE SAFETY

Not applicable

POLLUTION PREVENTION AND WASTE MANAGEMENT

Not applicable

SOP# 9.3 Transporting and Shipping Samples

USBR, Branch of Environmental Monitoring (MP-157)

SUMMARY

This SOP describes the procedures in transporting, packaging, and shipping of samples.

EQUIPMENT

1. Ice (dry, wet or blue packs)
2. Chain of Custody (COC)
3. Packaging supplies - bubble wrap, bottles sleeves (foam or bubble), foam
4. bags – ziplock, trash (if applicable)
5. absorption pads (if applicable)
6. Shipping manifest (i.e. Fedex/UPS)/account number
7. Ice Chest (conventional or foam)
8. Tape
9. Marking pen
10. Scissors

TRANSPORTING

PROCEDURE

1. Determine size and number of ice chests necessary to transport samples.
2. Select a clean ice chest(s)
3. Determine what type(s) of ice are required (dry, wet, blue).
    a. When using dry ice, make sure to wrap it in thick durable plastic. DO NOT PLACE SAMPLES DIRECTLY ONTO DRY ICE.
    b. When using wet ice, keep ice in plastic bag(s) to avoid sample bottle(s) from getting wet and from leaking out of the ice chests.
    Delays to shipping and extra costs can be incurred when your ice chest leaks.
4. Choose the volume of ice equal to or greater than the volume occupied by samples.
5. When temperatures are warm, consider bringing an additional empty ice chest filled with appropriate ice type.
6. If transporting glass bottles, bring appropriate packing material (bubble wrap/bottle sleeves).
7. Bring any additional packaging as necessary (ziplock, trash bags, absorption pads).
8. After returning from the field, refrigerate or freeze samples, clean/dry and replace blue ice.

SHIPPING

PROCEDURE

1. Gather all necessary packaging supplies.

2. Select and determine size and number of clean ice chest necessary to ship all samples.
3. Do not exceed maximum weight and size restrictions set by the carrier service instead use smaller multiple coolers.
4. Ensure that the carrier service selected can meet delivery times for short hold samples.
5. Check that all bottle caps are tight.
    a. If needed, wrap fiber or electrical tape around cap to prevent cap(s) from loosening.
6. Pack bottles accordingly to prevent breakage or leakage.
    a. To prevent breakage wrap glass bottle(s) with bubble wrap.
    b. To contain leakage place bottles in plastic bags and add absorption pads if necessary.
7. Place and arrange bottles and ice in ice chest(s).
    a. Enclose an adequate volume of ice to maintain 4^{o} C or less without freezing the bottle(s). With smaller water volume(s) these samples will freeze when shipped with large quantities of ice. When temperatures are hot include enough ice.
    b. When shipping bottles with dry ice, make sure ice is wrapped separately in thick durable plastic.
8. Place a cushioning layer using bubble wrap between top of bottles and ice chest lid to prevent bottles from shifting.
9. Fill out Chain of Custody (COC) see SOP#9.2
    a. Place COC in a Ziploc bag to prevent water damage
    b. PUT COC AND OTHER ESSENTIAL DOCUMENTS INSIDE ICE CHEST(S) BEFORE TAPING CLOSED.
10. Fill out shipping label.
11. Return copy to MP-157 and place in designated hanging envelop to be given to mailing room for their records.
12. Tape ice chest closed.
13. Tape shipping slip on top of ice chest(s) using the shipper's clear pouch.
    a. When using coolers with handles, shipping slip can also be attached to handles instead using shipping tag.

REQUIRED PERSONAL PROTECTIVE EQUIPMENT

Not applicable

EMPLOYEE SAFETY

1. Ice chests can be heavy when filled with water and ice. Protect your back by using proper lifting techniques.

POLLUTION PREVENTION AND WASTE MANAGEMENT

Dry Ice Shipping Regulations

For air transport, the amount of dry ice per parcel is limited to five pounds or less, but it's generally unlimited for ground shipments. Shipments containing dry ice must carry a

Class 9 DOT miscellaneous hazardous material warning label, and must be clearly marked "Carbon Dioxide Solid, UN1845" or "Dry Ice, UN1845". With five pounds of dry ice, the package would need to be delivered within 24 hours, as the recommendation for ordinary cooler use is 10 pounds per day. Biological material is often a dry ice shipment, which may have additional special requirements provided by the cold chain industry.

Containers to Ship with Dry Ice

The shipping container, like any dry ice container, must be automatically vented to prevent pressure buildup as the dry ice sublimates to carbon dioxide (CO_2). Many vendors, such as Frozen On Time, have developed containers for specific products. The product is protected by specially-molded insulating foam that protects the product and keeps the dry ice from touching it, and then the foam assembly slides into the pasteboard exterior container. Be sure to observe the dry ice safety precautions when handling dry ice.

SOP# 9.4 Labeling Samples

USBR, Branch of Environmental Monitoring (MP-157)

Summary

This method describes procedures for labeling environmental monitoring samples that are stored in containers

EQUIPMENT

1. ESS (Environmental Sampling Supply™) or other waterproof sample labels
2. Black or blue inked permanent marking pen (either ball point pen or an ultra fine point Sharpie® felt tipped pen)
3. Clean sample bottles or Ziploc® plastic bags (see QAPP for bottle and bag requirements)

PROCEDURE

1. When possible, complete labels before affixing to containers (they will be more legible if written on a flat surface)
2. Write very clearly (printing is preferred because it's usually more legible than script).
3. If you make a mistake, throw out the label and begin again.
4. Include the following information on all labels:
   - Field ID (e.g. GBW-S-666)
   - Sample collection date (mm/dd/yy)
   - Preservative (e.g. HCl, NaOH). If no preservative is used, specify "none".
   - Requested analysis (e.g. "total B", "Mo", "dissolved low level Hg")
5. Affix labels to dry containers; press them on to make sure they stick adequately. If the labels don't stick well, try drying the containers and reapplying. If that still doesn't work, put the bottled sample into a plastic bag and label the bag as above.

REQUIRED PERSONAL PROTECTIVE EQUIPMENT

Not applicable

EMPLOYEE SAFETY

Not applicable

POLLUTION PREVENTION AND WASTE MANAGEMENT

Not applicable

SOP# 9.6 Containers, Preservatives, and Hold Times for Environmental Samples

USBR, Branch of Environmental Monitoring (MP-157)

SUMMARY:
This SOP indicates appropriate containers and preservatives to be used for the collection of water, soil, sediment and air samples to be analyzed for physical, chemical and/or biological constituents. Sample holding times (the amount of time that samples can be stored before analysis) are also indicated. Note that if hold times are exceeded, sample analyses may yield invalid results.

EQUIPMENT

11. Ice chest or similar container for sample storage
12. Storage container for waste.
13. Blue Ice or similar cooling agent (dry ice)
14. Applicable equipment for transferring collected sample to desired container
15. See project specific QAPP for additional details

PROCEDURE

Methods of preservation are intended to:

- impede biological action
- slow down hydrolysis of chemical compounds and complexes
- reduce volatility of constituents
- reduce absorption effects.

The preservation method for each constituent is summarized in the table below. Preservation methods are generally limited to pH control, chemical addition, refrigeration, and freezing.

1. When determining sample container, preservative, and volume required, see project specific QAPP for details and clarification.
2. If bottles received from lab are not pre-acidified, take extreme caution when adding acid to the sample.
3. Always add **acid to water** and wear necessary personal protective equipment (gloves, eyewear, protective clothing)
4. Follow table below for general guidance regarding water analysis.
5. Collection volumes vary due to project needs and capabilities of selected labs. See project QAPP for minimum volume required for analysis of each analyte.
6. Hold times, preservative, collection volume, and container information for soil and sediment collections should be obtained from project specific QAPP and from selected laboratories.

PERSONAL PROTECTIVE EQUIPMENT

1. Protective gloves
2. Protective eyewear (when acidifying sample containers)
3. Lab coat or protective clothing (when acidifying sample containers)
4. Close toed shoes

EMPLOYEE SAFETY

1. Before proceeding, read the laboratory Chemical Hygiene Plan/JHAs
2. Before proceeding, make sure you know how to use the acid-spill kit

POLLUTION PREVENTION AND WASTE MANAGEMENT

5. Disposal of waste acid – pour into acid neutralization sink and flush with water.
6. Disposal of empty HNO_3 containers – Working in the acid-neutralization sink, rinse three times with water. Using indelible ink pen, mark the bottle as rinsed, then put on the shelf by the first aid kit for recycling.

SOP# 12.3 Cubitainer Filling Procedure

USBR, Branch of Environmental Monitoring (MP-157)

SUMMARY

This method describes the procedures for filling and/or refilling Cubitainers with de-ionized (DI) water.

EQUIPMENT

1. 5 gallon Cubitainer
2. De-Ionized water
3. Silicon tubing
4. Custom-made filling cap (pre-cleaned)

PROCEDURE

New Cubitainers

1. Unscrew the Cubitainer lid and place it top-side-down on a clean surface to avoid contaminating the inside of the cap.
2. Pull the Cubitainer apart to form a rough cube, then pull out the spout, being careful avoid contaminating the inside of the container (i.e. do not blow into or stick fingers into the Cubitainer).
3. Place Cubitainer in sink with the spout directed towards the ceiling, then screw on the filling cap.
4. Connect the DI water tubing to the filling cap directly and turn on the water.
5. Turn off water when Cubitainer is full. Leave enough room to allow the spout to be pushed back in (so cubes can be stacked); remove the filling cap and replace it with the normal cap.
6. Store the filling cap in a clean zip lock bag or other contamination free location.
7. Place filled Cubitainers on the bench to the left of the front door.

Used Cubitainers

1. Visually inspect for contamination.
2. If contamination is apparent, or if the Cubitainer is not capped, dispose of it.
3. Clean containers can be refilled as described above.

REQUIRED PERSONAL PROTECTIVE EQUIPMENT

7. Lab coat
8. Lab glasses, goggles, or eye shield
9. Chemical resistant gloves
10. Closed toe shoes

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Appendix J

Water Column Physical Measurements – Materials and Methods

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Methods and Materials for Profiling Water Column Physical Characteristics

Participants

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General Sampling Equipment

- Skiff powered by outboard motor
- Sonde multi-parameter instrument
- Data logger – YSI650
- 100ft cable
- 300ft cable attached to YSI hand crank reel
- pH standards: 7, 10
- turbidity standards: 12 NTU and 12.7 NTU
- electrical conductance (EC) standard: 1000 µs/cm
- De-ionized (DI) water

Measurement Frequency

Each day that sediment cores were collected, the overlying water column was profiled for physical characteristics. Bathymetric maps were used to predict water depth. According to the QAPP, for profiles collected in water less than fifty feet deep, measurements were to be recorded in approximately one-foot intervals and at locations where the water depth was greater than approximately fifty feet, measurements were to be recorded every five feet. In practice, measurements were recorded at approximately one foot intervals for profiles collected before November 12, 2009.

Profiles collected on November 12th and after, measurements were recorded every five feet until the instrument was thought to be about five feet above the reservoir bottom, then measurements were taken in approximately one foot intervals. It was decided November 12th to divert from the protocol outlined in the QAPP since it had appeared that the lakes had already turned over, and because the onset of winter conditions was making it very important to speed up our sample collection procedures.

Measurements Taken

Dissolved oxygen (DO)
Temperature
Specific conductance (EC)
pH
Turbidity

Profile Locations

Profiles were collected within the proximity of each coring location. In most cases, profiles were collected from the back of the drilling platform before sampling began so that turbidity readings would not be biased by drilling activities. Some profiles were collected from a small boat that had been driven 100 to 200 yards away from the drilling platform (so that drilling could begin although the profile had not yet been collected). Profiles were not collected at Copco 2 since no sediment samples were recovered. No profiles were collected at the Upper and Lower Estuary.

Profile Collection Dates

Approximate Profile Location	Reservoir	Measurement Date	Approximate Profile Location	Reservoir	Measurement Date
CDH-09-001	JC Boyle	not profiled	CDH-09-017	Copco	11/14/2009
CDH-09-002	JC Boyle	10/15/2009	CDH-09-018	Copco	11/13/2009
CDH-09-003	JC Boyle	10/15/2009	CDH-09-019	Copco	11/14/2009
CDH-09-004	JC Boyle	10/7/2009	CDH-09-020	Copco	11/14/2009
CDH-09-005	JC Boyle	10/6/2009	CDH-09-021	Iron Gate	10/31/2009
CDH-09-006	JC Boyle	10/6/2009	CDH-09-022	Iron Gate	11/1/2009
CDH-09-007	JC Boyle	10/1/2009	CDH-09-023	Iron Gate	11/7/2009
CDH-09-008	JC Boyle	10/3/2009	CDH-09-024	Iron Gate	11/2/2009
CDH-09-009	Copco	11/9/2009	CDH-09-025	Iron Gate	11/17/2009
CDH-09-010	Copco	11/10/2009	CDH-09-026	Iron Gate	11/9/2009
CDH-09-011	Copco	11/15/2009	CDH-09-027	Iron Gate	11/3/2009
CDH-09-012	Copco	11/11/2009	CDH-09-028	Iron Gate	11/6/2009
CDH-09-013	Copco	11/11/2009	CDH-09-029	Iron Gate	11/17/2009
CDH-09-014	Copco	11/15/2009	CDH-09-030	Iron Gate	11/4/2009
CDH-09-015	Copco	11/12/2009	CDH-09-031	Iron Gate	11/10/2009
CDH-09-016	Copco	11/13/2009	CDH-09-032	Iron Gate	11/17/2009

Profile Identification

Profiles were assigned a two digit number corresponding to the number of the bore hole being drilled that day. For example, if hole CDH-09-008 was being collected, the corresponding water column profile would be called "08".

Instrumentation

Three different multi-parameter Sondes were used:

1. Yellow Springs Instrument (YSI) 6600V2-4 D
2. YSI 6920 used along with a hand-held 650 Multi-Parameter Display System (MDS)
3. Hydrolab DataSonde (DS) 4a used with a Surveyor 4a.

Instrument Dates	Used	Reservoir
Hydrolab DS 4a*	10/1/2009	JC Boyle
YSI 6600 V2-4 D	10/2/2009 – 10/23/2009	JC Boyle
YSI 6600 V2-4 D	10/31/2009 – 11/17/2009	Iron Gate
YSI 6920	11/09/2009 – 11/15/2009	Copco 1

*discontinued due to malfunction of DO and turbidity probes

Calibration Procedures

Instrument calibration was verified up to two hours prior to sample collection. If calibration could not be verified, the instrument was recalibrated. Calibration and verification procedures used are detailed in sections 4.3A and 4.3B of the MP-157 SOP manual for environmental monitoring.

- Calibration was verified before each sampling event to ensure physical values were within manufacturer designated range.
- If accurate calibration could not be verified, the instrument was recalibrated.
- When doing a two point calibration, the instrument was calibrated to the lesser value first.
- DI-water was used to rinse three times in between the calibration solutions.
- New solution was used each time sonde was calibrated.
- At the time the instrument calibration was verified or recalibrated, calibration/verification activities were documented using a "Instrument Calibrations Sheet". Instrument Calibrations Sheets are filed with the USBR.

Sampling Method

- Profiles were collected soon after arrival at drill hole site.
- Sampling was conducted from the back of the drilling platform or boat
- In order to avoid biased readings, measurements were taken before motors or drilling equipment were turned on and care was taken to make sure that anchors were deployed more than 30' from the location where the profiles were collected.
- Most profiles were collected from surface to bottom. Bottom contact was assumed when turbidity readings suddenly increased and depth readings became constant (even with continued pay-out of the instrument cable). Some deep profiles on Iron Gate Reservoir were collected bottom to surface. For these profiles, the instrument was quickly lowered to the bottom, bottom contact was verified (as described above), then the instrument was allowed to sit for 5 minutes before physical measurements were recorded.
- Due to limited availability of the 300ft cable, at some locations where the water depth was greater than 100ft, complete profiles could not be collected.

- Data was backed-up at the end of each sampling day by copying data from the data logger to a laptop computer.
- Data was reviewed each day, as it was downloaded, to insure that the instrument was functioning properly.