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Results of 2013 Sediment Monitoring in the Water Canyon and Cañon de Valle Watershed

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Results of 2013 Sediment Monitoring in the Water Canyon and Cañon de Valle Watershed

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1.0 INTRODUCTION

This report presents the results obtained from geomorphic characterization and sediment samples collected in Water Canyon and Cañon de Valle in 2013. Together, these drainage systems and their tributaries comprise the Water Canyon and Cañon de Valle watershed. Water Canyon and Cañon de Valle are the largest drainages within the watershed and are the only canyons in the watershed that head on the flanks of the Sierra de los Valles rather than on the Pajarito Plateau. Cañon de Valle is tributary to Water Canyon; therefore, the Water Canyon watershed refers to Water Canyon, Cañon de Valle, and their tributaries. These field activities satisfy a requirement within the New Mexico Environment Department's (NMED's) notice of approval, dated October 11, 2012 (NMED 2012, 521359), of the Reconnaissance Survey Report for Post–Las Conchas Fire Flooding in Water Canyon and Cañon de Valle (LANL 2012, 223032) and fulfills recommendations for sampling of 2013 monsoon sediment deposits contained in the "Results of 2012 Sediment Monitoring in the Water Canyon and Cañon de Valle Watershed" (LANL 2013, 241083) which, in turn, fulfilled the NMED's notice of disapproval for the investigation report (IR) for Water Canyon/Cañon de Valle, dated February 14, 2012 (NMED 2012, 211217). The approval of the reconnaissance survey accepted Los Alamos National Laboratory's (the Laboratory's) recommendation for continued post–monsoon season sediment sampling to assess possible impacts from additional flooding on the potential for erosion and downcanyon transport of contaminants (NMED 2012, 521359). In lieu of a Phase II investigation report, the approval of the reconnaissance survey also included a requirement to provide the results of annual sampling in a report to NMED by April 30, 2013, and April 30, 2014. Because of the lapse in appropriations in fall 2013 and the subsequent gradual restarting of approved activities at the Laboratory, most of the fall 2013 field season was lost. Therefore, samples of 2013 sediment deposits could not be collected until March and April 2014, after the ground had thawed following winter 2013–2014. In response to a request from the Laboratory, NMED granted an extension from the annual sampling report to June 30, 2014 (LANL 2014, 255417). This report satisfies that requirement for sampling conducted in 2013.

In June and July 2011, the Las Conchas fire burned the headwaters of Cañon de Valle and Water Canyon west of NM 501 (Figure 1.0-1). Approximately 16.9 km^2 of the Water Canyon and Cañon de Valle watershed was within the burn perimeter, comprising 34% of the watershed. Within that burn perimeter, 46% was classed as high- or moderate-severity burn, and 54% was identified as low-severity burn or unburned (LANL 2011, 206488). The upper Cañon de Valle watershed was burned more intensely than the upper Water Canyon watershed. Sixty percent of the Cañon de Valle watershed was classified as high- or moderate-severity burn, whereas only 36% of the upper Water Canyon watershed was severely burned (LANL 2011, 206488). Floods in September 2013 impacted both canyons, causing localized scouring in parts of the canyons and sediment deposition in other areas. Smaller floods in July and August 2013 resulted in minor scouring and/or minor sediment deposition. This report focuses on the effect of floods, primarily the September 2013 floods, on the geomorphology and sediment chemistry following the 2013 monsoon season.

1.1 Background

Previous sediment investigations, including geomorphic mapping, associated geomorphic characterization, and sediment sampling, were conducted in 25 investigation reaches in 2010 and 2011 using the methods described in the Water Canyon/Cañon de Valle IR (LANL 2011, 207069). Fourteen of the 25 investigation reaches are located below areas of the Water Canyon/Cañon de Valle watershed that burned during the Las Conchas fire. These data represent a baseline from which post–Las Conchas flood effects can be evaluated.

Field activities were conducted in the summer and fall of 2011 and in the summer of 2012 in the 14 reaches located downstream of the area that burned during the Las Conchas fire to evaluate post–Las Conchas fire effects from 2011 monsoon season flood events on the Water Canyon/Cañon de Valle watershed. The effects of the first year of post–Las Conchas floods were documented in the “Reconnaissance Survey Report for Post–Las Conchas Fire Flooding in Water Canyon and Cañon de Valle” (LANL 2012, 223032).

Nine of the reaches located downstream of the area that burned during the Las Conchas fire were revisited in the fall of 2012 and winter of 2013 to evaluate post–Las Conchas fire effects from 2012 monsoon season flood events. Fine-grained sediment samples were collected from eight of these reaches. One reach (WA-5) was visited during a field reconnaissance but was not sampled because fine sediment of significant thickness (0.5 to 1 cm thick or more) was absent in the reach in 2013. The effects of the second year of post–Las Conchas floods were documented in the “Results of 2012 Sediment Monitoring in the Water Canyon and Cañon de Valle Watershed” (LANL 2013, 241083).

Ten of the reaches located downstream of the area that burned during the Las Conchas fire (including the nine visited in fall 2012−winter 2013) were revisited in the fall of 2013 and spring of 2014 to evaluate post–Las Conchas fire effects from 2013 monsoon season flood events. Sediment samples were collected from all 10 of these reaches. One reach (CDV-3) not visited in fall 2012and winter 2013 was revisited fall 2013 and spring 2014.

2.0 FIELD ACTIVITIES

2.1 Samples Collected and Analyses Performed

Field activities completed in the spring 2014 included collecting post–Las Conchas fire sediment samples from seven of the original investigation reaches, plus two upstream baseline reaches above the Laboratory boundary and one reach downstream of the original investigation reaches, just above the confluence with the Rio Grande. Sampling followed the methods used for the 2011 post-flood sediment sampling campaign (LANL 2012, 223032). Figure 1.0-1 shows the 2011, 2012, and 2013 sampling locations in the Water Canyon and Cañon de Valle watershed. Table 2.1-1 presents the requested analytical suites for each sample collected from Water Canyon and Cañon de Valle in 2013. The majority of samples collected were fine-grained sediment; however, a subset of coarse-grained samples was also collected to characterize coarse-facies deposits (Tables 2.1-1 and 2.1-2). The fine-grained sediment samples did not contain the predominance of ash noted in the previous 2 yr of sampling.

Analytical results for the sediment samples from the Water Canyon watershed are included as Appendix A (on CD). Tables 2.1-3 and 2.1-4 present the 2013 sampling results above sediment background values (BVs) (LANL 1998, 059730) for inorganic chemicals and detected results for organic chemicals within the Water Canyon and Cañon de Valle watershed, respectively. Relevant historical data are also presented to compare post-fire data with the historical range of concentrations of key chemicals of potential concern (COPCs) (see section 3.3 below).

2.2 Geomorphic Cross-Section Surveying

A series of cross-sections was established and surveyed within the investigation reaches in 2010 and 2011 (LANL 2011, 207069; LANL 2012, 223032). In fall 2013 and spring 2014, 10 cross-sections were surveyed to document erosion or deposition and to depict the geomorphic context of 2013 sediment samples (Figures 2.2-1 to 2.2-10). Geomorphic characterization followed the methods used for the 2011 post-flood sediment sampling campaign (LANL 2012, 223032). Cross-sections were surveyed using a hand level, tape measure, and stadia rod. Post-2013 monsoon season cross-sections are compared with pre-2013 monsoon season cross-sections to determine erosion and deposition from post-fire flood events at discrete locations within the sediment investigation reaches (Figures 2.2-1 to 2.2-10). Previously completed cross-sections were reoccupied using rebar installed at the starting and ending points of all cross-sections surveyed during the prior field investigations. Post–Las Conchas erosion was determined based on the comparison between the post-2013 monsoon season surveyed profile and pre-2013 monsoon season profile and pre-2011 geomorphic mapping (LANL 2011, 207069). Where deposition occurred on the cross-sections as a result of 2013 monsoon floods, potholes were dug to characterize the 2013 sediments as coarse or fine facies.

3.0 RESULTS

3.1 Post-Fire Surface Flow Changes

Data on stream discharge after wildfires indicate peak discharge can increase up to several orders of magnitude relative to pre-fire conditions and that the largest post-fire floods typically occur within the first 3 yr after a fire. The time period in which runoff remains elevated varies between watersheds and between fires as a function of burn severity, the rate and nature of watershed recovery, and the occurrence of high-intensity rainfall events. An analysis of annual maximum discharges from 1994 to 2009 for gages in watersheds affected by the May 2000 Cerro Grande fire indicated that peak annual discharge increased up to several orders of magnitude relative to pre-fire conditions (LANL 2012, 223032). At these gages, peak discharges returned to at or near pre-fire conditions after 1 to 7 yr, although some elevated discharges were not entirely related to hydrologic changes caused by the Cerro Grande fire (e.g., Pueblo Canyon where townsite-generated runoff is a factor). Excluding Pueblo Canyon, flows commonly remained elevated for up to 3 yr, indicating watersheds affected by the June 2011 Las Conchas fire could experience significantly greater flows through 2013.

Supporting information on the effects of wildfires on the hydrology of streams on the Pajarito Plateau is provided by studies of Frijoles and Capulin Canyons in Bandelier National Monument after the June 1977 La Mesa fire and the April 1996 Dome fire (Veenhuis 2002, 082605). After these fires, peak flows increased to about 160 times the maximum recorded before the fire. By the third year, maximum annual peak flows had decreased to about 3 to 5 times the pre-fire maximums as the watersheds recovered. The frequency of larger stream flows also increased after the La Mesa and Dome fires, remaining elevated for the first 3 yr. The data from Frijoles and Capulin Canyons support the inference that significantly altered hydrologic conditions could persist through 2013 in watersheds affected by the Las Conchas fire.

Maximum discharge in Water Canyon after the Cerro Grande fire was estimated at 840 cubic feet per second (cfs) measured at gaging station E252 above NM 501 and decreased downstream to 274 cfs at gaging station E265 below NM 4 (LANL 2012, 223032). Maximum discharge in Cañon de Valle was estimated at 740 cfs, measured at gaging station E253 above NM 501 (LANL 2012, 223032). A larger discharge flood event occurred on August 21, 2011, following the Las Conchas fire. Total precipitation for the August 21 event was 2.52 in., with a maximum 30-min intensity of 1.55 in. recorded at gaging station E257. The E252, E253, and E265 stream gages were destroyed during this flood event; however, peak-flow estimates were made using the area-slope method, based on cross-sections measured between high-water lines and the stream gradient. Flow estimates for the August 21, 2011, flood event ranged from 1450 cfs for Cañon de Valle above NM 501 to 1500–1600 cfs for Water Canyon above NM 501. Combined discharge in Water Canyon below NM 4, downstream of the confluence of Cañon de Valle and Water Canyon, was estimated at approximately 2400 cfs (LANL 2013, 241083). For comparison, maximum discharge at the gaging stations above NM 501 for the time period from 2003 to 2009, after the first 3 yr of post-Cerro Grande runoff but before the Las Conchas fire, was 6.4 cfs at E252 and 8.5 cfs at E253 (LANL 2012, 223032).

The maximum 2012 flood discharge, recorded on July 11, 2012, at the reconstructed stream gages, was much lower than the 2011 maximum discharge: 135 cfs at gaging station E253 for Cañon de Valle above NM 501 and 118 cfs at gaging station E252 for Water Canyon above NM 501 (LANL 2013, 241083). Combined discharge in Water Canyon below NM 4, downstream of the confluence of Cañon de Valle and Water Canyon was 250 cfs at gaging station E265 during the July 11 event (LANL 2013, 241083). Total precipitation for the July 11 event was 1.89 in., with a maximum 30-min intensity of 1.77 in. recorded at gaging station E253 (LANL 2013, 241083).

The maximum 2013 flood discharge, recorded on September 13, 2013, was less than the 2011 maximum discharge but greater than the 2012 maximum discharge: 309 cfs at gaging station E253 for Cañon de Valle above NM 501 and 429 cfs at gaging station E252 for Water Canyon above NM 501 (Table 3.1-1). Combined discharge in Water Canyon below NM 4, downstream of the confluence of Cañon de Valle and Water Canyon was 400 cfs at gaging station E265 during the September 13 event (Table 3.1-1). Unlike the previous runoff events in the previous 2 yr, which were in response to a single-day, high-intensity storm event, the September 13 event followed several days of unusually heavy precipitation. Total precipitation from September 9 to 14 at rain gage RG-265 was 8.1 in., with a maximum daily total of 3.1 in. on September 12 and 1.3 in. on September 13 (Table 3.1-1). Although the maximum 2013 discharge is less than the maximum 2011 discharge, it was nearly 2 orders of magnitude higher than the maximum discharge observed in nonfire-affected years (during or within 3 yr of major fires).

3.2 Geomorphic Evaluation

Cross-sections from reaches sampled after the 2013 monsoon season (exclusive of baseline reaches and reaches WA-5, located downstream of NM4 and WA-6, upstream of the Water Canyon-Rio Grande confluence) depicting areas of erosion, sediment deposition, or minor bank erosion and deposition on adjacent floodplain surfaces are shown in Figures 2.2-1 to 2.2-10 and are described below. Figure 3.2-1 shows an example of sediment deposition in CDV-3 in an area scoured by the August 21, 2011, flood. Figure 3.2-2 shows a 2013 gravel bar deposited on a former f1 floodplain surface in reach CDV-2E.

Cross-sections were surveyed at or near sampling locations in reaches CDV-1C, CDV-2E, CDV-3, CDV-4, WA-3, and WA-4. All cross-sections reoccupied previous cross-section locations. These cross-sections provide a transect of the Cañon de Valle/Water Canyon drainages from below NM 501 to the Laboratory boundary above NM 4. The cross-section located farthest upstream in the Cañon de Valle/ Water Canyon drainage, in reach CDV-1C, shows deposition of coarse-grained 2013 sediments in the active channel and deposition of thin, fine-grained sediment deposits on the former f1 surface (Figure 2.2-1). This area experienced erosion within the active channel, scouring of a 2011 gravel bar and minor fine-grained sediment deposition in 2012. The cross-sections in reach CDV-2E show deposition of 2013 coarse-gravel bars on lower geomorphic surfaces, less extensive fine-grained sediment deposition primarily on higher geomorphic surfaces, and minor erosion associated with channel scouring (Figures 2.2-2 and 2.2-3). This area also experienced deposition on post-1942 geomorphic surfaces and on a former pre-1943 fluvial terrace surface, along with minor erosion of pre-1943 alluvium and post-1942 sediment deposits in 2011 and/or 2013 floods. Reach CDV-3 experienced extensive erosion during 2011 monsoonal floods (LANL 2012, 223032). CDV-3 cross-sections from November 2013 show additional erosion, primarily of pre-1943 alluvium associated with channel scouring and widening (Figures 2.2-4 through 2.2-6), Some relatively minor deposition also occurred at cross sections in reach CDV-3, primarily consisting of coarse sediment deposits within the main or side channel, and secondarily consisting of fine-gradient sediment deposits on higher post-1942 geomorphic surfaces (Figures 2.2-5 and 2.2-6). The reach CDV-4 cross-section shows erosion of post-1942 channel (c2) and flood plain (f1) deposits and deposition of coarse-grained 2013 sediment deposits on an f1 surface and within the active channel (Figure 2.2-7). In 2012, this area did not experience erosion, with the exception of localized scouring outside the active channel, and had thin, fine sediment deposition on flood plain surfaces (Figure 2.2-7). The reach WA-3 cross-section shows deposition across most of the section, with 30–40 cm of mostly coarse 2013 sediment within a broad channel area that has buried the post-1942, pre–Las Conchas deposits and adjacent pre-1943 alluvium (Figure 2.2-8). Some minor erosion of pre-1943 alluvium and post–Las Conchas sediment deposits has also occurred. This pattern of deposition across most of the cross-section and minor erosion was also observed following the 2012 monsoon season (Figure 2.2-8). The deposition along the cross-section in reach WA-3 is likely the result of its location above a prominent log jam noted in the post-2011 monsoon investigation (LANL 2012, 223032). The reach WA-4 cross-sections show erosion of post-1942 channel (c1, c2) and floodplain (f1) deposits and erosion of pre-1943 alluvium across large areas of each cross section (Figures 2.2-9 and 2.2-10). A coarse-grained 2013 gravel bar was deposited where former f1 deposits were scoured and fine-grained sediments were deposited on former f1 and Qt surfaces at the downstream cross-section (Figure 2.2-10). These observations are in contrast to only minor changes observed at this location from the 2012 floods (Figure 2.2-10).

The overall trend observed in the cross-sections surveyed following the 2013 monsoon season is of more extensive erosion than observed following 2012 monsoon flood events and greater coarse-grained sediment deposition than observed during the previous 2 yr of post-Las Conchas monsoon season flooding. Upstream reaches (CDV-1C, CDV-2E, and CDV-3) experienced more extensive erosion of pre-1943 alluvium along with deposition of coarse-grained gravel bars (CDV-2E). Downstream reaches, including CDV-4 and WA-4, experienced more extensive erosion of post-1942 channel and floodplain deposits, along with erosion of pre-1942 alluvium and deposition of mostly coarse-grained 2013 sediment deposits. These conditions would result in downstream transport of sediment from both pre-1942 alluvium and from post-1942 geomorphic units with either low concentrations of key constituents (c1, c2), or higher concentrations (c3, f1). The greater proportion of sediment is from a combination of pre-1942 alluvium and from post-1942 c1 and c2 geomorphic units. A slightly different trend of erosion of coarse-grained c1 and c2 units and preservation of fine-grained f1 units was observed in the post-2011 monsoon/pre-2012 monsoon investigation (LANL 2012, 223032). Localized conditions, such as the log jam in reach WA-3, can result in localized aggradation of fine- and coarse-grained sediment deposits (LANL 2013, 241083).

3.3 Post-Fire Sediment Contaminant Evaluation

Barium, RDX (hexahydro-1,3,5-trinitro-1,3,5-triazine), and polychlorinated biphenyls (PCBs) have been identified as key COPCs in Water Canyon and Cañon de Valle (LANL 2011, 207069). Data from post–Las Conchas fire sediment samples collected in Water Canyon and Cañon de Valle (Table 2.1-1) are used to evaluate the sources of these COPCs in post-fire flood deposits. Samples collected in the spring of 2014 include deposits from the 2013 monsoon season flood events. The spring of 2014 sample results are compared with samples from the 2012 and 2011 monsoon season flood events (LANL 2013, 241083; LANL 2012, 223032) and pre-2011 samples collected for the investigation report (LANL 2011, 207069).

Barium is elevated above the sediment BV (127 mg/kg) in 2011 post–Las Conchas fire baseline sediment samples (reaches CDV-0 and WA-0 above NM 501; Figure 3.3-1) as a result of elevated barium in Las Conchas fire ash. Barium concentrations in 2013 baseline samples are below the sediment BV in all four samples collected (three fine-grained samples and one coarse-grained sample), none of which contain ash (Table 2.1-3). Barium concentrations in post-fire sediment samples increase in reaches below the Technical Area 16 (TA-16) 260 Outfall (reach CDV-2E) associated with the partial remobilization of contaminated sediment deposits and decreases downstream (Figure 3.3-1). The variation in 2013 barium concentrations (and concentrations of most other COPCs, described below) in individual reaches exhibits an inverse relationship to particle size (finer-grained samples correspond to higher barium concentrations in predominantly ash-free 2013 sediment). This trend is shown most clearly in reaches CDV-4 and WA-3, where samples with a median particle size of coarse silt, in both reaches, have a barium concentration greater than 700 mg/kg, whereas samples with a median particle size of medium to coarse sand have a barium concentration between 108 (which is below the sediment BV for barium) and 203 mg/kg (Figure 3.3-1, Tables 2.1-2 and 2.1-3, and Appendix A). Ash was generally absent from 2013 samples; therefore, the relationship of ash in samples corresponding to higher barium concentration noted in previous year's samples (LANL 2011, 207069; LANL 2013, 241083) was not a significant factor in 2013. The 2013 barium concentrations are well within the concentration distribution documented in the Water Canyon/Cañon de Valle IR (LANL 2011, 207069; Figure 3.3-2). Below NM 4 (reaches WA-5 and WA-6), barium concentrations in 2013 sediment samples are below the barium BV (Figure 3.3-1). Therefore, barium from Laboratory sources is indistinguishable from barium background concentrations in these downstream reaches.

PCB congeners from sediment or water samples can be grouped together into 10 homologs, based on the number of chlorine atoms on the biphenyl rings, which allows visual comparison of similarities or differences between samples or groups of samples (Reneau et al. 2007, 102886). Figure 3.3-3 shows average homolog percentages in each of the sediment samples from Water Canyon and Cañon de Valle collected in 2011, 2012, and 2013. The 2013 PCB congener data are consistent with the 2011, 2012, and previous sediment data, indicating several PCB sources with at least two sources in the Cañon de Valle watershed (one possibly below the 260 Outfall above reach CDV-2E and another above reach CDV-1C) and at least one other source in the Water Canyon watershed above the confluence with Cañon de Valle (LANL 2011, 207069; LANL 2012, 223032; LANL 2013, 241083).

Total PCB concentrations are low (less than 0.004 mg/kg) in the sediment samples collected upstream of NM 501 in 2011 (reaches WA-0 and CDV-0) (Figure 3.3-4 and Table 2.1-4), reflecting baseline conditions and regional atmospheric sources. PCB concentrations increase downstream from Laboratory sources, with maximum values in single samples ranging between 0.0152 mg/kg and 0.0253 mg/kg in reaches CDV-2E, CDV-3, and WA-3 (Figure 3.3-4 and Table 2.1-4). Unlike other COPCs, total PCB concentrations are not clearly inversely related to particle size, and the highest total PCB concentration obtained (0.0253 mg/kg from CAWA-14-49271 in WA-3) was from a sample with a median particle size of coarse sand (Tables 2.1-2 and 2.1-4). Downstream of reach WA-3, the total PCB concentration decreases to less than 0.0006 mg/kg in reach WA-5 and less than 0.0002 mg/kg in reach WA-6, near the Rio Grande (Figure 3.3-4). The 2011, 2012, and 2013 total PCB concentrations are at the very low end of the concentration distribution documented in the Water Canyon/Cañon de Valle IR (LANL 2011, 207069; Figure 3.3-5), and are similar to or below baseline conditions measured in WA-0 and CDV-0 (LANL 2012, 223032).

Low concentrations of RDX (hexahydro-1,3,5-trinitro-1,3,5-triazine) were detected in 2013 post-monsoon samples in reaches CDV-2E and CDV-3 (Table 2.1-4). Samples from all other reaches were below the method detection limit for RDX. Low concentrations of HMX (octahydro-1,3,5,7-tetranitro-1,3,5,7 tetrazocine) were detected in reaches CDV-2E, CDV-3, CDV-4, and WA-3 (Table 2.1-4). Low concentrations of TATB (triaminotrinitrobenzene) were detected in reaches CDV-2E, CDV-4, WA-3, and WA-4 (Table 2.1-4). RDX, HMX, and TATB were detected in 2013 post-monsoon sediments in more reaches were detected in 2011 or 2012 post-monsoon sediments, indicating greater redistribution of these contaminants by 2013 floods than had occurred in 2011 or 2012 (LANL 2012, 223032; LANL 2013, 241083). However, measured concentrations of RDX, HMX, and TATB in 2013 post-monsoon deposits were at the low end of the concentration distribution reported in the Water Canyon/Cañon de Valle IR (LANL 2011, 207069; Figures 3.3-6, 3.3-7, and 3.3-8, respectively).

4.0 SUMMARY

The maximum 2013 flood discharge was greater than the maximum 2012 discharge and less than the maximum 2011 discharge but was approximately 2 orders of magnitude higher than the maximum discharge observed in non-fire-affected years (during or within 3 yr of major fires). Floods during the 2013 monsoon season resulted in more extensive erosion than observed following 2012 monsoon flood events and greater coarse-grained sediment deposition than observed during the previous 2 yr of post–Las Conchas monsoon season flooding. Upstream reaches experienced extensive erosion of pre-1943 alluvium along with deposition of coarse-grained gravel bars. Downstream reaches experienced extensive erosion of post-1942 channel and floodplain deposits, along with erosion of pre-1942 alluvium and deposition of mostly coarse-grained 2013 sediment deposits. These conditions would result in downstream transport of sediment from both pre-1942 alluvium and from post-1942 geomorphic units. The greater proportion of transported sediment is from a combination of pre-1942 alluvium and from post-1942 c1 and c2 geomorphic units, resulting in downstream transport of sediment from geomorphic units with typically lower concentrations of key COPCs.

RDX, HMX, and TATB were detected in 2013 post-monsoon sediments in more reaches than had detections in 2011 or 2012 post-monsoon sediments, indicating greater redistribution of these contaminants by 2013 floods than had occurred in 2011 or 2012. Barium, high explosives (HMX, TATB), and PCB concentrations in post–Las Conchas sediment deposits show decreasing concentrations downstream from Laboratory source areas and are well within the concentration distribution documented in the Water Canyon/Cañon de Valle investigation report (LANL 2011, 207069).

5.0 RECOMMENDATIONS

The Water Canyon and Cañon de Valle watershed was subjected to significant burn impacts to headwater areas of Water Canyon and Cañon de Valle west of the Laboratory. Two large flood events damaged structures in August 2011, several significant flood events occurred from July to October 2012, and another large flood event occurred in September 2013. The resulting flood deposits, while more broadly distributed, show very low concentrations of the key COPCs, consistent with or less than pre-fire concentrations and substantially less than residential and recreational soil screening levels (SSLs) (LANL 2012, 228733; NMED 2012, 219971). Because the concentrations of key COPCs remain well below screening levels, even after the most recent post-fire flood, there is no indication of the need for mitigation actions to reduce sediment transport during future floods.

Both the sediment and storm water data from Cañon de Valle and Water Canyon yield a conceptual site model in which COPCs such as barium and PCBs are mobilized from non-Laboratory-affected burn areas above the Laboratory property and locally from affected areas within the Laboratory. COPCs from these two source areas likely mix, and for most key constituents, Laboratory contributions are indistinguishable from contributions derived from fire-affected areas. Depositional areas yield concentrations substantially lower in key COPCs, such as barium, than in reaches evaluated for risk before the 2011 fires. Thus, potential risks in depositional reaches are much lower than for reaches evaluated in the investigation report (LANL 2011, 207069).

This third year monitoring report fulfills NMED’s requirement under the Phase II work plan to characterize the post-flood contaminant distribution based on three consecutive years of post-monsoon sediment sampling and geomorphic characterization of the Cañon de Valle and Water Canyon watershed. Based on the results presented above, the Laboratory does not recommend any additional post-fire characterization of the Cañon de Valle and Water Canyon watershed but recommends continued sampling of key reaches (e.g. CDV-2E, CDV-4, WA-4, and WA-6) under the annual Surveillance Sampling program.

6.0 REFERENCES

The following list includes all documents cited in this report. Parenthetical information following each reference provides the author(s), publication date, and ER ID. This information is also included in text citations. ER IDs are assigned by the EP Directorate's Records Processing Facility (RPF) and are used to locate the document at the RPF and, where applicable, in the master reference set.

Copies of the master reference set are maintained at the NMED Hazardous Waste Bureau and the Directorate. The set was developed to ensure that the administrative authority has all material needed to review this document, and it is updated with every document submitted to the administrative authority. Documents previously submitted to the administrative authority are not included.

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Veenhuis, 2002. "Effects of Wildfire on the Hydrology of Capulin and Rito de Los Frijoles Canyons, Bandelier National Monument, New Mexico," U.S. Geological Survey Water-Resources Investigations Report 02-4152, Albuquerque, New Mexico. (Veenhuis 2002, 082605)

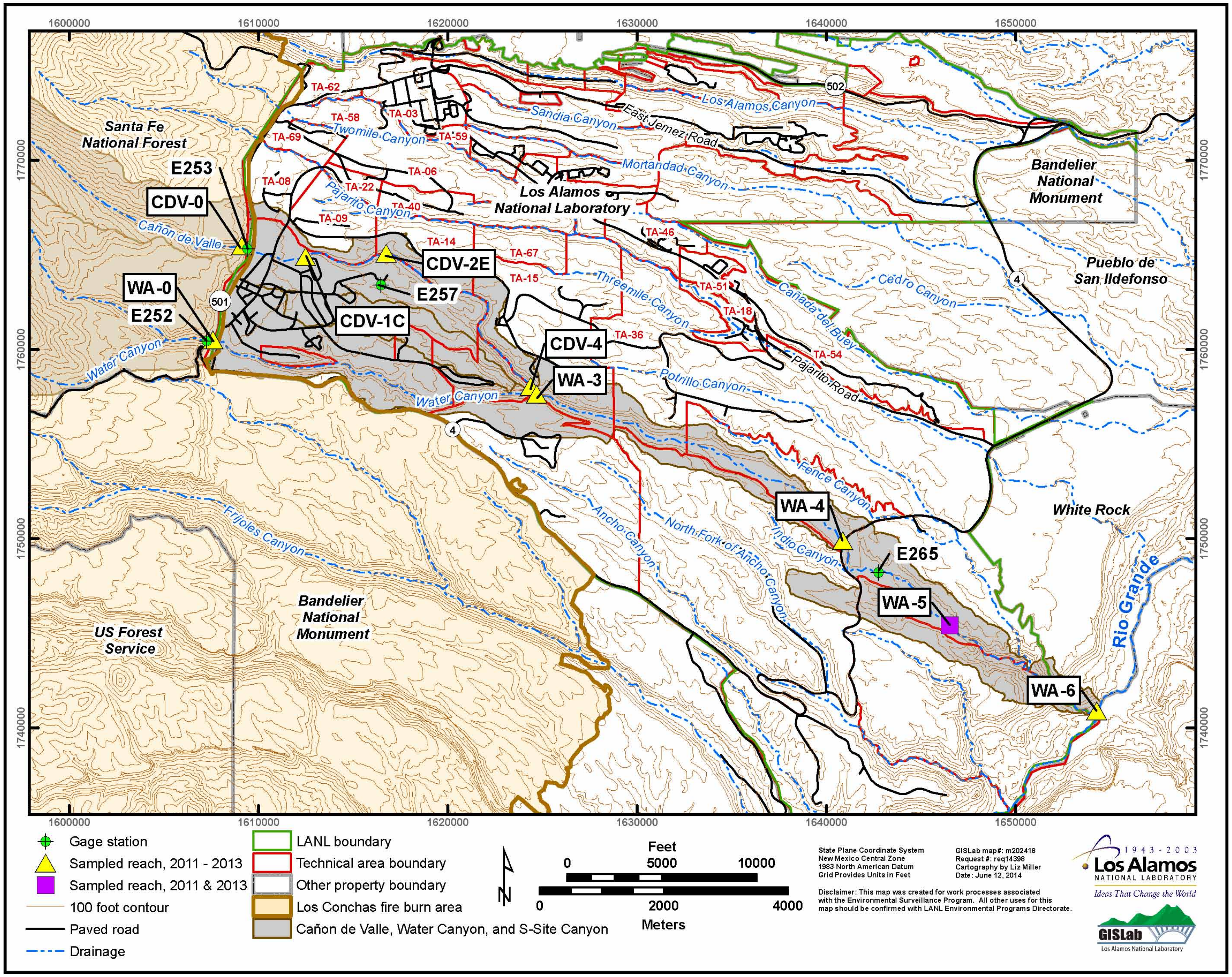


Figure 1.0-1 Sediment sampling locations in the Water Canyon and Cañon de Valle watershed in 2011−2013

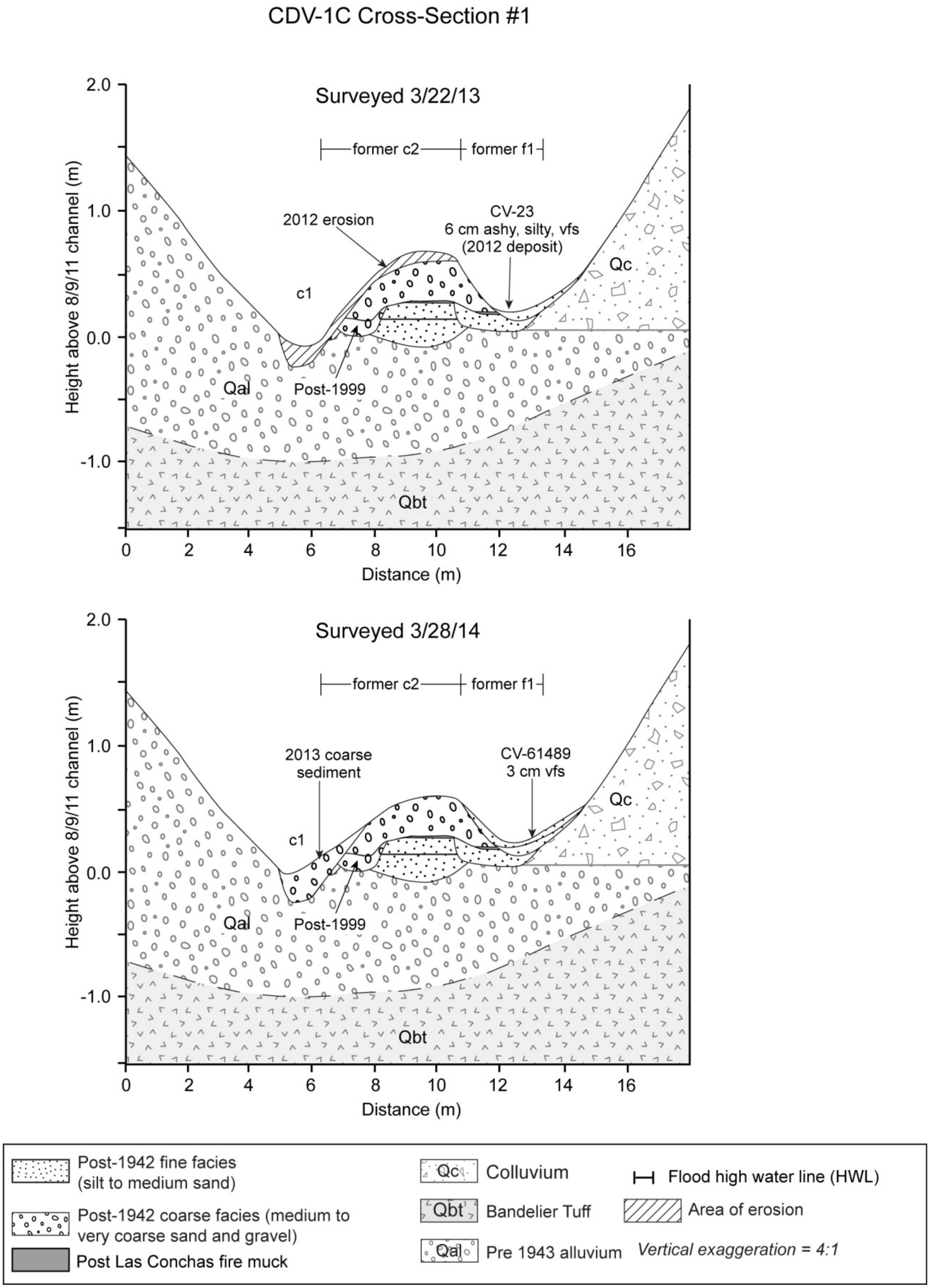


Figure 2.2-1 Geomorphic cross-sections showing 2012 and 2013 erosion and deposition in reach CDV-1C

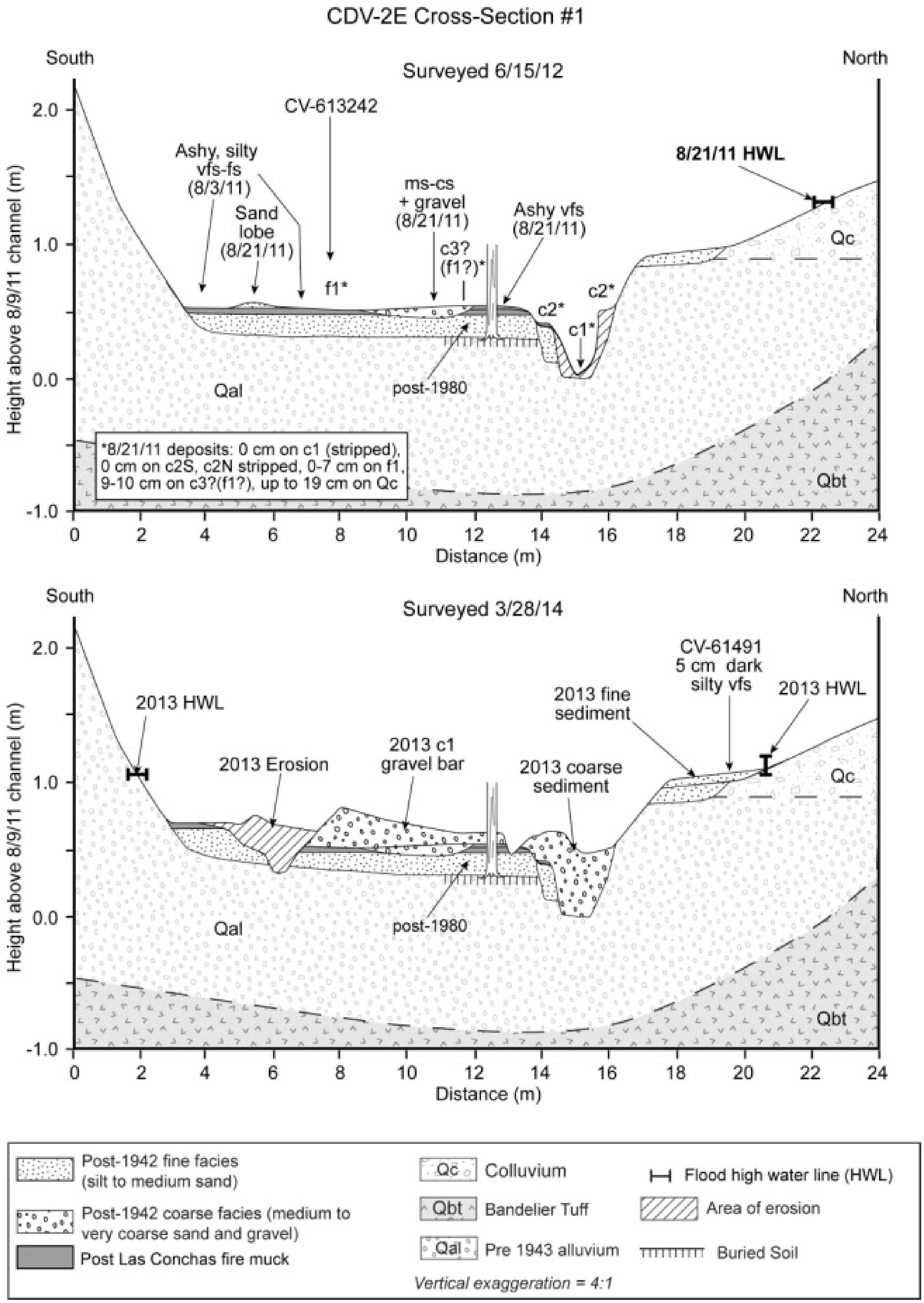


Figure 2.2-2 Geomorphic cross-sections showing 2011 and 2013 erosion and deposition in reach CDV-2E at CDV-2E cross-section #1, upstream part of reach

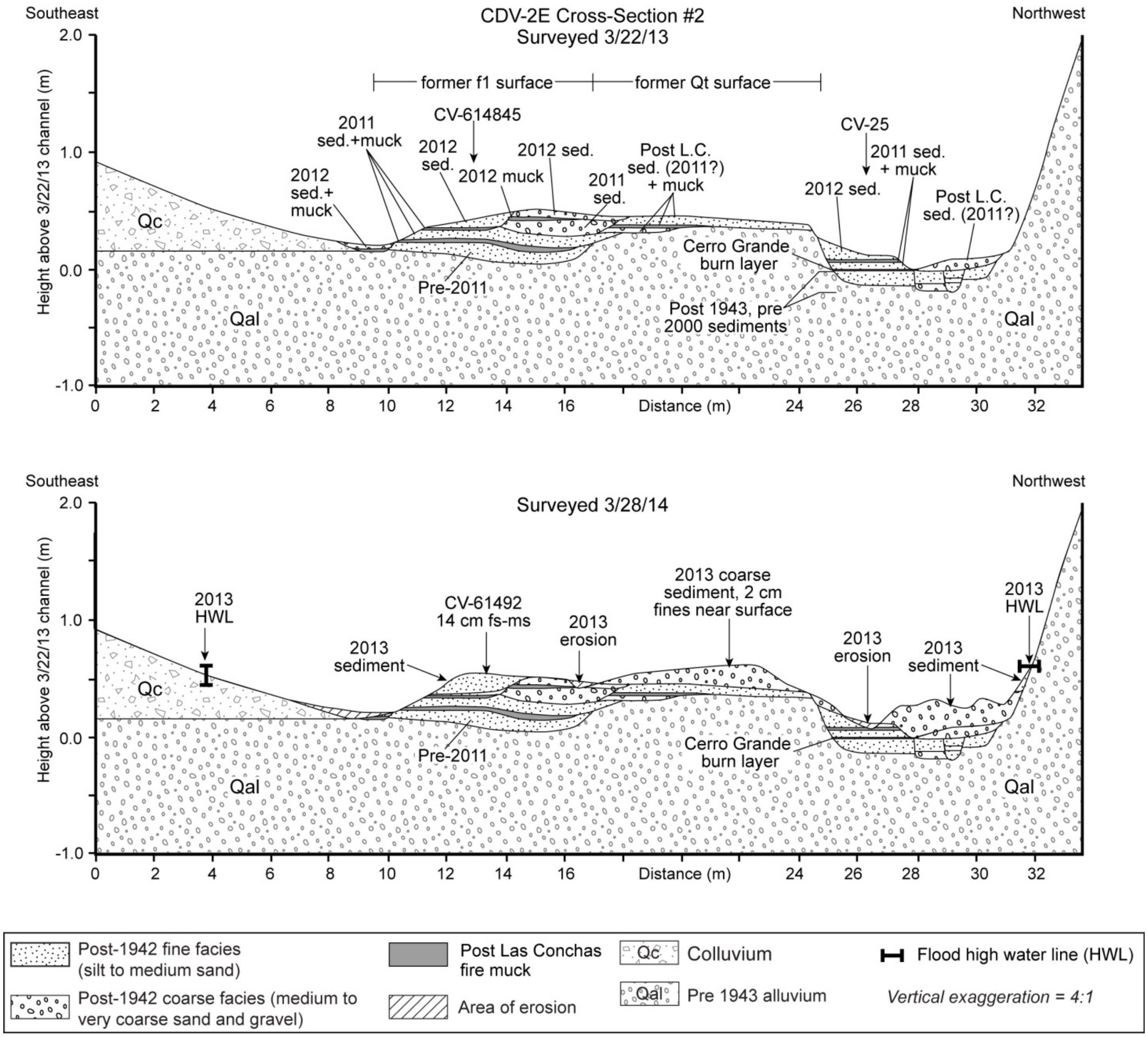


Figure 2.2-3 Geomorphic cross-sections showing 2012 and 2013 erosion and deposition in reach CDV-2E at CDV-2E cross-section #2, downstream part of reach

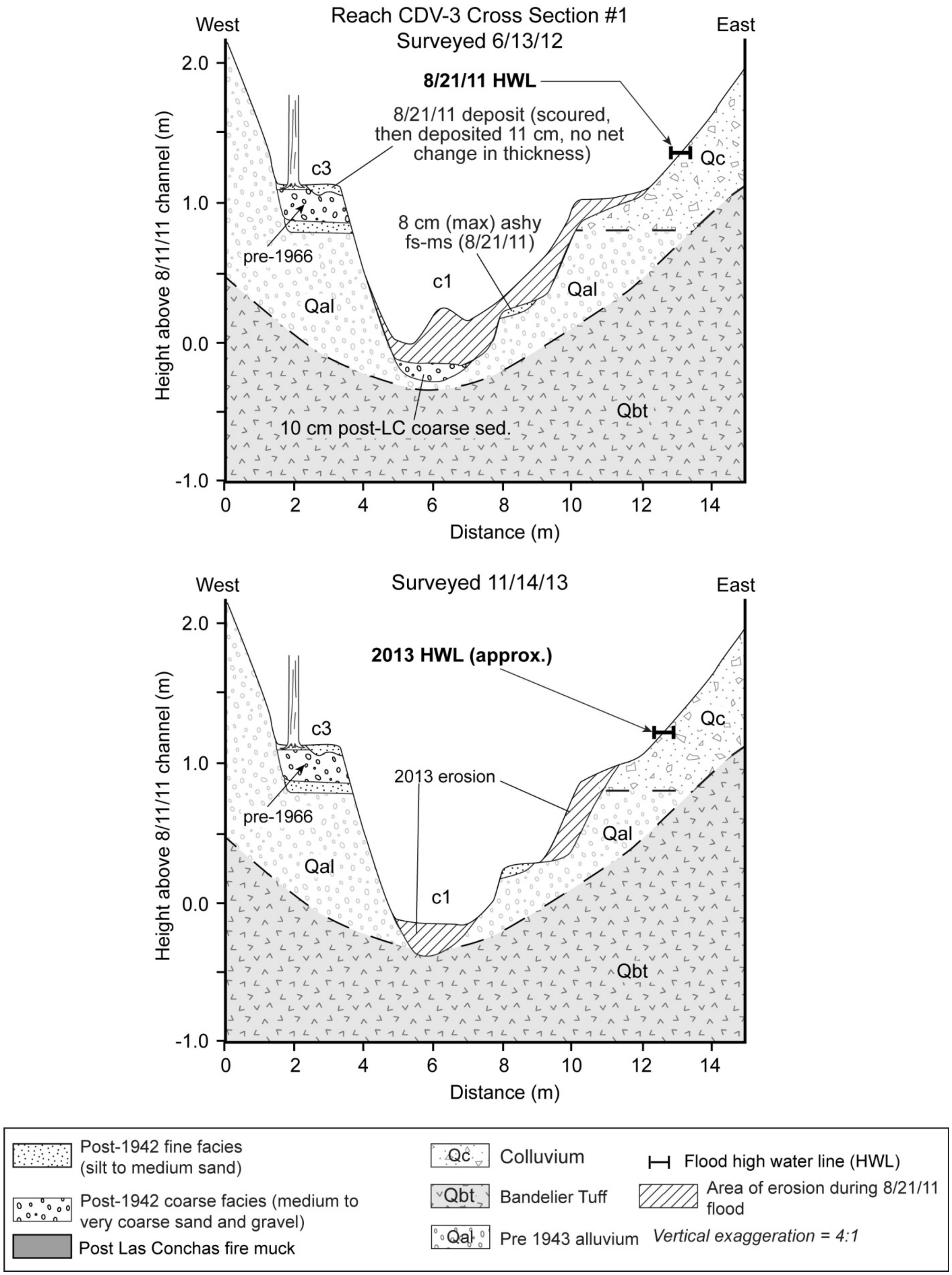


Figure 2.2-4 Geomorphic cross-sections showing 2011 and 2013 erosion and deposition in reach CDV-3 at CDV3 cross-section #1, upstream part of reach

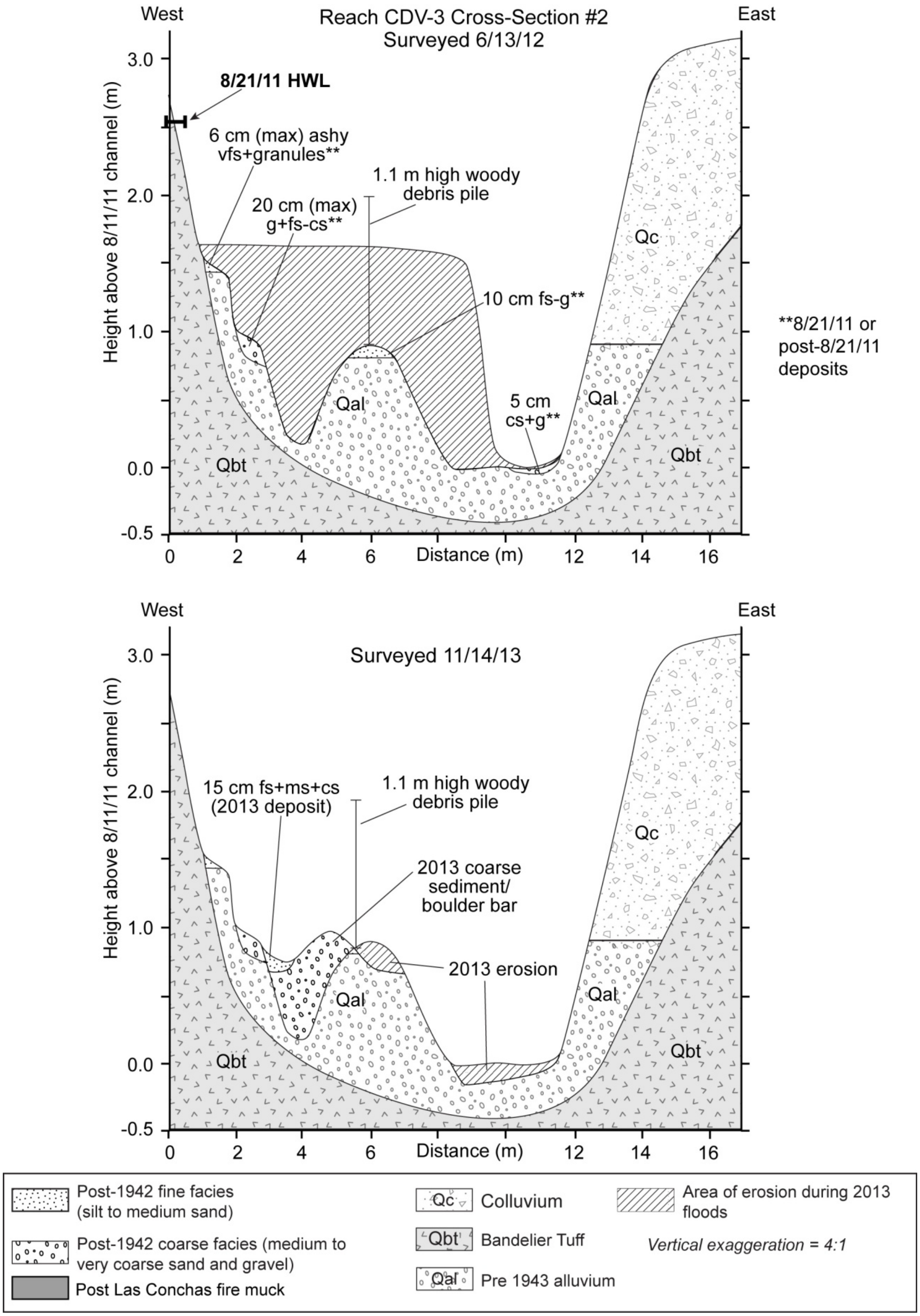


Figure 2.2-5 Geomorphic cross-sections showing 2011 and 2013 erosion and deposition in reach CDV-3 at CDV3 cross-section #2, upstream part of reach

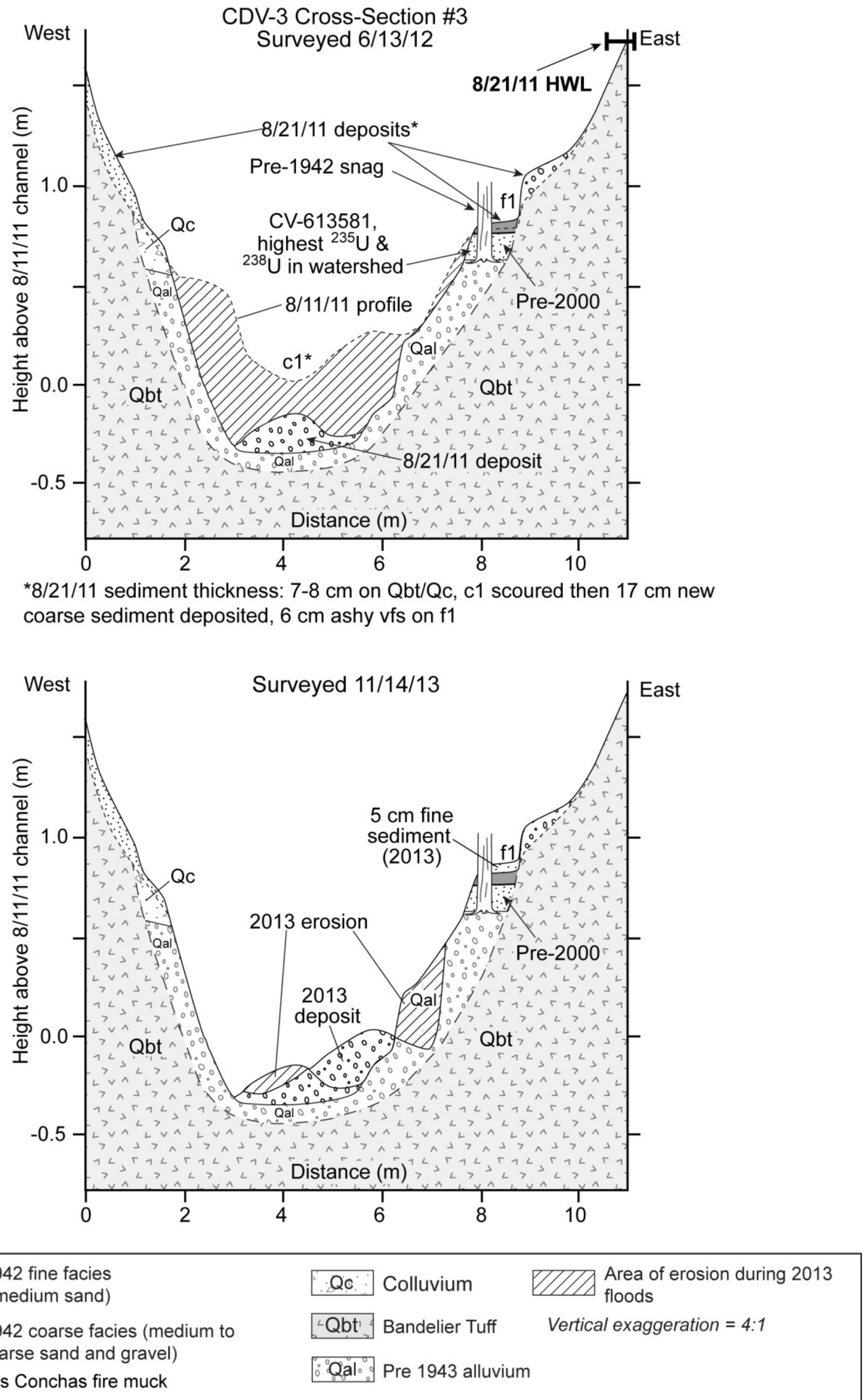


Figure 2.2-6 Geomorphic cross-sections showing 2011 and 2013 erosion and deposition in reach CDV-3 at CDV3 cross-section #3, downstream part of reach

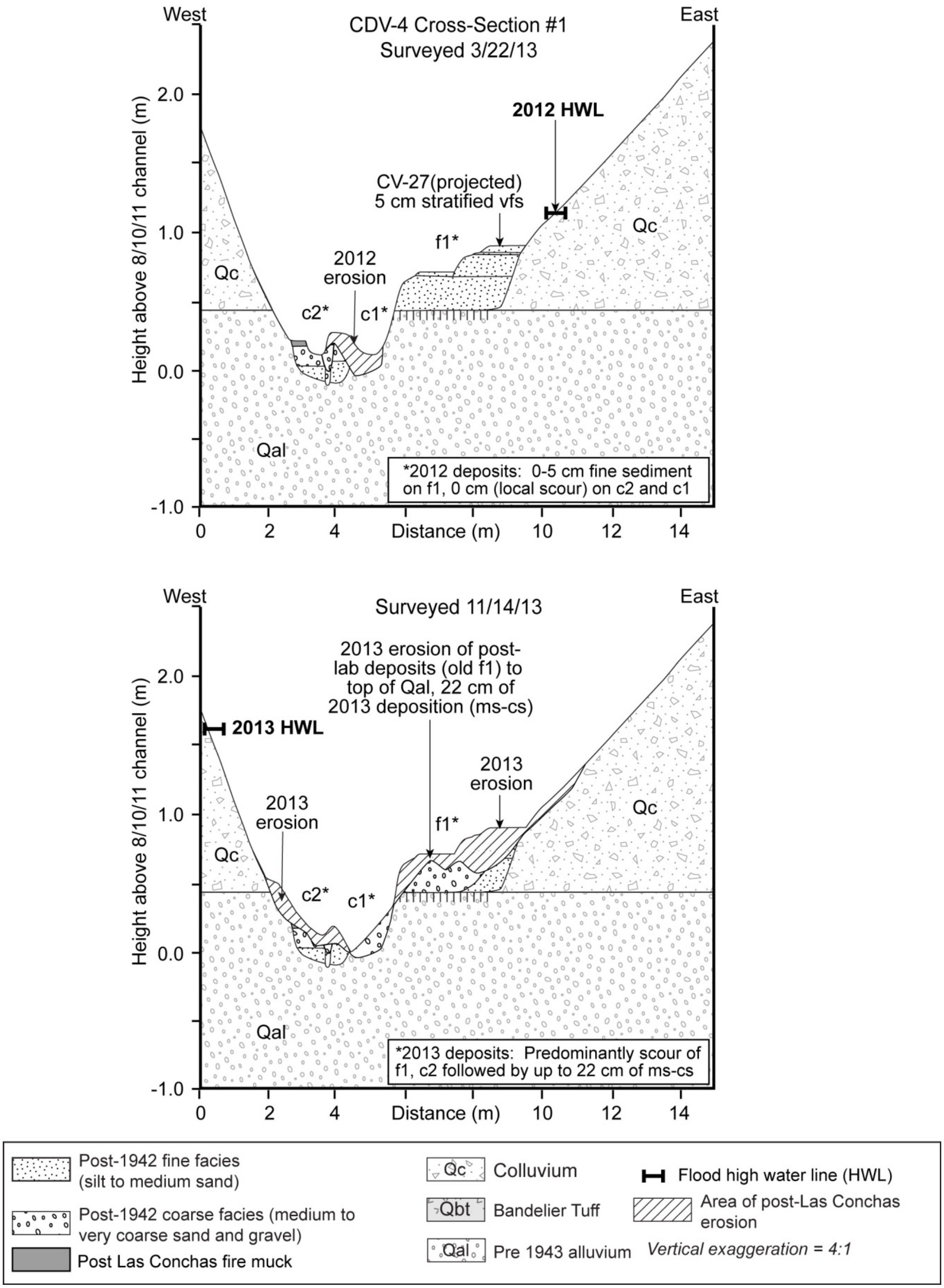


Figure 2.2-7 Geomorphic cross-sections showing 2012 and 2013 erosion and deposition in reach CDV-4

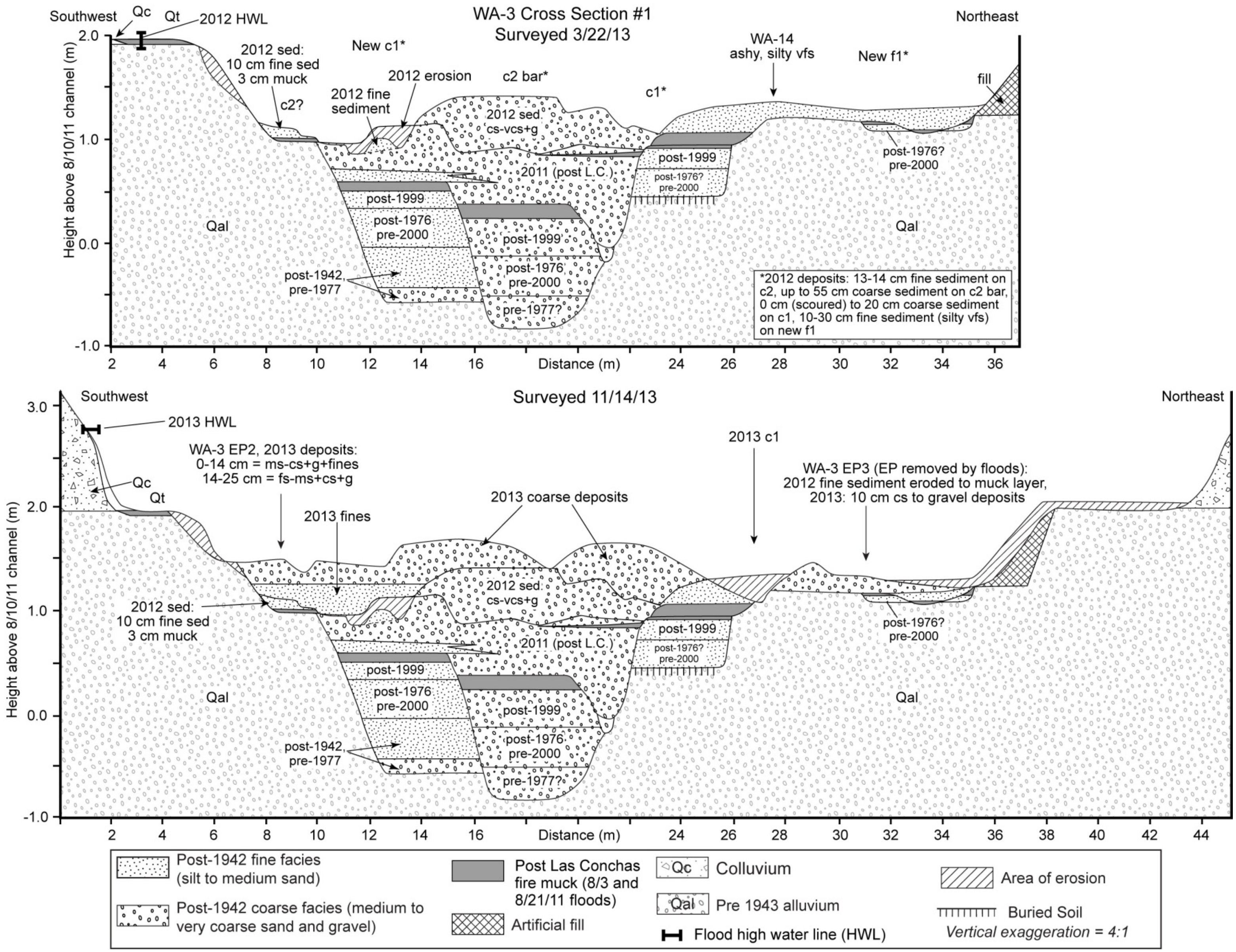


Figure 2.2-8 Geomorphic cross-sections showing 2012 and 2013 erosion and deposition in reach WA-3

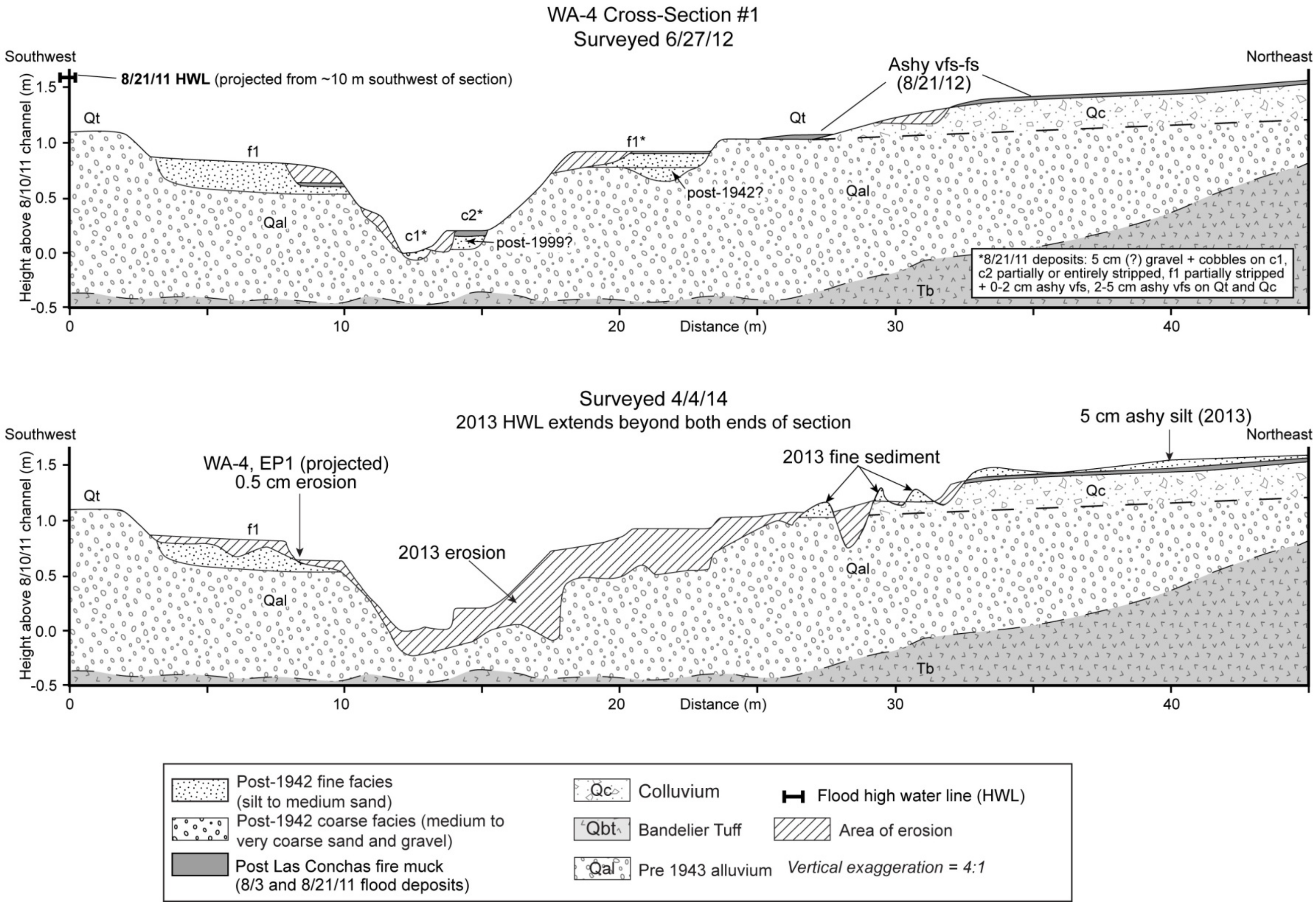


Figure 2.2-9 Geomorphic cross-sections showing 2011 and 2013 erosion and deposition in reach WA-3 at WA-4 cross-section #1, upstream part of reach

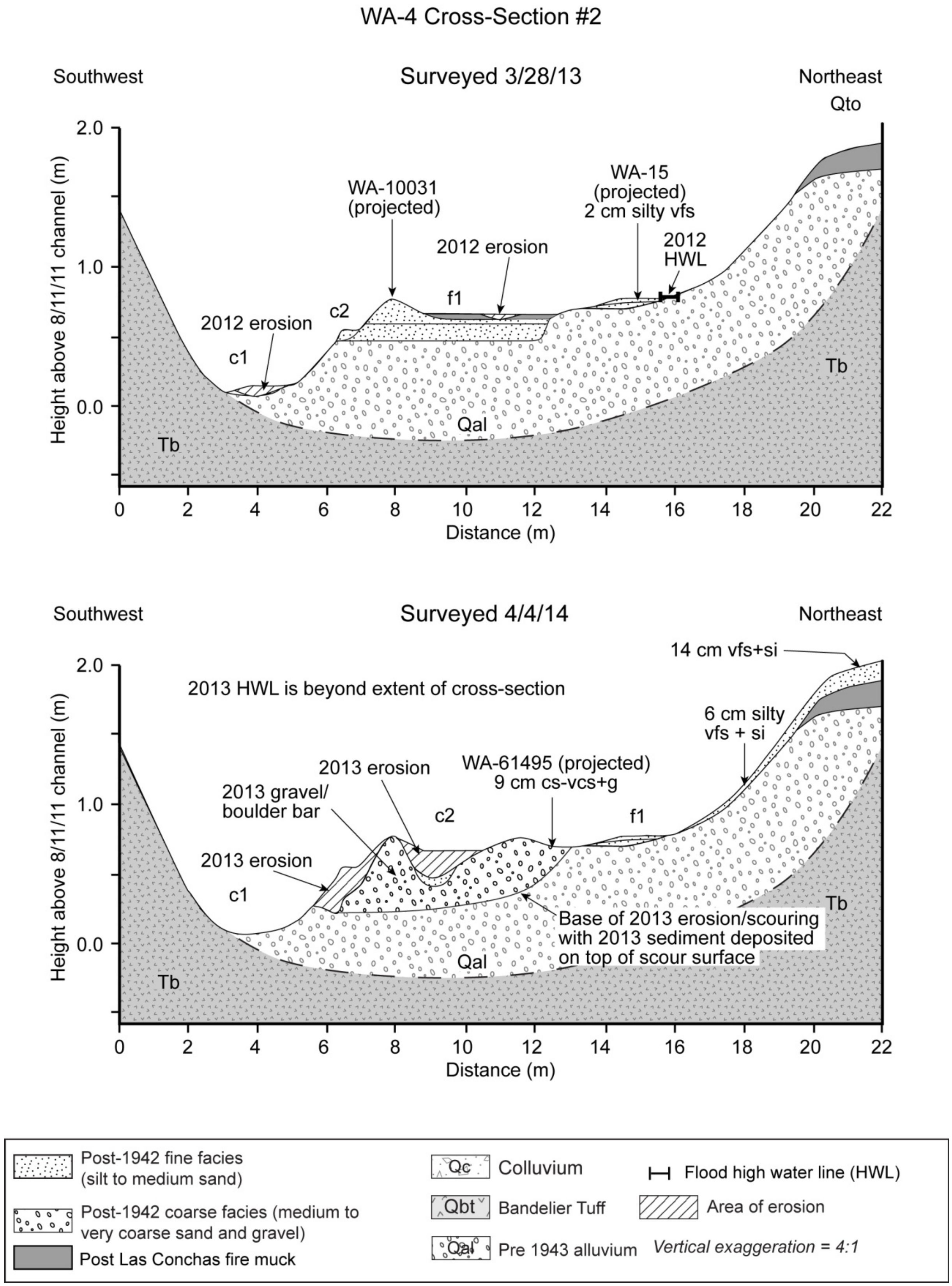
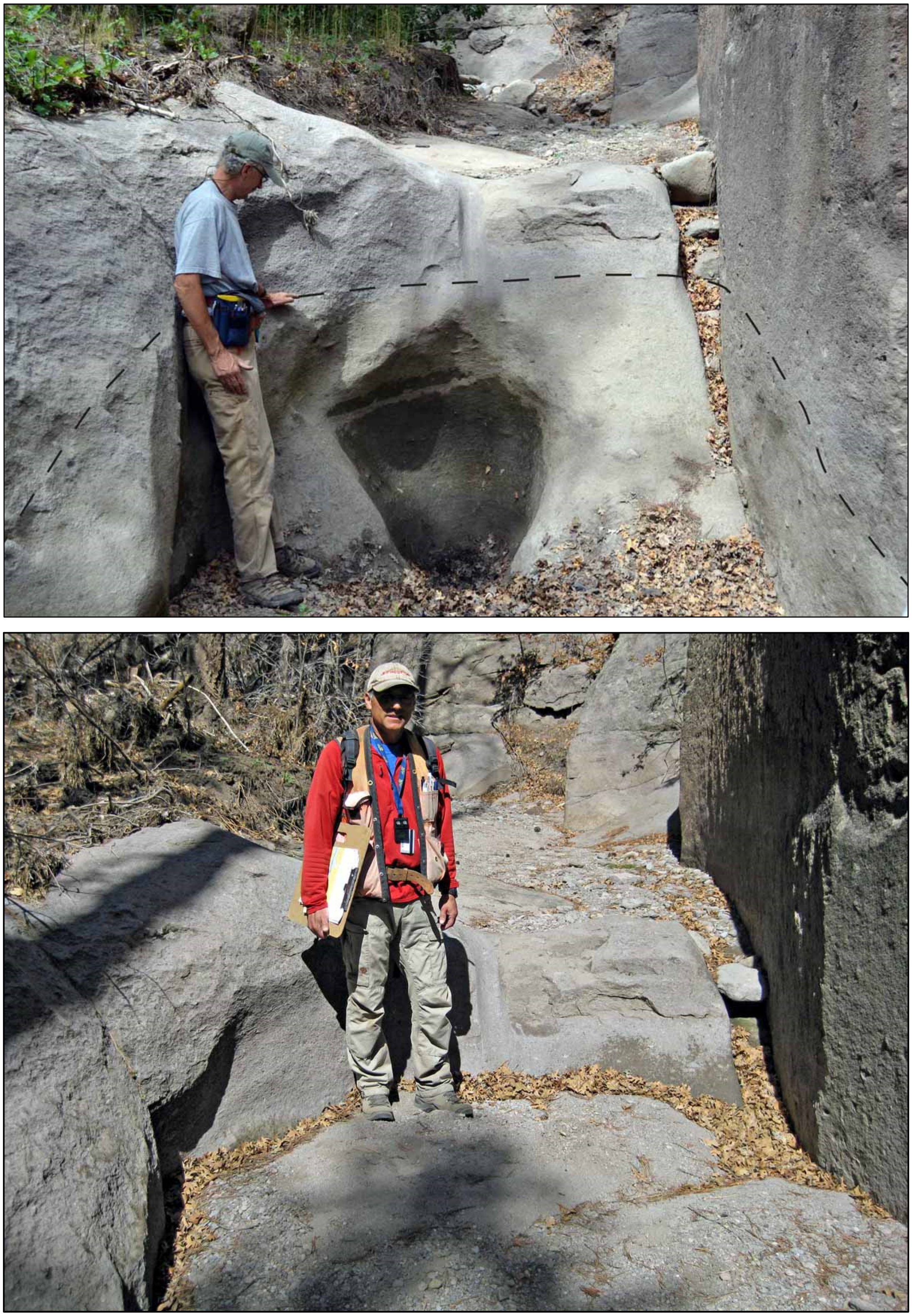


Figure 2.2-10 Geomorphic cross-sections showing 2012 and 2013 erosion and deposition in reach WA-3 at WA-4 cross-section #2, downstream part of reach



Note: Dashed line and coloration change on bedrock surface in upper photograph shows pre-flood sediment thickness.

Figure 3.2-1 Repeat photographs of former c1 surface in reach CDV-3: (a) scoured to bedrock by August 21, 2011 (b) aggraded to approximate pre-August 21, 2011, surface as of November 2013

Figure 3.2-2 March 2014 photograph of 2013 gravel bar deposited on a former f1 floodplain surface in reach CDV-2E

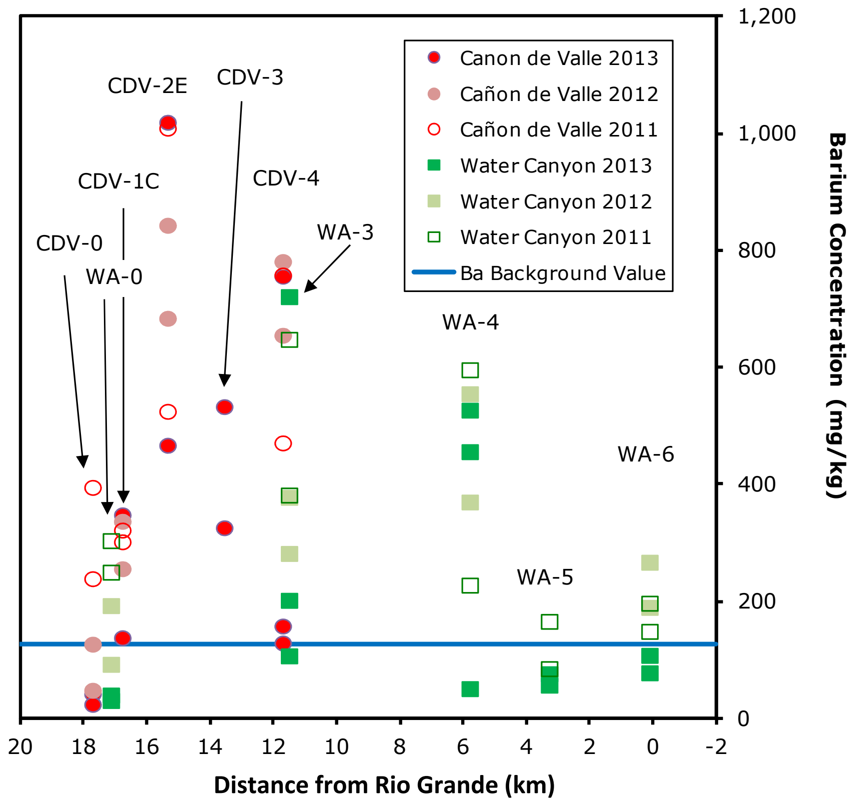
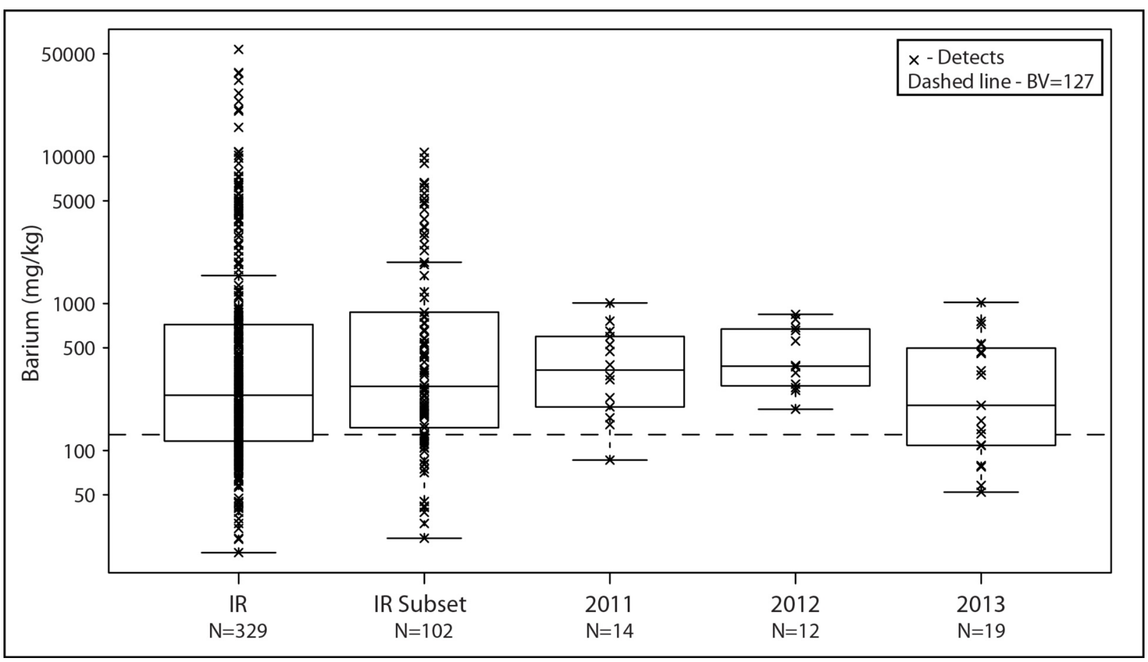


Figure 3.3-1 Post-fire barium concentrations as a function of distance from Rio Grande



Notes: Dashed line is the barium sediment BV. The box plots include the 25th percentile, the median, and the 75th percentile. The 10th and 90th percentiles are shown as lines above and below the boxes.

Figure 3.3-2 Barium concentrations in the Water Canyon and Cañon de Valle IR, a subset of those IR data, including only the reaches sampled in subsequent years, 2013, 2012, and 2011 sediment samples

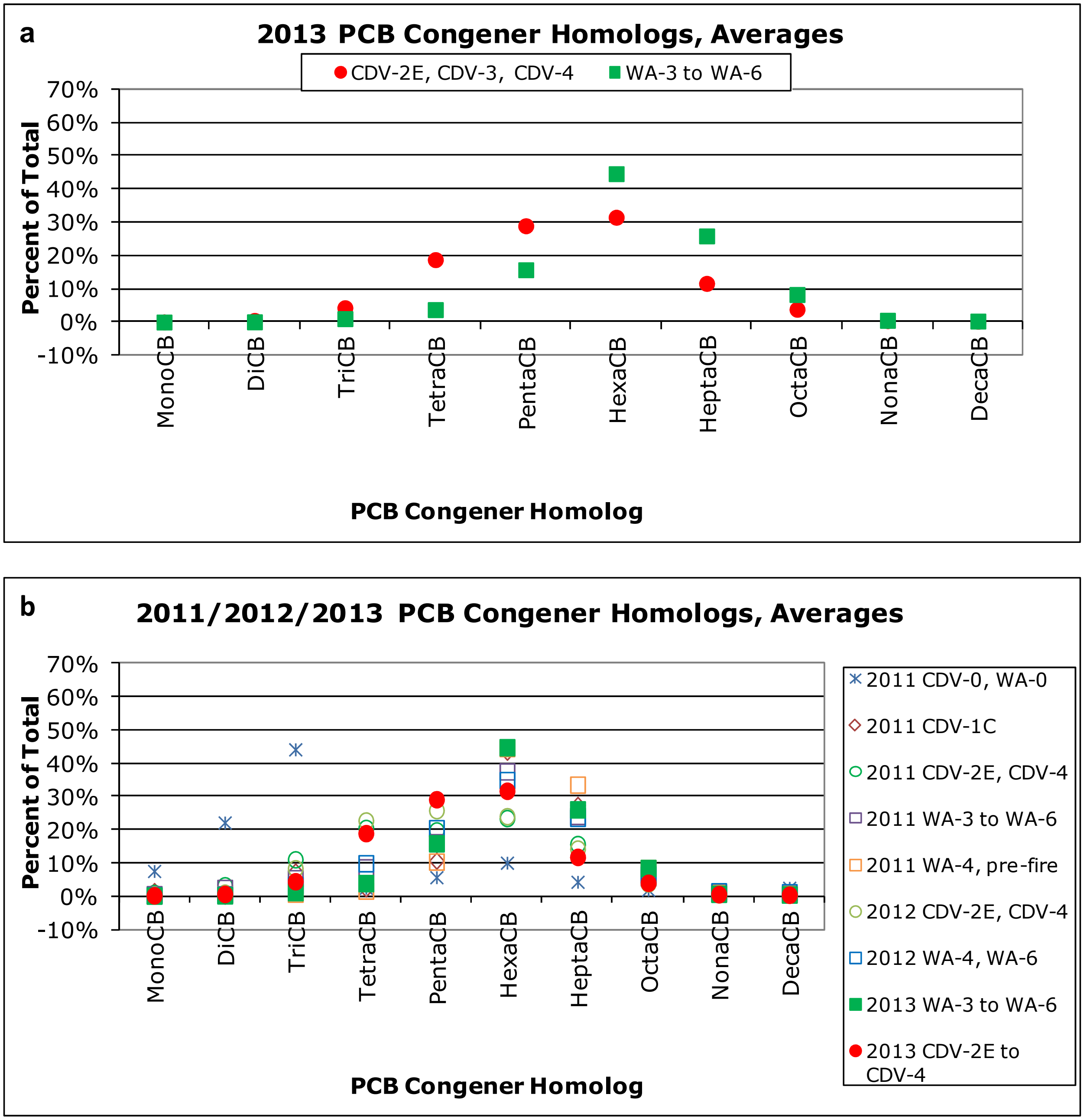


Figure 3.3-3 Plots of PCB congener homologs averages in (a) 2013 samples collected downstream from solid waste management units and areas of concern in the Water Canyon and Cañon de Valle watershed; and (b) 2011, 2012, and 2013 samples collected downstream from sites in the Water Canyon and Cañon de Valle watershed

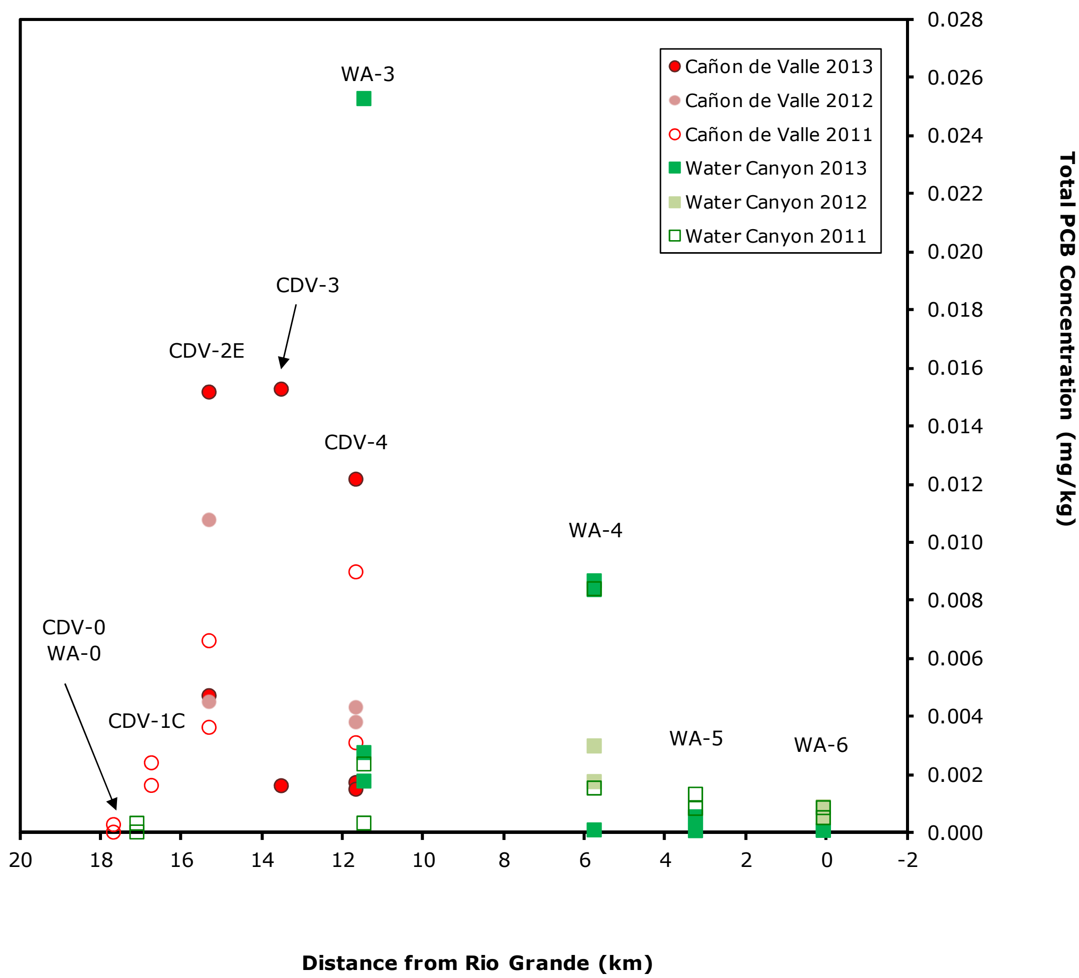
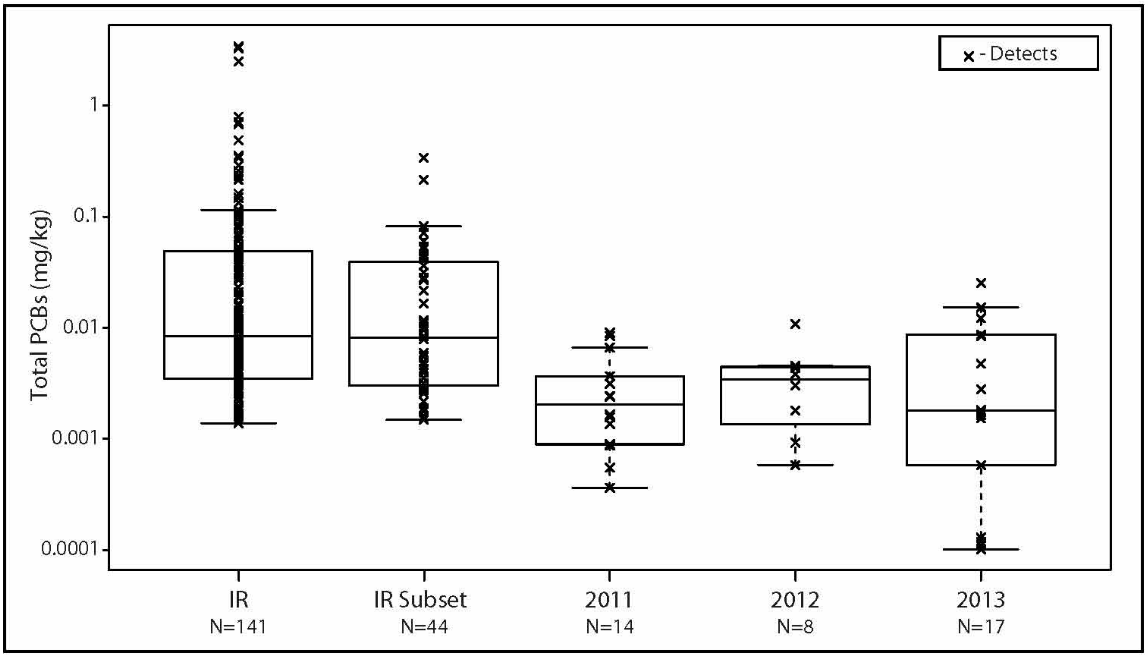
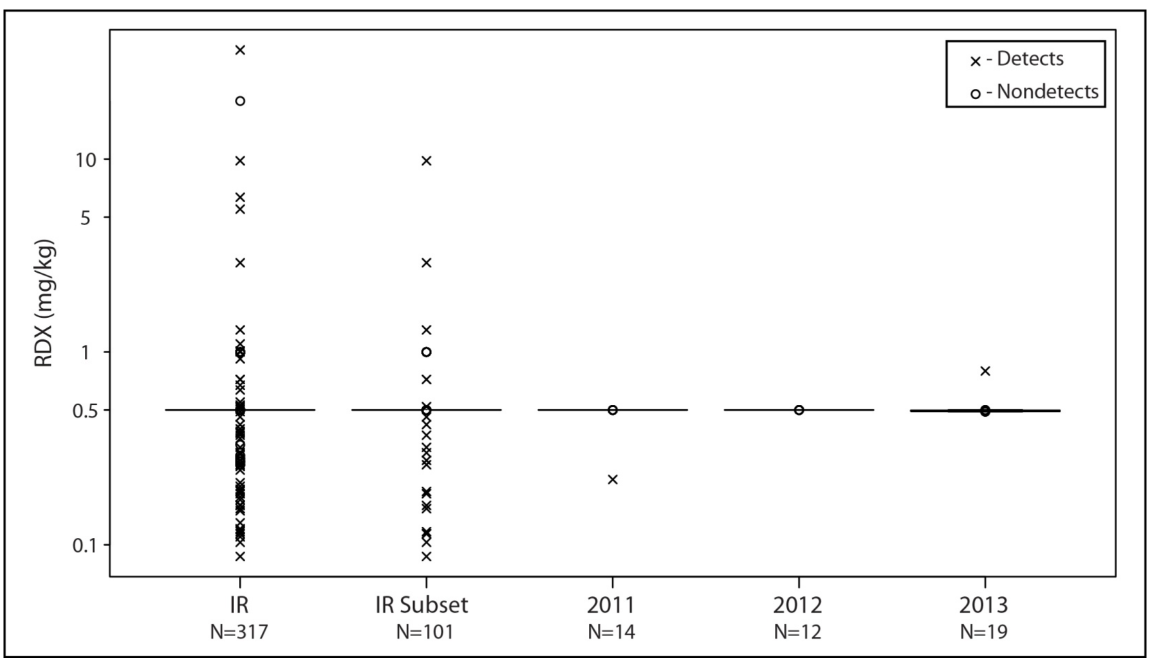


Figure 3.3-4 Post-fire total PCB concentrations as a function of distance from the Rio Grande



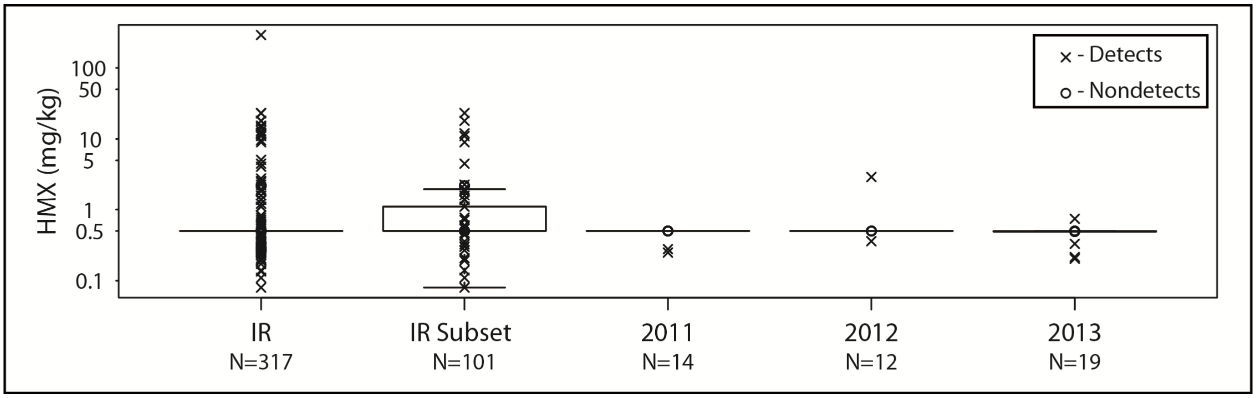
Notes: The box plots include the 25th percentile, the median, and the 75th percentile. The 10th and 90th percentiles are shown as lines above and below the boxes.

Figure 3.3-5 Total PCB concentrations in the Water Canyon and Cañon de Valle investigation report (Aroclor method), a subset of those IR data including only the reaches sampled in subsequent years (Aroclor method), 2013, 2012, and 2011 sediment samples



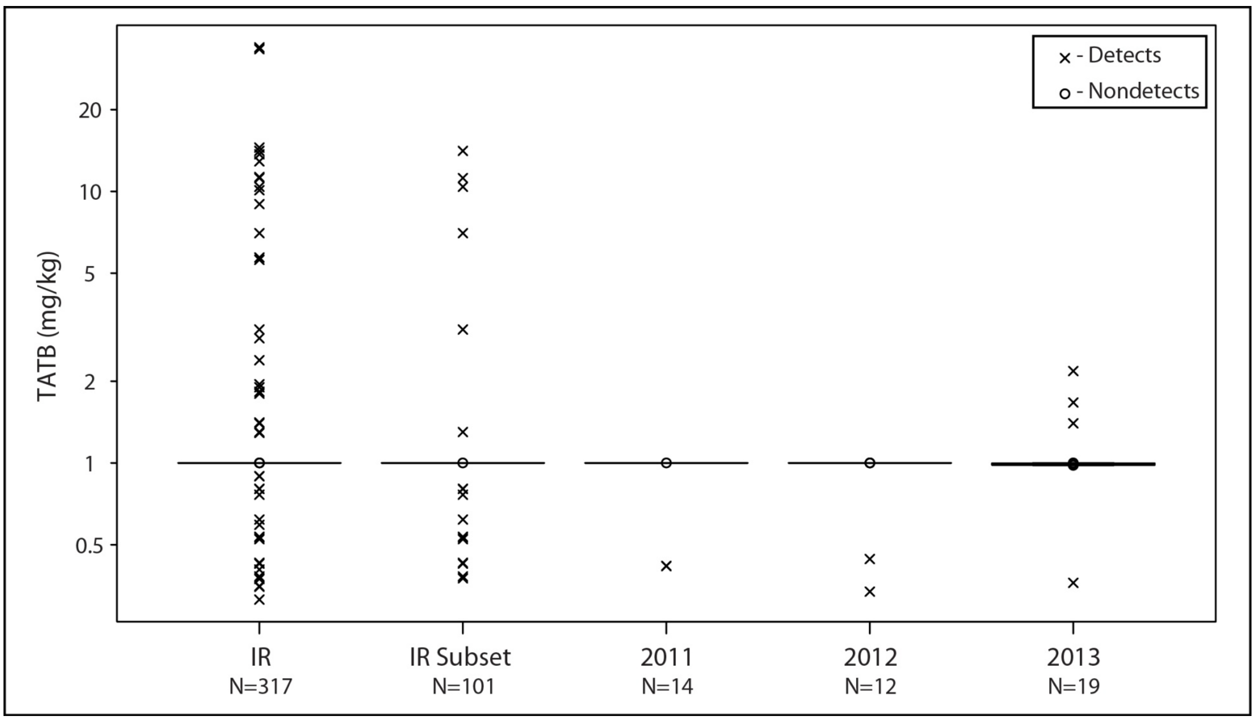
Notes: The box plots include the 25th percentile, the median, and the 75th percentile. The 10th and 90th percentiles are shown as lines above and below the boxes. Some of these data groups have a very compressed range and the box plots and lines overlap and appear to be a single thick line.

Figure 3.3-6 RDX concentrations in the Water Canyon and Cañon de Valle investigation report, a subset of those IR data including only the reaches sampled in subsequent years, 2013, 2012, and 2011 sediment samples



Notes: The box plots include the 25th percentile, the median, and the 75th percentile. The 10th and 90th percentiles are shown as lines above and below the boxes. Some of these data groups have a very compressed range and the box plots and lines overlap and appear to be a single thick line.

Figure 3.3-7 HMX concentrations in the Water Canyon and Cañon de Valle investigation report, a subset of those IR data including only the reaches sampled in subsequent years, 2013, 2012, and 2011 sediment samples



Notes: The box plots include the 25th percentile, the median, and the 75th percentile. The 10th and 90th percentiles are shown as lines above and below the boxes. Some of these data groups have a very compressed range and the box plots and lines overlap and appear to be a single thick line.

Figure 3.3-8 TATB concentrations in the Water Canyon and Cañon de Valle IR, a subset of those IR data, including only the reaches sampled in subsequent years, 2013, 2012, and 2011 sediment samples

Table 2.1-1
Summary of Sediment Samples Collected from the Water Canyon and Cañon de Valle Watershed and Analyses Requested in 2013

Sample ID	Reach	Location ID	Geomorphic Unit	Depth (cm)	Media	Sediment Facies	Explosive Compounds	Target Analyte List Metals	PCB Congeners (EPA Method 1668A)	Particle Size
CACV-14-49240	CDV-0	CV-61487	f1	0–5	Sediment	coarse	X[a]	X	—[b]	X
CACV-14-49241	CDV-0	CV-61488	f1	0–6	Sediment	coarse	X	X	—	X
CACV-14-49242	CDV-1C	CV-61489	f1	0–3	Sediment	fine	X	X	—	X
CACV-14-49243	CDV-1C	CV-61490	c1	0–10	Sediment	coarse	X	X	—	X
CACV-14-49256	CDV-2E	CV-61491	f1	0–5	Sediment	fine	X	X	X	X
CACV-14-49257	CDV-2E	CV-61492	c2	0–14	Sediment	fine	X	X	X	X
CACV-14-49258	CDV-3	CV-61493	c3	0–15	Sediment	coarse	X	X	X	X
CACV-14-49259	CDV-3	CV-61494	f2	0–20	Sediment	coarse	X	X	X	X
CACV-14-49260	CDV-4	CV-61485	f1	0–22	Sediment	coarse	X	X	X	X
CACV-14-49261	CDV-4	CV-61486	f1	0–8	Sediment	fine	X	X	X	X
CACV-14-49262	CDV-4	CV-61486	f1	8–31	Sediment	coarse	X	X	X	X
CAWA-14-49265	WA-0	WA-61492	c1b	0–10	Sediment	coarse	X	X	—	X
CAWA-14-49266	WA-0	WA-61493	c1	0–10	Sediment	coarse	X	X	—	X
CAWA-14-49297	WA-3	WA-61489	c3	0–55	Sediment	coarse	X	X	X	X
CAWA-14-49298	WA-3	WA-61490	Qt/f1	0–10	Sediment	fine	X	X	X	X
CAWA-14-49271	WA-3	WA-61491	Qt/f1	0–6	Sediment	fine	X	X	X	X
CAWA-14-49272	WA-4	WA-61494	f1	0–4	Sediment	fine	X	X	X	X
CAWA-14-49273	WA-4	WA-61495	f1	0–9	Sediment	coarse	X	X	X	X
CAWA-14-49274	WA-4	WA-61496	f1	0–2	Sediment	fine	X	X	X	X
CAWA-14-49275	WA-5	WA-61497	f1	0–8	Sediment	fine	X	X	X	X
CAWA-14-49276	WA-5	WA-61498	c1b	0–8	Sediment	fine	X	X	X	X
CAWA-14-49277	WA-6	WA-61499	f1	0–7	Sediment	fine	X	X	X	X
CAWA-14-49278	WA-6	WA-61499	f1	7–17	Sediment	fine	X	X	X	X

[a] X = Analysis requested.

[b] — = Analysis not requested.

Table 2.1-2
Particle-Size Data from 2013 Water Canyon and Cañon de Valle Watershed Sediment Samples

Sample ID	Reach	Location ID	Depth (cm)	Geomorphic Unit	Gravel; > 2 mm (weight %)[a]	Very Coarse Sand; 2.0–1.0 mm (weight %)	Coarse Sand; 1.0–0.5 mm (weight %)	Medium Sand; 0.5–0.25 mm (weight %)	Fine Sand; 0.25–0.125 mm (weight %)	Very Fine Sand; 0.125–0.0625 mm (weight %)	Coarse Silt; 62.5-15 µm (weight %)	Fine Silt; 15-2 µm (weight %)	Clay; <2 µm (weight %)	Median Particle Size Class[b]	% Silt + Clay
CACV-14-49240	CDV-0	CV-61487	0–5	f1	4.50	8.38	24.24	31.84	16.55	7.58	6.89	2.15	2.43	ms	11.47
CACV-14-49241	CDV-0	CV-61488	0–6	f1	0.77	6.61	36.07	37.25	11.76	3.08	1.92	0.69	2.45	ms	5.06
CACV-14-49242	CDV-1C	CV-61489	0–3	f1	0.64	0.76	9.50	23.93	15.62	9.26	16.99	10.68	13.30	vfs	40.97
CACV-14-49243	CDV-1C	CV-61490	0–10	c1	3.17	10.81	41.49	27.17	6.08	1.83	3.43	3.61	5.68	cs	12.72
CACV-14-49256	CDV-2E	CV-61491	0–5	f1	0.36	0.57	5.67	16.49	19.99	16.90	24.98	7.37	8.16	vfs	40.52
CACV-14-49257	CDV-2E	CV-61492	0–14	c2	3.47	8.92	31.84	36.71	10.24	2.86	3.24	2.31	3.91	ms	9.46
CACV-14-49258	CDV-3	CV-61493	0–15	c3	5.59	15.98	35.54	30.40	9.42	2.24	2.02	1.47	2.90	cs	6.39
CACV-14-49259	CDV-3	CV-61494	0–20	f2	2.29	7.14	27.29	34.91	13.22	4.51	4.78	3.06	5.08	ms	12.92
CACV-14-49260	CDV-4	CV-61485	0–22	f1	11.18	20.25	43.88	22.98	6.13	1.42	1.92	1.05	2.32	cs	5.30
CACV-14-49261	CDV-4	CV-61486	0–8	f1	0.07	2.69	3.89	5.14	10.70	17.53	40.77	12.40	6.70	csi	59.87
CACV-14-49262	CDV-4	CV-61486	8–31	f1	20.46	34.22	36.09	16.08	5.75	1.91	2.29	1.72	1.91	cs	5.91
CAWA-14-49265	WA-0	WA-61492	0–10	c1b	0.14	1.88	20.78	42.32	20.06	5.80	4.58	2.31	2.02	ms	8.91
CAWA-14-49266	WA-0	WA-61493	0–10	c1	27.69	25.92	26.15	19.31	12.18	6.08	5.92	1.79	2.53	cs	10.24
CAWA-14-49271	WA-3	WA-61491	0–6	Qt/f1	0.13	0.09	0.97	6.39	12.64	17.92	42.13	9.48	10.40	csi	62.00
CAWA-14-49297	WA-3	WA-61489	0–55	c3	6.04	25.98	43.25	18.92	3.71	1.31	2.56	1.91	2.15	cs	6.62
CAWA-14-49298	WA-3	WA-61490	0–10	Qt/f1	0.02	0.21	6.39	43.87	24.69	10.59	7.96	2.61	3.62	ms	14.19
CAWA-14-49272	WA-4	WA-61494	0–4	f1	3.79	5.65	3.96	6.45	7.87	16.54	36.18	11.76	11.43	csi	59.37
CAWA-14-49273	WA-4	WA-61495	0–9	f1	4.96	30.26	45.21	13.51	2.82	2.09	0.77	1.14	3.79	cs	5.69
CAWA-14-49274	WA-4	WA-61496	0–2	f1	0.49	0.06	0.37	0.53	2.03	15.48	56.16	14.29	11.12	csi	81.57
CAWA-14-49275	WA-5	WA-61497	0–8	f1	0.14	1.10	6.77	22.89	29.37	19.34	13.86	2.45	4.19	fs	20.49
CAWA-14-49276	WA-5	WA-61498	0–8	c1b	0.47	3.63	18.21	35.86	22.65	8.85	5.85	1.42	3.47	ms	10.74
CAWA-14-49277	WA-6	WA-61499	0–7	f1	0.91	1.52	7.54	19.39	24.01	20.89	16.96	3.33	6.28	fs	26.57
CAWA-14-49278	WA-6	WA-61499	7–17	f1	0.26	2.26	24.54	38.15	15.81	6.63	5.84	2.19	4.52	ms	12.55

[a] Gravel weight % calculated before sieving and is not included in weight % of sieved sand/silt/clay fractions.

[b] cs = Coarse sand; ms = medium sand; fs = fine sand; vfs = very fine sand; csi = coarse silt.

Table 2.1-3
Inorganic Chemicals above Sediment BVs in 2013 Water Canyon and Cañon de Valle Watershed Sediment Samples

Sample ID	Reach	Location ID	Depth (cm)	Media	Antimony	Barium	Cadmium	Calcium	Cobalt	Copper	Iron	Manganese	Nickel	Selenium	Silver
Sediment BV[a]					**0.83**	**127**	**0.4**	**4420**	**4.73**	**11.2**	**13800**	**543**	**9.38**	**0.3**	**1**
Recreational SSL[b]					**248**	**124000**	**465**	**na[c]**	**186**	**24800**	**433000**	**14800**	**12400**	**3100**	**3100**
Residential SSL[d]					**31.3**	**15600**	**70.3**	**na**	**23[e]**	**3130**	**54800**	**1860**	**1560**	**391**	**391**
CACV-14-49240	CDV-0	CV-61487	0–5	Sediment	0.97 (U)	—[f]	0.485 (U)	—	—	—	—	—	—	0.871 (U)	—
CACV-14-49241	CDV-0	CV-61488	0–6	Sediment	0.905 (U)	—	0.453 (U)	—	—	—	16100	—	—	0.962 (U)	—
CACV-14-49242	CDV-1C	CV-61489	0–3	Sediment	1.11 (U)	349	—	—	—	32.5	—	—	83.2	1.03 (U)	36.3
CACV-14-49243	CDV-1C	CV-61490	0–10	Sediment	1.03 (U)	139	0.516 (U)	—	—	11.9	—	—	46.8	0.937 (U)	5.02
CACV-14-49256	CDV-2E	CV-61491	0–5	Sediment	1.17 (U)	1020	—	—	—	13	—	—	10.8	1.12 (U)	2.35
CACV-14-49257	CDV-2E	CV-61492	0–14	Sediment	1.01 (U)	468	0.505 (U)	—	—	—	—	—	—	1.02 (U)	—
CACV-14-49258	CDV-3	CV-61493	0–15	Sediment	1.01 (U)	327	0.505 (U)	—	—	—	—	—	—	0.924 (U)	—
CACV-14-49259	CDV-3	CV-61494	0–20	Sediment	0.937 (U)	534	0.469 (U)	—	—	—	—	—	—	1.03 (U)	—
CACV-14-49260	CDV-4	CV-61485	0–22	Sediment	0.994 (U)	130 (J+)	—	—	—	27.2 (J—)	—	—	—	1.03 (U)	—
CACV-14-49261	CDV-4	CV-61486	0–8	Sediment	—	757	—	—	—	—	—	—	—	1.37 (U)	1.27
CACV-14-49262	CDV-4	CV-61486	8–31	Sediment	1.01 (U)	159	0.503 (U)	—	—	—	—	—	—	1.02 (U)	—
CAWA-14-49265	WA-0	WA-61492	0–10	Sediment	1.01 (U)	—	0.505 (U)	—	—	—	—	—	—	0.956 (U)	—
CAWA-14-49266	WA-0	WA-61493	0–10	Sediment	1.02 (U)	—	0.511 (U)	—	—	—	—	—	—	1.03 (U)	—
CAWA-14-49297	WA-3	WA-61489	0–55	Sediment	1.04 (U)	—	0.522 (U)	—	—	—	—	—	—	1.09 (U)	—
CAWA-14-49298	WA-3	WA-61490	0–10	Sediment	1.07 (U)	203	—	—	—	—	—	—	—	1.09 (U)	—
CAWA-14-49271	WA-3	WA-61491	0–6	Sediment	1.65 (U)	722	—	—	—	12.8	—	549	—	1.68 (U)	1.03
CAWA-14-49272	WA-4	WA-61494	0–4	Sediment	1.24 (U)	457	0.622 (U)	4890	—	—	—	571	—	1.11 (U)	—
CAWA-14-49273	WA-4	WA-61495	0–9	Sediment	0.929 (U)	—	0.465 (U)	—	—	—	—	—	—	0.967 (U)	—
CAWA-14-49274	WA-4	WA-61496	0–2	Sediment	1.01 (U)	528	0.503 (U)	—	—	—	—	—	—	0.926 (U)	1.22
CAWA-14-49275	WA-5	WA-61497	0–8	Sediment	1.04 (U)	—	—	—	—	—	—	—	—	0.965 (U)	—
CAWA-14-49276	WA-5	WA-61498	0–8	Sediment	1 (U)	—	—	—	—	—	—	—	—	0.926 (U)	—
CAWA-14-49277	WA-6	WA-61499	0–7	Sediment	1.04 (U)	—	0.522 (U)	—	5.79 (J)	—	—	—	—	1 (U)	—
CAWA-14-49278	WA-6	WA-61499	7–17	Sediment	1.03 (U)	—	0.514 (U)	—	—	—	—	—	—	1.04 (U)	—

Notes: Units are mg/kg. U = The analyte was analyzed for but not detected. J = The analyte was positively identified, and the associated numerical value is estimated to be more uncertain than would normally be expected for that analysis. J- = The analyte was positively identified, and the result is likely to be biased low.

[a] BVs from LANL (1998, 059730).

[b] SSLs from LANL (2012, 228733).

[c] na = Not available.

[d] SSLs from NMED (2012, 219971).

[e] SSL from U.S. Environmental Protection Agency (EPA) regional tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm).

[f] — = Not detected or not detected above BV.

Table 2.1-4
Organic Chemicals Detected in 2013 Water Canyon and Cañon de Valle Watershed Sediment Samples

Sample ID	Reach	Location ID	Depth (cm)	Media	HMX	PCB-1	PCB-103	PCB-105	PCB-107	PCB-108/PCB-124	PCB-11	PCB-110/PCB-115	PCB-114	PCB-118	PCB-12/PCB-13	PCB-120	PCB-122	PCB-123
Recreational SSLs[a]					**31000**	**na[b]**	**na**	**4.88**	**na**	**na**	**na**	**na**	**4.88**	**4.88**	**na**	**na**	**na**	**4.88**
Residential SSLs[c]					**3910**	**na**	**na**	**1.14**	**na**	**na**	**na**	**na**	**1.14**	**1.14**	**na**	**na**	**na**	**1.14**
CACV-14-49256	CDV-2E	CV-61491	0–5	Sediment	0.744	1.19e-006 (J)	1.9e-006 (J)	0.000214	2.69E-05	1.65E-05	3.86e-006 (J)	0.000522	9.52E-06	0.000364	7.28e-006 (J)	—[d]	—	9.46E-06
CACV-14-49257	CDV-2E	CV-61492	0–14	Sediment	0.204 (J)	—	7.64e-007 (J)	9.74E-05	1.13E-05	7.02E-06	—	0.000252	3.70E-06	0.00015	2.42e-006 (J)	—	—	4.01E-06
CACV-14-49258	CDV-3	CV-61493	0–15	Sediment	—	—	—	2.93E-05	3.77e-006 (J)	2.85e-006 (J)	—	0.00011	7.95e-007 (J)	5.21E-05	—	—	—	1.27e-006 (J)
CACV-14-49259	CDV-3	CV-61494	0–20	Sediment	0.33 (J)	—	3.85e-006 (J)	0.000144	2.36E-05	2.26E-05	1.42e-005 (J)	0.00143	3.77e-006 (J)	0.000327	5.64E-05	—	—	1.08E-05
CACV-14-49260	CDV-4	CV-61485	0–22	Sediment	—	—	—	1.73E-05	3.04e-006 (J)	3.06e-006 (J)	4.56e-006 (J)	0.000148	—	4.31E-05	—	—	—	1.13e-006 (J)
CACV-14-49261	CDV-4	CV-61486	0–8	Sediment	0.214 (J)	4.85e-006 (J)	1.81e-006 (J)	0.0002	2.87E-05	1.92E-05	2.63e-005 (J)	0.000676	8.12E-06	0.000348	3.15E-05	—	—	9.40E-06
CACV-14-49262	CDV-4	CV-61486	8–31	Sediment	—	—	—	2.02E-05	2.78e-006 (J)	2.32e-006 (J)	—	9.48E-05	—	4.17E-05	—	—	—	9.19e-007 (J)
CAWA-14-49297	WA-3	WA-61489	0–55	Sediment	—	—	—	2.76E-05	3.44e-006 (J)	2.85e-006 (J)	2.52e-006 (J)	8.81E-05	7.84e-007 (J)	5.38E-05	—	—	—	9.54e-007 (J)
CAWA-14-49298	WA-3	WA-61490	0–10	Sediment	—	—	—	2.84E-05	3.98E-06	3.34e-006 (J)	2.59e-006 (J)	0.000148	6.98e-007 (J)	6.17E-05	1.16e-006 (J)	—	—	1.12e-006 (J)
CAWA-14-49271	WA-3	WA-61491	0–6	Sediment	0.214 (J)	5.42E-06	3.95e-006 (J)	0.000262	4.56E-05	3.92E-05	6.22e-006 (J)	0.00151	9.53E-06	0.000641	5.77e-006 (J)	1.35e-006 (J)	3.47e-006 (J)	1.39E-05
CAWA-14-49272	WA-4	WA-61494	0–4	Sediment	—	—	6.78e-007 (J)	5.60E-05	8.80E-06	6.69E-06	2.44e-006 (J)	0.000286	1.92E-06	0.000138	2.85e-006 (J)	—	—	2.58E-06
CAWA-14-49273	WA-4	WA-61495	0–9	Sediment	—	—	—	—	—	—	—	2.83e-006 (J)	—	—	—	—	—	—
CAWA-14-49274	WA-4	WA-61496	0–2	Sediment	—	—	—	5.71E-05	8.09E-06	5.83E-06	2.61e-006 (J)	0.000242	1.44e-006 (J)	0.000131	2.61e-006 (J)	—	—	2.49E-06
CAWA-14-49275	WA-5	WA-61497	0–8	Sediment	—	—	—	2.33E-06	—	—	—	3.86E-06	—	2.92e-006 (J)	—	—	—	—
CAWA-14-49276	WA-5	WA-61498	0–8	Sediment	—	—	—	—	—	—	—	4.92E-06	—	1.93e-006 (J)	—	—	—	—
CAWA-14-49277	WA-6	WA-61499	0–7	Sediment	—	—	—	3.48E-06	—	—	2.54e-006 (J)	1.86E-05	—	7.82E-06	—	—	—	—
CAWA-14-49278	WA-6	WA-61499	7–17	Sediment	—	—	—	—	—	—	2.4e-006 (J)	3.54e-006 (J)	—	—	—	—	—	—

Table 2.1-4 (continued)

Sample ID	Reach	Location ID	Depth (cm)	Media	PCB-126	PCB-128/PCB-166	PCB-129/PCB-138/PCB-163	PCB-130	PCB-131	PCB-132	PCB-133	PCB-134	PCB-135/PCB-151	PCB-136	PCB-137	PCB-139/PCB-140	PCB-141	PCB-144
Recreational SSLs[a]					**0.00146**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**
Residential SSLs[c]					**0.000341**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**
CACV-14-49256	CDV-2E	CV-61491	0–5	Sediment	2.10E-06	7.08E-05	0.000778	2.83E-05	5.21E-06	0.00021	6.35E-06	2.33E-05	0.000246	7.23E-05	1.33E-05	4.74E-06	0.000171	3.00E-05
CACV-14-49257	CDV-2E	CV-61492	0–14	Sediment	7.67e-007 (J)	2.44E-05	0.000216	9.71E-06	1.66e-006 (J)	5.89E-05	1.63e-006 (J)	9.93E-06	6.78E-05	2.16E-05	7.01E-06	2.09e-006 (J)	3.78E-05	7.79E-06
CACV-14-49258	CDV-3	CV-61493	0–15	Sediment	—	1.82E-05	0.000126	6.30E-06	1.09e-006 (J)	3.67E-05	8.64e-007 (J)	5.52E-06	3.31E-05	1.12E-05	4.68E-06	-	2.00E-05	3.91E-06
CACV-14-49259	CDV-3	CV-61494	0–20	Sediment	—	0.000268	0.00169	0.0001	2.10E-05	0.000553	1.69E-05	8.18E-05	0.000391	0.00016	9.47E-05	2.57E-05	0.000254	4.92E-05
CACV-14-49260	CDV-4	CV-61485	0–22	Sediment	—	2.92E-05	0.000192	1.10E-05	2.28E-06	6.45E-05	1.86e-006 (J)	7.51E-06	4.88E-05	1.64E-05	8.71E-06	2.86e-006 (J)	2.90E-05	6.39E-06
CACV-14-49261	CDV-4	CV-61486	0–8	Sediment	2.55E-06	9.65E-05	0.000679	3.66E-05	7.25E-06	0.000208	6.28E-06	2.48E-05	0.000187	5.52E-05	2.91E-05	8.32E-06	0.000115	2.25E-05
CACV-14-49262	CDV-4	CV-61486	8–31	Sediment	—	2.99E-05	0.000182	1.02E-05	1.44e-006 (J)	4.81E-05	1.51e-006 (J)	6.32E-06	3.91E-05	1.09E-05	7.91E-06	1.9e-006 (J)	2.63E-05	5.12E-06
CAWA-14-49297	WA-3	WA-61489	0–55	Sediment	—	2.74E-05	0.000228	1.12E-05	1.75e-006 (J)	5.90E-05	2.07E-06	5.71E-06	5.35E-05	1.44E-05	8.00E-06	1.93e-006 (J)	3.66E-05	6.26E-06
CAWA-14-49298	WA-3	WA-61490	0–10	Sediment	—	3.42E-05	0.000303	1.41E-05	2.49E-06	8.80E-05	2.75E-06	8.81E-06	8.75E-05	2.51E-05	8.84E-06	2.54e-006 (J)	5.33E-05	9.95E-06
CAWA-14-49271	WA-3	WA-61491	0–6	Sediment	5.15E-06	0.000328	0.00271	0.000133	2.49E-05	0.000814	2.64E-05	0.000111	0.000778	0.000231	9.44E-05	2.61E-05	0.000492	9.13E-05
CAWA-14-49272	WA-4	WA-61494	0–4	Sediment	2.03E-06	6.34E-05	0.000747	2.98E-05	4.37E-06	0.000215	8.06E-06	2.57E-05	0.000304	7.52E-05	1.26E-05	4.04E-06	0.000168	2.92E-05
CAWA-14-49273	WA-4	WA-61495	0–9	Sediment	—	—	1.77E-05	—	—	3.31E-06	—	—	4.85E-06	1.14e-006 (J)	—	—	3.14e-006 (J)	—
CAWA-14-49274	WA-4	WA-61496	0–2	Sediment	1.5e-006 (J)	6.05E-05	0.000732	2.68E-05	4.34E-06	0.000211	7.34E-06	2.40E-05	0.0003	7.75E-05	1.09E-05	3.53e-006 (J)	0.000172	2.93E-05
CAWA-14-49275	WA-5	WA-61497	0–8	Sediment	—	1.54e-006 (J)	1.60E-05	—	—	2.39E-06	—	—	2.77e-006 (J)	8.11e-007 (J)	—	—	1.52e-006 (J)	—
CAWA-14-49276	WA-5	WA-61498	0–8	Sediment	—	1.58e-006 (J)	1.78E-05	—	—	3.18E-06	—	—	3.93E-06	1.1e-006 (J)	—	—	2.27e-006 (J)	—
CAWA-14-49277	WA-6	WA-61499	0–7	Sediment	—	6.11E-06	6.91E-05	2.57E-06	—	1.59E-05	—	1.36e-006 (J)	1.81E-05	4.30E-06	—	—	1.12E-05	1.75e-006 (J)
CAWA-14-49278	WA-6	WA-61499	7–17	Sediment	—	1.4e-006 (J)	1.43E-05	—	—	2.46E-06	—	—	3.12e-006 (J)	7.42e-007 (J)	—	—	1.7e-006 (J)	—

Table 2.1-4 (continued)

Sample ID	Reach	Location ID	Depth (cm)	Media	PCB-146	PCB-147/PCB-149	PCB-15	PCB-152	PCB-153/PCB-168	PCB-154	PCB-155	PCB-156/PCB-157	PCB-158	PCB-159	PCB-16	PCB-162	PCB-164	PCB-167
Recreational SSLs[a]					**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**4.88**
Residential SSLs[c]					**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**1.14**
CACV-14-49256	CDV-2E	CV-61491	0–5	Sediment	8.71E-05	0.000527	1.97E-05	—	0.000698	2.16E-06	1.64e-006 (J)	7.09E-05	6.33E-05	—	1.63E-05	—	5.24E-05	2.54E-05
CACV-14-49257	CDV-2E	CV-61492	0–14	Sediment	2.31E-05	0.000159	1.16e-005 (J)	—	0.000179	9.04e-007 (J)	7.9e-007 (J)	1.98E-05	1.74E-05	—	1.53E-05	—	1.29E-05	7.19E-06
CACV-14-49258	CDV-3	CV-61493	0–15	Sediment	1.30E-05	8.22E-05	2.89e-006 (J)	—	9.35E-05	—	—	1.12E-05	1.04E-05	9.45e-007 (J)	1.97e-006 (J)	—	8.47E-06	4.77E-06
CACV-14-49259	CDV-3	CV-61494	0–20	Sediment	0.000185	0.00102	4.78e-005 (J)	—	0.00109	7.93e-006 (J)	—	0.000112	0.00014	8.97e-006 (J)	8.17e-006 (J)	5.23e-006 (J)	0.000109	6.73E-05
CACV-14-49260	CDV-4	CV-61485	0–22	Sediment	2.02E-05	0.000125	—	—	0.000132	8.1e-007 (J)	—	1.26E-05	1.58E-05	—	—	—	1.32E-05	7.10E-06
CACV-14-49261	CDV-4	CV-61486	0–8	Sediment	7.25E-05	0.000457	4.20E-05	—	0.000509	2.91E-06	2.51E-06	5.74E-05	5.58E-05	—	3.82E-05	1.71e-006 (J)	4.50E-05	2.40E-05
CACV-14-49262	CDV-4	CV-61486	8–31	Sediment	1.81E-05	0.000103	—	—	0.000118	—	—	2.44E-05	1.60E-05	—	—	—	1.30E-05	9.97E-06
CAWA-14-49297	WA-3	WA-61489	0–55	Sediment	2.54E-05	0.00014	—	—	0.000176	—	—	1.82E-05	1.73E-05	—	1.09e-006 (J)	—	1.47E-05	8.22E-06
CAWA-14-49298	WA-3	WA-61490	0–10	Sediment	3.49E-05	0.000219	2.45e-006 (J)	—	0.000242	8.52e-007 (J)	—	2.01E-05	2.21E-05	—	—	—	2.07E-05	1.07E-05
CAWA-14-49271	WA-3	WA-61491	0–6	Sediment	0.000324	0.002	9.35e-006 (J)	6.86e-007 (J)	0.00216	9.08E-06	2.09E-06	0.000218	0.000217	—	8.01E-06	5.58E-06	0.000184	0.000105
CAWA-14-49272	WA-4	WA-61494	0–4	Sediment	0.0001	0.000634	2.8e-006 (J)	—	0.000731	1.82e-006 (J)	—	6.03E-05	5.11E-05	—	1.89e-006 (J)	—	5.44E-05	2.97E-05
CAWA-14-49273	WA-4	WA-61495	0–9	Sediment	2.03E-06	1.14E-05	—	—	1.68E-05	—	—	—	9.15e-007 (J)	—	—	—	1.12e-006 (J)	—
CAWA-14-49274	WA-4	WA-61496	0–2	Sediment	9.49E-05	0.000629	3.09e-006 (J)	—	0.000705	2.03E-06	2.81E-05	5.88E-05	5.00E-05	—	1.64e-006 (J)	—	5.36E-05	2.73E-05
CAWA-14-49275	WA-5	WA-61497	0–8	Sediment	1.61e-006 (J)	8.75E-06	—	—	1.29E-05	—	—	—	8.42e-007 (J)	—	—	—	9.87e-007 (J)	—
CAWA-14-49276	WA-5	WA-61498	0–8	Sediment	1.67e-006 (J)	1.04E-05	—	—	1.42E-05	—	—	—	1.09e-006 (J)	—	—	—	9.78e-007 (J)	—
CAWA-14-49277	WA-6	WA-61499	0–7	Sediment	7.96E-06	4.77E-05	—	—	5.94E-05	—	—	4.18E-06	4.43E-06	—	—	—	4.48E-06	2.29E-06
CAWA-14-49278	WA-6	WA-61499	7–17	Sediment	1.46e-006 (J)	9.10E-06	—	—	1.15E-05	—	—	—	8.82e-007 (J)	—	—	—	9.34e-007 (J)	—

Table 2.1-4 (continued)

Sample ID	Reach	Location ID	Depth (cm)	Media	PCB-169	PCB-17	PCB-170	PCB-171/PCB-173	PCB-172	PCB-174	PCB-175	PCB-176	PCB-177	PCB-178	PCB-179	PCB-18/PCB-30	PCB-180/PCB-193	PCB-181
Recreational SSLs[a]					**0.00488**	**na**	**1.46**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**
Residential SSLs[c]					**0.00114**	**na**	**0.341**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**
CACV-14-49256	CDV-2E	CV-61491	0–5	Sediment	—	2.70E-05	0.000386	0.000111	6.95E-05	0.000481	1.36E-05	3.88E-05	0.000251	7.66E-05	0.000147	6.12E-05	—	—
CACV-14-49257	CDV-2E	CV-61492	0–14	Sediment	—	1.83E-05	5.81E-05	1.73E-05	1.03E-05	7.61E-05	2.33E-06	7.47E-06	3.95E-05	1.42E-05	2.81E-05	3.92E-05	—	—
CACV-14-49258	CDV-3	CV-61493	0–15	Sediment	—	2.68e-006 (J)	3.13E-05	8.79E-06	5.09E-06	3.57E-05	1e-006 (J)	3.41E-06	1.93E-05	6.16E-06	1.28E-05	5.12E-06	—	—
CACV-14-49259	CDV-3	CV-61494	0–20	Sediment	—	1.18e-005 (J)	0.000269	7.78E-05	4.19E-05	0.000261	8.86e-006 (J)	2.58E-05	0.000146	4.22E-05	8.34E-05	2.31E-05	—	—
CACV-14-49260	CDV-4	CV-61485	0–22	Sediment	—	—	3.54E-05	9.69E-06	5.55E-06	3.08E-05	—	2.88E-06	1.93E-05	5.64E-06	1.09E-05	2.01e-006 (J)	—	—
CACV-14-49261	CDV-4	CV-61486	0–8	Sediment	—	4.10E-05	0.000162	4.20E-05	2.69E-05	0.000176	4.85E-06	1.51E-05	9.68E-05	3.18E-05	6.25E-05	9.78E-05	—	—
CACV-14-49262	CDV-4	CV-61486	8–31	Sediment	—	9.37e-007 (J)	5.61E-05	1.32E-05	7.95E-06	4.14E-05	1.14e-006 (J)	3.43E-06	2.41E-05	6.84E-06	1.20E-05	2.28e-006 (J)	—	—
CAWA-14-49297	WA-3	WA-61489	0–55	Sediment	—	1.23e-006 (J)	5.97E-05	1.55E-05	9.68E-06	5.83E-05	1.7e-006 (J)	4.95E-06	3.53E-05	1.11E-05	2.01E-05	2.63e-006 (J)	—	—
CAWA-14-49298	WA-3	WA-61490	0–10	Sediment	—	1.18e-006 (J)	0.0001	2.46E-05	1.60E-05	9.90E-05	2.67E-06	8.10E-06	5.60E-05	1.68E-05	3.20E-05	2.65e-006 (J)	—	—
CAWA-14-49271	WA-3	WA-61491	0–6	Sediment	2.99E-06	1.06E-05	0.000807	0.000209	0.000132	0.0008	2.31E-05	6.79E-05	0.000469	0.000149	0.000283	2.32E-05	—	4.50E-06
CAWA-14-49272	WA-4	WA-61494	0–4	Sediment	—	2.47e-006 (J)	0.00035	7.44E-05	5.50E-05	0.000309	7.55E-06	2.71E-05	0.000177	5.63E-05	0.000115	6.34E-06	0.000793	—
CAWA-14-49273	WA-4	WA-61495	0–9	Sediment	—	—	6.09E-06	1.31e-006 (J)	—	6.20E-06	—	—	3.43E-06	—	2.35E-06	—	1.45E-05	—
CAWA-14-49274	WA-4	WA-61496	0–2	Sediment	—	2.33e-006 (J)	0.000391	8.39E-05	5.68E-05	0.000341	8.31E-06	2.94E-05	0.000196	5.63E-05	0.000124	4.98E-06	0.000837	—
CAWA-14-49275	WA-5	WA-61497	0–8	Sediment	—	—	4.94E-06	—	—	5.32E-06	—	—	3.27E-06	—	1.61e-006 (J)	—	—	—
CAWA-14-49276	WA-5	WA-61498	0–8	Sediment	—	—	5.86E-06	—	—	6.26E-06	—	—	3.61E-06	—	1.96E-06	—	—	—
CAWA-14-49277	WA-6	WA-61499	0–7	Sediment	—	—	2.82E-05	6.56E-06	4.46E-06	2.69E-05	—	2.02E-06	1.70E-05	5.34E-06	8.57E-06	—	—	—
CAWA-14-49278	WA-6	WA-61499	7–17	Sediment	—	—	6.12E-06	1.36e-006 (J)	—	5.94E-06	—	—	3.78E-06	—	1.99E-06	—	—	—

Table 2.1-4 (continued)

Sample ID	Reach	Location ID	Depth (cm)	Media	PCB-182	PCB-183/PCB-185	PCB-184	PCB-187	PCB-189	PCB-19	PCB-190	PCB-191	PCB-194	PCB-195	PCB-196	PCB-197/PCB-200	PCB-198/PCB-199	PCB-2
Recreational SSLs[a]					**na**	**na**	**na**	**na**	**4.88**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**
Residential SSLs[c]					**na**	**na**	**na**	**na**	**1.14**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**
CACV-14-49256	CDV-2E	CV-61491	0–5	Sediment	—	0.000296	—	0.00055	1.08E-05	3.60E-06	8.07E-05	1.36E-05	0.000169	8.56E-05	0.000107	3.85E-05	0.000251	—
CACV-14-49257	CDV-2E	CV-61492	0–14	Sediment	—	4.82E-05	—	9.93E-05	2.06E-06	7.10E-06	1.22E-05	1.89e-006 (J)	3.33E-05	1.25E-05	1.56E-05	5.91E-06	3.98E-05	—
CACV-14-49258	CDV-3	CV-61493	0–15	Sediment	—	2.12E-05	—	4.08E-05	1.11e-006 (J)	—	6.50E-06	9.41e-007 (J)	2.09E-05	7.32E-06	8.58E-06	2.75e-006 (J)	2.05E-05	—
CACV-14-49259	CDV-3	CV-61494	0–20	Sediment	—	0.000159	—	0.000281	1.08E-05	—	5.22E-05	9.25e-006 (J)	9.59E-05	3.92E-05	4.23E-05	1.39e-005 (J)	0.000101	1.00E-05
CACV-14-49260	CDV-4	CV-61485	0–22	Sediment	—	1.27E-05	—	3.79E-05	1.2e-006 (J)	—	7.15E-06	1.12e-006 (J)	1.37E-05	5.61E-06	5.67E-06	1.69e-006 (J)	1.45E-05	—
CACV-14-49261	CDV-4	CV-61486	0–8	Sediment	—	8.42E-05	—	0.000219	5.11E-06	9.27E-06	3.44E-05	4.94E-06	8.41E-05	3.32E-05	3.45E-05	1.18E-05	8.97E-05	9.27E-06
CACV-14-49262	CDV-4	CV-61486	8–31	Sediment	—	2.24E-05	—	4.64E-05	2.18E-06	—	1.09E-05	1.67e-006 (J)	2.12E-05	7.81E-06	7.98E-06	2.36e-006 (J)	1.87E-05	—
CAWA-14-49297	WA-3	WA-61489	0–55	Sediment	—	2.70E-05	—	7.16E-05	2.00E-06	—	1.26E-05	1.88e-006 (J)	2.65E-05	1.12E-05	1.18E-05	—	2.87E-05	—
CAWA-14-49298	WA-3	WA-61490	0–10	Sediment	—	4.74E-05	—	0.000115	3.08E-06	—	2.04E-05	3.09E-06	4.26E-05	1.77E-05	1.88E-05	—	4.47E-05	—
CAWA-14-49271	WA-3	WA-61491	0–6	Sediment	1.26e-006 (J)	0.000442	—	0.000943	2.65E-05	3.44E-06	0.00017	2.54E-05	0.000318	0.000133	0.000142	—	0.000347	2.33E-06
CAWA-14-49272	WA-4	WA-61494	0–4	Sediment	—	0.000162	—	0.00037	1.20E-05	—	7.68E-05	1.01E-05	0.000183	7.51E-05	7.04E-05	2.01E-05	0.000172	—
CAWA-14-49273	WA-4	WA-61495	0–9	Sediment	—	3.17e-006 (J)	—	7.33E-06	—	—	1.17e-006 (J)	—	3.37E-06	1.28e-006 (J)	1.27e-006 (J)	—	3.46e-006 (J)	—
CAWA-14-49274	WA-4	WA-61496	0–2	Sediment	—	0.000183	3.50E-06	0.000401	1.30E-05	—	8.52E-05	1.12E-05	0.000245	0.00011	0.0001	2.61E-05	0.000237	—
CAWA-14-49275	WA-5	WA-61497	0–8	Sediment	—	2.51e-006 (J)	—	6.87E-06	—	—	9.82e-007 (J)	—	3.23E-06	1.16e-006 (J)	1.2e-006 (J)	—	3.55e-006 (J)	—
CAWA-14-49276	WA-5	WA-61498	0–8	Sediment	—	3.19e-006 (J)	—	7.68E-06	—	—	1.16e-006 (J)	—	2.98E-06	1.08e-006 (J)	1.14e-006 (J)	—	3.16e-006 (J)	—
CAWA-14-49277	WA-6	WA-61499	0–7	Sediment	—	1.24E-05	—	3.36E-05	8.97e-007 (J)	—	5.91E-06	7.78e-007 (J)	1.33E-05	5.89E-06	5.33E-06	1.46e-006 (J)	1.44E-05	—
CAWA-14-49278	WA-6	WA-61499	7–17	Sediment	—	2.73e-006 (J)	—	7.83E-06	—	—	1.19e-006 (J)	—	3.42E-06	1.3e-006 (J)	1.26e-006 (J)	—	3.8e-006 (J)	—

Table 2.1-4 (continued)

Sample ID	Reach	Location ID	Depth (cm)	Media	PCB-20/PCB-28	PCB-201	PCB-202	PCB-203	PCB-205	PCB-206	PCB-207	PCB-208	PCB-209	PCB-21/PCB-33	PCB-22	PCB-25	PCB-26/PCB-29	PCB-27
Recreational SSLs[a]					**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**
Residential SSLs[c]					**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**
CACV-14-49256	CDV-2E	CV-61491	0–5	Sediment	0.000223	2.89E-05	4.15E-05	0.000145	7.90E-06	4.25E-05	7.06E-06	1.13E-05	1.45e-005 (J)	5.69E-05	5.25E-05	5.67E-06	1.60E-05	6.08E-06
CACV-14-49257	CDV-2E	CV-61492	0–14	Sediment	8.21E-05	4.16E-06	7.32E-06	2.33E-05	1.66e-006 (J)	1.13E-05	1.4e-006 (J)	2.72E-06	7.68E-06	2.73E-05	2.31E-05	3.26E-06	7.17E-06	3.94E-06
CACV-14-49258	CDV-3	CV-61493	0–15	Sediment	1.74e-005 (J)	1.76e-006 (J)	3.52E-06	1.27E-05	9.81e-007 (J)	9.67E-06	8.51e-007 (J)	2.70E-06	9.33E-06	6.41e-006 (J)	5.72E-06	7.35e-007 (J)	1.73e-006 (J)	—
CACV-14-49259	CDV-3	CV-61494	0–20	Sediment	7.61e-005 (J)	9.97E-06	1.99E-05	6.23E-05	4.94e-006 (J)	3.03E-05	3.62e-006 (J)	8.34e-006 (J)	1.97E-05	3.28e-005 (J)	2.43E-05	8.18e-006 (J)	1.51e-005 (J)	—
CACV-14-49260	CDV-4	CV-61485	0–22	Sediment	5.45e-006 (J)	1.03e-006 (J)	2.34E-06	8.80E-06	—	4.44E-06	—	—	3.50E-06	1.91e-006 (J)	9.8e-007 (J)	—	—	—
CACV-14-49261	CDV-4	CV-61486	0–8	Sediment	0.000288	7.87E-06	1.70E-05	5.52E-05	3.86E-06	2.93E-05	3.20E-06	7.97E-06	2.79E-05	8.37E-05	7.22E-05	9.88E-06	2.32E-05	7.31E-06
CACV-14-49262	CDV-4	CV-61486	8–31	Sediment	6.08e-006 (J)	1.5e-006 (J)	2.98E-06	1.23E-05	8.48e-007 (J)	6.06E-06	—	1.39e-006 (J)	5.53E-06	1.87e-006 (J)	1.1e-006 (J)	—	—	—
CAWA-14-49297	WA-3	WA-61489	0–55	Sediment	7.67e-006 (J)	2.32E-06	4.54E-06	1.78E-05	1.24e-006 (J)	6.18E-06	6.67e-007 (J)	1.21e-006 (J)	2.78E-06	3.73e-006 (J)	1.73e-006 (J)	—	—	—
CAWA-14-49298	WA-3	WA-61490	0–10	Sediment	1.03e-005 (J)	3.56E-06	6.78E-06	2.69E-05	2.02E-06	1.03E-05	9.8e-007 (J)	2.28E-06	5.81E-06	3.74e-006 (J)	2.4e-006 (J)	—	—	—
CAWA-14-49271	WA-3	WA-61491	0–6	Sediment	5.82E-05	2.84E-05	5.48E-05	0.000206	1.50E-05	6.47E-05	7.44E-06	1.42E-05	2.72E-05	2.01E-05	1.77E-05	2.31E-06	5.95E-06	1.74e-006 (J)
CAWA-14-49272	WA-4	WA-61494	0–4	Sediment	1.44e-005 (J)	1.17E-05	3.08E-05	0.000102	8.20E-06	3.61E-05	3.56E-06	7.68E-06	1.52E-05	4.89e-006 (J)	4.78E-06	—	1.4e-006 (J)	—
CAWA-14-49273	WA-4	WA-61495	0–9	Sediment	—	—	—	1.99E-06	—	—	—	—	—	—	—	—	—	—
CAWA-14-49274	WA-4	WA-61496	0–2	Sediment	1.64e-005 (J)	1.62E-05	3.40E-05	0.000143	9.22E-06	4.29E-05	4.51E-06	8.92E-06	1.76E-05	5.27e-006 (J)	4.85E-06	—	1.53e-006 (J)	—
CAWA-14-49275	WA-5	WA-61497	0–8	Sediment	—	—	—	1.96E-06	—	2.56E-06	—	—	2.18E-06	—	—	—	—	—
CAWA-14-49276	WA-5	WA-61498	0–8	Sediment	—	—	—	1.78e-006 (J)	—	—	—	—	—	—	—	—	—	—
CAWA-14-49277	WA-6	WA-61499	0–7	Sediment	2.25e-006 (J)	9.36e-007 (J)	2.06E-06	8.27E-06	—	3.38E-06	—	7.88e-007 (J)	2.02E-06	—	—	—	—	—
CAWA-14-49278	WA-6	WA-61499	7–17	Sediment	—	—	—	2.20E-06	—	—	—	—	—	—	—	—	—	—

Table 2.1-4 (continued)

Sample ID	Reach	Location ID	Depth (cm)	Media	PCB-3	PCB-31	PCB-32	PCB-34	PCB-35	PCB-36	PCB-37	PCB-38	PCB-39	PCB-4	PCB-40/PCB-71	PCB-41	PCB-42	PCB-43
Recreational SSLs[a]					na	na	na	na	na	na	na	na	na	na	na	na	na	na
Residential SSLs[c]					na	na	na	na	na	na	na	na	na	na	na	na	na	na
CACV-14-49256	CDV-2E	CV-61491	0–5	Sediment	2.58E-06	0.000189	2.82E-05	—	5.55E-06	—	0.000112	1.92E-05	2.67e-006 (J)	4.20E-06	0.000226	3.61E-05	0.000147	1.26E-05
CACV-14-49257	CDV-2E	CV-61492	0–14	Sediment	1.66e-006 (J)	6.68E-05	1.55E-05	—	1.58e-006 (J)	—	3.87E-05	1.89e-006 (J)	—	3.57e-006 (J)	7.90E-05	1.13E-05	5.10E-05	4.83E-06
CACV-14-49258	CDV-3	CV-61493	0–15	Sediment	—	1.43E-05	1.64e-006 (J)	—	—	—	9.3e-006 (J)	—	—	—	1.18E-05	1.45e-006 (J)	7.95E-06	—
CACV-14-49259	CDV-3	CV-61494	0–20	Sediment	1.51E-05	6.35E-05	7.07e-006 (J)	—	1.35e-005 (J)	—	4.07e-005 (J)	—	3.48e-006 (J)	—	3.63E-05	—	2.52E-05	—
CACV-14-49260	CDV-4	CV-61485	0–22	Sediment	—	4.48e-006 (J)	—	—	—	—	2.53e-006 (J)	—	—	—	6.08E-06	—	3.80E-06	—
CACV-14-49261	CDV-4	CV-61486	0–8	Sediment	1.42E-05	0.000229	3.25E-05	8.98e-007 (J)	1.55E-05	1.96e-006 (J)	8.31E-05	2.32E-05	4.25E-06	1.04E-05	0.000183	2.23E-05	0.000111	1.37E-05
CACV-14-49262	CDV-4	CV-61486	8–31	Sediment	—	5e-006 (J)	—	—	—	—	3.22e-006 (J)	1.02e-006 (J)	—	—	4.62E-06	—	2.62E-06	—
CAWA-14-49297	WA-3	WA-61489	0–55	Sediment	—	6.62e-006 (J)	—	—	—	—	3.25e-006 (J)	7.34e-007 (J)	—	—	3.29e-006 (J)	—	2.17E-06	—
CAWA-14-49298	WA-3	WA-61490	0–10	Sediment	—	8.8e-006 (J)	9.29e-007 (J)	—	1.01e-006 (J)	—	8.25e-006 (J)	1.44e-006 (J)	—	—	5.82E-06	—	4.14E-06	—
CAWA-14-49271	WA-3	WA-61491	0–6	Sediment	4.12E-06	5.38E-05	8.06E-06	—	1.64e-006 (J)	—	2.41E-05	1.62E-05	—	4.18E-06	5.12E-05	4.71E-06	3.19E-05	3.65e-006 (J)
CAWA-14-49272	WA-4	WA-61494	0–4	Sediment	1.81e-006 (J)	1.41E-05	1.75e-006 (J)	—	—	—	6.52e-006 (J)	1.10E-05	—	—	1.26E-05	1.87e-006 (J)	9.91E-06	—
CAWA-14-49273	WA-4	WA-61495	0–9	Sediment	—	—	—	—	—	—	—	—	—	—	—	—	—	—
CAWA-14-49274	WA-4	WA-61496	0–2	Sediment	1.76e-006 (J)	1.36E-05	1.74e-006 (J)	—	—	—	8.31e-006 (J)	7.59E-06	—	—	1.17E-05	2.78E-06	9.17E-06	—
CAWA-14-49275	WA-5	WA-61497	0–8	Sediment	—	7.61e-007 (J)	—	—	—	—	—	6.21e-007 (J)	—	—	—	—	—	—
CAWA-14-49276	WA-5	WA-61498	0–8	Sediment	—	—	—	—	—	—	—	—	—	—	—	—	—	—
CAWA-14-49277	WA-6	WA-61499	0–7	Sediment	—	2.25e-006 (J)	—	—	—	—	—	9.4e-007 (J)	—	—	—	—	—	—
CAWA-14-49278	WA-6	WA-61499	7–17	Sediment	—	6.52e-007 (J)	—	—	—	—	—	1.85e-006 (J)	—	—	—	—	—	—

Table 2.1-4 (continued)

Sample ID	Reach	Location ID	Depth (cm)	Media	PCB-44/PCB-47/PCB-65	PCB-45/PCB-51	PCB-46	PCB-48	PCB-49/PCB-69	PCB-50/PCB-53	PCB-52	PCB-55	PCB-56	PCB-58	PCB-59/PCB-62/PCB-75	PCB-6	PCB-60	PCB-61/PCB-70/PCB-74/PCB-76
Recreational SSLs[a]					**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**
Residential SSLs[c]					**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**
CACV-14-49256	CDV-2E	CV-61491	0–5	Sediment	0.000572	—	1.44E-05	7.95E-05	0.000335	4.79E-05	0.000578	4.38E-06	0.000337	—	2.90E-05	2.14E-06	0.00014	0.00108
CACV-14-49257	CDV-2E	CV-61492	0–14	Sediment	0.000193	2.69E-05	7.82E-06	2.71E-05	0.000117	2.19E-05	0.000206	—	0.000114	—	9.20E-06	1.25e-006 (J)	4.79E-05	0.000312
CACV-14-49258	CDV-3	CV-61493	0–15	Sediment	3.35E-05	2.76e-006 (J)	8.42e-007 (J)	3.76E-06	2.16E-05	2.7e-006 (J)	3.70E-05	—	2.28E-05	—	—	—	9.43E-06	6.89E-05
CACV-14-49259	CDV-3	CV-61494	0–20	Sediment	0.00011	1.3e-005 (J)	4.26e-006 (J)	1.37E-05	7.26E-05	1.51e-005 (J)	0.000159	—	6.89E-05	—	—	—	2.95E-05	0.000235
CACV-14-49260	CDV-4	CV-61485	0–22	Sediment	1.82E-05	1.85e-006 (J)	—	1.11e-006 (J)	1.06E-05	1.9e-006 (J)	2.56E-05	—	8.05E-06	—	—	—	2.76e-006 (J)	2.80E-05
CACV-14-49261	CDV-4	CV-61486	0–8	Sediment	0.000459	4.06E-05	1.32E-05	7.27E-05	0.000282	3.39E-05	0.000473	3.91E-06	0.000234	1.56e-006 (J)	2.16E-05	8.95E-06	0.000105	0.000754
CACV-14-49262	CDV-4	CV-61486	8–31	Sediment	1.36E-05	—	—	1.06e-006 (J)	8.38E-06	—	1.69E-05	—	8.04E-06	—	—	—	3.2e-006 (J)	2.77E-05
CAWA-14-49297	WA-3	WA-61489	0–55	Sediment	9.63E-06	—	—	7.21e-007 (J)	6.39E-06	—	1.28E-05	—	6.17E-06	—	—	—	2.45e-006 (J)	2.10E-05
CAWA-14-49298	WA-3	WA-61490	0–10	Sediment	1.77E-05	1.71e-006 (J)	—	1.33e-006 (J)	1.16E-05	2.1e-006 (J)	2.53E-05	—	1.32E-05	—	—	—	5.42E-06	5.06E-05
CAWA-14-49271	WA-3	WA-61491	0–6	Sediment	—	—	4.99E-06	1.60E-05	0.000115	1.58E-05	0.000346	—	8.82E-05	—	5.93E-06	1.51e-006 (J)	3.55E-05	0.0004
CAWA-14-49272	WA-4	WA-61494	0–4	Sediment	4.14E-05	3.51e-006 (J)	8.46e-007 (J)	4.53E-06	2.69E-05	3.78e-006 (J)	5.09E-05	—	2.32E-05	—	—	—	9.56E-06	7.90E-05
CAWA-14-49273	WA-4	WA-61495	0–9	Sediment	—	—	—	—	—	—	—	—	—	—	—	—	—	—
CAWA-14-49274	WA-4	WA-61496	0–2	Sediment	4.03E-05	2.66e-006 (J)	8.55e-007 (J)	3.95E-06	2.60E-05	2.7e-006 (J)	5.01E-05	-	2.47E-05	—	—	—	1.03E-05	8.14E-05
CAWA-14-49275	WA-5	WA-61497	0–8	Sediment	—	—	—	—	—	—	—	—	1.27e-006 (J)	—	—	—	—	4.86e-006 (J)
CAWA-14-49276	WA-5	WA-61498	0–8	Sediment	—	—	—	—	—	—	—	—	—	—	—	—	—	—
CAWA-14-49277	WA-6	WA-61499	0–7	Sediment	3.34e-006 (J)	—	—	—	1.76e-006 (J)	-	4.33E-06	-	1.85e-006 (J)	—	—	—	—	8.99E-06
CAWA-14-49278	WA-6	WA-61499	7–17	Sediment	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Table 2.1-4 (continued)

Sample ID	Reach	Location ID	Depth (cm)	Media	PCB-63	PCB-64	PCB-66	PCB-67	PCB-68	PCB-7	PCB-72	PCB-73	PCB-77	PCB-78	PCB-79	PCB-8	PCB-81	PCB-82
Recreational SSLs[a]					**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**1.46**	**na**	**na**	**na**	**0.488**	**na**
Residential SSLs[c]					**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**0.341**	**na**	**na**	**na**	**0.114**	**na**
CACV-14-49256	CDV-2E	CV-61491	0–5	Sediment	1.35E-05	0.00022	0.000687	6.66E-06	1.39e-006 (J)	—	2.67e-006 (J)	5.78E-06	7.90E-05	—	5.13E-06	1.36e-005 (J)	2.96E-06	7.40E-05
CACV-14-49257	CDV-2E	CV-61492	0–14	Sediment	4.62e-006 (J)	8.11E-05	0.000217	2.34E-06	—	—	8.46e-007 (J)	—	2.59E-05	—	2.39e-006 (J)	8.17e-006 (J)	7.15e-007 (J)	3.40E-05
CACV-14-49258	CDV-3	CV-61493	0–15	Sediment	8.65e-007 (J)	1.26E-05	4.44E-05	—	—	—	—	—	6.28E-06	—	6.59e-007 (J)	1.74e-006 (J)	—	1.07E-05
CACV-14-49259	CDV-3	CV-61494	0–20	Sediment	3.71e-006 (J)	4.05E-05	0.000133	—	—	—	—	—	2.71E-05	—	1.03e-005 (J)	1.32e-005 (J)	—	8.80E-05
CACV-14-49260	CDV-4	CV-61485	0–22	Sediment	—	5.23E-06	1.62E-05	—	—	—	—	—	2.28E-06	—	6.68e-007 (J)	—	—	9.28E-06
CACV-14-49261	CDV-4	CV-61486	0–8	Sediment	1.15E-05	0.000187	0.000444	5.66E-06	1.23e-006 (J)	1.53e-006 (J)	2.22e-006 (J)	—	4.71E-05	7.86e-007 (J)	6.92E-06	4.28E-05	2.17E-06	7.73E-05
CACV-14-49262	CDV-4	CV-61486	8–31	Sediment	—	4.94E-06	1.60E-05	—	—	—	—	—	3.03E-06	—	—	—	—	6.70E-06
CAWA-14-49297	WA-3	WA-61489	0–55	Sediment	—	3.34E-06	1.23E-05	—	—	—	—	—	2.02E-06	—	—	4.09e-006 (J)	—	5.98E-06
CAWA-14-49298	WA-3	WA-61490	0–10	Sediment	—	6.35E-06	2.83E-05	—	—	—	—	—	6.32E-06	—	8.52e-007 (J)	1.35e-006 (J)	—	9.32E-06
CAWA-14-49271	WA-3	WA-61491	0–6	Sediment	4.31e-006 (J)	6.33E-05	0.000164	2.21E-06	—	—	8.03e-007 (J)	—	2.37E-05	—	6.83E-06	8.12e-006 (J)	7.37e-007 (J)	0.000102
CAWA-14-49272	WA-4	WA-61494	0–4	Sediment	8.16e-007 (J)	1.44E-05	4.26E-05	—	—	—	—	—	8.05E-06	—	1.44e-006 (J)	1.24e-006 (J)	—	1.69E-05
CAWA-14-49273	WA-4	WA-61495	0–9	Sediment	—	—	—	—	—	—	—	—	—	—	—	—	—	—
CAWA-14-49274	WA-4	WA-61496	0–2	Sediment	8.95e-007 (J)	1.42E-05	4.83E-05	—	—	—	—	—	8.80E-06	—	1.17e-006 (J)	1.51e-006 (J)	—	1.48E-05
CAWA-14-49275	WA-5	WA-61497	0–8	Sediment	—	—	2.93e-006 (J)	—	—	—	—	—	1.13e-006 (J)	—	—	—	—	—
CAWA-14-49276	WA-5	WA-61498	0–8	Sediment	—	—	—	—	—	—	—	—	—	—	—	—	—	—
CAWA-14-49277	WA-6	WA-61499	0–7	Sediment	—	1.09e-006 (J)	3.81e-006 (J)	—	—	—	—	—	—	—	—	—	—	1.02e-006 (J)
CAWA-14-49278	WA-6	WA-61499	7–17	Sediment	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Table 2.1-4 (continued)

Sample ID	Reach	Location ID	Depth (cm)	Media	PCB-83	PCB-84	PCB-85/PCB-116/PCB-117	PCB-86/87/97/109/119/125	PCB-88/PCB-91	PCB-89	PCB-9	PCB-90/PCB-101/PCB-113	PCB-92	PCB-93/PCB-100	PCB-94	PCB-95	PCB-96	PCB-98/PCB-102
Recreational SSLs[a]					**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**
Residential SSLs[c]					**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**
CACV-14-49256	CDV-2E	CV-61491	0–5	Sediment	2.80E-05	0.000114	0.000108	0.000366	6.61E-05	7.87E-06	—	0.000444	6.95E-05	3e-006 (J)	1.87e-006 (J)	0.000292	2.82E-06	1.65E-05
CACV-14-49257	CDV-2E	CV-61492	0–14	Sediment	1.08E-05	5.22E-05	5.18E-05	0.000159	3.15E-05	3.49E-06	—	0.00019	3.02E-05	—	7.78e-007 (J)	0.000132	1.29e-006 (J)	6.85E-06
CACV-14-49258	CDV-3	CV-61493	0–15	Sediment	4.26E-06	2.00E-05	1.71E-05	5.19E-05	1.12E-05	—	—	7.66E-05	1.31E-05	—	—	6.09E-05	—	1.5e-006 (J)
CACV-14-49259	CDV-3	CV-61494	0–20	Sediment	4.96E-05	0.000303	0.000141	0.000475	0.000157	6.04e-006 (J)	—	0.000768	0.000182	—	3.45e-006 (J)	0.000969	4.43e-006 (J)	2.35E-05
CACV-14-49260	CDV-4	CV-61485	0–22	Sediment	4.83E-06	2.99E-05	1.55E-05	5.90E-05	1.53E-05	—	—	0.000102	2.07E-05	—	—	0.000102	—	1.88e-006 (J)
CACV-14-49261	CDV-4	CV-61486	0–8	Sediment	2.71E-05	0.000136	0.000121	0.000381	7.84E-05	6.64E-06	2.50E-06	0.000487	8.40E-05	3.16e-006 (J)	2.05E-06	0.000374	2.46E-06	1.54E-05
CACV-14-49262	CDV-4	CV-61486	8–31	Sediment	3.28E-06	1.68E-05	1.06E-05	3.46E-05	8.99E-06	—	—	5.50E-05	1.14E-05	—	—	5.63E-05	—	—
CAWA-14-49297	WA-3	WA-61489	0–55	Sediment	2.47E-06	1.27E-05	9.75E-06	3.49E-05	7.04E-06	—	—	5.90E-05	1.03E-05	—	—	4.84E-05	—	—
CAWA-14-49298	WA-3	WA-61490	0–10	Sediment	4.84E-06	2.57E-05	1.55E-05	5.20E-05	1.41E-05	—	—	9.96E-05	1.86E-05	—	—	9.74E-05	—	1.53e-006 (J)
CAWA-14-49271	WA-3	WA-61491	0–6	Sediment	5.18E-05	0.000256	0.000171	0.000645	0.000138	5.64E-06	—	0.00113	0.000213	—	2.47E-06	0.000935	3.27E-06	1.68E-05
CAWA-14-49272	WA-4	WA-61494	0–4	Sediment	8.69E-06	3.74E-05	2.95E-05	0.000113	2.18E-05	8.64e-007 (J)	—	0.000259	4.20E-05	—	—	0.000197	—	3.13e-006 (J)
CAWA-14-49273	WA-4	WA-61495	0–9	Sediment	—	—	—	—	—	—	—	3.86e-006 (J)	—	—	—	2.93e-006 (J)	—	—
CAWA-14-49274	WA-4	WA-61496	0–2	Sediment	8.17E-06	3.03E-05	2.81E-05	0.000104	1.86E-05	7.76e-007 (J)	-	0.000232	3.56E-05	—	—	0.000171	—	2.72e-006 (J)
CAWA-14-49275	WA-5	WA-61497	0–8	Sediment	—	—	—	—	—	—	—	3.55e-006 (J)	—	—	—	2.07e-006 (J)	—	—
CAWA-14-49276	WA-5	WA-61498	0–8	Sediment	—	—	—	—	—	—	—	5.3e-006 (J)	—	—	—	3.45e-006 (J)	—	—
CAWA-14-49277	WA-6	WA-61499	0–7	Sediment	—	2.27E-06	2.23e-006 (J)	7.71e-006 (J)	1.39e-006 (J)	—	—	1.58E-05	2.53E-06	—	—	1.13E-05	—	—
CAWA-14-49278	WA-6	WA-61499	7–17	Sediment	—	—	—	—	—	—	—	2.98e-006 (J)	—	—	—	1.84e-006 (J)	—	—

Table 2.1-4 (continued)

Sample ID	Reach	Location ID	Depth (cm)	Media	PCB-99	RDX	TATB	Total PCB	Total decaCB	Total diCB	Total heptaCB	Total hexaCB	Total monoCB	Total nonaCB	Total octaCB	Total pentaCB	Total tetraCB	Total triCB	Trinitrotoluene[2,4,6-]
Recreational SSLs[a]					**na**	**425**	**16000[e]**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**310**
Residential SSLs[c]					**na**	**58.2**	**2200[e,f]**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**39.1**
CACV-14-49256	CDV-2E	CV-61491	0–5	Sediment	0.000248	0.796	2.18	0.0152	1.45E-05	5.08E-05	0.00253	0.00319	3.77E-06	6.08E-05	0.000874	0.00301	0.00467	0.000824	0.408 (J)
CACV-14-49257	CDV-2E	CV-61492	0–14	Sediment	0.000108	—	—	0.00475	7.68E-06	2.70E-05	0.000417	0.000888	1.66E-06	1.54E-05	0.000144	0.00134	0.00156	0.000351	—
CACV-14-49258	CDV-3	CV-61493	0–15	Sediment	3.70E-05	—	—	0.00165	9.33E-06	4.63E-06	0.000194	0.000492	—	1.32E-05	7.90E-05	0.000504	0.000289	6.71E-05	—
CACV-14-49259	CDV-3	CV-61494	0–20	Sediment	0.000324	0.154 (J)	—	0.0153	1.97E-05	0.000132	0.00147	0.00645	2.52E-05	4.23E-05	0.00039	0.00547	0.000998	0.000328	—
CACV-14-49260	CDV-4	CV-61485	0–22	Sediment	4.21E-05	—	—	0.00176	3.50E-06	—	0.00018	0.000747	—	4.44E-06	5.33E-05	0.000618	0.000132	1.74E-05	—
CACV-14-49261	CDV-4	CV-61486	0–8	Sediment	0.000262	—	1.4	0.0122	2.79E-05	0.000166	0.000966	0.0027	2.83E-05	4.04E-05	0.000337	0.00335	0.00353	0.00106	—
CACV-14-49262	CDV-4	CV-61486	8–31	Sediment	2.43E-05	—	—	0.00153	5.53E-06	—	0.00025	0.000674	—	7.45E-06	7.57E-05	0.000391	0.00011	2.15E-05	—
CAWA-14-49297	WA-3	WA-61489	0–55	Sediment	2.23E-05	—	—	0.00181	2.78E-06	4.09E-06	0.000331	0.000856	—	8.06E-06	0.000104	0.00039	8.23E-05	2.87E-05	—
CAWA-14-49298	WA-3	WA-61490	0–10	Sediment	3.79E-05	—	—	0.00279	5.81E-06	4.96E-06	0.000545	0.00121	—	1.36E-05	0.000163	0.000623	0.000181	4.07E-05	—
CAWA-14-49271	WA-3	WA-61491	0–6	Sediment	0.000427	—	1.67	0.0253	2.72E-05	2.89E-05	0.00455	0.0111	1.19E-05	8.64E-05	0.00124	0.00663	0.00139	0.000255	—
CAWA-14-49272	WA-4	WA-61494	0–4	Sediment	7.59E-05	—	0.362 (J)	0.0084	1.52E-05	6.89E-06	0.0026	0.00335	1.81E-06	4.73E-05	0.000673	0.00131	0.000335	6.96E-05	—
CAWA-14-49273	WA-4	WA-61495	0–9	Sediment	-	—	—	0.000129	—	—	4.56E-05	6.24E-05	—	—	1.14E-05	9.63E-06	—	—	—
CAWA-14-49274	WA-4	WA-61496	0–2	Sediment	6.90E-05	—	—	0.0087	1.76E-05	7.21E-06	0.00282	0.00331	1.76E-06	5.63E-05	0.000921	0.00116	0.00034	6.82E-05	—
CAWA-14-49275	WA-5	WA-61497	0–8	Sediment	1.49e-006 (J)	—	—	0.000119	2.18E-06	—	2.55E-05	5.01E-05	—	2.56E-06	1.11E-05	1.62E-05	1.02E-05	1.38E-06	—
CAWA-14-49276	WA-5	WA-61498	0–8	Sediment	1.73e-006 (J)	—	—	0.000115	—	—	2.97E-05	5.83E-05	—	—	1.01E-05	1.73E-05	—	—	—
CAWA-14-49277	WA-6	WA-61499	0–7	Sediment	5.15E-06	—	—	0.000581	2.02E-06	—	0.000153	0.000261	—	4.17E-06	5.17E-05	7.93E-05	2.52E-05	5.44E-06	—
CAWA-14-49278	WA-6	WA-61499	7–17	Sediment	—	—	—	0.000101	—	—	3.09E-05	4.75E-05	—	—	1.20E-05	8.36E-06	—	2.50E-06	—

Notes: Units are mg/kg. J = The analyte was positively identified, and the associated numerical value is estimated to be more uncertain than would normally be expected for that analysis.

[a] SSLs from LANL (2012, 228733).

[b] na = Not available.

[c] SSLs from NMED (2012, 219971).

[d] — = Not detected or not analyzed.

[e] SSL for 1,3,5-trinitrobenzene used as a surrogate based on structural similarity.

[f] SSL from EPA regional tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm).

Table 3.1-1
Estimated Flows at Surface Gaging Stations and Precipitation at Rain Gages during 2012 and 2013 Floods in the Water Canyon and Cañon de Valle Watershed

Date	E252[a]	E253[a]	E265[a]	Rain Gage RG-265[b]	Rain Gage RG-253[b]
Monsoon season maximum before 9/9/2013	183.3	17.2	0.3	1.0	0.7
9/9/2013	0.0	0.0	0.0	0.0	0.0
9/10/2013	0.0	6.4	0.0	1.5	—[c]
9/11/2013	0.0	0.0	0.0	0.0	—
9/12/2013	1.8	24.4	4.6	3.1	2.4
9/13/2013	429.3	308.7	400.0	1.3	2.6
9/14/2013	—	—	0.8	1.2	0.2
9/15/2013	—	—	0.0	0.0	0.0

[a] Maximum daily discharge values in cfs. Values either directly measured or estimated from high-water marks at individual stations.

[b] Daily total precipitation in inches.

[c] — = No data are available for E252 and E253 because these gaging stations were rendered inoperable following the September 13, 2013, flood event.

Appendix A

Analytical Data from 2013 Sediment Samples
from the Water Canyon and Cañon de Valle Watershed
(on CD included with this document)