

**Final Report**

**STORM RUNOFF IN LOS ANGELES  
AND VENTURA COUNTIES**

**TO**

**California Regional Water Quality Control Board  
Los Angeles Region  
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## SUMMARY

Forty-nine samples of runoff were collected from eight sites in Los Angeles and Ventura Counties on September 23-25, 1986, during the first rain after the dry season. Six sites were near the mouths of major storm channels and three were spread along the Los Angeles River, the largest source of gaged runoff in Southern California. Suspended solids, oil and grease, total extractable organics (TEO), trace metals, DDT, polychlorinated biphenyl compounds (PCBs), polycyclic aromatic hydrocarbons (PAHs), and *n*-alkanes were measured. Fifteen-minute flow data were obtained for most sites from the county flood control districts. Because the storm was unpredicted and so early in the rain season, samples were not taken as regularly as planned, but low-flow, high-flow, and post high-flow samples were taken at each site.

In general the highest contaminant concentrations occurred near the peak flows and not at the first increase in flow. With few exceptions the highest concentrations appeared at the channels with the greatest flows also making them the greatest sources of contaminant mass emissions.

The two Ventura sites showed minimal increases in flows, probably due to a limited amount of impermeable surface area and the dry status of the soils. The Santa Clara River samples had the highest suspended solids concentrations and DDT levels of any site, but the low volumes produced very low mass emissions.

Accurate flow measurements at the four Los Angeles County sites were obtained only for Ballona Creek and the three sites on the Los Angeles River. There was no gage on the Dominguez Channel and one of two gages required to determine the total flow for the San Gabriel River failed during the storm.

Flows from the Los Angeles River, Ballona Creek and the San Gabriel River were large; each exceeded the daily flow of the largest municipal wastewater treatment plant in the county. The runoff of the Los Angeles River at Willow Street and Ballona Creek had the highest mean concentrations of almost all contaminants. Concentrations of oil and grease, cadmium, chromium, copper, and nickel were similar to Hyperion 1985 five-mile effluent values, while lead, zinc, DDT, and PCB concentrations were higher.

Within the Los Angeles River system, runoff contaminant concentrations increased from the headwaters at Tujunga Wash through the mid-river site at the San Fernando Valley to the mouth near Long Beach. Most contaminants were below detectable limits at Tujunga Wash above any land development.

Downtown Los Angeles and the commercial and industrial area of south Los Angeles County added less than one-half the flow of the upstream drainage but three to five times the mass of contaminants.

Petroleum hydrocarbon characteristics in runoff were not very consistent within or between channels. However gas chromatograms for most samples contained unresolved complex mixtures (UCMs) humps characteristic of crankcase oil inputs. The relative abundances of polycyclic aromatic hydrocarbons (PAHs) in runoff samples at several sites indicated the input of unweathered petroleum and combustion by-products with the latter in greater amounts.

Previous studies found that the mean concentrations of contaminants in the Los Angeles River did not change much between 1971/72 and 1979/80, except for lead and PCBs. Our preliminary results for the Los Angeles River do not indicate much change since 1979 with the exception of a fourfold decrease in DDT concentrations.

## INTRODUCTION

This report is the result of a cooperative study with the Los Angeles Regional Water Quality Control Board to measure runoff contaminant concentrations and to estimate mass emissions during storm flow conditions at several important channels in Los Angeles and Ventura Counties. Three to ten samples were taken at each of seven sites (49 samples total) during a 48-h period in order to sample peak and decreasing flow stages. We measured concentrations of suspended solids, percent volatile solids, oil and grease, TEO, cadmium, chromium, copper, nickel, lead, zinc, DDT, DDD, DDE, PCBs, *n*-alkanes and PAHs in whole water samples. A subset of samples was analyzed for triterpanes and steranes by UCLA. Rainfall and flow data were obtained from the County Flood Control Districts.

Results from a second storm sampled in January 1987 at these sites are not included in this report but will be reported when complete data become available. This study is part of a long-term Southern California Coastal Water Research Project (SCCWRP) program to update and improve past estimates of contaminant inputs to the Southern California Bight. By the summer of 1988 we will have sampled storm runoff from the largest storm channels in four of the coastal counties of Southern California.

## Background Studies

### Southern California Bight

Beach closures, pelican reproduction failures, fin rot, contaminated fish seizures, and kelp bed disappearances off the Southern California coast have stimulated interest in anthropogenic inputs of contaminants to Southern California coastal waters since the 1960's. Extensive monitoring of trace metals and chlorinated organics in municipal wastewater effluents, the principal source of most anthropogenic contaminants to the Southern California Bight (20, 26), began around 1970 and has expanded through the 1970's and 1980's. By 1985, source control, improved sludge handling, and increased treatment (additional advanced primary and secondary treatment) combined to reduce wastewater emissions significantly. Silver, cadmium, chromium, copper, mercury, nickel, lead, and zinc discharges were an average of 65% lower than peak (mid-1970's) emissions. DDT and PCB discharges were 99 and 90% lower, respectively. These reductions occurred despite increases in population and effluent flows (21). Recently, completed and planned municipal wastewater effluent improvements should continue to reduce outfall inputs while continued population growth and land development have made and will continue to make runoff a more important pollutant source of contaminants than it was 10 years ago.

Studies of contaminants in Southern California runoff are scarce compared with those available for municipal wastewater outfalls. Among possible reasons are (1) no agency has been responsible for storm drain water quality; (2) storm flow (which is responsible for most runoff volume and contaminant emissions) is

unpredictable, highly variable and limited to a few months of the year; and (3) representative samples of storm flow are not easily obtained.

One of the first studies to measure runoff impacts in Southern California was conducted by Chen in the early 1970's at Marina del Rey (4). Water and sediment samples were taken from the marina near two storm drains and Ballona Creek over several stormy periods. It was determined that storm runoff had little direct effect on trace metal and pesticide levels in the water column within the marina. In contrast, sediments near the runoff channels were highly contaminated; sediments near the storm drains with DDE levels up to 5.5 mg/dry kg were 60 times more contaminated than sediments near the Hyperion five-mile outfall.

The most detailed and complete study of runoff emissions was conducted by SCCWRP during 1971/72, an unusually dry year (43% of average annual runoff). Wet and dry weather flows were sampled at four major rivers, and dry flow was sampled at an additional 11 streams in Southern California (20). Based on this limited survey it was concluded that the contribution of contaminants via runoff was less than 10% of that discharged by municipal outfalls in southern California. Exceptions to this generalization included suspended solids, nitrate, nitrogen, iron, manganese, lead, and cobalt. Two contaminants of note were suspended solids (274,000 metric tons, 99% of effluent emissions) and lead (90 metric tons, 43% of effluent emissions). DDT (0.12 metric tons) and PCB (0.25 metric tons) emissions were about 1 and 3%, respectively, of the combined outfall values.

Using the same sampling technique, Young et al. (25) repeated a similar study of three storms at the largest source of runoff in Southern California, the Los Angeles River (30% of the total average annual gaged flow from Southern California) in 1979/80. In that year low flow was responsible for only 5% of the annual discharge, and low-flow contaminant concentrations were approximately one-half of the storm concentrations. This indicates that storm runoff was by far the most important source of mass emissions. The 1979/80 study and the 1971/72 study also showed that with the exception of nickel, 88-99% of the trace metal and chlorinated hydrocarbons were associated with particulates ( $>0.4 \mu\text{m}$ ). A comparison of flow-proportioned mean concentrations of 10 trace metals, DDT, and PCBs between two storms in 1971/72 and three storms in 1979/80 showed that the standard error of 10 of the 12 contaminants was less than 50% (six of the twelve were less than 20%). This suggests that there was not a large difference in mean concentration values between years. Differences in lead and PCB concentrations were much larger than those of the other contaminants, and mean concentrations (between 1971/72 and 1979/80) showed a six- and eightfold reduction, respectively. These reductions were most likely due to legal restrictions on the industrial use of both compounds.

The Los Angeles County Flood Control District (now called the Department of Public Works) has conducted detailed monitoring of storm channel contaminants since the late 1960's. Monthly samples from 30 channel sites were collected from 1967 through 1984 (5). Biochemical oxygen demand (BOD) and levels of oil and grease, nutrients, trace metals, pesticides, and bacteria were measured (5). In 1985, the monthly monitoring program was reduced to 7 stations plus 14 additional stations monitored bimonthly or quarterly and 15 stations sampled twice annually during storm flows (6). Although this is the largest storm channel data base for Southern California and may reveal trends in low flow concentrations, it was not designed for the estimation of mass emissions because corresponding flows have not been recorded. In addition, runoff was rarely sampled during peak flows when

concentrations are most variable and emissions are most significant. Despite limitations of this data set, Garber (12) has made some preliminary estimates of long-term emissions rates to Santa Monica Bay. He used the annual average concentrations from Flood Control contaminant data and annual flow measurements from four gaged channels and assumed individual storm drains contribute about 40% of the gaged runoff. The single greatest cause of variation in annual emissions is variation in annual water discharge volume.

Figures 1 and 2 show the annual flow and lead emissions between 1967 and 1982 for the Los Angeles River, the total runoff to Santa Monica Bay, and the Hyperion combined outfalls. From the available data, Garber (12) estimated that Santa Monica Bay runoff inputs (1967-1982) of lead, selenium, nickel, copper, mercury, chromium, and total identifiable hydrocarbons to be 40%, 17%, 14%, 6%, 52%, 9%, and 7%, respectively, of the 1987 emissions from Hyperion's two outfalls. These estimates are probably low because storm conditions (which normally lead to much higher contaminant concentrations) were not proportionally sampled. As of the end of 1987 the sludge outfall discharges have been terminated reducing many outfall contaminant inputs by 50% and further increasing the importance of runoff as a source of contaminants.

The Pico-Kenter storm drain in Santa Monica delivered a small but regular flow that accumulated on the beach. This site has been the focus of attention because of petroleum-like discharges that have closed the beach and because of high incidences of cancer in lifeguards who have worked in the area (7). The linkage of storm drain constituents to the incidences of cancer has been investigated (and discounted) and chemical values (nutrients, BOD, chemical oxygen demand (COD), oil and grease, phenols, cyanide, and 14 metals) have been reported (7). Estimates of mass emissions have been made by using Pico-Kenter contaminant data and County Flood Control flow data for all of Santa Monica Bay (18). These calculations estimate that runoff to the bay is responsible for 10% of the oil and grease and 10-50% of the trace metals that the seven-mile sludge line discharged in 1981.

Studies of water and sediment quality in Marina del Rey, the adjacent mouth of Ballona Creek, and storm drains entering the harbor (13) have shown higher levels of contaminants at sites near the storm drains and creek mouth than in the harbor. Elevated contaminant concentrations and reduced dissolved oxygen were detected at most stations after storm runoff. Interestingly, measurements of oil and grease in runoff to Marina del Rey showed no decrease in the concentration ranges through three consecutive storms indicating a large reserve.

Eganhouse and Kaplan (9-11) characterized organics in Los Angeles River water from an early season storm in 1978 and compared constituents and masses of runoff inputs with municipal emissions. They found that 60% of the extractables were petroleum derived, whereas the non-hydrocarbons were mostly biogenic. Although runoff inputs of hydrocarbons were estimated to be one-half of municipal outfall inputs to Southern California, they were estimated to represent 2% of the global inputs from all sources to the ocean.

In 1986 Anderson and Gossett (1) reported on PAHs in marine sediments from the outfall and harbor areas between San Diego and Los Angeles. They found some of the highest levels near the mouths of the Los Angeles River, and the Dominguez Channel and near storm drains in San Diego Bay.



## Background Outside Southern California

In comparison to Southern California runoff, the east coast of the United States has been extensively studied (2, 15, 16, 17, 23). There is also considerably more information about sources of contaminants. However, these studies were carried out in areas that receive much more frequent rain than Southern California does, and in most cases rainfall occurs throughout the year with short intervals between runoff events.

In a three-year study of contaminant sources and mass emissions to Narragansett Bay, Hoffman and Quinn (15) determined that runoff was the largest source of petroleum hydrocarbons, high molecular weight PAHs, lead, and zinc to the bay. Municipal outfalls were the major source of low-molecular-weight PAHs. Although highways and industrial areas occupied a relatively small portion of the drainage basin they were important sources because of their very high concentrations. Highways and industrial runoff contained, respectively, 40 and 80 times the petroleum hydrocarbons, 40 and 12 times the copper, 100 and 7 times the lead, and 160 and 15 times the zinc as residential runoff concentrations.

In Richmond, California, Stenstrom et al. (22) measured oil and grease emissions from five different land use areas in a basin that drains into San Francisco Bay. The authors concluded that runoff emissions were an important and growing problem and that 50% of the oil and grease emissions from the studied basin could be eliminated if emissions from industrial and parking facilities (11% of land in the basin) were controlled.

Ebbert and Wagner (8) examined 35 collection sites from eight urban areas throughout the United States, compared rain concentrations of contaminants with runoff concentrations, and found that rain could be a significant source of contaminants. The mean contributions of rain to runoff emissions were 74% for nitrate plus nitrite, 12% for COD, 12% for copper, 6% for lead, and 2% for suspended solids.

Richards and Holloway (19) used Monte Carlo techniques to evaluate the accuracy and precision of tributary load estimates using a 4000 data point sampling set. Hypothetical annual sampling programs with 12 to 600 samples were examined. The results showed that the bias and precision of loading estimates were influenced not only by the frequency and pattern of the sampling plan but also by the size of the drainage basin (smaller channels need more frequent sampling) and the behavior of the constituent measured. Stratified sampling with the bulk of the samples taken during the highest flow will produce the most accurate estimates. Estimates within 20% accuracy are suggested with only a few low flow measurements and careful concentrated sampling during the 2 or 3 greatest flows of the year (24).

## OBJECTIVES

The primary objective of this study was to determine the concentrations of contaminants from major runoff sources and to estimate their mass emission rates to the ocean. These data are compared to past estimates of runoff emissions as well as other sources of contamination to the Southern California Bight.

We also determined how the concentration and mass of contaminants varied throughout the storm events to see if significant portions of the mass emissions were concentrated in a small part of the flow. We sampled sites to see how contaminant levels varied with land use. In addition, we measured polycyclic aromatic hydrocarbons (PAH) concentrations for the first time for several channels to determine which compounds were present in Southern California runoff.

## METHODS

Six large runoff sources in Ventura and Los Angeles Counties were sampled (Figure 3). Each channel has a unique drainage basin, and most of the channels (Santa Clara River, Calleguas Creek, Los Angeles River, and San Gabriel River) receive wastewater effluent from one or more municipal wastewater treatment plants. This contributes significantly to dry weather flows.

Sampling locations on each channel were selected for the following reasons: (1) to provide safe sampling; (2) to be used under adverse weather conditions; (3) to provide access to the center channel of the flow; and (4) to be downstream from the major sources of runoff contaminants. In an attempt to sample downstream from potential major sources we located three of our stations (Calleguas Creek, Dominguez Channel, and San Gabriel River) in the upper reaches of the tidal prism.

### Santa Clara River

The Santa Clara River drains the second largest basin in Southern California (4,200 km<sup>2</sup>) and has produced some of the largest peak flows (165,000 cfs) in Southern California's history. However, the flow near the mouth is poorly correlated with natural weather conditions because water is imported from the California Water Project and flow in the upper and middle river is regulated by releases from the dams at Lake Piru, Lake Pyramid, and Lake Casitas. Diversions and groundwater recharge prevent upstream flows from reaching the ocean except during large storms. Even below the last water diversion the dry sandy riverbed is capable of absorbing most of the flow from early season and small storms.

We sampled on the north side of the channel where Highway 101 crosses the river (H on Figure 3). This site is located about 8 km above the mouth of the river, which is at McGrath State Beach. Our site is the last accessible, safe location to sample moderate or high flow conditions. The channel is over 300 ft wide, and the bed is unlined.

### Calleguas Creek

Calleguas Creek drains 650 km<sup>2</sup>, including the southern part of the Hueneme Plain, and receives secondary effluent discharge from several treatment plants. This sampling site on Highway 1 is in the middle of the tidal prism and above Mugu Lagoon (I on Figure 3). We decided to sample here because it would allow us to obtain runoff from Calleguas Creek as well as Revlon Slough, which also drains a large portion of the Hueneme Plain that is used intensively to grow vegetables and other cash crops. Unfortunately, between the time we selected this site and when it was sampled, the channels were separated and the junction point moved below our site location. Therefore we collected separate samples from only

Calleguas Creek. Flow data were obtained from the Ventura Department of Public Works from their station at Camarillo, which is about 6 km above the sampling site.

#### Ballona Creek

Ballona Creek drains 232 km<sup>2</sup> of highly urbanized land in West Los Angeles. The main channel is concrete lined. Oil and tar lines on the banks of the channel are evidence of the occasional discharge of petroleum from freeway tanker spills and other sources. Our sampling station (D on Figure 3) is located 4 km above the mouth of the creek, between the entrance to Marina del Rey and the beach at Playa del Rey. The station on the Inglewood Avenue bridge is above tidal influence except during the highest tides; however, we saw no visual or chemical evidence of saltwater intrusion during any sampling period. Flow data were obtained from the Los Angeles County Department of Public Works recording gauge F 38C-R, which is located near Sawtelle Avenue about 1 km above the sampling site.

#### Dominguez Channel

The Dominguez Channel drains about 100 km<sup>2</sup> of industrial and urban land in south Los Angeles. In the past, the upper reaches received runoff from the Montrose Chemical Plant. This plant was the source of most of the DDT discharged from municipal outfalls or dumped into Southern California marine waters between the late 1940's and mid-1970's (3). The sides of the Dominguez Channel are covered with riprap, and the lower 10 miles are within the tidal prism and continuously filled with water. There is no recording flow gage in the lower reaches of the channel. The sampling site (C on Figure 3) is located on the railroad bridge just south of Anaheim Street, which was as close to the channel's termination in Los Angeles/Long Beach Harbor as possible. Although this sampling site lacked adequate flow data and was in the lowest section of the tidal prism, we decided to sample here because the 5-6 km of channel immediately above this site is lined with oil refineries. In addition, the harbor sediment just below our sampling site has been shown to have very high levels of petroleum hydrocarbons and pesticides (1). Justification for selecting this site comes from its high potential for producing environmentally significant concentrations of contaminants under rapid flow conditions.

#### Los Angeles River

The Los Angeles river was sampled because it is responsible for about 30% of the total annual gaged runoff from Southern California and it has been studied twice before by using similar techniques. Three sites were selected in an attempt to separate sources of contaminants to the river. The upper river basin is slightly developed, the middle portion drains the San Fernando Valley and is largely residential, while the lower half of the river drainage is more commercial and industrial. The three sites sampled were Big Tujunga Wash (F on Figure 3), Fletcher Avenue Bridge (E on Figure 3), and the Willow Street Bridge (B on Figure 3).

Big Tujunga Wash is one of three major tributaries draining the foothills above Los Angeles. Our sampling site was located below the Big Tujunga Dam which collects runoff from undeveloped steep-sloped hills. Although the flow in this area is small, we decided to sample here because anthropogenic contaminants in this area could only have been deposited by aerial fallout.

The Fletcher Avenue Bridge crosses the Los Angeles River about halfway between the headwaters and the mouth. Drainage above this site is mostly from the suburban San Fernando Valley and the less developed foothills. The Los Angeles County Public Works Department maintains a recording gage that records flow at 15-min intervals at this site.

The Willow Street sampling site is located in Long Beach at the end of the concrete-lined channel about 2 km above the river mouth in Long Beach Harbor. The total area drained above this site is about 3200 km<sup>2</sup>. Past flows at this site have reached over 100,000 cfs. This section of the channel receives runoff from downtown Los Angeles and the commercial/industrial developments of east and southeast Los Angeles. The Rio Hondo Channel is approximately 16 km above this site and is capable of transferring water from the San Gabriel River to the Los Angeles River at the discretion of the Public Works Department.

Flow data for the three sites were obtained from the Los Angeles County Department of Public Works for stations F168-R, F57C-R, and F319-R (Figure 3). These are within 1 km of their respective sampling sites.

### San Gabriel River

The San Gabriel River drains approximately 1600 km<sup>2</sup>, but its discharge to the ocean is relatively small. During low flow and small storm flows much of the upper river water is retained for groundwater recharge. Most of the dry weather flow in the lower river is from advanced wastewater effluents.

We intended to sample two sites on the San Gabriel River; however, the first storm occurred so early in the season that we missed sampling the upper station at San Gabriel Parkway.

The lower San Gabriel River was sampled at College Park, (A on Figure 3), which is about 3 km above the river mouth in Long Beach Harbor. Unfortunately, this site was also located about 1 km below the upper end of the tidal prism. The site was selected because it was the nearest point of access below the confluence of the San Gabriel River and Coyote Creek. Storm flows from Coyote Creek to the San Gabriel River can constitute more than one-half of the total flow. We selected this site under the assumption that any significant flow would flush saltwater out even at the highest tides. However, salinity measurements of a few low flow samples taken at high tide indicated the presence of marine water. Consequently, trace metals were not measured for those samples nor were they included in emission estimates. Two Los Angeles County Department of Public Works flow gages were required to measure the total flow from both channels for our site. Gage F428-R on the San Gabriel River malfunctioned during the storm and no data were collected. Gage F354-R, below Spring Street, measured Coyote Creek flow about 3 km above the sampling site. Mass emission estimates are based only on the Coyote Creek flow.

Samples were collected from the center of flow for each channel by lowering an acid-washed kilned 1-gallon bottle in an epoxy covered metal sampler that was equipped with a horizontal and vertical tail stabilizer that kept the bottle opening facing upstream. The bottles passed through the surface layer uncapped. The sampler was submerged about 0.5 meter below the surface, and was filled in about 90 seconds. The sampler was deployed twice for each sampling period, and the sample was proportionally divided into the sample containers for organics (4 liters),

trace metals (1 liter), suspended solids (1 liter), oil and grease (1 liter), and toxicity (20 ml).

Cumulative rainfall data from 17 sites (Table 1) located within the drainage basins that we were studying were collected from Los Angeles County Department of Public Works files.

#### River Flow Data

Figure 3 shows gaging stations for Los Angeles County. The gages on Ballona Creek, the Los Angeles River, the San Gabriel River, and Coyote Creek can provide flow data at 15-min intervals. Continuous flow data for Calleguas Creek were provided by the Ventura County Department of Public Works. Data for the Santa Clara River flow are based on field crews observations, which we believe to be acceptable since the flow was low and did not change much during the storm.

## RESULTS AND DISCUSSION

A complete listing of flow rates, flow volume, interval volume, contaminant concentrations, and mass emissions for each sample is listed in Appendix A.

#### Differences Between Sites

##### Mean concentrations

Flow-proportioned mean contaminant concentrations and ranges for eight sites are summarized in Table 2. Histograms of mean concentrations at the sampling sites are shown in Figure 4, A-N.

Suspended solids mean concentrations for seven sites are shown in Figure 4, C. The highest (1250 mg/liter at the Santa Clara River) and lowest (30 mg/liter at Calleguas Creek) concentrations were found in Ventura County. The sites in Los Angeles County ranged between 200 and 750 mg/liter.

The Los Angeles River at the Willow Street site (Figure 4; B, D-H) generally had the highest concentrations of hydrophobic (oil and grease, total extractable organics, PAH, *n*-alkanes, PCBs, and DDT) contaminants. Exceptions occurred at Ballona Creek, which had 50% more oil and grease and a DDT concentration 4 times that of the Willow Street site, and Santa Clara, which had a DDT concentration 11 times that of the Willow Street site.

The trace metals concentrations (cadmium, chromium, copper, nickel, lead, and zinc) were all highest at Ballona Creek followed by the LA River at Willow (Figure 4, I-N). Concentrations at Tujunga Wash were consistently below detection, while the other sites had roughly equal levels.

Within the LA River system contaminants increased between upper and lower stations. The Willow runoff had about twice the amount of suspended solids as the upper two stations did. Oil and grease and TEO concentrations quadrupled between Tujunga and Fletcher and again between Fletcher and Willow. Metal concentrations were below detection limits at Tujunga, but metal concentrations at Willow were two to four times higher than those at Fletcher (Figure 4, I-N).

## **Mean concentrations per gram of suspended solid**

Past studies have shown that most of the contaminants are associated with suspended particulates (9, 21). We have calculated contaminant concentrations per gram of suspended solid in Table 3 assuming that all of the contaminants are particulate bound. This could be a misleading supposition if contaminant levels are very low and dissolved contaminants constitute a significant percent of the total concentration. However, with this caution in mind Table 3 (and Figure 5, A-L) gives an indication of quality of particulates that may accumulate in sediments or be spread in near-shore waters.

Oil and grease measurements at Tujunga and Santa Clara were an order of magnitude less than at the other sites (Figure 5, A). The four sites with moderate to high flows (Willow, Fletcher, Ballona, and San Gabriel) had similar values between 10.5 and 23.6 mg/g. The very high concentrations at Calleguas Creek were a result of the very low concentrations of suspended solids.

DDT and PCBs had two different patterns (Figure 5, E-F). Santa Clara River and Ballona Creek particulates were more contaminated with DDT than were particulates at the other sites, while PCBs were more uniformly distributed at all sites except Tujunga Wash.

The Los Angeles River and Ballona Creek had much higher concentrations of PAHs and n-alkanes than the other sites.

The trace metals concentrations on suspended solids (Figure 5, G-L) were reasonably uniform at four stations (Willow, Fletcher, Ballona, and San Gabriel), while concentrations of metals at Tujunga and the Santa Clara River were much lower.

## **Los Angeles River System**

Within the Los Angeles River stations, the Tujunga samples had the lowest contaminant concentrations but moderately high suspended solids levels. This resulted in very low concentrations per gram of suspended solid. The trace metals, pesticides, PCBs and PAHs were below detection limits while oil and grease and n-alkanes were 4 and 9 times higher than at mid-river. Concentrations of metals, pesticides and PCB on suspended solids are similar for samples from mid-river (Fletcher) and lower river (Willow). However, the lower river samples are 2 to 9 times high in TEO, PAHs and n-alkanes.

## **Mass Emissions**

Calculated flow-proportioned mass emissions are listed in Table 4 and shown in Figure 6, A-N.

The Los Angeles River is the largest source of runoff to the Southern California Bight. The highest flows combined with the high concentrations caused the Willow Street site to have the highest mass emissions of all constituents except DDT.

For all constituents except DDT there is a consistent pattern of greatest emissions coming from the Los Angeles River, then Ballona Creek followed by Fletcher and San Gabriel. The remaining stations have minimal inputs.

Within the LA River stations, Tujunga emits a miniscule volume of runoff and contaminants. The flow at the Willow site is about 30% greater than that at Fletcher, but contaminant emissions are 3 to 10 times greater, indicating a much greater source, in the lower basin.

The Ballona Creek drainage is only about 10% of the Los Angeles drainage basin, but during this storm its flow was about 40% of the LA River flow. The emissions of most contaminants were approximately 40% of the LA River emissions. Exceptions were lead and zinc, which were about equal to Willow emissions, and DDT and *n*-alkanes which were twice and one-sixth of the Willow emissions.

We have underestimated the emissions from the San Gabriel River because we only have flow data from Coyote Creek, so our estimates could be low by a factor of 2 or more. The measured flow is three-fourths the size of the Ballona Creek flow, but emissions of oil and suspended solids, oil and grease, TEO, trace metals, and chlorinated hydrocarbons are between 3 and 20% of Ballona's emissions, while PAH and *n*-alkane emissions are 1 and 3%, respectively.

#### **Trends in flow and contaminant concentrations with time**

Figure 7, A-H, shows the flow and concentrations of suspended solids, oil and grease, TEO, lead, total PAHs, total PCBs, and volatile solids for the Los Angeles River during the 48-h of sampling.

There were two peaks in flow about 6 h apart; the first peak exceeded 10,000 cfs, whereas the second peak returned to 9,000 cfs after dropping to 5,000 cfs.

The peak contaminant concentrations (except percent volatile solids) occurred in either sample 6 or 7 before the first peak in flow. Although sample 8 had the highest flow, the concentrations of all contaminants dropped. This may be due to a washout of contaminants.

#### **Trends in Cumulative Emissions**

As an example of when contaminant emissions occur, Figure 8, A-D, shows the cumulative percent flow with cumulative percent emissions of suspended solids, oil and grease, combined trace metals, and chlorinated hydrocarbons for the Willow station, and Figure 9, A-D, shows that approximately 80% of the flow and suspended solids were discharged within a 10-h period. Contaminant emissions lagged during the first 5% of flow but rapidly increased after 10% of the flow occurred. In general the first 25% of flow produced 50% of the contaminant emissions, and when 50% of the flow had occurred, 75% of the contaminant emissions had occurred. This pattern is representative of the other sites studied.

#### **Petroleum hydrocarbon characterization**

##### **Aliphatic hydrocarbons**

Figure 10a represents a typical chromatogram of the aliphatic fraction from our stormwater runoff samples. Generally, most of the samples contained a single hump of varying size (known as the unresolved complex mixture-UCM) and numerous resolved peaks which represent simple alkanes containing from 10 to 30

carbons. The presence of a UCM maximizing at n-C21-C35 is indicative of crankcase oil in the runoff. The *n*-alkanes, which are the resolved peaks labelled with their respective number of carbons, showed maxima at n-C17 as well as the higher molecular weight *n*-alkanes with odd numbers of carbons (i.e., n-C27, C29 and C31). The odd-even carbon chain length predominance of these higher molecular weight species indicates the presence of waxes characteristically associated with the cuticles of higher plants.

There were two notable exceptions to the pattern illustrated in Figure 10a. First, samples taken from Ballona Creek at 6 and 47 hours contained two UCM humps, the first hump being larger and maximizing at n-C18 (Figure 10b). It has been suggested by some researchers that this pattern may be representative of bacterial degradation products. Second, the 31 hour sample taken from the Los Angeles River at Willow Street contained no UCM at all. It did, however, exhibit the highest concentrations of *n*-alkanes (mostly from the C23-C39 range) with little apparent odd-even predominance. This sample was taken during the second peak in flow at approximately 8500 cubic feet/second (Figure 7a). The distribution we observed is not consistent with a recent biogenic origin, but may be related to dewaxing of petroleum. Similar distributions were not observed in samples taken before or after this one. Therefore, it is unclear whether these results are anomalous, representing the inclusion of a small particle of pure wax, or an indication of a short-term input to the river.

#### Aromatic hydrocarbons

Figure 11 presents a relative abundance plot for the 26 PAHs measured in this study (see Appendix A for a list of the compounds and their individual concentrations). This sample was taken from the Los Angeles River at Willow Street after 30.8 hours and is indicative of the most common distributional pattern. Most of the samples contained some naphthalenes (compounds 1-4) and phenanthrenes (compounds 9-12) which are the dominant PAHs in unweathered petroleum. However, the compounds with four or more rings (fluoranthene through benzo[g,h,i]perylene; compound 14-26), which are combustion products, were frequently present at higher concentrations. Therefore, results of this study showed a mixture of both types of hydrocarbons being discharged during this storm with a larger amount of combustion products present.

The PAH composition was variable throughout the storm at a single point on the channel and in samples taken contemporaneously during a storm at different sites in the channel. However, the plot from the Los Angeles River station at Willow Street (Figure 8) is comparable to those obtained by Anderson and Gossett (1) for bottom sediments collected at the mouth of the Los Angeles River as well as those for sediments from the vicinity of Los Angeles County's outfall, suggesting that stormwater runoff and municipal effluent may contain PAHs of similar composition.

#### CONCLUSION

As the emissions of contaminants from outfalls continue to decrease, runoff emissions become a more important source of marine inputs. Outfall emissions have been steadily reduced over the last 10 years (21), but little has been done to reduce contaminants. Young et al. (25) concluded that variations in runoff concentrations were not significantly different in the Los Angeles River between 1971 and 1979 except for lead and PCBs, which were reduced by factors of 6 and 8, respectively. There do not appear to be many major changes in concentration since



1979. Table 5 shows concentrations for the five storms measured in 1971 and 1979 and the present 1986 results. Between 1979 and 1986 copper and lead concentrations increased by about a factor of 2, while suspended solids and chromium were reduced by two-thirds and one-half, respectively. The rest of the trace metals and PCBs varied by less than one-third. DDT had the largest change and was reduced by a factor of 4.

How the volume of runoff affects contaminant emissions is not clear. Los Angeles River runoff in 1971/72 was about one-half of normal runoff, while 1979/80 produced runoff five times the 15-year average; yet Young and his co-workers found most contaminant concentrations to be similar. Five of the twelve highest concentrations in the year did not occur in the first storm of 1979, and the third storm had cadmium and lead concentrations higher than those of the first storm. Data from the storm we sampled in January 1987 should allow us to determine the changes between storms within a year.

We did have some indication of a washout of contaminants in the Los Angeles River in this year's study because almost all of the contaminant concentrations peaked before our highest flow sample was taken. If the distribution of rain on land use areas did not change significantly there may have been a reduction in available contaminants. Hoffman et al. (14) found that residential, highway, commercial, and industrial areas had different rates of washout during a storm with residential concentrations of petroleum hydrocarbon approaching zero after less than 2 cm of rain, while industrial sites showed no reductions in concentrations after 2 cm of rain.

Large flows from Ballona Creek, Los Angeles River Willow, Los Angeles River Fletcher, and the San Gabriel River exceeded  $3.5 \times 10^9$  liters (920 million gallons) during the storm, while flows of less than  $0.32 \times 10^9$  liters (84 million gallons) occurred at the Santa Clara, Tujunga, and Calleguas sites.

During the storm, flows changed very little at Big Tujunga Wash, the Santa Clara River, and Dominguez Channel, while at Ballona Creek, Los Angeles River Willow, and San Gabriel flows varied by about 100x.

The highest concentrations of contaminants are associated with peak flows. Because we sampled the two Ventura sites while they had relatively low flow, this data may be less representative annual emissions of contaminants.

The two channels with the highest flows, Los Angeles River Willow and Ballona Creek, had the highest mean contaminant concentrations and consequently had the highest emissions of oil and grease, TEOs, cadmium, chromium, copper, nickel, lead, zinc, PCBs, PAHs, resolved hydrocarbons, and n-alkanes.

Annual estimate of runoff should be viewed with the awareness of certain limitations, some relevant to all runoff studies and others relevant only to this study. Factors that need further examination include annual variations in total rainfall within a drainage basin, the intentional retention of runoff for groundwater recharge, and diversions between drainage basins. The factors can combine to make each storm and year difficult to compare with other storms and years.

## **ACKNOWLEDGMENTS**

We appreciate the financial and field support that was provided by the Los Angeles Regional Water Quality Control Board, especially Allen Chartrand and Michael Sowby. The Hyperion Laboratory kindly allowed us to use their facilities to measure oil and grease. We thank our fellow staff members who interrupted their work and sleep patterns to make this study possible.

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# TABLES

Table 1. Rainfall total for selected stations during the storm of September 24, 1986.

Station	Rain in Centimeters
1. La Mirada- Standard Oil	2.9
2. Signal Hill	2.9
3. San Pedro - City Reservoir	2.9
4. Inglewood Fire Station	4.8
5. Baldwin Park Station	2.9*
6. Cloudcroft Debris Station	5.7
7. Encino Reservoir	1.9
8. Chatsworth- Twin Lakes	2.0
9. La Tuna Canyon	2.2*
10. Big Tujuga Canyon	---
11. Big Tujunga Dam	3.3
12. Brand Park	3.3
13. Los Angeles, Alcazar	3.6
14. Rio Hondo Spreading Grounds	3.7*
15. San Gabriel Canyon	7.3*
16. La Fresa	3.7
17. Crystal Lake	5.1

All data are from the Los Angeles Department of Public Works.

\* measurable rain fell the following day.

Table 2. Flow proportioned average concentrations and ranges of actual concentrations for storm runoff samples collected from the 23-25 September storm.

CONSTITUENT	STATION									
	LA RIVER WILLOW	LA RIVER FLETCHER	LA RIVER TUJUNGA	BALLONA CREEK	SANTA CLARA	CALLEGUAS CREEK	SAN GABRIEL	DOMINGUEZ CHANNEL	HYPERION <sup>1</sup> 5-MILE	OXNARD PLANT
n	10	8	5	6	3	3	8	4	1985 AVE	1985 AV
Flow(CF/S)	*	*	*	*	*	*	*	*	*	*
Min	95	157	*	19	*	2	75	*	*	*
Max	8480	2280	*	4960	*	85	4300	*	*	*
SS(mG/L)	645	246	229	755	1250	30	206	206	*	*
Min	31	17	3	13	16	3	5	11	*	*
Max	1850	1190	826	2500	1920	85	1080	76	*	*
% Vol. Solids	*	*	*	*	*	*	*	*	*	*
Min	5.4	21.6	9.0	15.0	8.4	27.6	6.5	27.6	*	*
Max	68.6	30.6	50.0	46.2	87.5	60.0	100	54.5	*	*
O & G(mG/L)	10.0	2.6	0.6	14.9	2.8	2.3	4.9	*	29.3	4.3
Min	0.7	1.2	<0.1	2.2	1.0	0.2	0.2	0.2	*	*
Max	21.8	10.9	1.3	36.4	6.8	1.7	7.8	2.9	*	*
TEOs(mG/L)	34.5	5.7	1.3	26.7	5.0	1.4	3.7	*	*	*
Min	1.4	1.6	<0.1	1.6	1.1	0.4	0.4	0.7	*	*
Max	103	29.0	3.9	59.6	7.5	1.6	11.9	5.1	*	*
Cadmium( G/L)	5.8	1.7	*	6.7	*	*	2.3	*	10.9	12.8
Min	<1	<1	<1	<1	<1	<1	<1	*	*	*
Max	21	28	*	22	1	*	4	*	*	*
Chromium( G/L)	45.4	11.4	*	6.9	56.2	1.6	31.4	*	59.9	11.4
Min	<3	<2	<2	<3	<2	<3	6	*	*	*
Max	147	107	8	248	80	5	68	*	*	*
Copper( G/L)	182	96.1	*	267	68.7	18.1	85.7	*	197	57
Min	12	26	3	43	<2	3	17	*	*	*
Max	512	667	28	860	106	46	*	*	*	*
Nickel( G/L)	47.3	20.8	*	80.0	18.8	6.3	34.3	*	81.6	57.0
Min	13	12	<2	7	4	3	13	*	*	*
Max	131	92	5	261	48	12	61	*	*	*
Lead( G/L)	264	71.4	*	530	87.5	*	120	*	88.4	285
Min	<8	24	<6	23	8	<9	23	*	*	*
Max	607	345	*	1830	134	*	201	*	*	*
Zinc( G/L)	718	299	*	1420	238	10	457	*	279	71
Min	21	116	2	172	7	6	80	*	*	*
Max	1970	1360	47	4400	391	14	744	*	*	*
DDTs(nG/L)	84.5	45.5	*	378	938	6.2	16.0	*	20.4	*
Min	<1	21	3	1	8	1	<1	<1	*	*
Max	169	249	12	1360	1570	10	35	9	*	*
PCBs(nG/L)	291	108	*	267	162	14	57	*	102	<1000
Min	11	58	2	18	12	11	<1	15	*	*
Max	695	352	41	632	250	19	75	34	*	*
PAHs( G/L)	36.4	1.9	*	24.4	1.1	0.02	1.1	*	*	*
Min	<0.01	<0.01	<0.02	0.4	<0.01	<0.01	<0.01	*	*	*
Max	120	18	*	76	1.9	0.14	0.5	*	*	*
Alkanes( G/L)	572	41.5	4.1	244	5.9	0.01	28.6	*	*	*
Min	0.8	8.0	1.4	8.9	<0.01	<0.01	0.9	<0.01	*	*
Max	1000	280	6.4	440	51.5	*	42.5	240	*	*

<sup>1</sup> Based on 1985 monitoring data



Table 3. Calculated concentrations of contaminants per dry gram of suspended solids using the flow-weighted mean data from Table 2

CONSTITUENT	LA RIVER WILLOW	LA RIVER FLETCHER	LA RIVER TUJUNGA	BALLONA CREEK	SANTA CLARA	CALLEGUAS CREEK	SAN GABRIEL	HYPERION 5-Mile	* OXNARD PLANT
Total Solids (mG/G)	1410	1680	2090	2030	1950	47400	11670	*	*
Oil & Grease (mG/G)	15.5	10.5	2.8	19.7	2.2	76.3	23.6	181	130
TEOs (mG/G)	53.5	23.2	5.6	35.3	4.0	45.4	18.0	*	*
Cadmium (mG/G)	.009	.007	*	.009	0	0	.011	.067	.391
Chromium (mG/G)	.070	.046	*	.003	.045	.052	.153	.370	.348
Copper (mG/G)	.282	.389	*	.353	.055	.598	.417	1.22	1.74
Nickel (mG/G)	.073	.084	*	.106	.015	.227	.167	.504	1.74
Lead (mG/G)	.408	.289	*	.706	.070	0	.583	.546	.870
Zinc (mG/G)	1.11	1.21	*	1.88	.19	.32	2.22	1.72	2.17
Total DDTs (uG/G)	.131	.184	*	.500	.750	.206	.078	.126	*
Total PCBs (uG/G)	.451	.437	*	.353	.130	.464	.278	.630	*
HCB (uG/G)	.006	.008	*	.004	0	.010	.008	*	*
Lindane (uG/G)	.025	.084	*	.025	.020	.082	.031	*	*
Total PAHs (uG/G)	56.3	7.9	*	32.3	.9	.6	5.6	*	*
n-Alkanes (uG/G)	887	168	18	324	20	<1	139	*	*

\* Daily emissions based on 1985 monitoring data

Table 4. Mass emission rates (Metric Tons) for several runoff constituents in the 23-25 September, 1986 storm.

STATION	LA RIVER WILLOW	LA RIVER FLETCHER	LA RIVER TUJUNGA	BALLONA CREEK	SANTA CLARA	CALLEGUAS CREEK	SAN GABRIEL	HYPERION 5-MILE	OXNARD PLANT
Total Volume (L x 10 <sup>9</sup> )	11	7.7	0.0014	4.5	0.016	0.32	3.5	1.47	0.070
Sus. Solids	7100	1900	0.32	3400	20	9.7	720	238	2.3
Total Solids	10000	3200	0.67	6900	39	460	8400	*	*
Oil & Grease	110	20	0.0009	67	0.045	0.74	17	43	0.030
TEOs	380	44	0.0018	120	0.080	0.44	13	*	*
Cadmium	.064	.013	ND	0.030	ND	ND	0.0082	0.016	0.0009
Chromium	0.50	0.088	ND	0.31	0.0009	0.0005	0.11	0.088	0.0008
Copper	2.0	0.74	ND	1.2	0.0011	0.0058	0.30	0.29	0.004
Nickel	0.52	0.16	ND	0.36	0.0003	0.0022	0.12	0.12	0.004
Lead	2.9	0.55	ND	2.4	0.0014	ND	0.42	0.13	0.002
Zinc	7.9	2.3	ND	6.4	0.0038	0.0031	1.6	0.41	0.005
Total DDTs (kG)	0.93	0.35	ND	1.7	0.015	0.002	0.056	0.030	*
Total PCBs (kG)	3.2	0.83	ND	1.2	0.0026	0.0045	0.20	0.15	<0.07
HCB (kG)	0.044	0.015	ND	0.015	ND	0.0001	0.0060	*	*
Lindane (kG)	0.18	0.16	ND	0.086	0.0004	0.0008	0.022	*	*
Total PAHs (kG)	400	15	ND	110	0.018	0.0056	4.0	*	*
n-Alkanes (kG)	6300	320	0.0057	1100	0.41	0.0040	100	*	*

Daily emissions based on 1985 monitoring data

Table 5. Flow weighted mean concentrations of trace metals and chlorinate hydrocarbons in Los Angeles River storm runoff.

Constituent ( ug/liter)	1971/72		1979/80			1986/87	
	Storm 1	Storm 2	Storm 1	Storm 2	Storm 3	Storm 1	
Silver	1.9	2.6	1.3	0.7	0.4	--	
Cadmium	16	9.3	1.6	8.7	1.8	5.8	
Chromium	86	80	140	120	52	45.4	
Copper	120	140	110	110	44	182	
Mercury	-	-	1.8	0.4	0.2	-	
Nickel	83	72	73	77	34	47.3	
Lead	910	980	74	210	180	164	
Zinc	940	1100	760	450	230	718	
Iron mg/l	10	25	68	57	28	-	
Maganese	450	500	640	860	450	-	
DDT	-	0.93	-	0.51	0.38	0.10	0.08
PCB	-	2.6	-	0.35	0.47	0.12	0.29
Volume 10 <sup>9</sup> liters	1.4	7.2	2.8	21.8	14.5	11	
Sus Solids mg/l	-	-	2700	1900	1500	645	

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from Young, et al (25)

# **FIGURES**

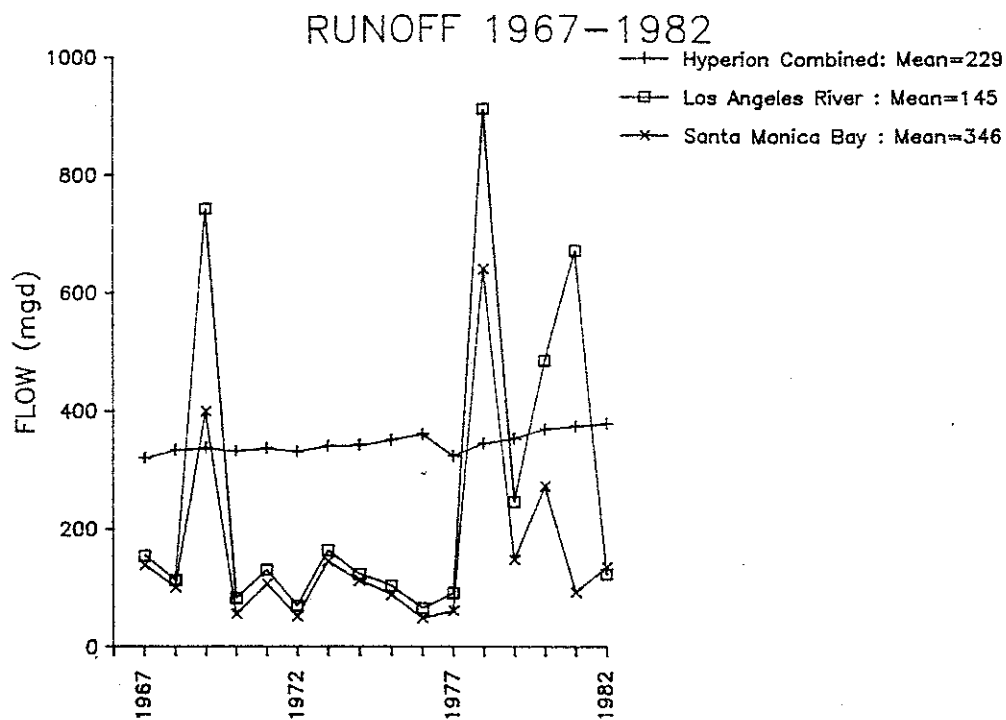


Figure 1. Annual flows from the Los Angeles River, storm channels around Santa Monica Bay (assumes ungaged flows are equal to 40% of gaged flows) and the combined Hyperion outfalls (from Garber (12)).

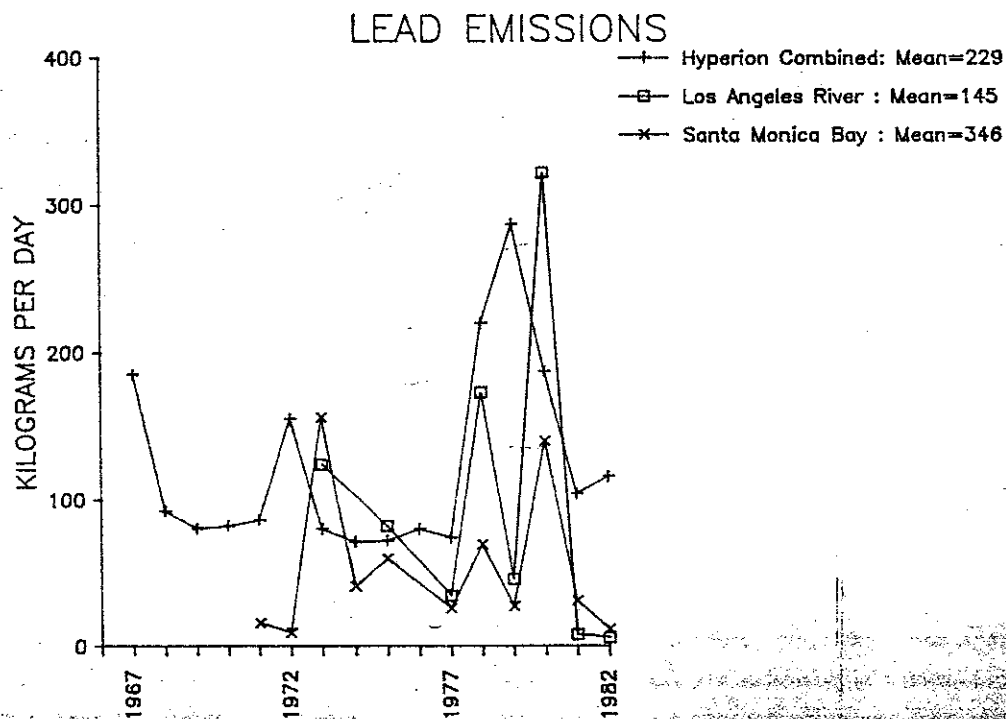


Figure 2. Average daily emissions of lead from the Los Angeles River, storm drains around Santa Monica Bay and combined Hyperion outfalls (from Garber (12)).

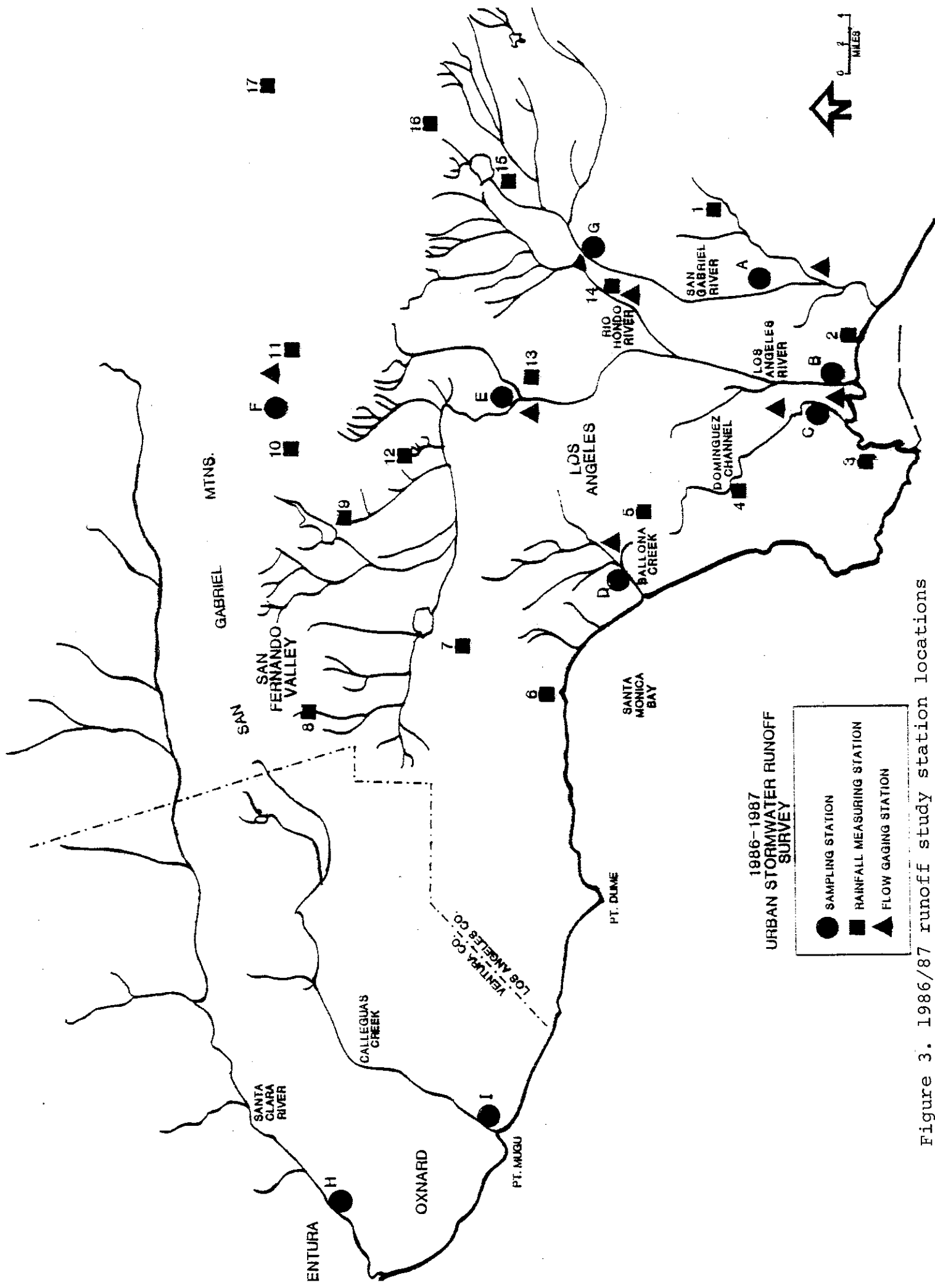


Figure 3. 1986/87 runoff study station locations

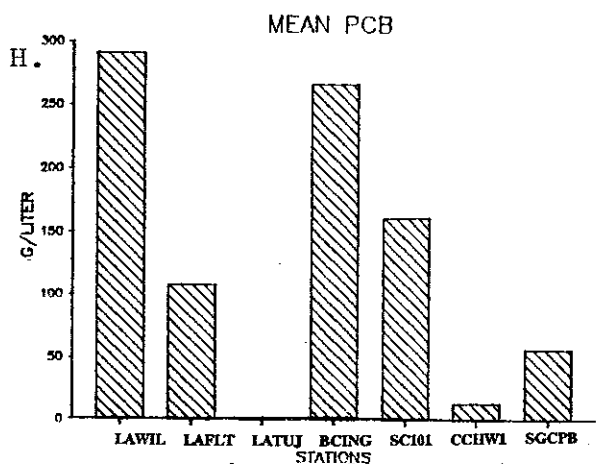
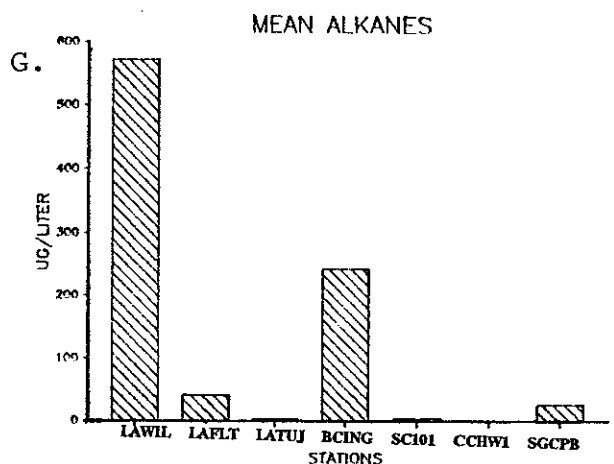
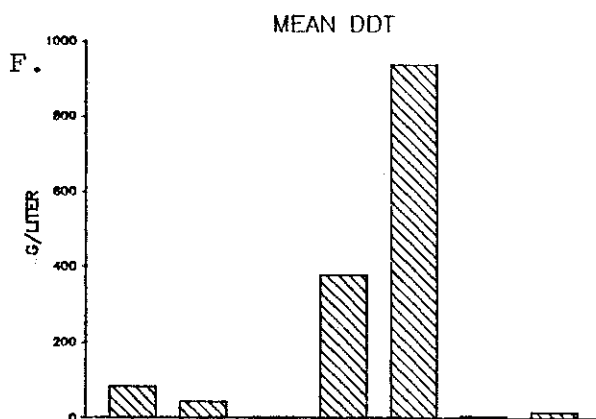
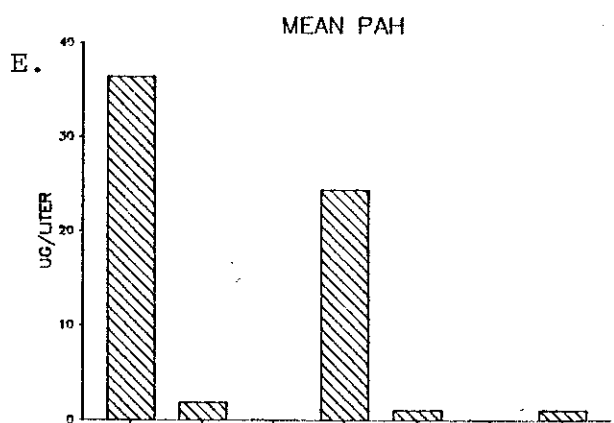
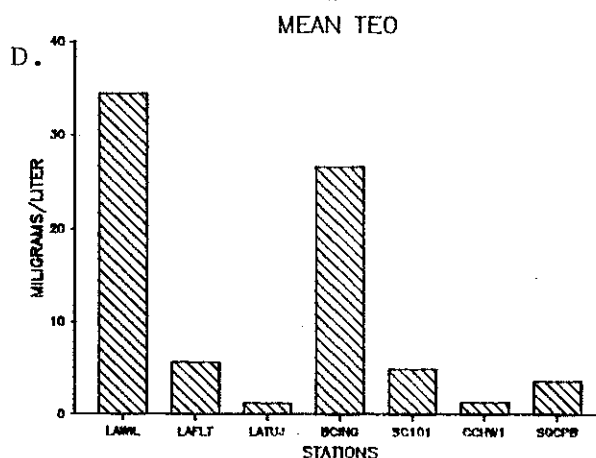
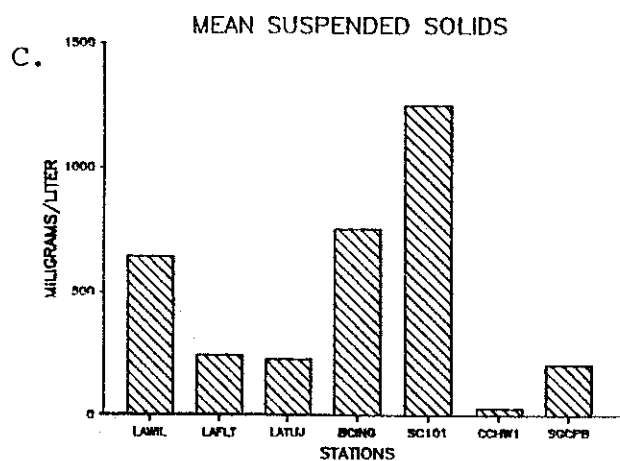
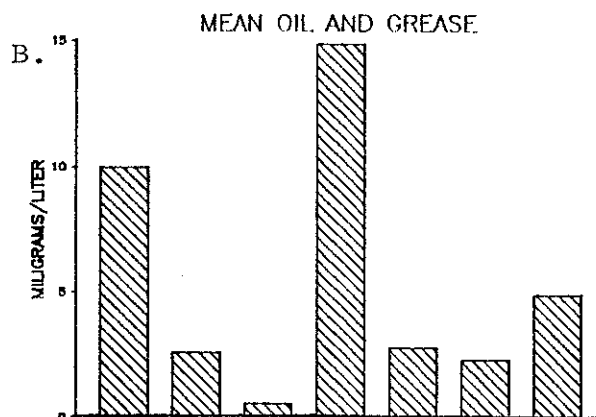
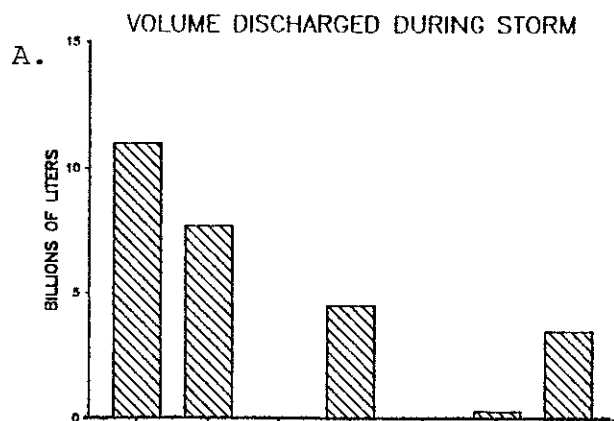


Figure 4. a-n Flow weighted mean concentrations of contaminants at the LA River at Willow (LAWIL), FLETCHER (LAFLT), TUNJUNGA Wash (LATUJ), Ballona Creek (BCING), Santa Clara River (SC101), Calleguas Creek (CCHW1) and the San Gabriel River (SGCPB).

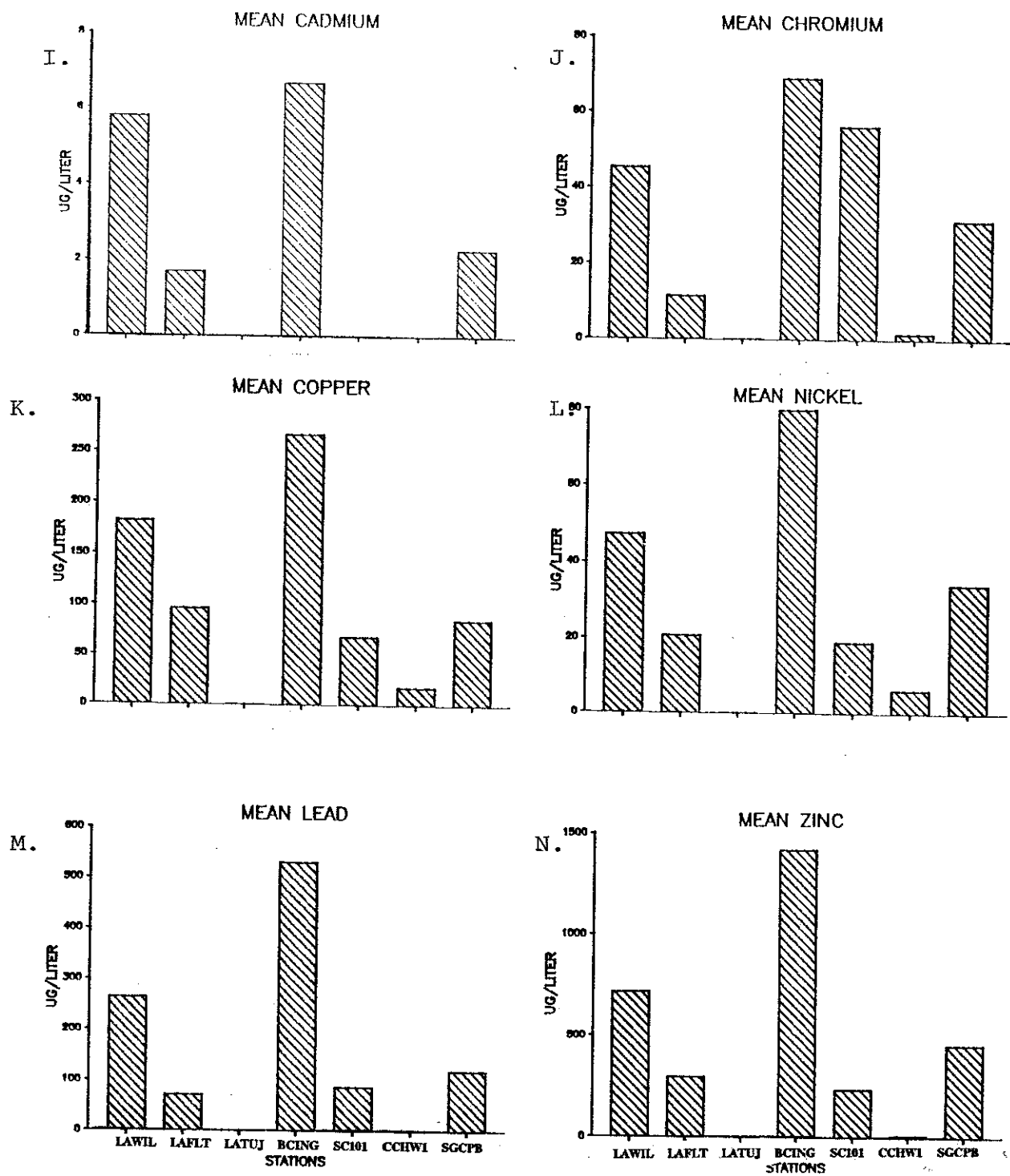
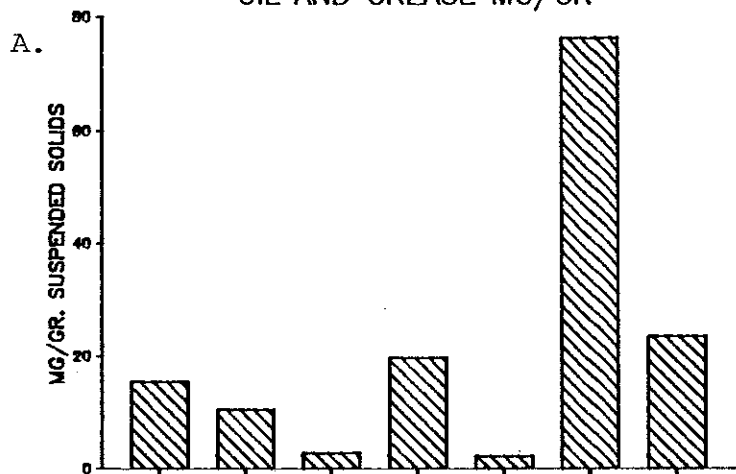


Figure. 4 I-N



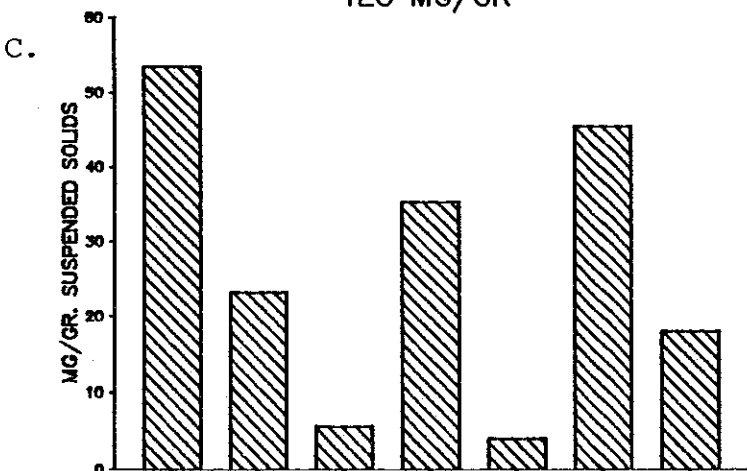
OIL AND GREASE MG/GR



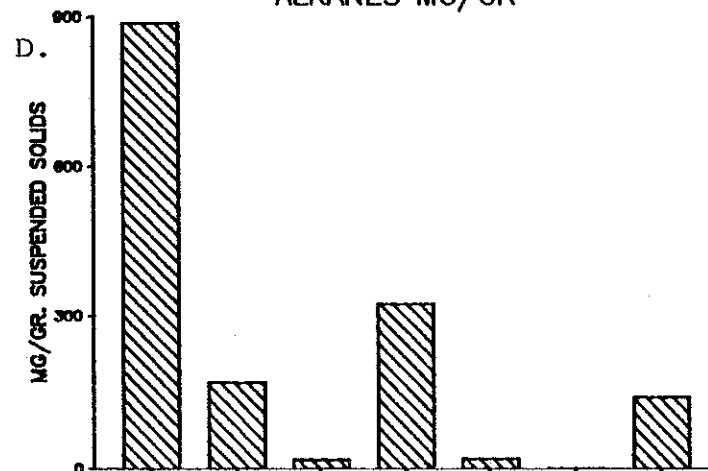
PAH MG/GR



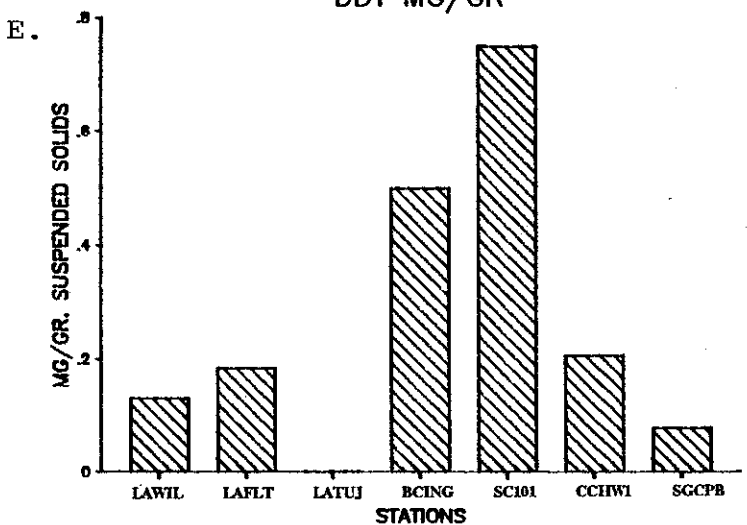
TEO MG/GR



ALKANES MG/GR



DDT MG/GR



PCB MG/GR

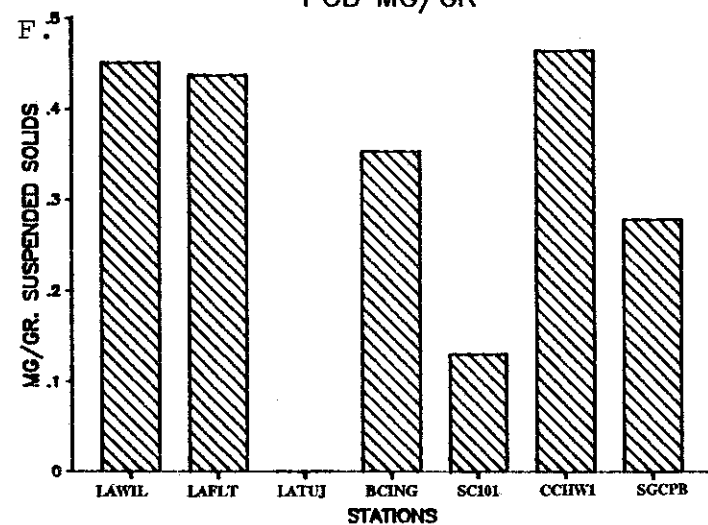


Figure 5 A-L Concentrations of contaminants calculated on a per gram of suspended solids basis at the Los Angeles River at Willow (LAWIL), Fletcher (LAFLT), Tunjuga Wash (LATUJ), Ballona Creek (BCING), Santa Clara River (SC101), Calleguas Creek (CCHW1) and San Gabriel River (SGCPB).

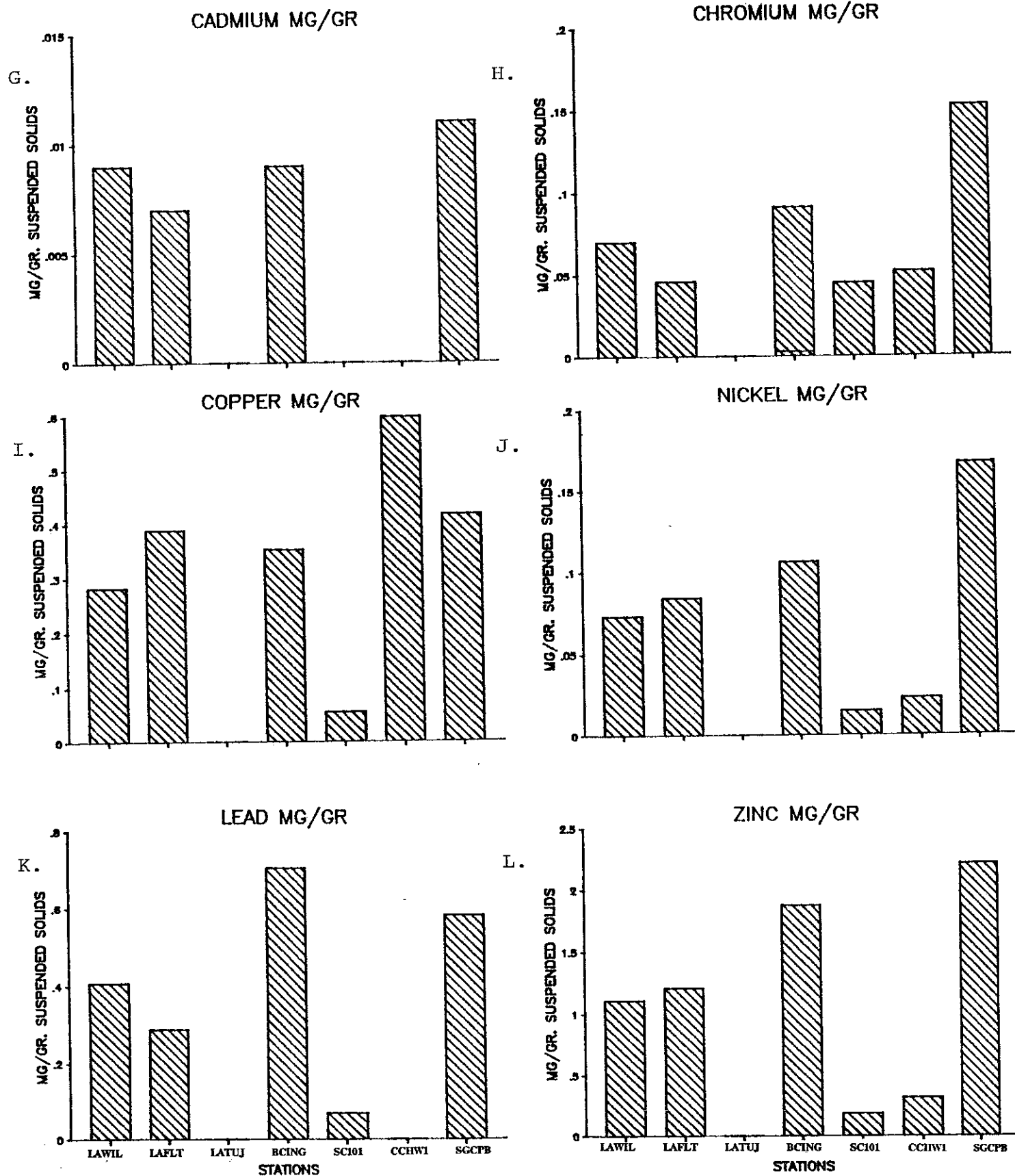


Figure 5. continued

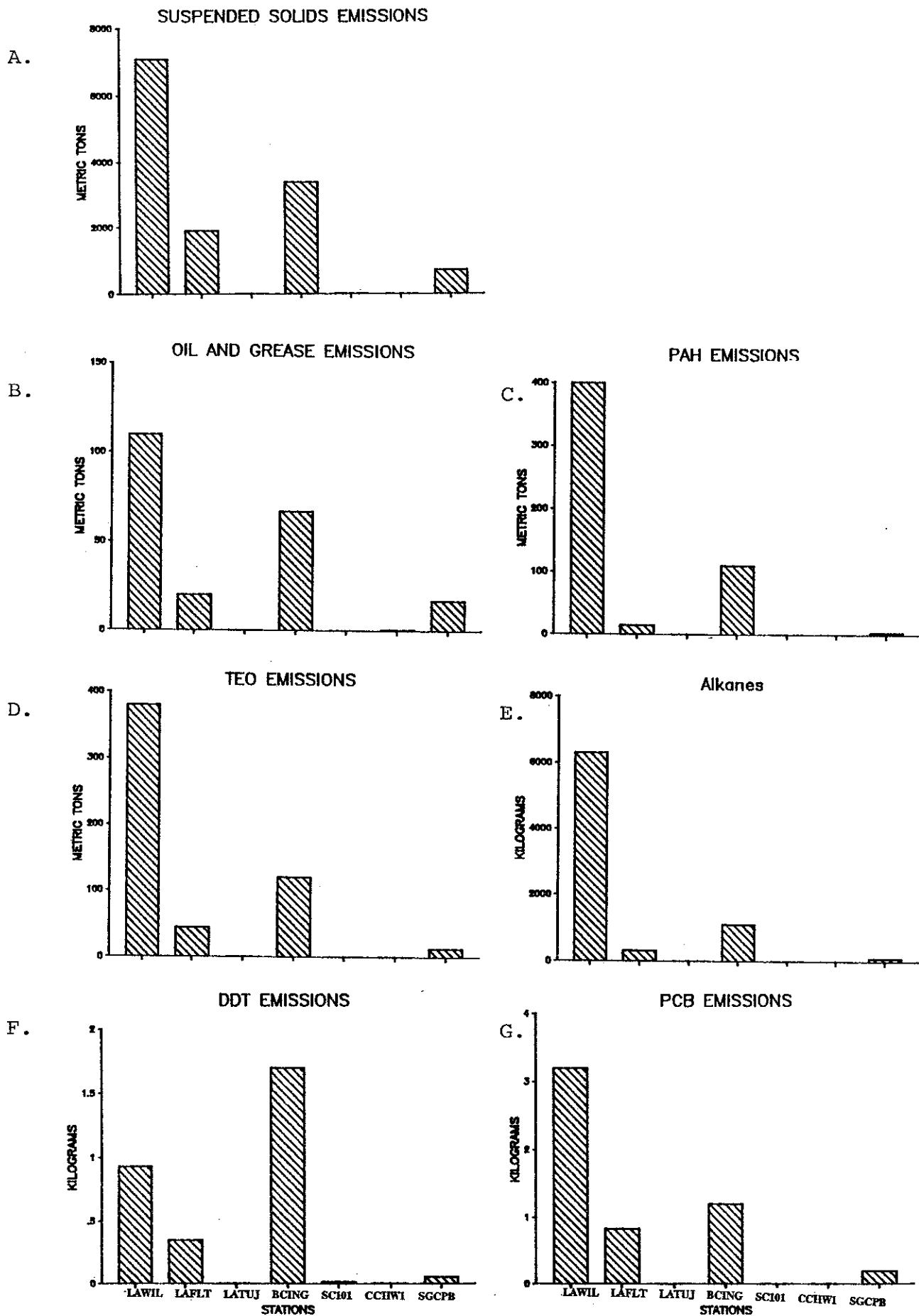


Figure 6 A-M Calculated contaminant mass emissions from September 23-24, 1986 storm.

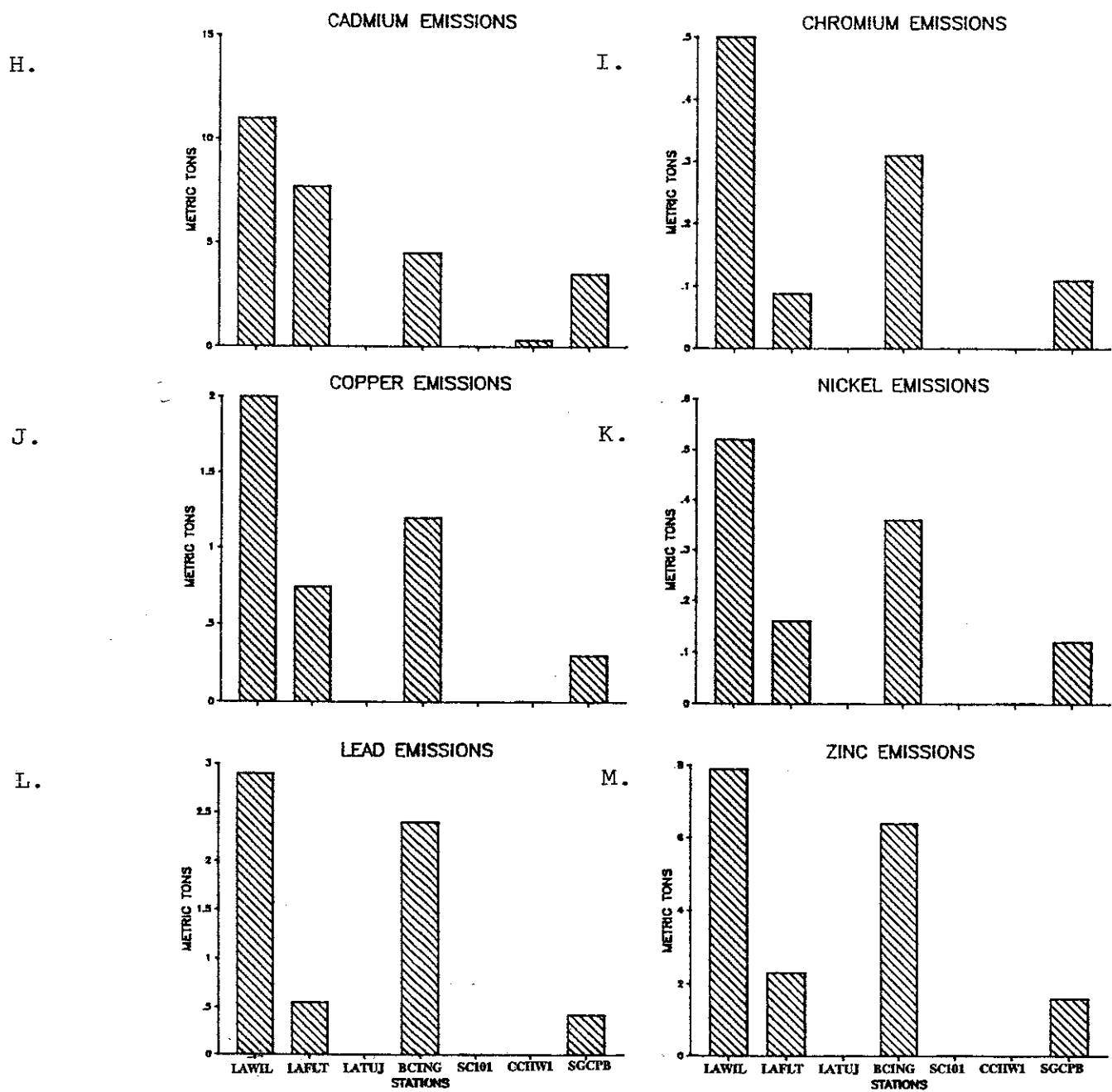
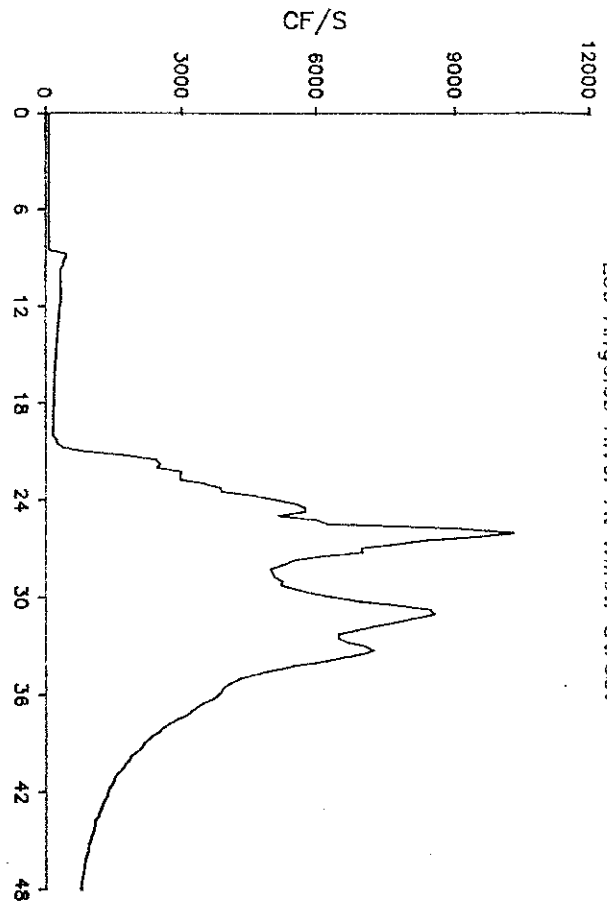
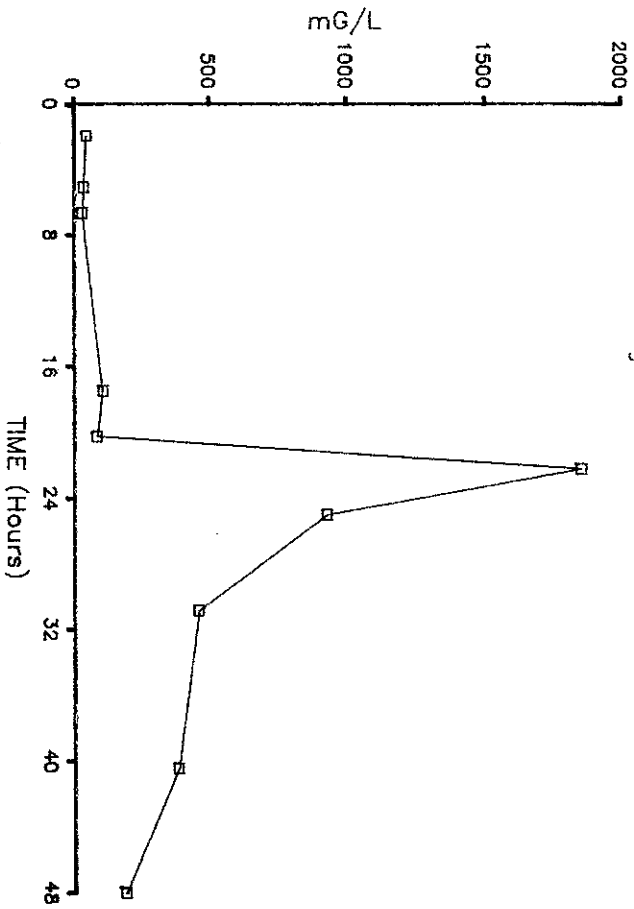


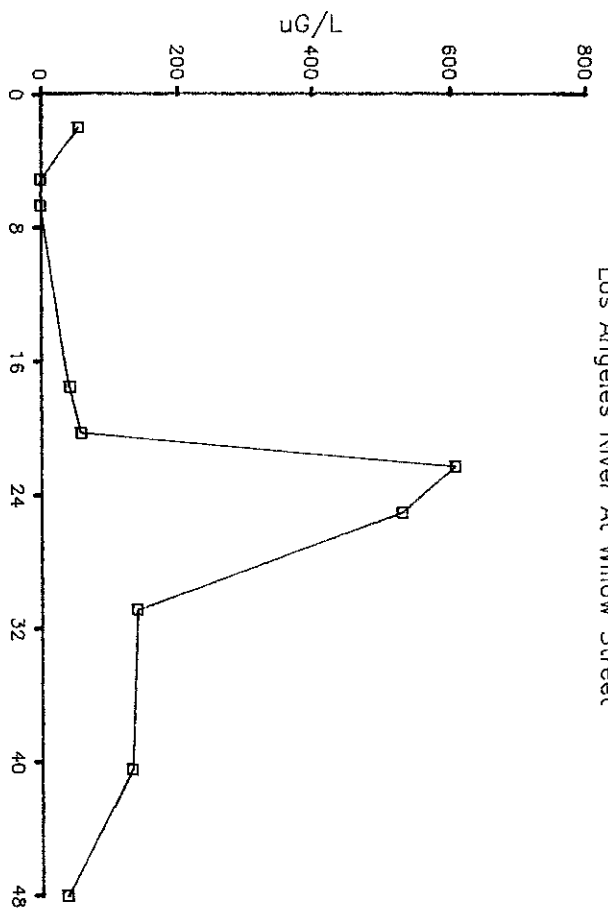
Figure 6 continued



C.  
**SUSPENDED SOLIDS**  
Los Angeles River At Willow Street



Los Angeles River At Willow Street



D.  
**OIL & GREASE**  
Los Angeles River At Willow Street

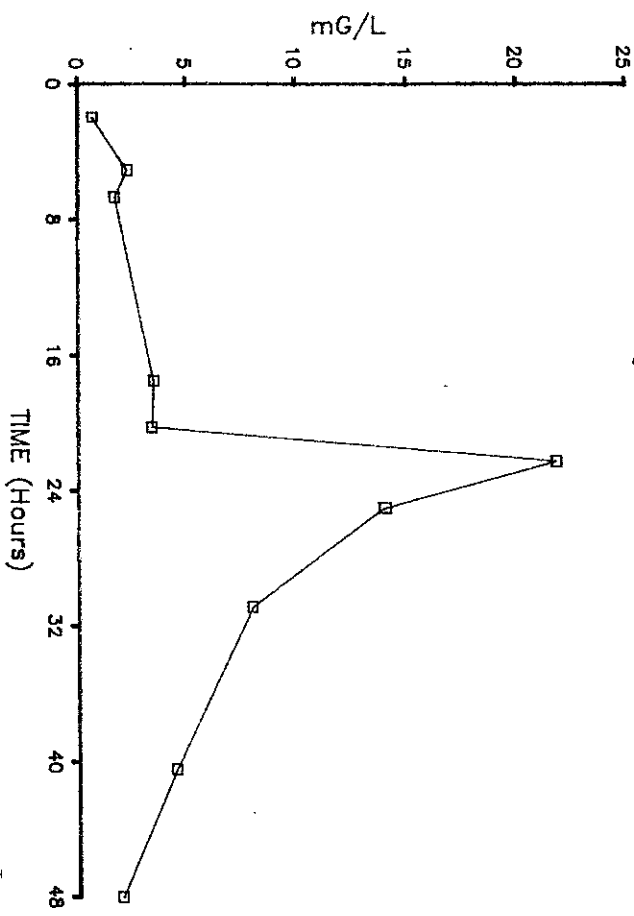
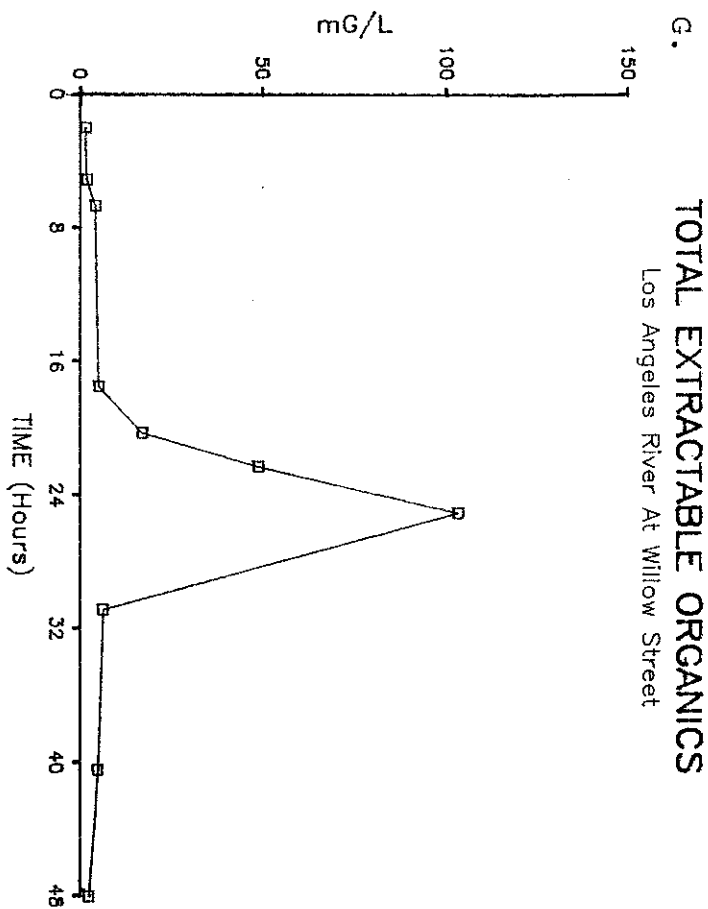
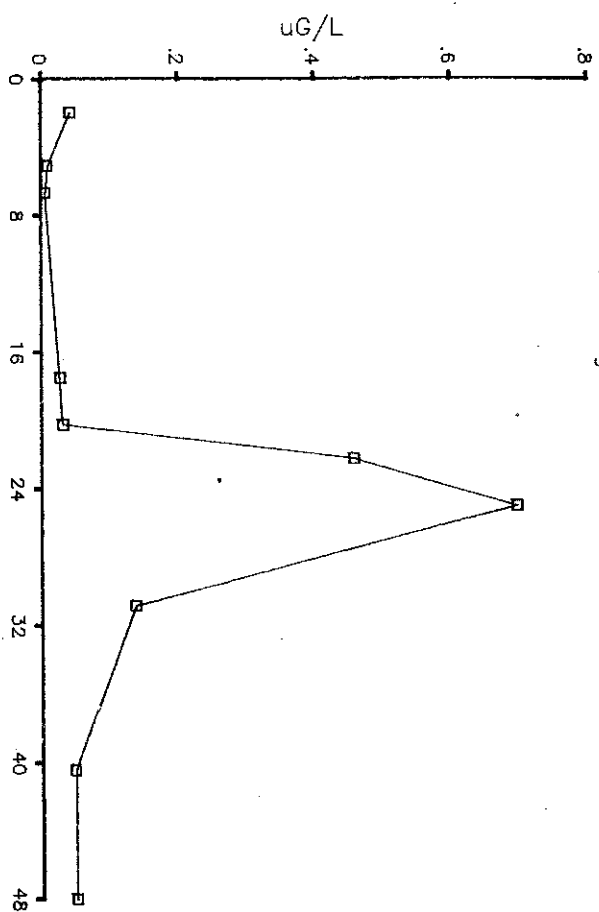


Figure 7.A-H Flow and contaminant concentrations at the Los Angeles River at Willow Street during the September 23-25, 1986 storm.

Los Angeles River At Willow Street



Los Angeles River At Willow Street

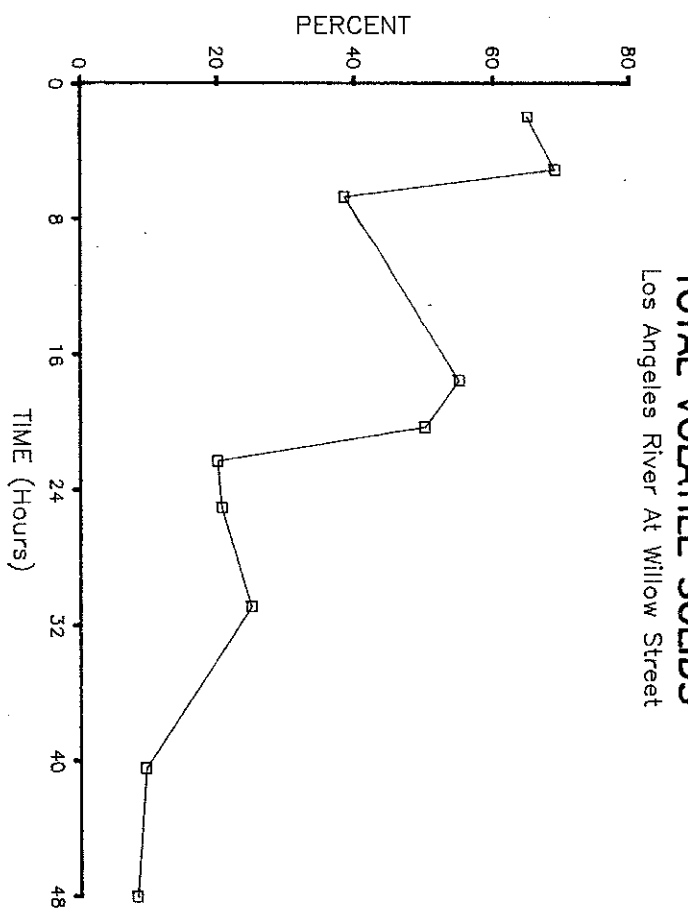
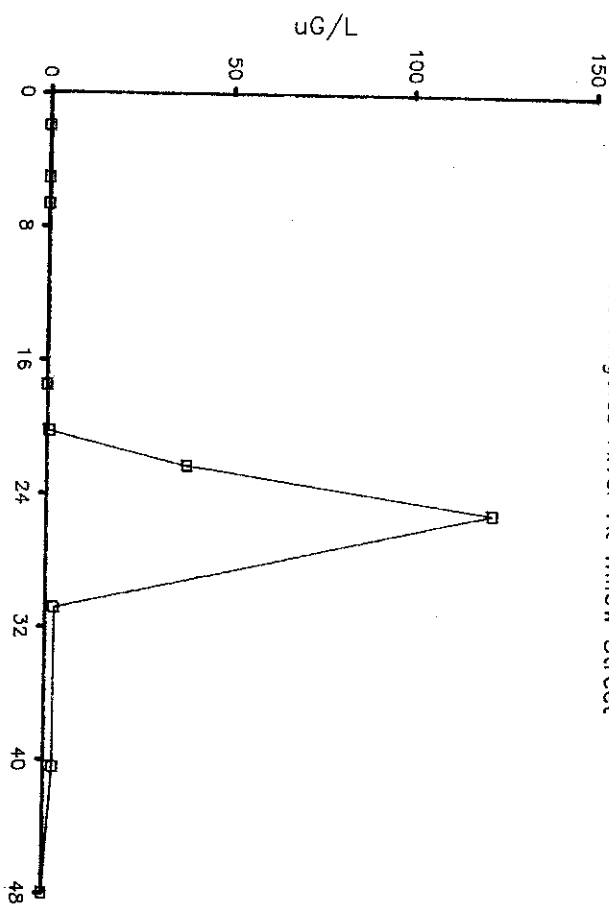
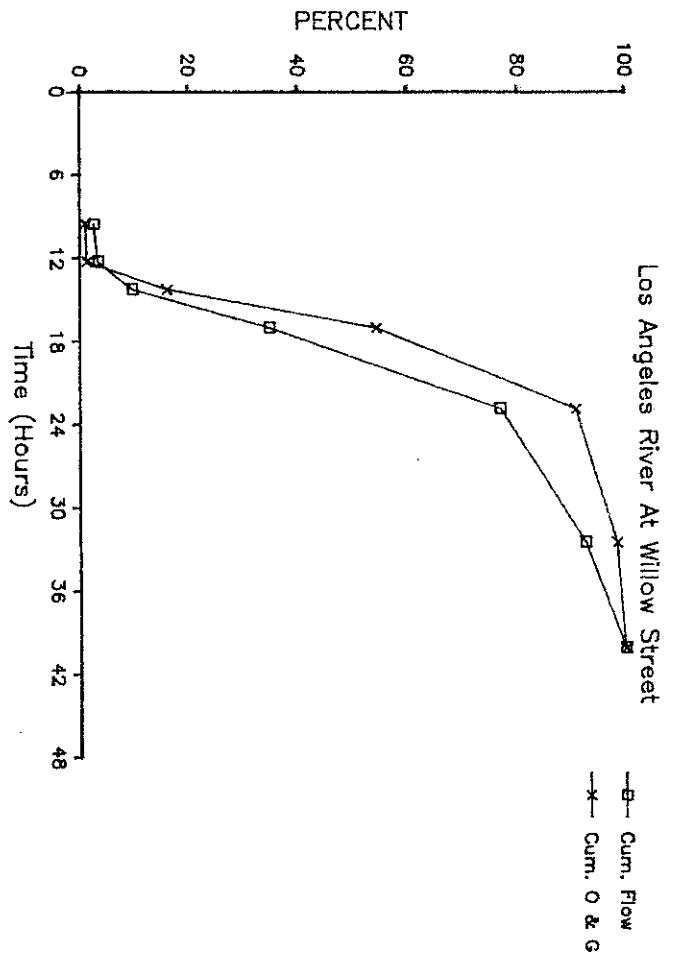
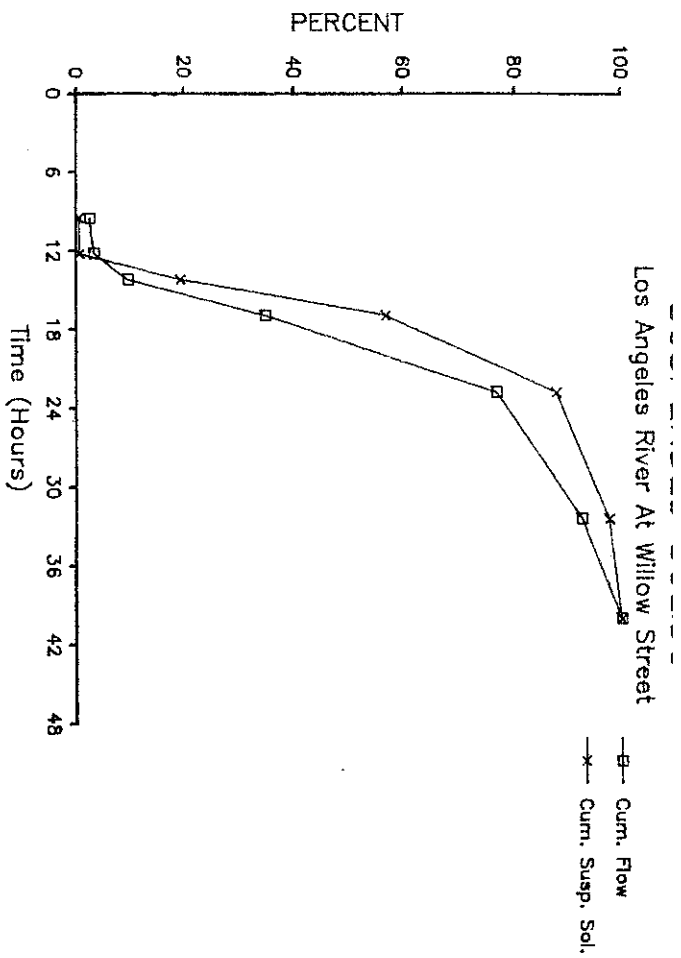
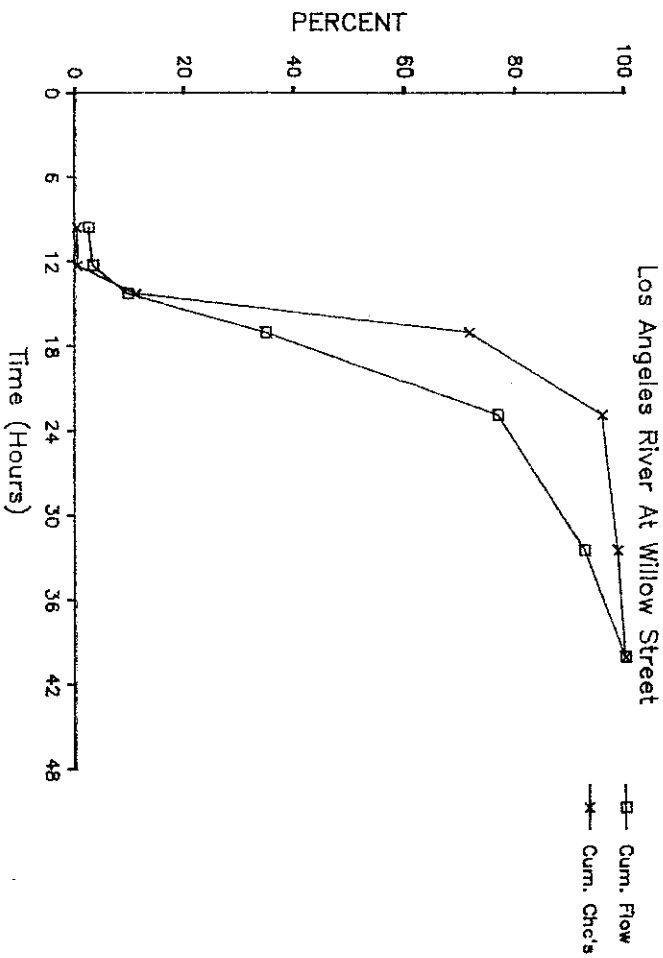


Figure 7 continued



### TOTAL CHLORINATED HYDROCARBONS



### TOTAL TRACE METALS

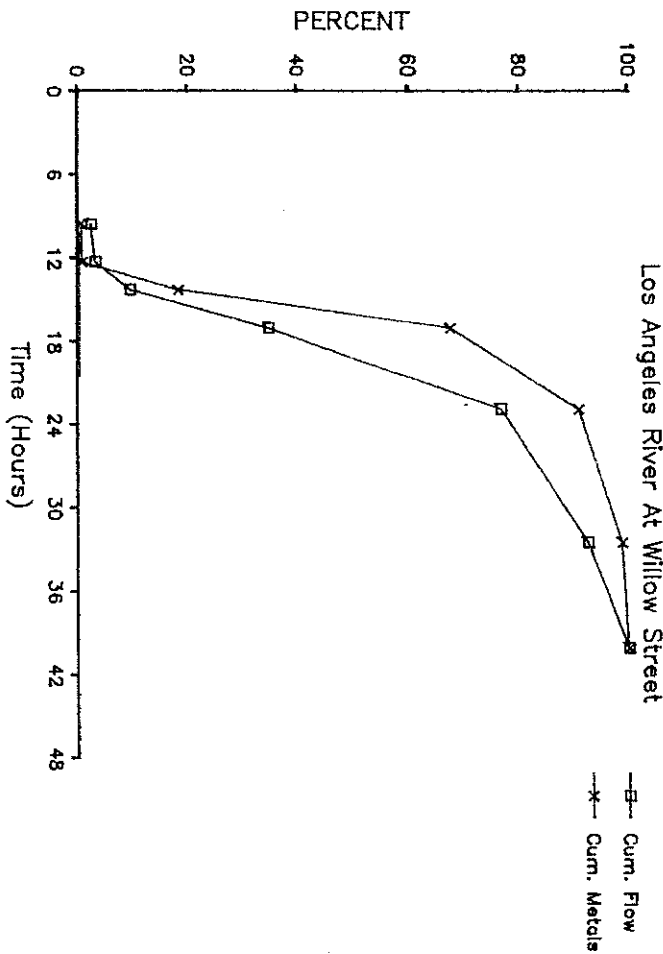
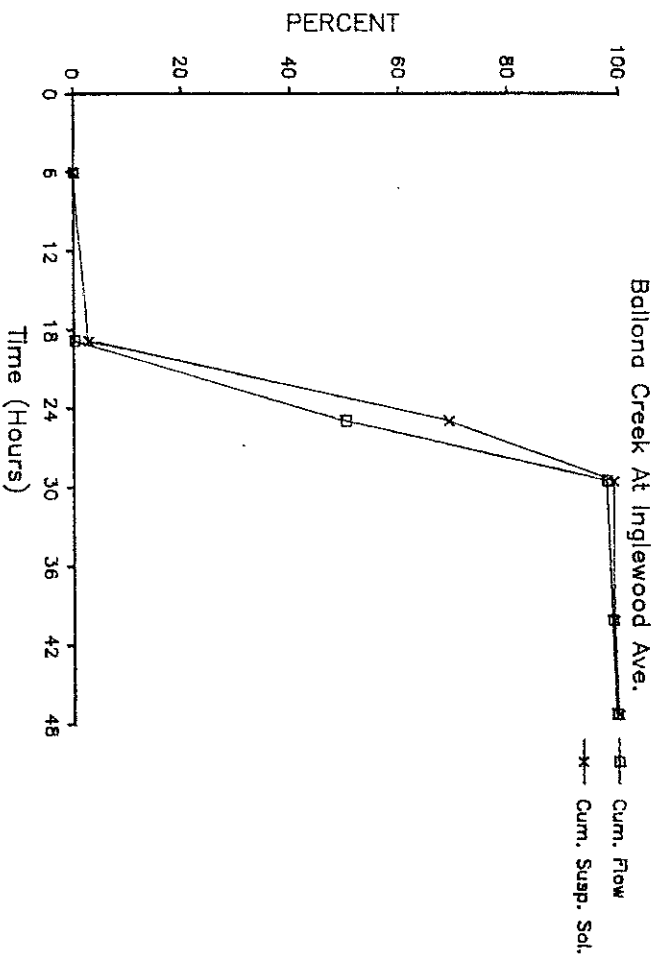
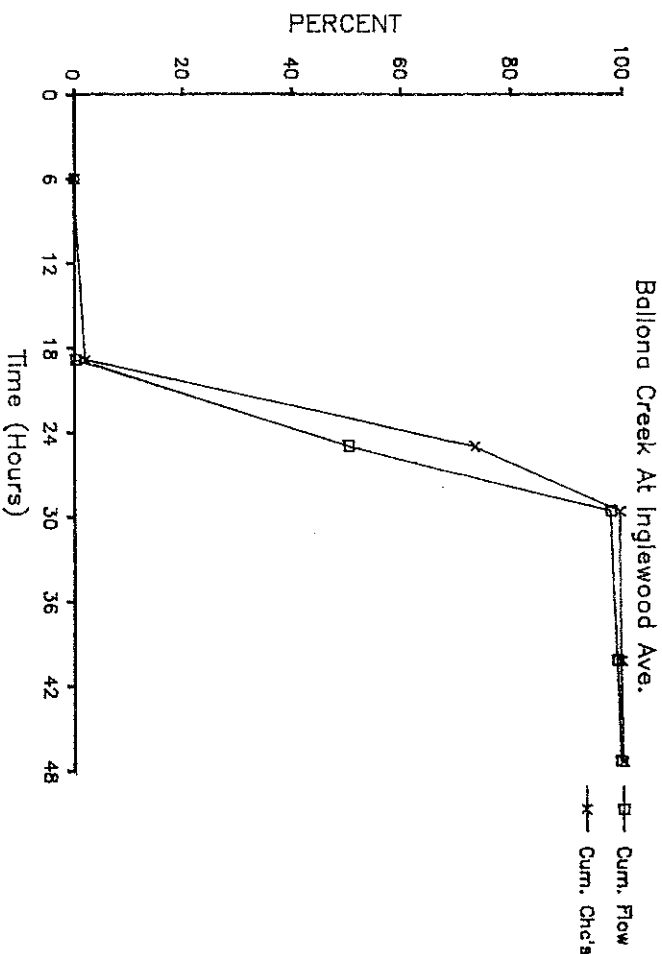


Figure 8 A-D Cumulative percentage of flow and contaminants for the Willow station

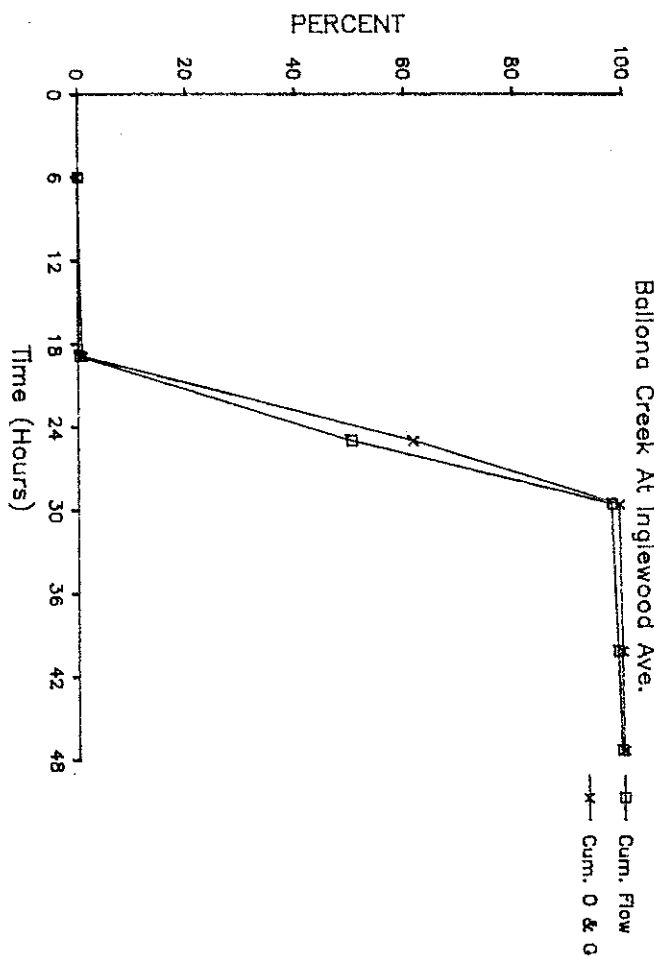
# SUSPENDED SOLIDS



# TOTAL CHLORINATED HYDROCARBONS



# OIL & GREASE



# TOTAL TRACE METALS

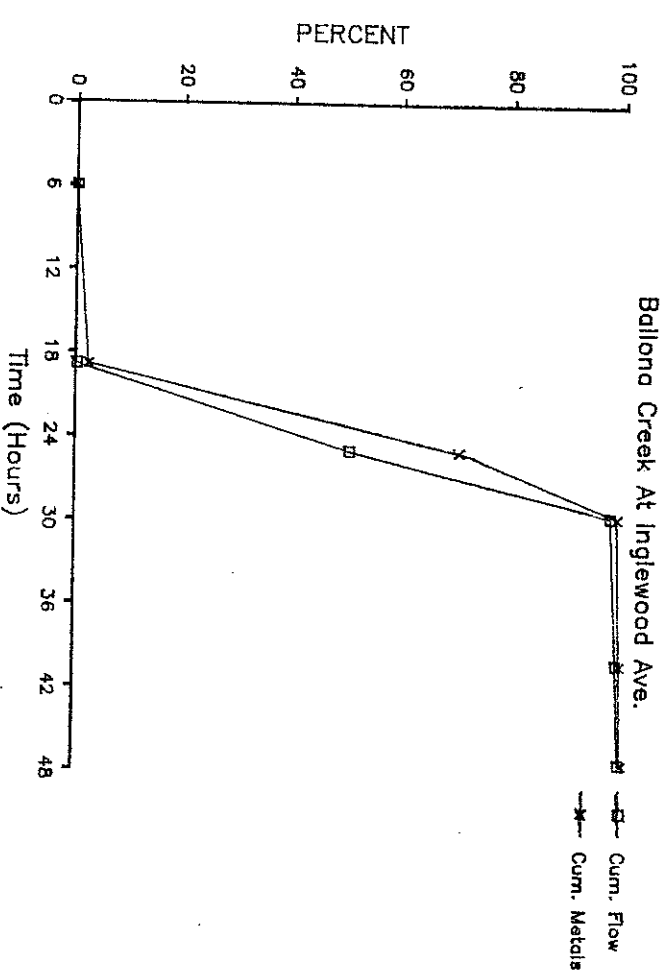


Figure 9 A-D Cumulative percentage of flow and contaminants at the Ballona Creek station



Figure 10a. LAWL05: 24 Sep 86 at 22.2 Hours

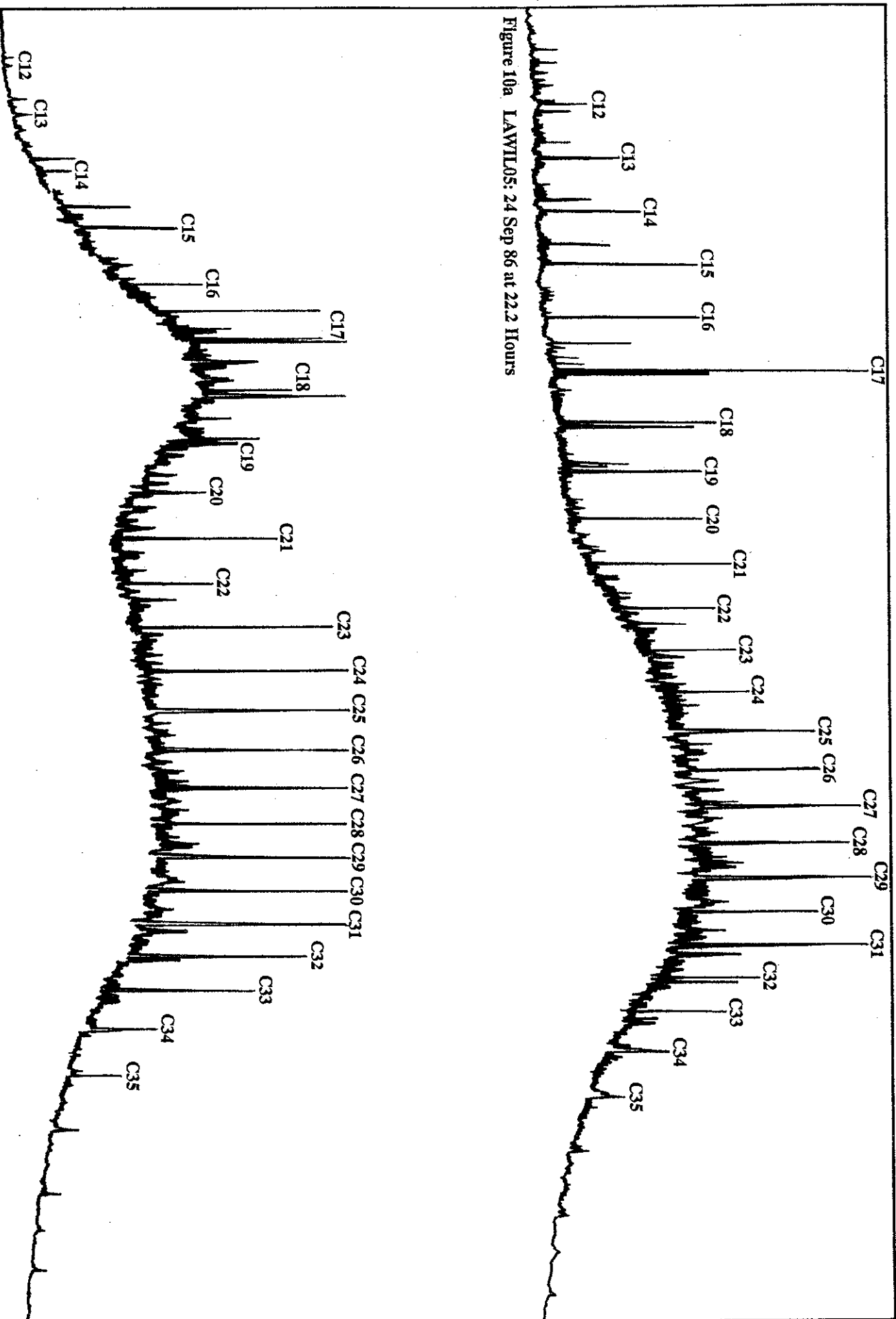


Figure 10b. BCING01: 23 Sep 86 at 5.9 Hours

Figure 10a and 10b. Aliphatic hydrocarbon chromatograms of stormwater runoff samples.

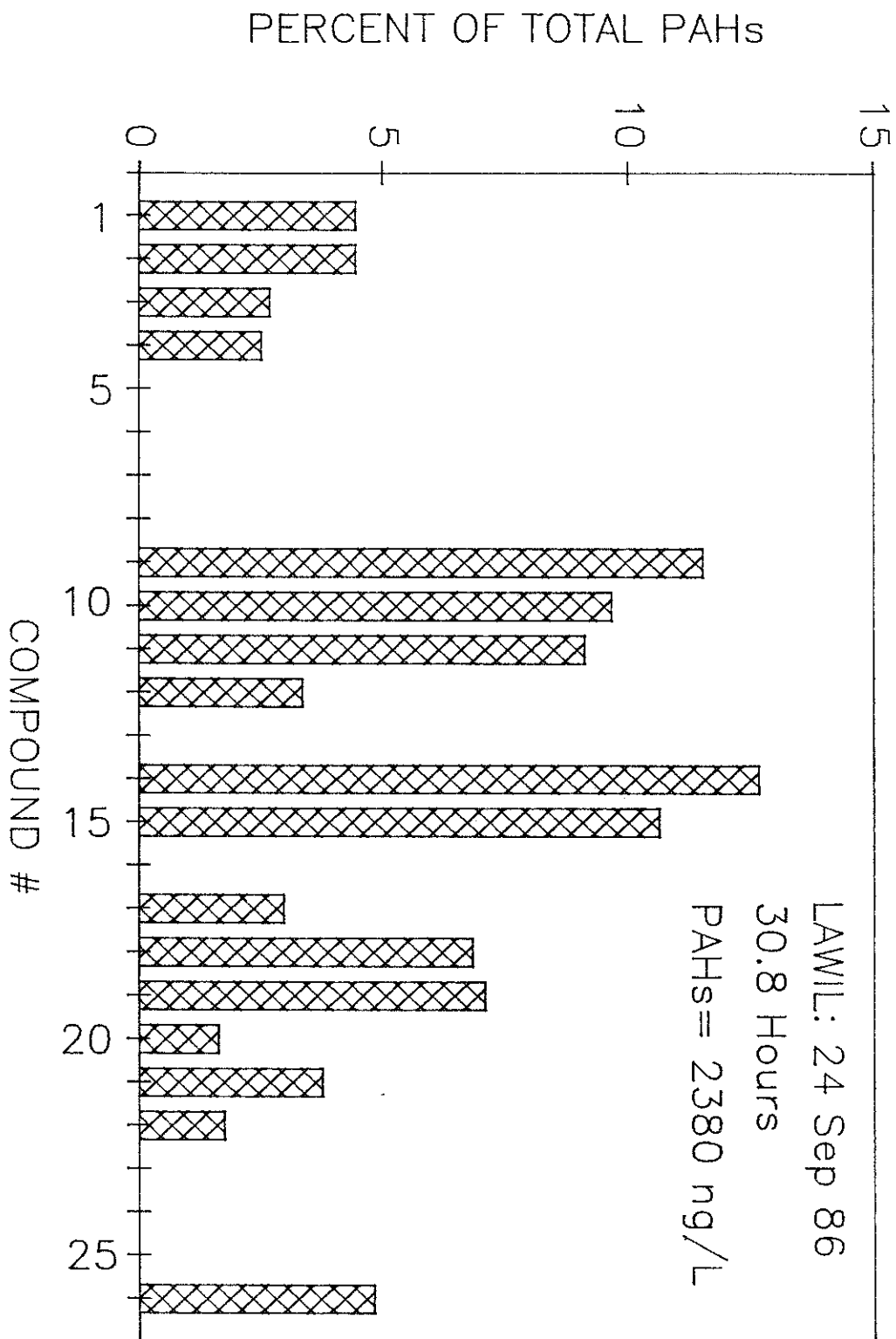


Figure 11. Relative abundances of 26 PAH compounds in runoff sampled at Willow Street on the Los Angeles River. (Compounds listed in Appendix A)

## **APPENDIX A**

### **Chemical Data**

SOUTHERN CALIFORNIA COASTAL WATER RESEARCH PROJECT  
LOS ANGELES/VENTURA RUNOFF SURVEY  
SAMPLE DATA SHEET

Channel: Los Angeles River  
Location: Willow Street  
Date: 23 Sep 86  
Time: 17:55

Flow (M\*\*3/Sec): 2.67  
Time Interval: 00:00-03:30  
Interval Vol (M\*\*3): .3710  
Storm #: 1

CONSTITUENT	CONC.	MASS	CONSTITUENT	CONC.	MASS
Suspended Solids	46mG/L	1.753 T	Naphthalene	<21nG/L	0 G
TVS	65%	***	C1-Naphthalenes	<21nG/L	0 G
Total Solids	627mG/L	23.89 T	C2-Naphthalenes	<21nG/L	0 G
Dissolved Solids	581mG/L	22.14 T	C3-Naphthalenes	<45nG/L	0 G
Oil & Grease	.7mG/L	.0267 T	Biphenyl	<21nG/L	0 G
Chloroform Extr.	1.4mG/L	.0533 T	Acenaphthylene	<21nG/L	0 G
Salinity	.5ppt	***	Acenaphthene	<45nG/L	0 G
pH	7	***	Fluorene	<20nG/L	0 G
			Phenanthrene	<20nG/L	0 G
Cadmium	3uG/L	.1143kG	C1-Phenanthrenes	<20nG/L	0 G
Chromium	<3uG/L	0kG	C2-Phenanthrenes	<20nG/L	0 G
Copper	12uG/L	.4572kG	C3-Phenanthrenes	<20nG/L	0 G
Nickel	16uG/L	.6096kG	Anthracene	<20nG/L	0 G
Lead	55uG/L	2.096kG	Fluoranthene	<16nG/L	0 G
Zinc	21uG/L	.8001kG	Pyrene	<16nG/L	0 G
Silver	<1uG/L	0kG	2,3-Benzofluorene	<48nG/L	0 G
			Benz(a)anthracene	<17nG/L	0 G
o,p'-DDE	1nG/L	.0381 G	Chrysene	<17nG/L	0 G
p,p'-DDE	5nG/L	.1905 G	Benzo(b)fluoranth	<14nG/L	0 G
o,p'-DDD	<1nG/L	0 G	Benzo(k)fluoranth	<14nG/L	0 G
p,p'-DDD	<1nG/L	0 G	Benzo(e)pyrene	<14nG/L	0 G
o,p'-DDT	<1nG/L	0 G	Benzo(a)pyrene	<14nG/L	0 G
p,p'-DDT	<1nG/L	0 G	Perylene	<14nG/L	0 G
TOTAL DDT	6nG/L	.2286 G	9,10-Diphenylanth	<14nG/L	0 G
			Dibenz(a,h)anthra	<12nG/L	0 G
Aroclor 1242	44nG/L	1.676 G	Benzo(g,h,i)peryl	<12nG/L	0 G
Aroclor 1254	<1nG/L	0 G	TOTAL PAH	0nG/L	0 G
TOTAL PCB	44nG/L	1.676 G			
			SURROGATE RECOVERY		
Hexachlorobenzene	4nG/L	.1524 G	d8-Naphthalene	41%	***
Lindane	<1nG/L	0 G	d10-Acenaphthene	71%	***
			d10-Phenanthrene	84%	***
Toxicity	NoTest	***	d12-Chrysene	118%	***
			d12-Perylene	122%	***
			Resolved HCs	0nG/L	0 G
			n-alkanes c10-c39	2234nG/L	85.12 G
			Pristane	348nG/L	13.26 G
			Phyostane	420nG/L	16.00 G

SOUTHERN CALIFORNIA COASTAL WATER RESEARCH PROJECT  
LOS ANGELES/VENTURA RUNOFF SURVEY  
SAMPLE DATA SHEET

Channel: Los Angeles River  
Location: Willow Street  
Date: 23 Sep 86  
Time: 21:05

Flow (M\*\*3/Sec): 2.78  
Time Interval: 03:30-05:45  
Interval Vol (M\*\*3): 22.500  
Storm #: 1

CONSTITUENT	CONC.	MASS	CONSTITUENT	CONC.	MASS
Suspended Solids	35mG/L	.896 T	Naphthalene	<15nG/L	0 G
TVS	69%	***	C1-Naphthalenes	<15nG/L	0 G
Total Solids	662mG/L	16.95 T	C2-Naphthalenes	<15nG/L	0 G
Dissolved Solids	627mG/L	16.05 T	C3-Naphthalenes	<32nG/L	0 G
Oil & Grease	2.3mG/L	.0589 T	Biphenyl	<15nG/L	0 G
Chloroform Extr.	1.7mG/L	.0435 T	Acenaphthylene	<15nG/L	0 G
Salinity	ppt	***	Acenaphthene	<32nG/L	0 G
pH		***	Fluorene	<14nG/L	0 G
			Phenanthrene	<14nG/L	0 G
Cadmium	2uG/L	.0512kG	C1-Phenanthrenes	<14nG/L	0 G
Chromium	<3uG/L	0kG	C2-Phenanthrenes	<14nG/L	0 G
Copper	15uG/L	.384kG	C3-Phenanthrenes	<14nG/L	0 G
Nickel	13uG/L	.3328kG	Anthracene	<14nG/L	0 G
Lead	<8uG/L	0kG	Fluoranthene	<12nG/L	0 G
Zinc	49uG/L	1.254kG	Pyrene	<12nG/L	0 G
Silver	<1uG/L	0kG	2,3-Benzofluorene	<34nG/L	0 G
			Benz(a)anthracene	<12nG/L	0 G
o,p'-DDE	<1nG/L	0 G	Chrysene	<12nG/L	0 G
p,p'-DDE	<1nG/L	0 G	Benzo(b)fluoranth	<10nG/L	0 G
o,p'-DDD	<1nG/L	0 G	Benzo(k)fluoranth	<10nG/L	0 G
p,p'-DDD	<1nG/L	0 G	Benzo(e)pyrene	<10nG/L	0 G
o,p'-DDT	<1nG/L	0 G	Benzo(a)pyrene	<10nG/L	0 G
p,p'-DDT	<1nG/L	0 G	Perylene	<10nG/L	0 G
TOTAL DDT	0nG/L	0 G	9,10-Diphenylanth	<10nG/L	0 G
			Dibenz(a,h)anthra	<9nG/L	0 G
Aroclor 1242	<1nG/L	0 G	Benzo(g,h,i)peryl	<9nG/L	0 G
Aroclor 1254	11nG/L	.2816 G	TOTAL PAH	0nG/L	0 G
TOTAL PCB	11nG/L	.2816 G			
			SURROGATE RECOVERY		
Hexachlorobenzene	<1nG/L	0 G	d8-Naphthalene	0%	***
Lindane	<1nG/L	0 G	d10-Acenaphthene	0%	***
			d10-Phenanthrene	0%	***
Toxicity	NoTest	***	d12-Chrysene	6%	***
			d12-Perylene	2%	***
			Resolved HCs	0nG/L	0 G
			n-alkanes c10-c39	750nG/L	19.2 G
			Pristane	375nG/L	9.6 G
			Phytane	0nG/L	0 G

SOUTHERN CALIFORNIA COASTAL WATER RESEARCH PROJECT  
LOS ANGELES/VENTURA RUNOFF SURVEY  
SAMPLE DATA SHEET

Channel: Los Angeles River  
Location: Willow Street  
Date: 23 Sep 86  
Time: 22:40

Flow (M\*\*3/Sec): 2.83  
Time Interval: 06:00-12:00  
Interval Vol (M\*\*3): 156.000  
Storm #: 1

CONSTITUENT	CONC.	MASS	CONSTITUENT	CONC.	MASS
Suspended Solids	31mG/L	4.96 T	Naphthalene	<18nG/L	0 G
TVS	39%	***	C1-Naphthalenes	<18nG/L	0 G
Total Solids	661mG/L	105.8 T	C2-Naphthalenes	<18nG/L	0 G
Dissolved Solids	630mG/L	100.8 T	C3-Naphthalenes	<38nG/L	0 G
Oil & Grease	1.7mG/L	.272 T	Biphenyl	<18nG/L	0 G
Chloroform Extr.	4.1mG/L	.656 T	Acenaphthylene	<18nG/L	0 G
Salinity	ppt	***	Acenaphthene	<38nG/L	0 G
pH		***	Fluorene	<17nG/L	0 G
			Phenanthrene	<17nG/L	0 G
Cadmium	3uG/L	.48kG	C1-Phenanthrenes	<17nG/L	0 G
Chromium	<3uG/L	0kG	C2-Phenanthrenes	<17nG/L	0 G
Copper	16uG/L	2.56kG	C3-Phenanthrenes	<17nG/L	0 G
Nickel	18uG/L	2.88kG	Anthracene	<17nG/L	0 G
Lead	<10uG/L	0kG	Fluoranthene	<14nG/L	0 G
Zinc	46uG/L	7.36kG	Pyrene	<14nG/L	0 G
Silver	<1uG/L	0kG	2,3-Benzofluorene	<41nG/L	0 G
			Benz (a) anthracene	<14nG/L	0 G
o,p'-DDE	<1nG/L	0 G	Chrysene	<14nG/L	0 G
p,p'-DDE	<1nG/L	0 G	Benzo (b) fluoranth	<12nG/L	0 G
o,p'-DDD	<1nG/L	0 G	Benzo (k) fluoranth	<12nG/L	0 G
p,p'-DDD	<1nG/L	0 G	Benzo (e) pyrene	<12nG/L	0 G
o,p'-DDT	<1nG/L	0 G	Benzo (a) pyrene	<12nG/L	0 G
p,p'-DDT	<1nG/L	0 G	Perylene	<12nG/L	0 G
TOTAL DDT	0nG/L	0 G	9,10-Diphenylanth	<10nG/L	0 G
			Dibenz (a,h) anthra	<10nG/L	0 G
Aroclor 1242	<1nG/L	0 G	Benzo (g,h,i) peryl	<10nG/L	0 G
Aroclor 1254	7nG/L	1.12 G	TOTAL PAH	0nG/L	0 G
TOTAL PCB	7nG/L	1.12 G			
			SURROGATE RECOVERY		
Hexachlorobenzene	<1nG/L	0 G	d8-Naphthalene	82%	***
Lindane	<1nG/L	0 G	d10-Acenaphthene	112%	***
			d10-Phenanthrene	99%	***
Toxicity	NoTest	***	d12-Chrysene	102%	***
			d12-Perylene	127%	***
			Resolved HCs	0nG/L	0 G
			n-alkanes c10-c39	901nG/L	144.2 G
			Pristane	386nG/L	61.76 G
			Phytane	398nG/L	63.68 G

SOUTHERN CALIFORNIA COASTAL WATER RESEARCH PROJECT  
LOS ANGELES/VENTURA RUNOFF SURVEY  
SAMPLE DATA SHEET

Channel: Los Angeles River  
Location: Willow Street  
Date: 24 Sep 86  
Time: 09:30

Flow (M\*\*3/Sec): 5.21  
Time Interval: 12:15-18:45  
Interval Vol (M\*\*3): 154.000  
Storm #: 1

CONSTITUENT	CONC.	MASS	CONSTITUENT	CONC.	MASS
Suspended Solids	106 mg/L	16.75 T	Naphthalene	<18 ng/L	0
TVS	55 %	***	C1-Naphthalenes	<18 ng/L	0
Total Solids	669 mg/L	105.7 T	C2-Naphthalenes	<18 ng/L	0
Dissolved Solids	563 mg/L	88.95 T	C3-Naphthalenes	<38 ng/L	0
Oil & Grease	3.5 mg/L	.553 T	Biphenyl	<18 ng/L	0
Chloroform Extr.	5.1 mg/L	.8058 T	Acenaphthylene	<18 ng/L	0
Salinity	0 ppt	***	Acenaphthene	<38 ng/L	0
pH	5.5	***	Fluorene	<17 ng/L	0
			Phenanthrene	<17 ng/L	0
Cadmium	3 ug/L	.474kG	C1-Phenanthrenes	<17 ng/L	0
Chromium	9 ug/L	1.422kG	C2-Phenanthrenes	<17 ng/L	0
Copper	40 ug/L	6.32kG	C3-Phenanthrenes	<17 ng/L	0
Nickel	33 ug/L	5.214kG	Anthracene	<17 ng/L	0
Lead	42 ug/L	6.636kG	Fluoranthene	<14 ng/L	0
Zinc	157 ug/L	24.81kG	Pyrene	<14 ng/L	0
Silver	<1 ug/L	0kG	2,3-Benzofluorene	<41 ng/L	0
			Benz(a)anthracene	<14 ng/L	0
o,p'-DDE	2 ng/L	.316 G	Chrysene	<14 ng/L	0
p,p'-DDE	3 ng/L	.474 G	Benzo(b)fluoranth	<12 ng/L	0
o,p'-DDD	<1 ng/L	0 G	Benzo(k)fluoranth	<12 ng/L	0
p,p'-DDD	2 ng/L	.316 G	Benzo(e)pyrene	<12 ng/L	0
o,p'-DDT	1 ng/L	.158 G	Benzo(a)pyrene	<12 ng/L	0
p,p'-DDT	2 ng/L	.316 G	Perylene	<12 ng/L	0
TOTAL DDT	10 ng/L	1.58 G	9,10-Diphenylanth	<12 ng/L	0
			Dibenz(a,h)anthra	<10 ng/L	0
Aroclor 1242	5 ng/L	.79 G	Benzo(g,h,i)peryl	<10 ng/L	0
Aroclor 1254	24 ng/L	3.792 G	TOTAL PAH	0 ng/L	0
TOTAL PCB	29 ng/L	4.582 G			
			SURROGATE RECOVERY		
Hexachlorobenzene	1 ng/L	.158 G	d8-Naphthalene	83 %	***
Lindane	4 ng/L	.632 G	d10-Acenaphthene	103 %	***
			d10-Phenanthrene	114 %	***
Toxicity	NoTest	***	d12-Chrysene	157 %	***
			d12-Perylene	141 %	***
			Resolved HCs	15844 ng/L	2503.
			n-alkanes c10-c39	12410 ng/L	1961.
			Pristane	1292 ng/L	204.1
			Phytane	1495 ng/L	236.2

SOUTHERN CALIFORNIA COASTAL WATER RESEARCH PROJECT  
LOS ANGELES/VENTURA RUNOFF SURVEY  
SAMPLE DATA SHEET

Channel: Los Angeles River  
Location: Willow Street  
Date: 24 Sep 86  
Time: 5 12:15

Flow (M\*\*3/Sec): 7.22  
Time Interval: 19:00-21:15  
Interval Vol (M\*\*3): 113000  
Storm #: 1

CONSTITUENT	CONC.	MASS	CONSTITUENT	CONC.	MASS
Suspended Solids	83mG/L	7.761 T	Naphthalene	82nG/L	7.667
TVS	50%	***	C1-Naphthalenes	70nG/L	6.545
Total Solids	623mG/L	58.25 T	C2-Naphthalenes	<17nG/L	0
Dissolved Solids	540mG/L	50.49 T	C3-Naphthalenes	<35nG/L	0
Oil & Grease	3.4mG/L	.3179 T	Biphenyl	<17nG/L	0
Chloroform Extr.	16.9mG/L	1.580 T	Acenaphthylene	<17nG/L	0
Salinity	ppt	***	Acenaphthene	<35nG/L	0
pH		***	Fluorene	<16nG/L	0
			Phenanthrene	163nG/L	15.24
Cadmium	4uG/L	.374kG	C1-Phenanthrenes	65nG/L	6.078
Chromium	7uG/L	.6545kG	C2-Phenanthrenes	65nG/L	6.078
Copper	53uG/L	4.956kG	C3-Phenanthrenes	<16nG/L	0
Nickel	39uG/L	3.647kG	Anthracene	<16nG/L	0
Lead	58uG/L	5.423kG	Fluoranthene	78nG/L	7.293
Zinc	244uG/L	22.81kG	Pyrene	102nG/L	9.537
Silver	<1uG/L	0kG	2,3-Benzofluorene	<38nG/L	0
			Benz(a)anthracene	<13nG/L	0
o,p'-DDE	3nG/L	.2805 G	Chrysene	56nG/L	5.236
p,p'-DDE	6nG/L	.561 G	Benzo(b)fluoranth	16nG/L	1.496
o,p'-DDD	<1nG/L	0 G	Benzo(k)fluoranth	<11nG/L	0
p,p'-DDD	1nG/L	.0935 G	Benzo(e)pyrene	50nG/L	4.675
o,p'-DDT	2nG/L	.187 G	Benzo(a)pyrene	<11nG/L	0
p,p'-DDT	<1nG/L	0 G	Perylene	<11nG/L	0
TOTAL DDT	12nG/L	1.122 G	9,10-Diphenylanth	<11nG/L	0
			Dibenz(a,h)anthra	<9nG/L	0
Aroclor 1242	<1nG/L	0 G	Benzo(g,h,i)peryl	33nG/L	3.086
Aroclor 1254	33nG/L	3.086 G	TOTAL PAH	780nG/L	72.93
TOTAL PCB	33nG/L	3.086 G			
			SURROGATE RECOVERY		
Hexachlorobenzene	1nG/L	.0935 G	d8-Naphthalene	72%	***
Lindane	9nG/L	.8415 G	d10-Acenaphthene	109%	***
			d10-Phenanthrene	112%	***
Toxicity	NoTest	***	d12-Chrysene	125%	***
			d12-Perylene	116%	***
			Resolved HCs	1.0e5nG/L	9427.
			n-alkanes c10-c39	61151nG/L	5718.
			Pristane	5363nG/L	501.4
			Phytane	5885nG/L	550.2



SOUTHERN CALIFORNIA COASTAL WATER RESEARCH PROJECT  
LOS ANGELES/VENTURA RUNOFF SURVEY  
SAMPLE DATA SHEET

Channel: Los Angeles River  
Location: Willow Street  
Date: 24 Sep 86  
Time: 14:15

Flow (M\*\*3/Sec): 85.0  
Time Interval: 21:15-23:30  
Interval Vol (M\*\*3): 703.00  
Storm #: 1

CONSTITUENT	CONC.	MASS	CONSTITUENT	CONC.	MASS
Suspended Solids	1850 mg/L	1378. T	Naphthalene	<8 ng/L	0 G
TVS	20 %	***	C1-Naphthalenes	169 ng/L	125.9 G
Total Solids	2280 mg/L	1699. T	C2-Naphthalenes	1350 ng/L	1006. G
Dissolved Solids	430 mg/L	320.4 T	C3-Naphthalenes	6180 ng/L	4604. G
Oil & Grease	21.8 mg/L	16.24 T	Biphenyl	51 ng/L	38.00 G
Chloroform Extr.	48.7 mg/L	36.28 T	Acenaphthylene	<8 ng/L	0 G
Salinity	0 ppt	***	Acenaphthene	32 ng/L	23.84 G
pH	6	***	Fluorene	206 ng/L	153.5 G
Cadmium	21 ug/L	15.65kG	Phenanthrene	1810 ng/L	1348. G
Chromium	147 ug/L	109.5kG	C1-Phenanthrenes	3860 ng/L	2876. G
Copper	512 ug/L	381.4kG	C2-Phenanthrenes	6070 ng/L	4522. G
Nickel	131 ug/L	97.60kG	C3-Phenanthrenes	5790 ng/L	4314. G
Lead	607 ug/L	452.2kG	Anthracene	278 ng/L	207.1 G
Zinc	1971 ug/L	1468.kG	Fluoranthene	1940 ng/L	1445. G
Silver	<1 ug/L	0kG	Pyrene	2230 ng/L	1661. G
o,p'-DDE	62 ng/L	46.19 G	2,3-Benzofluorene	1050 ng/L	782.3 G
p,p'-DDE	34 ng/L	25.33 G	Benz(a)anthracene	899 ng/L	669.8 G
o,p'-DDD	<1 ng/L	0 G	Chrysene	1920 ng/L	1430. G
p,p'-DDD	20 ng/L	14.9 G	Benzo(b)fluoranth	<5 ng/L	0 G
o,p'-DDT	35 ng/L	26.08 G	Benzo(k)fluoranth	2540 ng/L	1892. G
p,p'-DDT	<1 ng/L	0 G	Benzo(e)pyrene	<5 ng/L	0 G
TOTAL DDT	151 ng/L	112.5 G	Benzo(a)pyrene	1420 ng/L	1058. G
Aroclor 1242	<1 ng/L	0 G	Perylene	28 ng/L	20.86 G
Aroclor 1254	459 ng/L	342.0 G	9,10-Diphenylanth	123 ng/L	91.64 G
TOTAL PCB	459 ng/L	342.0 G	Dibenz(a,h)anthra	103 ng/L	76.74 G
Hexachlorobenzene	7 ng/L	5.215 G	Benzo(g,h,i)peryl	213 ng/L	158.7 G
Lindane	22 ng/L	16.39 G	TOTAL PAH	38200 ng/L	28459 G
Toxicity	NoTest	***	SURROGATE RECOVER		
			d8-Naphthalene	0 %	***
			d10-Acenaphthene	80 %	***
			d10-Phenanthrene	123 %	***
			d12-Chrysene	191 %	***
			d12-Perylene	181 %	***
			Resolved HCs	5.3e5 ng/L	4.0e5 (
			n-alkanes c10-c39	2.5e5 ng/L	1.9e5 (
			Pristane	25698 ng/L	19145 (
			Phytane	32676 ng/L	24344 (

SOUTHERN CALIFORNIA COASTAL WATER RESEARCH PROJECT  
LOS ANGELES/VENTURA RUNOFF SURVEY  
SAMPLE DATA SHEET

Channel: Los Angeles River  
Location: Willow Street  
Date: 24 Sep 86  
Time: 17:00

Flow (M\*\*3/Sec): 146  
Time Interval: 23:45-27:45  
Interval Vol (M\*\*3): 2.93x10<sup>6</sup>  
Storm #: 1

CONSTITUENT	CONC.	MASS	CONSTITUENT	CON	MASS
Suspended Solids	927mg/L	2781 T	Naphthalene	598ng/L	1794 G
TVS	21%	***	C1-Naphthalenes	1460ng/L	4380 G
Total Solids	1220mg/L	3660 T	C2-Naphthalenes	2270ng/L	6810 G
Dissolved Solids	293mg/L	879 T	C3-Naphthalenes	6570ng/L	19710 G
Oil & Grease	14mg/L	42 T	Biphenyl	84ng/L	252 G
Chloroform Extr.	103mg/L	309 T	Acenaphthylene	104ng/L	312 G
Salinity	0ppt	***	Acenaphthene	141ng/L	423 G
pH	5.5	***	Fluorene	255ng/L	765 G
			Phenanthrene	5230ng/L	15690 G
Cadmium	10ug/L	30kG	C1-Phenanthrenes	5200ng/L	15600 G
Chromium	88ug/L	264kG	C2-Phenanthrenes	5280ng/L	15840 G
Copper	273ug/L	819kG	C3-Phenanthrenes	4550ng/L	13650 G
Nickel	75ug/L	225kG	Anthracene	999ng/L	2997 G
Lead	531ug/L	1593kG	Fluoranthene	16900ng/L	50700 G
Zinc	1400ug/L	4200kG	Pyrene	15100ng/L	45300 G
Silver	<1ug/L	0kG	2,3-Benzofluorene	2380ng/L	7140 G
			Benz(a)anthracene	6310ng/L	18930 G
o,p'-DDE	39ng/L	117 G	Chrysene	23900ng/L	71700 G
p,p'-DDE	42ng/L	126 G	Benzo(b)fluoranth	10200ng/L	30600 G
o,p'-DDD	<1ng/L	0 G	Benzo(k)fluoranth	6150ng/L	18450 G
p,p'-DDD	30ng/L	90 G	Benzo(e)pyrene	4980ng/L	14940 G
o,p'-DDT	31ng/L	93 G	Benzo(a)pyrene	1740ng/L	5220 G
p,p'-DDT	27ng/L	81 G	Perylene	582ng/L	1746 G
TOTAL DDT	169ng/L	507 G	9,10-Diphenylanth	53ng/L	159 G
			Dibenz(a,h)anthra	261ng/L	783 G
Aroclor 1242	267ng/L	801 G	Benzo(g,h,i)peryl	984ng/L	2952 G
Aroclor 1254	428ng/L	1284 G	TOTAL PAH	1.2e5ng/L	3.6e5 G
TOTAL PCB	695ng/L	2085 G			
			SURROGATE RECOVERY		
Hexachlorobenzene	9ng/L	27 G	d8-Naphthalene	86%	***
Lindane	25ng/L	75 G	d10-Acenaphthene	140%	***
			d10-Phenanthrene	134%	***
Toxicity	Notest	***	d12-Chrysene	184%	***
			d12-Perylene	190%	***
			Resolved HCs	6.0e6ng/L	1.8e7 G
			n-alkanes c10-c39	3.7e5ng/L	1.1e6 G
			Pristane	37119ng/L	1.1e5 G
			Phytane	48395ng/L	1.5e5 G

SOUTHERN CALIFORNIA COASTAL WATER RESEARCH PROJECT  
LOS ANGELES/VENTURA RUNOFF SURVEY  
SAMPLE DATA SHEET

Channel: Los Angeles River  
Location: Willow Street  
Date: 24 Sep 86  
Time: 22:50

Flow (M\*\*3/Sec): 240  
Time Interval: 28:00-35:30  
Interval Vol (M\*\*3): 4.89 x 10<sup>6</sup>  
Storm #: 1

CONSTITUENT	CONC.	MASS	CONSTITUENT	CONC.	MASS
Suspended Solids	458mG/L	2290 T	Naphthalene	106nG/L	530 G
TVS	25%	***	C1-Naphthalenes	106nG/L	530 G
Total Solids	692mG/L	3460 T	C2-Naphthalenes	64nG/L	320 G
Dissolved Solids	234mG/L	1170 T	C3-Naphthalenes	60nG/L	300 G
Oil & Grease	8mG/L	40 T	Biphenyl	<15nG/L	0 G
Chloroform Extr.	6.1mG/L	30.5 T	Acenaphthylene	<15nG/L	0 G
Salinity	0ppt	***	Acenaphthene	<32nG/L	0 G
pH	6	***	Fluorene	<14nG/L	0 G
Cadmium	3uG/L	15kG	Phenanthrene	274nG/L	1370 G
Chromium	18uG/L	90kG	C1-Phenanthrenes	230nG/L	1150 G
Copper	144uG/L	720kG	C2-Phenanthrenes	217nG/L	1085 G
Nickel	26uG/L	130kG	C3-Phenanthrenes	80nG/L	400 G
Lead	139uG/L	695kG	Anthracene	<15nG/L	0 G
Zinc	348uG/L	1740kG	Fluoranthene	301nG/L	1505 G
Silver	<1uG/L	0kG	Pyrene	253nG/L	1265 G
o,p'-DDE	12nG/L	60 G	2,3-Benzofluorene	<34nG/L	0 G
p,p'-DDE	18nG/L	90 G	Benz(a)anthracene	71nG/L	355 G
o,p'-DDD	<1nG/L	0 G	Chrysene	163nG/L	815 G
p,p'-DDD	8nG/L	40 G	Benzo(b)fluoranth	169nG/L	845 G
o,p'-DDT	12nG/L	60 G	Benzo(k)fluoranth	39nG/L	195 G
p,p'-DDT	10nG/L	50 G	Benzo(e)pyrene	90nG/L	450 G
TOTAL DDT	60nG/L	300 G	Benzo(a)pyrene	42nG/L	210 G
Aroclor 1242	62nG/L	310 G	Perylene	<10nG/L	0 G
Aroclor 1254	76nG/L	380 G	9,10-Diphenylanth	<10nG/L	0 G
TOTAL PCB	138nG/L	690 G	Dibenz(a,h)anthra	<9nG/L	0 G
Hexachlorobenzene	2nG/L	10 G	Benzo(g,h,i)peryl	115nG/L	575 G
Lindane	17nG/L	85 G	TOTAL PAH	2380nG/L	11900 G
Toxicity	NoTest	***	SURROGATE RECOVERY		
			d8-Naphthalene	79%	***
			d10-Acenaphthene	136%	***
			d10-Phenanthrene	122%	***
			d12-Chrysene	147%	***
			d12-Perylene	116%	***
			Resolved HCs	1.6e6nG/L	7.8e6 G
			n-alkanes c10-c39	1.0e6nG/L	5.0e6 G
			Fristane	9328nG/L	46640 G
			Phytane	11333nG/L	56665 G

SOUTHERN CALIFORNIA COASTAL WATER RESEARCH PROJECT  
LOS ANGELES/VENTURA RUNOFF SURVEY  
SAMPLE DATA SHEET

Channel: Los Angeles River  
Location: Willow Street  
Date: 25 Sep 86  
Time: 08:25

Flow (M\*\*3/Sec): 49.3  
Time Interval: 35:30-44:00  
Interval Vol (M\*\*3):  $1.82 \times 10^6$   
Storm #: 1

CONSTITUENT	CONC.	MASS	CONSTITUENT	CONC.	MASS
Suspended Solids	383 mg/L	727.7 T	Naphthalene	96 ng/L	182.4 G
TVS	9.7 %	***	C1-Naphthalenes	193 ng/L	366.7 G
Total Solids	596 mg/L	1132. T	C2-Naphthalenes	251 ng/L	476.9 G
Dissolved Solids	213 mg/L	404.7 T	C3-Naphthalenes	162 ng/L	307.8 G
Oil & Grease	4.5 mg/L	8.55 T	Biphenyl	<6 ng/L	0 G
Chloroform Extr.	4.7 mg/L	8.93 T	Acenaphthylene	<6 ng/L	0 G
Salinity	ppt	***	Acenaphthene	<12 ng/L	0 G
pH		***	Fluorene	31 ng/L	58.9 G
			Phenanthrene	255 ng/L	484.5 G
Cadmium	2 ug/L	3.8kG	C1-Phenanthrenes	185 ng/L	351.5 G
Chromium	28 ug/L	53.2kG	C2-Phenanthrenes	201 ng/L	381.9 G
Copper	83 ug/L	157.7kG	C3-Phenanthrenes	72 ng/L	136.8 G
Nickel	34 ug/L	64.6kG	Anthracene	<6 ng/L	0 G
Lead	131 ug/L	248.9kG	Fluoranthene	241 ng/L	457.9 G
Zinc	330 ug/L	627kG	Pyrene	239 ng/L	454.1 G
Silver	<1 ug/L	0kG	2,3-Benzofluorene	19 ng/L	36.1 G
			Benz(a)anthracene	50 ng/L	95 G
o,p'-DDE	<1 ng/L	0 G	Chrysene	154 ng/L	292.6 G
p,p'-DDE	5 ng/L	9.5 G	Benzo(b)fluoranth	184 ng/L	349.6 G
o,p'-DDD	<1 ng/L	0 G	Benzo(k)fluoranth	<4 ng/L	0 G
p,p'-DDD	2 ng/L	3.8 G	Benzo(e)pyrene	86 ng/L	163.4 G
o,p'-DDT	10 ng/L	19 G	Benzo(a)pyrene	53 ng/L	100.7 G
p,p'-DDT	<1 ng/L	0 G	Perylene	12 ng/L	22.8 G
TOTAL DDT	17 ng/L	32.3 G	9,10-Diphenylanth	<4 ng/L	0 G
			Dibenz(a,h)anthra	<3 ng/L	0 G
Aroclor 1242	<1 ng/L	0 G	Benzo(g,h,i)peryl	102 ng/L	193.8 G
Aroclor 1254	49 ng/L	93.1 G	TOTAL PAH	2590 ng/L	4921 G
TOTAL PCB	49 ng/L	93.1 G			
			SURROGATE RECOV.		
Hexachlorobenzene	1 ng/L	1.9 G	d8-Naphthalene	73 %	***
Lindane	<1 ng/L	0 G	d10-Acenaphthene	134 %	***
			d10-Phenanthrene	129 %	***
Toxicity	Notest	***	d12-Chrysene	112 %	***
			d12-Perylene	95 %	***
			Resolved HCs	66921 ng/L	1.3e5 (
			n-alkanes c10-c39	38369 ng/L	72901 (
			Pristane	5072 ng/L	9637. (
			Phytane	5494 ng/L	10439 (

SOUTHERN CALIFORNIA COASTAL WATER RESEARCH PROJECT  
LOS ANGELES/VENTURA RUNOFF SURVEY  
SAMPLE DATA SHEET

Channel: Los Angeles River  
Location: Willow Street  
Date: 25 Sep 86  
Time: 16:05

Flow (M\*\*3/Sec): 21.6  
Time Interval: 44:15-56:00  
Interval Vol (M\*\*3): 83.4500  
Storm #: 1

CONSTITUENT	CONC.	MASS	CONSTITUENT	CONC.	MASS
Suspended Solids	187 mg/L	165.7 T	Naphthalene	<15 ng/L	0 G
TVS	8.3 %	***	C1-Naphthalenes	<15 ng/L	0 G
Total Solids	390 mg/L	345.5 T	C2-Naphthalenes	<15 ng/L	0 G
Dissolved Solids	203 mg/L	179.9 T	C3-Naphthalenes	<32 ng/L	0 G
Oil & Grease	2 mg/L	1.772 T	Biphenyl	<15 ng/L	0 G
Chloroform Extr.	2.2 mg/L	1.949 T	Acenaphthylene	<15 ng/L	0 G
Salinity	0 ppt	***	Acenaphthene	<32 ng/L	0 G
pH	5.5	***	Fluorene	<15 ng/L	0 G
			Phenanthrene	<15 ng/L	0 G
Cadmium	<1 ug/L	0kg	C1-Phenanthrenes	<15 ng/L	0 G
Chromium	7 ug/L	6.202kg	C2-Phenanthrenes	<15 ng/L	0 G
Copper	27 ug/L	23.92kg	C3-Phenanthrenes	<15 ng/L	0 G
Nickel	15 ug/L	13.29kg	Anthracene	<15 ng/L	0 G
Lead	37 ug/L	32.78kg	Fluoranthene	<12 ng/L	0 G
Zinc	116 ug/L	102.8kg	Pyrene	47 ng/L	41.64 G
Silver	<1 ug/L	0kg	2,3-Benzofluorene	<35 ng/L	0 G
			Benz(a)anthracene	<12 ng/L	0 G
o,p'-DDE	3 ng/L	2.658 G	Chrysene	<12 ng/L	0 G
p,p'-DDE	4 ng/L	3.544 G	Benzo(b)fluoranth	<10 ng/L	0 G
o,p'-DDD	<1 ng/L	0 G	Benzo(k)fluoranth	<10 ng/L	0 G
p,p'-DDD	1 ng/L	.886 G	Benzo(e)pyrene	<10 ng/L	0 G
o,p'-DDT	<1 ng/L	0 G	Benzo(a)pyrene	<10 ng/L	0 G
p,p'-DDT	1 ng/L	.886 G	Perylene	<10 ng/L	0 G
TOTAL DDT	9 ng/L	7.974 G	9,10-Diphenylanth	<10 ng/L	0 G
			Dibenz(a,h)anthra	<9 ng/L	0 G
Aroclor 1242	27 ng/L	23.92 G	Benzo(g,h,i)peryl	<9 ng/L	0 G
Aroclor 1254	24 ng/L	21.26 G	TOTAL PAH	47 ng/L	41.64 G
TOTAL PCB	51 ng/L	45.19 G			
			SURROGATE RECOV.		
Hexachlorobenzene	1 ng/L	.886 G	d8-Naphthalene	78 %	***
Lindane	9 ng/L	7.974 G	d10-Acenaphthene	108 %	***
			d10-Phenanthrene	109 %	***
Toxicity	NoTest	***	d12-Chrysene	117 %	***
			d12-Perylene	97 %	***
			Resolved HCs	10278 ng/L	9106. G
			n-alkanes c10-c39	10350 ng/L	9170. G
			Pristane	2093 ng/L	1854. G
			Phytane	1862 ng/L	1650. G

SOUTHERN CALIFORNIA COASTAL WATER RESEARCH PROJECT  
LOS ANGELES/VENTURA RUNOFF SURVEY  
SAMPLE DATA SHEET

Channel: Los Angeles River  
Location: Fletcher Avenue  
Date: 23 Sep 86  
Time: 18:00

Flow (M\*\*3/Sec): 2.7  
Time Interval: 00:00-09:45  
Interval Vol (M\*\*3): 110.8105  
Storm #: 1

CONSTITUENT	CONC.	MASS	CONSTITUENT	CONC.	MASS
Suspended Solids	693 mg/L	69.3 T	Naphthalene	31 ng/L	3.1 G
TVS	31 %	***	C1-Naphthalenes	77 ng/L	7.7 G
Total Solids	1296 mg/L	129.6 T	C2-Naphthalenes	32 ng/L	3.2 G
Dissolved Solids	603 mg/L	60.3 T	C3-Naphthalenes	<23 ng/L	0 G
Oil & Grease	8.7 mg/L	.87 T	Biphenyl	<11 ng/L	0 G
Chloroform Extr.	20.5 mg/L	2.05 T	Acenaphthylene	<11 ng/L	0 G
Salinity	0 ppt	***	Acenaphthene	<23 ng/L	0 G
pH	5.5	***	Fluorene	<10 ng/L	0 G
			Phenanthrene	305 ng/L	30.5 G
Cadmium	28 ug/L	2.8kG	C1-Phenanthrenes	160 ng/L	16 G
Chromium	107 ug/L	10.7kG	C2-Phenanthrenes	137 ng/L	13.7 G
Copper	366 ug/L	36.6kG	C3-Phenanthrenes	117 ng/L	11.7 G
Nickel	92 ug/L	9.2kG	Anthracene	<11 ng/L	0 G
Lead	335 ug/L	33.5kG	Fluoranthene	376 ng/L	37.6 G
Zinc	954 ug/L	95.4kG	Pyrene	401 ng/L	40.1 G
Silver	<1 ug/L	0kG	2,3-Benzofluorene	55 ng/L	5.5 G
			Benz(a)anthracene	174 ng/L	17.4 G
o,p'-DDE	<1 ng/L	0 G	Chrysene	488 ng/L	48.8 G
p,p'-DDE	125 ng/L	12.5 G	Benzo(b)fluoranth	526 ng/L	52.6 G
o,p'-DDD	<1 ng/L	0 G	Benzo(k)fluoranth	203 ng/L	20.3 G
p,p'-DDD	<1 ng/L	0 G	Benzo(e)pyrene	366 ng/L	36.6 G
o,p'-DDT	<1 ng/L	0 G	Benzo(a)pyrene	278 ng/L	27.8 G
p,p'-DDT	<1 ng/L	0 G	Perylene	71 ng/L	7.1 G
TOTAL DDT	125 ng/L	12.5 G	9,10-Diphenylanth	8 ng/L	.8 G
			Dibenz(a,h)anthra	54 ng/L	5.4 G
Aroclor 1242	<1 ng/L	0 G	Benzo(g,h,i)peryl	541 ng/L	54.1 G
Aroclor 1254	261 ng/L	26.1 G	TOTAL PAH	4400 ng/L	440 G
TOTAL PCB	261 ng/L	26.1 G			
			SURROGATE RECOV.		
Hexachlorobenzene	15 ng/L	1.5 G	d8-Naphthalene	33 %	***
Lindane	14 ng/L	1.4 G	d10-Acenaphthene	53 %	***
			d10-Phenanthrene	49 %	***
Toxicity	Notest	***	d12-Chrysene	72 %	***
			d12-Perylene	102 %	***
			Resolved HCs	3.4e5 ng/L	33924 G
			n-alkanes c10-c39	1.2e5 ng/L	12080 G
			Pristane	8895 ng/L	889.5 G
			Phytane	10063 ng/L	1006. G

SOUTHERN CALIFORNIA COASTAL WATER RESEARCH PROJECT  
LOS ANGELES/VENTURA RUNOFF SURVEY  
SAMPLE DATA SHEET

Channel: Los Angeles River  
Location: Fletcher Avenue  
Date: 24 Sep 86  
Time: 09:50

Flow (M\*\*3/Sec): 2.78  
Time Interval: 10:00-18:45  
Interval Vol (M\*\*3): 8907.600  
Storm #: 1

CONSTITUENT	CONC.	MASS	CONSTITUENT	CONC.	MASS
Suspended Solids	17 mg/L	1.370 T	Naphthalene	<26 ng/L	0 G
TVS	29 %	***	C1-Naphthalenes	<26 ng/L	0 G
Total Solids	387 mg/L	31.19 T	C2-Naphthalenes	<26 ng/L	0 G
Dissolved Solids	370 mg/L	29.82 T	C3-Naphthalenes	<53 ng/L	0 G
Oil & Grease	2.3 mg/L	.1854 T	Biphenyl	<26 ng/L	0 G
Chloroform Extr.	1.6 mg/L	.1290 T	Acenaphthylene	<26 ng/L	0 G
Salinity	2 ppt	***	Acenaphthene	<53 ng/L	0 G
pH	5.5	***	Fluorene	<24 ng/L	0 G
			Phenanthrene	<24 ng/L	0 G
Cadmium	2 ug/L	.1612kG	C1-Phenanthrenes	<24 ng/L	0 G
Chromium	<2 ug/L	0kG	C2-Phenanthrenes	<24 ng/L	0 G
Copper	33 ug/L	2.660kG	C3-Phenanthrenes	<24 ng/L	0 G
Nickel	18 ug/L	1.451kG	Anthracene	<24 ng/L	0 G
Lead	43 ug/L	3.466kG	Fluoranthene	<19 ng/L	0 G
Zinc	217 ug/L	17.49kG	Pyrene	<19 ng/L	0 G
Silver	<1 ug/L	0kG	2,3-Benzofluorene	<58 ng/L	0 G
			Benz(a)anthracene	<20 ng/L	0 G
o,p'-DDE	3 ng/L	.2418 G	Chrysene	<20 ng/L	0 G
p,p'-DDE	8 ng/L	.6448 G	Benzo(b)fluoranth	<16 ng/L	0 G
o,p'-DDD	<1 ng/L	0 G	Benzo(k)fluoranth	<16 ng/L	0 G
p,p'-DDD	1 ng/L	.0806 G	Benzo(e)pyrene	<16 ng/L	0 G
o,p'-DDT	1 ng/L	.0806 G	Benzo(a)pyrene	<16 ng/L	0 G
p,p'-DDT	3 ng/L	.2418 G	Perylene	<17 ng/L	0 G
TOTAL DDT	16 ng/L	1.290 G	9,10-Diphenylanth	<17 ng/L	0 G
			Dibenz(a,h)anthra	<14 ng/L	0 G
Aroclor 1242	14 ng/L	1.128 G	Benzo(g,h,i)peryl	<14 ng/L	0 G
Aroclor 1254	44 ng/L	3.546 G	TOTAL PAH	0 ng/L	0 G
TOTAL PCB	58 ng/L	4.675 G			
			SURROGATE RECOV.		
Hexachlorobenzene	1 ng/L	.0806 G	d8-Naphthalene	0 %	***
Lindane	13 ng/L	1.048 G	d10-Acenaphthene	0 %	***
			d10-Phenanthrene	0 %	***
Toxicity	NoTest	***	d12-Chrysene	10 %	***
			d12-Perylene	18 %	***
			Resolved HCs	19316 ng/L	1557. (
			n-alkanes c10-c39	8331 ng/L	671.5 (
			Pristane	1240 ng/L	99.94 (
			Phytane	1463 ng/L	117.9 (

SOUTHERN CALIFORNIA COASTAL WATER RESEARCH PROJECT  
LOS ANGELES/VENTURA RUNOFF SURVEY  
SAMPLE DATA SHEET

Channel: Los Angeles River  
Location: Fletcher Avenue  
Date: 24 Sep 86  
Time: 11:50

Flow (M\*\*3/Sec): 13.4  
Time Interval: 19:00-20:45  
Interval Vol (M\*\*3): 1.108 x 10<sup>6</sup>  
Storm #: 1

CONSTITUENT	CONC.	MASS	CONSTITUENT	CONC.	MASS
Suspended Solids	469 mg/L	52.06 T	Naphthalene	175 ng/L	19.43 G
TVS	31 %	***	C1-Naphthalenes	80 ng/L	8.88 G
Total Solids	796 mg/L	88.36 T	C2-Naphthalenes	<29 ng/L	0 G
Dissolved Solids	327 mg/L	36.30 T	C3-Naphthalenes	<60 ng/L	0 G
Oil & Grease	7.1 mg/L	.7881 T	Biphenyl	<29 ng/L	0 G
Chloroform Extr.	0 mg/L	0 T	Acenaphthylene	<29 ng/L	0 G
Salinity	2 ppt	***	Acenaphthene	<60 ng/L	0 G
pH	5.5	***	Fluorene	<27 ng/L	0 G
			Phenanthrene	323 ng/L	35.85 G
Cadmium	10 ug/L	1.11kG	C1-Phenanthrenes	205 ng/L	22.76 G
Chromium	55 ug/L	6.105kG	C2-Phenanthrenes	237 ng/L	26.31 G
Copper	213 ug/L	23.64kG	C3-Phenanthrenes	102 ng/L	11.32 G
Nickel	46 ug/L	5.106kG	Anthracene	<27 ng/L	0 G
Lead	165 ug/L	18.32kG	Fluoranthene	502 ng/L	55.72 G
Zinc	791 ug/L	87.80kG	Pyrene	542 ng/L	60.16 G
Silver	<1 ug/L	0kG	2,3-Benzofluorene	<65 ng/L	0 G
			Benz(a)anthracene	237 ng/L	26.31 G
o,p'-DDE	22 ng/L	2.442 G	Chrysene	470 ng/L	52.17 G
p,p'-DDE	26 ng/L	2.886 G	Benzo(b)fluoranth	309 ng/L	34.30 G
o,p'-DDD	<1 ng/L	0 G	Benzo(k)fluoranth	119 ng/L	13.21 G
p,p'-DDD	8 ng/L	.888 G	Benzo(e)pyrene	237 ng/L	26.31 G
o,p'-DDT	13 ng/L	1.443 G	Benzo(a)pyrene	143 ng/L	15.87 G
p,p'-DDT	14 ng/L	1.554 G	Perylene	<19 ng/L	0 G
TOTAL DDT	83 ng/L	9.213 G	9,10-Diphenylanth	<19 ng/L	0 G
			Dibenz(a,h)anthra	<16 ng/L	0 G
Aroclor 1242	74 ng/L	8.214 G	Benzo(g,h,i)peryl	186 ng/L	20.65 G
Aroclor 1254	188 ng/L	20.87 G	TOTAL PAH	3867 ng/L	429.2 G
TOTAL PCB	262 ng/L	29.08 G			
			SURROGATE RECOV.		
Hexachlorobenzene	7 ng/L	.777 G	d8-Naphthalene	75 %	***
Lindane	15 ng/L	1.665 G	d10-Acenaphthene	114 %	***
			d10-Phenanthrene	112 %	***
Toxicity	NoTest	***	d12-Chrysene	136 %	***
			d12-Perylene	112 %	***
			Resolved HCs	65179 ng/L	7235. G
			n-alkanes c10-c39	21524 ng/L	2389. G
			Pristane	1313 ng/L	145.7 G
			Phytane	1985 ng/L	220.3 G



SOUTHERN CALIFORNIA COASTAL WATER RESEARCH PROJECT  
LOS ANGELES/VENTURA RUNOFF SURVEY  
SAMPLE DATA SHEET

Channel:	Los Angeles River	Flow (M**3/Sec):	22.8
Location:	Fletcher Avenue	Time Interval:	21:00-22:45
Date:	24 Sep 86	Interval Vol (M**3):	1188,000
Time:	14:00	Storm #:	1

CONSTITUENT	CONC.	MASS	CONSTITUENT	CONC.	MASS
Suspended Solids	193 mG/L	33.97 T	Naphthalene	76 nG/L	13.38 G
TVS	24 %	***	C1-Naphthalenes	<23 nG/L	0 G
Total Solids	536 mG/L	94.34 T	C2-Naphthalenes	<23 nG/L	0 G
Dissolved Solids	343 mG/L	60.37 T	C3-Naphthalenes	<47 nG/L	0 G
Oil & Grease	5.7 mG/L	1.003 T	Biphenyl	<23 nG/L	0 G
Chloroform Extr.	Lost mG/L	0 T	Acenaphthylene	<23 nG/L	0 G
Salinity	ppt	***	Acenaphthene	<47 nG/L	0 G
pH		***	Fluorene	<21 nG/L	0 G
			Phenanthrene	123 nG/L	21.65 G
Cadmium	5 uG/L	.88kG	C1-Phenanthrenes	<21 nG/L	0 G
Chromium	18 uG/L	3.168kG	C2-Phenanthrenes	<21 nG/L	0 G
Copper	146 uG/L	25.70kG	C3-Phenanthrenes	<21 nG/L	0 G
Nickel	49 uG/L	8.624kG	Anthracene	<22 nG/L	0 G
Lead	144 uG/L	25.34kG	Fluoranthene	161 nG/L	28.34 G
Zinc	1358 uG/L	239.0kG	Pyrene	162 nG/L	28.51 G
Silver	<1 uG/L	0kG	2,3-Benzofluorene	<51 nG/L	0 G
			Benz(a)anthracene	44 nG/L	7.744 G
o,p'-DDE	Lost nG/L	0 G	Chrysene	200 nG/L	35.2 G
p,p'-DDE	Lost nG/L	0 G	Benzo(b)fluoranth	44 nG/L	7.744 G
o,p'-DDD	Lost nG/L	0 G	Benzo(k)fluoranth	<14 nG/L	0 G
p,p'-DDD	Lost nG/L	0 G	Benzo(e)pyrene	34 nG/L	5.984 G
o,p'-DDT	Lost nG/L	0 G	Benzo(a)pyrene	<14 nG/L	0 G
p,p'-DDT	Lost nG/L	0 G	Perylene	<15 nG/L	0 G
TOTAL DDT	Lost nG/L	0 G	9,10-Diphenylanth	<15 nG/L	0 G
			Dibenz(a,h)anthra	<13 nG/L	0 G
Aroclor 1242	Lost nG/L	0 G	Benzo(g,h,i)peryl	<13 nG/L	0 G
Aroclor 1254	Lost nG/L	0 G	TOTAL PAH	844 nG/L	148.5 G
TOTAL PCB	Lost nG/L	0 G			
			SURROGATE RECOV.		
Hexachlorobenzene	Lost nG/L	0 G	d8-Naphthalene	73 %	***
Lindane	Lost nG/L	0 G	d10-Acenaphthene	103 %	***
			d10-Phenanthrene	108 %	***
Toxicity	NoTest	***	d12-Chrysene	99 %	***
			d12-Perylene	83 %	***
			Resolved HCs	98906 nG/L	17407 G
			n-alkanes c10-c39	41550 nG/L	7313. G
			Pristane	3552 nG/L	625.2 G
			Phytane	4099 nG/L	721.4 G

SOUTHERN CALIFORNIA COASTAL WATER RESEARCH PROJECT  
LOS ANGELES/VENTURA RUNOFF SURVEY  
SAMPLE DATA SHEET

Channel: Los Angeles River  
Location: Fletcher Avenue  
Date: 24 Sep 86  
Time: 15:30

Flow (M\*\*3/Sec): 64.6  
Time Interval: 23:00-24:15  
Interval Vol (M\*\*3): 3364.500  
Storm #: 1

CONSTITUENT	CC.	MASS	CONSTITUENT	CONC.	MASS
Suspended Solids	553 mG/L	199.1 T	Naphthalene	91 nG/L	32.76 G
TVS	30 %	***	C1-Naphthalenes	142 nG/L	51.12 G
Total Solids	935 mG/L	336.6 T	C2-Naphthalenes	213 nG/L	76.68 G
Dissolved Solids	382 mG/L	137.5 T	C3-Naphthalenes	778 nG/L	280.1 G
Oil & Grease	7.5 mG/L	2.7 T	Biphenyl	<14 nG/L	0 G
Chloroform Extr.	18.7 mG/L	6.732 T	Acenaphthylene	<14 nG/L	0 G
Salinity	0 ppt	***	Acenaphthene	<29 nG/L	0 G
pH	5.5	***	Fluorene	23 nG/L	8.28 G
			Phenanthrene	681 nG/L	245.2 G
Cadmium	7 uG/L	2.52kG	C1-Phenanthrenes	744 nG/L	267.8 G
Chromium	34 uG/L	12.24kG	C2-Phenanthrenes	941 nG/L	338.8 G
Copper	179 uG/L	64.44kG	C3-Phenanthrenes	574 nG/L	206.6 G
Nickel	56 uG/L	20.16kG	Anthracene	<13 nG/L	0 G
Lead	248 uG/L	89.28kG	Fluoranthene	678 nG/L	244.1 G
Zinc	733 uG/L	263.9kG	Pyrene	710 nG/L	255.6 G
Silver	<1 uG/L	0kG	2,3-Benzofluorene	224 nG/L	80.64 G
			Benz(a)anthracene	160 nG/L	57.6 G
o,p'-DDE	23 nG/L	8.28 G	Chrysene	432 nG/L	155.5 G
p,p'-DDE	24 nG/L	8.64 G	Benzo(b)fluoranth	467 nG/L	168.1 G
o,p'-DDD	<1 nG/L	0 G	Benzo(k)fluoranth	<9 nG/L	0 G
p,p'-DDD	10 nG/L	3.6 G	Benzo(e)pyrene	260 nG/L	93.6 G
o,p'-DDT	23 nG/L	8.28 G	Benzo(a)pyrene	143 nG/L	51.48 G
p,p'-DDT	10 nG/L	3.6 G	Perylene	<9 nG/L	0 G
TOTAL DDT	90 nG/L	32.4 G	9,10-Diphenylanth	<9 nG/L	0 G
			Dibenz(a,h)anthra	<8 nG/L	0 G
Aroclor 1242	108 nG/L	38.88 G	Benzo(g,h,i)peryl	292 nG/L	105.1 G
Aroclor 1254	190 nG/L	68.4 G	TOTAL PAH	7553 nG/L	2719. G
TOTAL PCB	298 nG/L	107.3 G			
			SURROGATE RECOV.		
Hexachlorobenzene	3 nG/L	1.08 G	d8-Naphthalene	72 %	***
Lindane	23 nG/L	8.28 G	d10-Acenaphthene	124 %	***
			d10-Phenanthrene	129 %	***
Toxicity	Notest	***	d12-Chrysene	115 %	***
			d12-Perylene	89 %	***
			Resolved HCs	2.6e5 nG/L	95325 G
			n-alkanes c10-c39	1.3e5 nG/L	46450 G
			Pristane	10979 nG/L	3952. G
			Phytane	14529 nG/L	5230. G

SOUTHERN CALIFORNIA COASTAL WATER RESEARCH PROJECT  
LOS ANGELES/VENTURA RUNOFF SURVEY  
SAMPLE DATA SHEET

Channel: Los Angeles River  
Location: Fletcher avenue  
Date: 24 Sep 86  
Time: 17:00

Flow (M\*\*3/Sec): 76.5  
Time Interval: 24:30-26:30  
Interval Vol (M\*\*3): 469,000  
Storm #: 1

CONSTITUENT	CONC.	MASS	CONSTITUENT	CONC.	MASS
Suspended Solids	1190 mg/L	761.6 T	Naphthalene	152 ng/L	97.28 G
TVS	22 %	***	C1-Naphthalenes	413 ng/L	264.3 G
Total Solids	823 mg/L	526.7 T	C2-Naphthalenes	375 ng/L	240 G
Dissolved Solids	-367 mg/L	-235. T	C3-Naphthalenes	1956 ng/L	1252. G
Oil & Grease	10.9 mg/L	6.976 T	Biphenyl	<37 ng/L	0 G
Chloroform Extr.	29 mg/L	18.56 T	Acenaphthylene	<37 ng/L	0 G
Salinity	0 ppt	***	Acenaphthene	<78 ng/L	0 G
pH	5.5	***	Fluorene	<35 ng/L	0 G
			Phenanthrene	1259 ng/L	805.8 G
Cadmium	9 ug/L	5.76kG	C1-Phenanthrenes	1703 ng/L	1090. G
Chromium	46 ug/L	29.44kG	C2-Phenanthrenes	1528 ng/L	977.9 G
Copper	667 ug/L	426.9kG	C3-Phenanthrenes	1189 ng/L	761.0 G
Nickel	67 ug/L	42.88kG	Anthracene	<36 ng/L	0 G
Lead	347 ug/L	222.1kG	Fluoranthene	1720 ng/L	1101. G
Zinc	1365 ug/L	873.6kG	Pyrene	1727 ng/L	1105. G
Silver	<1 ug/L	0kG	2,3-Benzofluorene	304 ng/L	194.6 G
			Benz(a)anthracene	572 ng/L	366.1 G
o,p'-DDE	60 ng/L	38.4 G	Chrysene	1316 ng/L	842.2 G
p,p'-DDE	78 ng/L	49.92 G	Benzo(b)fluoranth	1513 ng/L	968.3 G
o,p'-DDD	<1 ng/L	0 G	Benzo(k)fluoranth	<24 ng/L	0 G
p,p'-DDD	33 ng/L	21.12 G	Benzo(e)pyrene	810 ng/L	518.4 G
o,p'-DDT	59 ng/L	37.76 G	Benzo(a)pyrene	458 ng/L	293.1 G
p,p'-DDT	19 ng/L	12.16 G	Perylene	78 ng/L	49.92 G
TOTAL DDT	249 ng/L	159.4 G	9,10-Diphenylanth	<24 ng/L	0 G
			Dibenz(a,h)anthra	87 ng/L	55.68 G
Aroclor 1242	<2 ng/L	0 G	Benzo(g,h,i)peryl	1108 ng/L	709.1 G
Aroclor 1254	352 ng/L	225.3 G	TOTAL PAH	18268 ng/L	11692 G
TOTAL PCB	352 ng/L	225.3 G			
			SURROGATE RECOV.		
Hexachlorobenzene	9 ng/L	5.76 G	d8-Naphthalene	79 %	***
Lindane	29 ng/L	18.56 G	d10-Acenaphthene	109 %	***
			d10-Phenanthrene	130 %	***
Toxicity	Notest	***	d12-Chrysene	142 %	***
			d12-Perylene	135 %	***
			Resolved HCs	5.7e5 ng/L	3.6e5 G
			n-alkanes c10-c39	2.8e5 ng/L	1.8e5 G
			Pristane	24090 ng/L	15418 G
			Phytane	32347 ng/L	20702 G

SOUTHERN CALIFORNIA COASTAL WATER RESEARCH PROJECT  
LOS ANGELES/VENTURA RUNOFF SURVEY  
SAMPLE DATA SHEET

Channel: Los Angeles River  
Location: Fletcher Avenue  
Date: 24 Sep 86  
Time: 20:00

Flow (M\*\*3/Sec): 58.3  
Time Interval: 26:45-35:00  
Interval Vol (M\*\*3): 2.33x10<sup>6</sup>  
Storm #: 1

CONSTITUENT	CONC.	MASS	CONSTITUENT	CONC.	MASS
Suspended Solids	257 mG/L	616.8 T	Naphthalene	<39 nG/L	0 G
TVS	22 %	***	C1-Naphthalenes	<39 nG/L	0 G
Total Solids	398 mG/L	955.2 T	C2-Naphthalenes	<39 nG/L	0 G
Dissolved Solids	141 mG/L	338.4 T	C3-Naphthalenes	<81 nG/L	0 G
Oil & Grease	3.8 mG/L	9.12 T	Biphenyl	<39 nG/L	0 G
Chloroform Extr.	7.8 mG/L	18.72 T	Acenaphthylene	<39 nG/L	0 G
Salinity	ppt	***	Acenaphthene	<81 nG/L	0 G
pH		***	Fluorene	<37 nG/L	0 G
Cadmium	1 uG/L	2.4kG	Phenanthrene	127 nG/L	304.8 G
Chromium	12 uG/L	28.8kG	C1-Phenanthrenes	<37 nG/L	0 G
Copper	84 uG/L	201.6kG	C2-Phenanthrenes	<37 nG/L	0 G
Nickel	21 uG/L	50.4kG	C3-Phenanthrenes	<37 nG/L	0 G
Lead	80 uG/L	192kG	Anthracene	<37 nG/L	0 G
Zinc	302 uG/L	724.8kG	Fluoranthene	265 nG/L	636 G
Silver	<1 uG/L	0kG	Pyrene	198 nG/L	475.2 G
o,p'-DDE	18 nG/L	43.2 G	2,3-Benzofluorene	<87 nG/L	0 G
p,p'-DDE	23 nG/L	55.2 G	Benz(a)anthracene	<30 nG/L	0 G
o,p'-DDD	<1 nG/L	0 G	Chrysene	123 nG/L	295.2 G
p,p'-DDD	11 nG/L	26.4 G	Benzo(b)fluoranth	41 nG/L	98.4 G
o,p'-DDT	13 nG/L	31.2 G	Benzo(k)fluoranth	<25 nG/L	0 G
p,p'-DDT	10 nG/L	24 G	Benzo(e)pyrene	33 nG/L	79.2 G
TOTAL DDT	75 nG/L	180 G	Benzo(a)pyrene	<25 nG/L	0 G
Aroclor 1242	<2 nG/L	0 G	Perylene	<25 nG/L	0 G
Aroclor 1254	93 nG/L	223.2 G	9,10-Diphenylanth	<25 nG/L	0 G
TOTAL PCB	93 nG/L	223.2 G	Dibenz(a,h)anthra	<22 nG/L	0 G
Hexachlorobenzene	2 nG/L	4.8 G	Benzo(g,h,i)peryl	<22 nG/L	0 G
Lindane	38 nG/L	91.2 G	TOTAL PAH	787 nG/L	1889. G
Toxicity	Notest	***	SURROGATE RECOV.		
			d8-Naphthalene	73 %	***
			d10-Acenaphthene	107 %	***
			d10-Phenanthrene	105 %	***
			d12-Chrysene	126 %	***
			d12-Perylene	112 %	***
			Resolved HCs	1.2e5 nG/L	3.0e5 G
			n-alkanes c10-c39	58169 nG/L	1.4e5 G
			Pristane	6210 nG/L	14904 G
			Phytane	6272 nG/L	15053 G

SOUTHERN CALIFORNIA COASTAL WATER RESEARCH PROJECT  
LOS ANGELES/VENTURA RUNOFF SURVEY  
SAMPLE DATA SHEET

Channel: Los Angeles River  
Location: Fletcher Avenue  
Date: 25 Sep 86  
Time: 10:00

Flow (M\*\*3/Sec): 4.44  
Time Interval: 35:15-4800  
Interval Vol (M\*\*3): 75.87 x 10<sup>6</sup>  
Storm #: 1

CONSTITUENT	CONC.	MASS	CONSTITUENT	CONC.	MASS
Suspended Solids	126 mG/L	89.96 T	Naphthalene	<20 nG/L	0 G
TVS	29 %	***	C1-Naphthalenes	<20 nG/L	0 G
Total Solids	313 mG/L	223.5 T	C2-Naphthalenes	<20 nG/L	0 G
Dissolved Solids	187 mG/L	133.5 T	C3-Naphthalenes	<42 nG/L	0 G
Oil & Grease	1.2 mG/L	.8568 T	Biphenyl	<20 nG/L	0 G
Chloroform Extr.	2.6 mG/L	1.856 T	Acenaphthylene	<20 nG/L	0 G
Salinity	ppt	***	Acenaphthene	<42 nG/L	0 G
pH		***	Fluorene	<19 nG/L	0 G
			Phenanthrene	<19 nG/L	0 G
Cadmium	<1 uG/L	0kG	C1-Phenanthrenes	<19 nG/L	0 G
Chromium	4 uG/L	2.856kG	C2-Phenanthrenes	<19 nG/L	0 G
Copper	26 uG/L	18.56kG	C3-Phenanthrenes	<19 nG/L	0 G
Nickel	12 uG/L	8.568kG	Anthracene	<19 nG/L	0 G
Lead	24 uG/L	17.14kG	Fluoranthene	25 nG/L	17.85 G
Zinc	116 uG/L	82.82kG	Pyrene	<15 nG/L	0 G
Silver	<1 uG/L	0kG	2,3-Benzofluorene	<46 nG/L	0 G
			Benz(a)anthracene	<16 nG/L	0 G
o,p'-DDE	4 nG/L	2.856 G	Chrysene	<16 nG/L	0 G
p,p'-DDE	8 nG/L	5.712 G	Benzo(b)fluoranth	<13 nG/L	0 G
o,p'-DDD	<1 nG/L	0 G	Benzo(k)fluoranth	<13 nG/L	0 G
p,p'-DDD	3 nG/L	2.142 G	Benzo(e)pyrene	<13 nG/L	0 G
o,p'-DDT	2 nG/L	1.428 G	Benzo(a)pyrene	<13 nG/L	0 G
p,p'-DDT	4 nG/L	2.856 G	Perylene	<13 nG/L	0 G
TOTAL DDT	21 nG/L	14.99 G	9,10-Diphenylanth	<13 nG/L	0 G
			Dibenz(a,h)anthra	<11 nG/L	0 G
Aroclor 1242	38 nG/L	27.13 G	Benzo(g,h,i)peryl	<11 nG/L	0 G
Aroclor 1254	32 nG/L	22.85 G	TOTAL PAH	25 nG/L	17.85 G
TOTAL PCB	70 nG/L	49.98 G			
			SURROGATE RECOV.		
Hexachlorobenzene	1 nG/L	.714 G	d8-Naphthalene	16 %	***
Lindane	21 nG/L	14.99 G	d10-Acenaphthene	60 %	***
			d10-Phenanthrene	94 %	***
Toxicity	NoTest	***	d12-Chrysene	126 %	***
			d12-Perylene	117 %	***
			Resolved HCs	8963 nG/L	6400. (
			n-alkanes c10-c39	10932 nG/L	7805. (
			Pristane	1775 nG/L	1267. (
			Phytane	1882 nG/L	1344. (

SOUTHERN CALIFORNIA COASTAL WATER RESEARCH PROJECT  
LOS ANGELES/VENTURA RUNOFF SURVEY  
SAMPLE DATA SHEET

Channel: Los Angeles River  
Location: Big Tujunga Wash  
Date: 24 Sep 86  
Time: 11:30

Flow (M\*\*3/Sec): 0.011 m<sup>3</sup>/s  
Time Interval: 00:00-21:00  
Interval Vol (M\*\*3): 596  
Storm #: 1

CONSTITUENT	CONC.	MASS	CONSTITUENT	CONC.	MASS
Suspended Solids	3 mG/L	0 T	Naphthalene	<33 nG/L	0 G
TVS	%	***	C1-Naphthalenes	<33 nG/L	0 G
Total Solids	398 mG/L	0 T	C2-Naphthalenes	<33 nG/L	0 G
Dissolved Solids	395 mG/L	0 T	C3-Naphthalenes	<68 nG/L	0 G
Oil & Grease	1.3 mG/L	0 T	Biphenyl	<33 nG/L	0 G
Chloroform Extr.	.05 mG/L	0 T	Acenaphthylene	<33 nG/L	0 G
Salinity	2 ppt	***	Acenaphthene	<68 nG/L	0 G
pH	5.5	***	Fluorene	<31 nG/L	0 G
			Phenanthrene	<31 nG/L	0 G
Cadmium	<1 uG/L	OkG	C1-Phenanthrenes	<31 nG/L	0 G
Chromium	<2 uG/L	OkG	C2-Phenanthrenes	<31 nG/L	0 G
Copper	3 uG/L	OkG	C3-Phenanthrenes	<31 nG/L	0 G
Nickel	<2 uG/L	OkG	Anthracene	<31 nG/L	0 G
Lead	<6 uG/L	OkG	Fluoranthene	<25 nG/L	0 G
Zinc	3 uG/L	OkG	Pyrene	<25 nG/L	0 G
Silver	<1 uG/L	OkG	2,3-Benzofluorene	<74 nG/L	0 G
			Benz(a)anthracene	<25 nG/L	0 G
o,p'-DDE	1 nG/L	0 G	Chrysene	<25 nG/L	0 G
p,p'-DDE	4 nG/L	0 G	Benzo(b)fluoranth	<21 nG/L	0 G
o,p'-DDD	<1 nG/L	0 G	Benzo(k)fluoranth	<21 nG/L	0 G
p,p'-DDD	1 nG/L	0 G	Benzo(e)pyrene	<21 nG/L	0 G
o,p'-DDT	<1 nG/L	0 G	Benzo(a)pyrene	<21 nG/L	0 G
p,p'-DDT	<1 nG/L	0 G	Perylene	<21 nG/L	0 G
TOTAL DDT	6 nG/L	0 G	9,10-Diphenylanth	<21 nG/L	0 G
			Dibenz(a,h)anthra	<18 nG/L	0 G
Aroclor 1242	16 nG/L	0 G	Benzo(g,h,i)peryl	<18 nG/L	0 G
Aroclor 1254	15 nG/L	0 G	TOTAL PAH	0 nG/L	0 G
TOTAL PCB	31 nG/L	0 G			
			SURROGATE RECOV.		
Hexachlorobenzene	<1 nG/L	0 G	d8-Naphthalene	49 %	***
Lindane	4 nG/L	0 G	d10-Acenaphthene	92 %	***
			d10-Phenanthrene	102 %	***
Toxicity	Notest	***	d12-Chrysene	115 %	***
			d12-Perylene	116 %	***
			Resolved HCs	7990 nG/L	0 E
			n-alkanes c10-c39	6349 nG/L	0 E
			Pristane	0 nG/L	0 E
			Phytane	0 nG/L	0 E

SOUTHERN CALIFORNIA COASTAL WATER RESEARCH PROJECT  
LOS ANGELES/VENTURA RUNOFF SURVEY  
SAMPLE DATA SHEET

Channel: Los Angeles River  
Location: Big Tujunga Wash  
Date: 24 Sep 86  
Time: 14:45

Flow (M\*\*3/Sec): 0.0//  
Time Interval: 21:00-24:15  
Interval Vol (M\*\*3): 92.4  
Storm #: 1

CONSTITUENT	CONC.	MASS	CONSTITUENT	CONC.	MASS
Suspended Solids	4 mG/L	0 T	Naphthalene	<42 nG/L	0 G
TVS	16 %	***	C1-Naphthalenes	<42 nG/L	0 G
Total Solids	350 mG/L	0 T	C2-Naphthalenes	<42 nG/L	0 G
Dissolved Solids	346 mG/L	0 T	C3-Naphthalenes	<88 nG/L	0 G
Oil & Grease	.7 mG/L	0 T	Biphenyl	<42 nG/L	0 G
Chloroform Extr.	0 mG/L	0 T	Acenaphthylene	<42 nG/L	0 G
Salinity	0 ppt	***	Acenaphthene	<88 nG/L	0 G
pH	6	***	Fluorene	<40 nG/L	0 G
			Phenanthrene	<40 nG/L	0 G
Cadmium	<1 uG/L	OkG	C1-Phenanthrenes	<40 nG/L	0 G
Chromium	<3 uG/L	OkG	C2-Phenanthrenes	<40 nG/L	0 G
Copper	3 uG/L	OkG	C3-Phenanthrenes	<40 nG/L	0 G
Nickel	<2 uG/L	OkG	Anthracene	<40 nG/L	0 G
Lead	<8 uG/L	OkG	Fluoranthene	<32 nG/L	0 G
Zinc	22 uG/L	OkG	Pyrene	<32 nG/L	0 G
Silver	<1 uG/L	OkG	2,3-Benzofluorene	<95 nG/L	0 G
			Benz(a)anthracene	<33 nG/L	0 G
o,p'-DDE	1 nG/L	0 G	Chrysene	<33 nG/L	0 G
p,p'-DDE	5 nG/L	0 G	Benzo(b)fluoranth	<27 nG/L	0 G
o,p'-DDD	<1 nG/L	0 G	Benzo(k)fluoranth	<27 nG/L	0 G
p,p'-DDD	4 nG/L	0 G	Benzo(e)pyrene	<27 nG/L	0 G
o,p'-DDT	<1 nG/L	0 G	Benzo(a)pyrene	<27 nG/L	0 G
p,p'-DDT	2 nG/L	0 G	Perylene	<27 nG/L	0 G
TOTAL DDT	12 nG/L	0 G	9,10-Diphenylanth	<27 nG/L	0 G
			Dibenz(a,h)anthra	<24 nG/L	0 G
Aroclor 1242	22 nG/L	0 G	Benzo(g,h,i)peryl	<24 nG/L	0 G
Aroclor 1254	19 nG/L	0 G	TOTAL PAH	0 nG/L	0 G
TOTAL PCB	41 nG/L	0 G			
			SURROGATE RECOV.		
Hexachlorobenzene	<1 nG/L	0 G	d8-Naphthalene	54 %	***
Lindane	<1 nG/L	0 G	d10-Acenaphthene	96 %	***
			d10-Phenanthrene	91 %	***
Toxicity	Notest	***	d12-Chrysene	85 %	***
			d12-Perylene	89 %	***
			Resolved HCs	3474 nG/L	0
			n-alkanes c10-c39	3392 nG/L	0
			Pristane	0 nG/L	0
			Phytane	0 nG/L	0

SOUTHERN CALIFORNIA COASTAL WATER RESEARCH PROJECT  
LOS ANGELES/VENTURA RUNOFF SURVEY  
SAMPLE DATA SHEET

Channel: Los Angeles River  
Location: Big Tujunga Wash  
Date: 24 Sep 86  
Time: 18:30

Flow (M\*\*3/Sec): 0.011 m<sup>3</sup>/s  
Time Interval: 24:15-27:45  
Interval Vol (M\*\*3): 99.6  
Storm #: 1

CONSTITUENT	CONC.	MASS	CONSTITUENT	CONC.	MASS
Suspended Solids	4 mG/L	0 T	Naphthalene	<32 nG/L	0
TVS	%	***	C1-Naphthalenes	<32 nG/L	0
Total Solids	300 mG/L	0 T	C2-Naphthalenes	<32 nG/L	0
Dissolved Solids	296 mG/L	0 T	C3-Naphthalenes	<67 nG/L	0
Oil & Grease	<.1 mG/L	0 T	Biphenyl	<32 nG/L	0
Chloroform Extr.	1.85 mG/L	0 T	Acenaphthylene	<32 nG/L	0
Salinity	ppt	***	Acenaphthene	<67 nG/L	0
pH		***	Fluorene	<31 nG/L	0
			Phenanthrene	<31 nG/L	0
Cadmium	<1 uG/L	OkG	C1-Phenanthrenes	<31 nG/L	0
Chromium	<3 uG/L	OkG	C2-Phenanthrenes	<31 nG/L	0
Copper	4 uG/L	OkG	C3-Phenanthrenes	<31 nG/L	0
Nickel	<2 uG/L	OkG	Anthracene	<31 nG/L	0
Lead	<7 uG/L	OkG	Fluoranthene	<25 nG/L	0
Zinc	4 uG/L	OkG	Pyrene	<25 nG/L	0
Silver	<1 uG/L	OkG	2,3-Benzofluorene	<73 nG/L	0
			Benz(a)anthracene	<25 nG/L	0
o,p'-DDE	1 nG/L	0 G	Chrysene	<25 nG/L	0
p,p'-DDE	2 nG/L	0 G	Benzo(b)fluoranth	<21 nG/L	0
o,p'-DDD	<1 nG/L	0 G	Benzo(k)fluoranth	<21 nG/L	0
p,p'-DDD	<1 nG/L	0 G	Benzo(e)pyrene	<21 nG/L	0
o,p'-DDT	2 nG/L	0 G	Benzo(a)pyrene	<21 nG/L	0
p,p'-DDT	2 nG/L	0 G	Perylene	<21 nG/L	0
TOTAL DDT	7 nG/L	0 G	9,10-Diphenylanth	<21 nG/L	0
			Dibenz(a,h)anthra	<18 nG/L	0
Aroclor 1242	6 nG/L	0 G	Benzo(g,h,i)peryl	<18 nG/L	0
Aroclor 1254	16 nG/L	0 G	TOTAL PAH	0 nG/L	0
TOTAL PCB	22 nG/L	0 G			
			SURROGATE RECOV.		
Hexachlorobenzene	<1 nG/L	0 G	d8-Naphthalene	0 %	***
Lindane	2 nG/L	0 G	d10-Acenaphthene	0 %	***
			d10-Phenanthrene	0 %	***
Toxicity	NoTest	***	d12-Chrysene	2 %	***
			d12-Perylene	8 %	***
			Resolved HCs	3045 nG/L	0
			n-alkanes c10-c39	2304 nG/L	0
			Pristane	0 nG/L	0
			Phytane	0 nG/L	0



SOUTHERN CALIFORNIA COASTAL WATER RESEARCH PROJECT  
LOS ANGELES/VENTURA RUNOFF SURVEY  
SAMPLE DATA SHEET

Channel: Los Angeles River  
Location: Big Tujunga Wash  
Date: 24 Sep 86  
Time: 20:45

Flow (M\*\*3/Sec): 0.011  
Time Interval: 27:45-34:30  
Interval Vol (M\*\*3): 191  
Storm #: 1

CONSTITUENT	CONC.	MASS	CONSTITUENT	CONC.	MASS
Suspended Solids	7 mG/L	0 T	Naphthalene	<41 nG/L	0 G
TVS	50 %	***	C1-Naphthalenes	<41 nG/L	0 G
Total Solids	1260 mG/L	0 T	C2-Naphthalenes	<41 nG/L	0 G
Dissolved Solids	1250 mG/L	0 T	C3-Naphthalenes	<86 nG/L	0 G
Oil & Grease	<.1 mG/L	0 T	Biphenyl	<41 nG/L	0 G
Chloroform Extr.	3.87 mG/L	0 T	Acenaphthylene	<41 nG/L	0 G
Salinity	ppt	***	Acenaphthene	<86 nG/L	0 G
pH		***	Fluorene	<39 nG/L	0 G
			Phenanthrene	<39 nG/L	0 G
Cadmium	<1 uG/L	OkG	C1-Phenanthrenes	<39 nG/L	0 G
Chromium	<3 uG/L	OkG	C2-Phenanthrenes	<39 nG/L	0 G
Copper	4 uG/L	OkG	C3-Phenanthrenes	<39 nG/L	0 G
Nickel	2 uG/L	OkG	Anthracene	<39 nG/L	0 G
Lead	<8 uG/L	OkG	Fluoranthene	<31 nG/L	0 G
Zinc	2 uG/L	OkG	Pyrene	<31 nG/L	0 G
Silver	<1 uG/L	OkG	2,3-Benzofluorene	<93 nG/L	0 G
			Benz (a)anthracene	<32 nG/L	0 G
o,p'-DDE	<1 nG/L	0 G	Chrysene	<32 nG/L	0 G
p,p'-DDE	1 nG/L	0 G	Benzo(b)fluoranth	<26 nG/L	0 G
o,p'-DDD	<1 nG/L	0 G	Benzo(k)fluoranth	<26 nG/L	0 G
p,p'-DDD	<1 nG/L	0 G	Benzo(e)pyrene	<26 nG/L	0 G
o,p'-DDT	<1 nG/L	0 G	Benzo(a)pyrene	<26 nG/L	0 G
p,p'-DDT	2 nG/L	0 G	Perylene	<27 nG/L	0 G
TOTAL DDT	3 nG/L	0 G	9,10-Diphenylanth	<27 nG/L	0 G
			Dibenz (a,h)anthra	<23 nG/L	0 G
Aroclor 1242	<2 nG/L	0 G	Benzo(g,h,i)peryl	<23 nG/L	0 G
Aroclor 1254	2 nG/L	0 G	TOTAL PAH	0 nG/L	0 G
TOTAL PCB	2 nG/L	0 G			
			SURROGATE RECOV.		
Hexachlorobenzene	<1 nG/L	0 G	d8-Naphthalene	0 %	***
Lindane	2 nG/L	0 G	d10-Acenaphthene	0 %	***
			d10-Phenanthrene	0 %	***
Toxicity	Notest	***	d12-Chrysene	0 %	***
			d12-Perylene	5 %	***
			Resolved HCs	4587 nG/L	0 G
			n-alkanes c10-c39	4270 nG/L	0 G
			Pristane	0 nG/L	0 G
			Phytane	0 nG/L	0 G

SOUTHERN CALIFORNIA COASTAL WATER RESEARCH PROJECT  
LOS ANGELES/VENTURA RUNOFF SURVEY  
SAMPLE DATA SHEET

Channel: Los Angeles River  
Location: Big Tujunga Wash  
Date: 25 Sep 86  
Time: 08:30

Flow (M\*\*3/Sec): 0.011  
Time Interval: 34:30-48:00  
Interval Vol (M\*\*3): 383  
Storm #: 1

CONSTITUENT	CONC.	MASS	CONSTITUENT	CONC.	MA
Suspended Solids	826 mg/L	0 T	Naphthalene	<33 ng/L	
TVS	9 %	***	C1-Naphthalenes	<33 ng/L	
Total Solids	345 mg/L	0 T	C2-Naphthalenes	<33 ng/L	
Dissolved Solids	-481 mg/L	0 T	C3-Naphthalenes	<69 ng/L	
Oil & Grease	.1 mg/L	0 T	Biphenyl	<33 ng/L	
Chloroform Extr.	2.12 mg/L	0 T	Acenaphthylene	<33 ng/L	
Salinity	ppt	***	Acenaphthene	<69 ng/L	
pH		***	Fluorene	<31 ng/L	
			Phenanthrene	<31 ng/L	
Cadmium	<1 ug/L	0 kg	C1-Phenanthrenes	<31 ng/L	
Chromium	8 ug/L	0 kg	C2-Phenanthrenes	<31 ng/L	
Copper	28 ug/L	0 kg	C3-Phenanthrenes	<31 ng/L	
Nickel	5 ug/L	0 kg	Anthracene	<32 ng/L	
Lead	<7 ug/L	0 kg	Fluoranthene	<25 ng/L	
Zinc	47 ug/L	0 kg	Pyrene	<25 ng/L	
Silver	<1 ug/L	0 kg	2,3-Benzofluorene	<75 ng/L	
			Benz(a)anthracene	<26 ng/L	
o,p'-DDE	1 ng/L	0 G	Chrysene	<26 ng/L	
p,p'-DDE	2 ng/L	0 G	Benzo(b)fluoranth	<21 ng/L	
o,p'-DDD	<1 ng/L	0 G	Benzo(k)fluoranth	<21 ng/L	
p,p'-DDD	<1 ng/L	0 G	Benzo(e)pyrene	<21 ng/L	
o,p'-DDT	<1 ng/L	0 G	Benzo(a)pyrene	<21 ng/L	
p,p'-DDT	2 ng/L	0 G	Perylene	<21 ng/L	
TOTAL DDT	5 ng/L	0 G	9,10-Diphenylanth	<21 ng/L	
			Dibenz(a,h)anthra	<19 ng/L	
Aroclor 1242	12 ng/L	0 G	Benzo(g,h,i)peryl	<19 ng/L	
Aroclor 1254	23 ng/L	0 G	TOTAL PAH	0 ng/L	
TOTAL PCB	35 ng/L	0 G			
			SURROGATE RECOV.		
Hexachlorobenzene	1 ng/L	0 G	d8-Naphthalene	34 %	**
Lindane	2 ng/L	0 G	d10-Acenaphthene	73 %	**
			d10-Phenanthrene	96 %	**
Toxicity	Notest	***	d12-Chrysene	177 %	**
			d12-Perylene	163 %	**
			Resolved HCs	5310 ng/L	
			n-alkanes c10-c39	1442 ng/L	
			Pristane	0 ng/L	
			Phytane	0 ng/L	

SOUTHERN CALIFORNIA COASTAL WATER RESEARCH PROJECT  
LOS ANGELES/VENTURA RUNOFF SURVEY  
SAMPLE DATA SHEET

Channel: Ballona Creek  
Location: Inglewood Avenue  
Date: 23 Sep 86  
Time: 21:55

Flow (M\*\*3/Sec): .51  
Time Interval: 00:00-12:15  
Interval Vol (M\*\*3): 487400  
Storm #: 1

CONSTITUENT	CONC.	MASS	CONSTITUENT	CONC.	MASS
Suspended Solids	331 mG/L	.2274 T	Naphthalene	62 nG/L	.0426 G
TVS	30 %	***	C1-Naphthalenes	48 nG/L	.0330 G
Total Solids	6070 mG/L	4.170 T	C2-Naphthalenes	125 nG/L	.0859 G
Dissolved Solids	5741 mG/L	3.944 T	C3-Naphthalenes	632 nG/L	.4342 G
Oil & Grease	4.5 mG/L	.0031 T	Biphenyl	<6 nG/L	0 G
Chloroform Extr.	59.6 mG/L	.0409 T	Acenaphthylene	<6 nG/L	0 G
Salinity	6 ppt	***	Acenaphthene	<12 nG/L	0 G
pH	6	***	Fluorene	58 nG/L	.0398 G
			Phenanthrene	228 nG/L	.1566 G
Cadmium	2 uG/L	.0014kG	C1-Phenanthrenes	1222 nG/L	.8395 G
Chromium	12 uG/L	.0082kG	C2-Phenanthrenes	1411 nG/L	.9694 G
Copper	112 uG/L	.0769kG	C3-Phenanthrenes	1480 nG/L	1.017 G
Nickel	33 uG/L	.0227kG	Anthracene	34 nG/L	.0234 G
Lead	113 uG/L	.0776kG	Fluoranthene	626 nG/L	.4301 G
Zinc	376 uG/L	.2583kG	Pyrene	685 nG/L	.4706 G
Silver	<1 uG/L	0kG	2,3-Benzofluorene	273 nG/L	.1876 G
			Benz(a)anthracene	177 nG/L	.1216 G
o,p'-DDE	14 nG/L	.0096 G	Chrysene	387 nG/L	.2659 G
p,p'-DDE	11 nG/L	.0076 G	Benzo(b)fluoranth	419 nG/L	.2879 G
o,p'-DDD	<1 nG/L	0 G	Benzo(k)fluoranth	<4 nG/L	0 G
p,p'-DDD	6 nG/L	.0041 G	Benzo(e)pyrene	239 nG/L	.1642 G
o,p'-DDT	10 nG/L	.0069 G	Benzo(a)pyrene	100 nG/L	.0687 G
p,p'-DDT	<1 nG/L	0 G	Perylene	65 nG/L	.0447 G
TOTAL DDT	41 nG/L	.0282 G	9,10-Diphenylanth	17 nG/L	.0117 G
			Dibenz(a,h)anthra	41 nG/L	.0282 G
Aroclor 1242	<1 nG/L	0 G	Benzo(g,h,i)peryl	303 nG/L	.2082 G
Aroclor 1254	116 nG/L	.0797 G	TOTAL PAH	8632 nG/L	5.930 G
TOTAL PCB	116 nG/L	.0797 G			
			SURROGATE RECOV.		
Hexachlorobenzene	5 nG/L	.0034 G	d8-Naphthalene	86 %	***
Lindane	<1 nG/L	0 G	d10-Acenaphthene	125 %	***
			d10-Phenanthrene	114 %	***
Toxicity	NoTest	***	d12-Chrysene	99 %	***
			d12-Perylene	93 %	***
			Resolved HCs	4.2e5 nG/L	285.9 (
			n-alkanes c10-c39	177254 nG/L	0 (
			Pristane	33237 nG/L	22.83 (
			Phytane	41442 nG/L	28.47 (

SOUTHERN CALIFORNIA COASTAL WATER RESEARCH PROJECT  
LOS ANGELES/VENTURA RUNOFF SURVEY  
SAMPLE DATA SHEET

Channel: Ballona Creek  
Location: Inglewood Avenue  
Date: 24 Sep 86  
Time: 10:50

Flow (M\*\*3/Sec): 56.6  
Time Interval: 12:30-21:45  
Interval Vol (M\*\*3): 7074 x 10<sup>6</sup>  
Storm #: 1

CONSTITUENT	CONC.	MASS	CONSTITUENT	CONC.	MASS
Suspended Solids	2500 mg/L	17.58 T	Naphthalene	815 ng/L	5.729 G
TVS	20 %	***	C1-Naphthalenes	1298 ng/L	9.125 G
Total Solids	5250 mg/L	36.91 T	C2-Naphthalenes	1451 ng/L	10.20 G
Dissolved Solids	2750 mg/L	19.33 T	C3-Naphthalenes	4447 ng/L	31.26 G
Oil & Grease	36.4 mg/L	.2559 T	Biphenyl	86 ng/L	.6046 G
Chloroform Extr.	76.6 mg/L	.5385 T	Acenaphthylene	<15 ng/L	0 G
Salinity	.25 ppt	***	Acenaphthene	195 ng/L	1.371 G
pH	5.5	***	Fluorene	352 ng/L	2.475 G
Cadmium	22 ug/L	.1547kG	Phenanthrene	4635 ng/L	32.58 G
Chromium	248 ug/L	1.743kG	C1-Phenanthrenes	4426 ng/L	31.11 G
Copper	860 ug/L	6.046kG	C2-Phenanthrenes	6754 ng/L	47.48 G
Nickel	261 ug/L	1.835kG	C3-Phenanthrenes	7675 ng/L	53.96 G
Lead	1829 ug/L	12.86kG	Anthracene	765 ng/L	5.378 G
Zinc	4398 ug/L	30.92kG	Fluoranthene	7731 ng/L	54.35 G
Silver	<1 ug/L	0kG	Pyrene	8064 ng/L	56.69 G
o,p'-DDE	346 ng/L	2.432 G	2,3-Benzofluorene	2596 ng/L	18.25 G
p,p'-DDE	354 ng/L	2.489 G	Benz(a)anthracene	3768 ng/L	26.49 G
o,p'-DDD	<1 ng/L	0 G	Chrysene	6671 ng/L	46.90 G
p,p'-DDD	151 ng/L	1.062 G	Benzo(b)fluoranth	<9 ng/L	0 G
o,p'-DDT	330 ng/L	2.320 G	Benzo(k)fluoranth	8375 ng/L	58.88 G
p,p'-DDT	179 ng/L	1.258 G	Benzo(e)pyrene	<9 ng/L	0 G
TOTAL DDT	1360 ng/L	9.561 G	Benzo(a)pyrene	4088 ng/L	28.74 G
Aroclor 1242	4 ng/L	.0281 G	Perylene	70 ng/L	.4921 G
Aroclor 1254	628 ng/L	4.415 G	9,10-Diphenylanth	248 ng/L	1.743 G
TOTAL PCB	632 ng/L	4.443 G	Dibenz(a,h)anthra	395 ng/L	2.777 G
Hexachlorobenzene	9 ng/L	.0633 G	Benzo(g,h,i)peryl	789 ng/L	5.547 G
Lindane	49 ng/L	.3445 G	TOTAL PAH	75694 ng/L	532.1 G
Toxicity	NoTest	***	SURROGATE RECOV.		
			d8-Naphthalene	77 %	***
			d10-Acenaphthene	126 %	***
			d10-Phenanthrene	126 %	***
			d12-Chrysene	201 %	***
			d12-Perylene	164 %	***
			Resolved HCs	7.7e6 ng/L	54123 G
			n-alkanes c10-c39	4.4e5 ng/L	3104. G
			Pristane	39421 ng/L	277.1 G
			Phytane	47000 ng/L	330.4 G

SOUTHERN CALIFORNIA COASTAL WATER RESEARCH PROJECT  
LOS ANGELES/VENTURA RUNOFF SURVEY  
SAMPLE DATA SHEET

Channel: Ballona Creek  
Location: Inglewood Avenue  
Date: 24 Sep 86  
Time: 16:55

Flow (M\*\*3/Sec): 63.7  
Time Interval: 22:00-27:15  
Interval Vol (M\*\*3): 1.67e5  
Storm #: 1

CONSTITUENT	CONC.	MASS	CONSTITUENT	CONC.	MASS
Suspended Solids	234 mG/L	395.5 T	Naphthalene	264 nG/L	446.2 G
TVS	15 %	***	C1-Naphthalenes	748 nG/L	1264. G
Total Solids	306 mG/L	517.1 T	C2-Naphthalenes	659 nG/L	1114. G
Dissolved Solids	72 mG/L	121.7 T	C3-Naphthalenes	738 nG/L	1247. G
Oil & Grease	9.3 mG/L	15.72 T	Biphenyl	<21 nG/L	0 G
Chloroform Extr.	16.5 mG/L	27.89 T	Acenaphthylene	<21 nG/L	0 G
Salinity	ppt	***	Acenaphthene	<43 nG/L	0 G
pH		***	Fluorene	46 nG/L	77.74 G
Cadmium	3 uG/L	5.07kG	Phenanthrene	857 nG/L	1448. G
Chromium	13 uG/L	21.97kG	C1-Phenanthrenes	1160 nG/L	1960. G
Copper	86 uG/L	145.3kG	C2-Phenanthrenes	1326 nG/L	2241. G
Nickel	23 uG/L	38.87kG	C3-Phenanthrenes	741 nG/L	1252. G
Lead	96 uG/L	162.2kG	Anthracene	<20 nG/L	0 G
Zinc	613 uG/L	1036.kG	Fluoranthene	980 nG/L	1656. G
Silver	<1 uG/L	0kG	Pyrene	991 nG/L	1675. G
o,p'-DDE	<1 nG/L	0 G	2,3-Benzofluorene	227 nG/L	383.6 G
p,p'-DDE	13 nG/L	21.97 G	Benz(a)anthracene	314 nG/L	530.7 G
o,p'-DDD	<1 nG/L	0 G	Chrysene	673 nG/L	1137. G
p,p'-DDD	9 nG/L	15.21 G	Benzo(b)fluoranth	636 nG/L	1075. G
o,p'-DDT	<1 nG/L	0 G	Benzo(k)fluoranth	<13 nG/L	0 G
p,p'-DDT	22 nG/L	37.18 G	Benzo(e)pyrene	354 nG/L	598.3 G
TOTAL DDT	44 nG/L	74.36 G	Benzo(a)pyrene	174 nG/L	294.1 G
Aroclor 1242	<1 nG/L	0 G	Perylene	<13 nG/L	0 G
Aroclor 1254	220 nG/L	371.8 G	9,10-Diphenylanth	<13 nG/L	0 G
TOTAL PCB	220 nG/L	371.8 G	Dibenz(a,h)anthra	41 nG/L	69.29 G
Hexachlorobenzene	2 nG/L	3.38 G	Benzo(g,h,i)peryl	443 nG/L	748.7 G
Lindane	10 nG/L	16.9 G	TOTAL PAH	11372 nG/L	19219 G
Toxicity	NoTest	***	SURROGATE RECOV.		
			d8-Naphthalene	46 %	***
			d10-Acenaphthene	137 %	***
			d10-Phenanthrene	125 %	***
			d12-Chrysene	148 %	***
			d12-Perylene	124 %	***
			Resolved HCs	3.1e5 nG/L	5.2e5 G
			n-alkanes c10-c39	1.2e5 nG/L	2.1e5 G
			Pristane	11238 nG/L	18992 G
			Phytane	12621 nG/L	21329 G

SOUTHERN CALIFORNIA COASTAL WATER RESEARCH PROJECT  
LOS ANGELES/VENTURA RUNOFF SURVEY  
SAMPLE DATA SHEET

Channel: Ballona Creek  
Location: Inglewood Avenue  
Date: 24 Sep 86  
Time: 21:30

Flow (M\*\*3/Sec): 140  
Time Interval: 27:15-34:45  
Interval Vol (M\*\*3): 1.57e6  
Storm #: 1

CONSTITUENT	CONC.	MASS	CONSTITUENT	CONC.	MASS
Suspended Solids	112 mg/L	180.3 T	Naphthalene	<15 ng/L	0 G
TVS	17 %	***	C1-Naphthalenes	<15 ng/L	0 G
Total Solids	165 mg/L	265.7 T	C2-Naphthalenes	<15 ng/L	0 G
Dissolved Solids	53 mg/L	85.33 T	C3-Naphthalenes	<32 ng/L	0 G
Oil & Grease	6.3 mg/L	10.14 T	Biphenyl	<15 ng/L	0 G
Chloroform Extr.	1.6 mg/L	2.576 T	Acenaphthylene	<15 ng/L	0 G
Salinity	0 ppt	***	Acenaphthene	<32 ng/L	0 G
pH	5.5	***	Fluorene	<15 ng/L	0 G
			Phenanthrene	79 ng/L	127.2 G
Cadmium	<1 ug/L	0kG	C1-Phenanthrenes	<15 ng/L	0 G
Chromium	5 ug/L	8.05kG	C2-Phenanthrenes	<15 ng/L	0 G
Copper	43 ug/L	69.23kG	C3-Phenanthrenes	<15 ng/L	0 G
Nickel	14 ug/L	22.54kG	Anthracene	<15 ng/L	0 G
Lead	68 ug/L	109.5kG	Fluoranthene	203 ng/L	326.8 G
Zinc	237 ug/L	381.6kG	Pyrene	179 ng/L	288.2 G
Silver	<1 ug/L	0kG	2,3-Benzofluorene	<35 ng/L	0 G
			Benz(a)anthracene	21 ng/L	33.81 G
o,p'-DDE	6 ng/L	9.66 G	Chrysene	101 ng/L	162.6 G
p,p'-DDE	6 ng/L	9.66 G	Benzo(b)fluoranth	55 ng/L	88.55 G
o,p'-DDD	<1 ng/L	0 G	Benzo(k)fluoranth	<10 ng/L	0 G
p,p'-DDD	1 ng/L	1.61 G	Benzo(e)pyrene	34 ng/L	54.74 G
o,p'-DDT	5 ng/L	8.05 G	Benzo(a)pyrene	<10 ng/L	0 G
p,p'-DDT	7 ng/L	11.27 G	Perylene	<10 ng/L	0 G
TOTAL DDT	25 ng/L	40.25 G	9,10-Diphenylanth	<10 ng/L	0 G
			Dibenz(a,h)anthra	<9 ng/L	0 G
Aroclor 1242	44 ng/L	70.84 G	Benzo(g,h,i)peryl	<9 ng/L	0 G
Aroclor 1254	31 ng/L	49.91 G	TOTAL PAH	672 ng/L	1082. G
TOTAL PCB	75 ng/L	120.8 G			
			SURROGATE RECOV.		
Hexachlorobenzene	1 ng/L	1.61 G	d8-Naphthalene	0 %	***
Lindane	8 ng/L	12.88 G	d10-Acenaphthene	57 %	***
			d10-Phenanthrene	98 %	***
Toxicity	NoTest	***	d12-Chrysene	142 %	***
			d12-Perylene	128 %	***
			Resolved HCs	7.8e5 ng/L	1.3e6 G
			n-alkanes c10-c39	2.6e5 ng/L	4.1e5 G
			Pristane	15381 ng/L	24763 G
			Phytane	29166 ng/L	46957 G

SOUTHERN CALIFORNIA COASTAL WATER RESEARCH PROJECT  
LOS ANGELES/VENTURA RUNOFF SURVEY  
SAMPLE DATA SHEET

Channel: Ballona Creek  
Location: Inglewood Avenue  
Date: 25 Sep 86  
Time: 08:06

Flow (M\*\*3/Sec): 1.09  
Time Interval: 35:00-43:30  
Interval Vol (M\*\*3): 5.2900  
Storm #: 1

CONSTITUENT	CONC.	MASS	CONSTITUENT	CONC.	MASS
Suspended Solids	13 mG/L	.7059 T	Naphthalene	140 nG/L	7.602 G
TVS	46 %	***	C1-Naphthalenes	80 nG/L	4.344 G
Total Solids	284 mG/L	15.42 T	C2-Naphthalenes	<15 nG/L	0 G
Dissolved Solids	271 mG/L	14.72 T	C3-Naphthalenes	<32 nG/L	0 G
Oil & Grease	2.2 mG/L	.1195 T	Biphenyl	<15 nG/L	0 G
Chloroform Extr.	5.7 mG/L	.3095 T	Acenaphthylene	<15 nG/L	0 G
Salinity	ppt	***	Acenaphthene	<32 nG/L	0 G
pH		***	Fluorene	<14 nG/L	0 G
Cadmium	<1 uG/L	0kG	Phenanthrene	120 nG/L	6.516 G
Chromium	<3 uG/L	0kG	C1-Phenanthrenes	<14 nG/L	0 G
Copper	28 uG/L	1.520kG	C2-Phenanthrenes	<14 nG/L	0 G
Nickel	7 uG/L	.3801kG	C3-Phenanthrenes	<14 nG/L	0 G
Lead	23 uG/L	1.249kG	Anthracene	<15 nG/L	0 G
Zinc	187 uG/L	10.15kG	Fluoranthene	33 nG/L	1.792 G
Silver	<1 uG/L	0kG	Pyrene	27 nG/L	1.466 G
o,p'-DDE	<1 nG/L	0 G	2,3-Benzofluorene	<34 nG/L	0 G
p,p'-DDE	<1 nG/L	0 G	Benz(a)anthracene	<12 nG/L	0 G
o,p'-DDD	<1 nG/L	0 G	Chrysene	<12 nG/L	0 G
p,p'-DDD	1 nG/L	.0543 G	Benzo(b)fluoranth	<10 nG/L	0 G
o,p'-DDT	<1 nG/L	0 G	Benzo(k)fluoranth	<10 nG/L	0 G
p,p'-DDT	<1 nG/L	0 G	Benzo(e)pyrene	<10 nG/L	0 G
TOTAL DDT	1 nG/L	.0543 G	Benzo(a)pyrene	<10 nG/L	0 G
Aroclor 1242	<1 nG/L	0 G	Perylene	<10 nG/L	0 G
Aroclor 1254	18 nG/L	.9774 G	9,10-Diphenylanth	<10 nG/L	0 G
TOTAL PCB	18 nG/L	.9774 G	Dibenz(a,h)anthra	<9 nG/L	0 G
Hexachlorobenzene	<1 nG/L	0 G	Benzo(g,h,i)peryl	<9 nG/L	0 G
Lindane	7 nG/L	.3801 G	TOTAL PAH	400 nG/L	21.72 G
Toxicity	NoTest	***	SURROGATE RECOV.		
			d8-Naphthalene	71 %	***
			d10-Acenaphthene	103 %	***
			d10-Phenanthrene	105 %	***
			d12-Chrysene	114 %	***
			d12-Perylene	100 %	***
			Resolved HCs	17727 nG/L	962.6 G
			n-alkanes c10-c39	8910 nG/L	483.8 G
			Pristane	1889 nG/L	102.6 G
			Phytane	2033 nG/L	110.4 G

SOUTHERN CALIFORNIA COASTAL WATER RESEARCH PROJECT  
LOS ANGELES/VENTURA RUNOFF SURVEY  
SAMPLE DATA SHEET

Channel: Ballona Creek  
Location: Inglewood Avenue  
Date: 25 Sep 86  
Time: 15:15

Flow (M\*\*3/Sec): .538  
Time Interval: 43:45-46:00  
Interval Vol (M\*\*3): 1.00 9,770  
Storm #: 1

CONSTITUENT	CONC.	MASS	CONSTITUENT	CONC.	MASS
Suspended Solids	184 mG/L	4.250 T	Naphthalene	<14 nG/L	0 G
TVS	18 %	***	C1-Naphthalenes	<14 nG/L	0 G
Total Solids	1760 mG/L	40.66 T	C2-Naphthalenes	<14 nG/L	0 G
Dissolved Solids	1580 mG/L	36.50 T	C3-Naphthalenes	<28 nG/L	0 G
Oil & Grease	2.9 mG/L	.0670 T	Biphenyl	<14 nG/L	0 G
Chloroform Extr.	2.4 mG/L	.0554 T	Acenaphthylene	<14 nG/L	0 G
Salinity	2 ppt	***	Acenaphthene	<28 nG/L	0 G
pH	6	***	Fluorene	<13 nG/L	0 G
			Phenanthrene	156 nG/L	3.604 G
Cadmium	2 uG/L	.0462kG	C1-Phenanthrenes	<13 nG/L	0 G
Chromium	19 uG/L	.4389kG	C2-Phenanthrenes	29 nG/L	.6699 G
Copper	44 uG/L	1.016kG	C3-Phenanthrenes	<13 nG/L	0 G
Nickel	19 uG/L	.4389kG	Anthracene	<13 nG/L	0 G
Lead	27 uG/L	.6237kG	Fluoranthene	138 nG/L	3.188 G
Zinc	172 uG/L	3.973kG	Pyrene	81 nG/L	1.871 G
Silver	<1 uG/L	0kG	2,3-Benzofluorene	<31 nG/L	0 G
			Benz(a)anthracene	<11 nG/L	0 G
o,p'-DDE	6 nG/L	.1386 G	Chrysene	79 nG/L	1.825 G
p,p'-DDE	8 nG/L	.1848 G	Benzo(b)fluoranth	<9 nG/L	0 G
o,p'-DDD	<1 nG/L	0 G	Benzo(k)fluoranth	<9 nG/L	0 G
p,p'-DDD	2 nG/L	.0462 G	Benzo(e)pyrene	<9 nG/L	0 G
o,p'-DDT	5 nG/L	.1155 G	Benzo(a)pyrene	<9 nG/L	0 G
p,p'-DDT	3 nG/L	.0693 G	Perylene	<9 nG/L	0 G
TOTAL DDT	24 nG/L	.5544 G	9,10-Diphenylanth	<9 nG/L	0 G
			Dibenz(a,h)anthra	<8 nG/L	0 G
Aroclor 1242	22 nG/L	.5082 G	Benzo(g,h,i)peryl	<8 nG/L	0 G
Aroclor 1254	45 nG/L	1.040 G	TOTAL PAH	483 nG/L	11.16 G
TOTAL PCB	67 nG/L	1.548 G			
			SURROGATE RECOV.		
Hexachlorobenzene	1 nG/L	.0231 G	d8-Naphthalene	68 %	***
Lindane	5 nG/L	.1155 G	d10-Acenaphthene	99 %	***
			d10-Phenanthrene	111 %	***
Toxicity	Notest	***	d12-Chrysene	121 %	***
			d12-Perylene	92 %	***
			Resolved HCs	93659 nG/L	2164. G
			n-alkanes c10-c39	42711 nG/L	986.6 G
			Pristane	5341 nG/L	123.4 G
			Phytane	4300 nG/L	99.33 G



SOUTHERN CALIFORNIA COASTAL WATER RESEARCH PROJECT  
LOS ANGELES/VENTURA RUNOFF SURVEY  
SAMPLE DATA SHEET

Channel: Santa Clara River  
Location: Highway 101  
Date: 24 Sep 86  
Time: 13:10

Flow (M\*\*3/Sec): 0.15  
Time Interval: 00:00-21:45  
Interval Vol (M\*\*3): 1970  
Storm #: 1

CONSTITUENT	CONC.	MASS	CONSTITUENT	CONC.	MASS
Suspended Solids	1090 mg/L	0 T	Naphthalene	106 ng/L	0 G
TVS	12 %	***	C1-Naphthalenes	78 ng/L	0 G
Total Solids	1420 mg/L	0 T	C2-Naphthalenes	124 ng/L	0 G
Dissolved Solids	330 mg/L	0 T	C3-Naphthalenes	<31 ng/L	0 G
Oil & Grease	6.8 mg/L	0 T	Biphenyl	<15 ng/L	0 G
Chloroform Extr.	1.1 mg/L	0 T	Acenaphthylene	<15 ng/L	0 G
Salinity	0 ppt	***	Acenaphthene	<31 ng/L	0 G
pH	5.5	***	Fluorene	<14 ng/L	0 G
			Phenanthrene	193 ng/L	0 G
Cadmium	2 ug/L	0kG	C1-Phenanthrenes	286 ng/L	0 G
Chromium	68 ug/L	0kG	C2-Phenanthrenes	226 ng/L	0 G
Copper	74 ug/L	0kG	C3-Phenanthrenes	50 ng/L	0 G
Nickel	48 ug/L	0kG	Anthracene	<14 ng/L	0 G
Lead	134 ug/L	0kG	Fluoranthene	178 ng/L	0 G
Zinc	391 ug/L	0kG	Pyrene	214 ng/L	0 G
Silver	<1 ug/L	0kG	2,3-Benzofluorene	<34 ng/L	0 G
			Benz(a)anthracene	<12 ng/L	0 G
o,p'-DDE	13 ng/L	0 G	Chrysene	232 ng/L	0 G
p,p'-DDE	177 ng/L	0 G	Benzo(b)fluoranth	66 ng/L	0 G
o,p'-DDD	<1 ng/L	0 G	Benzo(k)fluoranth	30 ng/L	0 G
p,p'-DDD	25 ng/L	0 G	Benzo(e)pyrene	76 ng/L	0 G
o,p'-DDT	21 ng/L	0 G	Benzo(a)pyrene	25 ng/L	0 G
p,p'-DDT	60 ng/L	0 G	Perylene	<10 ng/L	0 G
TOTAL DDT	296 ng/L	0 G	9,10-Diphenylanth	<10 ng/L	0 G
			Dibenz(a,h)anthra	<8 ng/L	0 G
Aroclor 1242	70 ng/L	0 G	Benzo(g,h,i)peryl	67 ng/L	0 G
Aroclor 1254	86 ng/L	0 G	TOTAL PAH	1951 ng/L	0 G
TOTAL PCB	156 ng/L	0 G			
			SURROGATE RECOV.		
Hexachlorobenzene	1 ng/L	0 G	d8-Naphthalene	62 %	***
Lindane	7 ng/L	0 G	d10-Acenaphthene	125 %	***
			d10-Phenanthrene	131 %	***
Toxicity	NoTest	***	d12-Chrysene	157 %	***
			d12-Perylene	134 %	***
			Resolved HCs	1.2e5 ng/L	0 G
			n-alkanes c10-c39	51516 ng/L	0 G
			Pristane	36160 ng/L	0 G
			Phytane	4516 ng/L	0 G

SOUTHERN CALIFORNIA COASTAL WATER RESEARCH PROJECT  
LOS ANGELES/VENTURA RUNOFF SURVEY  
SAMPLE DATA SHEET

Channel: Santa Clara River  
Location: Highway 101  
Date: 24 Sep 86  
Time: 14:30

Flow (M\*\*3/Sec): 0.28  
Time Interval: 21:45-34:15  
Interval Vol (M\*\*3): 9030  
Storm #: 1

CONSTITUENT	CONC.	MASS	CONSTITUENT	CONC.	MASS
Suspended Solids	1920 mg/L	0 T	Naphthalene	125 ng/L	0 G
TVS	8.4 %	***	C1-Naphthalenes	45 ng/L	0 G
Total Solids	2470 mg/L	0 T	C2-Naphthalenes	22 ng/L	0 G
Dissolved Solids	550 mg/L	0 T	C3-Naphthalenes	<25 ng/L	0 G
Oil & Grease	3 mg/L	0 T	Biphenyl	<12 ng/L	0 G
Chloroform Extr.	7.5 mg/L	0 T	Acenaphthylene	<12 ng/L	0 G
Salinity	ppt	***	Acenaphthene	112 ng/L	0 G
pH		***	Fluorene	44 ng/L	0 G
			Phenanthrene	375 ng/L	0 G
Cadmium	1 ug/L	0kG	C1-Phenanthrenes	62 ng/L	0 G
Chromium	80 ug/L	0kG	C2-Phenanthrenes	46 ng/L	0 G
Copper	106 ug/L	0kG	C3-Phenanthrenes	<11 ng/L	0 G
Nickel	18 ug/L	0kG	Anthracene	<11 ng/L	0 G
Lead	124 ug/L	0kG	Fluoranthene	237 ng/L	0 G
Zinc	337 ug/L	0kG	Pyrene	182 ng/L	0 G
Silver	<1 ug/L	0kG	2,3-Benzofluorene	<27 ng/L	0 G
			Benz(a)anthracene	<9 ng/L	0 G
o,p'-DDE	22 ng/L	0 G	Chrysene	150 ng/L	0 G
p,p'-DDE	879 ng/L	0 G	Benzo(b)fluoranth	64 ng/L	0 G
o,p'-DDD	<1 ng/L	0 G	Benzo(k)fluoranth	21 ng/L	0 G
p,p'-DDD	151 ng/L	0 G	Benzo(e)pyrene	37 ng/L	0 G
o,p'-DDT	103 ng/L	0 G	Benzo(a)pyrene	<8 ng/L	0 G
p,p'-DDT	417 ng/L	0 G	Perylene	<8 ng/L	0 G
TOTAL DDT	1572 ng/L	0 G	9,10-Diphenylanth	<8 ng/L	0 G
			Dibenz(a,h)anthra	<7 ng/L	0 G
Aroclor 1242	47 ng/L	0 G	Benzo(g,h,i)peryl	35 ng/L	0 G
Aroclor 1254	203 ng/L	0 G	TOTAL PAH	1557 ng/L	0 G
TOTAL PCB	250 ng/L	0 G			
			SURROGATE RECOV.		
Hexachlorobenzene	1 ng/L	0 G	d8-Naphthalene	74 %	***
Lindane	38 ng/L	0 G	d10-Acenaphthene	123 %	***
			d10-Phenanthrene	126 %	***
Toxicity	Notest	***	d12-Chrysene	100 %	***
			d12-Perylene	74 %	***
			Resolved HCs	70900 ng/L	0 G
			n-alkanes c10-c39	33965 ng/L	0 G
			Pristane	2349 ng/L	0 G
			Phytane	3246 ng/L	0 G

SOUTHERN CALIFORNIA COASTAL WATER RESEARCH PROJECT  
LOS ANGELES/VENTURA RUNOFF SURVEY  
SAMPLE DATA SHEET

Channel: Santa Clara River  
Location: Highway 101  
Date: 25 Sep 86  
Time: 12:15

Flow (M\*\*3/Sec): 0.14  
Time Interval: 34:15-48:00  
Interval Vol (M\*\*3): 11,970  
Storm #: 1

CONSTITUENT	CONC.	MASS	CONSTITUENT	CONC.	MASS
Suspended Solids	16 mG/L	0 T	Naphthalene	<26 nG/L	0 G
TVS	88 %	***	C1-Naphthalenes	<26 nG/L	0 G
Total Solids	2780 mG/L	0 T	C2-Naphthalenes	<26 nG/L	0 G
Dissolved Solids	2760 mG/L	0 T	C3-Naphthalenes	<54 nG/L	0 G
Oil & Grease	1 mG/L	0 T	Biphenyl	<26 nG/L	0 G
Chloroform Extr.	2.1 mG/L	0 T	Acenaphthylene	<26 nG/L	0 G
Salinity	3 ppt	***	Acenaphthene	<54 nG/L	0 G
pH	6	***	Fluorene	<24 nG/L	0 G
			Phenanthrene	<24 nG/L	0 E
Cadmium	<1 uG/L	OkG	C1-Phenanthrenes	<24 nG/L	0 E
Chromium	<2 uG/L	OkG	C2-Phenanthrenes	<24 nG/L	0 E
Copper	<2 uG/L	OkG	C3-Phenanthrenes	<24 nG/L	0 E
Nickel	4 uG/L	OkG	Anthracene	<25 nG/L	0 E
Lead	<8 uG/L	OkG	Fluoranthene	<20 nG/L	0 E
Zinc	7 uG/L	OkG	Pyrene	<20 nG/L	0 E
Silver	<1 uG/L	OkG	2,3-Benzofluorene	<58 nG/L	0 E
			Benz(a)anthracene	<20 nG/L	0 E
o,p'-DDE	1 nG/L	0 G	Chrysene	<20 nG/L	0 E
p,p'-DDE	3 nG/L	0 G	Benzo(b)fluoranth	<17 nG/L	0 E
o,p'-DDD	<1 nG/L	0 G	Benzo(k)fluoranth	<17 nG/L	0 E
p,p'-DDD	3 nG/L	0 G	Benzo(e)pyrene	<17 nG/L	0 E
o,p'-DDT	<1 nG/L	0 G	Benzo(a)pyrene	<17 nG/L	0 E
p,p'-DDT	1 nG/L	0 G	Perylene	<17 nG/L	0 E
TOTAL DDT	8 nG/L	0 G	9,10-Diphenylanth	<17 nG/L	0 E
			Dibenz(a,h)anthra	<14 nG/L	0 E
Aroclor 1242	<1 nG/L	0 G	Benzo(g,h,i)peryl	<14 nG/L	0 E
Aroclor 1254	12 nG/L	0 G	TOTAL PAH	0 nG/L	0 E
TOTAL PCB	12 nG/L	0 G			
			SURROGATE RECOV.		
Hexachlorobenzene	<1 nG/L	0 G	d8-Naphthalene	67 %	***
Lindane	2 nG/L	0 G	d10-Acenaphthene	111 %	***
			d10-Phenanthrene	97 %	***
Toxicity	Notest	***	d12-Chrysene	127 %	***
			d12-Perylene	117 %	***
			Resolved HCs	0 nG/L	0 E
			n-alkanes c10-c39	0 nG/L	0 E
			Pristane	0 nG/L	0 E
			Phytane	0 nG/L	0 E

SOUTHERN CALIFORNIA COASTAL WATER RESEARCH PROJECT  
LOS ANGELES/VENTURA RUNOFF SURVEY  
SAMPLE DATA SHEET

Channel: Calleguas Creek  
Location: Highway 1  
Date: 24 Sep 86  
Time: 12:20

Flow (M\*\*3/Sec): .82  
Time Interval: 00:00-21:45  
Interval Vol (M\*\*3): 41, 515  
Storm #: 1

CONSTITUENT	CONC.	MASS	CONSTITUENT	CONC.	MASS
Suspended Solids	2 mG/L	0 T	Naphthalene	<11 nG/L	0 G
TVS	60 %	***	C1-Naphthalenes	<11 nG/L	0 G
Total Solids	1251 mG/L	0 T	C2-Naphthalenes	<11 nG/L	0 G
Dissolved Solids	1249 mG/L	0 T	C3-Naphthalenes	<23 nG/L	0 G
Oil & Grease	6.8 mG/L	0 T	Biphenyl	<11 nG/L	0 G
Chloroform Extr.	1.1 mG/L	0 T	Acenaphthylene	<11 nG/L	0 G
Salinity	.5 ppt	***	Acenaphthene	<23 nG/L	0 G
pH	6.5	***	Fluorene	<10 nG/L	0 G
			Phenanthrene	<10 nG/L	0 G
Cadmium	<1 uG/L	0kG	C1-Phenanthrenes	<10 nG/L	0 G
Chromium	<3 uG/L	0kG	C2-Phenanthrenes	<10 nG/L	0 G
Copper	3 uG/L	0kG	C3-Phenanthrenes	<10 nG/L	0 G
Nickel	9 uG/L	0kG	Anthracene	<10 nG/L	0 G
Lead	<9 uG/L	0kG	Fluoranthene	<8 nG/L	0 G
Zinc	6 uG/L	0kG	Pyrene	<8 nG/L	0 G
Silver	<1 uG/L	0kG	2,3-Benzofluorene	<25 nG/L	0 G
			Benz(a)anthracene	23 nG/L	0 G
o,p'-DDE	<1 nG/L	0 G	Chrysene	112 nG/L	0 G
p,p'-DDE	<1 nG/L	0 G	Benzo(b)fluoranth	<7 nG/L	0 G
o,p'-DDD	<1 nG/L	0 G	Benzo(k)fluoranth	<7 nG/L	0 G
p,p'-DDD	<1 nG/L	0 G	Benzo(e)pyrene	<7 nG/L	0 G
o,p'-DDT	<1 nG/L	0 G	Benzo(a)pyrene	<7 nG/L	0 G
p,p'-DDT	1 nG/L	0 G	Perylene	<7 nG/L	0 G
TOTAL DDT	1 nG/L	0 G	9,10-Diphenylanth	<7 nG/L	0 G
			Dibenz(a,h)anthra	<6 nG/L	0 G
Aroclor 1242	<1 nG/L	0 G	Benzo(g,h,i)peryl	<6 nG/L	0 G
Aroclor 1254	13 nG/L	0 G	TOTAL PAH	135 nG/L	0 G
TOTAL PCB	13 nG/L	0 G			
			SURROGATE RECOV.		
Hexachlorobenzene	<1 nG/L	0 G	d8-Naphthalene	66 %	***
Lindane	<1 nG/L	0 G	d10-Acenaphthene	88 %	***
			d10-Phenanthrene	82 %	***
Toxicity	Notest	***	d12-Chrysene	92 %	***
			d12-Perylene	87 %	***
			Resolved HCs	0 nG/L	0 G
			n-alkanes c10-c39	0 nG/L	0 G
			Pristane	0 nG/L	0 G
			Phytane	0 nG/L	0 G

SOUTHERN CALIFORNIA COASTAL WATER RESEARCH PROJECT  
LOS ANGELES/VENTURA RUNOFF SURVEY  
SAMPLE DATA SHEET

Channel: Calleguas Creek  
Location: Highway 1  
Date: 24 Sep 86  
Time: 15:10

Flow (M\*\*3/Sec): 1.53  
Time Interval: 21:45-34:15  
Interval Vol (M\*\*3): 168,000  
Storm #: 1

CONSTITUENT	CONC.	MASS	CONSTITUENT	CONC.	MASS
Suspended Solids	2 mG/L	0 T	Naphthalene	<7 nG/L	0 G
TVS	60 %	***	C1-Naphthalenes	<7 nG/L	0 G
Total Solids	1820 mG/L	0 T	C2-Naphthalenes	<7 nG/L	0 G
Dissolved Solids	1820 mG/L	0 T	C3-Naphthalenes	<14 nG/L	0 G
Oil & Grease	1.6 mG/L	0 T	Biphenyl	<7 nG/L	0 G
Chloroform Extr.	1.3 mG/L	0 T	Acenaphthylene	<7 nG/L	0 G
Salinity	ppt	***	Acenaphthene	<14 nG/L	0 G
pH		***	Fluorene	<6 nG/L	0 G
			Phenanthrene	<6 nG/L	0 G
Cadmium	<1 uG/L	OkG	C1-Phenanthrenes	<6 nG/L	0 G
Chromium	<3 uG/L	OkG	C2-Phenanthrenes	<6 nG/L	0 G
Copper	4 uG/L	OkG	C3-Phenanthrenes	<6 nG/L	0 G
Nickel	3 uG/L	OkG	Anthracene	<6 nG/L	0 G
Lead	<9 uG/L	OkG	Fluoranthene	<5 nG/L	0 G
Zinc	8 uG/L	OkG	Pyrene	<5 nG/L	0 G
Silver	<1 uG/L	OkG	2,3-Benzofluorene	<15 nG/L	0 G
			Benz(a)anthracene	<5 nG/L	0 G
o,p'-DDE	1 nG/L	0 G	Chrysene	<5 nG/L	0 G
p,p'-DDE	2 nG/L	0 G	Benzo(b)fluoranth	<4 nG/L	0 G
o,p'-DDD	<1 nG/L	0 G	Benzo(k)fluoranth	<4 nG/L	0 G
p,p'-DDD	1 nG/L	0 G	Benzo(e)pyrene	<4 nG/L	0 G
o,p'-DDT	<1 nG/L	0 G	Benzo(a)pyrene	<4 nG/L	0 G
p,p'-DDT	1 nG/L	0 G	Perylene	<4 nG/L	0 G
TOTAL DDT	5 nG/L	0 G	9,10-Diphenylanth	<4 nG/L	0 G
			Dibenz(a,h)anthra	<4 nG/L	0 G
Aroclor 1242	<1 nG/L	0 G	Benzo(g,h,i)peryl	<4 nG/L	0 G
Aroclor 1254	11 nG/L	0 G	TOTAL PAH	0 nG/L	0 G
TOTAL PCB	11 nG/L	0 G			
			SURROGATE RECOV.		
Hexachlorobenzene	<1 nG/L	0 G	d8-Naphthalene	18 %	***
Lindane	1 nG/L	0 G	d10-Acenaphthene	33 %	***
			d10-Phenanthrene	31 %	***
Toxicity	NoTest	***	d12-Chrysene	38 %	***
			d12-Perylene	33 %	***
			Resolved HCs	0 nG/L	0 G
			n-alkanes c10-c39	24 nG/L	0 G
			Pristane	0 nG/L	0 G
			Phytane	0 nG/L	0 G

SOUTHERN CALIFORNIA COASTAL WATER RESEARCH PROJECT  
LOS ANGELES/VENTURA RUNOFF SURVEY  
SAMPLE DATA SHEET

Channel: Calleguas Creek  
Location: Highway 1  
Date: 25 Sep 86  
Time: 13:22

Flow (M\*\*3/Sec): 2.41  
Time Interval: 34:15-48:00  
Interval Vol (M\*\*3): 109,000  
Storm #: 1

CONSTITUENT	CONC.	MASS	CONSTITUENT	CONC.	MASS
Suspended Solids	85 mG/L	0 T	Naphthalene	<14 nG/L	0 G
TVS	28 %	***	C1-Naphthalenes	<14 nG/L	0 G
Total Solids	931 mG/L	0 T	C2-Naphthalenes	<14 nG/L	0 G
Dissolved Solids	846 mG/L	0 T	C3-Naphthalenes	<30 nG/L	0 G
Oil & Grease	1.7 mG/L	0 T	Biphenyl	<14 nG/L	0 G
Chloroform Extr.	1.6 mG/L	0 T	Acenaphthylene	<14 nG/L	0 G
Salinity	2 ppt	***	Acenaphthene	<30 nG/L	0 G
pH	5.5	***	Fluorene	<13 nG/L	0 G
			Phenanthrene	<13 nG/L	0 G
Cadmium	<1 uG/L	OkG	C1-Phenanthrenes	<13 nG/L	0 G
Chromium	5 uG/L	OkG	C2-Phenanthrenes	<13 nG/L	0 G
Copper	46 uG/L	OkG	C3-Phenanthrenes	<13 nG/L	0 G
Nickel	12 uG/L	OkG	Anthracene	<14 nG/L	0 G
Lead	<9 uG/L	OkG	Fluoranthene	<11 nG/L	0 G
Zinc	14 uG/L	OkG	Pyrene	<11 nG/L	0 G
Silver	<1 uG/L	OkG	2,3-Benzofluorene	<32 nG/L	0 G
			Benz(a)anthracene	<11 nG/L	0 G
o,p'-DDE	1 nG/L	0 G	Chrysene	<11 nG/L	0 G
p,p'-DDE	5 nG/L	0 G	Benzo(b)fluoranth	<9 nG/L	0 G
o,p'-DDD	<1 nG/L	0 G	Benzo(k)fluoranth	<9 nG/L	0 G
p,p'-DDD	3 nG/L	0 G	Benzo(e)pyrene	<9 nG/L	0 G
o,p'-DDT	<1 nG/L	0 G	Benzo(a)pyrene	<9 nG/L	0 G
p,p'-DDT	1 nG/L	0 G	Perylene	<9 nG/L	0 G
TOTAL DDT	10 nG/L	0 G	9,10-Diphenylanth	<9 nG/L	0 G
			Dibenz(a,h)anthra	<8 nG/L	0 G
Aroclor 1242	<1 nG/L	0 G	Benzo(g,h,i)peryl	<8 nG/L	0 G
Aroclor 1254	19 nG/L	0 G	TOTAL PAH	0 nG/L	0 G
TOTAL PCB	19 nG/L	0 G			
			SURROGATE RECOV.		
Hexachlorobenzene	1 nG/L	0 G	d8-Naphthalene	0 %	***
Lindane	6 nG/L	0 G	d10-Acenaphthene	17 %	***
			d10-Phenanthrene	58 %	***
Toxicity	Notest	***	d12-Chrysene	101 %	***
			d12-Perylene	104 %	***
			Resolved HCs	0 nG/L	0 G
			n-alkanes c10-c39	0 nG/L	0 G
			Pristane	0 nG/L	0 G
			Phytane	0 nG/L	0 G

SOUTHERN CALIFORNIA COASTAL WATER RESEARCH PROJECT  
LOS ANGELES/VENTURA RUNOFF SURVEY  
SAMPLE DATA SHEET

Channel: San Gabriel River  
Location: College Pk Bridge  
Date: 23 Sep 86  
Time: 19:45

Flow (M\*\*3/Sec): .564  
Time Interval: 00:00-11:00  
Interval Vol (M\*\*3): 2.120  
Storm #: 1

CONSTITUENT	CONC.	MASS	CONSTITUENT	CONC.	MASS
Suspended Solids	16 mG/L	0 T	Naphthalene	<10 nG/L	0 G
TVS	31 %	***	C1-Naphthalenes	<10 nG/L	0 G
Total Solids	6180 mG/L	0 T	C2-Naphthalenes	<10 nG/L	0 G
Dissolved Solids	6160 mG/L	0 T	C3-Naphthalenes	<22 nG/L	0 G
Oil & Grease	3.2 mG/L	0 T	Biphenyl	<10 nG/L	0 G
Chloroform Extr.	1.43 mG/L	0 T	Acenaphthylene	<10 nG/L	0 G
Salinity	6 ppt	***	Acenaphthene	<22 nG/L	0 G
pH	5.5	***	Fluorene	<10 nG/L	0 G
			Phenanthrene	<10 nG/L	0 G
Cadmium	salty uG/L	OkG	C1-Phenanthrenes	<10 nG/L	0 G
Chromium	salty uG/L	OkG	C2-Phenanthrenes	<10 nG/L	0 G
Copper	salty uG/L	OkG	C3-Phenanthrenes	<10 nG/L	0 G
Nickel	salty uG/L	OkG	Anthracene	<10 nG/L	0 G
Lead	salty uG/L	OkG	Fluoranthene	<8 nG/L	0 G
Zinc	salty uG/L	OkG	Pyrene	<8 nG/L	0 G
Silver	salty uG/L	OkG	2,3-Benzofluorene	<24 nG/L	0 G
			Benz(a)anthracene	<8 nG/L	0 G
o,p'-DDE	1 nG/L	0 G	Chrysene	<8 nG/L	0 G
p,p'-DDE	1 nG/L	0 G	Benzo(b)fluoranth	<7 nG/L	0 G
o,p'-DDD	<1 nG/L	0 G	Benzo(k)fluoranth	<7 nG/L	0 G
p,p'-DDD	<1 nG/L	0 G	Benzo(e)pyrene	<7 nG/L	0 G
o,p'-DDT	<1 nG/L	0 G	Benzo(a)pyrene	<7 nG/L	0 G
p,p'-DDT	<1 nG/L	0 G	Perylene	<7 nG/L	0 G
TOTAL DDT	2 nG/L	0 G	9,10-Diphenylanth	<7 nG/L	0 G
			Dibenz(a,h)anthra	<6 nG/L	0 G
Aroclor 1242	<1 nG/L	0 G	Benzo(g,h,i)peryl	<6 nG/L	0 G
Aroclor 1254	13 nG/L	0 G	TOTAL PAH	0 nG/L	0 G
TOTAL PCB	13 nG/L	0 G			
			SURROGATE RECOV.		
Hexachlorobenzene	16 nG/L	0 G	d8-Naphthalene	0 %	***
Lindane	<1 nG/L	0 G	d10-Acenaphthene	0 %	***
			d10-Phenanthrene	0 %	***
Toxicity	Notest	***	d12-Chrysene	7 %	***
			d12-Perylene	6 %	***
			Resolved HCs	0 nG/L	0 G
			n-alkanes c10-c39	993 nG/L	0 G
			Pristane	0 nG/L	0 G
			Phytane	0 nG/L	0 G

SOUTHERN CALIFORNIA COASTAL WATER RESEARCH PROJECT  
LOS ANGELES/VENTURA RUNOFF SURVEY  
SAMPLE DATA SHEET

Channel: San Gabriel River  
Location: College Pk Bridge  
Date: 24 Sep 86  
Time: 10:00

Flow (M\*\*3/Sec): 4.92  
Time Interval: 11:00-19:30  
Interval Vol (M\*\*3): 95,000  
Storm #: 1

CONSTITUENT	CONC.	MASS	CONSTITUENT	CONC.	MASS
Suspended Solids	5 mG/L	0 T	Naphthalene	<22 nG/L	0 G
TVS	100 %	***	C1-Naphthalenes	<22 nG/L	0 G
Total Solids	27300 mG/L	0 T	C2-Naphthalenes	<22 nG/L	0 G
Dissolved Solids	27300 mG/L	0 T	C3-Naphthalenes	<46 nG/L	0 G
Oil & Grease	.2 mG/L	0 T	Biphenyl	<22 nG/L	0 G
Chloroform Extr.	1.83 mG/L	0 T	Acenaphthylene	<22 nG/L	0 G
Salinity	ppt	***	Acenaphthene	<46 nG/L	0 G
pH		***	Fluorene	<21 nG/L	0 G
			Phenanthrene	<21 nG/L	0 G
Cadmium	Salty uG/L	OkG	C1-Phenanthrenes	<21 nG/L	0 G
Chromium	Salty uG/L	OkG	C2-Phenanthrenes	<21 nG/L	0 G
Copper	Salty uG/L	OkG	C3-Phenanthrenes	<21 nG/L	0 G
Nickel	Salty uG/L	OkG	Anthracene	<21 nG/L	0 G
Lead	Salty uG/L	OkG	Fluoranthene	<17 nG/L	0 G
Zinc	Salty uG/L	OkG	Pyrene	<17 nG/L	0 G
Silver	Salty uG/L	OkG	2,3-Benzofluorene	<50 nG/L	0 G
			Benz(a)anthracene	<17 nG/L	0 G
o,p'-DDE	<1 nG/L	0 G	Chrysene	<17 nG/L	0 G
p,p'-DDE	<1 nG/L	0 G	Benzo(b)fluoranth	<14 nG/L	0 G
o,p'-DDD	<1 nG/L	0 G	Benzo(k)fluoranth	<14 nG/L	0 G
p,p'-DDD	<1 nG/L	0 G	Benzo(e)pyrene	<14 nG/L	0 G
o,p'-DDT	<1 nG/L	0 G	Benzo(a)pyrene	<14 nG/L	0 G
p,p'-DDT	<1 nG/L	0 G	Perylene	<14 nG/L	0 G
TOTAL DDT	0 nG/L	0 G	9,10-Diphenylanth	<14 nG/L	0 G
			Dibenz(a,h)anthra	<12 nG/L	0 G
Aroclor 1242	<1 nG/L	0 G	Benzo(g,h,i)peryl	<12 nG/L	0 G
Aroclor 1254	7 nG/L	0 G	TOTAL PAH	0 nG/L	0 G
TOTAL PCB	7 nG/L	0 G			
			SURROGATE RECOV.		
Hexachlorobenzene	<1 nG/L	0 G	d8-Naphthalene	62 %	***
Lindane	<1 nG/L	0 G	d10-Acenaphthene	111 %	***
			d10-Phenanthrene	99 %	***
Toxicity	NoTest	***	d12-Chrysene	120 %	***
			d12-Perylene	110 %	***
			Resolved HCs	0 nG/L	0 G
			n-alkanes c10-c39	921 nG/L	0 G
			Pristane	0 nG/L	0 G
			Phytane	0 nG/L	0 G



SOUTHERN CALIFORNIA COASTAL WATER RESEARCH PROJECT  
LOS ANGELES/VENTURA RUNOFF SURVEY  
SAMPLE DATA SHEET

Channel: San Gabriel River  
Location: College Pk Bridge  
Date: 23 Sep 86  
Time: 19:45

Flow (M\*\*3/Sec): .564  
Time Interval: 00:00-11:00  
Interval Vol (M\*\*3): 252,000  
Storm #: 1

CONSTITUENT	CONC.	MASS	CONSTITUENT	CONC.	MASS
Suspended Solids	16 mG/L	0 T	Naphthalene	<10 nG/L	0 G
TVS	31 %	***	C1-Naphthalenes	<10 nG/L	0 G
Total Solids	6180 mG/L	0 T	C2-Naphthalenes	<10 nG/L	0 G
Dissolved Solids	6160 mG/L	0 T	C3-Naphthalenes	<22 nG/L	0 G
Oil & Grease	3.2 mG/L	0 T	Biphenyl	<10 nG/L	0 G
Chloroform Extr.	1.43 mG/L	0 T	Acenaphthylene	<10 nG/L	0 G
Salinity	6 ppt	***	Acenaphthene	<22 nG/L	0 G
pH	5.5	***	Fluorene	<10 nG/L	0 G
Cadmium	salty uG/L	OkG	Phenanthrene	<10 nG/L	0 G
Chromium	salty uG/L	OkG	C1-Phenanthrenes	<10 nG/L	0 G
Copper	salty uG/L	OkG	C2-Phenanthrenes	<10 nG/L	0 G
Nickel	salty uG/L	OkG	C3-Phenanthrenes	<10 nG/L	0 G
Lead	salty uG/L	OkG	Anthracene	<10 nG/L	0 G
Zinc	salty uG/L	OkG	Fluoranthene	<8 nG/L	0 G
Silver	salty uG/L	OkG	Pyrene	<8 nG/L	0 G
o,p'-DDE	1 nG/L	0 G	2,3-Benzofluorene	<24 nG/L	0 G
p,p'-DDE	1 nG/L	0 G	Benz(a)anthracene	<8 nG/L	0 G
o,p'-DDD	<1 nG/L	0 G	Chrysene	<8 nG/L	0 G
p,p'-DDD	<1 nG/L	0 G	Benzo(b)fluoranth	<7 nG/L	0 G
o,p'-DDT	<1 nG/L	0 G	Benzo(k)fluoranth	<7 nG/L	0 G
p,p'-DDT	<1 nG/L	0 G	Benzo(e)pyrene	<7 nG/L	0 G
TOTAL DDT	2 nG/L	0 G	Benzo(a)pyrene	<7 nG/L	0 G
Aroclor 1242	<1 nG/L	0 G	Perylene	<7 nG/L	0 G
Aroclor 1254	13 nG/L	0 G	9,10-Diphenylanth	<7 nG/L	0 G
TOTAL PCB	13 nG/L	0 G	Dibenz(a,h)anthra	<6 nG/L	0 G
Hexachlorobenzene	16 nG/L	0 G	Benzo(g,h,i)peryl	<6 nG/L	0 G
Lindane	<1 nG/L	0 G	TOTAL PAH	0 nG/L	0 G
Toxicity	Notest	***	SURROGATE RECOV.		
			d8-Naphthalene	0 %	***
			d10-Acenaphthene	0 %	***
			d10-Phenanthrene	0 %	***
			d12-Chrysene	7 %	***
			d12-Perylene	6 %	***
			Resolved HCs	0 nG/L	0 G
			n-alkanes c10-c39	993 nG/L	0 G
			Pristane	0 nG/L	0 G
			Phytane	0 nG/L	0 G

SOUTHERN CALIFORNIA COASTAL WATER RESEARCH PROJECT  
LOS ANGELES/VENTURA RUNOFF SURVEY  
SAMPLE DATA SHEET

Channel: San Gabriel River  
Location: College Park Bridg  
Date: 24 Sep 86  
Time: 14:50

Flow (M\*\*3/Sec): 26.2  
Time Interval: 21:45-24:15  
Interval Vol (M\*\*3): 211,000  
Storm #: 1

CONSTITUENT	CONC.	MASS	CONSTITUENT	CONC.	MASS
Suspended Solids	222 mG/L	0 T	Naphthalene	214 nG/L	0
TVS	26 %	***	C1-Naphthalenes	251 nG/L	0
Total Solids	9060 mG/L	0 T	C2-Naphthalenes	35 nG/L	0
Dissolved Solids	8840 mG/L	0 T	C3-Naphthalenes	<33 nG/L	0
Oil & Grease	6.2 mG/L	0 T	Biphenyl	<16 nG/L	0
Chloroform Extr.	8.1 mG/L	0 T	Acenaphthylene	<16 nG/L	0
Salinity	ppt	***	Acenaphthene	<33 nG/L	0
pH		***	Fluorene	<15 nG/L	0
			Phenanthrene	132 nG/L	0
Cadmium	3 uG/L	0kG	C1-Phenanthrenes	<15 nG/L	0
Chromium	15 uG/L	0kG	C2-Phenanthrenes	<15 nG/L	0
Copper	65 uG/L	0kG	C3-Phenanthrenes	<15 nG/L	0
Nickel	39 uG/L	0kG	Anthracene	<15 nG/L	0
Lead	104 uG/L	0kG	Fluoranthene	177 nG/L	0
Zinc	364 uG/L	0kG	Pyrene	163 nG/L	0
Silver	<1 uG/L	0kG	2,3-Benzofluorene	<35 nG/L	0
			Benz(a)anthracene	<12 nG/L	0
o,p'-DDE	6 nG/L	0 G	Chrysene	155 nG/L	0
p,p'-DDE	7 nG/L	0 G	Benzo(b)fluoranth	89 nG/L	0
o,p'-DDD	<1 nG/L	0 G	Benzo(k)fluoranth	<10 nG/L	0
p,p'-DDD	4 nG/L	0 G	Benzo(e)pyrene	130 nG/L	0
o,p'-DDT	7 nG/L	0 G	Benzo(a)pyrene	76 nG/L	0
p,p'-DDT	<1 nG/L	0 G	Perylene	<10 nG/L	0
TOTAL DDT	24 nG/L	0 G	9,10-Diphenylanth	<10 nG/L	0
			Dibenz(a,h)anthra	<9 nG/L	0
Aroclor 1242	<1 nG/L	0 G	Benzo(g,h,i)peryl	109 nG/L	0
Aroclor 1254	57 nG/L	0 G	TOTAL PAH	1531 nG/L	0
TOTAL PCB	57 nG/L	0 G			
			SURROGATE RECOV.		
Hexachlorobenzene	2 nG/L	0 G	d8-Naphthalene	71 %	***
Lindane	22 nG/L	0 G	d10-Acenaphthene	104 %	***
			d10-Phenanthrene	105 %	***
Toxicity	Notest	***	d12-Chrysene	163 %	***
			d12-Perylene	157 %	***
			Resolved HCs	56412 nG/L	0
			n-alkanes c10-c39	37536 nG/L	0
			Pristane	3846 nG/L	0
			Phytane	4683 nG/L	0

SOUTHERN CALIFORNIA COASTAL WATER RESEARCH PROJECT  
LOS ANGELES/VENTURA RUNOFF SURVEY  
SAMPLE DATA SHEET

Channel: San Gabriel River  
Location: College Park Bridg  
Date: 24 Sep 86  
Time: 17:45

Flow (M\*\*3/Sec): 40.5  
Time Interval: 24:15-28:00  
Interval Vol (M\*\*3): 489,000  
Storm #: 1

CONSTITUENT	CONC.	MASS	CONSTITUENT	CONC.	MASS
Suspended Solids	484 mG/L	0 T	Naphthalene	51 nG/L	0 G
TVS	30 %	***	C1-Naphthalenes	<21 nG/L	0 G
Total Solids	534 mG/L	0 T	C2-Naphthalenes	<21 nG/L	0 G
Dissolved Solids	50 mG/L	0 T	C3-Naphthalenes	<45 nG/L	0 G
Oil & Grease	7.8 mG/L	0 T	Biphenyl	<21 nG/L	0 G
Chloroform Extr.	5 mG/L	0 T	Acenaphthylene	<21 nG/L	0 G
Salinity	0 ppt	***	Acenaphthene	<45 nG/L	0 G
pH	5.5	***	Fluorene	<20 nG/L	0 G
			Phenanthrene	127 nG/L	0 G
Cadmium	4 uG/L	0kG	C1-Phenanthrenes	<20 nG/L	0 G
Chromium	40 uG/L	0kG	C2-Phenanthrenes	<20 nG/L	0 G
Copper	158 uG/L	0kG	C3-Phenanthrenes	<20 nG/L	0 G
Nickel	61 uG/L	0kG	Anthracene	<20 nG/L	0 G
Lead	201 uG/L	0kG	Fluoranthene	176 nG/L	0 G
Zinc	744 uG/L	0kG	Pyrene	110 nG/L	0 G
Silver	<1 uG/L	0kG	2,3-Benzofluorene	<48 nG/L	0 G
			Benz(a)anthracene	<17 nG/L	0 G
o,p'-DDE	6 nG/L	0 G	Chrysene	64 nG/L	0 G
p,p'-DDE	6 nG/L	0 G	Benzo(b)fluoranth	37 nG/L	0 G
o,p'-DDD	<1 nG/L	0 G	Benzo(k)fluoranth	<14 nG/L	0 G
p,p'-DDD	2 nG/L	0 G	Benzo(e)pyrene	<14 nG/L	0 G
o,p'-DDT	4 nG/L	0 G	Benzo(a)pyrene	<14 nG/L	0 G
p,p'-DDT	<1 nG/L	0 G	Perylene	<14 nG/L	0 G
TOTAL DDT	18 nG/L	0 G	9,10-Diphenylanth	<14 nG/L	0 G
			Dibenz(a,h)anthra	<12 nG/L	0 G
Aroclor 1242	<1 nG/L	0 G	Benzo(g,h,i)peryl	<12 nG/L	0 G
Aroclor 1254	22 nG/L	0 G	TOTAL PAH	565 nG/L	0 G
TOTAL PCB	22 nG/L	0 G			
			SURROGATE RECOV.		
Hexachlorobenzene	1 nG/L	0 G	d8-Naphthalene	64 %	***
Lindane	<1 nG/L	0 G	d10-Acenaphthene	126 %	***
			d10-Phenanthrene	125 %	***
Toxicity	Notest	***	d12-Chrysene	101 %	***
			d12-Perylene	81 %	***
			Resolved HCs	72117 nG/L	0 G
			n-alkanes c10-c39	42489 nG/L	0 G
			Pristane	3925 nG/L	0 G
			Phytane	4072 nG/L	0 G

SOUTHERN CALIFORNIA COASTAL WATER RESEARCH PROJECT  
SURVEY

SAMPLE DATA SHEET

Channel: San Gabriel River  
Location: College Pk Bridge  
Date: 24 Sep 86  
Time: 22:20

Flow (M\*\*3/Sec): 122  
Time Interval: 28:00-34:45  
Interval Vol (M\*\*3): 2 x 10<sup>6</sup>  
Storm #: 1

CONSTITUENT	CONC.	MASS	CONSTITUENT	CONC.	MASS
Suspended Solids	mG/L	O T	Naphthalene	62 nG/L	O G
TVS	18 %	***	C1-Naphthalenes	35 nG/L	O G
Total Solids	1160 mG/L	O T	C2-Naphthalenes	<13 nG/L	O G
Dissolved Solids	mG/L	O T	C3-Naphthalenes	<27 nG/L	O G
Oil & Grease	5 mG/L	O T	Biphenyl	<13 nG/L	O G
Chloroform Extr.	1.8 mG/L	O T	Acenaphthylene	<13 nG/L	O G
Salinity	ppt	***	Acenaphthene	<27 nG/L	O G
pH		***	Fluorene	<12 nG/L	O G
			Phenanthrene	130 nG/L	O G
Cadmium	2 uG/L	Ok G	C1-Phenanthrenes	61 nG/L	O G
Chromium	30 uG/L	Ok G	C2-Phenanthrenes	42 nG/L	O G
Copper	78 uG/L	Ok G	C3-Phenanthrenes	<12 nG/L	O G
Nickel	26 uG/L	Ok G	Anthracene	<12 nG/L	O G
Lead	111 uG/L	Ok G	Fluoranthene	247 nG/L	O G
Zinc	477 uG/L	Ok G	Pyrene	233 nG/L	O G
Silver	<1 uG/L	Ok G	2,3-Benzofluorene	<29 nG/L	O G
			Benz(a)anthracene	42 nG/L	O G
o,p'-DDE	6 nG/L	O G	Chrysene	149 nG/L	O G
p,p'-DDE	6 nG/L	O G	Benzo(b)fluoranth	114 nG/L	O G
o,p'-DDD	<1 nG/L	O G	Benzo(k)fluoranth	74 nG/L	O G
p,p'-DDD	2 nG/L	O G	Benzo(e)pyrene	80 nG/L	O G
o,p'-DDT	4 nG/L	O G	Benzo(a)pyrene	31 nG/L	O G
p,p'-DDT	1 nG/L	O G	Perylene	<8 nG/L	O G
TOTAL DDT	19 nG/L	O G	9,10-Diphenylanth	<8 nG/L	O G
			Dibenz(a,h)anthra	<7 nG/L	O G
Aroclor 1242	42 nG/L	O G	Benzo(g,h,i)peryl	89 nG/L	O G
Aroclor 1254	33 nG/L	O G	TOTAL PAH	1389 nG/L	O G
TOTAL PCB	75 nG/L	O G			
			SURROGATE RECOV.		
Hexachlorobenzene	2 nG/L	O G	d8-Naphthalene	63 %	***
Lindane	6 nG/L	O G	d10-Acenaphthene	120 %	***
			d10-Phenanthrene	119 %	***
Toxicity	NoTest	***	d12-Chrysene	125 %	***
			d12-Perylene	100 %	***
			Resolved HCs	52786 nG/L	O G
			n-alkanes c10-c39	28740 nG/L	O G
			Pristane	2348 nG/L	O G
			Phytane	3256 nG/L	O G

SOUTHERN CALIFORNIA COASTAL WATER RESEARCH PROJECT  
SURVEY

SAMPLE DATA SHEET

Channel: San Gabriel River  
Location: College Pk Bridge  
Date: 25 Sep 86  
Time: 07:00

Flow (M\*\*3/Sec): 10.6  
Time Interval: 34:45-43:15  
Interval Vol (M\*\*3): 395,000  
Storm #: 1

CONSTITUENT	CONC.	MASS	CONSTITUENT	CONC.	MASS
Suspended Solids	1080 mg/L	0 T	Naphthalene	94 ng/L	0 G
TVS	6.5 %	***	C1-Naphthalenes	69 ng/L	0 G
Total Solids	1300 mg/L	0 T	C2-Naphthalenes	46 ng/L	0 G
Dissolved Solids	220 mg/L	0 T	C3-Naphthalenes	<14 ng/L	0 G
Oil & Grease	2.8 mg/L	0 T	Biphenyl	<7 ng/L	0 G
Chloroform Extr.	11.9 mg/L	0 T	Acenaphthylene	<7 ng/L	0 G
Salinity	0 ppt	***	Acenaphthene	<14 ng/L	0 G
pH	6	***	Fluorene	<7 ng/L	0 G
			Phenanthrene	167 ng/L	0 G
Cadmium	4 ug/L	Ok G	C1-Phenanthrenes	33 ng/L	0 G
Chromium	68 ug/L	Ok G	C2-Phenanthrenes	35 ng/L	0 G
Copper	143 ug/L	Ok G	C3-Phenanthrenes	<7 ng/L	0 G
Nickel	67 ug/L	Ok G	Anthracene	<7 ng/L	0 G
Lead	200 ug/L	Ok G	Fluoranthene	218 ng/L	0 G
Zinc	385 ug/L	Ok G	Pyrene	214 ng/L	0 G
Silver	<1 ug/L	Ok G	2,3-Benzofluorene	<16 ng/L	0 G
			Benz(a)anthracene	54 ng/L	0 G
o,p'-DDE	<1 ng/L	0 G	Chrysene	176 ng/L	0 G
p,p'-DDE	3 ng/L	0 G	Benzo(b)fluoranth	223 ng/L	0 G
o,p'-DDD	<1 ng/L	0 G	Benzo(k)fluoranth	<4 ng/L	0 G
p,p'-DDD	<1 ng/L	0 G	Benzo(e)pyrene	90 ng/L	0 G
o,p'-DDT	<1 ng/L	0 G	Benzo(a)pyrene	73 ng/L	0 G
p,p'-DDT	4 ng/L	0 G	Perylene	12 ng/L	0 G
TOTAL DDT	7 ng/L	0 G	9,10-Diphenylanth	<4 ng/L	0 G
			Dibenz(a,h)anthra	7 ng/L	0 G
Aroclor 1242	<1 ng/L	0 G	Benzo(g,h,i)peryl	106 ng/L	0 G
Aroclor 1254	68 ng/L	0 G	TOTAL PAH	1617 ng/L	0 G
TOTAL PCB	68 ng/L	0 G			
			SURROGATE RECOV.		
Hexachlorobenzene	2 ng/L	0 G	d8-Naphthalene	75 %	***
Lindane	9 ng/L	0 G	d10-Acenaphthene	138 %	***
			d10-Phenanthrene	122 %	***
Toxicity	Notest	***	d12-Chrysene	124 %	***
			d12-Perylene	102 %	***
			Resolved HCs	60992 ng/L	0 G
			n-alkanes c10-c39	35793 ng/L	0 G
			Pristane	3483 ng/L	0 G
			Phytane	4149 ng/L	0 G

SOUTHERN CALIFORNIA COASTAL WATER RESEARCH PROJECT  
LOS ANGELES/VENTURA RUNOFF SURVEY  
SAMPLE DATA SHEET

Channel: San Gabriel River  
Location: College Pk Bridge  
Date: 25 Sep 86  
Time: 15:30

Flow (M\*\*3/Sec): 2.11  
Time Interval: 43:15-56:00  
Interval Vol (M\*\*3): 45,406  
Storm #: 1

CONSTITUENT	CONC.	MASS	CONSTITUENT	CONC.	MASS
Suspended Solids	158 mG/L	0 T	Naphthalene	152 nG/L	0 G
TVS	17 %	***	C1-Naphthalenes	<17 nG/L	0 G
Total Solids	462 mG/L	0 T	C2-Naphthalenes	<17 nG/L	0 G
Dissolved Solids	304 mG/L	0 T	C3-Naphthalenes	<35 nG/L	0 G
Oil & Grease	1.5 mG/L	0 T	Biphenyl	<17 nG/L	0 G
Chloroform Extr.	2.5 mG/L	0 T	Acenaphthylene	<17 nG/L	0 G
Salinity	0 ppt	***	Acenaphthene	<35 nG/L	0 G
pH	6	***	Fluorene	<16 nG/L	0 G
			Phenanthrene	<16 nG/L	0 G
Cadmium	<1 uG/L	0kG	C1-Phenanthrenes	<16 nG/L	0 G
Chromium	6 uG/L	0kG	C2-Phenanthrenes	<16 nG/L	0 G
Copper	17 uG/L	0kG	C3-Phenanthrenes	<16 nG/L	0 G
Nickel	13 uG/L	0kG	Anthracene	<16 nG/L	0 G
Lead	23 uG/L	0kG	Fluoranthene	<13 nG/L	0 G
Zinc	80 uG/L	0kG	Pyrene	<13 nG/L	0 G
Silver	<1 uG/L	0kG	2,3-Benzofluorene	<37 nG/L	0 G
			Benz(a)anthracene	<13 nG/L	0 G
o,p'-DDE	4 nG/L	0 G	Chrysene	<13 nG/L	0 G
p,p'-DDE	12 nG/L	0 G	Benzo(b)fluoranth	<11 nG/L	0 G
o,p'-DDD	<1 nG/L	0 G	Benzo(k)fluoranth	<11 nG/L	0 G
p,p'-DDD	7 nG/L	0 G	Benzo(e)pyrene	<11 nG/L	0 G
o,p'-DDT	3 nG/L	0 G	Benzo(a)pyrene	<11 nG/L	0 G
p,p'-DDT	9 nG/L	0 G	Perylene	<11 nG/L	0 G
TOTAL DDT	35 nG/L	0 G	9,10-Diphenylanth	<11 nG/L	0 G
			Dibenz(a,h)anthra	<9 nG/L	0 G
Aroclor 1242	8 nG/L	0 G	Benzo(g,h,i)peryl	<9 nG/L	0 G
Aroclor 1254	30 nG/L	0 G	TOTAL PAH	152 nG/L	0 G
TOTAL PCB	38 nG/L	0 G			
			SURROGATE RECOV.		
Hexachlorobenzene	1 nG/L	0 G	d8-Naphthalene	83 %	***
Lindane	16 nG/L	0 G	d10-Acenaphthene	105 %	***
			d10-Phenanthrene	113 %	***
Toxicity	Notest	***	d12-Chrysene	144 %	***
			d12-Perylene	113 %	***
			Resolved HCs	3727 nG/L	0 G
			n-alkanes c10-c39	8830 nG/L	0 G
			Pristane	1273 nG/L	0 G
			Phytane	1167 nG/L	0 G

SOUTHERN CALIFORNIA COASTAL WATER RESEARCH PROJECT  
LOS ANGELES/VENTURA RUNOFF SURVEY  
SAMPLE DATA SHEET

Channel: Dominguez Channel  
Location: Ford Street  
Date: 24 Sep 86  
Time: 11:45

Flow (M\*\*3/Sec):  
Time Interval: 00:00-22:00  
Interval Vol (M\*\*3):  
Storm #: 1

CONSTITUENT	CONC.	MASS	CONSTITUENT	CONC.	MASS
Suspended Solids	32 mG/L	0 T	Naphthalene	<18 nG/L	0 G
TVS	50 %	***	C1-Naphthalenes	<18 nG/L	0 G
Total Solids	35900 mG/L	0 T	C2-Naphthalenes	<18 nG/L	0 G
Dissolved Solids	35900 mG/L	0 T	C3-Naphthalenes	<38 nG/L	0 G
Oil & Grease	.2 mG/L	0 T	Biphenyl	<18 nG/L	0 G
Chloroform Extr.	.73 mG/L	0 T	Acenaphthylene	<18 nG/L	0 G
Salinity	32 ppt	***	Acenaphthene	<38 nG/L	0 G
pH	6.5	***	Fluorene	<17 nG/L	0 G
			Phenanthrene	<17 nG/L	0 G
Cadmium	Salty uG/L	OkG	C1-Phenanthrenes	<17 nG/L	0 G
Chromium	Salty uG/L	OkG	C2-Phenanthrenes	<17 nG/L	0 G
Copper	Salty uG/L	OkG	C3-Phenanthrenes	<17 nG/L	0 G
Nickel	Salty uG/L	OkG	Anthracene	<17 nG/L	0 G
Lead	Salty uG/L	OkG	Fluoranthene	<14 nG/L	0 G
Zinc	Salty uG/L	OkG	Pyrene	<14 nG/L	0 G
Silver	Salty uG/L	OkG	2,3-Benzofluorene	<41 nG/L	0 G
			Benz(a)anthracene	<14 nG/L	0 G
o,p'-DDE	<1 nG/L	0 G	Chrysene	<14 nG/L	0 G
p,p'-DDE	<1 nG/L	0 G	Benzo(b)fluoranth	<12 nG/L	0 G
o,p'-DDD	<1 nG/L	0 G	Benzo(k)fluoranth	<12 nG/L	0 G
p,p'-DDD	<1 nG/L	0 G	Benzo(e)pyrene	<12 nG/L	0 G
o,p'-DDT	<1 nG/L	0 G	Benzo(a)pyrene	<12 nG/L	0 G
p,p'-DDT	<1 nG/L	0 G	Perylene	<12 nG/L	0 G
TOTAL DDT	0 nG/L	0 G	9,10-Diphenylanth	<12 nG/L	0 G
			Dibenz(a,h)anthra	<10 nG/L	0 G
Aroclor 1242	<1 nG/L	0 G	Benzo(g,h,i)peryl	<10 nG/L	0 G
Aroclor 1254	15 nG/L	0 G	TOTAL PAH	0 nG/L	0 G
TOTAL PCB	15 nG/L	0 G			
			SURROGATE RECOV.		
Hexachlorobenzene	<1 nG/L	0 G	d8-Naphthalene	38 %	***
Lindane	2 nG/L	0 G	d10-Acenaphthene	77 %	***
			d10-Phenanthrene	79 %	***
Toxicity	Notest	***	d12-Chrysene	112 %	***
			d12-Perylene	122 %	***
			Resolved HCs	0 nG/L	0 G
			n-alkanes c10-c39	0 nG/L	0 G
			Pristane	0 nG/L	0 G
			Phytane	0 nG/L	0 G

SOUTHERN CALIFORNIA COASTAL WATER RESEARCH PROJECT  
LOS ANGELES/VENTURA RUNOFF SURVEY  
SAMPLE DATA SHEET

Channel: Dominguez Channel  
Location: Ford Street  
Date: 24 Sep 86  
Time: 16:35

Flow (M\*\*3/Sec):  
Time Interval: 22:00-26:30  
Interval Vol (M\*\*3):  
Storm #: 1

CONSTITUENT	CONC.	MASS	CONSTITUENT	CONC.	MASS
Suspended Solids	11 mG/L	0 T	Naphthalene	14 nG/L	0 G
TVS	54 %	***	C1-Naphthalenes	<14 nG/L	0 G
Total Solids	30600 mG/L	0 T	C2-Naphthalenes	<14 nG/L	0 G
Dissolved Solids	30600 mG/L	0 T	C3-Naphthalenes	<28 nG/L	0 G
Oil & Grease	1.8 mG/L	0 T	Biphenyl	<14 nG/L	0 G
Chloroform Extr.	5.1 mG/L	0 T	Acenaphthylene	<14 nG/L	0 G
Salinity	28 ppt	***	Acenaphthene	<28 nG/L	0 G
pH	5.5	***	Fluorene	<13 nG/L	0 G
Cadmium	Salty uG/L	OkG	Phenanthrene	75 nG/L	0 G
Chromium	Salty uG/L	OkG	C1-Phenanthrenes	31 nG/L	0 G
Copper	Salty uG/L	OkG	C2-Phenanthrenes	<13 nG/L	0 G
Nickel	Salty uG/L	OkG	C3-Phenanthrenes	<13 nG/L	0 G
Lead	Salty uG/L	OkG	Anthracene	<13 nG/L	0 G
Zinc	Salty uG/L	OkG	Fluoranthene	157 nG/L	0 G
Silver	Salty uG/L	OkG	Pyrene	89 nG/L	0 G
o,p'-DDE	1 nG/L	0 G	2,3-Benzofluorene	<31 nG/L	0 G
p,p'-DDE	<1 nG/L	0 G	Benz(a)anthracene	<11 nG/L	0 G
o,p'-DDD	<1 nG/L	0 G	Chrysene	76 nG/L	0 G
p,p'-DDD	3 nG/L	0 G	Benzo(b)fluoranth	<9 nG/L	0 G
o,p'-DDT	<1 nG/L	0 G	Benzo(k)fluoranth	<9 nG/L	0 G
p,p'-DDT	<1 nG/L	0 G	Benzo(e)pyrene	<9 nG/L	0 G
TOTAL DDT	4 nG/L	0 G	Benzo(a)pyrene	<9 nG/L	0 G
Aroclor 1242	<1 nG/L	0 G	Perylene	<9 nG/L	0 G
Aroclor 1254	11 nG/L	0 G	9,10-Diphenylanth	<9 nG/L	0 G
TOTAL PCB	11 nG/L	0 G	Dibenz(a,h)anthra	<8 nG/L	0 G
Hexachlorobenzene	1 nG/L	0 G	Benzo(g,h,i)peryl	<8 nG/L	0 G
Lindane	<1 nG/L	0 G	TOTAL PAH	442 nG/L	0 G
Toxicity	NoTest	***	SURROGATE RECOV.		
			d8-Naphthalene	69 %	***
			d10-Acenaphthene	102 %	***
			d10-Phenanthrene	101 %	***
			d12-Chrysene	135 %	***
			d12-Perylene	129 %	***
			Resolved HCs	88051 nG/L	0 G
			n-alkanes c10-c39	7517 nG/L	0 G
			Pristane	1079 nG/L	0 G
			Phytane	1170 nG/L	0 G



SOUTHERN CALIFORNIA COASTAL WATER RESEARCH PROJECT  
LOS ANGELES/VENTURA RUNOFF SURVEY  
SAMPLE DATA SHEET

Channel: Dominguez Channel  
Location: Ford Street  
Date: 24 Sep 86  
Time: 20:35

Flow (M\*\*3/Sec):  
Time Interval: 26:30-34:15  
Interval Vol (M\*\*3):  
Storm #: 1

CONSTITUENT	CONC.	MASS	CONSTITUENT	CONC.	MASS
Suspended Solids	43 mG/L	0 T	Naphthalene	<9 nG/L	0 G
TVS	35 %	***	C1-Naphthalenes	<9 nG/L	0 G
Total Solids	14400 mG/L	0 T	C2-Naphthalenes	<9 nG/L	0 G
Dissolved Solids	14400 mG/L	0 T	C3-Naphthalenes	<19 nG/L	0 G
Oil & Grease	2.9 mG/L	0 T	Biphenyl	<9 nG/L	0 G
Chloroform Extr.	1.6 mG/L	0 T	Acenaphthylene	<9 nG/L	0 G
Salinity	ppt	***	Acenaphthene	<19 nG/L	0 G
pH		***	Fluorene	<9 nG/L	0 G
Cadmium	Salty uG/L	OkG	Phenanthrene	30 nG/L	0 G
Chromium	Salty uG/L	OkG	C1-Phenanthrenes	23 nG/L	0 G
Copper	Salty uG/L	OkG	C2-Phenanthrenes	33 nG/L	0 G
Nickel	Salty uG/L	OkG	C3-Phenanthrenes	<9 nG/L	0 G
Lead	salty uG/L	OkG	Anthracene	<9 nG/L	0 G
Zinc	Salty uG/L	OkG	Fluoranthene	72 nG/L	0 G
Silver	Salty uG/L	OkG	Pyrene	79 nG/L	0 G
o,p'-DDE	1 nG/L	0 G	2,3-Benzofluorene	<20 nG/L	0 G
p,p'-DDE	4 nG/L	0 G	Benz(a)anthracene	<7 nG/L	0 G
o,p'-DDD	<1 nG/L	0 G	Chrysene	33 nG/L	0 G
p,p'-DDD	2 nG/L	0 G	Benzo(b)fluoranth	<6 nG/L	0 G
o,p'-DDT	<1 nG/L	0 G	Benzo(k)fluoranth	<6 nG/L	0 G
p,p'-DDT	2 nG/L	0 G	Benzo(e)pyrene	12 nG/L	0 G
TOTAL DDT	9 nG/L	0 G	Benzo(a)pyrene	<6 nG/L	0 G
Aroclor 1242	13 nG/L	0 G	Perylene	<6 nG/L	0 G
Aroclor 1254	21 nG/L	0 G	9,10-Diphenylanth	<6 nG/L	0 G
TOTAL PCB	34 nG/L	0 G	Dibenz(a,h)anthra	<5 nG/L	0 G
Hexachlorobenzene	1 nG/L	0 G	Benzo(g,h,i)peryl	<5 nG/L	0 G
Lindane	4 nG/L	0 G	TOTAL PAH	282 nG/L	0 G
Toxicity	NoTest	***	SURROGATE RECOV.		
			d8-Naphthalene	51 %	***
			d10-Acenaphthene	85 %	***
			d10-Phenanthrene	92 %	***
			d12-Chrysene	116 %	***
			d12-Perylene	111 %	***
			Resolved HCs	13400 nG/L	0 E
			n-alkanes c10-c39	8538 nG/L	0 E
			Pristane	1867 nG/L	0 E
			Phytane	2046 nG/L	0 E

SOUTHERN CALIFORNIA COASTAL WATER RESEARCH PROJECT  
LOS ANGELES/VENTURA RUNOFF SURVEY  
SAMPLE DATA SHEET

Channel: Dominguez Channel  
Location: Ford Street  
Date: 25 Sep 86  
Time: 07:50

Flow (M\*\*3/Sec):  
Time Interval: 34:15-56:00  
Interval Vol (M\*\*3):  
Storm #: 1

CONSTITUENT	CONC.	MASS	CONSTITUENT	CONC.	MASS
Suspended Solids	76 mG/L	0 T	Naphthalene	137 nG/L	0 G
TVS	28 %	***	C1-Naphthalenes	220 nG/L	0 G
Total Solids	1360 mG/L	0 T	C2-Naphthalenes	<16 nG/L	0 G
Dissolved Solids	1280 mG/L	0 T	C3-Naphthalenes	<33 nG/L	0 G
Oil & Grease	2.8 mG/L	0 T	Biphenyl	<16 nG/L	0 G
Chloroform Extr.	1.4 mG/L	0 T	Acenaphthylene	<16 nG/L	0 G
Salinity	ppt	***	Acenaphthene	<33 nG/L	0 G
pH		***	Fluorene	<15 nG/L	0 G
Cadmium	Salty uG/L	OkG	Phenanthrene	76 nG/L	0 G
Chromium	Salty uG/L	OkG	C1-Phenanthrenes	<15 nG/L	0 G
Copper	Salty uG/L	OkG	C2-Phenanthrenes	<15 nG/L	0 G
Nickel	Salty uG/L	OkG	C3-Phenanthrenes	<15 nG/L	0 G
Lead	Salty uG/L	OkG	Anthracene	<15 nG/L	0 G
Zinc	Salty uG/L	OkG	Fluoranthene	22 nG/L	0 G
Silver	Salty uG/L	OkG	Pyrene	<12 nG/L	0 G
o,p'-DDE	<1 nG/L	0 G	2,3-Benzofluorene	<36 nG/L	0 G
p,p'-DDE	2 nG/L	0 G	Benz(a)anthracene	<12 nG/L	0 G
o,p'-DDD	<1 nG/L	0 G	Chrysene	<12 nG/L	0 G
p,p'-DDD	3 nG/L	0 G	Benzo(b)fluoranth	<10 nG/L	0 G
o,p'-DDT	1 nG/L	0 G	Benzo(k)fluoranth	<10 nG/L	0 G
p,p'-DDT	2 nG/L	0 G	Benzo(e)pyrene	<10 nG/L	0 G
TOTAL DDT	8 nG/L	0 G	Benzo(a)pyrene	<10 nG/L	0 G
Aroclor 1242	14 nG/L	0 G	Perylene	<10 nG/L	0 G
Aroclor 1254	14 nG/L	0 G	9,10-Diphenylanth	<10 nG/L	0 G
TOTAL PCB	28 nG/L	0 G	Dibenz(a,h)anthra	<9 nG/L	0 G
Hexachlorobenzene	1 nG/L	0 G	Benzo(g,h,i)peryl	<9 nG/L	0 G
Lindane	5 nG/L	0 G	TOTAL PAH	455 nG/L	0 G
Toxicity	NoTest	***	SURROGATE RECOV.		
			d8-Naphthalene	59 %	***
			d10-Acenaphthene	101 %	***
			d10-Phenanthrene	109 %	***
			d12-Chrysene	113 %	***
			d12-Perylene	98 %	***
			Resolved HCs	5.5e5 nG/L	0 E
			n-alkanes c10-c39	2.4e5 nG/L	0 E
			Pristane	338 nG/L	0 E
			Phytane	449 nG/L	0 E

SOUTHERN CALIFORNIA COASTAL WATER RESEARCH PROJECT  
LOS ANGELES/VENTURA RUNOFF SURVEY  
SAMPLE DATA SHEET

Channel: Revlon Slough  
Location: Highway 1  
Date: 25 Sep 86  
Time: 13:40

Flow (M\*\*3/Sec):  
Time Interval: 34:30-56:00  
Interval Vol (M\*\*3):  
Storm #: 1

CONSTITUENT	CONC.	MASS	CONSTITUENT	CONC.	MASS
Suspended Solids	58 mG/L	0 T	Naphthalene	<9 nG/L	0 0
TVS	52 %	***	C1-Naphthalenes	<9 nG/L	0 0
Total Solids	1330 mG/L	0 T	C2-Naphthalenes	<9 nG/L	0 0
Dissolved Solids	1270 mG/L	0 T	C3-Naphthalenes	<19 nG/L	0 0
Oil & Grease	1.2 mG/L	0 T	Biphenyl	<9 nG/L	0 0
Chloroform Extr.	1.2 mG/L	0 T	Acenaphthylene	<9 nG/L	0 0
Salinity	ppt	***	Acenaphthene	<19 nG/L	0 0
pH		***	Fluorene	<9 nG/L	0 0
			Phenanthrene	<9 nG/L	0 0
Cadmium	<1 uG/L	OkG	C1-Phenanthrenes	<9 nG/L	0 0
Chromium	4 uG/L	OkG	C2-Phenanthrenes	<9 nG/L	0 0
Copper	4 uG/L	OkG	C3-Phenanthrenes	<9 nG/L	0 0
Nickel	6 uG/L	OkG	Anthracene	<9 nG/L	0 0
Lead	<8 uG/L	OkG	Fluoranthene	<7 nG/L	0 0
Zinc	12 uG/L	OkG	Pyrene	<7 nG/L	0 0
Silver	<1 uG/L	OkG	2,3-Benzofluorene	<21 nG/L	0 0
			Benz(a)anthracene	<7 nG/L	0 0
o,p'-DDE	2 nG/L	0 G	Chrysene	<7 nG/L	0 0
p,p'-DDE	11 nG/L	0 G	Benzo(b)fluoranth	<6 nG/L	0 0
o,p'-DDD	<1 nG/L	0 G	Benzo(k)fluoranth	<6 nG/L	0 0
p,p'-DDD	6 nG/L	0 G	Benzo(e)pyrene	<6 nG/L	0 0
o,p'-DDT	1 nG/L	0 G	Benzo(a)pyrene	<6 nG/L	0 0
p,p'-DDT	1 nG/L	0 G	Perylene	<6 nG/L	0 0
TOTAL DDT	21 nG/L	0 G	9,10-Diphenylanth	<6 nG/L	0 0
			Dibenz(a,h)anthra	<5 nG/L	0 0
Aroclor 1242	9 nG/L	0 G	Benzo(g,h,i)peryl	<5 nG/L	0 0
Aroclor 1254	35 nG/L	0 G	TOTAL PAH	0 nG/L	0 0
TOTAL PCB	44 nG/L	0 G			
			SURROGATE RECOV.		
Hexachlorobenzene	1 nG/L	0 G	d8-Naphthalene	33 %	***
Lindane	1 nG/L	0 G	d10-Acenaphthene	84 %	***
			d10-Phenanthrene	100 %	***
Toxicity	NoTest	***	d12-Chrysene	123 %	***
			d12-Perylene	121 %	***
			Resolved HCs	0 nG/L	0 0
			n-alkanes c10-c39	0 nG/L	0 0
			Pristane	0 nG/L	0 0
			Phytane	0 nG/L	0 0

SOUTHERN CALIFORNIA COASTAL WATER RESEARCH PROJECT  
LOS ANGELES/VENTURA RUNOFF SURVEY  
SAMPLE DATA SHEET

Channel: Revlon Slough  
Location: Highway 1  
Date: 24 Sep 86  
Time: 15:25

Flow (M\*\*3/Sec):  
Time Interval: 00:00-34:30  
Interval Vol (M\*\*3):  
Storm #: 1

CONSTITUENT	CONC.	MASS	CONSTITUENT	CONC.	MASS
Suspended Solids	2 mg/L	0 T	Naphthalene	<21 ng/L	0
TVS	100 %	***	C1-Naphthalenes	<21 ng/L	0
Total Solids	3840 mg/L	0 T	C2-Naphthalenes	<21 ng/L	0
Dissolved Solids	3840 mg/L	0 T	C3-Naphthalenes	<45 ng/L	0
Oil & Grease	.3 mg/L	0 T	Biphenyl	<21 ng/L	0
Chloroform Extr.	2.3 mg/L	0 T	Acenaphthylene	<21 ng/L	0
Salinity	3 ppt	***	Acenaphthene	<45 ng/L	0
pH	6	***	Fluorene	<20 ng/L	0
			Phenanthrene	<20 ng/L	0
Cadmium	N/A ug/L	N/A kg	C1-Phenanthrenes	<20 ng/L	0
Chromium	N/A ug/L	N/A kg	C2-Phenanthrenes	<20 ng/L	0
Copper	N/A ug/L	N/A kg	C3-Phenanthrenes	<20 ng/L	0
Nickel	N/A ug/L	N/A kg	Anthracene	<20 ng/L	0
Lead	N/A ug/L	N/A kg	Fluoranthene	<16 ng/L	0
Zinc	N/A ug/L	N/A kg	Pyrene	<16 ng/L	0
Silver	N/A ug/L	N/A kg	2,3-Benzofluorene	<48 ng/L	0
			Benz(a)anthracene	<17 ng/L	0
o,p'-DDE	<1 ng/L	0 G	Chrysene	<17 ng/L	0
p,p'-DDE	2 ng/L	0 G	Benzo(b)fluoranth	<14 ng/L	0
o,p'-DDD	<1 ng/L	0 G	Benzo(k)fluoranth	<14 ng/L	0
p,p'-DDD	4 ng/L	0 G	Benzo(e)pyrene	<14 ng/L	0
o,p'-DDT	1 ng/L	0 G	Benzo(a)pyrene	<14 ng/L	0
p,p'-DDT	<1 ng/L	0 G	Perylene	<14 ng/L	0
TOTAL DDT	7 ng/L	0 G	9,10-Diphenylanth	<14 ng/L	0
			Dibenz(a,h)anthra	<12 ng/L	0
Aroclor 1242	<1 ng/L	0 G	Benzo(g,h,i)peryl	<12 ng/L	0
Aroclor 1254	21 ng/L	0 G	TOTAL PAH	0 ng/L	0
TOTAL PCB	21 ng/L	0 G			
			SURROGATE RECOV.		
Hexachlorobenzene	<1 ng/L	0 G	d8-Naphthalene	72 %	***
Lindane	3 ng/L	0 G	d10-Acenaphthene	93 %	***
			d10-Phenanthrene	100 %	***
Toxicity	NoTest	***	d12-Chrysene	137 %	***
			d12-Perylene	148 %	***
			Resolved HCs	0 ng/L	0
			n-alkanes c10-c39	1667 ng/L	0
			Pristane	0 ng/L	0
			Phytane	0 ng/L	0