Appendix A

Attachment A to Resolution No. 2005-012

Amendment to the Water Quality Control Plan – Los Angeles Region to incorporate the Marina del Rey Harbor Toxic Pollutants TMDL

Adopted by the California Regional Water Quality Control Board, Los Angeles Region on October 6, 2005.

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Chapter 7. Total Maximum Daily Loads (TMDLs) Summaries, Section 7-18 (Marina del Rey Harbor Toxic Pollutants TMDL)

This TMDL was adopted by the Regional Water Quality Control Board on October 6, 2005.

This TMDL was approved by:

The State Water Resources Control Board on [Insert Date].
The Office of Administrative Law on [Insert Date].
The U.S. Environmental Protection Agency on [Insert Date].

The following tables include the elements of this TMDL.

Table 7-18.1. Marina del Rey Harbor Toxic Pollutants TMDL: Elements

Element	Key Findings and Regulatory Provisions
Problem Statement	The back basins of Marina del Rey Harbor are on the Clean Water Act Section 303(d) list of impaired waterbodies for chlordane, copper, lead, zinc, PCBs, DDT, dieldrin, sediment toxicity and a fish consumption advisory. Review of available data during the development of this TMDL indicated that dieldrin and DDT are no longer causes of impairment. The following designated beneficial uses are impaired by these toxic pollutants: water contact recreation (REC1); marine habitat (MAR); wildlife habitat (WILD); commercial and sport fishing (COMM); and shellfish harvesting (SHELL).
Numeric Target *(Interpretation of the narrative and numeric water quality objective, used to calculate the allocations)*	Numeric targets for the harbor sediments are based on the sediment quality guidelines compiled by the National Oceanic and Atmospheric Administration, which are used in evaluating waterbodies within the Los Angeles Region for development of the 303(d) list. The Effects Range-Low (ERLs) guidelines are established as the numeric targets for sediments in Marina del Rey Harbor. **Numeric Targets for Metals in Sediment (mg/kg)** Copper: 34; Lead: 46.7; Zinc: 150 **Numeric Targets for Organic Compounds in Sediment (µg/kg)** Chlordane: 0.5; Total PCBs: 22.7 In addition to the sediment numeric target, water column and fish tissue targets are set for the PCB impairment in fish tissue. The California Toxics Rule (CTR) Criterion for the protection of human health from the consumption of aquatic organisms is selected as the final numeric target for total PCBs in the water column. However, given the inability of current analytical methods to detect concentrations at this low level, an interim numeric target will be applied. The CTR Chronic Criterion for the protection of aquatic life in saltwater is selected as the interim numeric target for the fish tissue impairment by PCBs. This numeric target will remain in effect until advances in technology allow for analysis of PCBs at lower detection limits. **Interim Target for total PCBs in the Water Column:** 0.03µg/L **Final Target for total PCBs in the Water Column:** 0.00017 µg/L The numeric Target for PCBs in fish tissue is the Threshold Tissue Residue Level that is derived from CTR human health criteria, which are adopted criteria for water designated to protect humans from consumption of contaminated fish or other aquatic organisms. **Numeric Target for total PCBs in Fish Tissue:** 5.3 µg/Kg

Element	Key Findings and Regulatory Provisions
Source Analysis	Urban storm water has been recognized as a substantial source of metals. Numerous researchers have documented that the most prevalent metals in urban storm water (i.e., copper, lead, and zinc) are consistently associated with suspended solids. Because metals are typically associated with fine particles in storm water runoff, they have the potential to accumulate in marine sediments where they may pose a risk of toxicity. Similar to metals, the majority of organic constituents in storm water are associated with particulates. Passive leaching of copper-based anti-fouling paints is a potential source of copper loading to the sediment. However, there is insufficient information available to quantify the contribution of boat discharges to the sediment pollutant load. This TMDL requires a study designed to estimate copper partitioning between the water column and sediment in Marina del Rey harbor, in order to determine the impact of passive leaching on the marine sediment. Direct deposition of airborne particles to the water surface may be responsible for contributing copper, lead and zinc to the Marina del Rey back basins. The estimated contribution from this source is minor. Indirect atmospheric deposition reflects the process by which metals deposited on the land surface may be washed off during storm events and delivered to Marina del Rey Harbor. The loading of metals associated with indirect atmospheric deposition are accounted for in the storm water runoff.
Loading Capacity	TMDLs are developed for copper, lead, zinc, chlordane, and PCBs within the sediments of Marina del Rey Harbor's back basins. The loading capacity for Marina del Rey Harbor is calculated by multiplying the numeric targets by the average annual total suspended solids (TSS) loading to the harbor sediment. The average annual TSS discharged to the back basins of the harbor is 64,166 kilograms per year (kg/yr). The TMDL is set equal to the loading capacity. **Metals Loading Capacity (kilograms/year)** Copper: 2.18; Lead: 3.0; Zinc: 9.6 **Organics Loading Capacity (grams/year)** Chlordane: 0.03; Total PCBs: 1.46
Load Allocations *(for nonpoint sources)*	Load allocations (LA) are assigned to nonpoint sources Marina del Rey Harbor. Load allocations are developed for open space and direct atmospheric deposition. The mass-based load allocation for direct atmospheric deposition is equal to the percentage of the watershed covered by water (5.4%) multiplied by the total loading capacity.

<table>
<tr><th>Element</th><th>Key Findings and Regulatory Provisions</th></tr>
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Metals Load Allocations for Direct Atmospheric Deposition (kg/yr)

Copper	Lead	Zinc
0.12	0.16	0.52

Organics Load Allocations for Direct Atmospheric Deposition(g/yr)

Chlordane	Total PCBs
0.002	0.079

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Waste Load Allocations *(for point sources)*

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Waste load allocations (WLA) are assigned to point sources for the Marina del Rey watershed. A grouped mass-based waste load allocation is developed for the storm water permittees (Los Angeles County MS4, Caltrans, General Construction and General Industrial) by subtracting the load allocations from the total loading capacity. Concentration-based waste load allocations are developed for other point sources in the watershed.

Metals Waste Load Allocations for Storm Water (kg/yr)

Copper	Lead	Zinc
2.06	2.83	9.11

Organics Waste Load Allocations for Storm Water (g/yr)

Chlordane	Total PCBs
0.03	1.38

The storm water waste load allocations are apportioned between the MS4 permittees, Caltrans, the general construction and the general industrial storm water permits based on an areal weighting approach.

Metals Storm Water WLAs Apportioned between Permits (kg/yr)

	Copper	Lead	Zinc
MS4 Permittees	2.01	2.75	8.85
Caltrans	0.022	0.03	0.096
General Construction	0.033	0.045	0.144
General Industrial	0.004	0.006	0.018

Organics Storm Water WLAs Apportioned between Permits (g/yr)

	Chlordane	Total PCBs
MS4 Permittees	0.0295	1.34
Caltrans	0.0003	0.015
General Construction	0.0005	0.022
General Industrial	0.0001	0.003

Each storm water permittee enrolled under the general construction or industrial storm water permits will receive an individual waste load allocation on a per acre basis, based on the acreage of their facility.

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Metals per Acre WLAs for Individual General Construction or Industrial Storm Water Permittees (g/yr/ac)

Copper	Lead	Zinc
2.3	3.1	10

Organics per acre WLAs for Individual General Construction or Industrial Storm Water Permittees (mg/yr/ac)

Chlordane	Total PCBs
0.03	1.5

Concentration-based waste load allocations are assigned to the minor NPDES permits and general non-storm water NPDES permits that discharge to Marina del Rey Harbor. Any future minor NPDES permits or enrollees under a general non-storm water NPDES permit will also be subject to the concentration-based waste load allocations.

Metals Concentration-based Waste Load Allocations (mg/kg)

Copper	Lead	Zinc
34	46.7	150

Organic Concentration-based Waste Load Allocations (µg/kg)

Chlordane	Total PCBs
0.5	22.7

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<tr><td>*Margin of Safety*</td><td>An implicit margin of safety is applied through the use of the more protective sediment quality guideline values. The ERLs were selected over the higher ERMs as the numeric targets.</td></tr>
<tr><td>*Implementation*</td><td>

The regulatory mechanisms used to implement the TMDL will include the Los Angeles County Municipal Storm Water NPDES Permit (MS4), the State of California Department of Transportation (Caltrans) Storm Water Permit, minor NPDES permits, general NPDES permits, general industrial storm water NPDES permits, general construction storm water NPDES permits. Nonpoint sources will be regulated through the authority contained in sections 13263 and 13269 of the Water Code, in conformance with the State Water Resources Control Board's Nonpoint Source Implementation and Enforcement Policy (May 2004). Each NPDES permit assigned a WLA shall be reopened or amended at re-issuance, in accordance with applicable laws, to incorporate the applicable WLAs as a permit requirement.

The Regional Board shall reconsider this TMDL in six years after the effective date of the TMDL based on additional data obtained from special studies. Table 7-14.2 presents the implementation schedule for the responsible permittees.

Minor NPDES Permits and General Non-Storm Water NPDES Permits:

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Element	Key Findings and Regulatory Provisions
	The concentration-based waste load allocations for the minor NPDES permits and general non-storm water NPDES permits will be implemented through NPDES permit limits. Permit writers may translate applicable waste load allocations into effluent limits for the minor and general NPDES permits by applying applicable engineering practices authorized under federal regulations. The minor and existing general non-storm water NPDES permittees are allowed up to seven years from the effective date of the TMDL to achieve the waste load allocations. **General Industrial Storm Water Permit:** The Regional Board will develop a watershed specific general industrial storm water permit to incorporate waste load allocations. Concentration-based permit limits may be set to achieve the mass-based waste load allocations. These concentration-based limits would be equal to the concentration-based waste load allocations assigned to the other NPDES permits. It is expected that permit writers will translate the waste load allocations into BMPs, based on BMP performance data. However, the permit writers must provide adequate justification and documentation to demonstrate that specified BMPs are expected to result in attainment of the numeric waste load allocations. The general industrial storm water permittees are allowed up to seven years from the effective date of the TMDL to achieve the waste load allocations. **General Construction Storm Water Permit:** Waste load allocations will be incorporated into the State Board general permit upon renewal or into a watershed specific general construction storm water permit developed by the Regional Board. Within seven years of the effective date of the TMDL, the construction industry will submit the results of BMP effectiveness studies to determine BMPs that will achieve compliance with the waste load allocations assigned to construction storm water permittees. Regional Board staff will bring the recommended BMPs before the Regional Board for consideration within eight years of the effective date of the TMDL. General construction storm water permittees will be considered in compliance with waste load allocations if they implement these Regional Board approved BMPs. All general construction permittees must implement the approved BMPs within nine years of the effective date of the TMDL. If no effectiveness studies are conducted and no BMPs are approved by the Regional Board within eight years of the effective date of the TMDL, each general construction storm water permit holder will be subject to site-specific BMPs and monitoring requirements to demonstrate compliance with waste load allocations. **MS4 and Caltrans Storm Water Permits:** The County of Los Angeles, City of Los Angeles, and Culver City are

Element	Key Findings and Regulatory Provisions
	jointly responsible for meeting the mass-based waste load allocations for the MS4 permittees. Caltrans is responsible for meeting their mass-based waste load allocations, however, they may choose to work with the MS4 permittees. The primary jurisdiction for the Marina del Rey Harbor watershed is the County of Los Angeles. Each municipality and permittee will be required to meet the waste load allocations at the designated TMDL effectiveness monitoring points. A phased implementation approach, using a combination of non-structural and structural BMPs may be used to achieve compliance with the waste load allocations. The administrative record and the fact sheets for the MS4 and Caltrans storm water permits must provide reasonable assurance that the BMPs selected will be sufficient to implement the numeric waste load allocations. We expect that reductions to be achieved by each BMP will be documented and that sufficient monitoring will be put in place to verify that the desired reductions are achieved. The permits should also provide a mechanism to adjust the required BMPs as necessary to ensure their adequate performance. The implementation schedule for the MS4 and Caltrans permittees consists of a phased approach, with compliance to be achieved in prescribed percentages of the watershed, with total compliance to be achieved within 10 years. However, the Regional Board may extend the implementation period up to 15 years if an integrated water resources approach is employed. The waste load allocations and load allocations have been developed to achieve the numeric targets in the back basins of Marina del Rey Harbor by the end of the compliance period. However, the Regional Board is aware of toxic pollutants bound up in sediment. To the extent that the Regional Board or another responsible jurisdiction or agency determines that toxic pollutants bound in sediments are still preventing the attainment of numeric targets, the Regional Board will issue appropriate investigatory orders or cleanup and abatement orders to achieve attainment of the numeric targets.
Seasonal Variations and Critical Conditions	There is a high degree of inter- and intra-annual variability in total suspended solids discharged to Marina del Rey Harbor. This is a function of the storms, which are highly variable between years. The TMDL is based on a TSS load derived from long-term average rainfall over a 52-year period from 1948 to 2000. This time period contains a wide range of storm conditions and drain discharges to Marina del Rey Harbor. Use of the average condition for the TMDL is appropriate because issues of sediment effects on benthic communities and potential for bioaccumulation to higher trophic levels occurs over long time periods.
Monitoring	Effective monitoring will be required to assess the condition of Marina del Rey Harbor and to assess the on-going effectiveness of efforts by dischargers to reduce toxic pollutants loading from the Marina del Rey Watershed. Special studies may also be appropriate to provide further

Element	Key Findings and Regulatory Provisions
	information about new data, new or alternative sources, and revised scientific assumptions. Below the Regional Board identifies the various goals of monitoring efforts and studies that shall be developed in a coordinated manner. The programs, reports, and studies will be developed in response to subsequent orders issued by the Executive Officer. **Ambient Component** A monitoring program is necessary to assess water quality throughout Marina del Rey Harbor and to assess fish tissue and sediment quality in the harbor's back basins. Data on background water quality for copper will help refine the numeric targets and waste load allocations and assist in the effective placement of BMPs. In addition, fish tissue data is required in Marina del Rey's back basins to confirm continued impairment. Water quality samples shall be collected monthly and analyzed for chlordane and total PCBs at detection limits that are at or below the minimum levels until the TMDL is reconsidered in the sixth year. The minimum levels are those published by the State Water Resources Control Board in Appendix 4 of the Policy for the Implementation of Toxic Standards for Inland Surface Water, Enclosed Bays, and Estuaries of California, March 2, 2000. Special emphasis should be placed on achieving detection limits that will allow evaluation relative to the CTR standards. If these can not be achieved with conventional techniques, then a special study should be proposed to evaluate concentrations of organics. Water quality samples shall also be collected monthly and analyzed for copper, lead, and zinc until the TMDL is reconsidered in the sixth year. For metals water column analysis, methods that allow for (1) the removal of salt matrix to reduce interference and avoid inaccurate results prior to the analysis; and (2) the use of trace metal clean sampling techniques, should be applied. Examples of such methods include EPA Method 1669 for sample collection and handling, and EPA Method 1640 for sample preparation and analysis. Storm water monitoring shall be conducted for metals (copper, lead. and zinc) and organics (chlordane and total PCBs) to provide assessment of water quality during wet-weather conditions and loading estimates from the watershed to the harbor. Special emphasis should be placed on achieving lower detection limits for organochlorine compounds. The MS4 and Caltrans storm water permittees are jointly responsible for conducting bioaccumulation testing of fish and mussel tissue within the Harbor. The permittees are required to submit for approval of the Executive Officer a monitoring plan that will provide the data needed to confirm the 303(d) listing or de-listing, as applicable. Representative sediment sampling shall be conducted quarterly within

Element	Key Findings and Regulatory Provisions
	the back basins of the harbor for copper, lead, zinc, chlordane, and total PCBs at detection limits that are lower than the ERLs. Sediment samples shall also be analyzed for total organic carbon, grain size and sediment toxicity. Initial sediment toxicity monitoring should be conducted quarterly in the first year of the TMDL to define the baseline and semi-annually, thereafter, to evaluate effectiveness of the BMPs until the TMDL is reconsidered in the sixth year. The sediment toxicity testing shall include testing of multiple species, a minimum of three, for lethal and non-lethal endpoints. Toxicity testing may include: the 28-day and 10-day amphipod mortality test; the sea urchin fertilization testing of sediment pore water; and the bivalve embryo testing of the sediment/water interface. The chronic 28-day and shorter-term 10-day amphipod tests may be conducted in the initial year of quarterly testing and the results compared. If there is no significant difference in the tests, then the less expensive 10-day test can be used throughout the rest of the monitoring, with some periodic 28-day testing. **Effectiveness Component** The water quality samples collected during wet weather shall be analyzed for total dissolved solids, settleable solids and total suspended solids if not already part of the sampling program. Sampling shall be designed to collect sufficient volumes of settable and suspended solids to allow for analysis of copper, lead, zinc, chlordane, total PCBs, and total organic carbon in the sediment. Monthly representative sediment sampling shall be conducted at existing monitoring locations throughout the harbor, and analyzed for copper, lead, zinc, chlordane, and total PCBs at detection limits that are lower than the ERLs. The, sediment samples shall also be analyzed for total organic carbon and grain size. Sediment toxicity testing shall be conducted semi-annually, and shall include testing of multiple species (a minimum of three) for lethal and non-lethal endpoints. Toxicity testing may include: the 28-day or10-day amphipod mortality test; the sea urchin fertilization testing of sediment pore water; and the bivalve embryo testing of the sediment/water interface. Toxicity shall be indicated by an amphipod survival rate of 70% or less in a single test, in conjunction with a statistically significant decrease in amphipod survival relative to control organisms (significance determined by T-test, a=0.05). Accelerated monitoring maybe conducted to confirm toxicity at stations identified as toxic. Accelerated monitoring shall consist of six additional tests, approximately every two weeks, over a 12-week period. If the results of any two of the six accelerated tests are less than 90% survival, then the MS4 and Caltrans permittees shall conduct a Toxicity Identification Evaluation (TIE). Alternatively, responsible parties have the option of foregoing accelerated toxicity testing and conducting a TIE directly following an indication of toxicity. The TIE shall include reasonable steps to

Element	Key Findings and Regulatory Provisions
	identify the sources of toxicity and steps to reduce the toxicity The Phase I TIE shall include the following treatments and corresponding blanks: baseline toxicity; particle removal by centrifugation; solid phase extraction of the centrifuged sample using C8, C18, or another media; complexation of metals using ethylenediaminetetraacetic acid (EDTA) addition to the raw sample; neutralization of oxidants/metals using sodium thiosulfate addition to the raw sample; and inhibition of organo-phosphate (OP) pesticide activation using piperonyl butoxide addition to the raw sample (crustacean toxicity tests only). Bioaccumulation monitoring of fish and mussel tissue within the Harbor shall be conducted annually. The permittees are required to submit for approval of the Executive Officer a monitoring plan that will provide the data needed to assess the effectiveness of the TMDL. The general industrial storm water permit shall contain a model monitoring and reporting program to evaluate BMP effectiveness. A permittee enrolled under the general industrial permit shall have the choice of conducting individual monitoring based on the model program or participating in a group monitoring effort. MS4 permittees are encouraged to take the lead in group monitoring efforts for industrial facilities within their jurisdiction because compliance with waste load allocations by these facilities will in many cases translate to reductions in contaminate loads to the MS4 system. **Special Studies** Special studies are necessary to refine source assessments, to provide better estimates of loading capacity, and to optimize implementation efforts. The Regional Board will re-consider the TMDL in the sixth year after the effective date in light of the findings of these studies. Studies required for this TMDL include: • Evaluate partitioning coefficients between water column and sediment to assess the contribution of water column discharges to sediment concentrations in the harbor, and • Evaluate the use of low detection level techniques to determine water quality concentrations for those contaminants where standard detection limits cannot be used to assess compliance for CTR standards or are not sufficient for estimating source loadings from tributaries and storm water. Studies recommended for this TMDL include: • Develop and implement a monitoring program to collect the data necessary to apply a multiple lines of evidence approach; • Refine the relationship between pollutants and suspended solids aimed at better understanding of the delivery of pollutants to the watershed, and • Evaluate the effectiveness of BMPs to address pollutants and/or sediments.

Table 7-18.2. Marina del Rey Harbor Toxic Pollutants TMDL: Implementation Schedule

Date	Action
Effective date of the TMDL	Regional Board permit writers shall incorporate the waste load allocations for sediment into the NPDES permits. Waste load allocations will be implemented through NPDES permit limits in accordance with the implementation schedule contained herein, at the time of permit issuance, renewal or re-opener.
On-going	The Executive Officer shall promptly issue appropriate investigatory and clean up and abatement orders to address any toxicity hotspots within sediments identified as a result of data submitted pursuant to this TMDL, any U.S. Army Corps of Engineer dredging activity, or any other investigation.
Within 6 months after the effective date of the State Board adopted sediment quality objectives and implementation policy	The Regional Board will re-assess the numeric targets and waste load allocations for consistency with the State Board adopted sediment quality objectives.
5 years after effective date of the TMDL	Responsible jurisdictions and agencies shall provide to the Regional Board result of any special studies.
6 years after effective date of the TMDL	The Regional Board shall reconsider this TMDL to re-evaluate the waste load allocations and the implementation schedule.
MINOR NPDES PERMITS AND GENERAL NON-STORM WATER NPDES PERMITS	
7 years after effective date of the TMDL	The non-storm water NPDES permits shall achieve the concentration-based waste load allocations for sediment per provisions allowed for in NPDES permits.
GENERAL INDUSTRIAL STORM WATER PERMIT	
7 years after effective date of the TMDL	The general industrial storm water permits shall achieve the mass-based waste load allocations for sediment per provisions allowed for in NPDES permits. Permits shall allow an iterative BMP process including BMP effectiveness monitoring to achieve compliance with permit requirements.
GENERAL CONSTRUCTION STORM WATER PERMIT	
7 years from the effective date of the TMDL	The construction industry will submit the results of the BMP effectiveness studies to the Regional Board for consideration. In the event that no effectiveness studies are conducted and no BMPs are approved, permittees shall be subject to site-specific BMPs and monitoring to demonstrate BMP effectiveness.

Date	Action
8 years from the effective date of the TMDL	The Regional Board will consider results of the BMP effectiveness studies and consider approval of BMPs no later than eight years from the effective date of the TMDL.
9 years from the effective date of the TMDL	All general construction storm water permittees shall implement Regional Board-approved BMPs.
MS4 AND CALTRANS STORM WATER PERMITS	
12 months after the effective date of the TMDL	In response to an order issued by the Executive Officer, the MS4 and Caltrans storm water NPDES permittees must submit a coordinated monitoring plan, to be approved by the Executive Officer, which includes both ambient monitoring and TMDL effectiveness monitoring. Once the coordinated monitoring plan is approved by the Executive Officer, monitoring shall commence within 6 months. The draft monitoring report shall be made available for public comment and the Executive Officer shall accept public comments for at least 30 days.
5 years after effective date of TMDL (Draft Report) 5 ½ years after effective date of TMDL (Final Report)	The MS4 and Caltrans storm water NPDES permittees shall provide a written report to the Regional Board outlining how they will achieve the waste load allocations for sediment to Marina del Rey Harbor. The report shall include implementation methods, an implementation schedule, proposed milestones, and any applicable revisions to the TMDL effectiveness monitoring plan. The draft report shall be made available for public comment and the Executive Officer shall accept public comments for at least 30 days.
Schedule for MS4 and Caltrans Permittees if Pursuing a TMDL Specific Implementation Plan	
8 years after effective date of the TMDL	The MS4 and Caltrans storm water NPDES permittees shall demonstrate that 50% of the total drainage area served by the MS4 system is effectively meeting the waste load allocations for sediment.
10 years after effective date of the TMDL	The MS4 and Caltrans storm water NPDES permittees shall demonstrate that 100% of the total drainage area served by the MS4 system is effectively meeting the waste load allocations for sediment.
Schedule for MS4 and Caltrans Permittees if Pursuing an Integrated Resources Approach, per Regional Board Approval	
7 years after effective date of the TMDL	The MS4 and Caltrans storm water NPDES permittees shall demonstrate that 25% of the total drainage area served by the MS4 system is effectively meeting the waste load allocations for sediment.
9 years after effective date of the TMDL	The MS4 and Caltrans storm water NPDES permittees shall demonstrate that 50% of the total drainage area served by the MS4

Date	Action
	system is effectively meeting the waste load allocations for sediment.
11 years after effective date of the TMDL	The MS4 and Caltrans storm water NPDES permittees shall demonstrate that 75% of the total drainage area served by the MS4 system is effectively meeting the waste load allocations for sediment.
15 years after effective date of the TMDL	The MS4 and Caltrans storm water NPDES permittees shall demonstrate that 100% of the total drainage area served by the MS4 system is effectively meeting the waste load allocations for sediment.

Appendix B

Appendix B – Part 1

Attachment A: Dry Weather Water Column Quality Data

Marina Del Rey Toxic Pollutants TMDL - Coordinated Monitoring Program
Dry-Weather Monthly Water Quality Ambient Monitoring
August 2010

Sample Date	Station Information	Hardness (mg/L)	Metal	Units	MDL	ML	Total Recoverable Concentration	Dissolved Concentration
8/20/2010	MdRH-B-1 Back Harbor Basin D Saltwater	**6,100**	Copper Lead Zinc	ug/L ug/L ug/L	0.01 0.005 0.005	0.5 0.5 1	**10.3** **0.762** **41.9**	**7.71** **0.128** **37.1**
8/20/2010	MdRH-B-2 Back Harbor Basin E Saltwater	**6,400**	Copper Lead Zinc	ug/L ug/L ug/L	0.01 0.005 0.005	0.5 0.5 1	**8.15** **0.928** **35.2**	**5.04** **0.136** **29.0**
8/20/2010	MdRH-B-3 Back Harbor Basin F Saltwater	**6,300**	Copper Lead Zinc	ug/L ug/L ug/L	0.01 0.005 0.005	0.5 0.5 1	**7.40** **0.574** **28.1**	**5.26** **0.110** **24.8**
8/20/2010	MdRH-B-4 Back Harbor Basin - End of Channel Saltwater	**5,900**	Copper Lead Zinc	ug/L ug/L ug/L	0.01 0.005 0.005	0.5 0.5 1	**7.18** **0.416** **30.5**	**5.87** **0.0851** **27.8**
8/20/2010	MdRH-F-1 Front Harbor Basin A	NA	Copper	ug/L	0.01	0.5	**8.49**	**6.74**
8/20/2010	MdRH-F-2 Front Harbor Basin B	NA	Copper	ug/L	0.01	0.5	**7.61**	**6.60**
8/20/2010	MdRH-F-3 Front Harbor Basin C	NA	Copper	ug/L	0.01	0.5	**9.88**	**8.12**
8/20/2010	MdRH-F-4 Front Harbor Basin G	NA	Copper	ug/L	0.01	0.5	**7.04**	**5.58**
8/20/2010	MdRH-F-5 Front Harbor Basin H	NA	Copper	ug/L	0.01	0.5	**5.21**	**3.61**

Notes:
Detections are indicated in **bold**
NA - Not Analyzed
ND - Analyte not detected at or above the reporting limit
MDL - Method Detection Limit
ML - Minimum Level according to App 4 of SWRQB Policy for the Implementation of Toxic Standards for Inland Surface Water, Enclosed Bays, and Estuaries of California, March 2, 2000

Marina Del Rey Toxic Pollutants TMDL - Coordinated Monitoring Program
Dry-Weather Monthly Quality Ambient Monitoring
August 2010

Sample Date	Station Information	Organics	Units	MDL	ML[1]	Concentration
8/20/2010	MdRH-B-1	Chlordane	µg/L	0.05	0.1	ND
	Back Harbor	PCB-1016 (Aroclor 1016)	µg/L	0.1	0.5	ND
	Basin D	PCB-1221 (Aroclor 1221)	µg/L	0.1	0.5	ND
	Saltwater	PCB-1232 (Aroclor 1232)	µg/L	0.1	0.5	ND
		PCB-1242 (Aroclor 1242)	µg/L	0.1	0.5	ND
		PCB-1248 (Aroclor 1248)	µg/L	0.1	0.5	ND
		PCB-1254 (Aroclor 1254)	µg/L	0.1	0.5	ND
		PCB-1260 (Aroclor 1260)	µg/L	0.1	0.5	ND
		Aroclor 1262	µg/L	0.1	0.5	ND
		Aroclor 1268	µg/L	0.1	0.5	ND
8/20/2010	MdRH-B-2	Chlordane	µg/L	0.05	0.1	ND
	Back Harbor	PCB-1016 (Aroclor 1016)	µg/L	0.1	0.5	ND
	Basin E	PCB-1221 (Aroclor 1221)	µg/L	0.1	0.5	ND
	Saltwater	PCB-1232 (Aroclor 1232)	µg/L	0.1	0.5	ND
		PCB-1242 (Aroclor 1242)	µg/L	0.1	0.5	ND
		PCB-1248 (Aroclor 1248)	µg/L	0.1	0.5	ND
		PCB-1254 (Aroclor 1254)	µg/L	0.1	0.5	ND
		PCB-1260 (Aroclor 1260)	µg/L	0.1	0.5	ND
		Aroclor 1262	µg/L	0.1	0.5	ND
		Aroclor 1268	µg/L	0.1	0.5	ND
8/20/2010	MdRH-B-3	Chlordane	µg/L	0.05	0.1	ND
	Back Harbor	PCB-1016 (Aroclor 1016)	µg/L	0.1	0.5	ND
	Basin F	PCB-1221 (Aroclor 1221)	µg/L	0.1	0.5	ND
	Saltwater	PCB-1232 (Aroclor 1232)	µg/L	0.1	0.5	ND
		PCB-1242 (Aroclor 1242)	µg/L	0.1	0.5	ND
		PCB-1248 (Aroclor 1248)	µg/L	0.1	0.5	ND
		PCB-1254 (Aroclor 1254)	µg/L	0.1	0.5	ND
		PCB-1260 (Aroclor 1260)	µg/L	0.1	0.5	ND
		Aroclor 1262	µg/L	0.1	0.5	ND
		Aroclor 1268	µg/L	0.1	0.5	ND
8/20/2010	MdRH-B-4	Chlordane	µg/L	0.05	0.1	ND
	Back Harbor	PCB-1016 (Aroclor 1016)	µg/L	0.1	0.5	ND
	Basin - End of Channel	PCB-1221 (Aroclor 1221)	µg/L	0.1	0.5	ND
	Saltwater	PCB-1232 (Aroclor 1232)	µg/L	0.1	0.5	ND
		PCB-1242 (Aroclor 1242)	µg/L	0.1	0.5	ND
		PCB-1248 (Aroclor 1248)	µg/L	0.1	0.5	ND
		PCB-1254 (Aroclor 1254)	µg/L	0.1	0.5	ND
		PCB-1260 (Aroclor 1260)	µg/L	0.1	0.5	ND
		Aroclor 1262	µg/L	0.1	0.5	ND
		Aroclor 1268	µg/L	0.1	0.5	ND

Notes:

Detections are indicated in **bold**

ND - Analyte not detected at or above the reporting limit

MDL - Method Detection Limit

ML - Minimum Level according to App 4 of SWRQB Policy for the Implementation of Toxic Standards for Inland Surface Water, Enclosed Bays, and Estuaries of California, March 2, 2000

[1] Minimum level of 0.5 µg/L for PCBs is for Total PCBs

Marina Del Rey Toxic Pollutants TMDL - Coordinated Monitoring Program
Dry-Weather Monthly Water Quality Ambient Monitoring
September 2010

Sample Date	Station Information	Hardness (mg/L)	Metal	Units	MDL	ML	Total Recoverable Concentration	Dissolved Concentration
9/20/2010	MdRH-B-1 Back Harbor Basin D Saltwater	**4,600**	Copper Lead Zinc	ug/L ug/L ug/L	0.01 0.005 0.005	0.5 0.5 1	**10.2** **1.52** **47.4**	**6.88** **0.296** **43.5**
9/20/2010	MdRH-B-2 Back Harbor Basin E Saltwater	**4,900**	Copper Lead Zinc	ug/L ug/L ug/L	0.01 0.005 0.005	0.5 0.5 1	**8.83** **1.11** **42.7**	**5.26** **0.142** **36.7**
9/20/2010	MdRH-B-3 Back Harbor Basin F Saltwater	**4,700**	Copper Lead Zinc	ug/L ug/L ug/L	0.01 0.005 0.005	0.5 0.5 1	**8.96** **1.04** **36.1**	**5.26** **0.182** **29.3**
9/20/2010	MdRH-B-4 Back Harbor Basin - End of Channel Saltwater	**4,600**	Copper Lead Zinc	ug/L ug/L ug/L	0.01 0.005 0.005	0.5 0.5 1	**8.51** **0.622** **35.9**	**5.88** **0.148** **32.7**
9/20/2010	MdRH-F-1 Front Harbor Basin A	NA	Copper	ug/L	0.01	0.5	**9.54**	**6.74**
9/20/2010	MdRH-F-2 Front Harbor Basin B	NA	Copper	ug/L	0.01	0.5	**7.82**	**4.47**
9/20/2010	MdRH-F-3 Front Harbor Basin C	NA	Copper	ug/L	0.01	0.5	**9.74**	**6.15**
9/20/2010	MdRH-F-4 Front Harbor Basin G	NA	Copper	ug/L	0.01	0.5	**6.70**	**5.02**
9/20/2010	MdRH-F-5 Front Harbor Basin H	NA	Copper	ug/L	0.01	0.5	**7.00**	**4.96**

Notes:
- Detections are indicated in **bold**
- NA - Not Analyzed
- ND - Analyte not detected at or above the reporting limit
- MDL - Method Detection Limit
- ML - Minimum Level according to App 4 of SWRQB Policy for the Implementation of Toxic Standards for Inland Surface Water, Enclosed Bays, and Estuaries of California, March 2, 2000

Marina Del Rey Toxic Pollutants TMDL - Coordinated Monitoring Program
Dry-Weather Monthly Water Quality Ambient Monitoring
September 2010

Sample Date	Station Information	Organics	Units	MDL	ML[1]	Concentration
9/20/2010	MdRH-B-1	Chlordane	µg/L	0.05	0.1	ND
	Back Harbor	Aroclor 1016	µg/L	0.1	0.5	ND
	Basin D	Aroclor 1221	µg/L	0.1	0.5	ND
	Saltwater	Aroclor 1232	µg/L	0.1	0.5	ND
		Aroclor 1242	µg/L	0.1	0.5	ND
		Aroclor 1248	µg/L	0.1	0.5	ND
		Aroclor 1254	µg/L	0.1	0.5	ND
		Aroclor 1260	µg/L	0.1	0.5	ND
		Aroclor 1262	µg/L	0.1	0.5	ND
		Aroclor 1268	µg/L	0.1	0.5	ND
9/20/2010	MdRH-B-2	Chlordane	µg/L	0.05	0.1	ND
	Back Harbor	Aroclor 1016	µg/L	0.1	0.5	ND
	Basin E	Aroclor 1221	µg/L	0.1	0.5	ND
	Saltwater	Aroclor 1232	µg/L	0.1	0.5	ND
		Aroclor 1242	µg/L	0.1	0.5	ND
		Aroclor 1248	µg/L	0.1	0.5	ND
		Aroclor 1254	µg/L	0.1	0.5	ND
		Aroclor 1260	µg/L	0.1	0.5	ND
		Aroclor 1262	µg/L	0.1	0.5	ND
		Aroclor 1268	µg/L	0.1	0.5	ND
9/20/2010	MdRH-B-3	Chlordane	µg/L	0.05	0.1	ND
	Back Harbor	Aroclor 1016	µg/L	0.1	0.5	ND
	Basin F	Aroclor 1221	µg/L	0.1	0.5	ND
	Saltwater	Aroclor 1232	µg/L	0.1	0.5	ND
		Aroclor 1242	µg/L	0.1	0.5	ND
		Aroclor 1248	µg/L	0.1	0.5	ND
		Aroclor 1254	µg/L	0.1	0.5	ND
		Aroclor 1260	µg/L	0.1	0.5	ND
		Aroclor 1262	µg/L	0.1	0.5	ND
		Aroclor 1268	µg/L	0.1	0.5	ND
9/20/2010	MdRH-B-4	Chlordane	µg/L	0.05	0.1	ND
	Back Harbor	Aroclor 1016	µg/L	0.1	0.5	ND
	Basin - End of Channel	Aroclor 1221	µg/L	0.1	0.5	ND
	Saltwater	Aroclor 1232	µg/L	0.1	0.5	ND
		Aroclor 1242	µg/L	0.1	0.5	ND
		Aroclor 1248	µg/L	0.1	0.5	ND
		Aroclor 1254	µg/L	0.1	0.5	ND
		Aroclor 1260	µg/L	0.1	0.5	ND
		Aroclor 1262	µg/L	0.1	0.5	ND
		Aroclor 1268	µg/L	0.1	0.5	ND

Notes:
Detections are indicated in **bold**
ND - Analyte not detected at or above the reporting limit
MDL - Method Detection Limit
ML - Minimum Level according to App 4 of SWRQB Policy for the Implementation of Toxic Standards for Inland Surface Water, Enclosed Bays, and Estuaries of California, March 2, 2000
[1] Minimum level of 0.5 µg/L for PCBs is for Total PCBs

Marina Del Rey Toxic Pollutants TMDL - Coordinated Monitoring Program
Dry-Weather Monthly Water Quality Ambient Monitoring
October 2010

Sample Date	Station Information	Hardness (mg/L)	Metal	Units	MDL	ML	Total Recoverable Concentration	Dissolved Concentration
10/22/2010	MdRH-B-1 Back Harbor Basin D Saltwater	**5,600**	Copper Lead Zinc	ug/L ug/L ug/L	0.01 0.005 0.005	0.5 0.5 1.0	**13.0** **0.648** **50.1**	**10.4** **0.148** **47.1**
10/22/2010	MdRH-B-2 Back Harbor Basin E Saltwater	**5,200**	Copper Lead Zinc	ug/L ug/L ug/L	0.01 0.005 0.005	0.5 0.5 1.0	**11.9** **0.689** **47.7**	**8.67** **0.112** **45.5**
10/22/2010	MdRH-B-3 Back Harbor Basin F Saltwater	**5,400**	Copper Lead Zinc	ug/L ug/L ug/L	0.01 0.005 0.005	0.5 0.5 1.0	**9.89** **0.522** **36.9**	**8.09** **0.116** **35.4**
10/22/2010	MdRH-B-4 Back Harbor Basin - End of Channel Saltwater	**5,300**	Copper Lead Zinc	ug/L ug/L ug/L	0.01 0.005 0.005	0.5 0.5 1.0	**9.08** **0.521** **34.0**	**7.51** **0.123** **50.5**
10/22/2010	MdRH-F-1 Front Harbor Basin A	NA	Copper	ug/L	0.01	0.5	**10.7**	**8.94**
10/22/2010	MdRH-F-2 Front Harbor Basin B	NA	Copper	ug/L	0.01	0.5	**12.9**	**9.82**
10/22/2010	MdRH-F-3 Front Harbor Basin C	NA	Copper	ug/L	0.01	0.5	**13.7**	**10.9**
10/22/2010	MdRH-F-4 Front Harbor Basin G	NA	Copper	ug/L	0.01	0.5	**8.87**	**6.88**
10/22/2010	MdRH-F-5 Front Harbor Basin H	NA	Copper	ug/L	0.01	0.5	**8.57**	**6.63**

Notes:

Detections are indicated in **bold**

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MDL - Method Detection Limit

ML - Minimum Level according to App 4 of SWRQB Policy for the Implementation of Toxic Standards for Inland Surface Water, Enclosed Bays, and Estuaries of California, March 2, 2000

Marina Del Rey Toxic Pollutants TMDL - Coordinated Monitoring Program
Dry-Weather Monthly Water Quality Ambient Monitoring
October 2010

Sample Date	Station Information	Organics	Units	MDL	ML[1]	Concentration
10/22/2010	MdRH-B-1	Chlordane	µg/L	0.05	0.1	ND
	Back Harbor	Aroclor 1016	µg/L	0.1	0.5	ND
	Basin D	Aroclor 1221	µg/L	0.1	0.5	ND
	Saltwater	Aroclor 1232	µg/L	0.1	0.5	ND
		Aroclor 1242	µg/L	0.1	0.5	ND
		Aroclor 1248	µg/L	0.1	0.5	ND
		Aroclor 1254	µg/L	0.1	0.5	ND
		Aroclor 1260	µg/L	0.1	0.5	ND
		Aroclor 1262	µg/L	0.1	0.5	ND
		Aroclor 1268	µg/L	0.1	0.5	ND
10/22/2010	MdRH-B-2	Chlordane	µg/L	0.05	0.1	ND
	Back Harbor	Aroclor 1016	µg/L	0.1	0.5	ND
	Basin E	Aroclor 1221	µg/L	0.1	0.5	ND
	Saltwater	Aroclor 1232	µg/L	0.1	0.5	ND
		Aroclor 1242	µg/L	0.1	0.5	ND
		Aroclor 1248	µg/L	0.1	0.5	ND
		Aroclor 1254	µg/L	0.1	0.5	ND
		Aroclor 1260	µg/L	0.1	0.5	ND
		Aroclor 1262	µg/L	0.1	0.5	ND
		Aroclor 1268	µg/L	0.1	0.5	ND
10/22/2010	MdRH-B-3	Chlordane	µg/L	0.05	0.1	ND
	Back Harbor	Aroclor 1016	µg/L	0.1	0.5	ND
	Basin F	Aroclor 1221	µg/L	0.1	0.5	ND
	Saltwater	Aroclor 1232	µg/L	0.1	0.5	ND
		Aroclor 1242	µg/L	0.1	0.5	ND
		Aroclor 1248	µg/L	0.1	0.5	ND
		Aroclor 1254	µg/L	0.1	0.5	ND
		Aroclor 1260	µg/L	0.1	0.5	ND
		Aroclor 1262	µg/L	0.1	0.5	ND
		Aroclor 1268	µg/L	0.1	0.5	ND
10/22/2010	MdRH-B-4	Chlordane	µg/L	0.05	0.1	ND
	Back Harbor	Aroclor 1016	µg/L	0.1	0.5	ND
	Basin - End of Channel	Aroclor 1221	µg/L	0.1	0.5	ND
	Saltwater	Aroclor 1232	µg/L	0.1	0.5	ND
		Aroclor 1242	µg/L	0.1	0.5	ND
		Aroclor 1248	µg/L	0.1	0.5	ND
		Aroclor 1254	µg/L	0.1	0.5	ND
		Aroclor 1260	µg/L	0.1	0.5	ND
		Aroclor 1262	µg/L	0.1	0.5	ND
		Aroclor 1268	µg/L	0.1	0.5	ND

Notes:
Detections are indicated in **bold**
ND - Analyte not detected at or above the reporting limit
MDL - Method Detection Limit
ML - Minimum Level according to App 4 of SWRQB Policy for the Implementation of Toxic Standards for Inland Surface Water, Enclosed Bays, and Estuaries of California, March 2, 2000
[1] Minimum level of 0.5 µg/L for PCBs is for Total PCBs

Attachment B: Benthic Sediment Quality Data

Marina Del Rey Toxic Pollutants TMDL - Coordinated Monitoring Program
Dry-Weather Quarterly Benthic Sediments Ambient Monitoring
September 2010

Sample Date	Station Information	Organics	Units	MDL	ML[1]	Concentration
9/27/2010	MdRH-B-1	Chlordane	µg/kg	11.0	0.5	ND
	Back Harbor	Aroclor 1262	µg/kg	11.0	22.7	ND
	Basin D	Aroclor 1268	µg/kg	11.0	22.7	ND
	Saltwater	PCB-1016 (Aroclor 1016)	µg/kg	11.0	22.7	ND
		PCB-1221 (Aroclor 1221)	µg/kg	11.0	22.7	ND
		PCB-1232 (Aroclor 1232)	µg/kg	11.0	22.7	ND
		PCB-1242 (Aroclor 1242)	µg/kg	11.0	22.7	ND
		PCB-1248 (Aroclor 1248)	µg/kg	11.0	22.7	ND
		PCB-1254 (Aroclor 1254)	µg/kg	11.0	22.7	ND
		PCB-1260 (Aroclor 1260)	µg/kg	11.0	22.7	ND
9/27/2010	MdRH-B-2	Chlordane	µg/kg	14.0	0.5	ND
	Back Harbor	Aroclor 1262	µg/kg	14.0	22.7	ND
	Basin E	Aroclor 1268	µg/kg	14.0	22.7	ND
	Saltwater	PCB-1016 (Aroclor 1016)	µg/kg	14.0	22.7	ND
		PCB-1221 (Aroclor 1221)	µg/kg	14.0	22.7	ND
		PCB-1232 (Aroclor 1232)	µg/kg	14.0	22.7	ND
		PCB-1242 (Aroclor 1242)	µg/kg	14.0	22.7	ND
		PCB-1248 (Aroclor 1248)	µg/kg	14.0	22.7	ND
		PCB-1254 (Aroclor 1254)	µg/kg	14.0	22.7	ND
		PCB-1260 (Aroclor 1260)	µg/kg	14.0	22.7	ND
9/27/2010	MdRH-B-3	Chlordane	µg/kg	14.0	0.5	ND
	Back Harbor	Aroclor 1262	µg/kg	14.0	22.7	ND
	Basin F	Aroclor 1268	µg/kg	14.0	22.7	ND
	Saltwater	PCB-1016 (Aroclor 1016)	µg/kg	14.0	22.7	ND
		PCB-1221 (Aroclor 1221)	µg/kg	14.0	22.7	ND
		PCB-1232 (Aroclor 1232)	µg/kg	14.0	22.7	ND
		PCB-1242 (Aroclor 1242)	µg/kg	14.0	22.7	ND
		PCB-1248 (Aroclor 1248)	µg/kg	14.0	22.7	ND
		PCB-1254 (Aroclor 1254)	µg/kg	14.0	22.7	ND
		PCB-1260 (Aroclor 1260)	µg/kg	14.0	22.7	ND
9/27/2010	MdRH-B-4	Chlordane	µg/kg	11.0	0.5	ND
	Back Harbor	Aroclor 1262	µg/kg	11.0	22.7	ND
	Basin - End of Channel	Aroclor 1268	µg/kg	11.0	22.7	ND
	Saltwater	PCB-1016 (Aroclor 1016)	µg/kg	11.0	22.7	ND
		PCB-1221 (Aroclor 1221)	µg/kg	11.0	22.7	ND
		PCB-1232 (Aroclor 1232)	µg/kg	11.0	22.7	ND
		PCB-1242 (Aroclor 1242)	µg/kg	11.0	22.7	ND
		PCB-1248 (Aroclor 1248)	µg/kg	11.0	22.7	ND
		PCB-1254 (Aroclor 1254)	µg/kg	11.0	22.7	ND
		PCB-1260 (Aroclor 1260)	µg/kg	11.0	22.7	ND

Notes:

Detections are indicated in **bold**

ND - Analyte not detected at or above the reporting limit

MDL - Method Detection Limit

ML - Minimum Level according to App 4 of SWRQB Policy for the Implementation of Toxic Standards for Inland Surface Water, Enclosed Bays, and Estuaries of California, March 2, 2000

[1] Minimum level of 22.7 µg/kg for PCBs is for Total PCBs

Marina Del Rey Toxic Pollutants TMDL - Coordinated Monitoring Program
Dry-Weather Quarterly Benthic Sediments Ambient Monitoring
September 2010

Sample Date	Station Information	Measurement	Units	MDL	Concentration
9/27/2010	MdRH-B-1 Back Harbor Basin D Saltwater	Percent Moisture Percent Solids Total Organic Carbon	wt% wt% mg/Kg	0.1 0.1 12	**56.28** **43.72** **12000**
9/27/2010	MdRH-B-2 Back Harbor Basin E Saltwater	Percent Moisture Percent Solids Total Organic Carbon	wt% wt% mg/Kg	0.1 0.1 15	**65.05** **34.95** **16000**
9/27/2010	MdRH-B-3 Back Harbor Basin F Saltwater	Percent Moisture Percent Solids Total Organic Carbon	wt% wt% mg/Kg	0.1 0.1 14	**63.22** **36.78** **18000**
9/27/2010	MdRH-B-4 Back Harbor Basin - End of Channel Saltwater	Percent Moisture Percent Solids Total Organic Carbon	wt% wt% mg/Kg	0.1 0.1 12	**54.94** **45.06** **12000**

Notes:

Detections are indicated in **bold**

ND - Analyte not detected at or above the reporting limit

MDL - Method Detection Limit

Attachment C: Water Column and Benthic Sediment Quality Control Data

Marina Del Rey Toxic Pollutants TMDL - Coordinated Monitoring Program
Dry-Weather Monthly Water Quality Ambient Monitoring
August 2010
QC Data

Sample Date	Station Information	Hardness (mg/L)	Metal	Units	MDL	ML	Total Recoverable Concentration	Dissolved Concentration
8/20/2010	Duplicate of MdRH-B-2	**6,200**	Copper	ug/L	0.01	0.5	**8.36**	**4.28**
	Back Harbor		Lead	ug/L	0.005	0.5	**0.943**	**0.0981**
	Basin E		Zinc	ug/L	0.005	1	**34.4**	**29.4**
	Saltwater							
8/20/2010	Trip Blank	ND	Copper	ug/L	0.01	0.5	**0.0202**	**0.83**
			Lead	ug/L	0.005	0.5	ND	ND
			Zinc	ug/L	0.005	1	**5.71**	**3.51**

Notes:

Detections are indicated in **bold**

ND - Analyte not detected at or above the reporting limit

MDL - Method Detection Limit

ML - Minimum Level according to App 4 of SWRQB Policy for the Implementation of Toxic Standards for Inland Surface Water, Enclosed Bays, and Estuaries of California, March 2, 2000

Marina Del Rey Toxic Pollutants TMDL - Coordinated Monitoring Program
Dry-Weather Monthly Quality Ambient Monitoring
August 2010
QC Data

Sample Date	Station Information	Organics	Units	MDL	ML[1]	Concentration
8/20/2010	Duplicate of MdRH-B2	Chlordane	µg/L	0.05	0.1	ND
	Back Harbor	PCB-1016 (Aroclor 1016)	µg/L	0.1	0.5	ND
	Basin E	PCB-1221 (Aroclor 1221)	µg/L	0.1	0.5	ND
	Saltwater	PCB-1232 (Aroclor 1232)	µg/L	0.1	0.5	ND
		PCB-1242 (Aroclor 1242)	µg/L	0.1	0.5	ND
		PCB-1248 (Aroclor 1248)	µg/L	0.1	0.5	ND
		PCB-1254 (Aroclor 1254)	µg/L	0.1	0.5	ND
		PCB-1260 (Aroclor 1260)	µg/L	0.1	0.5	ND
		Aroclor 1262	µg/L	0.1	0.5	ND
		Aroclor 1268	µg/L	0.1	0.5	ND
8/20/2010	Trip Blank	Chlordane	µg/L	0.05	0.1	ND
		PCB-1016 (Aroclor 1016)	µg/L	0.1	0.5	ND
		PCB-1221 (Aroclor 1221)	µg/L	0.1	0.5	ND
		PCB-1232 (Aroclor 1232)	µg/L	0.1	0.5	ND
		PCB-1242 (Aroclor 1242)	µg/L	0.1	0.5	ND
		PCB-1248 (Aroclor 1248)	µg/L	0.1	0.5	ND
		PCB-1254 (Aroclor 1254)	µg/L	0.1	0.5	ND
		PCB-1260 (Aroclor 1260)	µg/L	0.1	0.5	ND
		Aroclor 1262	µg/L	0.1	0.5	ND
		Aroclor 1268	µg/L	0.1	0.5	ND

Notes:
- Detections are indicated in **bold**
- ND - Analyte not detected at or above the reporting limit
- MDL - Method Detection Limit
- ML - Minimum Level according to App 4 of SWRQB Policy for the Implementation of Toxic Standards for Inland Surface Water, Enclosed Bays, and Estuaries of California, March 2, 2000

[1] Minimum level of 0.5 µg/L for PCBs is for Total PCBs

Marina Del Rey Toxic Pollutants TMDL - Coordinated Monitoring Program
Dry-Weather Monthly Water Quality Ambient Monitoring
September 2010
QC Data

Sample Date	Station Information	Hardness (mg/L)	Metal	Units	MDL	ML	Total Recoverable Concentration	Dissolved Concentration
9/20/2010	MdRH-F-1 Duplicate Front Harbor Basin A	NA	Copper	ug/L	0.01	0.5	**9.99**	**7.39**
9/20/2010	Trip Blank	ND	Copper	ug/L	0.01	0.5	**0.0182**	**0.110**
			Lead	ug/L	0.005	0.5	ND	ND
			Zinc	ug/L	0.005	1	**3.35**	**3.37**

Notes:
- Detections are indicated in **bold**
- NA - Not Analyzed
- ND - Analyte not detected at or above the reporting limit
- MDL - Method Detection Limit
- ML - Minimum Level according to App 4 of SWRQB Policy for the Implementation of Toxic Standards for Inland Surface Water, Enclosed Bays, and Estuaries of California, March 2, 2000

Marina Del Rey Toxic Pollutants TMDL - Coordinated Monitoring Program
Dry-Weather Monthly Water Quality Ambient Monitoring
September 2010
QC Data

Sample Date	Station Information	Organics	Units	MDL	ML[1]	Concentration
9/20/2010	Trip Blank	Chlordane	µg/L	0.05	0.1	ND
		Aroclor 1016	µg/L	0.1	0.5	ND
		Aroclor 1221	µg/L	0.1	0.5	ND
		Aroclor 1232	µg/L	0.1	0.5	ND
		Aroclor 1242	µg/L	0.1	0.5	ND
		Aroclor 1248	µg/L	0.1	0.5	ND
		Aroclor 1254	µg/L	0.1	0.5	ND
		Aroclor 1260	µg/L	0.1	0.5	ND
		Aroclor 1262	µg/L	0.1	0.5	ND
		Aroclor 1268	µg/L	0.1	0.5	ND

Notes:

Detections are indicated in **bold**

ND - Analyte not detected at or above the reporting limit

MDL - Method Detection Limit

ML - Minimum Level according to App 4 of SWRQB Policy for the Implementation of Toxic Standards for Inland Surface Water, Enclosed Bays, and Estuaries of California, March 2, 2000

[1] Minimum level of 0.5 µg/L for PCBs is for Total PCBs

Marina Del Rey Toxic Pollutants TMDL - Coordinated Monitoring Program
Dry-Weather Quarterly Benthic Sediments Ambient Monitoring
September 2010
QC Data

Sample Date	Station Information	Organics	Units	MDL	ML[1]	Concentration
9/27/2010	MdRH Duplicate	Chlordane	µg/kg	13.0	0.5	ND
	(Duplicate of MdRH-B4)	Aroclor 1262	µg/kg	13.0	22.7	ND
	Back Harbor	Aroclor 1268	µg/kg	13.0	22.7	ND
	Basin - End of Channel	PCB-1016 (Aroclor 1016)	µg/kg	13.0	22.7	ND
	Saltwater	PCB-1221 (Aroclor 1221)	µg/kg	13.0	22.7	ND
		PCB-1232 (Aroclor 1232)	µg/kg	13.0	22.7	ND
		PCB-1242 (Aroclor 1242)	µg/kg	13.0	22.7	ND
		PCB-1248 (Aroclor 1248)	µg/kg	13.0	22.7	ND
		PCB-1254 (Aroclor 1254)	µg/kg	13.0	22.7	ND
		PCB-1260 (Aroclor 1260)	µg/kg	13.0	22.7	ND
9/27/2010	Trip Blank	Chlordane	µg/kg	0.05	0.5	ND
		Aroclor 1262	µg/L	0.2	22.7	ND
		Aroclor 1268	µg/L	0.2	22.7	ND
		PCB-1016 (Aroclor 1016)	µg/L	0.2	22.7	ND
		PCB-1221 (Aroclor 1221)	µg/L	0.2	22.7	ND
		PCB-1232 (Aroclor 1232)	µg/L	0.2	22.7	ND
		PCB-1242 (Aroclor 1242)	µg/L	0.2	22.7	ND
		PCB-1248 (Aroclor 1248)	µg/L	0.2	22.7	ND
		PCB-1254 (Aroclor 1254)	µg/L	0.2	22.7	ND
		PCB-1260 (Aroclor 1260)	µg/L	0.2	22.7	ND

Notes:

Detections are indicated in **bold**

ND - Analyte not detected at or above the reporting limit

MDL - Method Detection Limit

ML - Minimum Level according to App 4 of SWRQB Policy for the Implementation of Toxic Standards for Inland Surface Water, Enclosed Bays, and Estuaries of California, March 2, 2000

[1] Minimum level of 22.7 µg/kg for PCBs is for Total PCBs

Marina Del Rey Toxic Pollutants TMDL - Coordinated Monitoring Program
Dry-Weather Quarterly Benthic Sediments Ambient Monitoring
September 2010
QC Data

Sample Date	Station Information	Measurement	Units	MDL	Concentration
9/27/2010	MdRH-Dup (Duplicate of MdRH-B4) Back Harbor Basin - End of Channel Saltwater	Percent Moisture	wt%	0.1	**60.06**
		Percent Solids	wt%	0.1	**39.94**
		Total Organic Carbon	mg/Kg	13	**16000**
9/27/2010	Trip Blank	Total Organic Carbon	mg/L	0.49	ND

Notes:
- Detections are indicated in **bold**
- ND - Analyte not detected at or above the reporting limit
- MDL - Method Detection Limit

Marina Del Rey Toxic Pollutants TMDL - Coordinated Monitoring Program
Dry-Weather Monthly Water Quality Ambient Monitoring
October 2010
QC Data

Sample Date	Station Information	Hardness (mg/L)	Metal	Units	MDL	ML	Total Recoverable Concentration	Dissolved Concentration
10/22/2010	MdRH Duplicate (Duplicate of MdRH-B1) Back Harbor Basin D Saltwater	**5,500**	Copper	ug/L	0.01	0.5	**13.8**	**10.6**
			Lead	ug/L	0.005	0.5	**0.582**	**0.126**
			Zinc	ug/L	0.005	1.0	**50.6**	**48.2**
10/22/2010	Trip Blank	ND	Copper	ug/L	0.01	0.5	**0.0467**	**0.113**
			Lead	ug/L	0.005	0.5	**0.00831**	**0.00842**
			Zinc	ug/L	0.005	1.0	**1.80**	**1.02**

Notes:

Detections are indicated in **bold**

ND - Analyte not detected at or above the reporting limit

MDL - Method Detection Limit

ML - Minimum Level according to App 4 of SWRQB Policy for the Implementation of Toxic Standards for Inland Surface Water, Enclosed Bays, and Estuaries of California, March 2, 2000

Marina Del Rey Toxic Pollutants TMDL - Coordinated Monitoring Program
Dry-Weather Monthly Water Quality Ambient Monitoring
October 2010
QC Data

Sample Date	Station Information	Organics	Units	MDL	ML[1]	Concentration
10/22/2010	MdRH Duplicate (Duplicate of MdRH-B1) Back Harbor Basin D Saltwater	Chlordane	µg/L	0.05	0.1	ND
		Aroclor 1016	µg/L	0.1	0.5	ND
		Aroclor 1221	µg/L	0.1	0.5	ND
		Aroclor 1232	µg/L	0.1	0.5	ND
		Aroclor 1242	µg/L	0.1	0.5	ND
		Aroclor 1248	µg/L	0.1	0.5	ND
		Aroclor 1254	µg/L	0.1	0.5	ND
		Aroclor 1260	µg/L	0.1	0.5	ND
		Aroclor 1262	µg/L	0.1	0.5	ND
		Aroclor 1268	µg/L	0.1	0.5	ND
10/22/2010	Trip Blank	Chlordane	µg/L	0.05	0.1	ND
		Aroclor 1016	µg/L	0.1	0.5	ND
		Aroclor 1221	µg/L	0.1	0.5	ND
		Aroclor 1232	µg/L	0.1	0.5	ND
		Aroclor 1242	µg/L	0.1	0.5	ND
		Aroclor 1248	µg/L	0.1	0.5	ND
		Aroclor 1254	µg/L	0.1	0.5	ND
		Aroclor 1260	µg/L	0.1	0.5	ND
		Aroclor 1262	µg/L	0.1	0.5	ND
		Aroclor 1268	µg/L	0.1	0.5	ND

Notes:

Detections are indicated in **bold**

ND - Analyte not detected at or above the reporting limit

MDL - Method Detection Limit

ML - Minimum Level according to App 4 of SWRQB Policy for the Implementation of Toxic Standards for Inland Surface Water, Enclosed Bays, and Estuaries of California, March 2, 2000

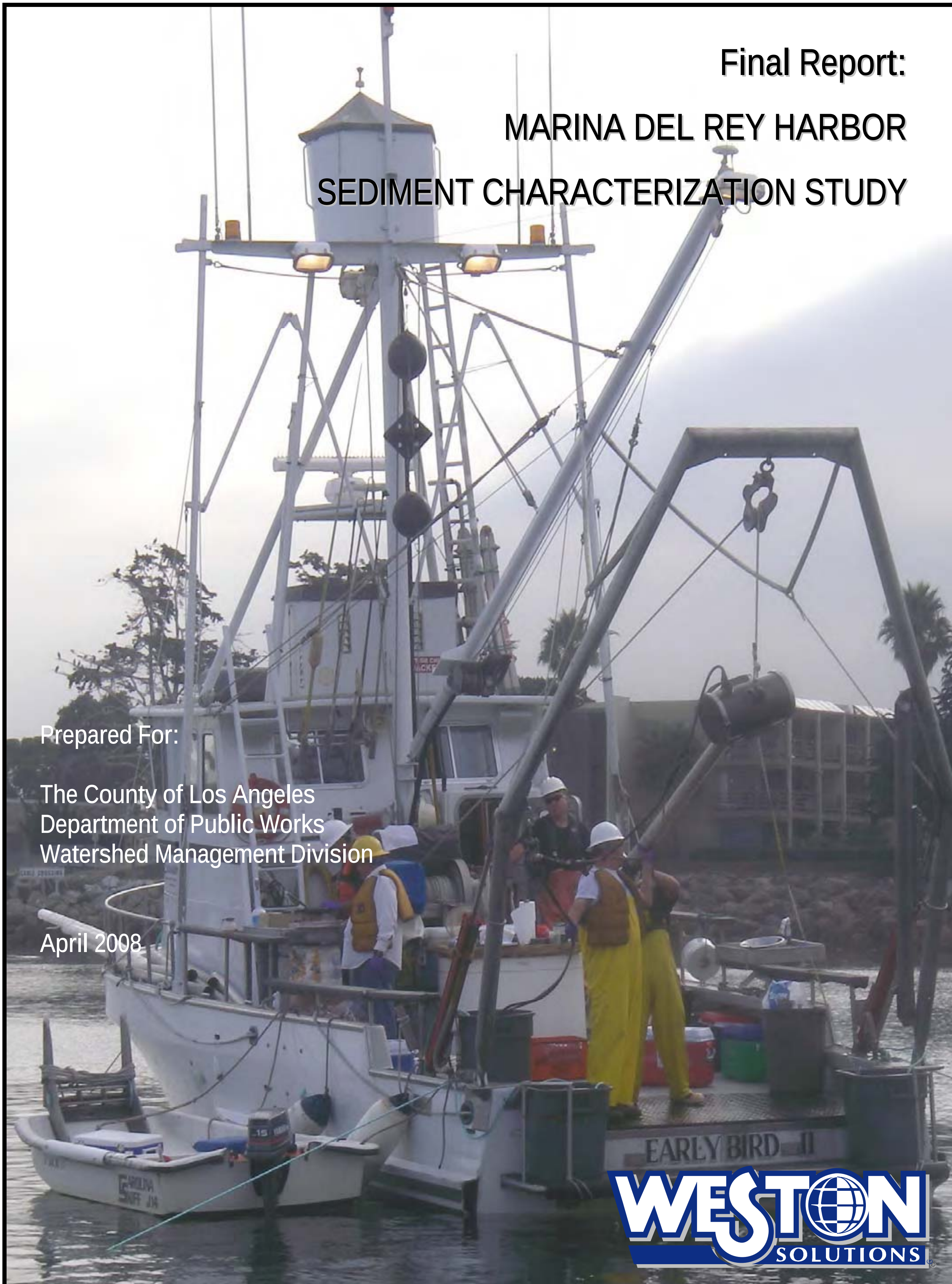
[1] Minimum level of 0.5 µg/L for PCBs is for Total PCBs

Appendix B – Part 2

Final Report:

MARINA DEL REY HARBOR

SEDIMENT CHARACTERIZATION STUDY



Prepared For:

The County of Los Angeles
Department of Public Works
Watershed Management Division

April 2008

WESTON SOLUTIONS

Final Report:

MARINA DEL REY HARBOR

SEDIMENT CHARACTERIZATION STUDY

Prepared For:

The County of Los Angeles Department of Public Works
Watershed Management Division

Prepared By:
Weston Solutions, Inc.
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April 2008

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ACRONYMS AND ABBREVIATIONS

ASTM	American Society for Testing and Materials
BRI	Benthic Response Index
CA LRM	California Logistic Regression Model
Cal EPA	California Environmental Protection Agency
Caltrans	California Department of Transportation
COC	Chain-of-Custody
CSI	Chemical Score Index
DDT	dichlorodiphenyltrichloroethane
DGPS	differential global positioning system
DO	dissolved oxygen
ER-L	effect range-low
ER-M	effect range-median
HDPE	high-density polyethylene
IBI	Index of Biotic Integrity
ITM	Inland Testing Manual
LACDBH	Los Angeles County Department of Beaches and Harbors
LACDPW	Los Angeles County Department of Public Works
LC_{50}	median lethal concentration
LOE	lines of evidence
MDL	method detection limit
MLLW	Mean Lower Low Water
MLOE	multiple lines of evidence
MRL	method reporting limit
NIT	negative indicator taxa
NOEC	no observable effect concentration
PCB	polychlorinated biphenyls
pH	hydrogen ion concentration
P_{MAX}	maximum probability model
QA/QC	quality assurance/quality control
QAPP	Quality Assurance Program Plan
RIVPACS	River Invertebrate Prediction and Classification System
RBI	Relative Benthic Index
RV	Research Vessel
RWQCB-LA	California Regional Water Quality Control Board- Los Angeles Region
SAP	Sampling and Analysis Plan
SCCWRP	Southern California Coastal Water Research Project
SP	solid phase
SQO	sediment quality objective
SWRCB	State Water Resources Control Board
TMDL	Total Maximum Daily Load
TOC	total organic content
TTLC	total threshold limit concentration
TWV	Taxa Richness Weighted Value
USACE	United States Army Corps of Engineers
USCS	Unified Soil Classification System
USEPA	United States Environmental Protection Agency
WAAS	wide area augmentation system
Weston	Weston Solutions Inc.

UNITS OF MEASURE

cm	centimeter
cy	cubic yards
^{o}C	centigrade
ft	feet or foot
L	liter
m	meter
mg/kg	milligram per kilogram
mL	milliliter
µg/L	microgram per liter
µg/kg	microgram per kilogram
ng/L	nanogram per liter

1. INTRODUCTION

Five agencies, including the City of Culver City, the City of Los Angeles, Los Angeles County Department of Public Works (LACDPW), California Department of Transportation (Caltrans) and Los Angeles County Department of Beaches and Harbors (LACDBH) received a "Requirement to Submit Information" letter from the California Regional Water Quality Control Board- Los Angeles Region (RWQCB-LA) regarding sediment contamination in Marina del Rey Harbor. The letter specified that the agencies listed above were to design a study plan to assess the areal extent of sediment contamination in the Harbor for constituents listed in the Total Maximum Daily Load (TMDL) for toxic pollutants in Marina del Rey Harbor. Because implementation of the TMDL is unlikely to affect contaminant levels already present in the Harbor sediments, the RWQCB-LA directed staff to proceed with an investigation to determine the extent of contamination in Marina del Rey Harbor sediments and to assess the need for a remedial action. Thus, the intent of this program is to characterize the contamination in the Harbor sediment by examination of the physical, chemical, and toxic properties and through an assessment of the benthic infaunal community.

Sediment within Marina del Rey Harbor is comprised of native sediment, fill materials, and depositional sediments that have accrued since the harbor was first constructed in 1957.

The overall goal of the Marina del Rey Harbor sediment characterization study is to provide an assessment of the areal and vertical extent of sediment contamination within Marina del Rey Harbor for those constituents identified in the TMDL as contributing to sediment impairment by the RWQCB-LA. The constituents listed in the Marina del Rey Harbor Toxic Pollutants TMDL are total polychlorinated biphenyls (PCBs), chlordane, copper, lead, and zinc. Because previous studies within Marina del Rey Harbor have primarily focused on localized areas of contamination, additional data was needed to provide a more comprehensive evaluation of the harbor's sediment contamination.

The present report discusses the approved sediment characterization program described in the Sampling and Analysis Plan (SAP; Caltrans, 2006) and in Weston Solutions Inc. (Weston) Quality Assurance Program Plan (QAPP; Weston, 2007). The sediment characterization program used several types of sampling methods. Sediment core sampling was conducted at 23 sample locations throughout the harbor while surficial grab samples were collected at 16 of the 23 sample locations. Samples were analyzed for physical, chemical, biological, and toxicological characteristics. This report discusses chemical analyses, toxicity test results, and benthic community data and includes an analysis of sediment quality using the sediment quality objectives (SQOs) currently being developed for the State of California (http://www.waterboards.ca.gov/bptcp/sqoscientific.html). Results of this evaluation may lead to remedial activity in the future.

2. MATERIALS AND METHODS

2.1 FIELD COLLECTION PROGRAM

2.1.1 Equipment

Two research vessels were used during the sampling activities. The *Research Vessel (RV) Early Bird II*, a 40-foot survey vessel, was used for the collection of vibracore sediment chemistry, grain size and archival core samples (Figure 1), while the *RV Waterline*, a 24-foot fiberglass survey vessel, was used for the collection of benthic infaunal, sediment chemistry, grain size, and sediment toxicity (Figure 2). Core samples were collected using a P-3 electric vibracore. The vibracore was equipped with a pre-cleaned 4-inch-diameter aluminum barrel and stainless steel cutter head while the aluminum barrel was lined with food-grade pliable polyethylene liners for cores undergoing sub-sampling. The archived duplicate cores (one per site) were collected using a hard polybutyrate liner for the purpose of archiving entire sample cores. Archived samples were removed from the aluminum tube, while still inside the polybutyrate liner, capped, labeled, and frozen vertically so that the stratification of the core would be retained. The standard vibracore system used for this project was capable of collecting cores up to 30 feet (9 m) in length if necessary.

Surface samples were collected using a 0.1 m^2 stainless steel double Van Veen grab sampler, deployed from a davit on the port side of the *RV Waterline*. The double Van Veen grab sampler was capable of collecting concurrent sediment samples for paired chemistry and benthic analyses. It was capable of collecting a total of 36 L of sediment per grab (18 L per side). The Van Veen sampling followed Southern California Coastal Water Research Project (SCCWRP) Bight '03 Field Operations protocols (Bight'03 Field Sampling and Logistics Committee, 2003).

2.1.2 Navigation

All station locations were pre-plotted on a field map of Marina del Rey Harbor prior to sampling activities (Figure 3). On the *RV Early Bird II*, pre-plotted station positions were located using the vessel's differential global positioning system (DGPS). The system uses United States Coast Guard differential correction data and was accurate to less than 10 feet.

On the *RV Waterline*, pre-plotted station positions were located using a handheld Garmin GPS 76. The system uses wide area augmentation system (WAAS) correction data and was accurate to within 10 feet.

2.1.3 Sampling Locations and Depths

Cores within Marina del Rey Harbor were collected to project depth (the original dredged depth of the harbor) plus 1 foot [i.e., –10.0 + –1.0 = –11.0 feet Mean Lower Low Water (MLLW)] unless refusal was encountered. Refusal is defined as less than 2 inches of penetration per minute. If core refusal was encountered, the vessel was moved a short distance (i.e., 1-2 m) and a second core attempted. If refusal was encountered again, additional cores were not attempted unless operational problems were suspected. Two cores per location were needed to provide sufficient material for all required physical and chemical testing, and archival sample collection. The number of cores, their locations, core lengths and the water and penetration depths at each station are provided in the results section. Van Veen surface sediments were collected at the identical station locations as vibracore samples. Two surface grab samples per location were needed to provide sufficient material for all required physical, chemical, bioassay, and benthic infauna analysis and archival sample collection.

Figure 1. Vibracore sampling on the *RV Early Bird II* in Marina del Rey Harbor.

Figure 2. Van Veen grab sampling on the *RV Waterline* in Marina del Rey Harbor.

2.1.4 Sample Collection and Handling

2.1.4.1 Surface Sediments Collected by Van Veen

The Van Veen Grab Sampler was lowered from the side of the vessel using an electric winch. When the automatically triggered doors close the sample was retrieved. Each grab sample was checked for evidence of sample "washout" or significant disruption of the sediment surface layer. Acceptable grab samples showed little or no leakage of overlying water, the surface of the grab was even, with minimal surface disturbance. Upon retrieval, if the grab was acceptable, the overlying water was carefully drained, and the sediment was processed depending on analysis and use.

The Van Veen sampling team collected surface sediment grabs at 16 pre-determined stations for analyses of benthic infauna, toxicity and physical/chemical composition with regard to sediment grain size, total organic content (TOC), metals, organochlorine pesticides, and PCBs. At 5 of the 16 surface sediment locations (MC-3, MC-5, C-2, E-1, and G-2), material was collected for pore water analyses. Pore water stations were selected at locations within the harbor that were thought to best spatially represent the physical and chemical variability of the harbor's sediment. For infaunal samples, the overlying water was screened; any organisms captured on the screen were added to the infaunal sample. The depth of the sediment in the grab was then measured to ensure acceptable penetration depth of at least 5 cm. If the grab was unacceptable, additional grab samples were taken. Samples for benthic infaunal analysis were screened onboard the vessel through a 1.0 mm mesh screen with filtered wash water. The material retained on the screen was placed into a jar and a solution of relaxant ($MgSO_4$) was added. After 30 minutes, buffered formalin was added to obtain approximately 10% formalin solution.

Figure 3. Marina del Rey Harbor sample locations

Figure 4. Processing surface sample collected using Van Veen grab sampler.

Samples for sediment chemistry were collected from the top 2 cm of the grab using a pre-cleaned stainless steel scoop (Figure 4). Sediment within 1 cm of the sides of the grab was avoided to prevent interaction of any contaminants and the steel sampling device. Both sediment grain size and TOC samples were placed into quart-sized Ziploc™ bags. Subsamples to be analyzed for trace metals and organics were transferred into pre-cleaned 8-oz glass jars with Teflon® lids for analyses, stored at 4°C, and frozen within 24 hr. Samples for sediment grain size analysis were stored at 4°C on ice. A minimum of 2.5 L of material per site was collected from the top 2 cm of the grab for the purpose of toxicity testing. These samples were placed in double, 20-L high-density polyethylene (HDPE) bags, maintained in the dark at 4°C on ice until used for testing. Subsamples for chemical analyses were also collected and were stored in a freezer at -15°C. Samples were transferred to either Weston's laboratories in Carlsbad, CA (grain size analysis, toxicity testing) or to CRG Marine Laboratories in Torrance, CA (analytical testing) within 72 hours of collection.

2.1.4.2 Subsurface Sediments

Each vibracore sample was retrieved to the vessel platform using an A-frame and hydraulic winch. The sediment sample was then extruded from the core barrel by pulling the polyethylene-liner out of the aluminum barrel; the sample contained within the liner was then placed on collection trays. Following extrusion, a California Professional Geologist examined the core sample to evaluate acceptability and identify and document the post-construction depositional interface depth. The core was photographed and a detailed description of the core, including observations and other pertinent data were recorded prior to sample processing and storage on ice.

One core per location was vertically sub-sectioned into two segments (Top and Bottom) as determined in the field by the certified geologist. The upper segment included the top 10 cm; the lower segment included the remaining core sample between the upper segment and the interface layer. The vertical subsections from individual cores were homogenized with a clean stainless steel mixing apparatus into a single sample. Sub-samples from each vertical core segment were placed into double, Ziploc™ bags for physical analyses and into one 8-oz jar with a Teflon-lined lid for chemical analyses. If the length of the core's depositional material was less than 10 cm (all Top material), a Bottom sample was not analyzed. No Bottom sample was collected for Station A-2 since the depositional/native material interface was at 10 cm in depth. Duplicate samples collected in polycarbonate tubing (Figure 5) for archival purposes in the event additional sediment is needed for further analyses. The archive cores were cut into shorter lengths, capped, labeled, and stored on ice in the field prior to being transported and placed into a freezer (set at -

15°C) at Weston for storage. The cores were kept in a vertical orientation until completely frozen to reduce the likelihood of the migration of particles within tubing. All field samples were transferred to their respective analytical laboratory within 72 hours of collection.

Figure 5. Core tube archive sample collected using vibracore grab sampler.

2.1.4.3 Geologic Description

A California Professional Geologist evaluated sediment and soil cores according to the Unified Soil Classification System (USCS; Figure 6). The geological description of each core included the texture, odor, color, length, approximate grain size distribution, plasticity characteristics of the fine-grained fraction, and any evident stratification of the sediment.

Figure 6. Geologist cutting polyethylene liner prior to logging the core's lithology.

2.1.5 Sample Storage

Samples were labeled, placed on ice, and shielded from light until delivery to CRG Marine Laboratories or Weston's laboratory personnel for analyses. Archives of all sediment samples are currently preserved in freezers at 15°C at Weston's Carlsbad laboratory.

2.1.6 Documentation and Chain-of-Custody

The principal documents used to identify samples and to document sample custody were Chain-of-Custody (COC) records, field logbooks, and field tracking forms. Weston's standard COC procedures were used for all samples throughout the collection, transport, and analytical process, and for all data documentation, whether in hard copy or electronic format.

COC forms were completed and placed in a plastic sealed envelope that traveled inside the ice chest containing the listed samples. The person transferring custody of the samples signed the COC form. The receiver of the samples then recorded the condition of the samples. COC records will be included in the final analytical report prepared by the laboratory, and are considered an integral part of that report.

Samples are considered to be in custody if they are: (1) in the custodian's possession or view, (2) retained in a secured place (under lock) with restricted access, or (3) placed in a container and secured with an official seal(s) such that the sample cannot be reached without breaking the seal(s). Minimum documentation of sample handling and custody included the following:

- Sample identification
- Sample collection date and time
- Any special notations on sample characteristics
- Initials of the person collecting the sample
- Date the sample was sent to the laboratory

2.1.7 Decontamination of Field and Laboratory Equipment

All vibracore equipment was cleaned prior to sampling. Between stations, the core barrel and deck of the vessel were rinsed with site water. Before creating each composite, all stainless steel utensils (stainless steel bowls, spoons, spatulas, mixers, and other utensils) were cleaned with soapy water, rinsed with tap water, and then rinsed three times with deionized water.

2.2 PHYSICAL AND CHEMICAL ANALYSES

Physical and chemical parameters to be measured in this testing program were selected to provide data on potential chemicals of concern in accordance with the SAP (Caltrans, 2006) and the QAPP (Weston, 2007). The constituents that will be analyzed in the Marina del Rey Harbor Sediment Characterization Study are included in Table 1. The analytical methods chosen for chemistry analyses provide the lowest method detection limits (MDLs) practical. Actual detection limits are provided in Appendix C.

Table 1. Constituents to be monitored and analytical methods performed for MdRH sediment samples.

Constituent	**Methods**	**Target Volume**	**Method Notes**
Surficial Sediment Samples (Top 2 cm) collected by Van Veen			
Total Organic Carbon (TOC)	EPA 415.1	200 grams	By Combustion or Oxidation
Grain Size Analysis	Plumb 1981	100 grams	Settling Tube
Trace Metals	EPA 6020	200 grams	ELAN 6000 Inductively Couple Plasma (ICP) – Mass Spectrometry (MS)
Pesticides	EPA 8270C	200 grams	Organochlorine pesticides
PCBs	EPA 8270C	200 grams	Aroclors and individual congeners will be analyzed
Acute Toxicity	EPA 1994	A minimum of 2.5 liters	10-day amphipod test using *E. estuarius* with reburial
Benthic Infauna	SCCWRP Bight '03	Penetration depth between 5-10 cm	BRI and other metrics
Vertical Core Samples (Sub-sectioned into Top and Bottom segments) collected by Vibracore			
Total Organic Carbon (TOC)	EPA 415.1	200 grams	By Combustion or Oxidation
Grain Size Analysis	Plumb 1981	100 grams	Settling Tube
Trace Metals	EPA 6020	200 grams	ELAN 6000 Inductively Couple Plasma (ICP) – Mass Spectrometry (MS)
Pesticides	EPA 8270C	200 grams	Organochlorine pesticides
PCBs	EPA 8270C	200 grams	Aroclors and individual congeners will be analyzed

2.3 SOLID PHASE TOXICITY TESTING

As outlined in the SAP (Caltrans, 2006), bioassay testing was performed on 16 surface grab samples. Testing for this project included one solid phase (SP) toxicity test with the amphipod *Eohaustorius estuarius*. The amphipod bioassay was performed to determine the potential impact of exposure to Marina del Rey Harbor sediments on benthic organisms. All testing and analysis was performed in accordance with Appendix E of the Inland Testing Manual (ITM; United States Environmental Protection Agency [USEPA]/United States Army Corps of Engineers [USACE], 1998), American Standard Testing Methods (ASTM) Standard E-1367-99 (ASTM, 2003), *Methods for Assessing Toxicity of Sediment-Associated Contaminants with Estuarine and Marine Amphipods* (USEPA, 1994). Methods were consistent with testing performed for the Southern California Regional Marine Monitoring Survey (Bight, 2003).

2.3.1 10-day Acute Solid Phase Test

Surface sediment was tested in a 10-day acute test using the marine amphipod *E. estuarius*. Prior to testing, the test and control sediments were sieved to remove organisms. This was accomplished by press-sieving the sediment through a 2.0-mm mesh screen using only the water available in the sediment sample. Test organisms were supplied by Northwestern Aquatic Sciences, Newport, Oregon. Laboratory control sediment was collected from Yaquina Bay, Oregon, the same area the organisms were collected (i.e., native sediment). Each sediment type (test and control) was run with five replicates. Sediment was placed in 1- L glass jars to a thickness of 2 cm (150 mL), to which was added approximately 750 mL of 20 ± 2 ppt seawater. Additional surrogate replicates (no organisms) for each treatment were set up to obtain measurement of interstitial (pore water) ammonia. The test was run under static conditions with continuous light at a temperature of 15 ± 2°C. Gentle aeration was provided to each replicate to maintain dissolved oxygen (DO) levels, with care taken to avoid disturbing the sediment. At test initiation, test organisms were randomly distributed to test chambers. Initial stocking densities were 20 organisms per replicate. Amphipods remaining in the water column and exhibiting abnormal behavior were replaced after 1 hour. The chambers were covered with petri dishes to minimize evaporation. Daily water quality measurements, including DO, temperature, salinity, and hydrogen ion concentration (pH), were taken on one replicate from each treatment. Initial and final water quality measurements were taken on every replicate from each treatment. Ammonia was measured in both pore water and overlying water at the start and finish of the test at each site. Sediment pore water was extracted via centrifugation. All instruments used were calibrated and logged daily. Daily observations were also recorded. On Day 10, the amphipods were gently sieved from the sediment using a 0.5-mm screen. The amphipods were transferred to a sorting tray, and the number of survivors was recorded. Surviving organisms were placed in a 500 mL dish containing 2 cm of native sediment and allowed one hour to rebury. After one hour, the number of amphipods able to rebury was recorded. Test results were compared to test acceptability criterion (i.e., ≥ 90% mean survival in controls at test termination).

A reference toxicant test was conducted using cadmium chloride with concentrations of 0, 2.50, 5.00, 10.0, 20.0, and 40.0 mg Cd^{2+}/L to establish sensitivity of test organisms used in the evaluation of Marina del Rey Harbor sediments. An additional reference toxicant test was also conducted using ammonium chloride with actual concentrations of 0, 7.87, 16.9, 47.2, 85.4, and 148 mg total NH_3/L, and calculated un-ionized concentrations of 0, 0.385, 0.673, 1.21, 1.75, and 1.55 mg un-ionized NH_3/L to evaluate the potential influence of ammonia toxicity. The test conditions and acceptability criteria for the acute toxicity test using *E. estuarius* are shown in Table 2.

Table 2. Test conditions for the 10-day Solid Phase test using *Eohaustorius estuarius*

Test Conditions: *Eohaustorius estuarius* Acute Toxicity Test		
Sample Identification	**H-2, MC-2, MC-1, F-1, MC-5, MC-3, E-1, G-2, C-2, B-2, A-2, MC-4, E-3, E-4, D-3, D-2**	
Date sampled	September 17 - 19, 2007	
Date received at Carlsbad Laboratory	September 21, 2007	
Approximate volume received	6 L per sample	
Sample storage conditions	4°C, dark, minimal head space	
Test Species	***E. estuarius***	
Supplier	Northwestern Aquatic Sciences, Newport, Oregon	
Date acquired	October 3, 2007	
Acclimation/holding time	2 days	
Age/Size class	3 – 5 mm	
Test Procedures	**ITM (USEPA/USACE, 1998), ASTM E1367-99 (ASTM 2003) and USEPA (1994)**	
Test location	Weston Solutions Carlsbad laboratory, Room 2	
Test type/duration	Static – Acute / 10 days	
Test dates	October 5 – 15, 2007	
Control water	Scripps Institute of Oceanography seawater; 3 µm filtered, UV sterilized	
Test temperature	Target: 15 ± 2°C	Actual: 13 - 17°C
Test Salinity	Target: 20 ± 2 ppt	Actual: 19 – 22 ppt
Test dissolved oxygen	Target: > 6.0 mg/L	Actual: 7.3 – 8.8 mg/L
Test pH	Target: monitor drift	Actual: 7.7 - 8.4
Test overlying total ammonia	No recommended concentration	Actual: <0.500 mg/L
Test overlying un-ionized ammonia	No recommended concentration	Actual: <0.012 - <0.023 mg/L
Test interstitial total ammonia	Target: < 60 mg/L	Actual: 0.571 – 4.79 mg/L
Test interstitial un-ionized ammonia	Target: <0.8 mg/L	Actual: 0.003 – 0.058 mg/L
Test photoperiod	Constant light	
Test chamber	1 L glass jars	
Replicates/treatment	5	
Organisms/replicate	20	
Exposure volume	2 cm sediment; 750 mL water	
Feeding	None	
Water renewal	None	
Deviations from Test Protocol	None	

2.3.2 Seawater for Bioassay Testing

Seawater used in this study came from the Scripps Institution of Oceanography in La Jolla, California. This control seawater source has been used successfully on similar bioassay testing programs by Weston. Extensive testing on a variety of test species and biannual chemical analysis of this seawater source has shown high survival of organisms in the control sediment utilized in this testing program and has been achieved consistently in previous sediment testing. As a result, there is no significant potential for toxicity or bioaccumulation from this water supply.

2.3.3 Water Quality

Water quality was monitored daily as appropriate for each test and was recorded on data sheets. DO and temperature were measured using Orion Model 830A oxygen meters and probes. pH was measured using Orion Model 230A pH meters and probes. Salinity was measured with Orion Model 142 conductivity/salinity meters. Ammonia was analyzed using an Orion 720 digital ion analyzer with a three-point calibration curve (1, 10, and 100 mg/L).

2.4 BENTHIC INFAUNA EVALUATION

The benthic samples were brought back from the field to the laboratory where they remained in a formalin solution for 7 days. The samples were then transferred from formalin to 70% ethanol for laboratory processing. The organisms were sorted using a dissecting microscope into five main taxonomic groups: polychaetes, crustaceans, molluscs, echinoderms, and miscellaneous minor phyla. While sorting, technicians kept a rough count for quality assurance/quality control (QA/QC) purposes. Qualified taxonomists identified each organism and kept an actual count. The organisms were identified to the lowest possible taxon for each phylum.

A QA/QC procedure was performed on each of the sorted samples to ensure a 95% sorting efficiency. A 10% aliquot of a sample was re-sorted by a senior technician trained in the QA/QC procedure. The number of organisms found in the aliquot was divided by 10% and added to the total number found in the sample. The original total was divided by the new total to calculate the percent sorting efficiency. When the sorting efficiency of the sample was below 95%, the remainder of the sample (90%) was re-sorted.

Quality control of the taxonomic analysis was performed by a re-identification of 10% of the samples. Secondary QA was conducted by taxonomists other than those that conducted the primary taxonomic identifications. Both the primary and secondary taxonomists worked together to reconcile any discrepancies.

2.5 APPLICATION OF CALIFORNIA'S SEDIMENT QUALITY OBJECTIVES USING THE MULTIPLE LINES OF EVIDENCE APPROACH

Sediment quality from Marina del Rey Harbor was assessed using California's SQOs as described in the *Draft Staff Report, Water Quality Control Plan for Enclosed Bays and Estuaries* (State Water Resources Control Board [SWRCB] – California Environmental Protection Agency [Cal EPA], 2007). These SQOs are based on a multiple lines of evidence (MLOE) approach in which the lines of evidence (LOE) are sediment toxicity, sediment chemistry, and benthic community condition. The MLOE results were integrated through the evaluation of the severity of biological effects and the potential for chemically-mediated effects to provide a final station level assessment. The specific methods associated with each LOE and the integration of the MLOE are described in detail below.

2.5.1 Sediment Toxicity

The *E. estuarius* sediment toxicity test results from each station were statistically compared to control test results using the procedures described in section 2.3.1, normalized to the control survival, and categorized according to Table 3. The categories shown below were established based on thresholds using test-specific characteristics as described in detail by Bay et al. (2007). As shown in the table below, the categorization of data depends on whether or not the survival of *E. estuarius* from a project station is statistically significant from the survival of organisms in the control. For example, if survival of *E. estuarius* in project A sediment was 81% (of control survival), and was significantly different from the control survival using the statistics described above, then this sample would be categorized as *Moderate Toxicity*.

Table 3. Sediment toxicity categorization values for *Eohaustorius estuarius*

% Survival of *E. estuarius* in Project Sediment		
If Significantly Different than Control Survival	**If Not Significantly Different from Control**	**Category**
90 – 100	82 – 100	**Nontoxic**
82 – 89[1]	59 – 81[1]	**Low Toxicity**
59 – 81[1]		**Moderate Toxicity**
< 59[1]	< 59[1]	**High Toxicity**

[1] These values are % of control survival

2.5.2 Sediment Chemistry

2.5.2.1 California Logistic Regression Model

Results of chemicals detected in project sediment were compared to the California Logistic Regression Model (CA LRM) and the Chemical Score Index (CSI). The CA LRM is a maximum probability model (P_{MAX}) developed by Field et al. (2002). This model is based on individual chemical logistic regression models developed from a large data set where results of sediment chemistry were matched with toxicity data from the standard 10 day SP test with the amphipods *Ampelisca abdita* or *Rhepoxynius abronius*. Each regression model estimates the probability of observing toxicity at the concentration of a contaminant of concern (or a class of contaminants of concern) in field collected sediments. The CA LRM follows this equation: $p = e^{B0+B1\,(x)} / (1 + e^{B0+B1\,(x)})$. To use the CA LRM, concentrations of each contaminant are entered into the corresponding logistic regression model and a single probability for causing toxicity is determined for each contaminant. The individual contaminant with the highest probability for causing toxicity is the P_{MAX} value. The P_{MAX} value determined for each project area is compared to the values in Table 4 and categorized according to the associated exposures (minimal, low, moderate or high). For example, if the P_{MAX} is determined to be 0.64, then this would be categorized as a moderate exposure.

Table 4. Sediment Chemistry Guideline Categorization

Sediment Chemistry Guideline		
CA LRM	**CSI**	**Category**
<0.33	<1.69	**Minimal Exposure**
0.33 - 0.49	1.69 - 2.33	**Low Exposure**
0.50 - 0.66	2.34 - 2.99	**Moderate Exposure**
>0.66	>2.99	**High Exposure**

2.5.2.2 Chemical Score Index

The CSI was developed by Ritter et al. (2007) for the SQO program and is based on the relationship between sediment chemical concentration and benthic community disturbance to southern California benthic macrofauna. The CSI index is the weighted mean of benthic community category scores (cat) based on guidelines developed for 13 contaminants and weighting factors for each contaminant (w_i). CSI is measured by the following equation: $CSI = \sum(w_i \times cat) / \sum w_i$. The weighting factors for each contaminant were determined by Ritter et al. (2007), based on a statistical optimization procedure. The higher the weighting factor, the better the predictive accuracy of a chemical to indicate benthic community disturbance (as compared to other chemicals). In the CSI method, the benthic community disturbance category is determined by comparing the contaminant concentration to the values associated with the following guidelines: Reference (<Low guideline), Low Disturbance, Moderate Disturbance, and

High Disturbance (>High guideline). These guidelines are specified in Table 6 of Appendix A of the *Draft Staff Report* (SWRCB, 2007). The CSI is then calculated using the equation above and the resulting value compared to the values in Table 4 and categorized according to the associated exposures (minimal, low, moderate or high). For example, if the CSI is calculated to be 2.25, then this would be categorized as a low exposure.

2.5.2.3 Integration of Sediment Chemistry Categories

The final sediment LOE category is the average of the two chemistry exposure categories. If the average falls midway in between the two categories it is rounded up to the higher of the two. For example if the CA LRM is low exposure and the CSI is moderate exposure, then the final sediment LOE category is moderate exposure.

2.5.3 Benthic Community Condition

Benthic community condition was assessed using a combination of four benthic indices: the Benthic Response Index (BRI), Relative Benthic Index (RBI), Index of Biotic Integrity (IBI), and a predictive model based on the River Invertebrate Prediction and Classification System (RIVPACS). The four indices were calculated following the January 21, 2008 guidance provided by the SCCWRP entitled *Determining Benthic Invertebrate Community Condition in Embayments* for southern California marine bays. Each benthic index result was categorized according to four levels of disturbance, with conditions ranging from a reference condition to high disturbance.

- Reference: Equivalent to a least affected or unaffected site
- Low Disturbance: Some indication of stress is present, but is within measurement error of unaffected condition
- Moderate Disturbance: Clear evidence of physical, chemical, natural, or anthropogenic stress
- High Disturbance: High magnitude of stress

Specific categorization values, which were specifically tailored to southern California marine bays, were assigned for each index (Table 5). The final step in determining the benthic community condition was the integration of the four indices into a single category. In doing so, the median of the four benthic index response categories was computed to determine the benthic condition. If the median fell between two categories, the value was rounded to the next higher category to provide the most conservative estimate of benthic community condition.

Table 5. Benthic Index Categorization Values for Southern California Marine Bays

Benthic Community Guideline				
BRI	**IBI**	**RBI**	**RIVPACS**	**Index**
< 39.96	0	> 0.27	> 0.90 to < 1.10	**Reference**
39.96 to 49.14	1	0.17 to 0.27	0.75 to 0.90 or 1.10 to 1.25	**Low Disturbance**
49.15 to 73.26	2	0.09 to 0.16	0.33 to 0.74 or > 1.25	**Moderate Disturbance**
> 73.26	3 or 4	< 0.09	< 0.33	**High Disturbance**

A description of the methods used to calculate the four indices is provided as follows.

Benthic Response Index

The BRI is the 'abundance-weighted pollution tolerance score' of infaunal species, with scores increasing from 0 to 100 with greater levels of disturbance (Smith et al., 2001 and 2003). The BRI scores were calculated using the abundances of species and their respective pollution-tolerance values (P) as shown in the following formula:

$$\text{BRI} = \frac{\sum\left(\sqrt[4]{Abundance}\right)\times P}{\sum\sqrt[4]{Abundance}}$$

The BRI scores then were compared to categorization values to determine the community condition category of the sample, as shown in Table 5.

Relative Benthic Index

The RBI was calculated as the weighted sum of (a) four community parameters (total number of taxa, number of crustacean taxa, number of molluscan taxa, and number of crustacean individuals), (b) three positive indicator organisms, and (c) two negative indicator taxa. Positive indicator taxa included an amphipod (*Monocorphium insidiosum*), a bivalve (*Asthenothaerus diegensis*), and a polychaete (*Goniada littorea*), and negative indicator taxa included Oligochaeta and *Capitella capitata* complex.

Calculations were completed in five steps. First, community parameters were normalized relative to the maximum values of the data used in calculating the southern California marine bays RBI (i.e., the parameters were scaled). Normalization involved dividing total number of taxa by 99, number of crustacean taxa by 29, number of molluscan taxa by 28, and number of crustacean individuals by 1693 to calculated the scaled values. Second, the Taxa Richness Weighted Value (TWV) was calculated as:

TWV = Scaled total number of taxa + Scaled number of crustacean taxa +Scaled number of molluscan taxa + (0.25 x Scaled abundance of crustaceans).

Third, the value for the two negative indicator taxa (NIT) was determined by subtracting 0.1 for the presence of each negative taxon; therefore, NIT could be one of three values: zero (neither taxon was present), -0.1 (one taxon was present), and -0.2 (both taxa were present). Fourth, a value for the three positive indicator taxa (PIT) was calculated as follows using the abundances of *M. insidiosum* (*Mi*), *A. diegensis* (*Ai*) and *G. littorea* (*Gl*) in the following equation:

$$\text{PIT} = \frac{\sqrt[4]{Mi}}{\sqrt[4]{473}} + \frac{\sqrt[4]{Ad}}{\sqrt[4]{27}} + \frac{\sqrt[4]{Gl}}{\sqrt[4]{15}}$$

Next, the Raw RBI was calculated as:

Raw RBI = TWV + NIT + (2 x PIT).

Finally, the RBI Score was calculated by normalizing the Raw RBI by the minimum and maximum Raw RBI values from the index development data:

RBI Score = (Raw RBI – 0.03)/4.69

The RBI values were scaled from 0 to 1.0, with lower values indicative of higher levels of disturbance. Scores then were compared to categorization values to determine the community condition category of the sample (Table 5).

Index of Biotic Integrity

Determination of the IBI involved comparisons of four community measures (total number of taxa, number of molluscan taxa, abundance of *Notomastus* sp., percentage of sensitive taxa) to reference conditions for southern California marina bays (Table 6). For every metric that exceeded a reference condition, the IBI value was increased by a score of one; therefore, IBI values potentially range from 0 to 4, with lower values indicative of lower levels of disturbance (Table 5).

Table 6. Reference Ranges for IBI Metrics in Southern California Marine Bays

Metric	Reference
Total Number of Taxa	13 to 99
Number of Mollusc Taxa	2 to 25
Abundance of *Notomastus* sp.	0 to 59
Percentage of Sensitive Species	19 to 47.1

River Invertebrate Prediction and Classification System Index

The RIVPACS index was used to compare the sample assemblages (Observed) to reference species compositions (Expected) from a similar habitat. Calculation of the RIVPACS score involved three steps. (1) The probability of the test sample belonging to the 12 southern California marine bays reference sample groups was calculated. (2) The identity and expected number of reference species were determined based on the probabilities of group membership. (3) The observed number of reference species in the sample was totaled, and then the Observed/Expected RIVPACS score was calculated for comparisons to benthic community categorization values (Table 5).

2.6 INTEGRATION OF MULTIPLE LINES OF EVIDENCE

The station level assessment provides an indication of whether the aquatic life SQOs are being met at each station of interest. The station level assessment is based upon the severity of biological effects (i.e., integration of toxicity LOE and benthic condition LOE categories) and the potential for chemically-mediated effects (i.e., the integration of the toxicity LOE and chemistry LOE categories), using the decision matrices presented in Table 7 and Table 8, respectively.

Table 7. Severity of Biological Effects Category

Benthic Condition LOE Category	**Toxicity LOE Category**	**Severity of Biological Effects Category**
Reference	Nontoxic	**Unaffected**
Reference	Low Toxicity	**Unaffected**
Reference	Moderate Toxicity	**Unaffected**
Reference	High Toxicity	**Low Effect**
Low Disturbance	Nontoxic	**Unaffected**
Low Disturbance	Low Toxicity	**Low Effect**
Low Disturbance	Moderate Toxicity	**Low Effect**
Low Disturbance	High Toxicity	**Low Effect**
Moderate Disturbance	Nontoxic	**Moderate Effect**
Moderate Disturbance	Low Toxicity	**Moderate Effect**
Moderate Disturbance	Moderate Toxicity	**Moderate Effect**
Moderate Disturbance	High Toxicity	**Moderate Effect**
High Disturbance	Nontoxic	**Moderate Effect**
High Disturbance	Low Toxicity	**High Effect**
High Disturbance	Moderate Toxicity	**High Effect**
High Disturbance	High Toxicity	**High Effect**

Table 8. Potential for Chemically Mediated Effects Category

Sediment Chemistry Category	**Toxicity LOE Category**	**Potential for Chemically Mediated Effects Category**
Minimal Exposure	Nontoxic	**Minimal Potential**
Minimal Exposure	Low Toxicity	**Minimal Potential**
Minimal Exposure	Moderate Toxicity	**Low Potential**
Minimal Exposure	High Toxicity	**Moderate Potential**
Low Exposure	Nontoxic	**Minimal Potential**
Low Exposure	Low Toxicity	**Low Potential**
Low Exposure	Moderate Toxicity	**Moderate Potential**
Low Exposure	High Toxicity	**Moderate Potential**
Moderate Exposure	Nontoxic	**Low Potential**
Moderate Exposure	Low Toxicity	**Moderate Potential**
Moderate Exposure	Moderate Toxicity	**Moderate Potential**
Moderate Exposure	High Toxicity	**Moderate Potential**
High Exposure	Nontoxic	**Moderate Potential**
High Exposure	Low Toxicity	**Moderate Potential**
High Exposure	Moderate Toxicity	**High Potential**
High Exposure	High Toxicity	**High Potential**

2.6.1 Station Level Assessment

The station level assessment can be determined by combining the severity of biological effects category as shown in Table 9 with the potential for chemically-mediated effect category which results in one of six possible station level assessments including unimpacted, likely unimpacted, possibly impacted, likely impacted, clearly impacted, and inconclusive.

Table 9. Station Level Assessment Matrix

Severity of Biological Effects Category	**Potential for Chemically Mediated Effects Category**	**Station Level Assessment**
Unaffected	Minimal Potential	**Unimpacted**
Unaffected	Low Potential	**Unimpacted**
Unaffected	Moderate Potential	**Likely Unimpacted**
Unaffected	High Potential	**Inconclusive**
Low Effect	Minimal Potential	**Likely Unimpacted**
Low Effect	Low Potential	**Likely Unimpacted**
Low Effect	Moderate Potential	**Possibly Impacted or Inconclusive**
Low Effect	High Potential	**Likely Impacted**
Moderate Effect	Minimal Potential	**Likely Unimpacted**
Moderate Effect	Low Potential	**Possibly Impacted**
Moderate Effect	Moderate Potential	**Likely Impacted**
Moderate Effect	High Potential	**Clearly Impacted**
High Effect	Minimal Potential	**Inconclusive**
High Effect	Low Potential	**Possibly Impacted**
High Effect	Moderate Potential	**Likely Impacted**
High Effect	High Potential	**Clearly Impacted**

3. RESULTS

3.1 SAMPLE COLLECTION AND HANDLING

Field activities were conducted on September 17-20, 2007 within Marina del Rey Harbor. Sampling was typically conducted under clear to partly cloudy skies with light winds increasing throughout the day. The seas were calm within the harbor. All samples were collected as proposed in the SAP (Caltrans, 2006).

The vibracore sampling team collected two cores at each of the 23 pre-determined stations within Marina del Rey Harbor. All vibracore field coordinates, penetration depths, water depths, final core length and core length retained for analyses are summarized in Table 10. Recent bathymetry was not available; therefore deeper cores were collected to ensure the native layer was captured within the sample. After the collection of the first vibracore sample at a given location, a California Professional Geologist examined and logged the core to evaluate acceptability and identify and document the post-construction deposition interface depth. Once it was determined that sufficient recovery had been obtained, the core was processed as described above. Vibracore logs are included in Appendix A; core photos are included in Appendix B.

Surface sediment samples were collected using a double Van Veen grab sampler as described in Section 2.1.4.1. Van Veen station field coordinates, penetration depths, water depths, color, odor, and grab acceptability data are summarized in Table 11.

Table 10. Vibracore stations, water depth, penetration depth, core length, core length used in analyses, and station location.

Station ID	Date	Time	Attempt	Water depth (ft)	MLLW (ft)	Penetration (ft)	Final core length (ft)	Core length to pre-dredge depth and retained for analysis (ft)	Latitude	Longitude
MC-3	9/17/2007	13:45	1	20	15.4	8	6	3.5	33° 58.516	-118° 26.887
MC-4	9/17/2007	15:31	1	20.5	16.7	8	5	1.5	33° 58.351	-118° 26.904
MC-2	9/17/2007	16:55	1	15.6	12.7	4	3	2	33° 58.672	-118° 26.880
MC-5	9/18/2007	8:09	1	24.9	21	7.5	3.5	2.3	33° 58.130	-118° 26.897
MC-1	9/18/2007	9:55	1	15	10.7	7	5.5	2.5	33° 58.834	-118° 26.882
F-1	9/18/2007	11:10	1	15.2	10.7	7	5.5	2.2	33° 58.913	-118° 26.717
E-1	9/18/2007	13:55	1	16.8	12.3	6	3.2	1.5	33° 58.966	-118° 26.942
E-2	9/18/2007	14:50	1	16	11.7	7	0.0	no recovery	33° 58.979	-118° 27.067
E-2	9/18/2007	15:14	2	16	11.8	5	3	1.7	33° 58.979	-118° 27.067
E-3	9/18/2007	16:49	1	15.8	11.8	4.5	3	1.7	33° 58.975	-118° 27.211
E-4	9/18/2007	16:58	1	0	-3.5	2	1.5	1	33° 58.972	-118° 27.357
D-1	9/19/2007	8:00	1	13.7	10.4	6	4.9	1	33° 58.821	-118° 27.004
D-2	9/19/2007	9:05	1	13.7	10.1	6	4.2	0.75	33° 58.823	-118° 27.229
D-3	9/19/2007	10:10	1	15.1	11.3	7	5	1.3	33° 58.829	-118° 27.392
C-1	9/19/2007	11:10	1	15.4	11.3	5	3.9	0.9	33° 58.664	-118° 27.074
C-2	9/19/2007	13:15	1	15	10.6	6	4	0.75	33° 58.666	-118° 27.316
B-1	9/19/2007	14:10	1	18.3	13.9	7	5.4	2	33° 58.509	-118° 27.076
B-2	9/19/2007	15:15	1	16.8	12.4	7	5.6	1	33° 58.509	-118° 27.306
H-2	9/19/2007	16:40	1	15.5	11.4	7	6	1	33° 58.629	-118° 26.579
G-2	9/20/2007	7:45	1	15.8	12.3	6	5.1	2	33° 58.802	-118° 26.567
G-1	9/20/2007	8:50	1	14.9	11.4	6	4.8	1	33° 58.730	-118° 26.713
A-2	9/20/2007	10:00	1	15	11.5	6.5	4.3	0.3	33° 58.351	-118° 27.251
A-1	9/20/2007	10:55	1	16.7	13.1	6	5.7	1.8	33° 58.349	-118° 27.070
H-1	9/20/2007	12:00	1	15	11.3	6.5	5	0.8	33° 58.561	-118° 26.720

Table 11. Surface sediment station names, water depth, sample type, penetration depth, acceptability, color, odor, and station location.

Station ID	Date	Time	Attempt	Water depth (ft)	Sample Type: Infauna = I, Chemistry = C, Toxicity = T	Penetration Depth (cm) of Double Van Veen (V V1/ V V2)	Grade: Good (G), Fair (F), Poor (P)	Color	Odor	Latitude	Longitude
H-2	9/17/2007	13:45	1	15.0	I, C	17/ 17	G	Gray Green	None	33.58.637	118.26.547
H-2	9/17/2007	14:15	2	14.4	T	18/ 18	G	Gray Green	None	33.58.640	118.26.548
MC-2	9/17/2007	15:50	1	14.9	T	19/ 19	G	Gray Green	None	33.58.674	118.26.885
MC-2	9/17/2007	16:22	2	14.9	C, I, T	19/ 19	G	Gray Green	None	33.58.673	118.26.884
MC-1	9/17/2007	16:40	1	12.7	C, I, T	19/ 19	G	Gray Green	None	33.58.828	118.26.886
MC-1	9/17/2007	16:50	2	12.9	C, I, T	19/ 19	G	Gray Green	None	33.58.829	118.26.887
F-1	9/17/2007	17:20	1	12.3	C, I, T	19/ 19	G	Gray Green	None	33.58.910	118.26.716
F-1	9/17/2007	17:35	2	12.4	C, I, T	19/ 19	G	Gray Green	None	33.58.907	118.26.716
MC-5	9/18/2007	7:50	1	23.5	C, I, T	19/ 19	G	Gray Green	None	33.58.118	118.26.908
MC-5	9/18/2007	8:10	2	23.5	C, I, T	19/ 19	G	Gray Green	None	33.58.116	118.26.908
MC-3	9/18/2007	9:00	1	17.4	C, I, T	19/ 12	G	Gray Green	None	33.58.517	118.26.891
MC-3	9/18/2007	9:15	2	17.9	C, I, T	19/ 19	G	Gray Green	None	33.58.513	118.26.890
E-1	9/18/2007	9:45	1	14.4	C, I, T	19/ 19	G	Gray Green	None	33.58.961	118.26.945
E-1	9/18/2007	10:00	2	14.9	C, I, T	19/ 19	G	Gray Green	None	33.58.961	118.26.942
G-2	9/18/2007	10:45	1	15.1	C, I, T	19/ 19	G	Gray Green	None	33.58.801	118.26.575
G-2	9/18/2007	11:45	2	14.9	C, I, T	19/ 19	G	Gray Green	None	33.58.797	118.26.574
C-2	9/18/2007	12:10	1	14.9	C, I, T	19/ 19	G	Gray Green	None	33.58.664	118.27.315
C-2	9/18/2007	12:45	2	14.0	C, I, T	19/ 16	G	Gray Green	None	33.58.666	118.27.317
B-2	9/18/2007	14:17	1	15.4	C, I, T	19/ 19	G	Gray Green	None	33.58.506	118.27.306
B-2	9/18/2007	14:29	2	14.9	C, I, T	19/ 19	G	Gray Green	None	33.58.505	118.27.304
A-2	9/18/2007	15:00	1	14.9	C, I, T	19/ 19	G	Gray Green	None	33.58.352	118.27.254
A-2	9/18/2007	15:10	2	14.5	C, I, T	19/ 19	G	Gray Green	None	33.58.351	118.27.255
MC-4	9/18/2007	15:30	1	19.5	C, I, T	19/ 19	G	Gray Green	None	33.58.357	118.26.890
MC-4	9/18/2007	15:45	2	20	C, I, T	19/ 19	G	Gray Green	None	33.58.355	118.26.891
E-3	9/19/2007	8:00	1	13.8	C, I, T	19/ 19	G	Gray Green	None	33.58.981	118.27.212
E-3	9/19/2007	8:15	2	13.9	C, I, T	19/ 19	G	Gray Green	None	33.58.980	118.27.211
E-4	9/19/2007	8:45	1	14.8	C, I, T	19/ 19	G	Gray Green	None	33.58.974	118.27.355
E-4	9/19/2007	9:00	2	13.9	C, I, T	19/ 19	G	Gray Green	None	33.58.970	118.27.353
D-3	9/19/2007	9:45	1	12.5	C, I, T	19/ 19	G	Gray Green	None	33.58.818	118.27.399
D-3	9/19/2007	9:55	2	12.6	C, I, T	19/ 19	G	Gray Green	None	33.58.817	118.27.229
D-2	9/19/2007	10:15	1	12.6	C, I, T	19/ 19	G	Gray Green	None	33.58.823	118.27.229
D-2	9/19/2007	10:30	2	12.5	C, I, T	19/ 19	G	Gray Green	None	33.58.825	118.27.228

3.2 RESULTS OF SEDIMENT CHEMISTRY

Chemical analyses were performed on surficial sediments (0-2 cm) collected using a Van Veen grab sampler and on Top (0-10 cm) and Bottom (11 cm- project depth) core samples that were collected using an electric vibracore. Physical analysis of grain size distributions for each Van Veen and vibracore (Top and Bottom) sample was also performed.

3.2.1 Surface chemistry results from 16 Van Veen sampling locations

Surficial sediment collected using a Van Veen grab sampler was analyzed for metals, aroclor PCBs, PCB congeners, and chlorinated pesticides. Analyses of surficial samples were performed on the upper 0-2cm of material collected at each of 16 designated sampling locations. The effect range-low (ER-L) and effect range-median (ER-M) sediment quality values developed by Long et al., (1995) are included in Table 12 for comparative purposes only. Briefly, these values were developed from a large data set where results of both sediment bioassays (e.g., amphipod tests) and chemical analyses were available for individual samples. For each chemical, data were arranged in order of increasing concentration. Samples which showed no toxicity were excluded. The ER-L and the ER-M were then calculated as the lower 10^{th} and 50^{th} percentile, respectively, of the observed effects concentrations. While these values are useful in identifying elevated sediment-associated contaminants, they should not be used to infer toxicity because of the inherent variability and uncertainty of the approach.

For certain pesticide compounds (dieldrin and chlordane, for example) the ER-L (0.02 ng/dry g and 0.5 ng/dry g, respectively) and ER-M (8 ng/dry g and 6 ng/dry g, respectively) levels are so low as to make it largely impractical to detect them in typical harbor sediments using routine analytical procedures. Accordingly, having non-detect results that are greater than the ER-L or ER-M would not indicate these results as exceedances. The total threshold limit concentration (TTLC) of each target analyte is also provided in Table 12. TTLC values indicate the concentration at which target analytes would be classified as hazardous waste under Title 26 of the California Code of Regulations.

Test Sample Chemistry

Across all sample locations, several analytes exceeded ER-L and/or ER-M sediment quality values. Analytes detected above ER-M values included the copper, zinc, total detectable chlordane, total detectable dichlorodiphenyltrichloroethane (DDT), and total detectable PCBs. No analyte concentrations exceeded the TTLC at any of the sample locations.

Metals

In general the metals copper, lead, and zinc were detected at concentrations above the ER-L at most locations. Copper concentrations ranged from 136.7 µg/dry g to 433.6 µg/dry g and exceeded the ER-L at 16 of 16 sites (100%). The ER-M value of 270 µg/dry g for copper was exceeded at 7 of 16 sites (44%). None of the sites located in the Main Channel had copper concentrations above the ER-M. Lead concentrations (43.10 µg/dry g to 123.0 µg/dry g) were above the ER-L at all 16 sites, but did not exceed the ER-M at any site. Zinc concentrations ranged from 162.8 µg/dry g to 452.1 µg/dry g and were detected above the ER-L at every site. The ER-M for zinc was exceeded at site E-3.

Polychlorinated Biphenyls

Both aroclor groupings of PCBs and individual PCB congeners were analyzed. Aroclor 1254 was detected at every site and ranged in concentration from 13.50 ng/dry g to 40.10 ng/dry g. Aroclor 1260 was detected at 4 of 16 sites (25%), ranging in concentration from less than 10.00 ng/dry g at most sites to

40.30 ng/dry g at site C-2. Aroclor 1242 was also detected at C-2 at a concentration above the MDL but below the method reporting limit (MRL). No other aroclors were detected.

Site MC-1 had the highest concentration of total detectable PCB congeners (189.9 ng/ dry g), which slightly exceeded the total PCB ER-M value of 180 ng/dry g. All other sites, with the exception of site A-2, exceeded the ER-L for total detectable PCBs, but did not exceed the ER-M. The highest concentration of any individual PCB was PCB 119, detected at a concentration of 64.00 ng/dry g at site MC-1 located at the back of the Main Channel.

Chlorinated Pesticides

The chlorinated pesticides 4,4'-DDD and 4,4'-DDE were detected above ER-L values in 50 percent and 81 percent of samples, respectively. The ER-M value for total detectable DDTs was exceeded at site E-1 while total detectable DDT ER-L values were exceeded at all sites. Aside from DDTs, Total detectable chlordane was the only other chlorinated pesticide measured above reporting limits at any site location. Total detectable chlordane was measured above the ER-L at 13 of 16 sample locations and was measured above the ER-M at 5 of 16 site locations, 4 of which were in the Main Channel.

Table 12. Van Veen Surficial (top 2 cm) Grab Chemistry

Analyte	Units	ERL	ERM	TTLC	A-2	B-2	C-2	D-2	D-3	E-1	E-3	E-4	F-1	G-2	H-2	MC-1	MC-2	MC-3	MC-4	MC-5
Total Organic Carbon	%				1.18	2.46	1.32	1.11	1.76	1.33	2.16	1.74	1.85	1.86	0.80	1.46	1.39	2.28	1.42	3.35
Chlorinated Pesticides																				
2,4'-DDD	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	1.600J	<1.000	<1.000	<1.000	<1.000	1.400J	1.400J	1.600J	<1.000	<1.000	<1.000
2,4'-DDE	ng/dry g	.	.	.	<1.000	1.200J	<1.000	1.400J	<1.000	1.800J	2.300J	1.100J	1.100J	1.200J	<1.000	2.300J	1.800J	4.600J	1.600J	<1.000
2,4'-DDT	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
4,4'-DDD	ng/dry g	2	20	.	3.000J	<1.000	1.300J	1.200J	<1.000	14.700	8.200	5.400	11.100	3.700J	7.400	9.600	11.000	7.100	3.800J	<1.000
4,4'-DDE	ng/dry g	2.2	27	.	7.000	14.700	13.600	13.700	9.000	32.500	26.000	20.400	28.100	21.700	14.100	17.800	27.600	19.900	19.100	24.500
4,4'-DDT	ng/dry g	1	7	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	3.200J	<1.000	<1.000	2.600J	<1.000	<1.000	<1.000
Aldrin	ng/dry g	.	.	1400	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
BHC-alpha	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
BHC-beta	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
BHC-delta	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
BHC-gamma	ng/dry g	.	.	4000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
Chlordane-alpha	ng/dry g	.	.	.	<1.000	1.100J	<1.000	<1.000	<1.000	2.200J	<1.000	1.400J	1.300J	1.800J	<1.000	1.100J	2.600J	3.600J	3.100J	4.500J
Chlordane-gamma	ng/dry g	.	.	.	<1.000	1.500J	<1.000	<1.000	<1.000	2.100J	<1.000	1.300J	1.200J	1.400J	<1.000	<1.000	2.700J	3.900J	3.200J	5.900
cis-Nonachlor	ng/dry g	.	.	.	1.600J	1.900J	<1.000	1.100J	1.300J	<1.000	<1.000	1.100J	1.600J	2.000J	<1.000	<1.000	2.700J	5.800	2.800J	4.800J
Dieldrin	ng/dry g	0.02	8	8000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
Endosulfan Sulfate	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
Endosulfan-I	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
Endosulfan-II	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
Endrin	ng/dry g	.	.	200	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
Endrin Aldehyde	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
Endrin Ketone	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
Heptachlor	ng/dry g	.	.	4700	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
Heptachlor Epoxide	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
Methoxychlor	ng/dry g	.	.	100000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
Mirex	ng/dry g	.	.	21000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
Oxychlordane	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
Perthane	ng/dry g	.	.	.	<5.000	<5.000	<5.000	<5.000	<5.000	<5.000	<5.000	<5.000	<5.000	<5.000	<5.000	<5.000	<5.000	<5.000	<5.000	<5.000
Total Detectable Chlordane	ng/dry g	0.5	6	2500	1.600	5.600	ND	1.100	1.300	5.500	ND	3.800	5.200	6.400	ND	1.100	10.300	15.400	11.400	21.400
Total Detectable DDTs	ng/dry g	1.58	46.1	.	10.000	15.900	14.900	16.300	9.000	50.600	36.500	26.900	40.300	29.800	22.900	31.100	44.600	31.600	24.500	24.500
Toxaphene	ng/dry g	.	.	5000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000
trans-Nonachlor	ng/dry g	.	.	.	<1.000	1.100J	<1.000	<1.000	<1.000	1.200J	<1.000	<1.000	1.100J	1.200J	<1.000	<1.000	2.300J	2.100J	2.300J	6.200
Metals																				
Copper (Cu)	µg/dry g	34	270	2500	154.600	376.300	251.900	311.100	418.800	286.900	433.600	209.200	382.000	331.700	137.000	221.200	184.500	232.000	136.700	146.400
Lead (Pb)	µg/dry g	46.7	218	1000	71.170	116.900	64.700	60.620	68.780	63.230	98.730	55.060	95.540	105.200	43.100	65.850	62.070	97.840	74.460	123.000
Zinc (Zn)	µg/dry g	150	410	5000	184.500	404.500	286.700	298.100	368.900	293.700	452.100	295.800	384.500	323.500	162.800	246.900	219.600	301.000	204.100	309.000
Aroclors																				
Aroclor 1016	ng/dry g	.	.	.	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000
Aroclor 1221	ng/dry g	.	.	.	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000
Aroclor 1232	ng/dry g	.	.	.	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000
Aroclor 1242	ng/dry g	.	.	.	<10.000	<10.000	16.600J	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000
Aroclor 1248	ng/dry g	.	.	.	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000
Aroclor 1254	ng/dry g	.	.	.	20.200	34.400	37.100	20.300	19.100J	20.300	40.100	20.800	31.100	25.700	13.500J	21.300	33.300	29.400	17.200J	38.800
Aroclor 1260	ng/dry g	.	.	.	40.100	<10.000	40.300	<10.000	<10.000	<10.000	30.600	<10.000	<10.000	<10.000	<10.000	14.300J	<10.000	<10.000	<10.000	<10.000
PCB Congeners																				
PCB008	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
PCB128	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	1.800J	<1.000	<1.000	<1.000	<1.000
PCB167	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	1.300J	<1.000	<1.000	<1.000	<1.000
PCB195	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	2.900J	<1.000	<1.000	<1.000	<1.000
PCB209	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	1.100J	<1.000	<1.000	<1.000	<1.000
PCB018	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
PCB028	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
PCB031	ng/dry g	.	.	.	<1.000	<1.000	1.900J	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
PCB033	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
PCB037	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000

Analyte	Units	ERL	ERM	TTLC	A-2	B-2	C-2	D-2	D-3	E-1	E-3	E-4	F-1	G-2	H-2	MC-1	MC-2	MC-3	MC-4	MC-5
PCB044	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	1.500J	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
PCB049	ng/dry g	.	.	.	1.000J	<1.000	<1.000	<1.000	<1.000	2.100J	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
PCB052	ng/dry g	.	.	.	<1.000	1.600J	3.100J	2.500J	<1.000	<1.000	<1.000	1.000J	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
PCB066	ng/dry g	.	.	.	<1.000	2.100J	3.600J	2.600J	1.000J	<1.000	2.900J	3.400J	3.400J	2.700J	1.200J	1.000J	3.400J	1.400J	3.000J	1.900J
PCB070	ng/dry g	.	.	.	<1.000	<1.000	2.200J	2.400J	<1.000	2.100J	<1.000	<1.000	1.200J	<1.000	<1.000	2.000J	<1.000	<1.000	<1.000	<1.000
PCB074	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	1.400J	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	1.400J	<1.000	<1.000
PCB077	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	1.000J	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
PCB081	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
PCB087	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
PCB095	ng/dry g	.	.	.	1.200J	4.200J	3.800J	2.200J	1.900J	2.200J	3.200J	2.800J	2.300J	3.100J	1.000J	2.000J	3.400J	2.000J	2.800J	2.000J
PCB097	ng/dry g	.	.	.	<1.000	1.200J	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
PCB099	ng/dry g	.	.	.	2.200J	3.700J	4.400J	3.000J	1.100J	2.400J	3.100J	1.400J	3.300J	3.000J	1.600J	1.500J	1.800J	2.900J	2.100J	3.600J
PCB101	ng/dry g	.	.	.	1.600J	4.600J	4.500J	3.800J	3.700J	3.100J	4.400J	3.900J	3.900J	4.900J	1.700J	2.100J	4.500J	1.500J	4.900J	5.100
PCB105	ng/dry g	.	.	.	<1.000	<1.000	1.600J	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	2.100J	<1.000	<1.000	<1.000	<1.000
PCB110	ng/dry g	.	.	.	2.500J	4.200J	4.600J	2.500J	2.300J	2.500J	4.900J	2.600J	3.800J	3.200J	1.700J	2.600J	4.100J	3.600J	2.100J	4.800J
PCB114	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
PCB118	ng/dry g	.	.	.	1.200J	3.100J	4.400J	4.900J	4.000J	2.500J	1.000J	1.500J	3.800J	4.900J	1.100J	1.600J	4.200J	3.800J	3.400J	4.600J
PCB119	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	64.000	<1.000	<1.000	<1.000	<1.000
PCB123	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	1.500J	<1.000	<1.000	<1.000	<1.000
PCB126	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	1.000J	1.200J	<1.000	<1.000	<1.000
PCB138	ng/dry g	.	.	.	<1.000	5.400	5.300	9.300	4.300J	5.400	3.400J	2.200J	7.900	6.200	2.700J	4.900J	3.100J	4.200J	4.000J	6.300
PCB141	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
PCB149	ng/dry g	.	.	.	1.800J	3.700J	3.700J	4.300J	3.200J	3.500J	4.200J	2.900J	3.800J	2.800J	1.100J	2.300J	4.800J	3.600J	3.200J	3.900J
PCB151	ng/dry g	.	.	.	<1.000	1.700J	<1.000	1.400J	1.000J	<1.000	1.000J	<1.000	<1.000	1.200J	<1.000	<1.000	<1.000	1.000J	<1.000	<1.000
PCB153	ng/dry g	.	.	.	<1.000	3.700J	6.600	4.600J	3.100J	3.700J	3.900J	<1.000	4.900J	5.400	2.500J	<1.000	3.500J	4.400J	3.300J	4.700J
PCB156	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	1.600J	<1.000	<1.000	2.200J	<1.000	<1.000	<1.000	<1.000
PCB157	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	1.100J	<1.000	<1.000	<1.000	<1.000
PCB158	ng/dry g	.	.	.	<1.000	<1.000	<1.000	5.400	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
PCB168+132	ng/dry g	.	.	.	<1.000	2.100J	3.000J	1.200J	<1.000	<1.000	<1.000	<1.000	1.800J	1.800J	<1.000	3.800J	1.200J	<1.000	<1.000	<1.000
PCB169	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	7.300	7.700	<1.000	<1.000	<1.000
PCB170	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
PCB177	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	2.000J	<1.000	1.600J	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
PCB180	ng/dry g	.	.	.	<1.000	3.400J	2.700J	5.900	<1.000	<1.000	4.100J	1.500J	3.900J	4.300J	<1.000	<1.000	2.200J	4.500J	5.500	9.400
PCB183	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	1.400J	<1.000	<1.000	1.800J	1.500J
PCB187	ng/dry g	.	.	.	1.000J	2.900J	1.800J	2.400J	2.600J	1.700J	2.300J	1.900J	<1.000	2.600J	<1.000	1.000J	1.500J	1.300J	2.200J	2.600J
PCB189	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	2.400J	<1.000	<1.000	<1.000	<1.000
PCB194	ng/dry g	.	.	.	5.000	<1.000	5.000	<1.000	<1.000	<1.000	3.800J	<1.000	<1.000	<1.000	<1.000	1.800J	<1.000	<1.000	<1.000	<1.000
PCB200	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	1.100J	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
PCB201	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
PCB206	ng/dry g	.	.	.	<1.000	<1.000	3.500J	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	1.300J	<1.000	<1.000	<1.000	<1.000
Total Detectable PCBs	ng/dry g	**22.7**	**180**	**50000**	17.500	**47.600**	**65.700**	**58.400**	**29.600**	**33.300**	**44.200**	**26.600**	**47.200**	**46.100**	**14.600**	**189.900**	**46.600**	**35.600**	**38.300**	**50.400**

ER-L exceedance is denoted by bold values.
ER-M exceedance is denoted by bold and underlined values.
Values followed by a J are below reporting limits.
Non-detectable totals noted by ND.

Table 13. Core Chemistry

Analyte	Units	ERL	ERM	TTLC	A-1 TOP	A-1 BOTTOM	A-2 TOP	B-1 TOP	B-1 BOTTOM	B-2 TOP	B-2 BOTTOM	C-1 TOP	C-1 BOTTOM	C-2 TOP	C-2 BOTTOM	D-1 TOP	D-1 BOTTOM	D-2 TOP	D-2 BOTTOM
Total Organic Carbon	%																		
					1.66	1.48	0.95	2.19	1.8	0.77	0.70	0.91	0.70	0.74	0.26	0.70	0.41	0.58	0.34
Chlorinated Pesticides																			
2,4'-DDD	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	1.700J	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	1.600J	3.200J	<1.000	1.100J
2,4'-DDE	ng/dry g	.	.	.	3.500J	1.200J	1.900J	2.700J	3.500J	<1.000	<1.000	<1.000	1.500J	1.000J	<1.000	2.100J	1.200J	<1.000	<1.000
2,4'-DDT	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
4,4'-DDD	ng/dry g	2.00	20.00	.	6.9	2.200J	1.900J	4.600J	3.700J	<1.000	<1.000	1.800J	1.300J	<1.000	<1.000	5.3	10.2	1.600J	3.400J
4,4'-DDE	ng/dry g	2.20	27.00	.	31.5	13.3	20.5	30.8	32.1	2.500J	1.500J	16.2	13.2	11.7	3.100J	24	16.3	10.8	9.3
4,4'-DDT	ng/dry g	1.00	7.00	.	<1.000	<1.000	<1.000	<1.000	<1.000	2.300J	2.100J	<1.000	<1.000	2.300J	<1.000	2.800J	2.100J	<1.000	3.000J
Aldrin	ng/dry g	.	.	1400	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
BHC-alpha	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
BHC-beta	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
BHC-delta	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
BHC-gamma	ng/dry g	.	.	4000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
Chlordane-alpha	ng/dry g	.	.	.	2.600J	<1.000	<1.000	2.900J	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
Chlordane-gamma	ng/dry g	.	.	.	4.600J	1.100J	1.100J	3.800J	1.900J	<1.000	<1.000	1.300J	1.000J	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
cis-Nonachlor	ng/dry g	.	.	.	3.100J	<1.000	1.100J	3.000J	1.900J	<1.000	<1.000	<1.000	1.000J	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
Dieldrin	ng/dry g	0.02	8.00	8000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
Endosulfan Sulfate	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
Endosulfan-I	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	4.500J	<1.000	<1.000	<1.000	<1.000	<1.000	5.200	<1.000
Endosulfan-II	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
Endrin	ng/dry g	.	.	200	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
Endrin Aldehyde	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
Endrin Ketone	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
Heptachlor	ng/dry g	.	.	4700	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
Heptachlor Epoxide	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
Methoxychlor	ng/dry g	.	.	100000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
Mirex	ng/dry g	.	.	21000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
Oxychlordane	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
Perthane	ng/dry g	.	.	.	<5.000	<5.000	<5.000	<5.000	<5.000	<5.000	<5.000	<5.000	<5.000	<5.000	<5.000	<5.000	<5.000	<5.000	<5.000
Total Detectable Chlordane	ng/dry g	0.50	6.00	2500	12.7	1.1	2.2	12.1	3.8	ND	ND	1.3	2	ND	ND	ND	ND	ND	ND
Total Detectable DDTs	ng/dry g	1.58	46.10	.	41.9	16.7	24.3	38.1	41	4.8	3.6	18	16	15	3.1	35.8	33	12.4	16.8
Toxaphene	ng/dry g	.	.	5000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000
trans-Nonachlor	ng/dry g	.	.	.	2.400J	<1.000	<1.000	2.400J	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
Metals																			
Copper (Cu)	µg/dry g	34.00	270.00	2500	170.8	89.38	106.6	307	145.4	21.65	21.89	177.8	157.8	98.46	21.34	115.9	33.69	130.8	30.52
Lead (Pb)	µg/dry g	46.70	218.00	1000	126.100	61.060	73.350	146.400	93.050	9.279	11.420	80.130	64.330	35.260	7.867	39.430	12.550	39.170	11.370
Zinc (Zn)	µg/dry g	150.00	410.00	5000	228.8	152	150.2	324.3	193.1	49.55	55.37	197.6	151.2	131.3	40.76	149.2	65.47	148	59.27
Aroclors																			
Aroclor 1016	ng/dry g	.	.	.	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000
Aroclor 1221	ng/dry g	.	.	.	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000
Aroclor 1232	ng/dry g	.	.	.	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000
Aroclor 1242	ng/dry g	.	.	.	<10.000	<10.000	<10.000	<10.000	13.000J	<10.000	<10.000	<10.000	<10.000	13.400J	<10.000	<10.000	<10.000	<10.000	<10.000
Aroclor 1248	ng/dry g	.	.	.	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000
Aroclor 1254	ng/dry g	.	.	.	32.700	16.900J	26.300	49.700	39.900	<10.000	<10.000	24.600	21.900	19.500J	<10.000	23.900	<10.000	19.900J	<10.000
Aroclor 1260	ng/dry g	.	.	.	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000
PCB Congeners																			
PCB008	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	1.200J	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
PCB128	ng/dry g	.	.	.	<1.000	<1.000	<1.000	7.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
PCB167	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
PCB195	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
PCB209	ng/dry g	.	.	.	1.300J	<1.000	<1.000	1.600J	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
PCB018	ng/dry g	.	.	.	2.300J	<1.000	<1.000	1.600J	<1.000	<1.000	<1.000	<1.000	4.300J	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
PCB028	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
PCB031	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	1.100J	<1.000	<1.000	<1.000	<1.000	<1.000
PCB033	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	1.500J	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000

Analyte	Units	ERL	ERM	TTLC	A-1 TOP	A-1 BOTTOM	A-2 TOP	B-1 TOP	B-1 BOTTOM	B-2 TOP	B-2 BOTTOM	C-1 TOP	C-1 BOTTOM	C-2 TOP	C-2 BOTTOM	D-1 TOP	D-1 BOTTOM	D-2 TOP	D-2 BOTTOM
PCB037	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
PCB044	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	2.200J	<1.000	<1.000	<1.000	<1.000	1.100J	<1.000	1.000J	<1.000	<1.000	<1.000
PCB049	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	1.900J	1.600J	<1.000	2.000J	<1.000	1.600J	<1.000
PCB052	ng/dry g	.	.	.	1.700J	1.000J	<1.000	<1.000	1.300J	<1.000	<1.000	4.000J	<1.000	1.100J	<1.000	<1.000	<1.000	<1.000	<1.000
PCB066	ng/dry g	.	.	.	3.300J	<1.000	1.900J	3.400J	3.200J	<1.000	<1.000	1.800J	3.100J	2.100J	<1.000	2.700J	<1.000	2.000J	<1.000
PCB070	ng/dry g	.	.	.	2.700J	<1.000	1.600J	2.000J	1.700J	<1.000	<1.000	1.000J	2.300J	1.600J	<1.000	1.300J	<1.000	1.200J	<1.000
PCB074	ng/dry g	.	.	.	1.100J	<1.000	<1.000	1.200J	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
PCB077	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
PCB081	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
PCB087	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	2.500J	<1.000	<1.000	<1.000	1.300J	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
PCB095	ng/dry g	.	.	.	3.800J	1.400J	2.400J	5.500	4.500J	<1.000	<1.000	2.800J	2.400J	2.000J	<1.000	2.300J	<1.000	2.000J	1.100J
PCB097	ng/dry g	.	.	.	<1.000	<1.000	<1.000	2.700J	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
PCB099	ng/dry g	.	.	.	3.200J	<1.000	2.100J	3.500J	3.700J	<1.000	<1.000	1.800J	2.400J	2.400J	<1.000	2.500J	1.000J	2.600J	<1.000
PCB101	ng/dry g	.	.	.	7.100	2.200J	3.800J	10.100	7.000	<1.000	<1.000	3.700J	3.300J	3.400J	1.100J	3.400J	<1.000	3.100J	1.600J
PCB105	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
PCB110	ng/dry g	.	.	.	4.000J	2.100J	3.200J	6.100	4.900J	<1.000	<1.000	3.000J	2.700J	2.400J	<1.000	2.900J	<1.000	2.400J	1.500J
PCB114	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	4.900J	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
PCB118	ng/dry g	.	.	.	3.300J	1.100J	2.300J	3.700J	3.600J	<1.000	<1.000	2.300J	2.500J	1.900J	<1.000	2.200J	<1.000	2.600J	<1.000
PCB119	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
PCB123	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	2.300J	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
PCB126	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
PCB138	ng/dry g	.	.	.	3.300J	<1.000	6.500	7.700	5.500	<1.000	<1.000	2.400J	4.000J	2.200J	1.300J	3.800J	<1.000	2.200J	1.400J
PCB141	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
PCB149	ng/dry g	.	.	.	4.900J	2.100J	2.900J	6.000	5.500	<1.000	<1.000	3.100J	2.600J	2.200J	<1.000	2.400J	<1.000	2.100J	<1.000
PCB151	ng/dry g	.	.	.	<1.000	<1.000	1.100J	2.600J	1.800J	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
PCB153	ng/dry g	.	.	.	6.900	2.300J	2.600J	8.000	7.000	<1.000	<1.000	4.900J	2.800J	2.900J	<1.000	2.400J	<1.000	2.700J	<1.000
PCB156	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
PCB157	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
PCB158	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
PCB168+132	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	2.200J	2.300J	<1.000	<1.000	<1.000	<1.000	1.100J	<1.000
PCB169	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	5.000	<1.000
PCB170	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	1.900J	<1.000	<1.000	<1.000	2.300J	<1.000
PCB177	ng/dry g	.	.	.	2.400J	<1.000	1.000J	3.300J	1.900J	<1.000	<1.000	1.100J	1.100J	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
PCB180	ng/dry g	.	.	.	4.400J	2.400J	1.200J	7.000	2.800J	<1.000	<1.000	3.300J	3.000J	1.800J	<1.000	2.000J	<1.000	1.300J	<1.000
PCB183	ng/dry g	.	.	.	1.200J	<1.000	<1.000	1.500J	1.500J	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
PCB187	ng/dry g	.	.	.	3.300J	1.000J	1.300J	3.600J	3.200J	<1.000	<1.000	1.600J	1.600J	<1.000	<1.000	1.100J	<1.000	1.000J	<1.000
PCB189	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
PCB194	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
PCB200	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
PCB201	ng/dry g	.	.	.	<1.000	<1.000	<1.000	1.000J	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
PCB206	ng/dry g	.	.	.	1.800J	<1.000	<1.000	2.700J	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
Total Detectable PCBs	ng/dry g	**22.70**	**180.00**	**50000**	**62**	15.6	**33.9**	**91.8**	**65.3**	ND	ND	**47.4**	**43.6**	**31.7**	2.4	**32**	1	**35.2**	5.6

ER-L exceedance is denoted by bold values.
ER-M exceedance is denoted by bold and underlined values.
Values followed by a J are below reporting limits.
Non-detectable totals noted by ND.

Table 13. Continued.

Analyte	Units	ERL	ERM	TTLC	D-3 TOP	D-3 BOTTOM	E-1 TOP	E-1 BOTTOM	E-2 TOP	E-2 BOTTOM	E-3 TOP	E-3 BOTTOM	E-4 TOP	E-4 BOTTOM	F-1 TOP	F-1 BOTTOM	G-1 TOP	G-1 BOTTOM	G-2 TOP	G-2 BOTTOM
Total Organic Carbon	%																			
					1.05	0.86	0.78	0.42	1.26	0.75	1.28	0.79	0.34	0.23	1.10	0.75	1.43	0.87	1.11	0.41
Chlorinated Pesticides																				
2,4'-DDD	ng/dry g	.	.	.	<1.000	1.500J	9.900	28.600	4.200J	10.800	3.200J	5.900	1.300J	<1.000	10.000	84.800	1.000J	7.200	5.300	14.900
2,4'-DDE	ng/dry g	.	.	.	2.600J	<1.000	3.100J	5.500	4.200J	3.200J	3.700J	2.600J	<1.000	1.900J	5.600	8.100	3.200J	3.500J	2.800J	2.500J
2,4'-DDT	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
4,4'-DDD	ng/dry g	**2.00**	**20.00**	.	<1.000	1.200J	**27.5**	**84.7**	**20.2**	**39.9**	**21**	**22.3**	**4.800J**	**11.3**	**56.1**	**330.7**	**3.500J**	**19.7**	**12.4**	**29.4**
4,4'-DDE	ng/dry g	**2.20**	**27.00**	.	**18.9**	**11.6**	**56.5**	**103.4**	**64.6**	**66.5**	**54.7**	**47.4**	**3.800J**	**7.6**	**87.9**	**234.5**	**36.1**	**53.1**	**46.2**	**63.9**
4,4'-DDT	ng/dry g	**1.00**	**7.00**	.	**2.200J**	**3.600J**	<1.000	**3.300J**	<1.000	**3.100J**	<1.000	**4.600J**	**2.500J**	<1.000	**11.9**	**11.2**	<1.000	**4.000J**	<1.000	**4.900J**
Aldrin	ng/dry g	.	.	**1400**	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
BHC-alpha	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
BHC-beta	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
BHC-delta	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
BHC-gamma	ng/dry g	.	.	**4000**	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
Chlordane-alpha	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
Chlordane-gamma	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
cis-Nonachlor	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
Dieldrin	ng/dry g	**0.02**	**8.00**	**8000**	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
Endosulfan Sulfate	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
Endosulfan-I	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
Endosulfan-II	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
Endrin	ng/dry g	.	.	**200**	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
Endrin Aldehyde	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
Endrin Ketone	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
Heptachlor	ng/dry g	.	.	**4700**	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
Heptachlor Epoxide	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
Methoxychlor	ng/dry g	.	.	**100000**	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
Mirex	ng/dry g	.	.	**21000**	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
Oxychlordane	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
Perthane	ng/dry g	.	.	.	<5.000	<5.000	<5.000	<5.000	<5.000	<5.000	<5.000	<5.000	<5.000	<5.000	<5.000	<5.000	<5.000	<5.000	<5.000	<5.000
Total Detect. Chlordane	ng/dry g	**0.50**	**6.00**	**2500**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Detectable DDTs	ng/dry g	**1.58**	**46.10**	.	**23.7**	**17.9**	**97**	**225.5**	**93.2**	**123.5**	**82.6**	**82.8**	**12.4**	**20.8**	**171.5**	**669.3**	**43.8**	**87.5**	**66.7**	**115.6**
Toxaphene	ng/dry g	.	.	**5000**	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000
trans-Nonachlor	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
Metals																				
Copper (Cu)	µg/dry g	**34.00**	**270.00**	**2500**	**225.3**	**64.12**	**55.4**	22.86	**66.78**	**34.62**	**92.69**	**42.07**	20.02	14.28	**65.23**	**41.75**	**168.2**	**65.75**	**107.3**	28.03
Lead (Pb)	µg/dry g	**46.70**	**218.00**	**1000**	**56.900**	22.090	15.700	6.686	33.460	12.550	41.660	16.590	7.173	4.829	24.330	11.340	**107.400**	32.800	39.870	7.294
Zinc (Zn)	µg/dry g	**150.00**	**410.00**	**5000**	**237.6**	102.6	98.91	53.32	143.3	80.61	**166.9**	88.73	47.23	36.52	129.1	91.73	**216.7**	116.3	143.9	52.15
Aroclors																				
Aroclor 1016	ng/dry g	.	.	.	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000
Aroclor 1221	ng/dry g	.	.	.	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000
Aroclor 1232	ng/dry g	.	.	.	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000
Aroclor 1242	ng/dry g	.	.	.	10.200J	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	16.500J	<10.000	<10.000	16.600J	<10.000	<10.000	<10.000
Aroclor 1248	ng/dry g	.	.	.	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000
Aroclor 1254	ng/dry g	.	.	.	24.900	<10.000	<10.000	<10.000	12.100J	<10.000	25.500	<10.000	<10.000	<10.000	25.000	<10.000	38.400	20.700	10.100J	<10.000
Aroclor 1260	ng/dry g	.	.	.	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	11.000J	<10.000	<10.000	<10.000
PCB Congeners																				
PCB008	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	3.000J	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
PCB128	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
PCB167	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
PCB195	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
PCB209	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
PCB018	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	1.900J	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
PCB028	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
PCB031	ng/dry g	.	.	.	1.000J	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	8.000	<1.000	<1.000	1.500J	<1.000	<1.000	<1.000
PCB033	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	1.200J	<1.000	<1.000	<1.000	1.500J	<1.000	<1.000	<1.000

Analyte	Units	ERL	ERM	TTLC	D-3 TOP	D-3 BOTTOM	E-1 TOP	E-1 BOTTOM	E-2 TOP	E-2 BOTTOM	E-3 TOP	E-3 BOTTOM	E-4 TOP	E-4 BOTTOM	F-1 TOP	F-1 BOTTOM	G-1 TOP	G-1 BOTTOM	G-2 TOP	G-2 BOTTOM
PCB037	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
PCB044	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	1.000J	<1.000	1.400J	<1.000	4.700J	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
PCB049	ng/dry g	.	.	.	2.200J	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	8.100	<1.000	<1.000	2.400J	<1.000	<1.000	<1.000
PCB052	ng/dry g	.	.	.	1.500J	1.000J	<1.000	<1.000	1.200J	<1.000	<1.000	<1.000	<1.000	3.900J	2.600J	<1.000	2.100J	1.200J	<1.000	<1.000
PCB066	ng/dry g	.	.	.	2.100J	<1.000	<1.000	<1.000	1.400J	<1.000	2.000J	<1.000	<1.000	<1.000	2.000J	<1.000	3.900J	1.900J	<1.000	<1.000
PCB070	ng/dry g	.	.	.	1.200J	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	7.700	<1.000	<1.000	3.200J	1.300J	<1.000	<1.000
PCB074	ng/dry g	.	.	.	1.200J	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	1.700J	<1.000	<1.000	<1.000
PCB077	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
PCB081	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
PCB087	ng/dry g	.	.	.	1.000J	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	1.000J	1.000J	1.200J	<1.000
PCB095	ng/dry g	.	.	.	2.600J	1.200J	<1.000	<1.000	1.500J	<1.000	2.200J	<1.000	<1.000	<1.000	2.000J	<1.000	3.800J	1.900J	<1.000	<1.000
PCB097	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
PCB099	ng/dry g	.	.	.	3.400J	1.000J	<1.000	<1.000	1.200J	<1.000	1.300J	<1.000	<1.000	<1.000	2.800J	<1.000	3.500J	2.600J	1.300J	<1.000
PCB101	ng/dry g	.	.	.	5.900	2.200J	<1.000	<1.000	2.100J	<1.000	2.300J	<1.000	<1.000	<1.000	3.600J	<1.000	6.100	3.100J	1.800J	<1.000
PCB105	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
PCB110	ng/dry g	.	.	.	3.100J	1.200J	<1.000	<1.000	1.500J	<1.000	3.100J	<1.000	<1.000	<1.000	3.100J	<1.000	4.700J	2.500J	1.200J	<1.000
PCB114	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
PCB118	ng/dry g	.	.	.	3.500J	1.000J	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	3.300J	1.900J	<1.000	<1.000
PCB119	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
PCB123	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	8.400	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
PCB126	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
PCB138	ng/dry g	.	.	.	2.200J	1.300J	<1.000	<1.000	<1.000	<1.000	2.900J	<1.000	<1.000	<1.000	<1.000	<1.000	6.500	2.200J	1.200J	<1.000
PCB141	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
PCB149	ng/dry g	.	.	.	3.200J	1.300J	<1.000	<1.000	1.400J	<1.000	2.600J	<1.000	<1.000	<1.000	2.500J	<1.000	4.300J	2.000J	1.200J	<1.000
PCB151	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	1.400J	<1.000	<1.000	<1.000
PCB153	ng/dry g	.	.	.	3.600J	1.700J	<1.000	<1.000	2.200J	<1.000	1.100J	<1.000	<1.000	4.700J	1.500J	<1.000	4.300J	2.400J	2.100J	<1.000
PCB156	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
PCB157	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
PCB158	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
PCB168+132	ng/dry g	.	.	.	1.300J	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	2.100J	<1.000
PCB169	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	3.400J	<1.000	<1.000	<1.000	<1.000	2.100J	<1.000	<1.000	<1.000	<1.000
PCB170	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
PCB177	ng/dry g	.	.	.	1.400J	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	1.000J	<1.000	<1.000	<1.000
PCB180	ng/dry g	.	.	.	2.200J	1.100J	<1.000	<1.000	1.800J	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	3.100J	1.500J	<1.000	<1.000
PCB183	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
PCB187	ng/dry g	.	.	.	1.700J	<1.000	<1.000	<1.000	<1.000	<1.000	1.100J	<1.000	<1.000	<1.000	<1.000	<1.000	2.000J	<1.000	<1.000	<1.000
PCB189	ng/dry g	.	.	.	<1.000	<1.000	1.300J	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
PCB194	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	1.400J	<1.000	<1.000	<1.000
PCB200	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
PCB201	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
PCB206	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
Total Detectable PCBs	ng/dry g	**22.70**	**180.00**	**50000**	44.3	13	1.3	ND	14.3	1	22	1.4	1.2	50.4	20.1	2.1	62.7	25.5	12.1	ND

ER-L exceedance is denoted by bold values.
ER-M exceedance is denoted by bold and underlined values.
Values followed by a J are below reporting limits.
Non-detectable totals noted by ND.

Table 13. Continued.

Analyte	Units	ERL	ERM	TTLC	H-1 TOP	H-1 BOTTOM	H-2 TOP	H-2 BOTTOM	MC-1 TOP	MC-1 BOTTOM	MC-2 TOP	MC-2 BOTTOM	MC-3 TOP	MC-3 BOTTOM	MC-4 TOP	MC-4 BOTTOM	MC-5 TOP	MC-5 BOTTOM
Total Organic Carbon	%																	
					1.05	1.07	0.76	0.63	0.78	0.80	0.93	0.64	1.41	1.03	0.58	0.43	2.72	1.79
Chlorinated Pesticides																		
2,4'-DDD	ng/dry g	.	.	.	<1.000	<1.000	4.900J	5.600	9.700	15.900	2.700J	6.300	2.900J	7.200	1.500J	<1.000	3.900J	2.300J
2,4'-DDE	ng/dry g	.	.	.	<1.000	1.400J	2.200J	2.200J	3.200J	3.800J	1.700J	2.000J	3.500J	2.600J	1.000J	<1.000	3.900J	7.000
2,4'-DDT	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
4,4'-DDD	ng/dry g	**2.00**	**20.00**	.	**3.100J**	**4.200J**	**16.2**	**19.6**	**34.4**	**56**	**8.6**	**19.6**	**6.6**	**20.4**	**4.600J**	1.400J	**10.8**	**7.9**
4,4'-DDE	ng/dry g	**2.20**	**27.00**	.	**10.2**	**13.4**	**29.4**	**33**	**59.3**	**70.4**	**22.7**	**33.4**	**38**	**53.5**	**12.1**	2.100J	**41**	**40.4**
4,4'-DDT	ng/dry g	**1.00**	**7.00**	.	<1.000	<1.000	**4.200J**	**14.9**	**3.800J**	**6.3**	<1.000	<1.000	<1.000	<1.000	<1.000	**1.600J**	<1.000	<1.000
Aldrin	ng/dry g	.	.	**1400**	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
BHC-alpha	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
BHC-beta	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
BHC-delta	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
BHC-gamma	ng/dry g	.	.	**4000**	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
Chlordane-alpha	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	1.200J	<1.000	1.000J	<1.000	1.000J	<1.000	8.900	4.200J
Chlordane-gamma	ng/dry g	.	.	.	<1.000	1.400J	<1.000	<1.000	<1.000	<1.000	1.600J	<1.000	1.500J	<1.000	1.300J	<1.000	13.100	8.100
cis-Nonachlor	ng/dry g	.	.	.	<1.000	1.200J	<1.000	<1.000	<1.000	<1.000	1.300J	<1.000	1.200J	<1.000	<1.000	<1.000	7.600	4.700J
Dieldrin	ng/dry g	**0.02**	**8.00**	**8000**	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
Endosulfan Sulfate	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
Endosulfan-I	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
Endosulfan-II	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
Endrin	ng/dry g	.	.	**200**	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
Endrin Aldehyde	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
Endrin Ketone	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
Heptachlor	ng/dry g	.	.	**4700**	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
Heptachlor Epoxide	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
Methoxychlor	ng/dry g	.	.	**100000**	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
Mirex	ng/dry g	.	.	**21000**	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
Oxychlordane	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
Perthane	ng/dry g	.	.	.	<5.000	<5.000	<5.000	<5.000	<5.000	<5.000	<5.000	<5.000	<5.000	<5.000	<5.000	<5.000	<5.000	<5.000
Total Detect. Chlordane	ng/dry g	**0.50**	**6.00**	**2500**	ND	**2.6**	ND	ND	ND	ND	**5.1**	ND	**3.7**	ND	**2.3**	ND	**38.1**	**20.7**
Total Detectable DDTs	ng/dry g	**1.58**	**46.10**	.	**13.3**	**19**	**56.9**	**75.3**	**110.4**	**152.4**	**35.7**	**61.3**	**51**	**83.7**	**19.2**	**5.1**	**59.6**	**57.6**
Toxaphene	ng/dry g	.	.	**5000**	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000
trans-Nonachlor	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	1.000J	<1.000	<1.000	<1.000	<1.000	<1.000	8.500	3.700J
Metals																		
Copper (Cu)	µg/dry g	**34.00**	**270.00**	**2500**	**170**	**148.6**	**79.46**	**63.11**	**49.43**	**36.74**	**117**	**47.45**	**86.53**	**36.81**	**42.82**	11.8	**129.5**	**74.26**
Lead (Pb)	µg/dry g	**46.70**	**218.00**	**1000**	**77.410**	**82.890**	34.200	41.510	18.860	12.140	**49.010**	17.610	**50.910**	12.400	28.860	8.184	**140.100**	**119.000**
Zinc (Zn)	µg/dry g	**150.00**	**410.00**	**5000**	**206.1**	**185.8**	110.8	93.55	99.25	83.86	**153**	96.62	**150.7**	87.24	88.43	32.58	**286.4**	**159.4**
Aroclors																		
Aroclor 1016	ng/dry g	.	.	.	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000
Aroclor 1221	ng/dry g	.	.	.	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000
Aroclor 1232	ng/dry g	.	.	.	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000
Aroclor 1242	ng/dry g	.	.	.	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	11.700J	12.000J
Aroclor 1248	ng/dry g	.	.	.	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000
Aroclor 1254	ng/dry g	.	.	.	16.600J	19.500J	15.800J	11.100J	<10.000	<10.000	10.400J	<10.000	16.800J	<10.000	<10.000	<10.000	20.400	33.000
Aroclor 1260	ng/dry g	.	.	.	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000	<10.000
PCB Congeners																		
PCB008	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
PCB128	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
PCB167	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
PCB195	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
PCB209	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	1.400J	1.200J
PCB018	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	1.100J
PCB028	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
PCB031	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	1.100J
PCB033	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	2.800J	4.400J

Analyte	Units	ERL	ERM	TTLC	H-1 TOP	H-1 BOTTOM	H-2 TOP	H-2 BOTTOM	MC-1 TOP	MC-1 BOTTOM	MC-2 TOP	MC-2 BOTTOM	MC-3 TOP	MC-3 BOTTOM	MC-4 TOP	MC-4 BOTTOM	MC-5 TOP	MC-5 BOTTOM
PCB037	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
PCB044	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	1.500J	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	1.900J	2.000J
PCB049	ng/dry g	.	.	.	1.100J	<1.000	1.100J	<1.000	<1.000	<1.000	3.200J	<1.000	<1.000	<1.000	1.400J	<1.000	11.600	3.200J
PCB052	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	1.800J	<1.000	<1.000	<1.000	<1.000	1.900J
PCB066	ng/dry g	.	.	.	<1.000	1.500J	1.400J	1.600J	<1.000	<1.000	1.200J	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	4.500J
PCB070	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	2.100J
PCB074	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	1.100J
PCB077	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
PCB081	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
PCB087	ng/dry g	.	.	.	<1.000	<1.000	1.100J	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
PCB095	ng/dry g	.	.	.	1.200J	1.900J	1.300J	1.000J	<1.000	<1.000	1.400J	<1.000	2.800J	<1.000	1.200J	<1.000	4.100J	3.800J
PCB097	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	3.000J
PCB099	ng/dry g	.	.	.	1.000J	1.700J	1.400J	<1.000	<1.000	<1.000	1.000J	<1.000	1.500J	<1.000	1.100J	<1.000	2.100J	2.600J
PCB101	ng/dry g	.	.	.	2.400J	3.300J	2.300J	1.800J	<1.000	<1.000	2.200J	1.100J	3.700J	<1.000	1.400J	<1.000	5.600	7.100
PCB105	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	3.500J
PCB110	ng/dry g	.	.	.	2.000J	2.400J	1.900J	1.400J	<1.000	<1.000	1.300J	<1.000	2.100J	<1.000	<1.000	<1.000	2.500J	4.100J
PCB114	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
PCB118	ng/dry g	.	.	.	1.200J	1.800J	1.100J	<1.000	<1.000	<1.000	<1.000	<1.000	1.600J	<1.000	<1.000	<1.000	3.200J	2.700J
PCB119	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
PCB123	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	1.300J	<1.000
PCB126	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
PCB138	ng/dry g	.	.	.	1.200J	2.200J	1.600J	2.300J	<1.000	<1.000	<1.000	<1.000	1.800J	<1.000	<1.000	<1.000	<1.000	5.400
PCB141	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	1.000J	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
PCB149	ng/dry g	.	.	.	1.500J	2.600J	1.400J	1.100J	<1.000	<1.000	1.700J	<1.000	2.400J	<1.000	1.500J	<1.000	4.500J	6.000
PCB151	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	1.100J	<1.000	<1.000	<1.000	<1.000	2.200J
PCB153	ng/dry g	.	.	.	2.000J	3.900J	1.800J	1.500J	<1.000	<1.000	3.200J	1.200J	3.200J	<1.000	<1.000	<1.000	4.600J	5.500
PCB156	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	1.100J	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
PCB157	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
PCB158	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	1.200J	<1.000
PCB168+132	ng/dry g	.	.	.	1.000J	1.100J	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
PCB169	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
PCB170	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
PCB177	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	1.000J	<1.000	<1.000	<1.000	<1.000	<1.000	1.400J	<1.000
PCB180	ng/dry g	.	.	.	1.400J	2.800J	1.100J	<1.000	<1.000	<1.000	1.700J	<1.000	1.700J	<1.000	<1.000	<1.000	6.000	5.900
PCB183	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	1.700J	2.400J
PCB187	ng/dry g	.	.	.	<1.000	1.300J	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	1.500J	<1.000	1.100J	<1.000	3.700J	3.600J
PCB189	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
PCB194	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
PCB200	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000
PCB201	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	1.300J
PCB206	ng/dry g	.	.	.	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	1.400J	1.600J
Total Detectable PCBs	ng/dry g	**22.70**	**<u>180.00</u>**	**<u>50000</u>**	16	**26.5**	17.5	10.7	1.5	ND	20	2.3	**25.2**	ND	7.7	ND	**61**	**83.3**

ER-L exceedance is denoted by bold values.
ER-M exceedance is denoted by bold and underlined values.
Values followed by a J are below reporting limits.
Non-detectable totals noted by ND.

Grain Size Distribution

In general grain size among the 16 site locations in which surficial sediment was collected was comprised of predominantly silt and clay with some sand and little to no gravel (Table 14). Silt and clay comprised more than 70 percent of the grains at all sites with the exception of sites A-2, D-3, E-4, and H-2, Site E-4, located at the back of the harbor in Basin E had the highest concentration of coarse grained sediment (60.8 percent sand and gravel) of any site. Sites H-2 and A-2 also had high concentrations of coarse grained sediment relative to other sites within Marina del Rey Harbor (47.2 percent and 46.1 percent sand and gravel, respectively). In contrast, sites B-2, E-1, E-3, F-1, and G-2 had greater than 90 percent fine grained material (i.e., silt and clay).

Table 14. Grain size distribution in surficial sediment (0-2 cm) at 16 sites within Marina del Rey Harbor.

Site ID	Coarse Grained		Fine Grained	
	Gravel (%)	**Sand (%)**	**Silt (%)**	**Clay (%)**
A-2	0.01	46.08	27.18	26.73
B-2	0.01	2.33	55.56	42.11
C-2	0.00	26.09	42.11	31.79
D-2	0.00	21.61	50.81	27.58
D-3	0.00	34.84	34.97	30.19
E-1	0.00	5.89	61.22	32.90
E-3	0.00	1.11	42.59	56.31
E-4	1.21	59.55	15.16	24.08
F-1	0.00	0.99	55.98	43.03
G-2	0.05	5.54	51.22	43.19
H-2	0.02	47.23	35.40	17.35
MC-1	0.00	10.67	60.31	29.02
MC-2	0.00	18.33	60.26	21.42
MC-3	0.00	8.27	60.18	31.55
MC-4	0.02	25.61	55.49	18.88
MC-5	0.00	3.37	70.91	25.72

3.2.2 Surface and sub-surface chemistry results from 23 vibracore sampling locations

Surface and sub-surface sediment collected using a P-3 electric vibracore was analyzed for metals, aroclor PCBs, PCB congeners, and chlorinated pesticides. Analysis of surface (Top) samples was performed on the upper 0-10 cm of material while analysis of sub-surface (Bottom) was performed on the portion of the core sample below 10 cm in depth down to the project depth (original dredged floor of the harbor). ER-L and ER-M sediment quality values developed by Long et al., (1995), as well as TTLC values are included in Table 13 for comparative purposes only.

Test samples

Across all sample locations, several analytes exceeded ER-L and/or ER-M sediment quality values (Table 13). Analytes detected above ER-M values included copper, total detectable chlordane, 4,4'-DDD, 4,4'-DDE, 4,4'-DDT and total detectable chlordane and DDTs. No analyte concentrations exceeded the TTLC at any of the sample locations.

Basin-A

In Top sediment within Basin-A, concentrations of 4,4-DDE were above the ER-L at site A-2 and above the ER-M at site A-1. Total detectable DDTs were above the ER-L in both A-1 and A-2 Top samples.

Total detectable chlordane exceeded the ER-M in Top sediment from A-1 and the ER-L in Top sediment from A-2. Top sediment collected at both sites in Basin-A was above ER-L values for the metals copper and zinc. Aroclor 1254 was detected in Top sediment at both sites, as were several individual PCB congeners. Total detectable PCBs were detected above the ER-L in A-1 and A-2 Top sediment. No other constituents were detected above ER-L values at either site.

It should be noted that because the depth of the post-construction depositional interface occurred within the top 10 cm at site A-2, there was no A-2 Bottom sample. Bottom sediment from A-1 exceeded the ER-L for 4,4'-DDE, total detectable chlordane, total detectable DDTs, copper, and zinc. Concentrations of most constituents were lower in Bottom sediment than in Top sediment.

Basin-B

In sediment collected from Basin-B, concentrations of nearly every analyzed constituent were higher in B-1 Top and Bottom samples than in B-2 Top and Bottom samples. Station B-1 is located just off the Main Channel, while station B-2 is located near the terminal end of Basin B. B-1 Top sediment exceeded ER-L values for zinc, total detectable DDTs, and total detectable PCBs, and exceeded ER-M values for 4,4'-DDE, total detectable chlordane, and copper. The B-1 Bottom sample exceeded ER-L values for copper, zinc, total detectable chlordane, total detectable DDTs, and total detectable PCBs, and exceeded ER-M values for 4,4'-DDE. In B-2 Top and Bottom sediment, the only constituent measured above the ER-L was total detectable DDTs. No constituents exceeded ER-M values in B-2 Top and Bottom sediments.

Basin-C

In Top sediment within Basin-C, concentrations of constituents that exceeded ER-L values included 4,4'-DDE, total detectable DDTs, total detectable chlordane (site C-1 only), copper (site C-1 only), zinc (site C-1 only), and total detectable PCBs. No constituent concentrations were measured above ER-M values. In Basin-C Bottom samples, constituent concentrations at C-1 were typically higher than at C-2. ER-L values that were exceeded at site C-1 included 4,4'-DDE, total detectable DDTs, total detectable chlordane, copper, zinc, and total detectable PCBs, where as ER-L values that were exceeded in Bottom samples collected at site C-2 included 4,4'-DDE and total detectable DDTs. No constituents exceeded ER-M values in either C-1 or C-2 Bottom sediments.

Basin-D

In Top sediment within Basin-D, concentrations of constituents that exceeded ER-L values across all three sample locations included 4,4'-DDE, total detectable DDTs, copper, and total detectable PCBs. Additional ER-L values that were exceeded in Top sediments at one or more of the sample locations include 4,4'-DDD (D-1) and zinc (D-3). No constituent concentrations in Basin-D Top sediments were measured above ER-M values. In Basin-D Bottom samples, constituent concentrations above the ER-L at one or more sites included 4,4'-DDD (D-1 and 2), 4,4'-DDE (D-1, 2, and 3), total detectable DDTs (D-1, 2, and 3), arsenic (D-3), copper (D-3), and nickel (D-3). No constituents exceeded ER-M values in D-1, D-2, or D-3 Bottom sediments.

Basin-E

In Top sediment within Basin-E, concentrations of 4,4'-DDD, 4,4'-DDE, and total detectable DDTs were above the ER-M for sites E-1, E-2, and E-3. Copper and nickel concentrations were measured above the ER-L at sites E-1, E-2, and E-3; arsenic was measured above the ER-L at sites E-2 and E-3 and zinc was measured above the ER-L at site E-3. Aroclor 1254 and several individual PCB congeners were detected at sites E-2 and E-3. Total detectable PCBs, however, were below ER-L values in Top sediment across all four sites within Basin-E.

In Bottom sediment within Basin-E, concentrations of 4,4'-DDD, 4,4'-DDE, and total detectable DDTs were above the ER-M for sites E-1, E-2, and E-3 and were above the ER-L at site E-4. Copper was measured above the ER-L at sites E-2 and E-3. Total detectable PCBs were 1.0 ng/dry g at site E-2 and 1.4 ng/dry g at site E-3. Total detectable PCBs were above the ER-L at Site E-4 (50.4 ng/dry g).

Basin-F

In F-1 Top sediment, concentrations of 4,4'-DDD, 4,4'-DDE, 4,4'-DDT and total detectable DDTs were above the ER-M. Copper concentrations were measured above the ER-L in F-1 Top sediment. Aroclor 1254 was measured at a concentration of 25 ng/dry g in Top sediment, while total detectable PCBs were measured reported at 20.1 ng/dry g. Concentrations of 4,4'-DDD, 4,4'-DDE, 4,4'-DDT and total detectable DDTs in F-1 Bottom sediment were above the ER-M. No aroclors or individual PCB congeners were detected above method reporting limits.

Basin-G

In Top sediment within Basin-G, concentrations of 4,4'-DDE were above the ER-M at sites G-1 and G-2, while 4,4'-DDD was above the ER-L at site G-2. Total detectable DDTs in Top sediment exceeded the ER-L at site G-1 and the ER-M at site G-2. Copper concentrations were measured above the ER-L at both sites within Basin-G, while zinc concentrations were measured above ER-L at site G-1. Aroclor 1254, detected at a concentration of 38.4 ng/dry g at site G-1 was the only PCB grouping detected above reporting limits in Top sediment. Total detectable PCBs were above the ER-L at site G-1 but were below the ER-L at site G-2.

In Bottom sediment within Basin-G, concentrations of 4,4'-DDE and total detectable DDTs were above the ER-M at both sites while concentrations of 4,4'-DDD were above the ER-L at site G-1 and were above the ER-M at site G-2. Copper was measured above the ER-L in Bottom sediment at site G-1. Aroclor 1254, the only aroclor group detected, was measured at a concentration of 20.7 ng/dry g in G-1 Bottom sediment. Total detectable PCBs (25.5 ng/dry g) were above the ER-L (22.7 ng/dry g) in G-1 Bottom sediment. No aroclor PCBs or individual PCB congeners were detected in G-2 Bottom sediment.

Basin-H

Basin-H Top sediment exceeded the 4,4'-DDE ER-L at site H-1 and the 4,4'-DDE ER-M at site H-2. Total detectable DDTs in Top sediment exceeded the ER-L at H-1 and the ER-M at H-2. Copper, lead, and zinc concentrations were measured above the ER-L in H-1 Top sediment, while only copper exceeded the ER-L in H-2 Top sediment. No aroclors or PCB congeners were measured above reporting limits in Basin-H Top sediments.

Basin-H Bottom sediment collected from site H-2 had concentrations of 4,4'-DDE, 4,4'-DDT, and total detectable DDTs that were above ER-M values. H-2 Bottom sediment exceeded ER-L values for 4,4'-DDD and copper. No aroclors or PCB congeners were measured above reporting limits in H-2 Bottom sediment. H-1 Bottom sediment exceeded ER-L values for 4,4'-DDE, 4,4'-DDD, total detectable chlordane, total detectable PCBs, copper, and zinc.

Main Channel

In Top sediment within the Main Channel, concentrations of 4,4'-DDD, 4,4'-DDE, and total detectable DDTs were above the ER-M for site MC-1. Sites MC-2, MC-3, and MC-5 contained concentrations of 4,4'-DDE which exceeded the ER-M and 4,4'-DDD which exceeded the ER-L. Total detectable DDTs in Top sediments were above the ER-M at sites MC-3 and MC-5, and were above the ER-L at sites MC-2 and MC-4. Total detectable chlordane was above the ER-L at sites MC-2, MC-3, and MC-4 and was above the ER-M at site MC-5. In general, copper was above the ER-L in Top sediment across all sites, while lead and zinc were above ER-Ls at three site locations. No metal concentrations were measured above ER-M values in Main Channel Top sediment. Aroclor 1254 in MC-5 Top sediment was the only aroclor measured above method reporting limits. The ER-L value for total detectable PCBs was exceeded in MC-3 and MC-5 Top sediments.

In Bottom sediment within the Main Channel, concentrations of 4,4'-DDD, 4,4'-DDE, and total detectable DDTs were above the ER-M for site MC-1. Sites MC-2, MC-3, and MC-5 contained concentrations of 4,4'-DDE which exceeded the ER-M. Concentrations of 4,4'-DDD exceeded the ER-L at sites MC-2 and MC-5, and exceeded the ER-M at site MC-3. Total detectable DDTs in Bottom sediments were above the ER-M at sites MC-1, MC-2, MC-3, and MC-5, while total detectable chlordane was above the ER-M at site MC-5. Copper was measured above the ER-L in Bottom sediment across all sites, with the exception of site MC-4. Lead and zinc were above the ER-L at MC-5. No metal concentrations were measured above ER-M values in Main Channel Bottom sediment. Aroclor 1254 in MC-5 Bottom sediment was the only aroclor measured above method reporting limits. Total detectable PCBs exceeded the ER-L in MC-5 Bottom sediments.

Grain Size Distribution

In general grain size among the 23 Top and Bottom site locations in which surficial sediment was collected was comprised of mostly sand, silt, and clay with little to no gravel (Table 15). Top sediments at sites B-1, E-2, E-3, F-1, G-1, G-2, MC-3, and MC-5 were comprised of greater than 90 percent fine-grained material (i.e., silt and clay). With the exception of site F-1, sites with greater than 90 percent fine-grained material in Top sediments were located on, or directly adjacent to, the Main Channel. Sites located near the back of the Harbor's Basins and at the back of the Main Channel tended to have higher percentages of sand in Top sediment than sites located near the Main channel.

Bottom sediment at nearly all stations tended to be comprised of a higher percentage of coarse-grained material (i.e., sand and gravel) than Top sediment. Sediment from sites E-1, G-2, and MC-2 had greater than 5 percent gravel while all other sites, with the exception of MC-4, had less than 1 percent gravel. Sites C-2, MC-1, and MC-4 were comprised of greater than 70 percent coarse grained materials. In Bottom sediments, only eight sites contained greater than 25 percent clays, while in Top sediments, 12 sites had greater than 25 percent clays. Within each basin, grain size compositions varied significantly among Bottom core samples.

Table 15. Grain size distribution in Top (0-10 cm) and Bottom sediment (10 cm to original dredged depth of harbor) at 23 sites within Marina del Rey Harbor.

Site ID	Sample Type	Gravel (%)	Sand (%)	Silt (%)	Clay (%)
A-1	Top	0.39	13.16	55.77	30.67
	Bottom	0.00	12.58	47.67	39.75
A-2	Top	0.02	48.33	29.91	21.74
B-1	Top	0.00	1.36	55.34	43.31
	Bottom	0.07	2.02	48.07	49.84
B-2	Top	0.25	52.63	28.04	19.08
	Bottom	0.40	54.56	26.10	18.93
C-1	Top	0.00	44.87	30.72	24.40
	Bottom	0.00	55.13	25.51	19.35
C-2	Top	0.00	36.77	40.74	22.49
	Bottom	0.00	72.54	18.31	9.15
D-1	Top	0.00	23.90	56.31	19.78
	Bottom	0.00	42.33	47.43	10.24
D-2	Top	0.00	41.99	41.63	16.37
	Bottom	0.02	47.26	42.77	9.95
D-3	Top	0.01	37.19	33.30	29.51
	Bottom	0.00	24.18	44.08	31.74
E-1	Top	0.00	49.81	41.13	9.07
	Bottom	6.99	57.72	20.69	14.59
E-2	Top	0.00	0.50	46.25	53.25
	Bottom	1.09	18.78	45.96	34.17
E-3	Top	0.00	0.94	39.57	59.48
	Bottom	0.00	42.31	39.74	17.95
E-4	Top	0.00	21.95	44.95	33.10
	Bottom	0.15	24.38	55.23	20.24
F-1	Top	0.01	0.69	48.89	50.42
	Bottom	0.00	42.79	47.03	10.18
G-1	Top	0.00	5.29	57.96	36.76
	Bottom	0.00	19.07	47.17	33.76
G-2	Top	0.20	9.34	48.19	42.27
	Bottom	7.98	49.55	27.80	14.68
H-1	Top	0.11	14.99	62.81	22.09
	Bottom	0.11	16.15	62.49	21.24
H-2	Top	0.42	20.50	62.22	16.86
	Bottom	0.02	29.19	56.86	13.93
MC-1	Top	0.30	19.69	45.75	34.26
	Bottom	0.00	74.44	17.04	8.51
MC-2	Top	0.99	34.77	46.44	17.80
	Bottom	5.64	26.80	40.80	26.75
MC-3	Top	0.11	2.77	49.70	47.43
	Bottom	0.10	5.93	54.00	39.98
MC-4	Top	0.08	58.69	28.02	13.21
	Bottom	1.40	76.57	14.23	7.81
MC-5	Top	0.32	5.20	69.30	25.19
	Bottom	0.00	25.43	45.84	28.73

3.2.3 Interpolative Maps

Target analytical and grain size data collected from the surface (0 to 10 centimeter [cm]) and subsurface (10 cm to design depth) intervals of sediment along the inlet channels were analyzed to produce Isopleth maps (Figure 7 through Figure 20). The intent of these maps is to show parameter concentrations as they are dispersed within the inlet and determine any possible distribution trends. To produce the figures, the data were brought into the software Surfer 8, made by Golden Software, Inc. To perform the interpolation, the Kriging gridding method was applied using a Linear Variogram Model at a Slope and Anisotropy value of 1. In order to account for the impermeability of the bulkheads, a Breakline was applied to the interpolation that represented the outline of the inlet with a concentration value set to the lowest result of the dataset for the particular compound. For example, the lowest concentration of zinc in the surface data set was approximately 50 ppm, therefore the edges (bulkheads) of the harbor were assigned the value of 50 ppm to display the patterns. Once the Isopleth contours were generated, they were exported from Surfer to a standard Computer-Aided Design (CAD) format and brought into the software ESRI ArcGIS. Three-Dimensional (3D) surfaces were created based off of these contours using the ArcGIS extension toolset 3D Analyst. Two-Dimensional (2D) representations of these surfaces are presented in the attached figures.

The surface interval core was consistently 10 cm throughout entire project area. However, the subsurface interval core varied from 0 cm (A-2) to more than 80 cm (MC3). To illustrate the differences in the subsurface interval core length, an additional metric was included in the subsurface maps.

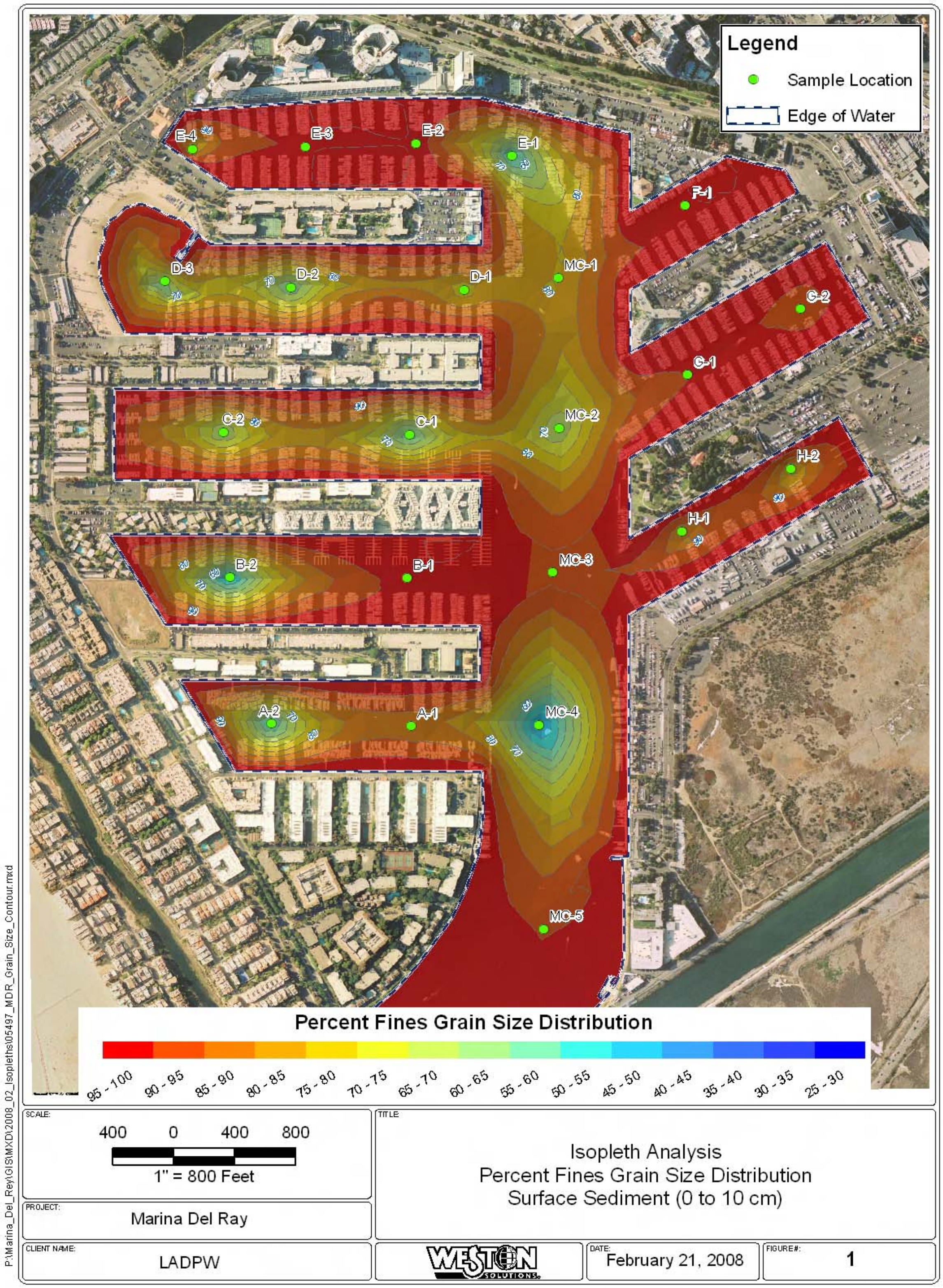

Figure 7. Distribution of fine grain material in surface sediments in Marina del Rey Harbor.

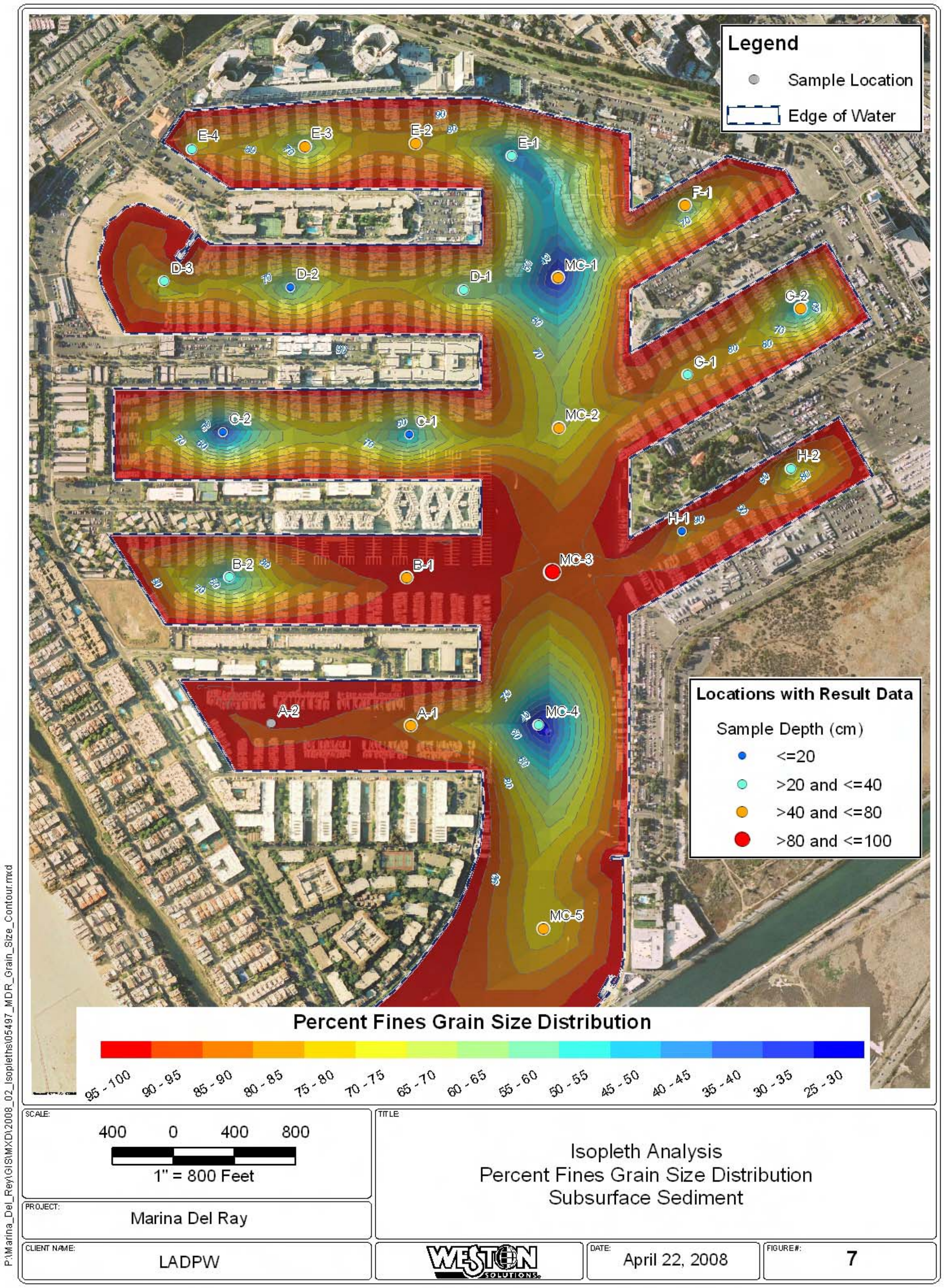

Figure 8. Distribution of fine grain material in subsurface sediments in Marina del Rey Harbor.

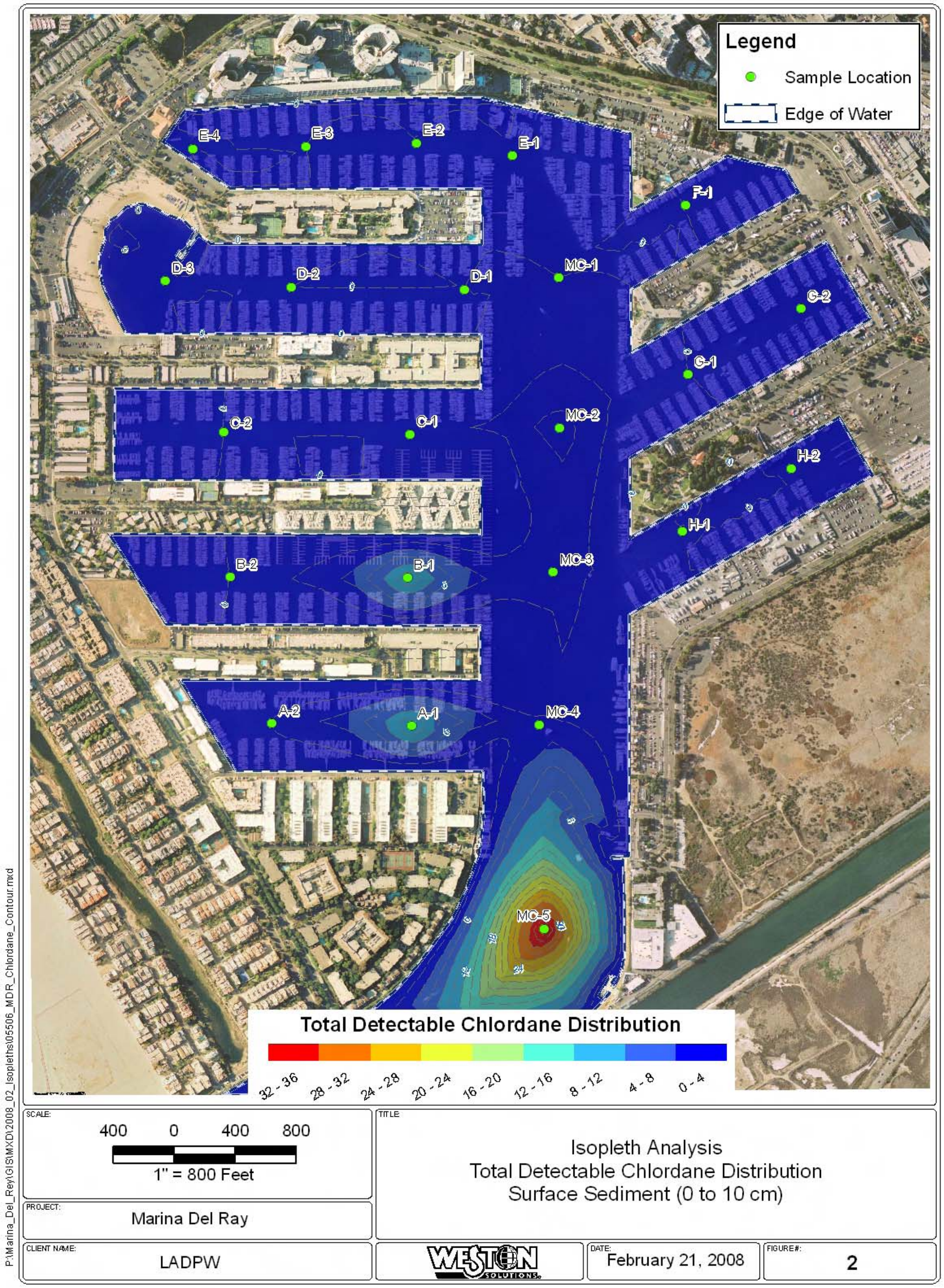

Figure 9. Distribution of total chlordane in surface sediment in Marina del Rey Harbor.

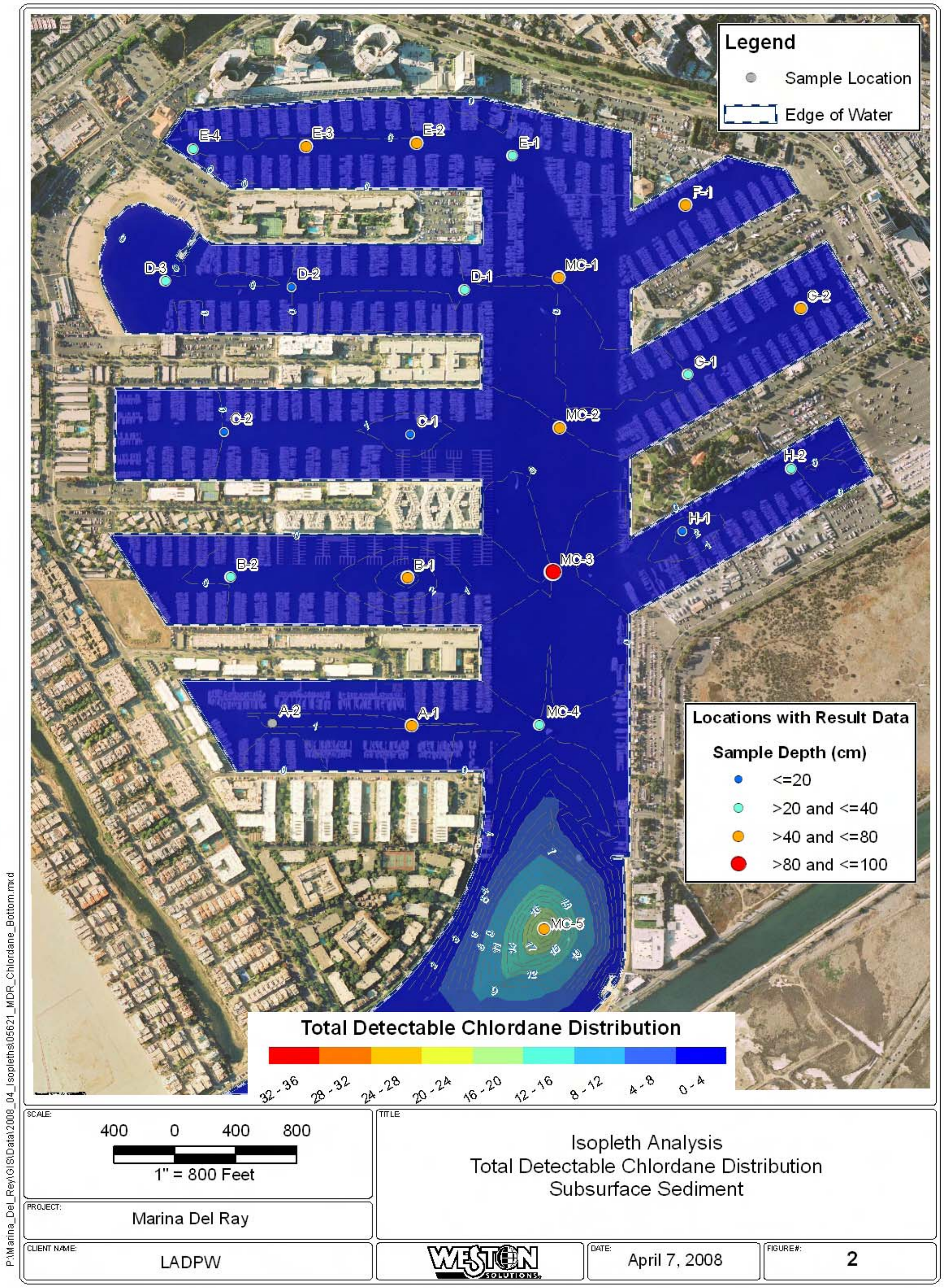

Figure 10. Distribution of total chlordane in subsurface sediment in Marina del Rey Harbor.

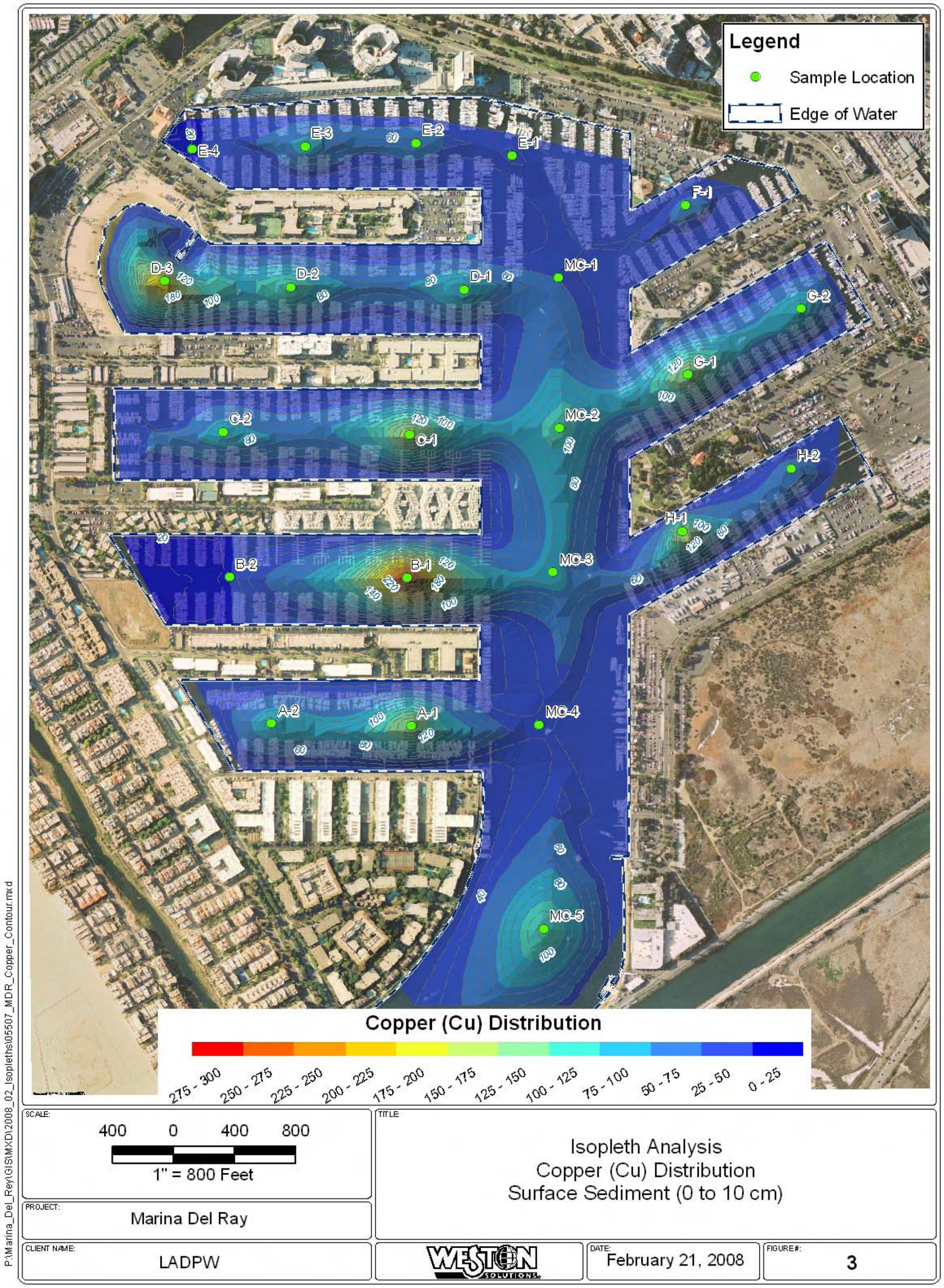

Figure 11. Distribution of copper in surface sediment in Marina del Rey Harbor.

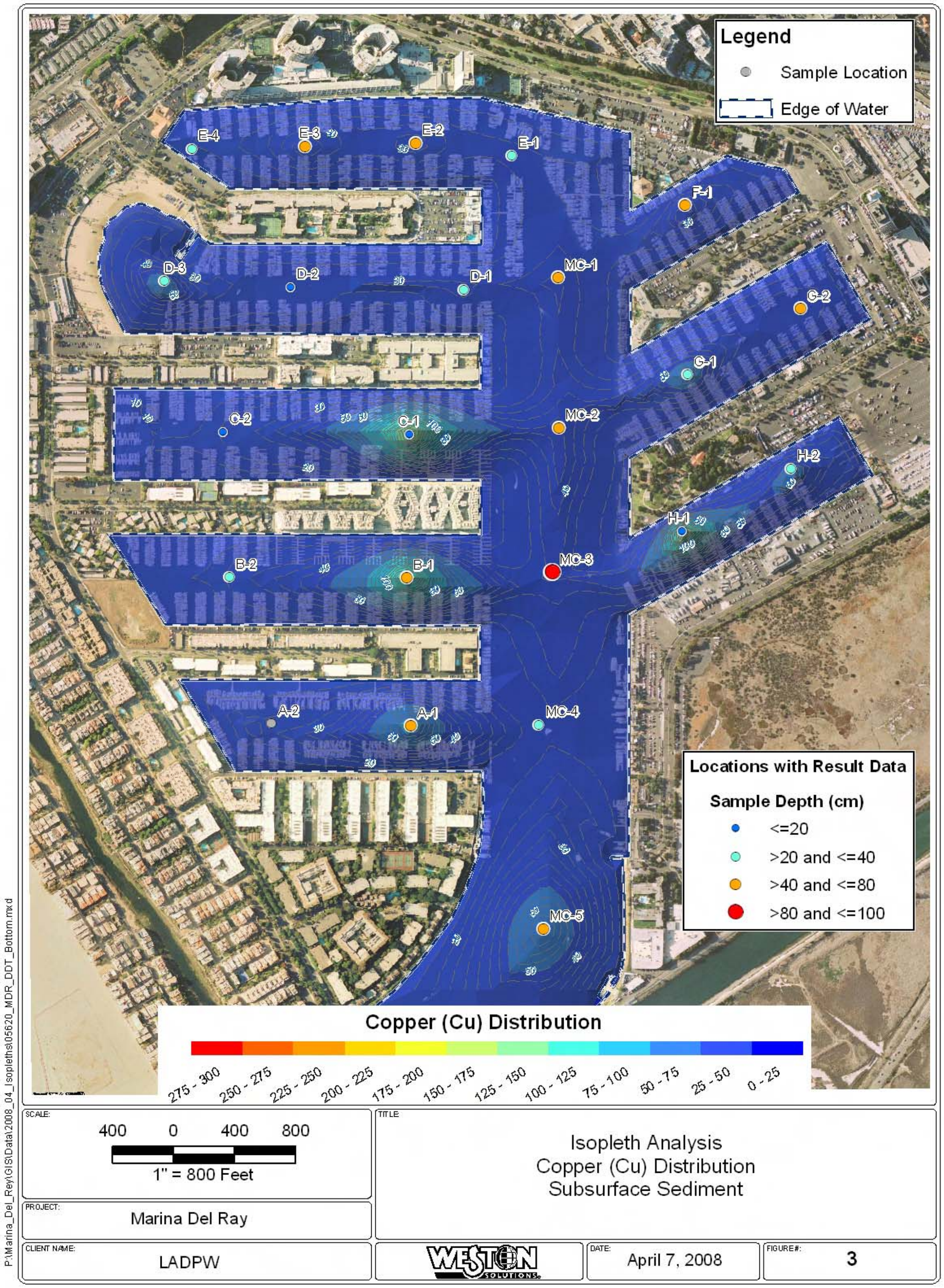

Figure 12. Distribution of copper in subsurface sediment in Marina del Rey Harbor.

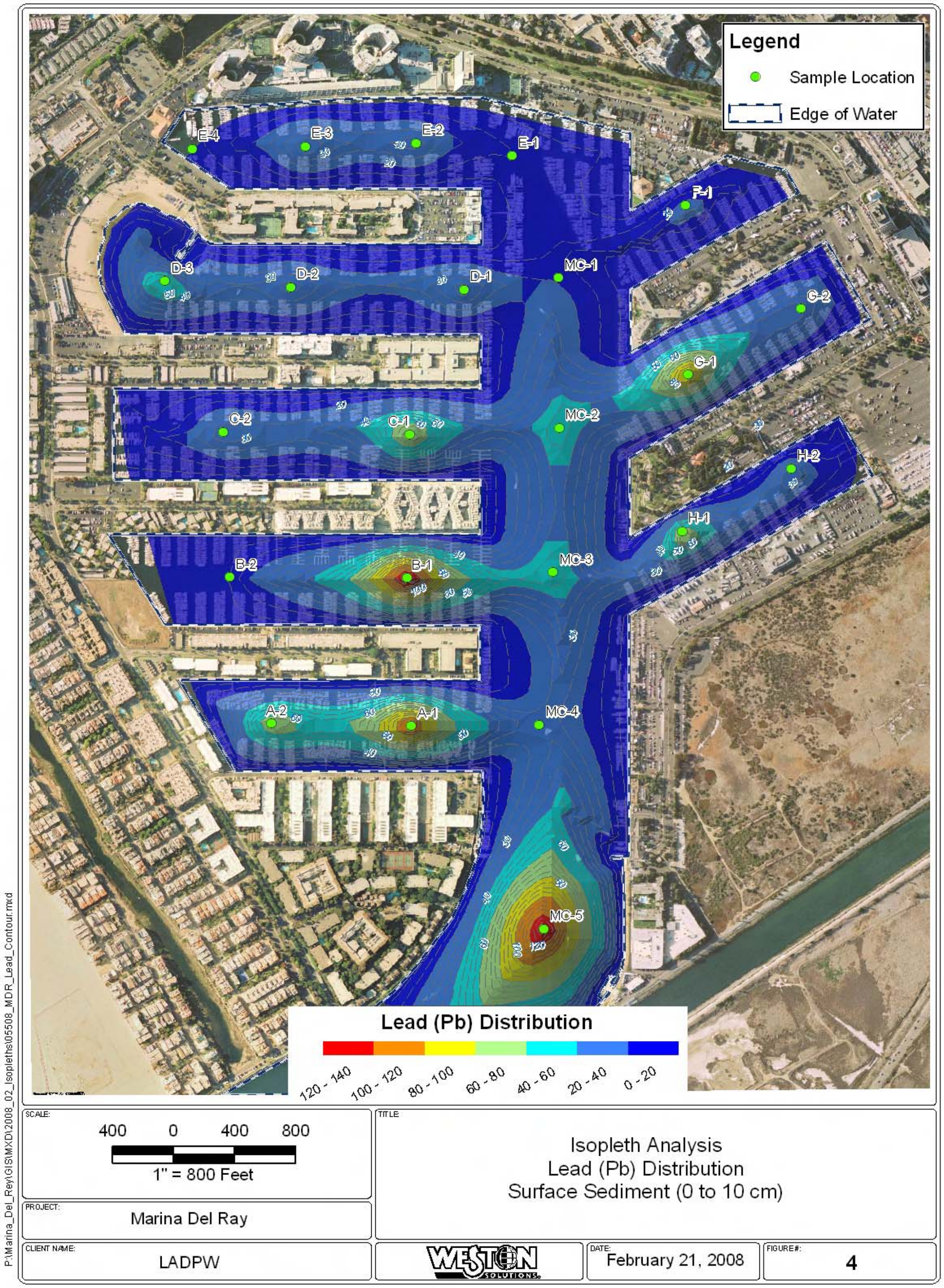

Figure 13. Distribution of lead in surface sediment in Marina del Rey Harbor.

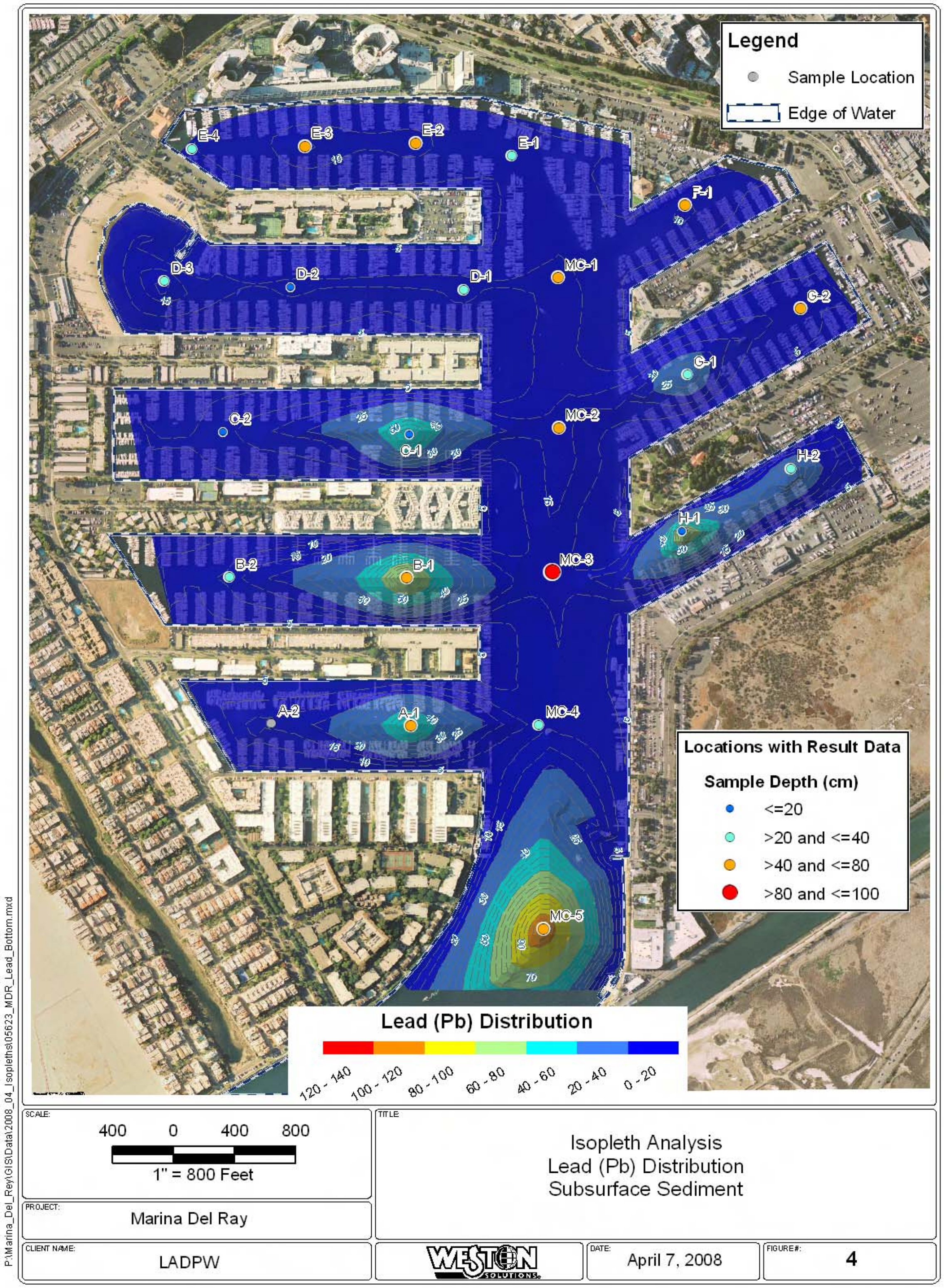

Figure 14. Distribution of lead in subsurface sediment in Marina del Rey Harbor.

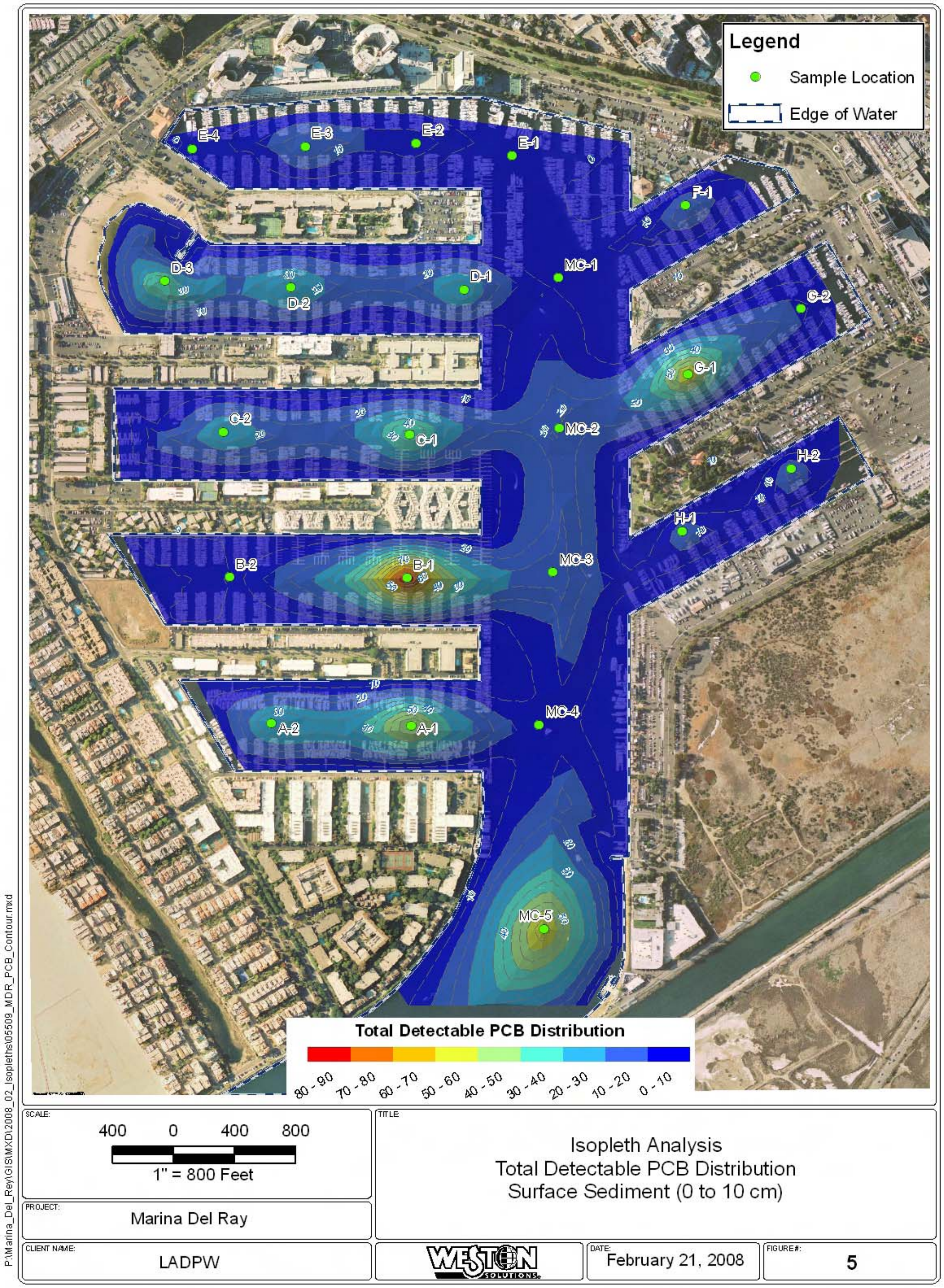

Figure 15. Distribution of total PCBs in surface sediment in Marina del Rey Harbor.

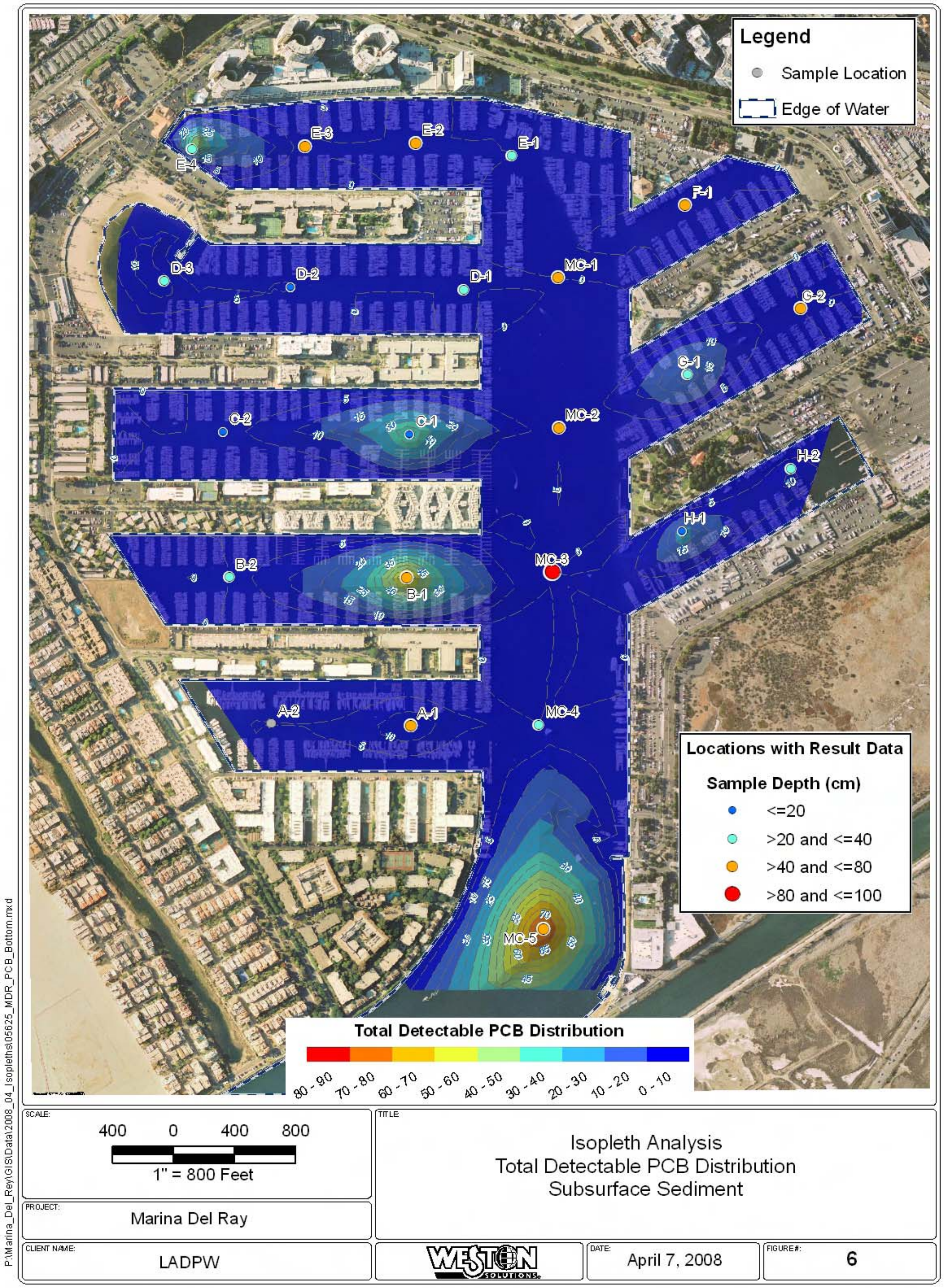

Figure 16. Distribution of total PCBs in subsurface sediment in Marina del Rey Harbor.

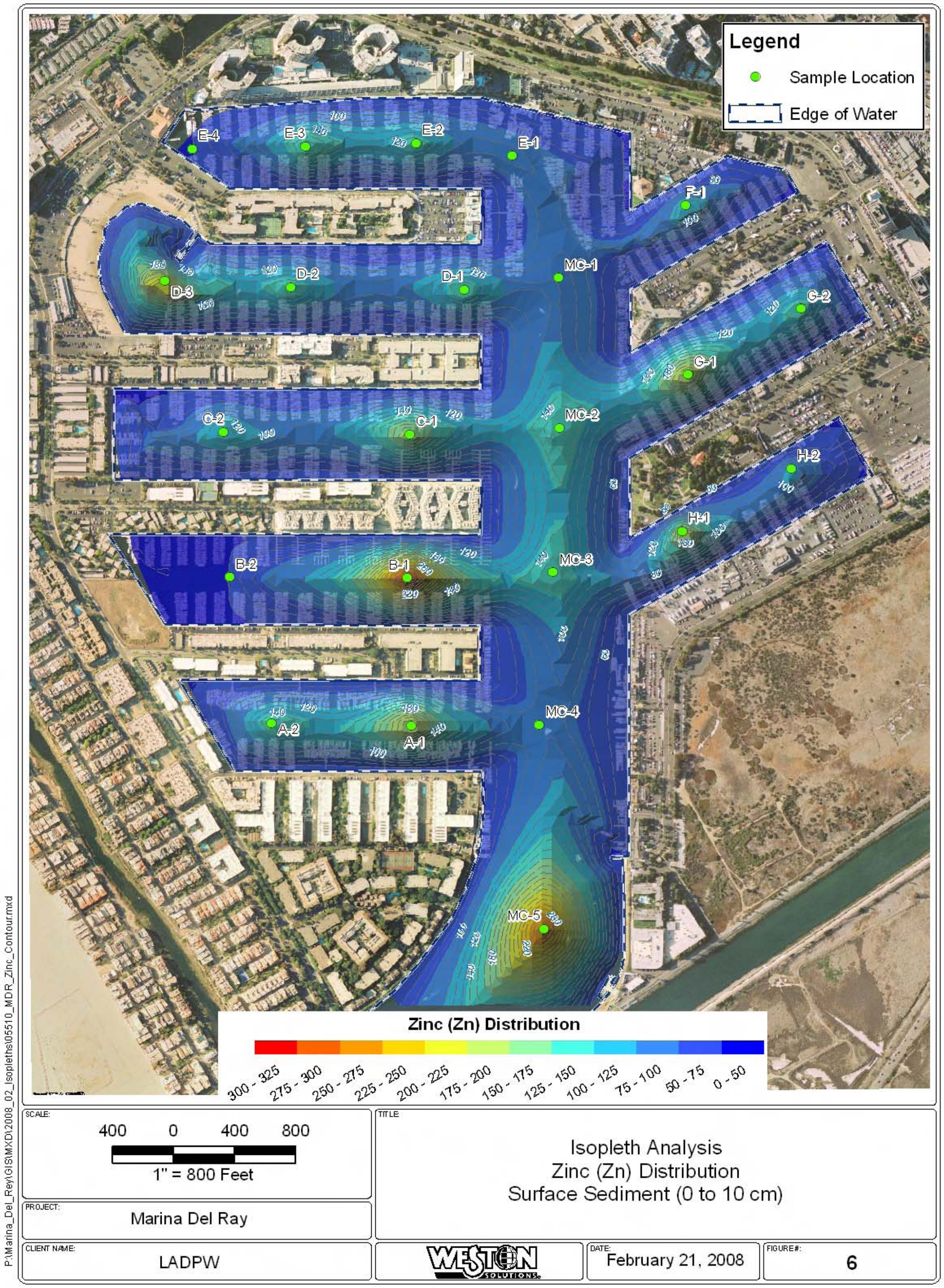

Figure 17. Distribution of zinc in surface sediment in Marina del Rey Harbor.

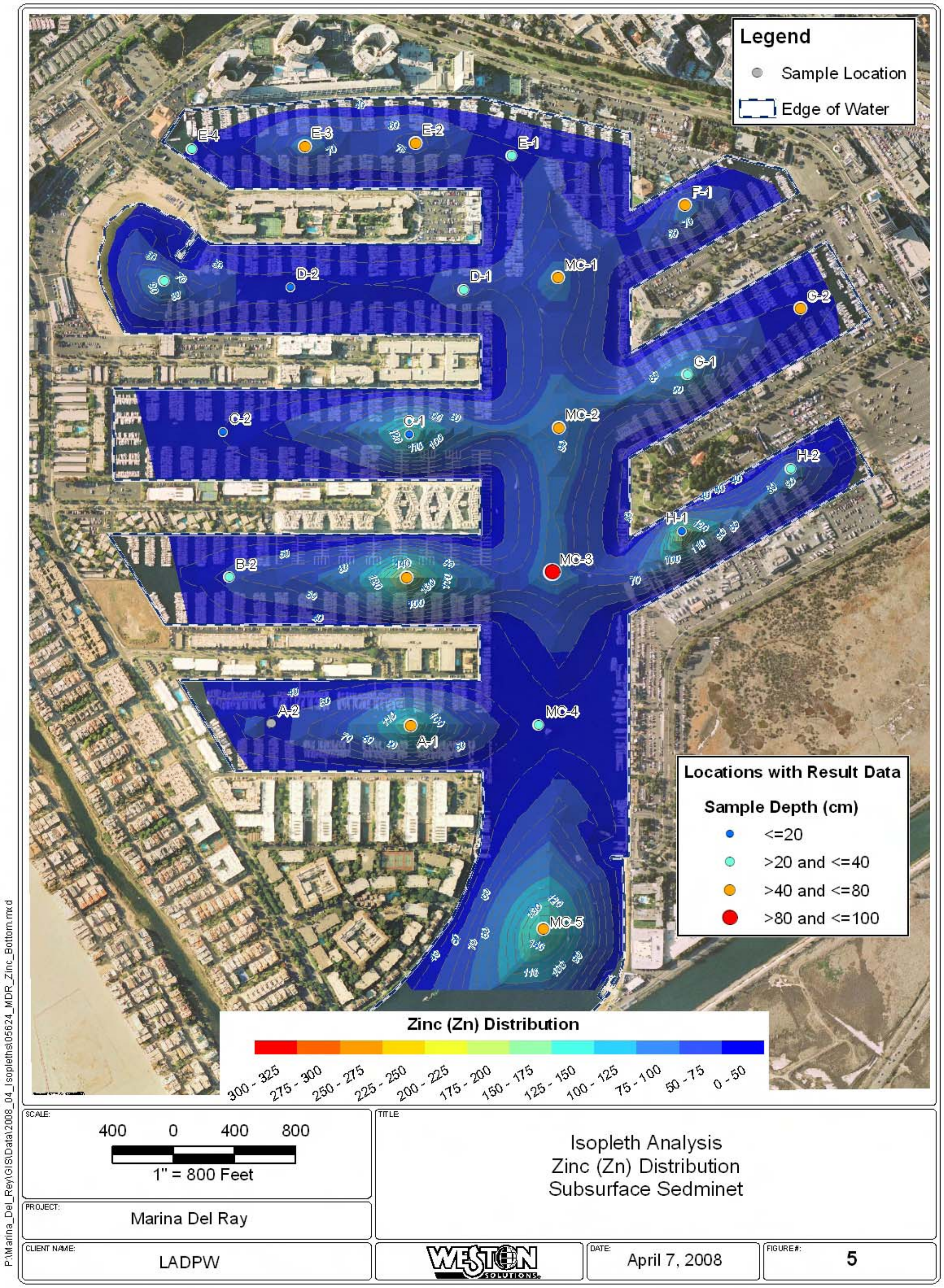

Figure 18. Distribution of zinc in subsurface sediment in Marina del Rey Harbor.

3.3 RESULTS OF SOLID PHASE TOXICITY TESTING

3.3.1 Eohaustorius estuarius

This test was divided into two batches due to the large number of test samples. The two batches were run concurrently on different shelves in the 15ºC test room. A separate control was associated with each batch of tests. Control 1 was associated with test samples D-3, E-4, F-1, B-2, MC-2, MC-3, MC-5, and MC-4. Control 2 was associated with samples E-3, E-1, MC-1, G-2, D-2, H-2, A-2, and C-2.

Water quality parameters were within the recommended protocol limits (Table 2). Mean percent survival of *E. estuarius* was 95.0 and 91.0% in the batch 1 and batch 2 controls, respectively, which met the minimum acceptable control survival criterion ($\geq$ 90%). Over 20 amphipods were recovered at test termination from replicate 2 of sample A-2. Because it was not possible to confirm the number of organisms added at test initiation, this replicate was dropped from statistical analysis. Mean percent survival was generally low across all samples (45.0 – 77.0%) with the exception of MC-4 (91.0%), H-2 (85.0%), and A-2 (83.8%). Samples D-3, E-4, F-1, B-2, MC-2, MC-3, MC-5, E-3, E-1, MC-1, G-2, D-2, and C-2 had less than 80% survival and were significantly different from the associated control (using an ANOVA). A summary of test results is presented in Table 16. The laboratory bench sheets and summary tables are presented in Appendix C.

The cadmium chloride reference toxicant test was conducted at concentrations of 0, 2.50, 5.00, 10.0, 20.0 and 40.0 mg Cd^{2+}/L. The median lethal concentration (LC_{50}) was 6.67 mg Cd^{2+}/L, which was within two standard deviations (± 4.32 mg Cd^{2+}/L) of the Weston laboratory mean of 6.90 mg Cd^{2+}/L. This indicates that the sensitivity of *E. estuarius* used in the assessment of test sediments fell within the normal range.

In the ammonium chloride reference toxicant test, LC_{50} values of 109 mg total NH_3/L and 1.67 mg un-ionized NH_3/L were determined from survivorship at measured concentrations of 0, 7.87, 16.9, 47.2, 85.4, and 148 mg total NH_3/L, and calculated un-ionized concentrations of 0, 0.385, 0.673, 1.21, 1.75, and 1.55 mg un-ionized NH_3/L. Measured total ammonia and un-ionized ammonia in tests conducted with project materials were below concurrent reference toxicant effect levels (LC_{50} = 109 mg total NH_3/L; no observable effect concentration [NOEC] = 85.4 mg total NH_3/L). Therefore, ammonia is not expected to have contributed to any toxicity found in tests using project materials.

Table 16. Results of Solid Phase Test using *Eohaustorius estuarius*

Sample ID	Amphipods (*Eohaustorius estuarius*)						
	Overlying Total Ammonia Concentration (mg/L)		Interstitial Total Ammonia Concentration (mg/L)		% Survival	% Mortality	% Effective Mortality[1]
	Initial	Day 10	Initial	Day 10			
Control 1	<0.500	<0.500	1.19	0.571	95.0	5.00	6.00
D-3	<0.500	<0.500	1.56	0.977	75.0	25.0	25.0
E-4	<0.500	<0.500	1.27	1.22	63.0	37.0	37.0
F-1	<0.500	<0.500	1.67	0.973	57.0	43.0	43.0
B-2	<0.500	<0.500	2.03	0.946	55.0	45.0	45.0
MC-2	<0.500	<0.500	2.75	1.46	74.0	26.0	26.0
MC-3	<0.500	<0.500	2.88	2.29	77.0	23.0	23.0
MC-5	<0.500	<0.500	4.79	3.00	67.0	33.0	33.0
MC-4	<0.500	<0.500	3.71	1.63	91.0	9.00	9.00
Control 2	<0.500	<0.500	0.866	0.858	91.0	9.00	9.00
E-3	<0.500	<0.500	1.20	0.587	57.0	43.0	44.0
E-1	<0.500	<0.500	1.76	1.33	65.0	35.0	35.0
MC-1	<0.500	<0.500	1.93	0.896	59.0	41.0	41.0
G-2	<0.500	<0.500	1.69	1.32	45.0	55.0	55.0
D-2	<0.500	<0.500	2.54	1.16	69.0	31.0	31.0
H-2	<0.500	<0.500	3.13	2.70	85.0	15.0	15.0
A-2	<0.500	<0.500	3.25	1.04	83.8[2]	16.3	16.3
C-2	<0.500	<0.500	2.42	1.66	72.0	28.0	28.0

	Concentration (mg/L)	% Survival	LC$_{50}$ (mg/L)
Cadmium Chloride Reference Toxicant	Control	96.7	6.67
	2.50	86.7	
	5.00	73.3	
	10.0	16.7	
	20.0	0.00	
	40.0	0.00	

	Total NH$_3$	Un-ionized NH$_3$		Total NH$_3$		Un-ionized NH$_3$	
	Actual Concentration (mg/L)	Calculated Concentration (mg/L)	% Survival	LC$_{50}$ (mg/L)	NOEC (mg/L)	LC$_{50}$ (mg/L)	NOEC (mg/L)
Ammonium Chloride Reference Toxicant	Control	Control	83.3	109	85.4	1.67	1.75
	7.87	0.385	93.3				
	16.9	0.673	96.7				
	47.2	1.21	90.0				
	85.4	1.75	73.3				
	148	1.55	0.00				

[1] Sum of dead animals plus those survivors that fail to rebury.

[2] Over 20 amphipods were recovered at test termination from one replicate. Unable to confirm the number of organisms added at test initiation, therefore this replicate was dropped from statistical analysis.

3.3.2 Relationship between Grain Size, Chemistry, and Observed Amphipod Toxicity

The indigenous habitat of *E. estuarius* typically is a sandy sediment. While these organisms are tolerant of a wide variety of grain sizes, extremely fine sediments may not be suitable. Studies have shown that survival of many organisms may be affected by grain size distribution (DeWitt et al., 1989). In addition, previous studies conducted by Weston (formerly MEC Analytical) have demonstrated that survival of *E. estuarius* is affected by grain size extremes (i.e., >75% sand or >75% clay). Specifically, increased mortality associated with increased proportions of sand or clays in sediment. To determine whether toxicity measured in the present study was confounded by grain size and not entirely due to contaminants in the sediment, a correlation analysis was performed on the Marina del Rey Harbor sediment grain size data and toxicity test results. Figure 19 demonstrates a statistically significant correlation between survival of *E. estuarius* and percent clay in the Marina del Rey Harbor sediment. Increased mortality is associated with increased proportions of fine grained sediment. Because DDTs, PCBs, copper, and zinc sometimes exceeded the ER-M in the Marina del Rey Harbor sediments, correlation analyses were also performed on these analytes against the amphipod survival data. Results show that there were statistically significant correlations between survival of *E. estuarius* and zinc and copper ($P<0.05$); however, no significant correlations were found between survival and DDTs or PCBs ($P>0.05$).

As shown in Figure 20, if the ER-M value is plotted on the graph, it is evident that for zinc, there is only one ER-M exceedance and it corresponds to survival of *E. estuarius* of approximately 60% survival (i.e., only slightly toxic). This indicates that factors other than zinc (which is primarily found at concentrations below the ER-M) were contributing to the toxicity observed. Similarly, the ER-M value for copper is plotted in Figure 9, showing the correlation between copper concentration and survival of *E. estuarius*, which shows that 7 out of the 16 points exceed an ER-M value. In the case of copper, although the samples with the highest copper do not show the highest toxicity, it is possible that copper contributed to decreased survival. Nonetheless, because copper and zinc are significantly correlated to the percent of clay in sediment (Figure 22 and Figure 23), it is likely that grain size (or percent clay) interferes with the test result or the ability to discern whether these metals have an effect on toxicity of the amphipods.

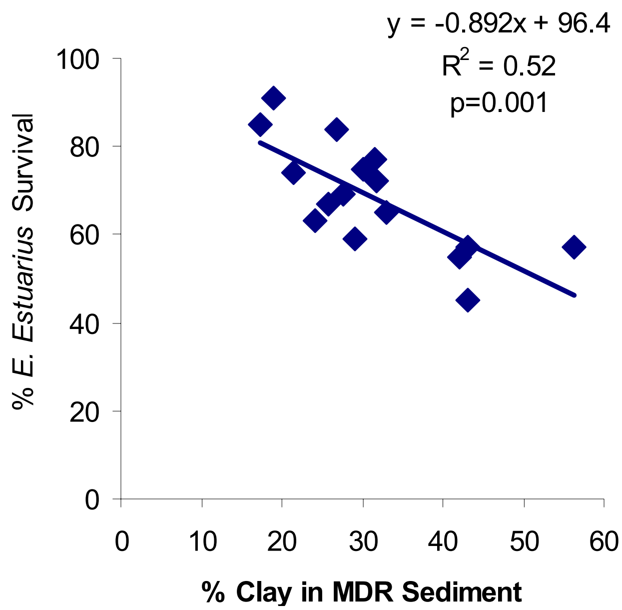

Figure 19. Correlation between survival of *E. estuarius* and percent clay in the Marina del Rey Harbor sediment.

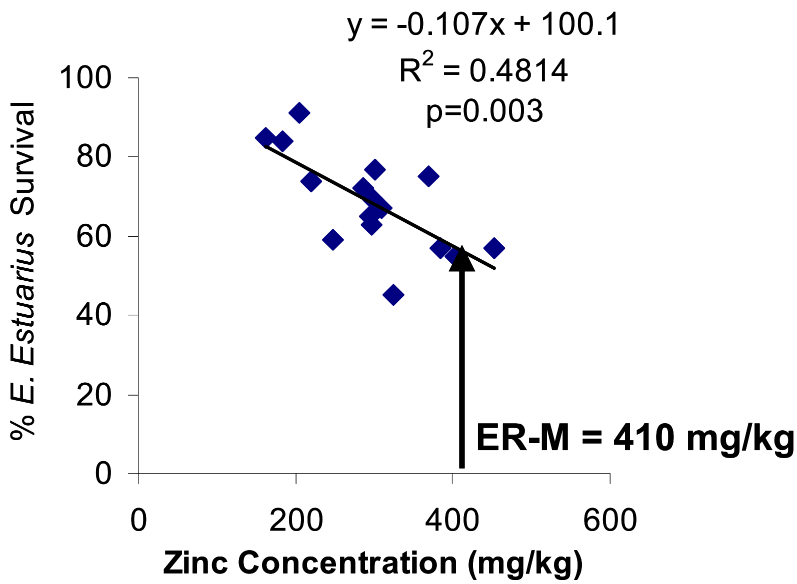

Figure 20. Correlation between survival of *E. estuarius* and zinc concentrations in the Marina del Rey Harbor sediment.

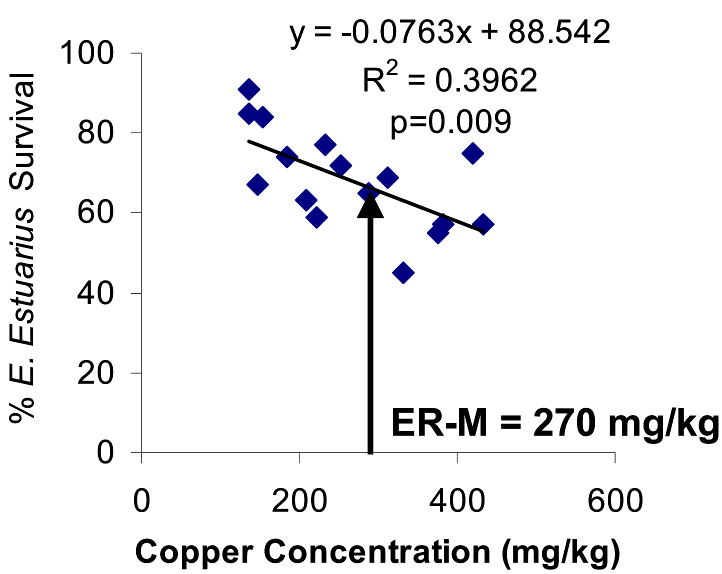

Figure 21. Correlation between survival of *E. estuarius* and copper concentrations in the Marina del Rey Harbor sediment.

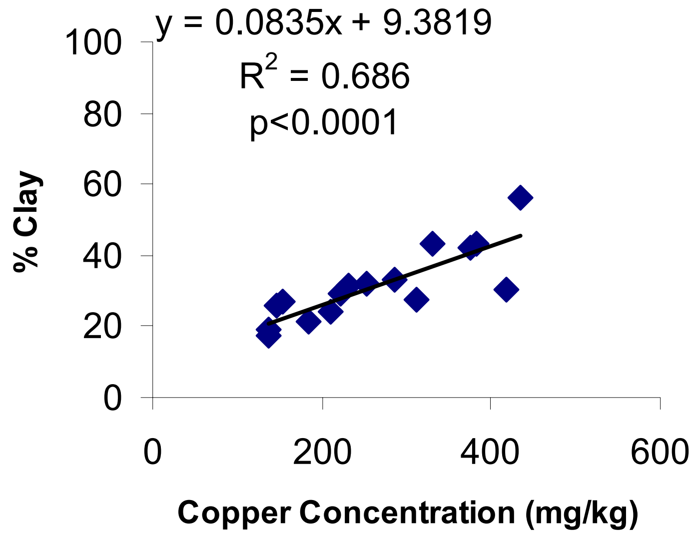

Figure 22. Correlation between percent clay and copper concentrations in the Marina del Rey Harbor sediment.

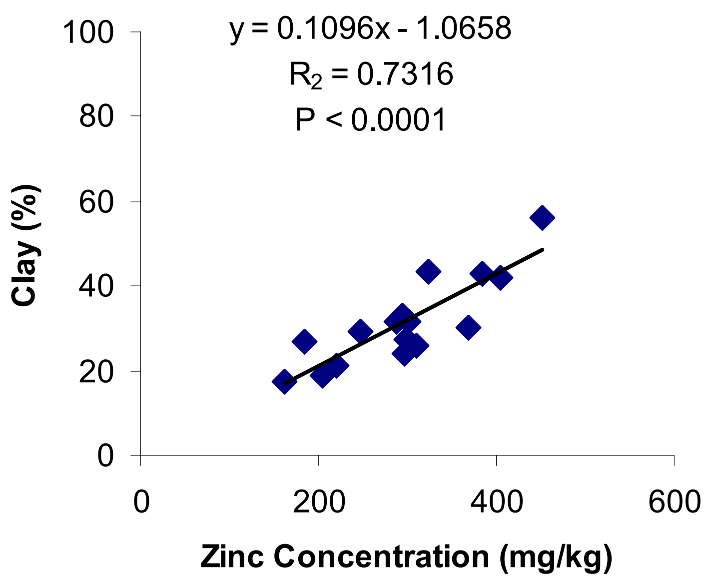

Figure 23. Correlation between percent clay and zinc concentrations in the Marina del Rey Harbor sediment.

3.4 BENTHIC COMMUNITY EVALUATION

Benthic infaunal samples were collected from 16 stations located throughout the main channel and basins of Marina del Rey. Benthic abundance by species is shown in Table 17. Total abundance per sample location ranged from 151 specimens at station E-3 to 1930 specimens at station A-2. Samples were largely comprised of polychaetes and a lesser extent, crustaceans. There were low abundances of molluscs and the dominant species in the miscellaneous phyla were phoronids.

Table 17. Total abundance of benthic infauna per station.

Taxon	Species	A-2	B-2	C-2	D-2	D-3	E-1	E-3	E-4	F-1	G-2	H-2	MC-1	MC-2	MC-3	MC-4	MC-5
Crustaceans	*Alpheus clamator*											1	2	1			
Crustaceans	*Amphideutopus oculatus*														4	20	142
Crustaceans	*Anoplodactylus erectus*						5							3			1
Crustaceans	*Caprella californica*											1					
Crustaceans	*Deltamysis* sp A											3	2	8	13		
Crustaceans	*Euphilomedes carcharodonta*								1								11
Crustaceans	*Grandidierella japonica*	25	22	9	2		4			29	2	2	1	1		1	2
Crustaceans	*Heteroserolis carinata*															2	3
Crustaceans	*Mayerella acanthopoda*	2		5	5	13	2	6	1	2	2		1		3	8	13
Crustaceans	*Monocorophium acherusicum*		1														
Crustaceans	Mysidacea										1						
Crustaceans	*Paranthura elegans*	2			7							2			1	1	
Crustaceans	*Podocerus fulanus*	10		2			2			7				3			2
Crustaceans	*Pseudotanais* sp 1	17															
Crustaceans	*Synaptotanais notabilis*	571	70	25	15						2		1		1		
Crustaceans	*Zeuxo normani*									2							
Total Abundance for Crustaceans		**627**	**93**	**41**	**29**	**13**	**13**	**6**	**2**	**40**	**7**	**9**	**7**	**16**	**22**	**32**	**174**
Echinoderms	*Amphipholis squamata*															3	
Echinoderms	Amphiuridae		1														
Total Abundance for Echinoderms		**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**
Minor Phyla	Actiniaria								1								
Minor Phyla	*Corymorpha palma*	7		4	1	2				1	2	1					
Minor Phyla	Diadumenidae								2								
Minor Phyla	*Edwardsia juliae*																1
Minor Phyla	*Euphysa* sp	1															
Minor Phyla	Lineidae	1														1	2
Minor Phyla	*Lineus bilineatus*														1		3
Minor Phyla	Nemertea																13
Minor Phyla	*Notoplana* sp				1												
Minor Phyla	Paleonemertea	4								1							
Minor Phyla	*Paranemertes californica*			1	1					1			2				2
Minor Phyla	Phoronida	44	17	20	190	26	53	5	1	8	62	14	5	2	4	7	
Minor Phyla	*Tetrastemma nigrifrons*													1			
Minor Phyla	*Tubulanus polymorphus*										1						
Minor Phyla	*Zygeupolia rubens*												1				
Total Abundance for Minor Phyla		**57**	**17**	**25**	**193**	**28**	**53**	**5**	**4**	**11**	**65**	**15**	**8**	**3**	**5**	**8**	**21**
Molluscs	*Acteocina inculta*			1	6					7	2						
Molluscs	*Caecum californicum*												1				
Molluscs	*Cooperella subdiaphana*															2	2
Molluscs	*Haminoea vesicula*													6	1		
Molluscs	*Laevicardium substriatum*											1					1
Molluscs	*Lyonsia californica*																3
Molluscs	*Macoma nasuta*																1

Taxon	Species	A-2	B-2	C-2	D-2	D-3	E-1	E-3	E-4	F-1	G-2	H-2	MC-1	MC-2	MC-3	MC-4	MC-5
Molluscs	Mactridae																7
Molluscs	*Neolepton* sp	3	1														
Molluscs	*Parvilucina tenuisculpta*														1		
Molluscs	*Periploma discus*																1
Molluscs	*Protothaca* sp						2					1				1	1
Molluscs	*Protothaca staminea*	1															
Molluscs	*Rochefortia mortoni*															1	
Molluscs	*Simomactra falcata*														1	2	1
Molluscs	*Tagelus subteres*			1	1					1		1	1	1		8	16
Molluscs	*Tellina cadieni*															1	2
Molluscs	*Tellina meropsis*						1			1							
Molluscs	*Tellina* sp																2
Molluscs	*Theora lubrica*				1				1		1				1	4	14
Molluscs	*Thracia* sp														1		
Total Abundance for Molluscs		**4**	**1**	**2**	**8**	**0**	**3**	**0**	**1**	**9**	**3**	**3**	**2**	**7**	**5**	**19**	**51**
Polychaetes	*Ampharete labrops*														1		1
Polychaetes	*Amphicteis scaphobranchiata*															2	2
Polychaetes	*Anotomastus gordiodes*								1								
Polychaetes	*Aphelochaeta* sp SD5	17	12					1		1	11	42	2	1	6	22	61
Polychaetes	*Apoprionospio pygmaea*																2
Polychaetes	*Aricidea (Acmira) catherinae*														1	1	2
Polychaetes	*Armandia brevis*			3	3		6			4	10	1	7	4	9		1
Polychaetes	*Boccardiella hamata*			1													
Polychaetes	*Capitella capitata* Cmplx	2											1		3		
Polychaetes	*Chaetozone corona*																1
Polychaetes	Cirratulidae		1	1													
Polychaetes	*Cirriformia* sp	1		2													
Polychaetes	*Cirriformia* sp SD1											1				2	
Polychaetes	*Cossura* sp A															5	7
Polychaetes	*Dipolydora socialis*		1														
Polychaetes	*Dorvillea (Schistomeringos) annulata*	17	12	22	16	2	4	2	8		4		1		1	1	
Polychaetes	*Euchone limnicola*	406	38	85	22	29	139	5	3	44	14	36	91	114	212	107	175
Polychaetes	*Euclymeninae* sp A																1
Polychaetes	*Exogone lourei*	24	1	2						1		1	1				4
Polychaetes	*Exogone* sp	2															
Polychaetes	*Exogone* sp A	30	13				2		2	1	2	1	1			1	5
Polychaetes	*Glycera americana*													1	1	1	1
Polychaetes	*Goniada littorea*											3				3	
Polychaetes	*Harmothoe imbricata* Cmplx		1									2					
Polychaetes	*Hydroides pacificus*		1														
Polychaetes	*Leitoscoloplos pugettensis*	55	92	132	59	66	61	35	39	37	39	58	23	21	21	43	135
Polychaetes	*Mediomastus* sp	86	9	33	38	5	17	1	11	12	23		28	11	90	45	127
Polychaetes	*Melinna oculata*		1													1	
Polychaetes	*Metasychis disparidentatus*		1							2				1	1		3
Polychaetes	*Monticellina siblina*																2
Polychaetes	*Neanthes acuminata* Cmplx	1		6			1					1					
Polychaetes	*Nephtys caecoides*		1									1				3	
Polychaetes	*Nereis procera*																1

Taxon	Species	A-2	B-2	C-2	D-2	D-3	E-1	E-3	E-4	F-1	G-2	H-2	MC-1	MC-2	MC-3	MC-4	MC-5
Polychaetes	*Notomastus* sp A	1															1
Polychaetes	Oligochaeta	1							1		1	1					
Polychaetes	*Pherusa capulata*	11	2				1		1	2	2	1	1	2	1	1	
Polychaetes	*Pista wui*														1	1	2
Polychaetes	*Podarkeopsis glabrus*														1		
Polychaetes	*Polydora cornuta*		1	2	4	6	3	1	2		2		2	1	3		
Polychaetes	*Praxillella pacifica*																3
Polychaetes	*Prionospio heterobranchia*	58	15	26	6		17	1		9	8	1	9	3	34	6	11
Polychaetes	*Prionospio lighti*															1	
Polychaetes	*Prionospio pinnata*							50									
Polychaetes	*Pseudopolydora paucibranchiata*	434	394	459	295	26	358		27	172	41	163	327	245		373	293
Polychaetes	*Scolelepis* sp SD1	2		1	4	2	2								2		13
Polychaetes	*Scoletoma erecta*		1		5	25	3	19	35		1		4		1		
Polychaetes	*Scoletoma* sp	1	1				3	1	4			1	1	2	2	4	6
Polychaetes	*Scoletoma* sp A												3	2	3	11	9
Polychaetes	*Scoletoma* sp B																1
Polychaetes	*Scoletoma* sp C	82	91	27	34	34	75	24	37	45	39	25	99	77	194	104	107
Polychaetes	*Scoloplos acmeceps*	5	1	1	14	2	1		3								
Polychaetes	*Sphaerosyllis californiensis*	6															
Polychaetes	*Spiochaetopterus costarum*																1
Polychaetes	*Spiophanes duplex*											1	1		1	8	3
Polychaetes	*Streblosoma* sp B															1	
Polychaetes	*Streblospio benedicti*								18								
Polychaetes	*Syllides reishi*								2								
Polychaetes	*Syllis (Typosyllis) nipponica*											1		2	1		
Total Abundance Polychaetes		**1242**	**690**	**803**	**500**	**197**	**693**	**140**	**194**	**330**	**197**	**341**	**602**	**487**	**590**	**747**	**981**
Total Abundance for All Taxa		**1930**	**802**	**871**	**730**	**238**	**762**	**151**	**201**	**390**	**272**	**368**	**619**	**513**	**622**	**809**	**1227**

4. CALIFORNIA SEDIMENT QUALITY OBJECTIVES: ASSESSMENT

Sediment quality from Marina del Rey Harbor was assessed using California's SQOs as described in the *Draft Staff Report, Water Quality Control Plan for Enclosed Bays and Estuaries* (SWRCB –Cal EPA, 2007). These SQOs are based on a multiple lines of evidence (MLOE) approach in which the LOE are sediment chemistry (Table 18), sediment toxicity (Table 19), and benthic community condition (Table 20).

Table 18. Sediment Chemistry Category

Sample Name	Chemistry Guideline		Sediment Chemistry Category
	CA LRM	CSI	
A-2	0.63	2.18	Moderate Exposure
B-2	0.76	2.79	High Exposure
C-2	0.69	2.47	High Exposure
D-2	0.70	2.31	Moderate Exposure
D-3	0.77	2.66	High Exposure
E-1	0.70	2.97	High Exposure
E-3	0.79	2.74	High Exposure
E-4	0.70	2.72	High Exposure
F-1	0.75	2.86	High Exposure
G-2	0.74	2.86	High Exposure
H-2	0.56	2.12	Moderate Exposure
MC-1	0.66	2.68	Moderate Exposure
MC-2	0.63	2.97	Moderate Exposure
MC-3	0.72	2.97	High Exposure
MC-4	0.64	2.97	Moderate Exposure
MC-5	0.77	2.89	High Exposure

Table 19. Sediment Toxicity Category

Sample Name	Amphipod Toxicity (% diff from control)	
A-2	84	Non-toxic
B-2	55	High Toxicity
C-2	72	Moderate Toxicity
D-2	69	Moderate Toxicity
D-3	75	Moderate Toxicity
E-1	65	Moderate Toxicity
E-3	57	Moderate Toxicity
E-4	63	Moderate Toxicity
F-1	57	Moderate Toxicity
G-2	45	High Toxicity
H-2	85	Non-toxic
MC-1	59	Moderate Toxicity
MC-2	74	Moderate Toxicity
MC-3	77	Moderate Toxicity
MC-4	91	Non-toxic
MC-5	67	Moderate Toxicity

Table 20. Sediment Benthic Category

Station Name	IBI Score	RBI Score	BRI Score	RIVPAC Score	Benthic Score
A-2	1	0.10	43.98	0.73	Moderate Disturbance
B-2	2	0.08	46.00	0.36	Moderate Disturbance
C-2	0	0.09	55.32	0.61	Moderate Disturbance
D-2	1	0.10	52.64	0.61	Moderate Disturbance
D-3	2	0.03	47.54	0.24	High Disturbance
E-1	1	0.09	49.63	0.48	Moderate Disturbance
E-3	2	0.03	36.86	0.12	High Disturbance
E-4	2	0.04	38.46	0.36	Moderate Disturbance
F-1	0	0.10	54.95	0.61	Moderate Disturbance
G-2	1	0.07	47.81	0.61	Moderate Disturbance
H-2	0	0.38	47.04	0.73	Low Disturbance
MC-1	1	0.08	48.42	0.61	Moderate Disturbance
MC-2	1	0.10	52.38	0.48	Moderate Disturbance
MC-3	1	0.12	41.33	0.24	Moderate Disturbance
MC-4	0	0.45	36.10	0.73	Reference
MC-5	1	0.23	31.03	0.85	Low Disturbance

Integration: Station Assessment

The severity of biological effects (i.e., integration of toxicity LOE and benthic condition LOE categories) and the potential for chemically-mediated effects (i.e., the integration of the toxicity LOE and chemistry LOE categories) was used to determine the station level assessment. Two stations were found to be likely unimpacted and one possibly impacted. Four stations were found to be likely impacted and nine stations clearly impacted. A gradient of cleaner stations near the mouth of Marina del Rey is suggested.

Station Name	**Severity of Biological Effects**	+	**Potential for Chemically Mediated Effects**	=	**Station Assessment**
A-2	Moderate Effect	+	Low Potential	=	Possibly Impacted
B-2	Moderate Effect	+	High Potential	=	Clearly Impacted
C-2	Moderate Effect	+	High Potential	=	Clearly Impacted
D-2	Moderate Effect	+	High Potential	=	Likely Impacted
D-3	High Effect	+	High Potential	=	Clearly Impacted
E-1	Moderate Effect	+	High Potential	=	Clearly Impacted
E-3	High Effect	+	High Potential	=	Clearly Impacted
E-4	Moderate Effect	+	High Potential	=	Clearly Impacted
F-1	Moderate Effect	+	High Potential	=	Clearly Impacted
G-2	Moderate Effect	+	High Potential	=	Clearly Impacted
H-2	Unaffected	+	Low Potential	=	Likely Unimpacted
MC-1	Moderate Effect	+	Moderate Potential	=	Likely Impacted
MC-2	Moderate Effect	+	Moderate Potential	=	Likely Impacted
MC-3	Moderate Effect	+	High Potential	=	Clearly Impacted
MC-4	Unaffected	+	Low Potential	=	Likely Unimpacted
MC-5	Low Effect	+	High Potential	=	Likely Impacted

The grain size data suggest toxicity test results may have been confounded by percent fines. If it is assumed fines contributed to 10% mortality, then C-2, D-3 and MC-4 change from “clearly impacted” to “likely impacted” and MC-2 is reduced to “possibly impacted”. If we assume fines contributed to 20% mortality, then E-1 and E-4 also change from “clearly impacted” to “likely impacted”.

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April 10, 2008

Mr. William Johnson
County of Los Angeles Dept. of Public Works
Watershed Management Division

RE: Marina del Rey Sediment Characterization Study: Spatial Patterns in Sediment Core

The text presented in this letter report will be added to the Final Marina del Rey Sediment Characterization Report prior to submission to the RWQCB. This additional discussion is provided to aid in examining spatial patterns of contaminants from the core samples. Two depth horizons were analyzed (surface [0 to 10 cm] and subsurface [10 cm to design depth]). Maps illustrating the relative concentrations of specific contaminants of concern and a discussion of their spatial patterns are provided below. The TMDL related contaminants as well as DDT are discussed below.

Methods for Interpolative Maps

Target analytical and grain size data collected from the surface (0 to 10 centimeter [cm]) and subsurface (10 cm to design depth) intervals of sediment along the inlet channels were analyzed to produce Isopleth maps (Figure 1 through Figure 12). The intent of these maps is to show parameter concentrations as they are dispersed within the inlet and determine any possible distribution trends. To produce the figures, the data were brought into the software Surfer 8, made by Golden Software, Inc. To perform the interpolation, the Kriging gridding method was applied using a Linear Variogram Model at a Slope and Anisotropy value of 1. In order to account for the impermeability of the bulkheads, a Breakline was applied to the interpolation that represented the outline of the inlet with a concentration value set to the lowest result of the dataset for the particular compound. For example, the lowest concentration of zinc in the surface data set was approximately 50 ppm, therefore the edges (bulkheads) of the harbor were assigned the value of 50 ppm to display the patterns. Once the Isopleth contours were generated, they were exported from Surfer to a standard Computer-Aided Design (CAD) format and brought into the software ESRI ArcGIS. Three-Dimensional (3D) surfaces were created based off of these contours using the ArcGIS extension toolset 3D Analyst. Two-Dimensional (2D) representations of these surfaces are presented in the attached figures.

The surface interval core was consistently 10 cm throughout entire project area. However, the subsurface interval core varied from 0 cm (A-2) to more than 80 cm (MC3). To illustrate the differences in the subsurface interval core length, an additional metric was included in the subsurface maps.

Results

Total Chlordane

Elevated levels of total chlordane were distributed in the Main Channel (near station MC-5), and Basins A and B. In Basins A and B, elevated concentrations were distributed closer to the Main Channel. Concentrations of total chlordane were higher in surface sediment (0 to 10 cm) relative to subsurface sediment. In the Main Channel, elevated concentrations in surface sediment were indicative of elevated concentrations in subsurface sediment. Both surface and subsurface concentrations were greater than the corresponding ER-M value. In Basins A and B, elevated concentrations in surface sediment were also indicative of elevated concentrations in subsurface sediment, however subsurface concentrations were significantly lower.

Copper

Elevated levels of copper were distributed throughout the area evaluated. Several concentrations exceeded the corresponding ER-L; however only sample B1 exceeded the corresponding ER-M. Highest concentrations were detected in the Main Channel (near station MC-5), and in Basins A, B, C, D, G, and H. In Basins A, B, C, G, and H, elevated concentrations were distributed closer to the Main Channel. In Basin D, elevated concentrations were distributed away from the Main Channel. Concentrations of copper were higher in surface sediment relative to subsurface sediment. Elevated concentrations in surface sediment were sometimes indicative of elevated concentrations in subsurface sediment, however subsurface concentrations were significantly lower.

Total DDTs

Elevated levels of total DDTs were distributed throughout the area evaluated. Several concentrations exceeded the corresponding ER-L and ER-M values. Highest concentrations were detected in the back of the Main Channel (near station MC-1), and in Basins E, F, and G. At the majority of stations, concentrations of total DDTs were higher in subsurface sediment relative to surface sediment. Elevated concentrations in subsurface sediment were indicative of elevated concentrations in surface sediment, however surface concentrations were significantly lower.

Lead

Elevated levels of lead were distributed throughout the area evaluated. Several concentrations exceeded the corresponding ER-L; however no concentrations exceeded the corresponding ER-M. Highest concentrations were detected in the Main Channel (near station MC-5), and in Basins A, B, C, G, and H. In Basins A, B, C, G, and H, elevated concentrations were distributed closer to the Main Channel. Concentrations of lead were higher in surface sediment relative to subsurface sediment, with the exception of station H-1. Elevated concentrations in surface sediment were indicative of elevated concentrations in subsurface sediment, however subsurface concentrations were significantly lower.

Total PCBs

Elevated levels of total PCBs were distributed throughout the area evaluated. Several concentrations exceeded the corresponding ER-L; however no concentrations exceeded the corresponding ER-M. Highest concentrations were detected in the Main Channel (near station MC-5), and in Basins A, B, C, D, and G. In Basins A, B, C, and G, elevated concentrations were distributed closer to the Main Channel. In Basin D, elevated concentrations were distributed

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away from the Main Channel. Concentrations of total PCBs were higher in surface sediment relative to subsurface sediment, with the exception of stations MC-5, E-4, and H-1. Elevated concentrations in subsurface sediment were indicative of elevated concentrations in surface sediment, with the exception of station E-4. The concentration of total PCBs in subsurface sediment from station E4 was 42 fold higher than concentrations in surface sediment.

<u>Zinc</u>

Elevated levels of zinc were distributed throughout the area evaluated. Several concentrations exceeded the corresponding ER-L; however no concentrations exceeded the corresponding ER-M. Highest concentrations were detected in the Main Channel (near station MC-5), and in Basins A, B, C, D, G, and H. In Basins A, B, C, G, and H, elevated concentrations were distributed closer to the Main Channel. In Basin D, elevated concentrations were distributed away from the Main Channel. Concentrations of zinc were higher in surface sediment relative to subsurface sediment. Elevated concentrations in surface sediment were indicative of elevated concentrations in subsurface sediment, however subsurface concentrations were significantly lower.

Overall Patterns

Concentrations of copper, lead, zinc, total chlordane, and total PCBs were higher in surface sediments (0 to 10 cm), with only a few exceptions. Concentrations of total DDTs were higher in subsurface sediments, with only a few exceptions. Highest concentrations of copper, lead, zinc, and total PCBs were detected in the Main Channel (near station MC-5), and in Basins A, B, C, D, G, and H. In Basins A, B, C, G, and H, elevated concentrations were distributed closer to the Main Channel. In Basin D, elevated concentrations were distributed away from the Main Channel. Highest concentrations of total chlordane were also detected in the Main Channel (near station MC-5), and in Basins A and B. In Basins A and B, elevated concentrations were distributed closer to the Main Channel. Highest concentrations of total DDTs were detected in the back of the Main Channel (near station MC-1), and in Basins E, F, and G.

We would like to receive comments on this material within a week to allow us time to finalize and submit to LADPW on April 21, 2008. If you have any questions regarding the information presented in this letter or need any further assistance, please feel free to contact me at (760) 795-6913.

Sincerely,

Shelly Anghera, PhD
Project Manager/Bioassay Laboratory Director
Weston Solutions, Inc.

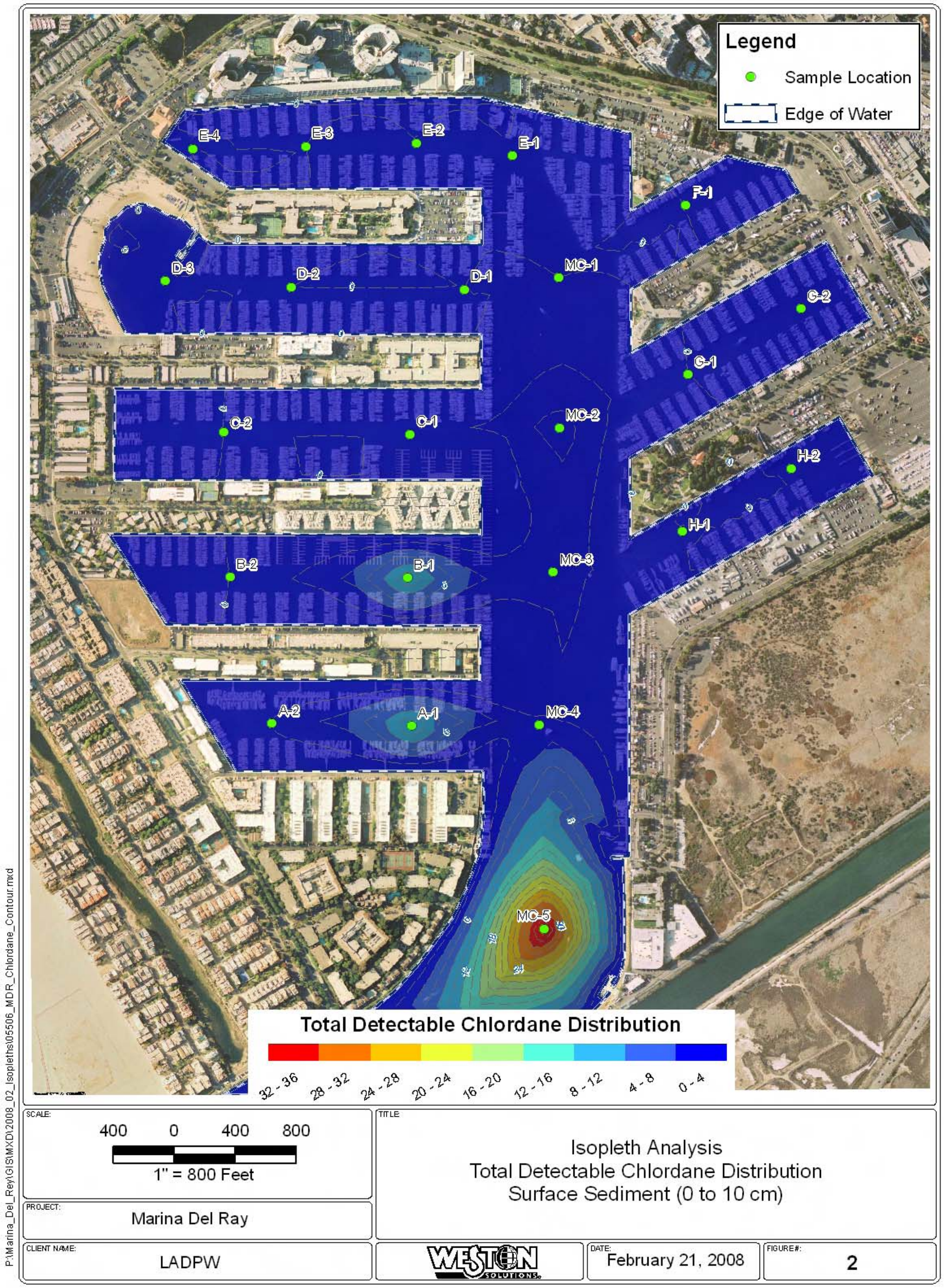

Figure 1. Distribution of total chlordane in surface sediment in Marina del Rey Harbor.

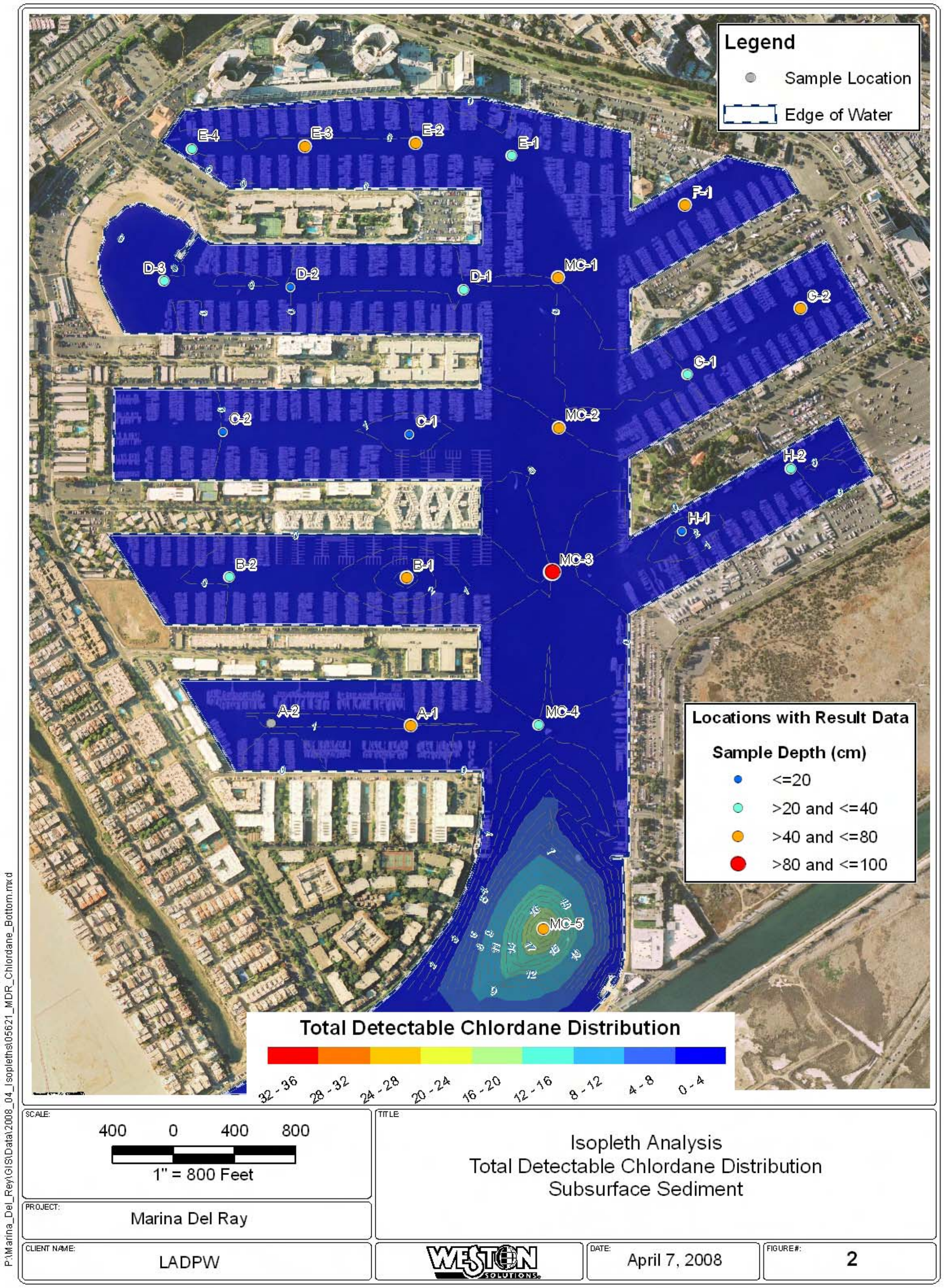

Figure 2. Distribution of total chlordane in subsurface sediment in Marina del Rey Harbor.

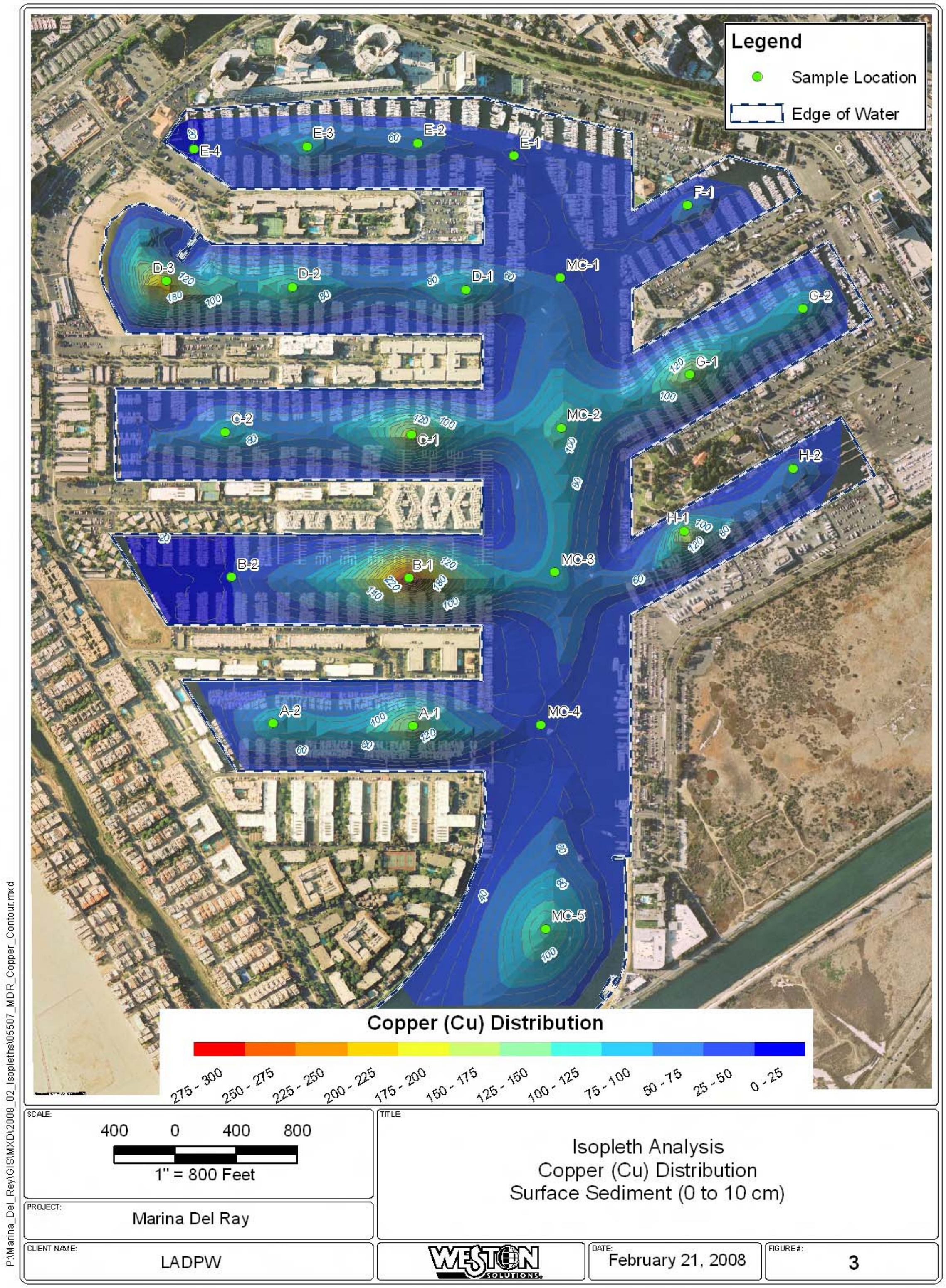

Figure 3. Distribution of copper in surface sediment in Marina del Rey Harbor.

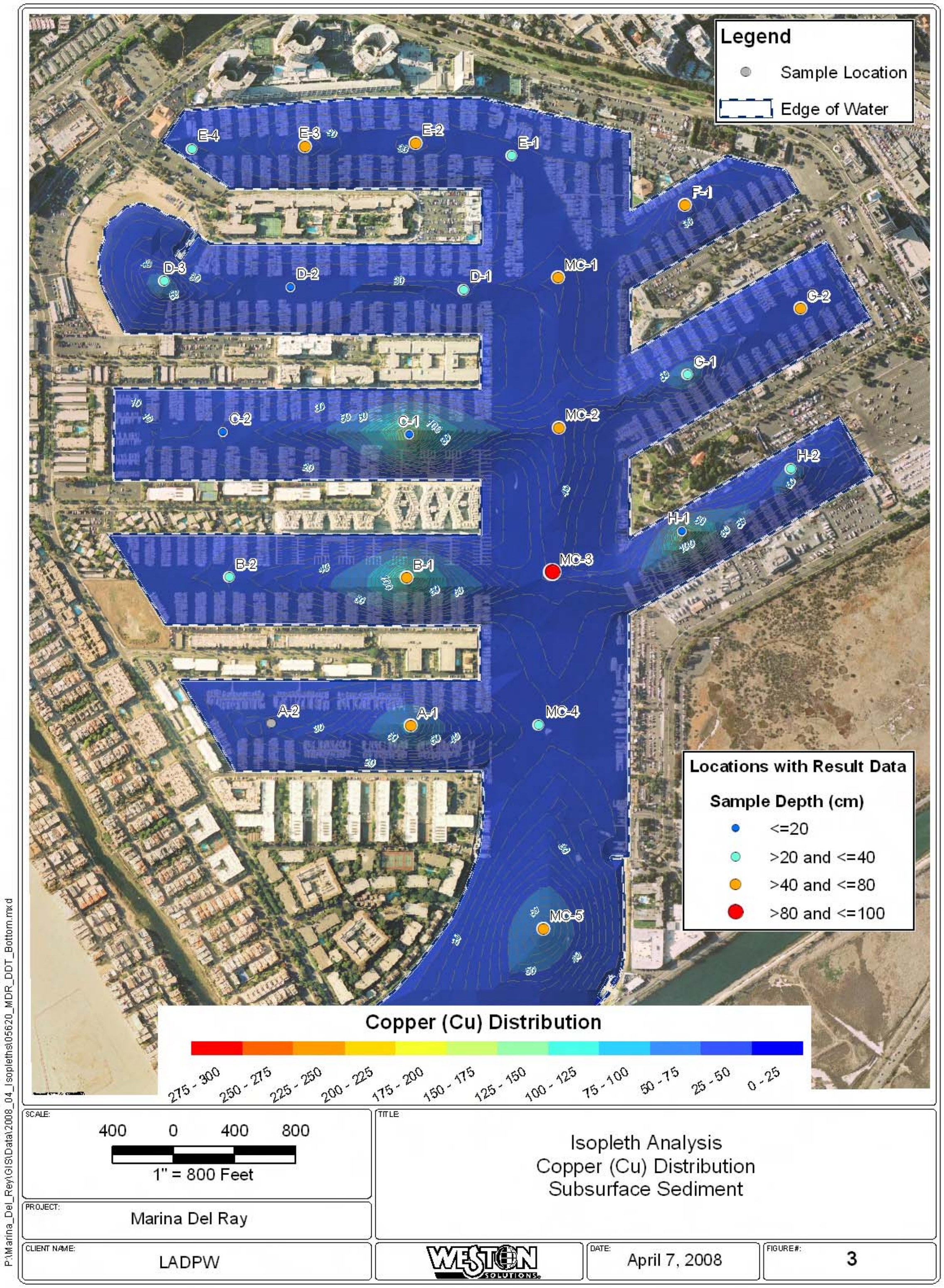

Figure 4. Distribution of copper in subsurface sediment in Marina del Rey Harbor.

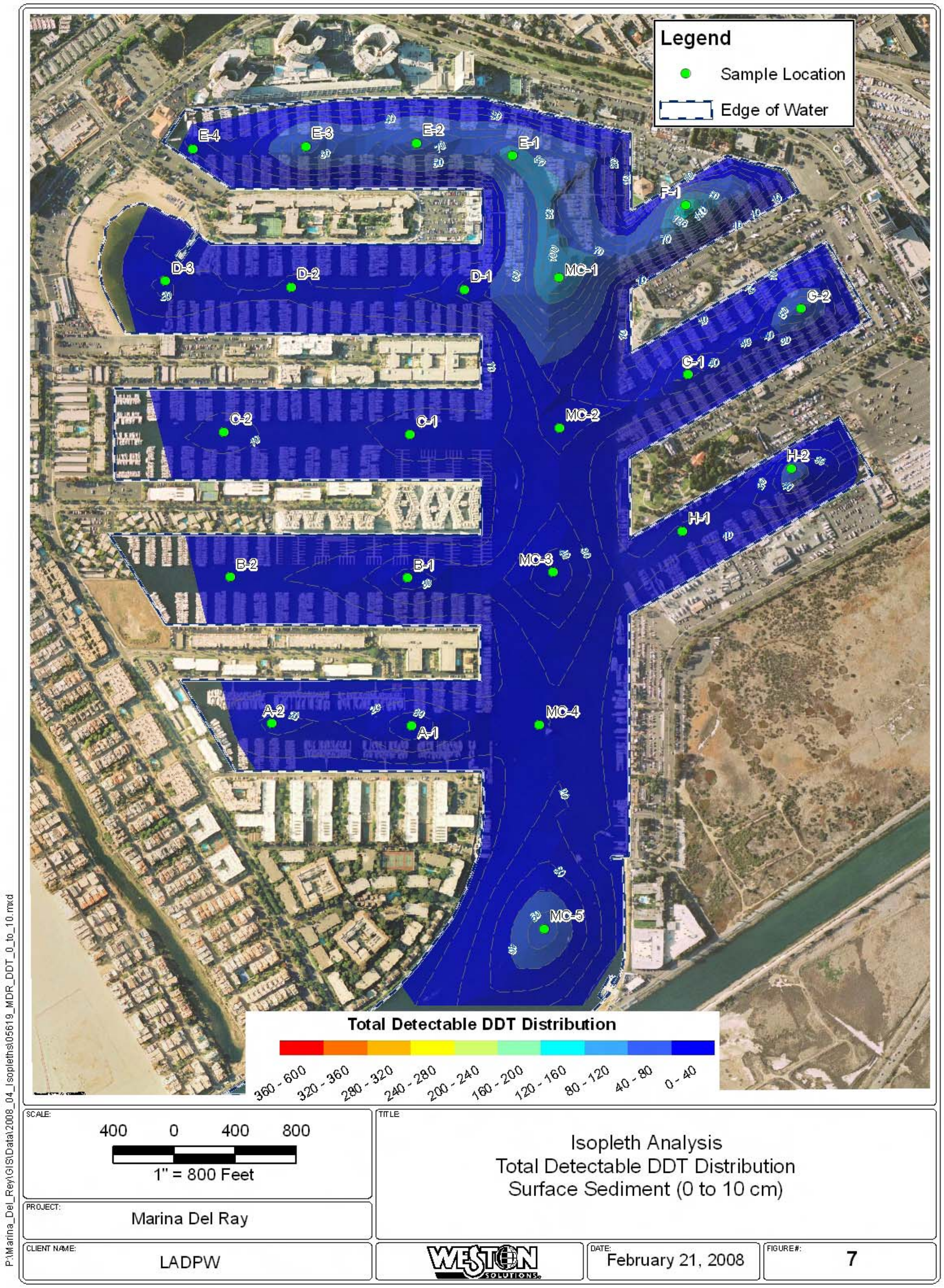

Figure 5. Distribution of total DDTs in surface sediment in Marina del Rey Harbor.

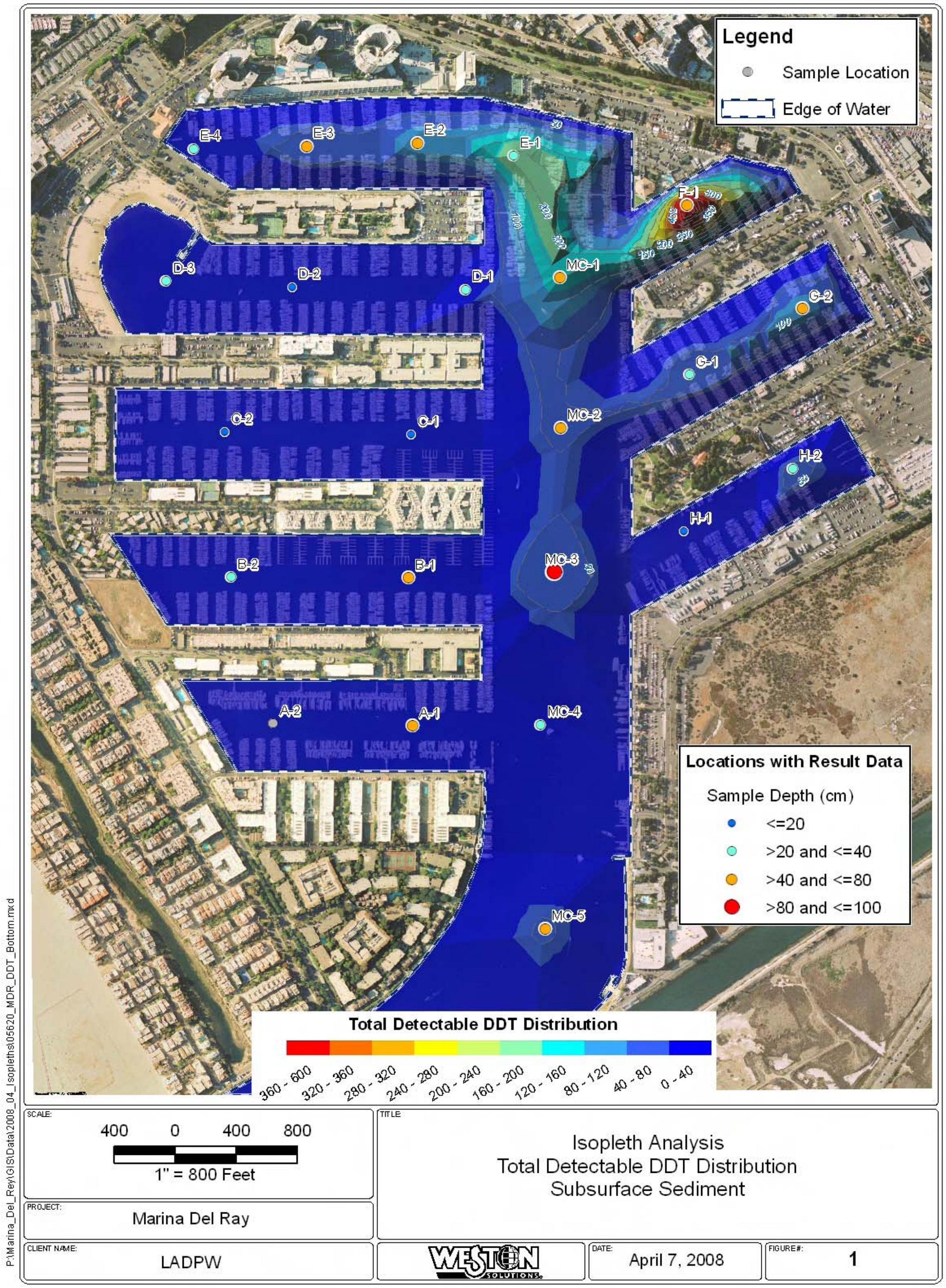

Figure 6. Distribution of total DDTs in subsurface sediment in Marina del Rey Harbor.

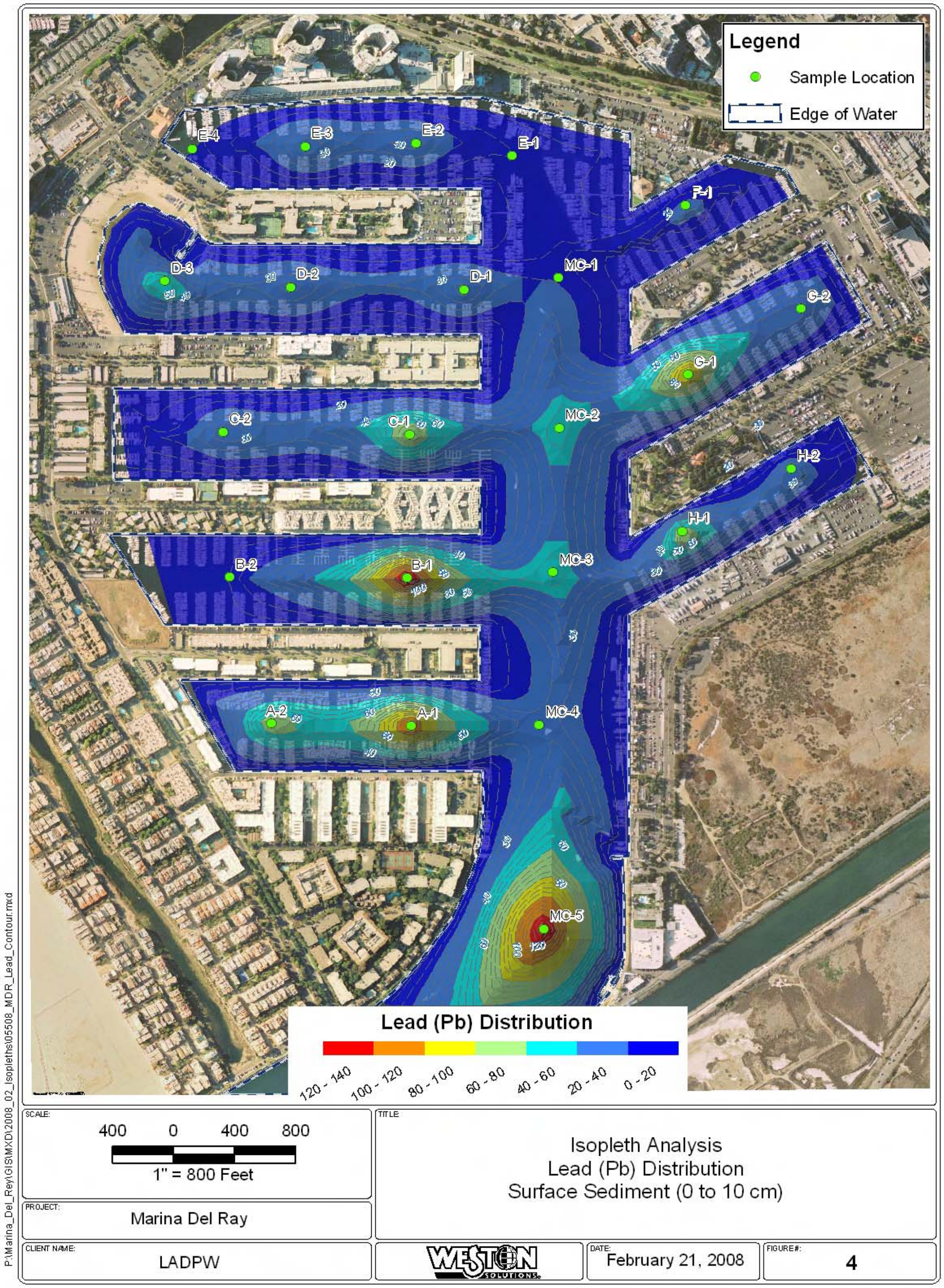

Figure 7. Distribution of lead in surface sediment in Marina del Rey Harbor.

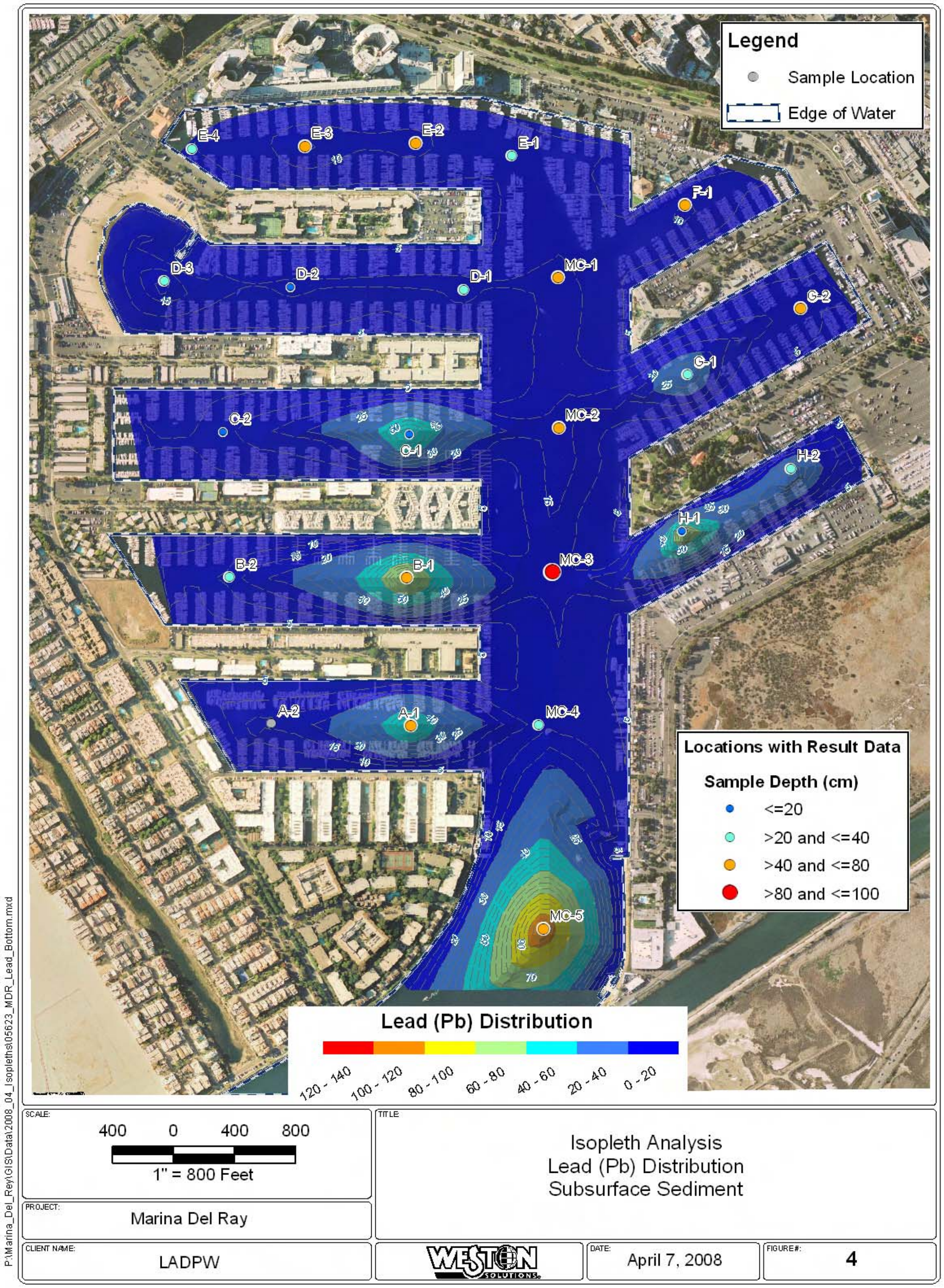

Figure 8. Distribution of lead in subsurface sediment in Marina del Rey Harbor.

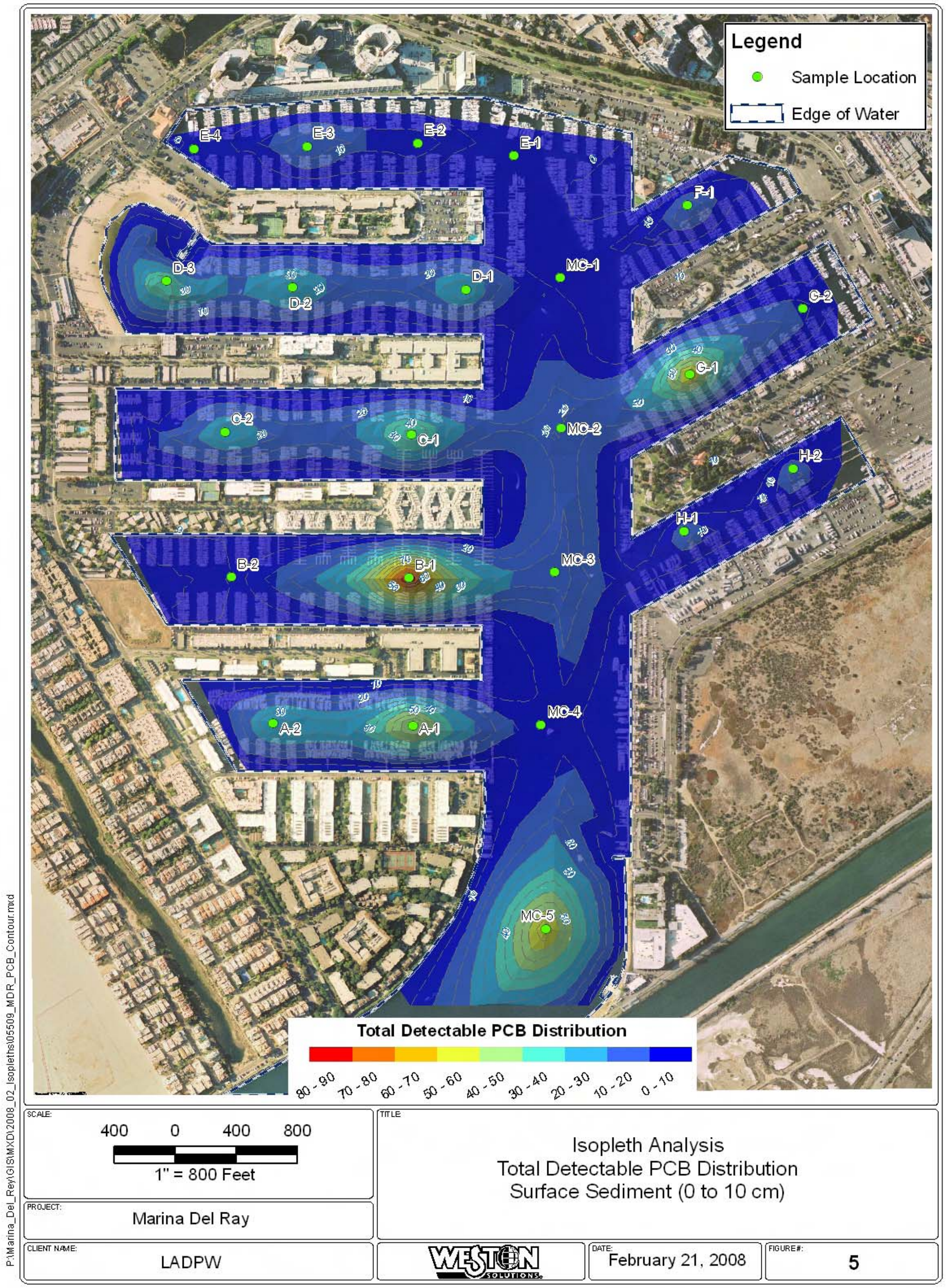

Figure 9. Distribution of total PCBs in surface sediment in Marina del Rey Harbor.

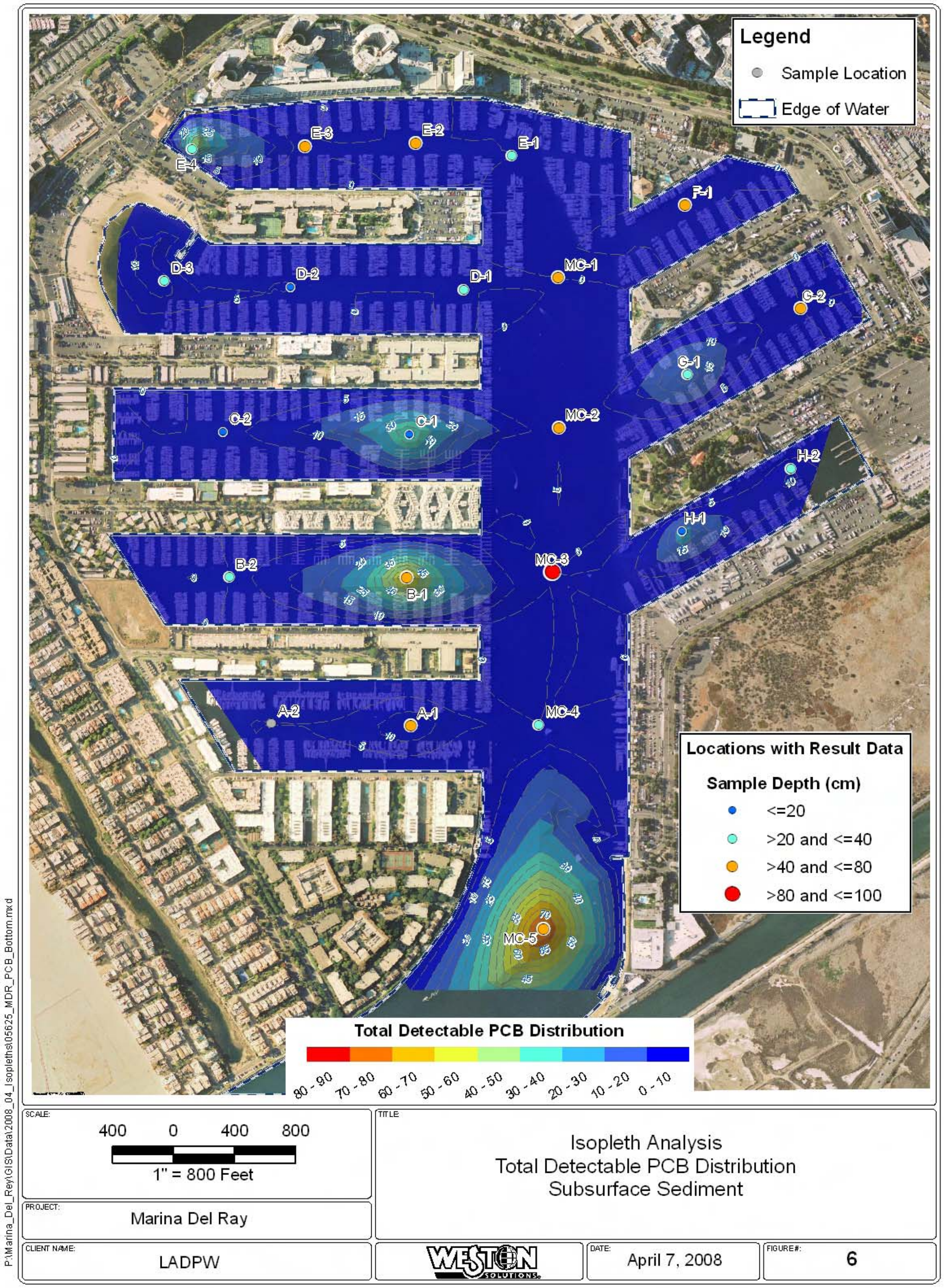

Figure 10. Distribution of total PCBs in subsurface sediment in Marina del Rey Harbor.

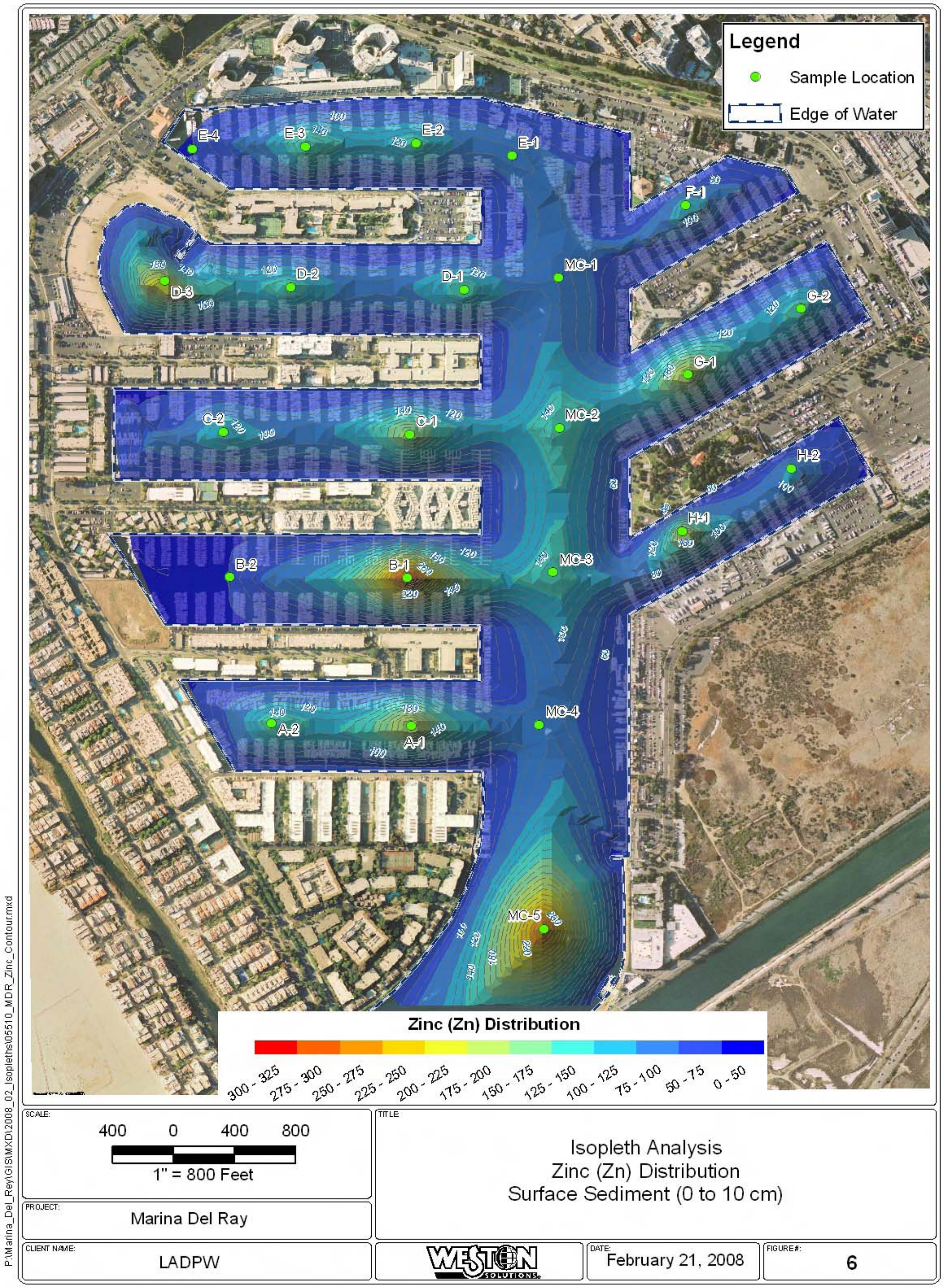

Figure 11. Distribution of zinc in surface sediment in Marina del Rey Harbor.

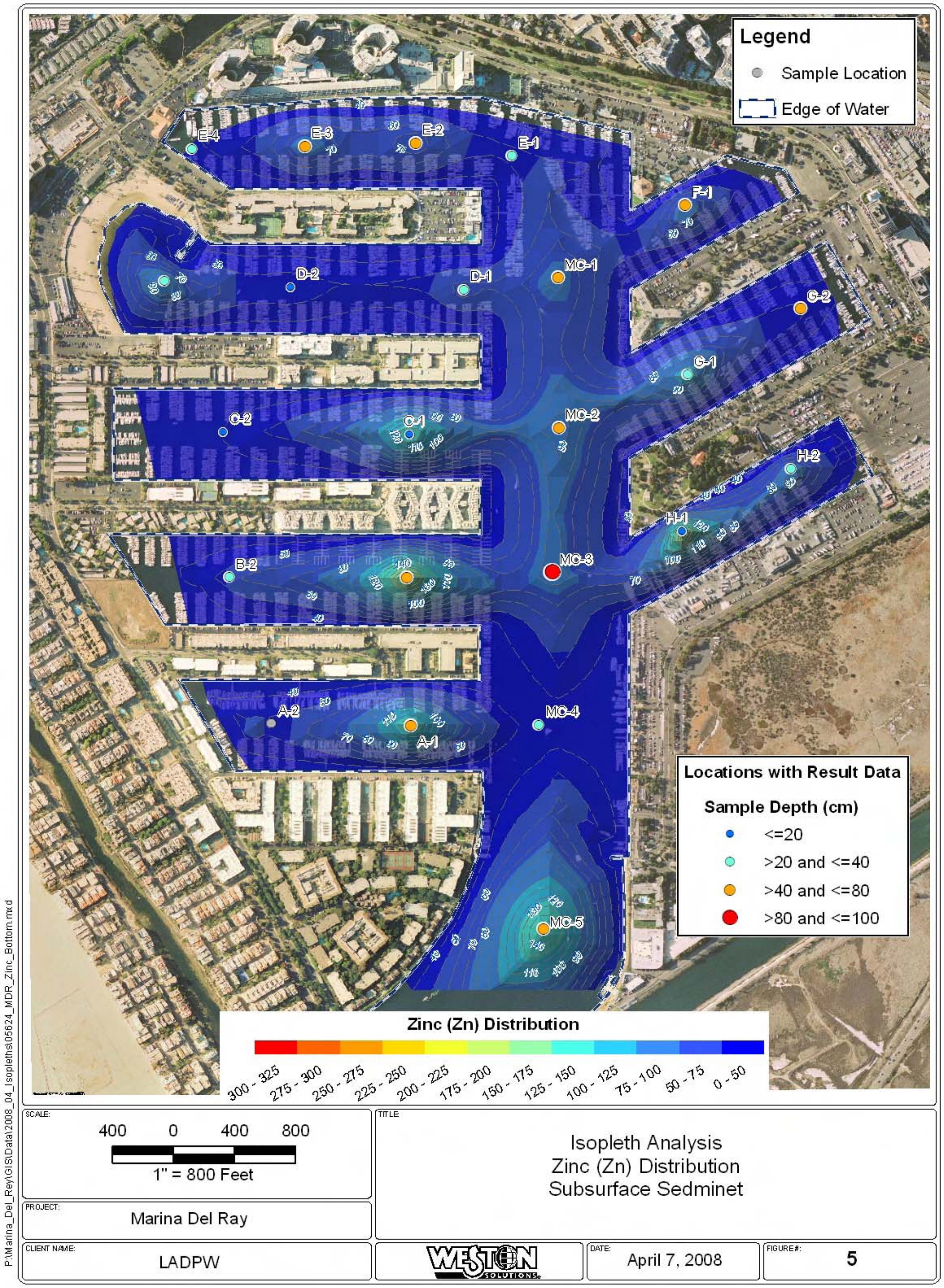

Figure 12. Distribution of zinc in subsurface sediment in Marina del Rey Harbor.

Appendix C

Street Sweeping Calculations and Cost Estimate

ASSUMPTIONS

From Seattle Public Utilities Study (http://www.seattle.gov/util/Services/Drainage_&_Sewer/Keep_Water_Safe_&_Clean/Street_Sweep_Project/QuestionsAnswers/index.htm)

Amount of sediment removed using mechanical sweepers	5.7	kg/curb-km of sediment removed using mechanical sweepers
Amount of sediment removed using vacuum-assisted sweepers	17.9	kg/curb-km of sediment removed using vacuum-assisted sweepers

From Bureau of Street Services Website (http://www.lacity.org/BOSS/StreetMaintenance/scs.htm#1):

(per WPD, streets with parking restrictions are swept weekly, other are swept monthly)		
Per the Bureau of Street services, there are 7,300 centerline miles of roadways and alleys in the City of LA. With two curbs/mile, converted to curb-km:	23,360	total curb-km in the City of LA
The Bureau has 135 motor sweepers that are staffed by 103 authorized full-time Motor Sweeper Operators.	103	number of full time sweepers
There are 4,721 curb-miles within the restricted (no-parking) route program. Additionally , there are 1,538 curb-miles swept in the early morning routs, which are assumed to be swept weekly. Converted to curb-km:	10,014	curb-km swept weekly (or 52 times per year)
There are a total of 8,058 non-posted curb-miles, converted to curb-km.	12,893	curb-km swept monthly (or 12 times per year)
Therefore, the total number of curb-km in the City of LA:	*22,907*	*Total curb-km swept in City of LA (nearly of the City's all curb-km)*
(Per Bureau of Street Services)		

From GIS Analysis (California Spatial Information Library)

Total km of roadways in Areas 3 and 4 of MDR watershed	50.4	km of roadway
Total curb-km in Areas 3 and 4 of MDR watershed (2 curbs per street)	101	curb-km in Areas 3 and 4 of MDR watershed
City of LA and Culver City are 99% of Areas 3 and 4 of the MDR watershed area, therefore the City's portion of	100	curb-km in Areas 3 and 4 of MDR watershed within the City of LA
Therefore, the % of City curb-km that are in Areas 3 and 4 of MDR watershed is	*0.43%*	*percent of City of LA curb-km in Areas 3 and 4 of MDR watershed*
Given the number of sweepers used in all of LA, and the percent of curb-km that are in MDR watershed:	0.44	estimated number of sweepers used in Areas 3 and 4 of MDR watershed

CALCULATIONS

Number of curb-km swept annually in Areas 3 and 4 of MDR watershed:

The City sweeps this percent of the total curb-km weekly:	44%	percent of streets swept weekly in all of City of LA
The City sweeps this percent of the total curb-km monthly:	56%	percent of streets swept monthly in all of City of LA
Based on these percentages, the number of curb-km swept weekly in Areas 3 and 4 of MDR watershed is:	44	curb-km swept **weekly** in Areas 3 and 4 of MDR watershed
Based on these percentages, the number of curb-km swept monthly in Areas 3 and 4 of MDR watershed is:	56	curb-km swept **monthly** in Areas 3 and 4 of MDR watershed
Therefore, the total number of curb-km swept annually is:	2,943	total curb-km swept annually in Areas 3 and 4 of MDR watershed
Estimated current sediment removal:	16,699	kg current sediment removed based on kg/curb-km removal rate of mechanical sweepers.
Percent increase to remove 2,518 kg/yr (from pollutant load model):	15%	increase from current

To increase the Sediment Load Removed by 15% the City would Increase Sweeping Frequency

Additional amount of sediment removed annually to achieve 15% increase:	2,518	kg/yr (additional kg needed to be removed per year)
This many kg/year would require the following additional curb-km to be swept, assuming mechanical sweepers are used:	444	curb-km/yr (additional curb-km that would need to be swept per year)
For the routes that are swept "monthly" the total annual curb-km covered is:	674	**annual** curb-km for the routes that are swept on a **monthly** basis
Since this number exceeds the number of new km that need to be swept per year, an increase can be made to the number of curb-km swept on a weekly basis, without adding any new routes.		
To meet the goal, increase the number of curb-km that are swept on a weekly basis, resulting in:		
The new number of curb-km swept on a weekly basis:	*52*	*new number of curb-km swept on a* ***weekly*** *basis*
The new number of curb-km swept on a monthly basis:	*48*	*new number of curb-km swept on a* ***monthly*** *basis*
Number of curb-km converted from monthly to weekly frequency:	*8.5*	
Percent of montly streets converted to weekly:	*9%*	
This represents an increase in curb-km swept on a weekly basis vs. monthly basis of:	16%	
Currently each mechanical sweeper sweeps this many curb-km per year:	6,690	curb-km/yr currently swept per mechanical sweeper
Number of new mechanical sweepers that would need to be purchased:	*0.07*	*new mechanical sweepers to purchased - either round to 1 or assume this can be managed with existing sweepers*

*Sources for costs are: Seattle Public Utilities (http://www.seattle.gov/util/Services/Drainage_&_Sewer/Keep_Water_Safe_&_Clean/Street_Sweep_Project/QuestionsAnswers/index.htm) and Santa Ana Clara Valley Urban Runoff Pollution Prevention, "Enhance Street Sweeping"

Assumptions:

Assume need to purchase new mechanical sweepers:		1	
Cost for new mechanical sweeper:	$	160,000	per mechanical sweeper (adjusted from 2005 dollars, based on CPI)
Cost per Curb Mile:	$	27	per curb-km (based on $43/curb-mile)
Cost per wet ton for Solids handling and transportation costs	$	34	per wet ton for Solids handling and transportation costs
Cost per wet ton solids disposal	$	44	per wet ton solids disposal
Total disposal cost:	$	78	total per wet ton (transport and disposal)

Calculations:

Cost for 444 additional curb-km to be swept annually:	$	11,924	
Cost for handling and disposal of additional 280,000 lbs/yr of sediment removed:	$	98	
Total Additional O&M Cost:	**$**	**12,000**	**per year total *<u>additional</u>* O&M cost**
Total capital cost:	**$**	**160,000**	**cost for new sweepers**

Assumptions:

Assume need to purchase new vacuum sweepers:		1	number of new vacuum sweepers
Cost for new vacuum sweeper:	$	315,000	per vacuum sweeper (adjusted from 2005 dollars, based on CPI)

Assumed same O&M costs for vacuum sweepers as for mechanical sweepers (to be conservative, assumed to be same as for mechanical, though USEPA source says it could be half the cost) and same disposal costs.

Calculations:

Cost for 444 additional curb-km to be swept annually:	$	11,924	
Cost for handling and disposal of additional 280,000 lbs/yr of sediment removed:	$	98	
Total Additional O&M Cost:	**$**	**12,000**	**per year total *<u>additional</u>* O&M cost**
Total capital cost:	**$**	**315,000**	**cost for new sweepers**

*Sources for costs are: Seattle Public Utilities (http://www.seattle.gov/util/Services/Drainage_&_Sewer/Keep_Water_Safe_&_Clean/Street_Sweep_Project/QuestionsAnswers/index.htm) and Santa Ana Clara Valley Urban Runoff Pollution Prevention, "Enhance Street Sweeping"

Parameters for Quantifying Annual Load Reduction from Non-Structural BMPs

Global Parameters

Watershed Area (acres)	1460	
Days prior to reaching limit	20	
Kw	1.54	can adjust the 1.5 in this, maybe to .5 inch storm
Kb	0.12	
Brake Pad wear rate (mg Cu /km traveled)	16.9	
Copper Content in Brake Pads	6.4%	5.0%
Daily Driving (km/day)	65,800	Population = 1600*3 + 4,800 to account for non residents as well (2005 Census = population of approximately 1600 in MDR watershed)
Length of Roadway (km)	50	Miles driven 3,125 (5000 km) to show estimated number of miles driven per car within the watershed.
Roadway Sediment accumulation (kg/curb km/day)	14	
Increase in street sweeping frequency by 15%, resulting percent of total for input into model	5.0%	(15% translates to a 5 percent reduction of the estimated current washoff amount without street sweeping; the difference is assumed to be captured by existing street sweeping efforts)

Concentration of Metals in Pollutant Sources

Source	Copper (ppm)	Lead (ppm)	Zinc (ppm)
Roadway Sediment	99	133	371

RESULTS: Annual Removal Amounts (kg/yr)

Load reduction from SB346	Load reduction from enhanced street sweeping			
Copper (kg/year)	Sediment (kg/year)	Copper (kg/year)	Lead (kg/year)	Zinc (kg/year)
0.56	2,518	0.25	0.33	0.93

7 mg/VKmT

	Baseline Copper from Brakes	Reduced Copper SB 346	Baseline Street Sediment Buildup	Street Sediment Buildup 2028
Accumulation Rate (kg/day)	0.07	0.06	1400	1330
Buildup Limit (kg)	0.62	0.48	12160	11552

EVENT	START	HOURS	RAIN	RUNF (in)	Runoff (ac-ft)	Dry Days	Baseline Copper from Brakes: Buildup (kg/event)	Baseline Copper from Brakes: Washoff (kg/event)	Reduced Copper SB 346: Buildup (kg/event)	Reduced Copper SB 346: Washoff (kg/event)	Baseline Street Sediment Buildup: Sediment (kg/event)	Copper (kg/event)	Lead (kg/event)	Zinc (kg/event)
2	12/3/1948	3	0.1	0.019	2	20.0	0.56	0.02	0.43	0.01	10944	1.08	1.46	4.06
3	12/16/1948	21	1.11	0.587	71	12.3	0.60	0.36	0.47	0.28	11788	1.16	1.57	4.37
4	12/22/1948	9	0.19	0.053	6	5.1	0.41	0.03	0.32	0.02	8054	0.79	1.07	2.99
5	12/26/1948	22	0.8	0.336	41	3.5	0.46	0.18	0.36	0.14	8980	0.88	1.19	3.33
7	1/10/1949	25	0.49	0.181	22	14.2	0.55	0.13	0.43	0.10	10836	1.07	1.44	4.02
8	1/12/1949	13	0.48	0.192	23	1.3	0.45	0.11	0.35	0.09	8770	0.86	1.17	3.25
9	1/13/1949	11	0.09	0.005	1	0.6	0.35	0.00	0.27	0.00	6922	0.68	0.92	2.57
10	1/19/1949	24	1.07	0.465	57	4.5	0.46	0.23	0.36	0.18	8993	0.89	1.20	3.34
11	1/22/1949	15	0.26	0.089	11	2.5	0.32	0.04	0.25	0.03	6372	0.63	0.85	2.36
13	2/3/1949	5	0.33	0.127	15	11.6	0.53	0.09	0.41	0.07	10420	1.03	1.39	3.86
14	2/7/1949	4	0.46	0.215	26	3.9	0.50	0.14	0.39	0.11	9865	0.97	1.31	3.66
15	2/11/1949	3	0.17	0.052	6	4.2	0.46	0.04	0.36	0.03	9023	0.89	1.20	3.35
16	2/24/1949	9	0.22	0.069	8	12.4	0.57	0.06	0.45	0.04	11239	1.11	1.49	4.17
17	2/26/1949	7	0.23	0.078	9	2.0	0.53	0.06	0.42	0.05	10523	1.04	1.40	3.90
19	3/4/1949	7	0.49	0.2	24	5.7	0.54	0.14	0.42	0.11	10689	1.05	1.42	3.96
20	3/10/1949	9	0.7	0.299	36	5.9	0.51	0.19	0.40	0.15	9976	0.98	1.33	3.70
21	3/19/1949	3	0.13	0.033	4	8.7	0.51	0.03	0.40	0.02	10001	0.99	1.33	3.71
28	5/18/1949	18	0.28	0.097	12	59.4	0.62	0.09	0.48	0.07	12157	1.20	1.62	4.51
33	11/9/1949	24	1.41	0.644	78	173.8	0.62	0.39	0.48	0.30	12160	1.20	1.62	4.51
34	12/7/1949	29	0.56	0.219	27	27.0	0.60	0.17	0.47	0.13	11818	1.16	1.57	4.38
35	12/15/1949	4	0.08	0.007	1	7.7	0.54	0.01	0.42	0.00	10630	1.05	1.41	3.94
36	12/18/1949	36	2.08	0.944	115	0.9	0.54	0.41	0.42	0.32	10681	1.05	1.42	3.96
37	1/8/1950	8	1.04	0.498	61	21.1	0.57	0.31	0.45	0.24	11312	1.11	1.50	4.20
38	1/11/1950	12	0.9	0.393	48	2.3	0.35	0.16	0.27	0.12	6865	0.68	0.91	2.55
39	1/12/1950	2	0.22	0.075	9	1.1	0.24	0.03	0.19	0.02	4741	0.47	0.63	1.76
41	1/28/1950	17	0.35	0.132	16	15.5	0.55	0.10	0.43	0.08	10822	1.07	1.44	4.01
42	2/5/1950	40	1.35	0.684	83	6.1	0.53	0.35	0.42	0.27	10518	1.04	1.40	3.90
43	2/10/1950	13	0.32	0.12	15	4.3	0.35	0.06	0.28	0.05	6987	0.69	0.93	2.59
44	3/24/1950	9	0.84	0.367	45	42.0	0.61	0.26	0.48	0.21	12110	1.19	1.61	4.49
46	4/8/1950	29	0.55	0.193	23	13.2	0.56	0.14	0.44	0.11	11015	1.08	1.46	4.09
51	9/17/1950	4	0.36	0.141	17	162.1	0.62	0.12	0.48	0.09	12160	1.20	1.62	4.51
52	10/26/1950	13	0.24	0.079	10	39.0	0.62	0.07	0.48	0.05	12134	1.20	1.61	4.50
53	11/13/1950	26	0.53	0.2	24	16.3	0.61	0.16	0.47	0.13	11944	1.18	1.59	4.43
54	11/18/1950	40	0.52	0.191	23	3.3	0.50	0.13	0.39	0.10	9862	0.97	1.31	3.66
56	1/4/1951	1	0.09	0.014	2	47.5	0.62	0.01	0.48	0.01	12140	1.20	1.61	4.50
57	1/10/1951	2	0.59	0.292	36	5.6	0.61	0.22	0.48	0.17	12014	1.18	1.60	4.46
58	1/11/1951	4	0.4	0.16	19	0.9	0.41	0.09	0.32	0.07	8123	0.80	1.08	3.01
59	1/16/1951	4	0.34	0.132	16	4.5	0.44	0.08	0.35	0.06	8702	0.86	1.16	3.23
60	1/18/1951	11	0.38	0.148	18	2.1	0.42	0.08	0.32	0.07	8184	0.81	1.09	3.04
61	1/29/1951	9	1	0.44	54	10.1	0.53	0.26	0.41	0.20	10394	1.02	1.38	3.86
64	2/23/1951	24	1	0.422	51	23.8	0.59	0.28	0.46	0.22	11716	1.15	1.56	4.35
65	2/26/1951	7	0.38	0.148	18	3.5	0.41	0.08	0.32	0.07	8130	0.80	1.08	3.02
67	3/1/1951	15	0.39	0.145	18	1.6	0.38	0.08	0.30	0.06	7447	0.73	0.99	2.76
70	4/3/1951	10	0.44	0.171	21	33.4	0.61	0.14	0.48	0.11	12027	1.18	1.60	4.46
72	4/25/1951	9	0.4	0.158	19	21.2	0.60	0.13	0.47	0.10	11906	1.17	1.58	4.42
73	4/28/1951	4	0.64	0.278	34	3.2	0.52	0.18	0.40	0.14	10203	1.00	1.36	3.78
75	5/13/1951	2	0.24	0.085	10	15.1	0.57	0.07	0.44	0.05	11196	1.10	1.49	4.15
76	8/28/1951	22	0.15	0.023	3	105.9	0.62	0.02	0.48	0.02	12160	1.20	1.62	4.51
77	10/24/1951	9	0.59	0.247	30	56.7	0.62	0.19	0.48	0.15	12160	1.20	1.62	4.51
78	11/19/1951	32	1.29	0.551	67	24.6	0.61	0.35	0.47	0.27	11934	1.18	1.59	4.43
79	12/1/1951	10	0.68	0.291	35	11.5	0.52	0.19	0.41	0.15	10288	1.01	1.37	3.82
80	12/4/1951	9	1.02	0.515	63	2.8	0.41	0.23	0.32	0.18	8115	0.80	1.08	3.01
81	12/11/1951	25	0.64	0.261	32	5.8	0.40	0.13	0.31	0.10	7828	0.77	1.04	2.90
82	12/19/1951	9	0.22	0.071	9	7.0	0.46	0.05	0.36	0.04	9086	0.89	1.21	3.37
83	12/29/1951	41	3.24	1.566	191	8.2	0.54	0.49	0.42	0.38	10601	1.04	1.41	3.93
84	1/6/1952	9	0.39	0.149	18	8.6	0.41	0.08	0.32	0.06	7990	0.79	1.06	2.96
85	1/8/1952	2	0.07	0.005	1	1.2	0.36	0.00	0.28	0.00	7110	0.70	0.95	2.64
86	1/12/1952	37	1.55	0.682	83	2.3	0.42	0.27	0.33	0.21	8258	0.81	1.10	3.06
87	1/15/1952	34	3.39	1.817	221	1.7	0.23	0.22	0.18	0.17	4516	0.44	0.60	1.67
88	1/17/1952	21	3.98	2.123	258	1.4	0.10	0.10	0.08	0.08	2066	0.20	0.27	0.77
90	1/24/1952	15	0.64	0.267	32	6.7	0.33	0.11	0.26	0.09	6580	0.65	0.88	2.44
91	2/29/1952	26	0.87	0.368	45	34.4	0.61	0.26	0.48	0.21	12012	1.18	1.60	4.46
93	3/6/1952	18	3	1.557	189	5.8	0.48	0.43	0.37	0.34	9423	0.93	1.25	3.49
95	3/10/1952	8	0.19	0.057	7	3.3	0.22	0.02	0.18	0.01	4427	0.44	0.59	1.64
98	3/13/1952	2	0.07	0.005	1	2.9	0.32	0.00	0.25	0.00	6340	0.62	0.84	2.35
99	3/15/1952	27	2.28	1.124	137	0.4	0.33	0.27	0.26	0.21	6566	0.65	0.87	2.44
100	3/19/1952	6	0.22	0.075	9	3.9	0.26	0.03	0.20	0.02	5125	0.50	0.68	1.90
101	4/7/1952	9	0.43	0.172	21	19.0	0.57	0.13	0.45	0.10	11312	1.11	1.50	4.20
102	4/10/1952	10	0.32	0.114	14	2.3	0.48	0.08	0.38	0.06	9506	0.94	1.26	3.53
103	4/19/1952	12	0.38	0.141	17	8.5	0.54	0.10	0.42	0.08	10581	1.04	1.41	3.92
104	4/25/1952	18	0.44	0.161	20	5.1	0.51	0.11	0.40	0.09	10134	1.00	1.35	3.76
106	9/19/1952	8	0.12	0.024	3	146.9	0.62	0.02	0.48	0.02	12160	1.20	1.62	4.51
109	11/8/1952	4	0.23	0.08	10	49.6	0.62	0.07	0.48	0.06	12159	1.20	1.62	4.51
110	11/14/1952	4	0.65	0.32	39	6.2	0.58	0.23	0.45	0.18	11469	1.13	1.53	4.25
111	11/15/1952	19	1.64	0.907	110	0.0	0.36	0.27	0.28	0.21	7017	0.69	0.93	2.60
112	11/22/1952	6	0.32	0.12	15	7.3	0.39	0.07	0.30	0.05	7639	0.75	1.02	2.83
113	11/29/1952	4	0.28	0.103	13	7.0	0.49	0.07	0.38	0.06	9579	0.94	1.27	3.55
114	12/1/1952	12	0.65	0.348	42	1.0	0.44	0.18	0.34	0.14	8628	0.85	1.15	3.20
115	12/5/1952	6	0.08	0.007	1	4.1	0.39	0.00	0.31	0.00	7721	0.76	1.03	2.86
117	12/17/1952	8	0.09	0.01	1	11.2	0.55	0.01	0.43	0.01	10910	1.07	1.45	4.05
118	12/19/1952	24	1.14	0.502	61	1.5	0.56	0.30	0.43	0.23	10969	1.08	1.46	4.07
119	12/27/1952	23	0.84	0.376	46	6.8	0.45	0.20	0.35	0.16	8934	0.88	1.19	3.31
120	12/30/1952	9	0.48	0.195	24	2.7	0.35	0.09	0.27	0.07	6905	0.68	0.92	2.56
121	1/6/1953	20	0.51	0.204	25	5.8	0.43	0.12	0.34	0.09	8563	0.84	1.14	3.18
122	1/7/1953	19	0.17	0.039	5	0.6	0.34	0.02	0.26	0.02	6644	0.65	0.88	2.46
123	1/13/1953	9	0.4	0.16	19	5.4	0.46	0.10	0.36	0.08	8996	0.89	1.20	3.34
124	2/23/1953	9	0.23	0.076	9	40.4	0.61	0.07	0.48	0.05	12111	1.19	1.61	4.49
125	2/28/1953	2	0.1	0.019	2	5.6	0.58	0.02	0.45	0.01	11433	1.13	1.52	4.24
126	3/1/1953	5	0.13	0.031	4	0.6	0.57	0.03	0.44	0.02	11178	1.10	1.49	4.15
127	3/19/1953	8	0.35	0.134	16	17.7	0.61	0.11	0.47	0.09	11966	1.18	1.59	4.44
128	4/6/1953	5	0.07	0.003	0	17.0	0.60	0.00	0.47	0.00	11819	1.16	1.57	4.38
129	4/19/1953	10	0.17	0.043	5	13.5	0.61	0.04	0.48	0.03	12077	1.19	1.61	4.48
131	4/27/1953	9	0.6	0.254	31	7.2	0.60	0.19	0.47	0.15	11786	1.16	1.57	4.37
137	11/14/1953	14	1.03	0.526	64	200.3	0.62	0.34	0.48	0.27	12160	1.20	1.62	4.51
139	12/4/1953	2	0.08	0.009	1	19.7	0.58	0.01	0.45	0.01	11467	1.13	1.53	4.25
140	1/11/1954	2	0.11	0.024	3	38.2	0.62	0.02	0.48	0.02	12150	1.20	1.62	4.51
141	1/12/1954	7	0.48	0.203	25	0.6	0.60	0.16	0.47	0.12	11740	1.16	1.56	4.35
142	1/17/1954	56	2.3	1.079	131	3.0	0.49	0.40	0.38	0.31	9649	0.95	1.28	3.58
143	1/23/1954	35	1.71	0.777	95	4.5	0.31	0.21	0.24	0.17	6014	0.59	0.80	2.23
144	2/13/1954	30	2.9	1.754	213	19.3	0.56	0.52	0.44	0.41	11033	1.09	1.47	4.09
145	2/17/1954	6	0.08	0.005	1	4.4	0.27	0.00	0.21	0.00	5296	0.52	0.70	1.96
146	3/16/1954	16	0.65	0.266	32	26.0	0.60	0.20	0.47	0.16	11816	1.16	1.57	4.38
147	3/19/1954	15	0.65	0.275	33	2.7	0.46	0.16	0.36	0.12	8993	0.89	1.20	3.34
148	3/21/1954	5	0.12	0.033	4	0.9	0.33	0.02	0.26	0.01	6524	0.64	0.87	2.42
149	3/21/1954	20	0.49	0.191	23	-0.1	0.31	0.08	0.24	0.06	6144	0.61	0.82	2.28
150	3/24/1954	13	0.28	0.088	11	2.0	0.31	0.04	0.24	0.03	6170	0.61	0.82	2.29
152	3/29/1954	23	0.78	0.317	39	4.3	0.41	0.16	0.32	0.12	8049	0.79	1.07	2.99

EVENT	Baseline Street Sediment Washoff: Sediment (kg/event)	Copper (kg/event)	Lead (kg/event)	Zinc (kg/event)	Street Sediment Buildup 2028: Sediment (kg/event)	Copper (kg/event)	Lead (kg/event)	Zinc (kg/event)	Street Sediment Washoff 2028: Sediment (kg/event)	Copper (kg/event)	Lead (kg/event)	Zinc (kg/event)	Load reduction from SB346: Copper (kg/event)	Load reduction from enhanced street sweeping: Sediment (kg/event)	Copper (kg/event)	Lead (kg/event)	Zinc (kg/event)
2	315	0.03	0.04	0.12	10397	1.02	1.38	4	299	0.03	0.04	0.11	0.003	16	0.00155	0.00209	0.00583
3	7,001	0.69	0.93	2.60	11199	1.10	1.49	4	6,651	0.66	0.88	2.47	0.078	350	0.03448	0.04656	0.12983
4	629	0.06	0.08	0.23	7651	0.75	1.02	3	598	0.06	0.08	0.22	0.007	31	0.00310	0.00418	0.01167
5	3,619	0.36	0.48	1.34	8531	0.84	1.13	3	3,438	0.34	0.46	1.28	0.040	181	0.01782	0.02406	0.06711
7	2,629	0.26	0.35	0.97	10294	1.01	1.37	4	2,497	0.25	0.33	0.93	0.029	131	0.01295	0.01748	0.04875
8	2,239	0.22	0.30	0.83	8331	0.82	1.11	3	2,127	0.21	0.28	0.79	0.025	112	0.01103	0.01489	0.04152
9	53	0.01	0.01	0.02	6576	0.65	0.87	2	50	0.00	0.01	0.02	0.001	3	0.00026	0.00035	0.00098
10	4,589	0.45	0.61	1.70	8544	0.84	1.14	3	4,359	0.43	0.58	1.62	0.051	229	0.02260	0.03051	0.08510
11	814	0.08	0.11	0.30	6054	0.60	0.81	2	773	0.08	0.10	0.29	0.009	41	0.00401	0.00541	0.01509
13	1,846	0.18	0.25	0.68	9899	0.98	1.32	4	1,753	0.17	0.23	0.65	0.020	92	0.00909	0.01227	0.03423
14	2,773	0.27	0.37	1.03	9372	0.92	1.25	3	2,634	0.26	0.35	0.98	0.031	139	0.01366	0.01844	0.05143
15	692	0.07	0.09	0.26	8572	0.84	1.14	3	658	0.06	0.09	0.24	0.008	35	0.00341	0.00460	0.01284
16	1,130	0.11	0.15	0.42	10677	1.05	1.42	4	1,073	0.11	0.14	0.40	0.013	56	0.00556	0.00751	0.02095
17	1,188	0.12	0.16	0.44	9997	0.98	1.33	4	1,128	0.11	0.15	0.42	0.013	59	0.00585	0.00790	0.02202
19	2,826	0.28	0.38	1.05	10155	1.00	1.35	4	2,685	0.26	0.36	1.00	0.031	141	0.01392	0.01879	0.05240
20	3,672	0.36	0.49	1.36	9477	0.93	1.26	4	3,488	0.34	0.46	1.29	0.041	184	0.01808	0.02442	0.06809
21	494	0.05	0.07	0.18	9501	0.94	1.26	4	469	0.05	0.06	0.17	0.005	25	0.00243	0.00329	0.00916
28	1,682	0.17	0.22	0.62	11550	1.14	1.54	4	1,598	0.16	0.21	0.59	0.019	84	0.00828	0.01118	0.03119
33	7,635	0.75	1.02	2.83	11552	1.14	1.54	4	7,254	0.71	0.96	2.69	0.085	382	0.03760	0.05078	0.14160
34	3,374	0.33	0.45	1.25	11227	1.11	1.49	4	3,205	0.32	0.43	1.19	0.037	169	0.01662	0.02244	0.06257
35	114	0.01	0.02	0.04	10099	0.99	1.34	4	108	0.01	0.01	0.04	0.001	6	0.00056	0.00076	0.00211
36	8,173	0.81	1.09	3.03	10147	1.00	1.35	4	7,765	0.76	1.03	2.88	0.091	409	0.04025	0.05435	0.15158
37	6,045	0.60	0.80	2.24	10747	1.06	1.43	4	5,743	0.57	0.76	2.13	0.067	302	0.02977	0.04020	0.11211
38	3,110	0.31	0.41	1.15	6522	0.64	0.87	2	2,954	0.29	0.39	1.10	0.035	155	0.01532	0.02068	0.05767
39	516	0.05	0.07	0.19	4504	0.44	0.60	2	490	0.05	0.07	0.18	0.006	26	0.00254	0.00343	0.00956
41	1,985	0.20	0.26	0.74	10281	1.01	1.37	4	1,886	0.19	0.25	0.70	0.022	99	0.00978	0.01320	0.03681
42	6,838	0.67	0.91	2.54	9992	0.98	1.33	4	6,496	0.64	0.86	2.41	0.076	342	0.03367	0.04547	0.12680
43	1,175	0.12	0.16	0.44	6637	0.65	0.88	2	1,117	0.11	0.15	0.41	0.013	59	0.00579	0.00782	0.02180
44	5,216	0.51	0.69	1.93	11505	1.13	1.53	4	4,955	0.49	0.66	1.84	0.058	261	0.02569	0.03469	0.09673
46	2,824	0.28	0.38	1.05	10464	1.03	1.39	4	2,683	0.26	0.36	1.00	0.031	141	0.01391	0.01878	0.05238
51	2,367	0.23	0.31	0.88	11552	1.14	1.54	4	2,248	0.22	0.30	0.83	0.026	118	0.01166	0.01574	0.04389
52	1,386	0.14	0.18	0.51	11527	1.14	1.53	4	1,316	0.13	0.18	0.49	0.015	69	0.00682	0.00921	0.02570
53	3,157	0.31	0.42	1.17	11347	1.12	1.51	4	3,000	0.30	0.40	1.11	0.035	158	0.01555	0.02100	0.05855
54	2,506	0.25	0.33	0.93	9369	0.92	1.25	3	2,381	0.23	0.32	0.88	0.028	125	0.01234	0.01667	0.04648
56	258	0.03	0.03	0.10	11533	1.14	1.53	4	245	0.02	0.03	0.09	0.003	13	0.00127	0.00172	0.00479
57	4,340	0.43	0.58	1.61	11413	1.12	1.52	4	4,123	0.41	0.55	1.53	0.048	217	0.02137	0.02886	0.08048
58	1,769	0.17	0.24	0.66	7717	0.76	1.03	3	1,681	0.17	0.22	0.62	0.020	88	0.00871	0.01176	0.03281
59	1,596	0.16	0.21	0.59	8267	0.81	1.10	3	1,516	0.15	0.20	0.56	0.018	80	0.00786	0.01061	0.02960
60	1,663	0.16	0.22	0.62	7774	0.77	1.03	3	1,580	0.16	0.21	0.59	0.018	83	0.00819	0.01106	0.03084
61	5,104	0.50	0.68	1.89	9874	0.97	1.31	4	4,849	0.48	0.64	1.80	0.057	255	0.02514	0.03394	0.09465
64	5,586	0.55	0.74	2.07	11130	1.10	1.48	4	5,307	0.52	0.71	1.97	0.062	279	0.02751	0.03715	0.10360
65	1,652	0.16	0.22	0.61	7723	0.76	1.03	3	1,570	0.15	0.21	0.58	0.018	83	0.00814	0.01099	0.03064
67	1,486	0.15	0.20	0.55	7075	0.70	0.94	3	1,412	0.14	0.19	0.52	0.017	74	0.00732	0.00988	0.02756
70	2,777	0.27	0.37	1.03	11426	1.13	1.52	4	2,638	0.26	0.35	0.98	0.031	139	0.01368	0.01847	0.05149
72	2,564	0.25	0.34	0.95	11311	1.11	1.50	4	2,436	0.24	0.32	0.90	0.028	128	0.01263	0.01705	0.04755
73	3,544	0.35	0.47	1.31	9693	0.95	1.29	4	3,367	0.33	0.45	1.25	0.039	177	0.01745	0.02357	0.06573
75	1,370	0.13	0.18	0.51	10636	1.05	1.41	4	1,301	0.13	0.17	0.48	0.015	68	0.00675	0.00911	0.02540
76	422	0.04	0.06	0.16	11552	1.14	1.54	4	401	0.04	0.05	0.15	0.005	21	0.00208	0.00281	0.00782
77	3,837	0.38	0.51	1.42	11552	1.14	1.54	4	3,645	0.36	0.48	1.35	0.043	192	0.01890	0.02552	0.07116
78	6,812	0.67	0.91	2.53	11337	1.12	1.51	4	6,471	0.64	0.86	2.40	0.076	341	0.03355	0.04530	0.12632
79	3,706	0.37	0.49	1.37	9773	0.96	1.30	4	3,521	0.35	0.47	1.31	0.041	185	0.01825	0.02465	0.06873
80	4,434	0.44	0.59	1.64	7709	0.76	1.03	3	4,212	0.41	0.56	1.56	0.049	222	0.02184	0.02949	0.08223
81	2,584	0.25	0.34	0.96	7437	0.73	0.99	3	2,455	0.24	0.33	0.91	0.029	129	0.01273	0.01718	0.04792
82	938	0.09	0.12	0.35	8631	0.85	1.15	3	891	0.09	0.12	0.33	0.010	47	0.00462	0.00624	0.01740
83	9,643	0.95	1.28	3.58	10071	0.99	1.34	4	9,161	0.90	1.22	3.40	0.107	482	0.04749	0.06412	0.17882
84	1,634	0.16	0.22	0.61	7591	0.75	1.01	3	1,552	0.15	0.21	0.58	0.018	82	0.00805	0.01086	0.03030
85	54	0.01	0.01	0.02	6755	0.67	0.90	3	52	0.01	0.01	0.02	0.001	3	0.00027	0.00036	0.00101
86	5,360	0.53	0.71	1.99	7845	0.77	1.04	3	5,092	0.50	0.68	1.89	0.060	268	0.02640	0.03564	0.09939
87	4,238	0.42	0.56	1.57	4290	0.42	0.57	2	4,026	0.40	0.54	1.49	0.047	212	0.02087	0.02818	0.07860
88	1,986	0.20	0.26	0.74	1963	0.19	0.26	1	1,887	0.19	0.25	0.70	0.022	99	0.00978	0.01321	0.03684
90	2,212	0.22	0.29	0.82	6251	0.62	0.83	2	2,102	0.21	0.28	0.78	0.025	111	0.01090	0.01471	0.04103
91	5,184	0.51	0.69	1.92	11411	1.12	1.52	4	4,925	0.49	0.66	1.83	0.058	259	0.02553	0.03447	0.09614
93	8,559	0.84	1.14	3.17	8952	0.88	1.19	3	8,132	0.80	1.08	3.02	0.095	428	0.04216	0.05692	0.15874
95	371	0.04	0.05	0.14	4205	0.41	0.56	2	352	0.03	0.05	0.13	0.004	19	0.00183	0.00247	0.00688
98	48	0.00	0.01	0.02	6023	0.59	0.80	2	46	0.00	0.01	0.02	0.001	2	0.00024	0.00032	0.00090
99	5,397	0.53	0.72	2.00	6238	0.61	0.83	2	5,127	0.50	0.68	1.90	0.060	270	0.02658	0.03589	0.10008
100	557	0.05	0.07	0.21	4869	0.48	0.65	2	529	0.05	0.07	0.20	0.006	28	0.00274	0.00371	0.01034
101	2,625	0.26	0.35	0.97	10747	1.06	1.43	4	2,494	0.25	0.33	0.92	0.029	131	0.01293	0.01746	0.04868
102	1,526	0.15	0.20	0.57	9030	0.89	1.20	3	1,450	0.14	0.19	0.54	0.017	76	0.00752	0.01015	0.02830
103	2,059	0.20	0.27	0.76	10052	0.99	1.34	4	1,956	0.19	0.26	0.73	0.023	103	0.01014	0.01369	0.03819
104	2,219	0.22	0.30	0.82	9627	0.95	1.28	4	2,108	0.21	0.28	0.78	0.025	111	0.01093	0.01476	0.04115
106	440	0.04	0.06	0.16	11552	1.14	1.54	4	418	0.04	0.06	0.15	0.005	22	0.00217	0.00292	0.00816
109	1,405	0.14	0.19	0.52	11551	1.14	1.54	4	1,335	0.13	0.18	0.50	0.016	70	0.00692	0.00934	0.02606
110	4,451	0.44	0.59	1.65	10895	1.07	1.45	4	4,229	0.42	0.56	1.57	0.049	223	0.02192	0.02960	0.08255
111	5,274	0.52	0.70	1.96	6667	0.66	0.89	2	5,010	0.49	0.67	1.86	0.059	264	0.02597	0.03507	0.09780
112	1,285	0.13	0.17	0.48	7257	0.71	0.97	3	1,221	0.12	0.16	0.45	0.014	64	0.00633	0.00855	0.02383
113	1,401	0.14	0.19	0.52	9100	0.90	1.21	3	1,331	0.13	0.18	0.49	0.016	70	0.00690	0.00932	0.02598
114	3,571	0.35	0.47	1.32	8197	0.81	1.09	3	3,392	0.33	0.45	1.26	0.040	179	0.01759	0.02375	0.06622
115	83	0.01	0.01	0.03	7335	0.72	0.98	3	78	0.01	0.01	0.03	0.001	4	0.00041	0.00055	0.00153
117	166	0.02	0.02	0.06	10365	1.02	1.38	4	158	0.02	0.02	0.06	0.002	8	0.00082	0.00111	0.00308
118	5,893	0.58	0.78	2.19	10420	1.03	1.39	4	5,598	0.55	0.74	2.08	0.065	295	0.02902	0.03919	0.10929
119	3,918	0.39	0.52	1.45	8488	0.84	1.13	3	3,722	0.37	0.50	1.38	0.044	196	0.01930	0.02605	0.07266
120	1,786	0.18	0.24	0.66	6560	0.65	0.87	2	1,697	0.17	0.23	0.63	0.020	89	0.00880	0.01188	0.03313
121	2,302	0.23	0.31	0.85	8135	0.80	1.08	3	2,187	0.22	0.29	0.81	0.026	115	0.01134	0.01531	0.04269
122	386	0.04	0.05	0.14	6312	0.62	0.84	2	367	0.04	0.05	0.14	0.004	19	0.00190	0.00257	0.00716
123	1,959	0.19	0.26	0.73	8547	0.84	1.14	3	1,861	0.18	0.25	0.69	0.022	98	0.00965	0.01303	0.03633
124	1,334	0.13	0.18	0.49	11506	1.13	1.53	4	1,267	0.12	0.17	0.47	0.015	67	0.00657	0.00887	0.02473
125	329	0.03	0.04	0.12	10862	1.07	1.44	4	312	0.03	0.04	0.12	0.004	16	0.00162	0.00219	0.00609
126	519	0.05	0.07	0.19	10619	1.05	1.41	4	493	0.05	0.07	0.18	0.006	26	0.00256	0.00345	0.00963
127	2,225	0.22	0.30	0.83	11367	1.12	1.51	4	2,113	0.21	0.28	0.78	0.025	111	0.01096	0.01479	0.04126
128	54	0.01	0.01	0.02	11228	1.11	1.49	4	52	0.01	0.01	0.02	0.001	3	0.00027	0.00036	0.00101
129	771	0.08	0.10	0.29	11473	1.13	1.53	4	733	0.07	0.10	0.27	0.009	39	0.00380	0.00513	0.01431
131	3,805	0.37	0.51	1.41	11196	1.10	1.49	4	3,615	0.36	0.48	1.34	0.042	190	0.01874	0.02531	0.07057
137	6,737	0.66	0.90	2.50	11552	1.14	1.54	4	6,400	0.63	0.85	2.37	0.075	337	0.03318	0.04480	0.12493
139	157	0.02	0.02	0.06	10894	1.07	1.45	4	149	0.01	0.02	0.06	0.002	8	0.00077	0.00105	0.00292
140	439	0.04	0.06	0.16	11542	1.14	1.54	4	417	0.04	0.06	0.15	0.005	22	0.00216	0.00292	0.00815
141	3,143	0.31	0.42	1.17	11153	1.10	1.48	4	2,986	0.29	0.40	1.11	0.035	157	0.01548	0.02090	0.05829
142	7,808	0.77	1.04	2.90	9167	0.90	1.22	3	7,417	0.73	0.99	2.75	0.087	390	0.03845	0.05192	0.14480
143	4,189	0.41	0.56	1.55	5713	0.56	0.76	2	3,980	0.39	0.53	1.48	0.047	209	0.02063	0.02786	0.07769
144	10,286	1.01	1.37	3.82	10482	1.03	1.39	4	9,772	0.96	1.30	3.62	0.114	514	0.05066	0.06840	0.19076
145	40	0.00	0.01	0.02	5032	0.50	0.67	2	38	0.00	0.01	0.01	0.000	2	0.00020	0.00027	0.00075
146	3,961	0.39	0.53	1.47	11225	1.11	1.49	4	3,763	0.37	0.50	1.40	0.044	198	0.01951	0.02634	0.07346
147	3,097	0.31	0.41	1.15	8543	0.84	1.14	3	2,942	0.29	0.39	1.09	0.034	155	0.01525	0.02059	0.05743
148	322	0.03	0.04	0.12	6197	0.61	0.82	2	306	0.03	0.04	0.11	0.004	16	0.00159	0.00214	0.00598
149	1,561	0.15	0.21	0.58	5837	0.57	0.78	2	1,483	0.15	0.20	0.55	0.017	78	0.00769	0.01038	0.02895
150	780	0.08	0.10	0.29	5861	0.58	0.78	2	741	0.07	0.10	0.27	0.009	39	0.00384	0.00518	0.01446
152	3,101	0.31	0.41	1.15	7647	0.75	1.02	3	2,946	0.29	0.39	1.09	0.034	155	0.01527	0.02062	0.05752

154	4/28/1954	8	0.11	0.02	2	29.0	0.60	0.02	0.47	0.01	11904	1.17	1.58	4.42	360	0.04	0.05	0.13	11309	1.11	1.50	4	342	0.03	0.05	0.13	0.004	18	0.00177	0.00239	0.00667
156	6/13/1954	4	0.08	0.009	1	46.0	0.62	0.01	0.48	0.01	12157	1.20	1.62	4.51	167	0.02	0.02	0.06	11549	1.14	1.54	4	158	0.02	0.02	0.06	0.002	8	0.00082	0.00111	0.00309
157	11/10/1954	29	1.98	0.967	118	149.5	0.62	0.48	0.48	0.37	12160	1.20	1.62	4.51	9,404	0.93	1.25	3.49	11552	1.14	1.54	4	8,934	0.88	1.19	3.31	0.104	470	0.04632	0.06254	0.17440
160	12/3/1954	13	0.43	0.169	21	21.9	0.58	0.13	0.45	0.10	11406	1.12	1.52	4.23	2,606	0.26	0.35	0.97	10836	1.07	1.44	4	2,476	0.24	0.33	0.92	0.029	130	0.01284	0.01733	0.04833
161	12/9/1954	8	0.43	0.174	21	6.0	0.53	0.12	0.42	0.10	10476	1.03	1.39	3.89	2,456	0.24	0.33	0.91	9952	0.98	1.32	4	2,333	0.23	0.31	0.87	0.027	123	0.01209	0.01633	0.04554
162	1/1/1955	11	0.62	0.296	36	22.3	0.60	0.22	0.47	0.17	11844	1.17	1.58	4.39	4,325	0.43	0.58	1.60	11252	1.11	1.50	4	4,109	0.40	0.55	1.52	0.048	216	0.02130	0.02876	0.08020
163	1/6/1955	7	0.5	0.207	25	4.5	0.48	0.13	0.37	0.10	9409	0.93	1.25	3.49	2,561	0.25	0.34	0.95	8938	0.88	1.19	3	2,433	0.24	0.32	0.90	0.028	128	0.01261	0.01703	0.04750
164	1/10/1955	7	0.83	0.367	45	3.5	0.44	0.19	0.34	0.15	8592	0.85	1.14	3.19	3,701	0.36	0.49	1.37	8163	0.80	1.09	3	3,516	0.35	0.47	1.30	0.041	185	0.01823	0.02461	0.06863
166	1/16/1955	10	0.61	0.255	31	5.5	0.42	0.14	0.33	0.11	8320	0.82	1.11	3.09	2,695	0.27	0.36	1.00	7904	0.78	1.05	3	2,560	0.25	0.34	0.95	0.030	135	0.01327	0.01792	0.04998
167	1/18/1955	19	1.15	0.499	61	1.5	0.34	0.18	0.27	0.14	6688	0.66	0.89	2.48	3,579	0.35	0.48	1.33	6353	0.63	0.85	2	3,400	0.33	0.45	1.26	0.040	179	0.01763	0.02380	0.06637
168	1/30/1955	15	0.55	0.218	27	11.8	0.50	0.14	0.39	0.11	9820	0.97	1.31	3.64	2,793	0.28	0.37	1.04	9329	0.92	1.24	3	2,653	0.26	0.35	0.98	0.031	140	0.01376	0.01857	0.05180
169	2/16/1955	14	0.3	0.107	13	16.3	0.58	0.09	0.45	0.07	11377	1.12	1.51	4.22	1,723	0.17	0.23	0.64	10808	1.06	1.44	4	1,637	0.16	0.22	0.61	0.019	86	0.00849	0.01146	0.03196
170	2/26/1955	7	0.15	0.038	5	9.1	0.57	0.03	0.45	0.03	11279	1.11	1.50	4.18	639	0.06	0.09	0.24	10716	1.06	1.43	4	607	0.06	0.08	0.23	0.007	32	0.00315	0.00425	0.01185
171	2/26/1955	15	0.23	0.071	9	0.3	0.54	0.06	0.42	0.04	10691	1.05	1.42	3.97	1,104	0.11	0.15	0.41	10156	1.00	1.35	4	1,049	0.10	0.14	0.39	0.012	55	0.00544	0.00734	0.02047
172	3/10/1955	26	0.56	0.218	27	10.5	0.58	0.16	0.45	0.13	11392	1.12	1.52	4.23	3,240	0.32	0.43	1.20	10822	1.07	1.44	4	3,078	0.30	0.41	1.14	0.036	162	0.01596	0.02155	0.06008
173	4/21/1955	14	0.88	0.385	47	41.5	0.62	0.27	0.48	0.21	12127	1.19	1.61	4.50	5,411	0.53	0.72	2.01	11520	1.13	1.53	4	5,141	0.51	0.68	1.91	0.060	271	0.02665	0.03598	0.10035
174	4/26/1955	5	0.23	0.08	10	4.3	0.45	0.05	0.35	0.04	8838	0.87	1.18	3.28	1,021	0.10	0.14	0.38	8396	0.83	1.12	3	970	0.10	0.13	0.36	0.011	51	0.00503	0.00679	0.01894
175	4/30/1955	26	1.31	0.59	72	3.2	0.47	0.28	0.36	0.22	9173	0.90	1.22	3.40	5,464	0.54	0.73	2.03	8714	0.86	1.16	3	5,191	0.51	0.69	1.93	0.061	273	0.02691	0.03634	0.10134
177	5/7/1955	8	1.07	0.632	77	6.2	0.41	0.25	0.32	0.20	8025	0.79	1.07	2.98	4,983	0.49	0.66	1.85	7623	0.75	1.01	3	4,734	0.47	0.63	1.76	0.055	249	0.02454	0.03314	0.09241
180	11/13/1955	8	0.85	0.382	46	190.6	0.62	0.27	0.48	0.21	12160	1.20	1.62	4.51	5,395	0.53	0.72	2.00	11552	1.14	1.54	4	5,125	0.50	0.68	1.90	0.060	270	0.02657	0.03588	0.10005
181	11/17/1955	12	0.09	0.002	0	2.5	0.41	0.00	0.32	0.00	8134	0.80	1.08	3.02	25	0.00	0.00	0.01	7727	0.76	1.03	3	24	0.00	0.00	0.01	0.000	1	0.00012	0.00017	0.00046
182	11/21/1955	8	0.74	0.394	48	4.0	0.49	0.22	0.38	0.17	9592	0.94	1.28	3.56	4,353	0.43	0.58	1.61	9112	0.90	1.21	3	4,135	0.41	0.55	1.53	0.048	218	0.02144	0.02895	0.08073
183	12/1/1955	9	0.39	0.155	19	9.8	0.50	0.11	0.39	0.08	9929	0.98	1.32	3.68	2,102	0.21	0.28	0.78	9433	0.93	1.25	3	1,997	0.20	0.27	0.74	0.023	105	0.01035	0.01398	0.03899
184	12/4/1955	14	0.26	0.088	11	2.0	0.44	0.06	0.35	0.04	8734	0.86	1.16	3.24	1,104	0.11	0.15	0.41	8298	0.82	1.10	3	1,048	0.10	0.14	0.39	0.012	55	0.00544	0.00734	0.02047
186	12/23/1955	10	0.12	0.024	3	18.5	0.59	0.02	0.46	0.02	11622	1.14	1.55	4.31	420	0.04	0.06	0.16	11041	1.09	1.47	4	399	0.04	0.05	0.15	0.005	21	0.00207	0.00280	0.00780
187	12/24/1955	9	0.17	0.048	6	1.3	0.58	0.04	0.45	0.03	11330	1.12	1.51	4.20	805	0.08	0.11	0.30	10764	1.06	1.43	4	765	0.08	0.10	0.28	0.009	40	0.00396	0.00535	0.01493
192	1/25/1956	50	7.97	4.676	569	29.5	0.61	0.61	0.48	0.48	12106	1.19	1.61	4.49	12,097	1.19	1.61	4.49	11500	1.13	1.53	4	11,492	1.13	1.53	4.26	0.134	605	0.05958	0.08044	0.22433
193	1/30/1956	12	0.35	0.127	15	5.1	0.27	0.05	0.21	0.04	5392	0.53	0.72	2.00	955	0.09	0.13	0.35	5123	0.50	0.68	2	907	0.09	0.12	0.34	0.011	48	0.00470	0.00635	0.01771
194	2/22/1956	19	0.55	0.228	28	22.3	0.59	0.17	0.46	0.14	11564	1.14	1.54	4.29	3,415	0.34	0.45	1.27	10986	1.08	1.46	4	3,244	0.32	0.43	1.20	0.038	171	0.01682	0.02271	0.06333
196	4/1/1956	3	0.19	0.061	7	38.5	0.61	0.05	0.48	0.04	12113	1.19	1.61	4.49	1,083	0.11	0.14	0.40	11507	1.13	1.53	4	1,029	0.10	0.14	0.38	0.012	54	0.00533	0.00720	0.02008
197	4/11/1956	3	0.2	0.066	8	9.3	0.60	0.06	0.47	0.04	11774	1.16	1.57	4.37	1,134	0.11	0.15	0.42	11186	1.10	1.49	4	1,078	0.11	0.14	0.40	0.013	57	0.00559	0.00754	0.02104
198	4/11/1956	43	2.36	1.069	130	-0.9	0.53	0.43	0.42	0.33	10471	1.03	1.39	3.88	8,442	0.83	1.12	3.13	9947	0.98	1.32	4	8,019	0.79	1.07	2.97	0.094	422	0.04157	0.05614	0.15655
199	4/26/1956	25	0.97	0.404	49	13.2	0.50	0.23	0.39	0.18	9946	0.98	1.32	3.69	4,596	0.45	0.61	1.70	9449	0.93	1.26	4	4,367	0.43	0.58	1.62	0.051	230	0.02264	0.03057	0.08524
200	5/8/1956	24	0.46	0.163	20	11.6	0.53	0.12	0.41	0.09	10374	1.02	1.38	3.85	2,296	0.23	0.31	0.85	9855	0.97	1.31	4	2,182	0.21	0.29	0.81	0.025	115	0.01131	0.01527	0.04259
201	10/4/1956	10	0.12	0.016	2	147.9	0.62	0.01	0.48	0.01	12160	1.20	1.62	4.51	295	0.03	0.04	0.11	11552	1.14	1.54	4	280	0.03	0.04	0.10	0.003	15	0.00145	0.00196	0.00547
202	12/5/1956	3	0.34	0.132	16	62.5	0.62	0.11	0.48	0.09	12160	1.20	1.62	4.51	2,230	0.22	0.30	0.83	11552	1.14	1.54	4	2,119	0.21	0.28	0.79	0.025	112	0.01098	0.01483	0.04136
203	1/4/1957	23	0.47	0.178	22	28.8	0.61	0.15	0.48	0.11	12080	1.19	1.61	4.48	2,888	0.28	0.38	1.07	11476	1.13	1.53	4	2,744	0.27	0.36	1.02	0.032	144	0.01422	0.01921	0.05356
205	1/10/1957	12	0.23	0.072	9	5.0	0.53	0.06	0.42	0.04	10491	1.03	1.40	3.89	1,098	0.11	0.15	0.41	9966	0.98	1.33	4	1,043	0.10	0.14	0.39	0.012	55	0.00541	0.00730	0.02036
206	1/12/1957	20	2.05	0.984	120	1.7	0.50	0.39	0.39	0.31	9876	0.97	1.31	3.66	7,696	0.76	1.02	2.85	9382	0.92	1.25	3	7,311	0.72	0.97	2.71	0.085	385	0.03790	0.05118	0.14271
207	1/20/1957	5	0.46	0.188	23	7.7	0.41	0.10	0.32	0.08	8071	0.80	1.07	2.99	2,023	0.20	0.27	0.75	7668	0.76	1.02	3	1,922	0.19	0.26	0.71	0.022	101	0.00996	0.01346	0.03752
208	1/23/1957	26	0.22	0.056	7	1.8	0.37	0.03	0.29	0.02	7211	0.71	0.96	2.67	594	0.06	0.08	0.22	6850	0.67	0.91	3	564	0.06	0.08	0.21	0.007	30	0.00293	0.00395	0.01102
209	1/25/1957	8	0.37	0.146	18	2.2	0.40	0.08	0.31	0.06	7841	0.77	1.04	2.91	1,574	0.16	0.21	0.58	7449	0.73	0.99	3	1,496	0.15	0.20	0.55	0.017	79	0.00775	0.01047	0.02919
210	1/27/1957	16	0.25	0.072	9	0.9	0.35	0.04	0.27	0.03	6857	0.68	0.91	2.54	717	0.07	0.10	0.27	6514	0.64	0.87	2	682	0.07	0.09	0.25	0.008	36	0.00353	0.00477	0.01331
211	1/28/1957	23	0.27	0.084	10	0.4	0.32	0.04	0.25	0.03	6394	0.63	0.85	2.37	774	0.08	0.10	0.29	6074	0.60	0.81	2	735	0.07	0.10	0.27	0.009	39	0.00381	0.00514	0.01434
212	2/23/1957	9	0.84	0.388	47	24.8	0.60	0.27	0.47	0.21	11785	1.16	1.57	4.37	5,289	0.52	0.70	1.96	11196	1.10	1.49	4	5,024	0.49	0.67	1.86	0.059	264	0.02605	0.03517	0.09808
213	2/28/1957	27	0.72	0.281	34	4.2	0.44	0.15	0.34	0.12	8671	0.85	1.15	3.22	3,038	0.30	0.40	1.13	8238	0.81	1.10	3	2,886	0.28	0.38	1.07	0.034	152	0.01496	0.02020	0.05634
214	3/9/1957	3	0.38	0.166	20	9.1	0.50	0.11	0.39	0.09	9866	0.97	1.31	3.66	2,219	0.22	0.30	0.82	9373	0.92	1.25	3	2,108	0.21	0.28	0.78	0.025	111	0.01093	0.01476	0.04116
215	3/16/1957	5	0.52	0.216	26	6.4	0.51	0.14	0.40	0.11	10004	0.99	1.33	3.71	2,823	0.28	0.38	1.05	9504	0.94	1.26	4	2,682	0.26	0.36	0.99	0.031	141	0.01390	0.01877	0.05236
217	4/17/1957	14	0.83	0.405	49	32.1	0.61	0.28	0.48	0.22	12036	1.19	1.60	4.46	5,572	0.55	0.74	2.07	11435	1.13	1.52	4	5,294	0.52	0.70	1.96	0.062	279	0.02744	0.03706	0.10334
218	4/20/1957	9	0.63	0.264	32	2.3	0.39	0.13	0.31	0.10	7764	0.76	1.03	2.88	2,587	0.25	0.34	0.96	7376	0.73	0.98	3	2,458	0.24	0.33	0.91	0.029	129	0.01274	0.01720	0.04797
222	5/18/1957	8	0.46	0.186	23	28.1	0.60	0.15	0.47	0.12	11886	1.17	1.58	4.41	2,952	0.29	0.39	1.09	11292	1.11	1.50	4	2,805	0.28	0.37	1.04	0.033	148	0.01454	0.01963	0.05475
223	5/21/1957	7	0.08	0.007	1	1.8	0.48	0.01	0.38	0.00	9535	0.94	1.27	3.54	102	0.01	0.01	0.04	9059	0.89	1.20	3	97	0.01	0.01	0.04	0.001	5	0.00050	0.00068	0.00189
224	6/9/1957	7	0.08	0.005	1	19.6	0.60	0.00	0.47	0.00	11876	1.17	1.58	4.40	91	0.01	0.01	0.03	11282	1.11	1.50	4	86	0.01	0.01	0.03	0.001	5	0.00045	0.00060	0.00168
225	10/11/1957	6	0.34	0.13	16	122.9	0.62	0.11	0.48	0.09	12160	1.20	1.62	4.51	2,200	0.22	0.29	0.82	11552	1.14	1.54	4	2,090	0.21	0.28	0.78	0.024	110	0.01083	0.01463	0.04080
226	10/13/1957	23	0.61	0.247	30	1.2	0.52	0.16	0.41	0.13	10246	1.01	1.36	3.80	3,233	0.32	0.43	1.20	9734	0.96	1.29	4	3,072	0.30	0.41	1.14	0.036	162	0.01592	0.02150	0.05996
227	10/20/1957	3	0.45	0.183	22	7.4	0.51	0.12	0.40	0.10	9969	0.98	1.33	3.70	2,441	0.24	0.32	0.91	9470	0.93	1.26	4	2,319	0.23	0.31	0.86	0.027	122	0.01202	0.01624	0.04528
228	10/30/1957	5	0.11	0.022	3	9.9	0.54	0.02	0.42	0.01	10681	1.05	1.42	3.96	355	0.03	0.05	0.13	10147	1.00	1.35	4	337	0.03	0.04	0.12	0.004	18	0.00175	0.00236	0.00658
229	11/2/1957	7	0.35	0.134	16	2.5	0.55	0.10	0.43	0.08	10778	1.06	1.43	4.00	2,004	0.20	0.27	0.74	10239	1.01	1.36	4	1,904	0.19	0.25	0.71	0.022	100	0.00987	0.01333	0.03716
231	11/5/1957	14	0.14	0.023	3	1.9	0.48	0.02	0.37	0.01	9432	0.93	1.25	3.50	327	0.03	0.04	0.12	8960	0.88	1.19	3	311	0.03	0.04	0.12	0.004	16	0.00161	0.00218	0.00607
232	12/4/1957	21	0.92	0.392	48	28.9	0.61	0.28	0.48	0.22	12050	1.19	1.60	4.47	5,448	0.54	0.72	2.02	11448	1.13	1.52	4	5,176	0.51	0.69	1.92	0.060	272	0.02683	0.03623	0.10104
233	12/15/1957	28	0.84	0.347	42	9.2	0.52	0.21	0.41	0.17	10226	1.01	1.36	3.79	4,223	0.42	0.56	1.57	9714	0.96	1.29	4	4,012	0.40	0.53	1.49	0.047	211	0.02080	0.02808	0.07831
234	12/16/1957	4	0.38	0.151	18	1.6	0.36	0.07	0.28	0.06	7029	0.69	0.93	2.61	1,454	0.14	0.19	0.54	6677	0.66	0.89	2	1,381	0.14	0.18	0.51	0.016	73	0.00716	0.00967	0.02697
236	1/24/1958	10	0.19	0.057	7	38.3	0.61	0.05	0.48	0.04	12080	1.19	1.61	4.48	1,012	0.10	0.13	0.38	11476	1.13	1.53	4	961	0.09	0.13	0.36	0.011	51	0.00498	0.00673	0.01877
237	1/25/1958	22	1.78	0.854	104	0.1	0.56	0.41	0.44	0.32	11084	1.09	1.47	4.11	8,096	0.80	1.08	3.00	10529	1.04	1.40	4	7,691	0.76	1.02	2.85	0.090	405	0.03987	0.05384	0.15014
238	1/30/1958	3	0.08	0.009	1	4.4	0.34	0.00	0.26	0.00	6644	0.65	0.88	2.46	91	0.01	0.01	0.03	6312	0.62	0.84	2	87	0.01	0.01	0.03	0.001	5	0.00045	0.00061	0.00169
239	2/2/1958	58	2.72	1.347	164	1.0	0.36	0.32	0.28	0.25	7139	0.70	0.95	2.65	6,236	0.61	0.83	2.31	6782	0.67	0.90	3	5,924	0.58	0.79	2.20	0.069	312	0.03071	0.04147	0.11564
240	2/8/1958	2	0.08	0.009	1	5.9	0.33	0.00	0.26	0.00	6436	0.63	0.86	2.39	88	0.01	0.01	0.03	6115	0.60	0.81	2	84	0.01	0.01	0.03	0.001	4	0.00043	0.00059	0.00164
242	2/19/1958	11	2.32	1.375	167	10.0	0.52	0.46	0.41	0.36	10331	1.02	1.37	3.83	9,079	0.89	1.21	3.37	9815	0.97	1.31	4	8,625	0.85	1.15	3.20	0.101	454	0.04472	0.06038	0.16838
243	2/25/1958	7	1.3	0.684	83	5.7	0.33	0.21	0.26	0.17	6506	0.64	0.87	2.41	4,229	0.42	0.56	1.57	6181	0.61	0.82	2	4,018	0.40	0.53	1.49	0.047	211	0.02083	0.02813	0.07844
245	3/6/1958	10	0.6	0.252	31	8.8	0.43	0.14	0.34	0.11	8568	0.84	1.14	3.18	2,749	0.27	0.37	1.02	8140	0.80	1.08	3	2,611	0.26	0.35	0.97	0.031	137	0.01354	0.01828	0.05097
246	3/10/1958	9	0.27	0.089	11	4.2	0.42	0.05	0.33	0.04	8254	0.81	1.10	3.06	1,054	0.10	0.14	0.39	7842	0.77	1.04	3	1,001	0.10	0.13	0.37	0.012	53	0.00519	0.00701	0.01955
248	3/15/1958	22	2	0.961	117	3.5	0.45	0.35	0.35	0.27	8845	0.87	1.18	3.28	6,822	0.67	0.91	2.53	8403	0.83	1.12	3	6,481	0.64	0.86	2.40	0.076	341	0.03360	0.04537	0.12652
249	3/17/1958	3	0.15	0.04	5	1.7	0.19	0.01	0.15	0.01	3793	0.37	0.50	1.41	226	0.02	0.03	0.08	3603	0.35	0.48	1	215	0.02	0.03	0.08	0.003	11	0.00111	0.00150	0.00419
250	3/20/1958	14	0.71	0.302	37	2.9	0.30	0.11	0.24	0.09	5989	0.59	0.80	2.22	2,222	0.22	0.30	0.82	5689	0.56	0.76	2	2,111	0.21	0.28	0.78	0.025	111	0.01094	0.01477	0.04120
251	3/21/1958	5	0.41	0.163	20	1.2	0.25	0.05	0.19	0.04	4857	0.48	0.65	1.80	1,075	0.11	0.14	0.40	4614	0.45	0.61	2	1,021	0.10	0.14	0.38	0.012	54	0.00530	0.00715	0.01994
252	3/27/1958	12	0.68	0.308	37	4.9	0.37	0.14	0.29	0.11	7380	0.73	0.98	2.74	2,781	0.27	0.37	1.03	7011	0.69	0.93	3	2,642	0.26	0.35	0.98	0.031	139	0.01369	0.01849	0.05157
253	3/30/1958	3	0.37	0.146	18	3.3	0.35	0.07	0.28	0.06	6960	0.69	0.93	2.58	1,397	0.14	0.19	0.52	6612	0.65	0.88	2	1,328	0.13	0.18	0.49	0.016	70	0.00688	0.00929	0.02591
254	3/31/1958	28	1.04	0.452	55	-0.3	0.27	0.14	0.21	0.11	5337	0.53	0.71	1.98	2,670	0.26	0.36	0.99	5070	0.50	0.67	2	2,537	0.25	0.34	0.94	0.030	134	0.01315	0.01776	0.04952
255	4/3/1958	10	0.5	0.207	25	2.0	0.23	0.06	0.18	0.05	4619	0.45	0.61	1.71	1,257	0.12	0.17	0.47	4388	0.43	0.58	2	1,195	0.12	0.16	0.44	0.014	63	0.00619	0.00836	0.02332
256	4/4/1958	2	0.16	0.047	6	1.0	0.22	0.02	0.17	0.01	4319	0.43	0.57	1.60	301	0.03	0.04	0.11	4103	0.40	0.55	2	286	0.03	0.04	0.11	0.003	15	0.00148	0.00200	0.00557
257	4/6/1958	32	1.42	0.751	91	1.0	0.25	0.17	0.19	0.13	4869	0.48	0.65	1.81	3,331	0.33	0.44	1.24	4625	0.46	0.62	2	3,165	0.31	0.42	1.17	0.037	167	0.01641	0.02215	0.06178
261	8/15/1958	6	0.38	0.148	18	130.8	0.62	0.13	0.48	0.10	12160	1.20	1.62	4.51	2,471	0.24	0.33	0.92	11552	1.14	1.54	4	2,348	0.23	0.31	0.87	0.027	124	0.01217	0.01643	0.04583
264	1/5/1959	17	1.24	0.561	68	142.7	0.62	0.36	0.48	0.28	12160	1.20	1.62	4.51	7,020	0.69	0.93	2.60	11552	1.14	1.54	4	6,669	0.66	0.89	2.47	0.078	351	0.03458	0.04669	0.13020
265	2/7/1959	23	0.45	0.158	19	31.8	0.61	0.13	0.48	0.10	11980	1.18	1.59	4.44	2,580	0.25	0.34	0.96	11381	1.12	1.51	4	2,451	0.24	0.33	0.91	0.029	129	0.01271	0.01716	0.04785
266	2/10/1959	52	1.11	0.498	61	0.2	0.48	0.26	0.38	0.20	9465	0.93	1.26	3.51	5,058	0.50	0.67	1.88	8992	0.89	1.20	3	4,805	0.47	0.64	1.78	0.056	253	0.02491	0.03364	0.09381
267	2/15/1959	21	1.12	0.492	60	4.9	0.39	0.21	0.31	0.16	7758	0.76	1.03	2.88	4,113	0.41	0.55	1.53	7370	0.73	0.98	3	3,907	0.38	0.52	1.45	0.046	206	0.02025	0.02735	0.07627
268	2/18/1959	2	0.12	0.028	3	3.0	0.31	0.02	0.24	0.01	6103	0.60	0.81	2.26	257	0.03	0.03	0.10	5798	0.57	0.77	2	244	0.02	0.03	0.09	0.003	13	0.00126	0.00171	0.00476
269	2/21/1959	15	0.52	0.206	25	1.8	0.36	0.10	0.28	0.08	6999	0.69	0.93	2.60	1,897	0.19	0.25	0.70	6649	0.65	0.88	2	1,802	0.18	0.24	0.67	0.021	95	0.00934	0.01262	0.03519
270	4/25/1959	10	0.5	0.207	25	63.0	0.62	0.17	0.48	0.13	12155	1.20	1.62	4.51	3,309	0.33	0.44	1.23	11547	1.14	1.54	4	3,143	0.31	0.42	1.17	0.037	165	0.01630	0.02200	0.06136
275	12/20/1959	10	0.14	0.038	5	238.8	0.62	0.03	0.48	0.03	12160	1.20	1.62	4.51	689	0.07	0.09	0.26	11552	1.14	1.54	4	655	0.06	0.09	0.24	0.008	34	0.00339	0.00458	0.01278
276	12/24/1959	26	0.92	0.383	47	2.1	0.59	0.26	0.46	0.20	11621	1.14	1.55	4.31	5,166	0.51	0.69	1.92	11040	1.09	1.47	4	4,907	0.48	0.65	1.82	0.057	258	0.02544	0.03435	0.09580
277	1/9/1960	31	0.97	0.434	53	15.0	0.57	0.28	0.44	0.21	11146	1.10	1.48	4.13	5,421	0.53	0.72	2.01	10588	1.04	1.41	4	5,150	0.51	0.68	1.91	0.060	271	0.02670	0.03605	0.10053
278	1/11/1960	8	1.32	0.744	91	2.1	0.36	0.25	0.28	0.19	7122	0.70	0.95	2.64	4,849	0.48	0.64	1.80	6765	0.67	0.90	3	4,606	0.45	0.61	1.71	0.054	242	0.02388	0.03224	0.08992
279	1/14/1960	16	0.41	0.147	18	2.0	0.22	0.04	0.17	0.03	4269	0.42	0.57	1.58	862	0.08	0.11	0.32	4055	0.40	0.54	2	819	0.08	0.11	0.30	0.010	43	0.00425	0.00573	0.01599
280	1/15/1960	2	0.07	0.009	1	1.1	0.23	0.00	0.18	0.00	4433	0.44	0.59	1.64	61	0.01	0.01	0.02	4211	0.41	0.56	2	58	0.01	0.01	0.02	0.001	3	0.00030	0.00040	0.00113
281	1/25/1960	20	0.17	0.028	3	8.6	0.47	0.02	0.37	0.02	9261	0.91	1.23	3.43	390	0.04	0.05	0.14	8798	0.87	1.17	3	370	0.04	0.05	0.14	0.004	19	0.00192	0.00259	0.00723
282	2/1/1960	8	0.91	0.399	49	7.2	0.54	0.25	0.43	0.19	10733	1.06	1.43	3.98	4,916	0.48	0.65	1.82	10196	1.00	1.36	4	4,670	0.46	0.62	1.73	0.055	246	0.02421	0.03269	0.09116
283	2/8/1960	11	0.42	0.165	20	6.3	0.46	0.10	0.36	0.08	9101	0.90	1.21	3.38	2,036	0.20	0.27	0.76	8646	0.85	1.15	3	1,935	0.19	0.26	0.72	0.023	102	0.01003	0.01354	0.03776
284	2/10/1960	2	0.1	0.019	2	1.7	0.40	0.01	0.32	0.01	7954	0.78	1.06	2.95	229	0.02	0.03	0.08	7557	0.74	1.01	3	217	0.02	0.03	0.08	0.003	11	0.00113	0.00152	0.00424
285	2/28/1960	40	0.92	0.375	46	16.7	0.58	0.26	0.46	0.20	11512	1.13	1.53	4.27	5,039	0.50	0.67	1.87	10937	1.08	1.45	4	4,787	0.47	0.64	1.78	0.056	252	0.02481	0.03351	0.09344
286	3/27/1960	5	0.22	0.075	9	28.2	0.61	0.07	0.47	0.05	11938	1.18	1.59	4.43	1,298	0.13	0.17	0.48	11341	1.12	1.51	4	1,233	0.12	0.16	0.46	0.014	65	0.00639	0.00863	0.02408
287	4/26/1960	27	1.45	0.651	79	28.8	0.62	0.39	0.48	0.30	12105	1.19	1.61	4.49	7,649	0.75	1.02	2.84	11500	1.13	1.53	4	7,267	0.72	0.97	2.70	0.085	382	0.03767	0.05087	0.14185
290	11/3/1960	9	0.35	0.134	16	190.2	0.62	0.11	0.48	0.09	12160	1.20	1.62	4.51	2,261	0.22	0.30	0.84	11552	1.14	1.54	4	2,148	0.21	0.29	0.80	0.025	113	0.01113	0.01503	0.04193
291	11/5/1960	29	0.96	0.479	58	0.8	0.51	0.27	0.40	0.21	10096	0.99	1.34	3.74	5,257	0.52	0.70	1.95	9592	0.94	1.28	4	4,994	0.49	0.66	1.85	0.058	263	0.02589	0.03496	0.09748
292	11/12/1960	7	0.49	0.202	25	6.8	0.45	0.12	0.35	0.09	8827	0.87	1.17	3.27	2,353	0.23	0.31	0.87	8386	0.83	1.12	3	2,236	0.22	0.30	0.83	0.026	118	0.01159	0.01565	0.04364
293	11/26/1960	5	0.6	0.27	33	13.8	0.56	0.19	0.44	0.15	10998	1.08	1.46	4.08	3,732	0.37	0.50	1.38	10448	1.03	1.39	4	3,545	0.35	0.47	1.31	0.041	187	0.01838	0.02482	0.06920
294	12/1/1960	6	0.15	0.042	5	5.2	0.48	0.03	0.38	0.02	9461	0.93	1.26	3.51	591	0.06	0.08	0.22	8987	0.89	1.20	3	561	0.06	0.07	0.21	0.007	30	0.00291	0.00393	0.01095
295	1/25/1961	43	1.28	0.526	64	52.5	0.62	0.34	0.48	0.27	12152	1.20	1.62	4.51	6,732	0.66	0.90	2.50	11545	1.14	1.54	4	6,396	0.63	0.85	2.37	0.075	337	0.03316	0.04477	0.12485
296	2/16/1961	1	0.15	0.042	5	22.0	0.59	0.04	0.46	0.03	11625	1.15	1.55	4.31	726	0.07	0.10	0.27	11044	1.09	1.47	4	690	0.07	0.09	0.26	0.008	36	0.00357	0.00483	0.01346
297	3/15/1961	5	0.4	0.16	19	26.8	0.61	0.13	0.48	0.10	12103	1.19	1.61	4.49	2,636	0.26	0.35	0.98	11497	1.13	1.53	4	2,504	0.25	0.33	0.93	0.029	132	0.01298	0.01753	0.04888
299	3/24/1961	2	0.07	0.005	1	9.6	0.57	0.00	0.45	0.00	11267	1.11	1.50	4.18	86	0.01	0.01	0.03	10703	1.05	1.42	4	82	0.01	0.01	0.03	0.001	4	0.00042	0.00057	0.00160
301	4/22/1961	5	0.29	0.106	13	28.2	0.62	0.09	0.48	0.07	12122	1.19	1.61	4.50	1,820	0.18	0.24	0.68	11516	1.13	1.53	4	1,729	0.17	0.23	0.64	0.020	91	0.00897	0.01211	0.03376
306	11/20/1961	7	1.23	0.645	78	211.7	0.62	0.39	0.48	0.30	12160	1.20	1.62	4.51	7,642	0.75	1.02	2.83	11552	1.14	1.54	4	7,260	0.72	0.97	2.69	0.085	382	0.03764	0.05082	0.14173
307	11/25/1961	30	0.67	0.265	32	3.5	0.36	0.12	0.28	0.09	7028	0.69	0.93	2.61	2,349	0.23	0.31	0.87	6677	0.66	0.89	2	2,231	0.22	0.30	0.83	0.026	117	0.01157	0.01562	0.04356
308	11/30/1961	3	0.12	0.028	3	5.0	0.40	0.02	0.32	0.01	7953	0.78	1.06	2.95	335	0.03	0.04	0.12	7556	0.74	1.00	3	318	0.03	0.04	0.12	0.004	17	0.00165	0.00223	0.00621
309	12/1/1961	27	1.32	0.612	74	0.6	0.40	0.30	0.31	0.19	7934	0.78	1.06	2.94	4,833	0.48	0.64	1.79	7537	0.74	1.00	3	4,591	0.45	0.61	1.70	0.054	242	0.02380	0.03214	0.08963
310	12/13/1961	14	0.12	0.018	2	11.5	0.49	0.01	0.39	0.01	9738	0.96	1.30	3.61	265	0.03	0.04	0.10	9251	0.91	1.23	3	252	0.02	0.03	0.09	0.003	13	0.00131	0.00176	0.00492
311	1/12/1962	8	0.17	0.048	6	29.5	0.61	0.04	0.48	0.03	12070	1.19	1.61	4.48	857	0.08	0.11	0.32	11467	1.13	1.53	4	815	0.08	0.11	0.30	0.010	43	0.00422	0.00570	0.01590
312	1/20/1962	66	2.39	1.101	134	4.7	0.59	0.48	0.46	0.38	11609	1.14	1.54	4.31	9,467	0.93	1.26	3.51	11029	1.09	1.47	4	8,994	0.89	1.20	3.34	0.105	473	0.04663	0.06296	0.17557
313	2/7/1962	117	8.03	3.757	457	13.4	0.51	0.51	0.40	0.40	10002	0.99	1.33	3.72	9,991	0.98	1.33	3.71	9521	0.94	1.27	4	9,492	0.93	1.26	3.52	0.111	500	0.04921	0.06644	0.18529
315	2/15/1962	13	1.35	0.618	75	7.1	0.34	0.21	0.27	0.17	6794	0.67	0.90	2.52	4,163	0.41	0.55	1.54	6454	0.64	0.86	2	3,955	0.39	0.53	1.47	0.046	208	0.02050	0.02768	0.07720
316	2/16/1962	2	0.2	0.07	9	1.0	0.18	0.02	0.14	0.01	3627	0.36	0.48	1.35	369	0.04	0.05	0.14	3445	0.34	0.46	1	351	0.03	0.05	0.13	0.004	18	0.00182	0.00246	0.00685
317	2/19/1962	22	1.73	0.978	119	2.0	0.26	0.20	0.20	0.16	5122	0.50	0.68	1.90	3,981	0.39	0.53	1.48	4866	0.48	0.65	2	3,782	0.37	0.50	1.40	0.044	199	0.01960	0.02647	0.07382
318	2/20/1962	8	0.2	0.06	7	1.1	0.12	0.01	0.10	0.01	2433	0.24	0.32	0.90	214	0.02	0.03	0.08	2312	0.23	0.31	1	203	0.02	0.03	0.08	0.002	11	0.00105	0.00142	0.00397
320	3/6/1962	21	0.47	0.171	21	12.6	0.50	0.12	0.39	0.09	9837	0.97	1.31	3.65	2,271	0.22	0.30	0.84	9345	0.92	1.24	3	2,157	0.21	0.29	0.80	0.025	114	0.01118	0.01510	0.04212
321	3/18/1962	8	0.43	0.174	21	12.2	0.56	0.13	0.44	0.10	11028	1.09	1.47	4.09	2,585	0.25	0.34	0.96	10477	1.03	1.39	4	2,456	0.24	0.33	0.91	0.029	129	0.01273	0.01719	0.04794
324	3/22/1962	2	0.13	0.033	4	4.1	0.50	0.02	0.39	0.02	9848	0.97	1.31	3.65	486	0.05	0.06	0.18	9356	0.92	1.24	3	462	0.05	0.06	0.17	0.005	24	0.00240	0.00323	0.00902
326	10/14/1962	1	0.1	0.019	2	205.8	0.62	0.02	0.48	0.01	12160	1.20	1.62	4.51	350	0.03	0.05	0.13	11552	1.14	1.54	4	332	0.03	0.04	0.12	0.004	17	0.00172	0.00232	0.00648

330	1/31/1963	30	0.58	0.229	28	107.5	0.62	0.18	0.48	0.14	12160	1.20	1.62	4.51	3,604	0.36	0.48	1.34	11552	1.14	1.54	4	3,424	0.34	0.46	1.27	0.040	180	0.01775	0.02397	0.06684
331	2/9/1963	37	2.58	1.235	150	7.4	0.54	0.46	0.42	0.36	10626	1.05	1.41	3.94	9,030	0.89	1.20	3.35	10094	0.99	1.34	4	8,578	0.84	1.14	3.18	0.100	451	0.04447	0.06005	0.16746
333	2/14/1963	7	0.18	0.052	6	4.5	0.30	0.02	0.23	0.02	5837	0.57	0.78	2.17	448	0.04	0.06	0.17	5545	0.55	0.74	2	425	0.04	0.06	0.16	0.005	22	0.00221	0.00298	0.00831
334	3/9/1963	1	0.11	0.024	3	23.5	0.59	0.02	0.46	0.02	11708	1.15	1.56	4.34	423	0.04	0.06	0.16	11122	1.10	1.48	4	402	0.04	0.05	0.15	0.005	21	0.00209	0.00282	0.00785
335	3/15/1963	2	0.1	0.019	2	5.3	0.59	0.02	0.46	0.01	11684	1.15	1.55	4.33	336	0.03	0.04	0.12	11100	1.09	1.48	4	319	0.03	0.04	0.12	0.004	17	0.00165	0.00223	0.00623
336	3/16/1963	10	1.35	0.726	88	1.3	0.58	0.39	0.45	0.31	11457	1.13	1.52	4.25	7,698	0.76	1.02	2.86	10884	1.07	1.45	4	7,313	0.72	0.97	2.71	0.085	385	0.03791	0.05119	0.14276
337	3/17/1963	6	0.17	0.051	6	0.7	0.22	0.02	0.17	0.01	4380	0.43	0.58	1.62	330	0.03	0.04	0.12	4161	0.41	0.55	2	313	0.03	0.04	0.12	0.004	16	0.00162	0.00219	0.00612
338	3/22/1963	6	0.45	0.183	22	5.1	0.39	0.10	0.30	0.07	7665	0.75	1.02	2.84	1,877	0.18	0.25	0.70	7281	0.72	0.97	3	1,783	0.18	0.24	0.66	0.021	94	0.00924	0.01248	0.03481
339	3/28/1963	6	0.6	0.254	31	5.0	0.43	0.14	0.34	0.11	8559	0.84	1.14	3.17	2,764	0.27	0.37	1.03	8131	0.80	1.08	3	2,625	0.26	0.35	0.97	0.031	138	0.01361	0.01838	0.05125
340	4/7/1963	7	0.07	0.003	0	10.5	0.52	0.00	0.41	0.00	10251	1.01	1.36	3.80	47	0.00	0.01	0.02	9739	0.96	1.30	4	45	0.00	0.01	0.02	0.001	2	0.00023	0.00031	0.00087
341	4/14/1963	19	0.68	0.277	34	5.7	0.57	0.20	0.44	0.15	11146	1.10	1.48	4.13	3,861	0.38	0.51	1.43	10589	1.04	1.41	4	3,668	0.36	0.49	1.36	0.043	193	0.01901	0.02567	0.07160
343	4/20/1963	6	0.39	0.155	19	6.1	0.50	0.10	0.39	0.08	9752	0.96	1.30	3.62	2,065	0.20	0.27	0.77	9264	0.91	1.23	3	1,962	0.19	0.26	0.73	0.023	103	0.01017	0.01373	0.03829
344	4/25/1963	13	0.79	0.396	48	4.6	0.48	0.22	0.38	0.17	9534	0.94	1.27	3.54	4,343	0.43	0.58	1.61	9057	0.89	1.20	3	4,126	0.41	0.55	1.53	0.048	217	0.02139	0.02888	0.08053
347	6/11/1963	16	0.11	0.015	2	45.4	0.62	0.01	0.48	0.01	12123	1.19	1.61	4.50	276	0.03	0.04	0.10	11517	1.13	1.53	4	262	0.03	0.03	0.10	0.003	14	0.00136	0.00184	0.00512
350	9/4/1963	12	0.3	0.105	13	84.6	0.62	0.09	0.48	0.07	12160	1.20	1.62	4.51	1,810	0.18	0.24	0.67	11552	1.14	1.54	4	1,720	0.17	0.23	0.64	0.020	91	0.00892	0.01204	0.03357
351	9/12/1963	1	0.13	0.033	4	8.5	0.58	0.03	0.46	0.02	11477	1.13	1.53	4.26	567	0.06	0.08	0.21	10903	1.07	1.45	4	539	0.05	0.07	0.20	0.006	28	0.00279	0.00377	0.01051
352	9/17/1963	47	0.88	0.331	40	2.8	0.57	0.23	0.45	0.18	11253	1.11	1.50	4.17	4,483	0.44	0.60	1.66	10691	1.05	1.42	4	4,259	0.42	0.57	1.58	0.050	224	0.02208	0.02981	0.08314
353	10/16/1963	5	0.35	0.136	17	28.5	0.61	0.11	0.47	0.09	11959	1.18	1.59	4.44	2,253	0.22	0.30	0.84	11361	1.12	1.51	4	2,141	0.21	0.28	0.79	0.025	113	0.01110	0.01498	0.04179
354	10/17/1963	8	0.22	0.071	9	1.3	0.51	0.05	0.40	0.04	10045	0.99	1.34	3.73	1,037	0.10	0.14	0.38	9542	0.94	1.27	4	985	0.10	0.13	0.37	0.012	52	0.00511	0.00690	0.01924
355	11/6/1963	6	0.48	0.197	24	19.3	0.60	0.16	0.47	0.12	11817	1.16	1.57	4.38	3,084	0.30	0.41	1.14	11226	1.11	1.49	4	2,929	0.29	0.39	1.09	0.034	154	0.01519	0.02051	0.05719
356	11/15/1963	10	0.46	0.184	22	8.6	0.55	0.14	0.43	0.11	10884	1.07	1.45	4.04	2,678	0.26	0.36	0.99	10340	1.02	1.38	4	2,544	0.25	0.34	0.94	0.030	134	0.01319	0.01781	0.04967
357	11/19/1963	22	1.21	0.604	73	3.6	0.49	0.29	0.38	0.23	9555	0.94	1.27	3.54	5,775	0.57	0.77	2.14	9078	0.89	1.21	3	5,486	0.54	0.73	2.03	0.064	289	0.02844	0.03840	0.10709
358	1/18/1964	4	0.08	0.007	1	59.5	0.62	0.01	0.48	0.01	12151	1.20	1.62	4.51	130	0.01	0.02	0.05	11544	1.14	1.54	4	123	0.01	0.02	0.05	0.001	6	0.00064	0.00086	0.00241
359	1/20/1964	15	0.78	0.331	40	1.5	0.61	0.24	0.48	0.19	12044	1.19	1.60	4.47	4,798	0.47	0.64	1.78	11442	1.13	1.52	4	4,558	0.45	0.61	1.69	0.053	240	0.02363	0.03191	0.08898
360	1/21/1964	9	0.57	0.29	35	0.8	0.39	0.14	0.31	0.11	7696	0.76	1.02	2.85	2,765	0.27	0.37	1.03	7311	0.72	0.97	3	2,627	0.26	0.35	0.97	0.031	138	0.01362	0.01839	0.05128
361	3/2/1964	2	0.2	0.066	8	40.2	0.61	0.06	0.48	0.05	12089	1.19	1.61	4.48	1,165	0.11	0.15	0.43	11485	1.13	1.53	4	1,107	0.11	0.15	0.41	0.013	58	0.00574	0.00775	0.02160
363	3/12/1964	5	0.11	0.023	3	10.3	0.60	0.02	0.47	0.02	11784	1.16	1.57	4.37	409	0.04	0.05	0.15	11195	1.10	1.49	4	388	0.04	0.05	0.14	0.005	20	0.00201	0.00272	0.00758
364	3/22/1964	35	1.21	0.589	72	8.4	0.60	0.36	0.47	0.28	11862	1.17	1.58	4.40	7,059	0.70	0.94	2.62	11269	1.11	1.50	4	6,707	0.66	0.89	2.49	0.078	353	0.03477	0.04695	0.13092
365	3/31/1964	21	0.43	0.156	19	8.1	0.47	0.10	0.37	0.08	9259	0.91	1.23	3.43	1,972	0.19	0.26	0.73	8796	0.87	1.17	3	1,873	0.18	0.25	0.69	0.022	99	0.00971	0.01311	0.03657
370	6/9/1964	7	0.32	0.122	15	69.2	0.62	0.11	0.48	0.08	12159	1.20	1.62	4.51	2,077	0.20	0.28	0.77	11551	1.14	1.54	4	1,973	0.19	0.26	0.73	0.023	104	0.01023	0.01381	0.03851
371	10/27/1964	4	0.08	0.009	1	140.6	0.62	0.01	0.48	0.01	12160	1.20	1.62	4.51	167	0.02	0.02	0.06	11552	1.14	1.54	4	159	0.02	0.02	0.06	0.002	8	0.00082	0.00111	0.00309
372	10/29/1964	4	0.25	0.089	11	1.3	0.61	0.08	0.48	0.06	12016	1.18	1.60	4.46	1,534	0.15	0.20	0.57	11416	1.12	1.52	4	1,458	0.14	0.19	0.54	0.017	77	0.00756	0.01020	0.02846
373	11/9/1964	5	0.77	0.339	41	10.8	0.59	0.24	0.46	0.19	11676	1.15	1.55	4.33	4,737	0.47	0.63	1.76	11092	1.09	1.48	4	4,500	0.44	0.60	1.67	0.053	237	0.02333	0.03150	0.08785
374	11/10/1964	10	0.47	0.189	23	0.5	0.37	0.09	0.29	0.07	7254	0.71	0.96	2.69	1,827	0.18	0.24	0.68	6892	0.68	0.92	3	1,736	0.17	0.23	0.64	0.020	91	0.00900	0.01215	0.03388
376	11/17/1964	15	0.44	0.171	21	6.2	0.45	0.10	0.35	0.08	8866	0.87	1.18	3.29	2,047	0.20	0.27	0.76	8423	0.83	1.12	3	1,945	0.19	0.26	0.72	0.023	102	0.01008	0.01361	0.03796
377	12/18/1964	55	1.17	0.489	59	29.2	0.61	0.32	0.47	0.25	11974	1.18	1.59	4.44	6,322	0.62	0.84	2.34	11376	1.12	1.51	4	6,006	0.59	0.80	2.23	0.070	316	0.03113	0.04204	0.11724
380	12/26/1964	17	0.8	0.348	42	7.7	0.48	0.20	0.38	0.16	9468	0.93	1.26	3.51	3,919	0.39	0.52	1.45	8995	0.89	1.20	3	3,723	0.37	0.50	1.38	0.044	196	0.01930	0.02606	0.07267
382	1/6/1965	11	0.49	0.2	24	10.6	0.52	0.14	0.41	0.11	10215	1.01	1.36	3.79	2,700	0.27	0.36	1.00	9704	0.96	1.29	4	2,565	0.25	0.34	0.95	0.030	135	0.01330	0.01796	0.05008
383	1/24/1965	6	0.35	0.136	17	16.8	0.58	0.11	0.46	0.09	11491	1.13	1.53	4.26	2,165	0.21	0.29	0.80	10917	1.08	1.45	4	2,057	0.20	0.27	0.76	0.024	108	0.01066	0.01440	0.04015
384	2/5/1965	19	0.23	0.067	8	11.8	0.58	0.06	0.45	0.04	11431	1.13	1.52	4.24	1,117	0.11	0.15	0.41	10860	1.07	1.44	4	1,061	0.10	0.14	0.39	0.012	56	0.00550	0.00743	0.02072
385	3/6/1965	2	0.07	0.005	1	29.1	0.61	0.00	0.48	0.00	12095	1.19	1.61	4.49	92	0.01	0.01	0.03	11491	1.13	1.53	4	88	0.01	0.01	0.03	0.001	5	0.00046	0.00061	0.00172
386	3/11/1965	3	0.08	0.007	1	4.6	0.61	0.01	0.48	0.01	12068	1.19	1.61	4.48	129	0.01	0.02	0.05	11464	1.13	1.52	4	123	0.01	0.02	0.05	0.001	6	0.00064	0.00086	0.00239
387	3/12/1965	22	1.04	0.522	64	0.3	0.61	0.33	0.47	0.26	11947	1.18	1.59	4.43	6,586	0.65	0.88	2.44	11350	1.12	1.51	4	6,257	0.62	0.83	2.32	0.073	329	0.03244	0.04380	0.12214
388	3/14/1965	19	0.36	0.128	16	1.3	0.32	0.06	0.25	0.04	6301	0.62	0.84	2.34	1,124	0.11	0.15	0.42	5986	0.59	0.80	2	1,068	0.11	0.14	0.40	0.012	56	0.00554	0.00747	0.02084
389	3/31/1965	113	3.25	1.403	171	11.7	0.53	0.46	0.41	0.36	10355	1.02	1.38	3.84	9,153	0.90	1.22	3.39	9837	0.97	1.31	4	8,695	0.86	1.16	3.23	0.102	458	0.04508	0.06087	0.16974
391	4/7/1965	47	3.52	1.933	235	5.6	0.33	0.31	0.25	0.24	6426	0.63	0.85	2.38	6,095	0.60	0.81	2.26	6104	0.60	0.81	2	5,790	0.57	0.77	2.15	0.068	305	0.03002	0.04053	0.11303
392	4/12/1965	5	0.16	0.045	5	4.5	0.26	0.02	0.20	0.01	5114	0.50	0.68	1.90	341	0.03	0.05	0.13	4858	0.48	0.65	2	324	0.03	0.04	0.12	0.004	17	0.00168	0.00227	0.00633
395	9/5/1965	14	0.26	0.094	11	145.6	0.62	0.08	0.48	0.06	12160	1.20	1.62	4.51	1,634	0.16	0.22	0.61	11552	1.14	1.54	4	1,552	0.15	0.21	0.58	0.018	82	0.00805	0.01087	0.03030
396	9/17/1965	5	0.09	0.012	1	11.2	0.59	0.01	0.46	0.01	11708	1.15	1.56	4.34	214	0.02	0.03	0.08	11123	1.10	1.48	4	203	0.02	0.03	0.08	0.002	11	0.00105	0.00142	0.00396
397	9/18/1965	3	1.39	1.139	139	1.3	0.59	0.49	0.46	0.38	11587	1.14	1.54	4.30	9,570	0.94	1.27	3.55	11007	1.08	1.46	4	9,092	0.90	1.21	3.37	0.106	479	0.04713	0.06364	0.17748
398	9/19/1965	3	0.06	0.001	0	0.6	0.14	0.00	0.11	0.00	2675	0.26	0.36	0.99	4	0.00	0.00	0.00	2542	0.25	0.34	1	4	0.00	0.00	0.00	0.000	0	0.00002	0.00003	0.00008
399	11/14/1965	105	5.25	2.466	300	51.4	0.62	0.60	0.48	0.47	12135	1.20	1.61	4.50	11,859	1.17	1.58	4.40	11528	1.14	1.53	4	11,266	1.11	1.50	4.18	0.132	593	0.05841	0.07886	0.21993
400	11/22/1965	21	3.51	1.902	231	7.2	0.35	0.34	0.28	0.26	6977	0.69	0.93	2.59	6,601	0.65	0.88	2.45	6628	0.65	0.88	2	6,271	0.62	0.83	2.33	0.073	330	0.03251	0.04390	0.12241
401	11/24/1965	27	0.92	0.425	52	0.9	0.08	0.04	0.06	0.03	1557	0.15	0.21	0.58	746	0.07	0.10	0.28	1479	0.15	0.20	1	709	0.07	0.09	0.26	0.008	37	0.00367	0.00496	0.01383
402	12/9/1965	27	0.9	0.371	45	13.9	0.50	0.22	0.39	0.17	9874	0.97	1.31	3.66	4,287	0.42	0.57	1.59	9380	0.92	1.25	3	4,073	0.40	0.54	1.51	0.048	214	0.02111	0.02851	0.07951
403	12/12/1965	24	0.43	0.141	17	1.8	0.34	0.07	0.27	0.05	6786	0.67	0.90	2.52	1,321	0.13	0.18	0.49	6447	0.64	0.86	2	1,255	0.12	0.17	0.47	0.015	66	0.00650	0.00878	0.02449
404	12/14/1965	8	0.26	0.09	11	2.0	0.35	0.04	0.27	0.04	6868	0.68	0.91	2.55	886	0.09	0.12	0.33	6524	0.64	0.87	2	842	0.08	0.11	0.31	0.010	44	0.00436	0.00589	0.01643
406	12/22/1965	1	0.11	0.024	3	8.1	0.49	0.02	0.39	0.01	9736	0.96	1.29	3.61	352	0.03	0.05	0.13	9249	0.91	1.23	3	335	0.03	0.04	0.12	0.004	18	0.00173	0.00234	0.00653
407	12/28/1965	21	3.92	2.275	277	5.5	0.54	0.53	0.42	0.41	10693	1.05	1.42	3.97	10,368	1.02	1.38	3.85	10159	1.00	1.35	4	9,849	0.97	1.31	3.65	0.115	518	0.05106	0.06895	0.19227
408	12/30/1965	15	0.1	0.004	0	1.3	0.10	0.00	0.08	0.00	1961	0.19	0.26	0.73	12	0.00	0.00	0.00	1863	0.18	0.25	1	11	0.00	0.00	0.00	0.000	1	0.00006	0.00008	0.00022
410	1/30/1966	15	0.95	0.517	63	29.6	0.60	0.33	0.47	0.26	11823	1.16	1.57	4.39	6,477	0.64	0.86	2.40	11232	1.11	1.49	4	6,153	0.61	0.82	2.28	0.072	324	0.03190	0.04307	0.12011
411	2/1/1966	6	0.1	0.019	2	2.3	0.35	0.01	0.28	0.01	6952	0.68	0.92	2.58	200	0.02	0.03	0.07	6604	0.65	0.88	2	190	0.02	0.03	0.07	0.002	10	0.00098	0.00133	0.00371
412	2/6/1966	15	1.4	0.63	77	3.7	0.44	0.27	0.34	0.21	8614	0.85	1.15	3.20	5,339	0.53	0.71	1.98	8184	0.81	1.09	3	5,072	0.50	0.67	1.88	0.059	267	0.02630	0.03551	0.09902
415	3/24/1966	14	0.52	0.204	25	46.2	0.62	0.17	0.48	0.13	12117	1.19	1.61	4.49	3,258	0.32	0.43	1.21	11511	1.13	1.53	4	3,095	0.30	0.41	1.15	0.036	163	0.01604	0.02166	0.06041
416	5/9/1966	7	0.22	0.075	9	45.4	0.62	0.07	0.48	0.05	12142	1.20	1.61	4.50	1,320	0.13	0.18	0.49	11535	1.14	1.53	4	1,254	0.12	0.17	0.47	0.015	66	0.00650	0.00878	0.02449
417	9/18/1966	22	0.23	0.052	6	131.3	0.62	0.05	0.48	0.04	12160	1.20	1.62	4.51	933	0.09	0.12	0.35	11552	1.14	1.54	4	886	0.09	0.12	0.33	0.010	47	0.00459	0.00620	0.01730
420	11/7/1966	20	3.85	2.528	308	48.6	0.62	0.60	0.48	0.47	12157	1.20	1.62	4.51	11,906	1.17	1.58	4.42	11549	1.14	1.54	4	11,311	1.11	1.50	4.20	0.132	595	0.05864	0.07917	0.22079
421	11/20/1966	5	0.22	0.075	9	13.3	0.49	0.05	0.38	0.04	9594	0.95	1.28	3.56	1,043	0.10	0.14	0.39	9115	0.90	1.21	3	991	0.10	0.13	0.37	0.012	52	0.00514	0.00694	0.01935
422	12/2/1966	23	2.41	1.182	144	11.0	0.57	0.47	0.44	0.37	11148	1.10	1.48	4.13	9,332	0.92	1.24	3.46	10591	1.04	1.41	4	8,865	0.87	1.18	3.29	0.104	467	0.04596	0.06206	0.17305
423	12/4/1966	51	2.85	1.316	160	0.0	0.09	0.08	0.07	0.06	1816	0.18	0.24	0.67	1,575	0.16	0.21	0.58	1726	0.17	0.23	1	1,497	0.15	0.20	0.56	0.017	79	0.00776	0.01048	0.02922
424	1/22/1967	22	3.69	2.179	265	47.5	0.61	0.59	0.48	0.46	12110	1.19	1.61	4.49	11,683	1.15	1.55	4.33	11504	1.13	1.53	4	11,099	1.09	1.48	4.12	0.130	584	0.05754	0.07769	0.21666
425	1/24/1967	22	1.97	0.948	115	1.1	0.09	0.07	0.07	0.05	1803	0.18	0.24	0.67	1,382	0.14	0.18	0.51	1713	0.17	0.23	1	1,313	0.13	0.17	0.49	0.015	69	0.00681	0.00919	0.02563
426	1/30/1967	7	0.27	0.099	12	6.3	0.33	0.05	0.26	0.04	6443	0.63	0.86	2.39	908	0.09	0.12	0.34	6121	0.60	0.81	2	863	0.09	0.11	0.32	0.010	45	0.00447	0.00604	0.01685
427	2/25/1967	6	0.11	0.023	3	25.3	0.60	0.02	0.47	0.02	11800	1.16	1.57	4.38	409	0.04	0.05	0.15	11210	1.10	1.49	4	389	0.04	0.05	0.14	0.005	20	0.00202	0.00272	0.00759
429	3/11/1967	79	1.93	0.818	100	10.5	0.61	0.43	0.47	0.34	11930	1.18	1.59	4.43	8,532	0.84	1.13	3.16	11334	1.12	1.51	4	8,105	0.80	1.08	3.01	0.095	427	0.04202	0.05674	0.15822
431	3/31/1967	4	0.48	0.24	29	20.0	0.57	0.18	0.45	0.14	11284	1.11	1.50	4.19	3,477	0.34	0.46	1.29	10720	1.06	1.43	4	3,304	0.33	0.44	1.23	0.039	174	0.01713	0.02312	0.06449
432	4/1/1967	20	0.69	0.282	34	0.1	0.40	0.14	0.31	0.11	7869	0.78	1.05	2.92	2,765	0.27	0.37	1.03	7475	0.74	0.99	3	2,627	0.26	0.35	0.97	0.031	138	0.01362	0.01839	0.05127
433	4/4/1967	4	0.09	0.014	2	3.3	0.37	0.01	0.29	0.01	7307	0.72	0.97	2.71	155	0.02	0.02	0.06	6941	0.68	0.92	3	148	0.01	0.02	0.05	0.002	8	0.00077	0.00103	0.00288
434	4/7/1967	4	0.14	0.038	5	2.5	0.43	0.02	0.33	0.02	8422	0.83	1.12	3.12	477	0.05	0.06	0.18	8001	0.79	1.06	3	453	0.04	0.06	0.17	0.005	24	0.00235	0.00317	0.00885
435	4/11/1967	9	0.64	0.269	33	3.4	0.47	0.16	0.37	0.12	9316	0.92	1.24	3.46	3,151	0.31	0.42	1.17	8850	0.87	1.18	3	2,994	0.29	0.40	1.11	0.035	158	0.01552	0.02096	0.05844
436	4/18/1967	29	0.7	0.271	33	6.2	0.47	0.16	0.37	0.12	9226	0.91	1.23	3.42	3,140	0.31	0.42	1.16	8765	0.86	1.17	3	2,983	0.29	0.40	1.11	0.035	157	0.01546	0.02088	0.05823
437	4/21/1967	22	0.98	0.419	51	1.8	0.37	0.17	0.29	0.14	7242	0.71	0.96	2.69	3,436	0.34	0.46	1.27	6880	0.68	0.92	3	3,264	0.32	0.43	1.21	0.038	172	0.01692	0.02285	0.06371
438	4/23/1967	4	0.41	0.164	20	1.7	0.27	0.06	0.21	0.05	5298	0.52	0.70	1.97	1,179	0.12	0.16	0.44	5033	0.50	0.67	2	1,120	0.11	0.15	0.42	0.013	59	0.00581	0.00784	0.02187
439	4/28/1967	3	0.11	0.023	3	5.5	0.40	0.01	0.31	0.01	7912	0.78	1.05	2.93	274	0.03	0.04	0.10	7516	0.74	1.00	3	261	0.03	0.03	0.10	0.003	14	0.00135	0.00183	0.00509
441	9/1/1967	2	0.41	0.17	21	126.0	0.62	0.14	0.48	0.11	12160	1.20	1.62	4.51	2,793	0.28	0.37	1.04	11552	1.14	1.54	4	2,653	0.26	0.35	0.98	0.031	140	0.01376	0.01857	0.05180
443	9/28/1967	6	0.46	0.186	23	26.1	0.61	0.15	0.48	0.12	12022	1.18	1.60	4.46	2,986	0.29	0.40	1.11	11421	1.12	1.52	4	2,837	0.28	0.38	1.05	0.033	149	0.01471	0.01986	0.05538
444	9/28/1967	1	0.14	0.04	5	0.8	0.47	0.03	0.37	0.02	9295	0.92	1.24	3.45	554	0.05	0.07	0.21	8830	0.87	1.17	3	526	0.05	0.07	0.20	0.006	28	0.00273	0.00368	0.01027
445	11/19/1967	71	7.96	4.997	608	48.2	0.62	0.62	0.48	0.48	12147	1.20	1.62	4.51	12,141	1.20	1.61	4.50	11540	1.14	1.53	4	11,534	1.14	1.53	4.28	0.135	607	0.05980	0.08074	0.22516
447	11/30/1967	8	0.7	0.301	37	10.8	0.44	0.16	0.34	0.13	8668	0.85	1.15	3.22	3,207	0.32	0.43	1.19	8235	0.81	1.10	3	3,047	0.30	0.41	1.13	0.036	160	0.01580	0.02133	0.05948
449	12/7/1967	4	0.1	0.017	2	7.4	0.47	0.01	0.37	0.01	9308	0.92	1.24	3.45	240	0.02	0.03	0.09	8843	0.87	1.18	3	228	0.02	0.03	0.08	0.003	12	0.00118	0.00159	0.00445
450	12/18/1967	7	1.29	0.737	90	10.2	0.57	0.39	0.44	0.30	11206	1.10	1.49	4.16	7,591	0.75	1.01	2.82	10645	1.05	1.42	4	7,211	0.71	0.96	2.67	0.084	380	0.03738	0.05048	0.14077
451	12/19/1967	10	0.24	0.081	10	0.4	0.20	0.02	0.16	0.02	4015	0.40	0.53	1.49	469	0.05	0.06	0.17	3814	0.38	0.51	1	446	0.04	0.06	0.17	0.005	23	0.00231	0.00312	0.00871
452	1/11/1968	2	0.08	0.009	1	22.8	0.59	0.01	0.46	0.01	11536	1.14	1.53	4.28	158	0.02	0.02	0.06	10959	1.08	1.46	4	150	0.01	0.02	0.06	0.002	8	0.00078	0.00105	0.00294
453	1/26/1968	7	0.29	0.1	12	15.5	0.61	0.09	0.48	0.07	12029	1.18	1.60	4.46	1,712	0.17	0.23	0.63	11428	1.13	1.52	4	1,626	0.16	0.22	0.60	0.019	86	0.00843	0.01138	0.03175
454	1/27/1968	3	0.24	0.085	10	0.8	0.53	0.07	0.42	0.05	10470	1.03	1.39	3.88	1,281	0.13	0.17	0.48	9947	0.98	1.32	4	1,217	0.12	0.16	0.45	0.014	64	0.00631	0.00852	0.02375
455	1/31/1968	5	0.29	0.108	13	3.1	0.51	0.08	0.40	0.06	10077	0.99	1.34	3.74	1,539	0.15	0.20	0.57	9573	0.94	1.27	4	1,463	0.14	0.19	0.54	0.017	77	0.00758	0.01024	0.02855
456	2/9/1968	16	0.24	0.075	9	8.6	0.55	0.06	0.43	0.05	10812	1.06	1.44	4.01	1,176	0.12	0.16	0.44	10271	1.01	1.37	4	1,117	0.11	0.15	0.41	0.013	59	0.00579	0.00782	0.02180
457	2/12/1968	6	0.09	0.008	1	3.4	0.53	0.01	0.41	0.01	10449	1.03	1.39	3.88	128	0.01	0.02	0.05	9926	0.98	1.32	4	121	0.01	0.02	0.04	0.001	6	0.00063	0.00085	0.00237
458	2/13/1968	5	0.09	0.015	2	0.6	0.53	0.01	0.41	0.01	10441	1.03	1.39	3.87	238	0.02	0.03	0.09	9919	0.98	1.32	4	226	0.02	0.03	0.08	0.003	12	0.00117	0.00158	0.00441
459	2/17/1968	2	0.07	0.005	1	3.6	0.55	0.00	0.43	0.00	10865	1.07	1.44	4.03	83	0.01	0.01	0.03	10321	1.02	1.37	4	79	0.01	0.01	0.03	0.001	4	0.00041	0.00055	0.00154
460	3/7/1968	20	3.03	1.675	204	18.4	0.61	0.56	0.48	0.44	11995	1.18	1.60	4.45	11,078	1.09	1.47	4.11	11395	1.12	1.52	4	10,524	1.04	1.40	3.90	0.123	554	0.05456	0.07367	0.20544
461	3/13/1968	4	0.24	0.085	10	5.7	0.32	0.04	0.25	0.03	6333	0.62	0.84	2.35	775	0.08	0.10	0.29	6016	0.59	0.80	2	736	0.07	0.10	0.27	0.009	39	0.00382	0.00515	0.01437
462	3/16/1968	3	0.07	0.005	1	3.2	0.39	0.00	0.30	0.00	7597	0.75	1.01	2.82	58	0.01	0.01	0.02	7217	0.71	0.96	3	55	0.01	0.01	0.02	0.001	3	0.00029	0.00039	0.00108
463	4/1/1968	9	0.49	0.194	24	15.5	0.58	0.15	0.45	0.12	11384	1.12	1.51	4.22	2,932	0.29	0.39	1.09	10815	1.07	1.44	4	2,785	0.27	0.37	1.03	0.033	147	0.01444	0.01950	0.05438
466	8/7/1968	2	0.11	0.024	3	127.3	0.62	0.02	0.48	0.02	12160	1.20	1.62	4.51	440	0.04	0.06	0.16	11552	1.14	1.54	4	418	0.04	0.06	0.15	0.005	22	0.00217	0.00292	0.00816
468	10/2/1968	2	0.17	0.052	6	56.8	0.62	0.05	0.48	0.04	12160	1.20	1.62	4.51	933	0.09	0.12	0.35	11552	1.14	1.54	4	886	0.09	0.12	0.33	0.010	47	0.00459	0.00620	0.01730
469	10/14/1968	4	0.09	0.014	2	11.2	0.60	0.01	0.47	0.01	11902	1.17	1.58	4.41	253	0.02	0.03	0.09	11307	1.11	1.50	4	240	0.02	0.03	0.09	0.003	13	0.00125	0.00168	0.00469
470	10/29/1968	12	0.29	0.096	12	15.1	0.61	0.08	0.48	0.07	12071	1.19	1.61	4.48	1,654	0.16	0.22	0.61	11467	1.13	1.53	4	1,571	0.15	0.21	0.58	0.018	83	0.00815	0.01100	0.03067
472	11/14/1968	20	0.31	0.102	12	15.2	0.60	0.09	0.47	0.07	11859	1.17	1.58	4.40	1,719	0.17	0.23	0.64	11266	1.11	1.50	4	1,633	0.16	0.22	0.61	0.019	86	0.00846	0.01143	0.03187
473	12/11/1968	4	0.1	0.019	2	26.0	0.61	0.02	0.48	0.01	12059	1.19	1.60	4.47	347	0.03	0.05	0.13	11456	1.13	1.52	4	329	0.03	0.04	0.12	0.004	17	0.00171	0.00231	0.00643
474	12/16/1968	3	0.22	0.075	9	5.0	0.60	0.07	0.47	0.05	11909	1.17	1.58	4.42	1,295	0.13	0.17	0.48	11314	1.11	1.50	4	1,230	0.12	0.16	0.46	0.014	65	0.00638	0.00861	0.02402
476	12/25/1968	25	0.91	0.42	51	8.0	0.59	0.28	0.46	0.22	11545	1.14	1.54	4.28	5,486	0.54	0.73	2.03	10968	1.08	1.46	4	5,212	0.51	0.69	1.93	0.061	274	0.02702	0.03648	0.10174
478	1/13/1969	17	1.48	0.678	82	18.6	0.58	0.38	0.45	0.29	11445	1.13	1.52	4.25	7,403	0.73	0.98	2.75	10873	1.07	1.45	4	7,033	0.69	0.94	2.61	0.082	370	0.03646	0.04923	0.13729
479	1/18/1969	90	6.65	3.537	430	1.2	0.26	0.26	0.20	0.20	5097	0.50	0.68	1.89	5,074	0.50	0.67	1.88	4842	0.48	0.64	2	4,821	0.47	0.64	1.79	0.056	254	0.02499	0.03374	0.09410
480	1/23/1969	69	6.5	3.5	426	2.3	0.14	0.14	0.11	0.11	2837	0.28	0.38	1.05	2,824	0.28	0.38	1.05	2695	0.27	0.36	1	2,683	0.26	0.36	1.00	0.031	141	0.01391	0.01878	0.05237
481	1/28/1969	4	0.31	0.116	14	4.6	0.26	0.04	0.20	0.03	5028	0.50	0.67	1.86	820	0.08	0.11	0.30	4777	0.47	0.64	2	779	0.08	0.10	0.29	0.009	41	0.00404	0.00545	0.01521
482	2/5/1969	31	1.31	0.609	74	6.3	0.42	0.26	0.33	0.20	8325	0.82	1.11	3.09	5,056	0.50	0.67	1.88	7908	0.78	1.05	3	4,803	0.47	0.64	1.78	0.056	253	0.02490	0.03362	0.09376
484	2/15/1969	12	1.04	0.556	68	9.7	0.47	0.27	0.37	0.21	9238	0.91	1.23	3.43	5,304	0.52	0.71	1.97	8777	0.86	1.17	3	5,038	0.50	0.67	1.87	0.059	265	0.02612	0.03527	0.09835
485	2/18/1969	15	0.39	0.143	17	2.2	0.29	0.06	0.23	0.04	5751	0.57	0.76	2.13	1,133	0.11	0.15	0.42	5463	0.54	0.73	2	1,077	0.11	0.14	0.40	0.013	57	0.00558	0.00754	0.02102
486	2/19/1969	12	0.27	0.085	10	0.9	0.27	0.03	0.21	0.03	5340	0.53	0.71	1.98	653	0.06	0.09	0.24	5073	0.50	0.67	2	621	0.06	0.08	0.23	0.007	33	0.00322	0.00434	0.01211
487	2/21/1969	4	0.53	0.221	27	2.3	0.32	0.09	0.25	0.07	6392	0.63	0.85	2.37	1,839	0.18	0.24	0.68	6073	0.60	0.81	2	1,747	0.17	0.23	0.65	0.020	92	0.00906	0.01223	0.03411
488	2/23/1969	58	3.78	1.873	228	-1.3	0.17	0.16	0.13	0.13	3376	0.33	0.45	1.25	3,186	0.31	0.42	1.18	3207	0.32	0.43	1	3,026	0.30	0.40	1.12	0.035	159	0.01569	0.02118	0.05908
490	2/28/1969	7	0.68	0.356	43	5.2	0.28	0.12	0.22	0.09	5557	0.55	0.74	2.06	2,340	0.23	0.31	0.87	5279	0.52	0.70	2	2,223	0.22	0.30	0.82	0.026	117	0.01152	0.01556	0.04339
491	3/10/1969	15	0.24	0.075	9	9.0	0.46	0.05	0.36	0.04	8987	0.89	1.20	3.33	977	0.10	0.13	0.36	8538	0.84	1.14	3	928	0.09	0.12	0.34	0.011	49	0.00481	0.00650	0.01812
493	3/21/1969	13	1.24	0.782	95	10.5	0.55	0.39	0.43	0.30	10927	1.08	1.45	4.05	7,637	0.75	1.02	2.83	10381	1.02	1.38	4	7,255	0.71	0.96	2.69	0.085	382	0.03761	0.05079	0.14163
494	4/2/1969	5	0.28	0.099	12	12.5	0.51	0.07	0.40	0.06	10057	0.99	1.34	3.73	1,418	0.14	0.19	0.53	9554	0.94	1.27	4	1,347	0.13	0.18	0.50	0.016	71	0.00698	0.00943	0.02629
495	4/5/1969	4	0.34	0.13	16	2.6	0.48	0.09	0.38	0.07	9545	0.94	1.27	3.54	1,727	0.17	0.23	0.64	9068	0.89	1.21	3	1,640	0.16	0.22	0.61	0.019	86	0.00850	0.01148	0.03202
500	11/6/1969	15	1.09	0.482	59	214.2	0.62	0.32	0.48	0.25	12160	1.20	1.62	4.51	6,358	0.63	0.85	2.36	11552	1.14	1.54	4	6,040	0.59	0.80	2.24	0.071	318	0.03131	0.04228	0.11791

504	1/9/1970	12	0.53	0.217	26	63.7	0.62	0.17	0.48	0.14	12156	1.20	1.62	4.51	3,444	0.34	0.46	1.28	11548	1.14	1.54	4	3,272	0.32	0.44	1.21	0.038	172	0.01696	0.02290	0.06387
505	1/11/1970	31	0.12	0.002	0	0.3	0.45	0.00	0.35	0.00	8842	0.87	1.18	3.28	27	0.00	0.00	0.01	8400	0.83	1.12	3	26	0.00	0.00	0.01	0.000	1	0.00013	0.00018	0.00050
506	1/14/1970	13	0.22	0.069	8	2.7	0.49	0.05	0.38	0.04	9699	0.96	1.29	3.60	975	0.10	0.13	0.36	9214	0.91	1.23	3	926	0.09	0.12	0.34	0.011	49	0.00480	0.00648	0.01808
507	1/15/1970	18	0.72	0.339	41	0.7	0.46	0.19	0.36	0.14	8994	0.89	1.20	3.34	3,649	0.36	0.49	1.35	8544	0.84	1.14	3	3,466	0.34	0.46	1.29	0.041	182	0.01797	0.02426	0.06767
508	2/9/1970	41	1.35	0.574	70	22.9	0.59	0.35	0.46	0.27	11673	1.15	1.55	4.33	6,837	0.67	0.91	2.54	11089	1.09	1.47	4	6,495	0.64	0.86	2.41	0.076	342	0.03367	0.04546	0.12679
509	2/28/1970	46	2.12	1.021	124	16.7	0.56	0.45	0.44	0.35	11090	1.09	1.48	4.11	8,777	0.86	1.17	3.26	10536	1.04	1.40	4	8,338	0.82	1.11	3.09	0.097	439	0.04323	0.05837	0.16277
510	3/4/1970	8	1.37	0.716	87	4.2	0.31	0.21	0.24	0.16	6065	0.60	0.81	2.25	4,045	0.40	0.54	1.50	5762	0.57	0.77	2	3,842	0.38	0.51	1.43	0.045	202	0.01992	0.02690	0.07501
511	3/30/1970	3	0.1	0.019	2	26.0	0.59	0.02	0.46	0.01	11650	1.15	1.55	4.32	335	0.03	0.04	0.12	11067	1.09	1.47	4	318	0.03	0.04	0.12	0.004	17	0.00165	0.00223	0.00621
513	11/6/1970	8	0.15	0.038	5	220.0	0.62	0.03	0.48	0.03	12160	1.20	1.62	4.51	689	0.07	0.09	0.26	11552	1.14	1.54	4	655	0.06	0.09	0.24	0.008	34	0.00339	0.00458	0.01278
514	11/25/1970	15	0.55	0.226	27	18.9	0.61	0.18	0.48	0.14	12082	1.19	1.61	4.48	3,542	0.35	0.47	1.31	11478	1.13	1.53	4	3,365	0.33	0.45	1.25	0.039	177	0.01744	0.02355	0.06568
515	11/28/1970	43	4.35	2.288	278	1.1	0.46	0.44	0.36	0.35	8980	0.88	1.19	3.33	8,712	0.86	1.16	3.23	8531	0.84	1.13	3	8,277	0.82	1.10	3.07	0.097	436	0.04291	0.05794	0.16157
516	12/2/1970	5	0.35	0.134	16	3.5	0.21	0.04	0.17	0.03	4212	0.41	0.56	1.56	783	0.08	0.10	0.29	4001	0.39	0.53	1	744	0.07	0.10	0.28	0.009	39	0.00386	0.00521	0.01452
517	12/9/1970	11	0.39	0.145	18	6.3	0.40	0.08	0.32	0.06	7949	0.78	1.06	2.95	1,586	0.16	0.21	0.59	7552	0.74	1.00	3	1,507	0.15	0.20	0.56	0.018	79	0.00781	0.01055	0.02942
519	12/16/1970	21	0.56	0.216	26	6.5	0.48	0.14	0.37	0.11	9430	0.93	1.25	3.50	2,661	0.26	0.35	0.99	8959	0.88	1.19	3	2,528	0.25	0.34	0.94	0.030	133	0.01311	0.01770	0.04935
520	12/18/1970	37	1.92	0.923	112	0.5	0.36	0.27	0.28	0.21	7095	0.70	0.94	2.63	5,375	0.53	0.71	1.99	6740	0.66	0.90	2	5,106	0.50	0.68	1.89	0.060	269	0.02647	0.03574	0.09967
521	12/20/1970	21	1.67	0.777	95	1.2	0.15	0.11	0.12	0.08	3033	0.30	0.40	1.12	2,112	0.21	0.28	0.78	2881	0.28	0.38	1	2,007	0.20	0.27	0.74	0.023	106	0.01040	0.01405	0.03918
522	1/2/1971	2	0.14	0.038	5	12.5	0.48	0.03	0.38	0.02	9482	0.93	1.26	3.52	537	0.05	0.07	0.20	9008	0.89	1.20	3	510	0.05	0.07	0.19	0.006	27	0.00265	0.00357	0.00996
523	1/12/1971	6	0.17	0.052	6	9.9	0.56	0.04	0.44	0.03	11129	1.10	1.48	4.13	854	0.08	0.11	0.32	10572	1.04	1.41	4	811	0.08	0.11	0.30	0.009	43	0.00420	0.00568	0.01583
524	1/13/1971	13	0.12	0.016	2	0.3	0.52	0.01	0.41	0.01	10328	1.02	1.37	3.83	251	0.02	0.03	0.09	9812	0.97	1.30	4	238	0.02	0.03	0.09	0.003	13	0.00123	0.00167	0.00465
525	2/16/1971	15	0.66	0.274	33	33.9	0.62	0.21	0.48	0.17	12118	1.19	1.61	4.49	4,161	0.41	0.55	1.54	11512	1.13	1.53	4	3,953	0.39	0.53	1.47	0.046	208	0.02049	0.02767	0.07716
527	3/13/1971	6	0.53	0.221	27	24.1	0.60	0.17	0.47	0.14	11899	1.17	1.58	4.41	3,423	0.34	0.46	1.27	11304	1.11	1.50	4	3,252	0.32	0.43	1.21	0.038	171	0.01686	0.02276	0.06348
528	4/14/1971	6	0.5	0.207	25	32.0	0.61	0.17	0.48	0.13	12067	1.19	1.60	4.48	3,285	0.32	0.44	1.22	11464	1.13	1.52	4	3,121	0.31	0.42	1.16	0.036	164	0.01618	0.02184	0.06092
531	5/28/1971	7	0.12	0.024	3	43.6	0.62	0.02	0.48	0.02	12138	1.20	1.61	4.50	439	0.04	0.06	0.16	11531	1.14	1.53	4	417	0.04	0.06	0.15	0.005	22	0.00216	0.00292	0.00814
533	11/11/1971	12	0.3	0.103	13	167.1	0.62	0.09	0.48	0.07	12160	1.20	1.62	4.51	1,778	0.18	0.24	0.66	11552	1.14	1.54	4	1,689	0.17	0.22	0.63	0.020	89	0.00876	0.01183	0.03298
534	12/2/1971	5	0.24	0.085	10	20.8	0.61	0.07	0.48	0.06	11999	1.18	1.60	4.45	1,468	0.14	0.20	0.54	11399	1.12	1.52	4	1,394	0.14	0.19	0.52	0.016	73	0.00723	0.00976	0.02722
536	12/12/1971	8	0.13	0.029	4	9.7	0.59	0.03	0.46	0.02	11627	1.15	1.55	4.31	506	0.05	0.07	0.19	11046	1.09	1.47	4	481	0.05	0.06	0.18	0.006	25	0.00249	0.00337	0.00939
537	12/22/1971	11	0.93	0.409	50	8.8	0.60	0.28	0.47	0.22	11781	1.16	1.57	4.37	5,493	0.54	0.73	2.04	11192	1.10	1.49	4	5,218	0.51	0.69	1.94	0.061	275	0.02705	0.03653	0.10187
538	12/23/1971	53	3.33	1.709	208	-0.5	0.30	0.28	0.23	0.22	5910	0.58	0.79	2.19	5,481	0.54	0.73	2.03	5615	0.55	0.75	2	5,207	0.51	0.69	1.93	0.061	274	0.02700	0.03645	0.10165
539	12/27/1971	34	1.89	0.836	102	2.0	0.14	0.10	0.11	0.08	2842	0.28	0.38	1.05	2,054	0.20	0.27	0.76	2700	0.27	0.36	1	1,951	0.19	0.26	0.72	0.023	103	0.01012	0.01366	0.03809
540	2/5/1972	2	0.12	0.028	3	40.0	0.61	0.03	0.48	0.02	12047	1.19	1.60	4.47	507	0.05	0.07	0.19	11444	1.13	1.52	4	481	0.05	0.06	0.18	0.006	25	0.00250	0.00337	0.00940
547	8/12/1972	4	0.32	0.122	15	189.0	0.62	0.11	0.48	0.08	12160	1.20	1.62	4.51	2,077	0.20	0.28	0.77	11552	1.14	1.54	4	1,973	0.19	0.26	0.73	0.023	104	0.01023	0.01381	0.03851
552	10/18/1972	3	0.27	0.097	12	67.3	0.62	0.09	0.48	0.07	12159	1.20	1.62	4.51	1,682	0.17	0.22	0.62	11551	1.14	1.54	4	1,598	0.16	0.21	0.59	0.019	84	0.00828	0.01119	0.03120
554	11/10/1972	11	0.54	0.218	27	22.5	0.61	0.17	0.48	0.14	12035	1.19	1.60	4.47	3,423	0.34	0.46	1.27	11433	1.13	1.52	4	3,252	0.32	0.43	1.21	0.038	171	0.01686	0.02276	0.06347
555	11/14/1972	7	1.09	0.551	67	3.2	0.49	0.28	0.38	0.22	9696	0.96	1.29	3.60	5,534	0.55	0.74	2.05	9211	0.91	1.23	3	5,258	0.52	0.70	1.95	0.061	277	0.02726	0.03680	0.10264
556	11/16/1972	32	1.63	0.746	91	0.4	0.23	0.16	0.18	0.12	4536	0.45	0.60	1.68	3,093	0.30	0.41	1.15	4309	0.42	0.57	2	2,938	0.29	0.39	1.09	0.034	155	0.01523	0.02057	0.05736
557	12/4/1972	11	1.41	0.794	97	17.7	0.55	0.38	0.43	0.30	10758	1.06	1.43	3.99	7,578	0.75	1.01	2.81	10220	1.01	1.36	4	7,199	0.71	0.96	2.67	0.084	379	0.03732	0.05040	0.14054
558	12/6/1972	8	0.78	0.338	41	2.4	0.27	0.11	0.21	0.09	5328	0.52	0.71	1.98	2,157	0.21	0.29	0.80	5062	0.50	0.67	2	2,049	0.20	0.27	0.76	0.024	108	0.01062	0.01434	0.04000
559	12/8/1972	10	0.17	0.046	6	0.8	0.20	0.01	0.16	0.01	3954	0.39	0.53	1.47	270	0.03	0.04	0.10	3757	0.37	0.50	1	256	0.03	0.03	0.09	0.003	13	0.00133	0.00179	0.00500
560	1/8/1973	31	0.36	0.109	13	30.3	0.60	0.09	0.47	0.07	11902	1.17	1.58	4.41	1,834	0.18	0.24	0.68	11307	1.11	1.50	4	1,742	0.17	0.23	0.65	0.020	92	0.00903	0.01219	0.03401
561	1/16/1973	9	2.74	1.742	212	7.4	0.57	0.53	0.45	0.42	11270	1.11	1.50	4.18	10,492	1.03	1.40	3.89	10706	1.05	1.42	4	9,968	0.98	1.33	3.70	0.117	525	0.05167	0.06977	0.19458
562	1/18/1973	9	0.98	0.542	66	1.7	0.14	0.08	0.11	0.06	2765	0.27	0.37	1.03	1,562	0.15	0.21	0.58	2626	0.26	0.35	1	1,483	0.15	0.20	0.55	0.017	78	0.00769	0.01038	0.02896
563	1/30/1973	7	0.31	0.114	14	11.4	0.47	0.07	0.36	0.06	9203	0.91	1.22	3.41	1,477	0.15	0.20	0.55	8742	0.86	1.16	3	1,404	0.14	0.19	0.52	0.016	74	0.00728	0.00982	0.02740
564	2/3/1973	11	0.45	0.179	22	3.5	0.47	0.11	0.37	0.09	9210	0.91	1.22	3.41	2,213	0.22	0.29	0.82	8750	0.86	1.16	3	2,102	0.21	0.28	0.78	0.025	111	0.01090	0.01472	0.04104
565	2/4/1973	2	0.28	0.103	13	1.1	0.39	0.06	0.30	0.04	7625	0.75	1.01	2.83	1,115	0.11	0.15	0.41	7243	0.71	0.96	3	1,059	0.10	0.14	0.39	0.012	56	0.00549	0.00742	0.02068
566	2/5/1973	43	2.75	1.519	185	-0.4	0.32	0.29	0.25	0.22	6260	0.62	0.83	2.32	5,652	0.56	0.75	2.10	5947	0.59	0.79	2	5,370	0.53	0.71	1.99	0.063	283	0.02784	0.03759	0.10482
567	2/10/1973	45	3.12	1.577	192	2.7	0.19	0.17	0.15	0.13	3662	0.36	0.49	1.36	3,337	0.33	0.44	1.24	3479	0.34	0.46	1	3,170	0.31	0.42	1.18	0.037	167	0.01643	0.02219	0.06188
568	2/12/1973	6	0.5	0.205	25	2.3	0.16	0.04	0.12	0.03	3070	0.30	0.41	1.14	829	0.08	0.11	0.31	2916	0.29	0.39	1	787	0.08	0.10	0.29	0.009	41	0.00408	0.00551	0.01537
569	2/27/1973	16	0.79	0.333	41	14.1	0.52	0.21	0.40	0.16	10209	1.01	1.36	3.79	4,086	0.40	0.54	1.52	9699	0.96	1.29	4	3,882	0.38	0.52	1.44	0.045	204	0.02012	0.02717	0.07577
570	3/6/1973	14	0.18	0.043	5	6.0	0.46	0.03	0.36	0.02	9135	0.90	1.21	3.39	583	0.06	0.08	0.22	8678	0.85	1.15	3	554	0.05	0.07	0.21	0.006	29	0.00287	0.00388	0.01082
571	3/8/1973	8	0.62	0.259	32	1.7	0.47	0.15	0.37	0.12	9210	0.91	1.22	3.42	3,021	0.30	0.40	1.12	8749	0.86	1.16	3	2,870	0.28	0.38	1.06	0.034	151	0.01488	0.02009	0.05603
572	3/11/1973	10	0.39	0.149	18	2.3	0.39	0.08	0.30	0.06	7595	0.75	1.01	2.82	1,553	0.15	0.21	0.58	7216	0.71	0.96	3	1,475	0.15	0.20	0.55	0.017	78	0.00765	0.01033	0.02880
573	3/20/1973	6	0.92	0.553	67	8.8	0.50	0.29	0.39	0.23	9926	0.98	1.32	3.68	5,679	0.56	0.76	2.11	9430	0.93	1.25	3	5,395	0.53	0.72	2.00	0.063	284	0.02797	0.03776	0.10531
574	3/21/1973	4	0.53	0.247	30	1.5	0.28	0.09	0.22	0.07	5470	0.54	0.73	2.03	1,726	0.17	0.23	0.64	5197	0.51	0.69	2	1,640	0.16	0.22	0.61	0.019	86	0.00850	0.01148	0.03201
578	10/23/1973	2	0.1	0.019	2	215.2	0.62	0.02	0.48	0.01	12160	1.20	1.62	4.51	350	0.03	0.05	0.13	11552	1.14	1.54	4	332	0.03	0.04	0.12	0.004	17	0.00172	0.00232	0.00648
579	11/16/1973	34	0.82	0.336	41	23.4	0.62	0.25	0.48	0.19	12137	1.20	1.61	4.50	4,891	0.48	0.65	1.81	11530	1.14	1.53	4	4,646	0.46	0.62	1.72	0.054	245	0.02409	0.03252	0.09070
580	11/22/1973	4	0.86	0.482	59	5.8	0.49	0.26	0.38	0.20	9625	0.95	1.28	3.57	5,032	0.50	0.67	1.87	9144	0.90	1.22	3	4,781	0.47	0.64	1.77	0.056	252	0.02478	0.03347	0.09333
581	12/1/1973	6	0.4	0.16	19	8.3	0.47	0.10	0.37	0.08	9247	0.91	1.23	3.43	2,014	0.20	0.27	0.75	8785	0.87	1.17	3	1,913	0.19	0.25	0.71	0.022	101	0.00992	0.01339	0.03735
582	12/22/1973	2	0.27	0.099	12	20.6	0.59	0.08	0.46	0.07	11700	1.15	1.56	4.34	1,649	0.16	0.22	0.61	11115	1.09	1.48	4	1,567	0.15	0.21	0.58	0.018	82	0.00812	0.01097	0.03059
583	1/1/1974	2	0.1	0.019	2	10.0	0.58	0.02	0.46	0.01	11490	1.13	1.53	4.26	330	0.03	0.04	0.12	10915	1.08	1.45	4	314	0.03	0.04	0.12	0.004	17	0.00163	0.00220	0.00612
584	1/3/1974	118	7.69	3.772	459	-2.1	0.55	0.55	0.43	0.43	10888	1.07	1.45	4.04	10,855	1.07	1.44	4.03	10344	1.02	1.38	4	10,312	1.02	1.37	3.82	0.121	543	0.05346	0.07219	0.20130
586	1/16/1974	24	0.35	0.114	14	11.8	0.46	0.07	0.36	0.06	9040	0.89	1.20	3.35	1,451	0.14	0.19	0.54	8588	0.85	1.14	3	1,379	0.14	0.18	0.51	0.016	73	0.00715	0.00965	0.02691
587	1/20/1974	15	0.2	0.052	6	2.8	0.45	0.03	0.35	0.03	8845	0.87	1.18	3.28	679	0.07	0.09	0.25	8403	0.83	1.12	3	645	0.06	0.09	0.24	0.008	34	0.00334	0.00451	0.01258
588	2/28/1974	5	0.14	0.036	4	39.3	0.62	0.03	0.48	0.03	12117	1.19	1.61	4.49	651	0.06	0.09	0.24	11511	1.13	1.53	4	619	0.06	0.08	0.23	0.007	33	0.00321	0.00433	0.01208
589	3/1/1974	10	1.07	0.517	63	1.0	0.59	0.32	0.46	0.25	11541	1.14	1.53	4.28	6,322	0.62	0.84	2.34	10964	1.08	1.46	4	6,006	0.59	0.80	2.23	0.070	316	0.03114	0.04204	0.11724
590	3/2/1974	10	0.36	0.142	17	0.5	0.29	0.06	0.22	0.04	5638	0.56	0.75	2.09	1,104	0.11	0.15	0.41	5357	0.53	0.71	2	1,049	0.10	0.14	0.39	0.012	55	0.00544	0.00734	0.02048
591	3/7/1974	38	2.01	0.917	112	2.6	0.33	0.25	0.26	0.20	6523	0.64	0.87	2.42	4,927	0.49	0.66	1.83	6197	0.61	0.82	2	4,680	0.46	0.62	1.74	0.055	246	0.02426	0.03276	0.09137
593	3/27/1974	4	0.3	0.113	14	19.8	0.56	0.09	0.44	0.07	11083	1.09	1.47	4.11	1,765	0.17	0.23	0.65	10529	1.04	1.40	4	1,677	0.17	0.22	0.62	0.020	88	0.00869	0.01174	0.03273
595	4/1/1974	4	0.1	0.019	2	5.7	0.54	0.02	0.42	0.01	10680	1.05	1.42	3.96	307	0.03	0.04	0.11	10146	1.00	1.35	4	292	0.03	0.04	0.11	0.003	15	0.00151	0.00204	0.00569
596	5/5/1974	1	0.08	0.009	1	33.8	0.62	0.01	0.48	0.01	12124	1.19	1.61	4.50	166	0.02	0.02	0.06	11518	1.13	1.53	4	158	0.02	0.02	0.06	0.002	8	0.00082	0.00111	0.00308
597	10/7/1974	6	0.16	0.039	5	154.2	0.62	0.04	0.48	0.03	12160	1.20	1.62	4.51	707	0.07	0.09	0.26	11552	1.14	1.54	4	671	0.07	0.09	0.25	0.008	35	0.00348	0.00470	0.01310
598	10/28/1974	6	0.4	0.16	19	20.7	0.61	0.13	0.48	0.10	12095	1.19	1.61	4.49	2,634	0.26	0.35	0.98	11490	1.13	1.53	4	2,502	0.25	0.33	0.93	0.029	132	0.01297	0.01752	0.04885
600	11/22/1974	2	0.07	0.005	1	24.7	0.61	0.00	0.48	0.00	12003	1.18	1.60	4.45	92	0.01	0.01	0.03	11402	1.12	1.52	4	87	0.01	0.01	0.03	0.001	5	0.00045	0.00061	0.00170
601	12/3/1974	25	2.33	1.206	147	10.8	0.61	0.52	0.48	0.40	12088	1.19	1.61	4.48	10,190	1.00	1.36	3.78	11483	1.13	1.53	4	9,680	0.95	1.29	3.59	0.113	509	0.05018	0.06776	0.18897
602	12/28/1974	5	0.67	0.297	36	24.0	0.58	0.21	0.46	0.17	11516	1.13	1.53	4.27	4,216	0.42	0.56	1.56	10940	1.08	1.46	4	4,005	0.39	0.53	1.49	0.047	211	0.02077	0.02804	0.07819
603	12/28/1974	12	0.58	0.243	30	0.2	0.38	0.12	0.29	0.09	7415	0.73	0.99	2.75	2,309	0.23	0.31	0.86	7044	0.69	0.94	3	2,193	0.22	0.29	0.81	0.026	115	0.01137	0.01535	0.04281
605	1/27/1975	2	0.07	0.005	1	29.8	0.61	0.00	0.47	0.00	11933	1.18	1.59	4.43	91	0.01	0.01	0.03	11336	1.12	1.51	4	87	0.01	0.01	0.03	0.001	5	0.00045	0.00061	0.00169
607	2/2/1975	13	1.84	0.932	113	5.6	0.61	0.46	0.48	0.36	11994	1.18	1.60	4.45	9,125	0.90	1.21	3.38	11394	1.12	1.52	4	8,669	0.85	1.15	3.22	0.101	456	0.04494	0.06068	0.16923
608	2/3/1975	25	0.4	0.135	16	0.1	0.15	0.03	0.12	0.02	2957	0.29	0.39	1.10	553	0.05	0.07	0.21	2809	0.28	0.37	1	526	0.05	0.07	0.20	0.006	28	0.00273	0.00368	0.01026
609	2/9/1975	17	1.04	0.459	56	4.3	0.32	0.16	0.25	0.13	6236	0.61	0.83	2.31	3,153	0.31	0.42	1.17	5924	0.58	0.79	2	2,996	0.30	0.40	1.11	0.035	158	0.01553	0.02097	0.05848
610	2/10/1975	5	0.26	0.097	12	1.0	0.21	0.03	0.16	0.02	4070	0.40	0.54	1.51	563	0.06	0.07	0.21	3866	0.38	0.51	1	535	0.05	0.07	0.20	0.006	28	0.00277	0.00374	0.01044
611	3/5/1975	50	1.93	0.83	101	20.7	0.58	0.42	0.45	0.32	11363	1.12	1.51	4.21	8,185	0.81	1.09	3.04	10795	1.06	1.44	4	7,775	0.77	1.03	2.88	0.091	409	0.04031	0.05443	0.15179
612	3/7/1975	19	1	0.452	55	2.0	0.25	0.13	0.20	0.10	4991	0.49	0.66	1.85	2,497	0.25	0.33	0.93	4741	0.47	0.63	2	2,372	0.23	0.32	0.88	0.028	125	0.01230	0.01661	0.04631
613	3/10/1975	13	0.39	0.143	17	2.0	0.23	0.04	0.18	0.04	4482	0.44	0.60	1.66	883	0.09	0.12	0.33	4258	0.42	0.57	2	839	0.08	0.11	0.31	0.010	44	0.00435	0.00587	0.01638
615	3/13/1975	18	0.25	0.071	9	2.2	0.28	0.03	0.22	0.02	5489	0.54	0.73	2.04	567	0.06	0.08	0.21	5214	0.51	0.69	2	538	0.05	0.07	0.20	0.006	28	0.00279	0.00377	0.01051
616	3/16/1975	4	0.09	0.012	1	2.9	0.35	0.01	0.28	0.01	6987	0.69	0.93	2.59	128	0.01	0.02	0.05	6637	0.65	0.88	2	121	0.01	0.02	0.04	0.001	6	0.00063	0.00085	0.00236
617	3/22/1975	7	1.11	0.541	66	5.5	0.47	0.27	0.37	0.21	9346	0.92	1.24	3.47	5,273	0.52	0.70	1.96	8879	0.87	1.18	3	5,009	0.49	0.67	1.86	0.059	264	0.02597	0.03506	0.09778
620	4/5/1975	38	0.8	0.297	36	12.6	0.52	0.19	0.41	0.15	10261	1.01	1.36	3.81	3,757	0.37	0.50	1.39	9748	0.96	1.30	4	3,569	0.35	0.47	1.32	0.042	188	0.01850	0.02498	0.06967
622	4/8/1975	16	0.43	0.162	20	2.5	0.40	0.09	0.31	0.07	7919	0.78	1.05	2.94	1,743	0.17	0.23	0.65	7523	0.74	1.00	3	1,656	0.16	0.22	0.61	0.019	87	0.00859	0.01159	0.03233
623	4/15/1975	9	0.23	0.074	9	6.3	0.47	0.05	0.37	0.04	9246	0.91	1.23	3.43	993	0.10	0.13	0.37	8783	0.87	1.17	3	943	0.09	0.13	0.35	0.011	50	0.00489	0.00660	0.01841
626	5/20/1975	12	0.09	0.009	1	34.7	0.61	0.01	0.48	0.01	12088	1.19	1.61	4.48	166	0.02	0.02	0.06	11484	1.13	1.53	4	158	0.02	0.02	0.06	0.002	8	0.00082	0.00110	0.00308
628	10/11/1975	5	0.17	0.052	6	143.7	0.62	0.05	0.48	0.04	12160	1.20	1.62	4.51	933	0.09	0.12	0.35	11552	1.14	1.54	4	886	0.09	0.12	0.33	0.010	47	0.00459	0.00620	0.01730
630	12/12/1975	9	0.32	0.114	14	61.9	0.62	0.10	0.48	0.08	12159	1.20	1.62	4.51	1,952	0.19	0.26	0.72	11552	1.14	1.54	4	1,854	0.18	0.25	0.69	0.022	98	0.00961	0.01298	0.03620
631	2/4/1976	141	3.69	1.612	196	48.0	0.62	0.56	0.48	0.44	12152	1.20	1.62	4.51	11,129	1.10	1.48	4.13	11545	1.14	1.54	4	10,573	1.04	1.41	3.92	0.124	556	0.05481	0.07401	0.20639
633	3/1/1976	12	1.01	0.447	54	25.3	0.59	0.29	0.46	0.23	11555	1.14	1.54	4.29	5,737	0.57	0.76	2.13	10977	1.08	1.46	4	5,450	0.54	0.72	2.02	0.064	287	0.02825	0.03815	0.10639
634	3/2/1976	13	0.6	0.246	30	0.9	0.33	0.10	0.25	0.08	6426	0.63	0.85	2.38	2,021	0.20	0.27	0.75	6104	0.60	0.81	2	1,920	0.19	0.26	0.71	0.022	101	0.00995	0.01344	0.03748
635	3/9/1976	3	0.2	0.066	8	7.3	0.45	0.04	0.35	0.03	8826	0.87	1.17	3.27	850	0.08	0.11	0.32	8385	0.83	1.12	3	808	0.08	0.11	0.30	0.009	43	0.00419	0.00566	0.01577
636	4/3/1976	19	0.29	0.085	10	24.2	0.60	0.07	0.47	0.06	11901	1.17	1.58	4.41	1,456	0.14	0.19	0.54	11306	1.11	1.50	4	1,383	0.14	0.18	0.51	0.016	73	0.00717	0.00968	0.02700
637	4/8/1976	3	0.14	0.038	5	4.3	0.56	0.03	0.44	0.02	11114	1.09	1.48	4.12	630	0.06	0.08	0.23	10558	1.04	1.40	4	598	0.06	0.08	0.22	0.007	31	0.00310	0.00419	0.01168
638	4/12/1976	14	0.35	0.127	15	3.9	0.56	0.10	0.44	0.08	11087	1.09	1.47	4.11	1,964	0.19	0.26	0.73	10533	1.04	1.40	4	1,866	0.18	0.25	0.69	0.022	98	0.00967	0.01306	0.03642
641	6/10/1976	5	0.22	0.075	9	58.2	0.62	0.07	0.48	0.05	12157	1.20	1.62	4.51	1,322	0.13	0.18	0.49	11549	1.14	1.54	4	1,256	0.12	0.17	0.47	0.015	66	0.00651	0.00879	0.02452
642	8/15/1976	6	0.08	0.007	1	65.8	0.62	0.01	0.48	0.01	12160	1.20	1.62	4.51	130	0.01	0.02	0.05	11552	1.14	1.54	4	123	0.01	0.02	0.05	0.001	6	0.00064	0.00086	0.00241
644	9/5/1976	5	0.19	0.059	7	21.3	0.62	0.05	0.48	0.04	12149	1.20	1.62	4.51	1,052	0.10	0.14	0.39	11542	1.14	1.54	4	999	0.10	0.13	0.37	0.012	53	0.00518	0.00700	0.01951
645	9/10/1976	37	2.04	1.025	125	2.7	0.58	0.46	0.45	0.36	11382	1.12	1.51	4.22	9,022	0.89	1.20	3.35	10813	1.07	1.44	4	8,571	0.84	1.14	3.18	0.100	451	0.04443	0.06000	0.16731
647	9/24/1976	1	0.53	0.337	41	14.6	0.52	0.21	0.41	0.17	10341	1.02	1.38	3.84	4,176	0.41	0.56	1.55	9824	0.97	1.31	4	3,968	0.39	0.53	1.47	0.046	209	0.02057	0.02777	0.07745
649	10/23/1976	2	0.22	0.075	9	28.4	0.61	0.07	0.47	0.05	11932	1.18	1.59	4.43	1,298	0.13	0.17	0.48	11335	1.12	1.51	4	1,233	0.12	0.16	0.46	0.014	65	0.00639	0.00863	0.02406
650	11/11/1976	7	0.48	0.195	24	19.5	0.61	0.16	0.48	0.12	11999	1.18	1.60	4.45	3,104	0.31	0.41	1.15	11399	1.12	1.52	4	2,949	0.29	0.39	1.09	0.034	155	0.01529	0.02064	0.05756
652	12/30/1976	28	0.75	0.293	36	47.2	0.62	0.22	0.48	0.17	12146	1.20	1.62	4.50	4,400	0.43	0.59	1.63	11539	1.14	1.53	4	4,180	0.41	0.56	1.55	0.049	220	0.02167	0.02926	0.08159
653	1/2/1977	15	0.92	0.398	48	2.6	0.45	0.21	0.35	0.16	8898	0.88	1.18	3.30	4,068	0.40	0.54	1.51	8453	0.83	1.12	3	3,864	0.38	0.51	1.43	0.045	203	0.02003	0.02705	0.07544
654	1/5/1977	43	1.74	0.77	94	1.3	0.30	0.21	0.23	0.16	5873	0.58	0.78	2.18	4,072	0.40	0.54	1.51	5579	0.55	0.74	2	3,868	0.38	0.51	1.43	0.045	204	0.02005	0.02708	0.07551
655	1/20/1977	6	0.17	0.052	6	14.9	0.52	0.04	0.41	0.03	10300	1.01	1.37	3.82	790	0.08	0.11	0.29	9785	0.96	1.30	4	751	0.07	0.10	0.28	0.009	40	0.00389	0.00526	0.01466
657	2/23/1977	7	0.12	0.026	3	33.3	0.61	0.02	0.48	0.02	12103	1.19	1.61	4.49	474	0.05	0.06	0.18	11497	1.13	1.53	4	450	0.04	0.06	0.17	0.005	24	0.00233	0.00315	0.00878
659	3/16/1977	12	0.8	0.408	50	20.5	0.61	0.29	0.48	0.22	12110	1.19	1.61	4.49	5,636	0.56	0.75	2.09	11504	1.13	1.53	4	5,355	0.53	0.71	1.99	0.063	282	0.02776	0.03748	0.10453
660	3/24/1977	26	1.09	0.501	61	7.4	0.49	0.26	0.39	0.21	9727	0.96	1.29	3.61	5,219	0.51	0.69	1.94	9241	0.91	1.23	3	4,958	0.49	0.66	1.84	0.058	261	0.02570	0.03471	0.09679
662	5/8/1977	40	2.77	1.319	160	42.6	0.61	0.53	0.48	0.42	12103	1.19	1.61	4.49	10,505	1.03	1.40	3.90	11498	1.13	1.53	4	9,980	0.98	1.33	3.70	0.117	525	0.05174	0.06986	0.19482
664	5/23/1977	16	0.18	0.037	5	14.8	0.52	0.03	0.41	0.02	10246	1.01	1.36	3.80	566	0.06	0.08	0.21	9733	0.96	1.29	4	537	0.05	0.07	0.20	0.006	28	0.00279	0.00376	0.01049
665	8/16/1977	37	2.26	1.076	131	83.7	0.62	0.50	0.48	0.39	12160	1.20	1.62	4.51	9,829	0.97	1.31	3.65	11552	1.14	1.54	4	9,337	0.92	1.24	3.46	0.109	491	0.04841	0.06536	0.18227
666	11/5/1977	3	0.08	0.009	1	80.7	0.62	0.01	0.48	0.01	12159	1.20	1.62	4.51	167	0.02	0.02	0.06	11551	1.14	1.54	4	158	0.02	0.02	0.06	0.002	8	0.00082	0.00111	0.00309
667	12/17/1977	18	0.84	0.359	44	41.2	0.62	0.26	0.48	0.20	12159	1.20	1.62	4.51	5,151	0.51	0.69	1.91	11551	1.14	1.54	4	4,894	0.48	0.65	1.82	0.057	258	0.02537	0.03426	0.09553
669	12/25/1977	71	3.77	1.802	219	5.3	0.48	0.45	0.37	0.35	9372	0.92	1.25	3.48	8,782	0.87	1.17	3.26	8903	0.88	1.18	3	8,343	0.82	1.11	3.09	0.098	439	0.04325	0.05840	0.16287
671	1/3/1978	8	0.23	0.08	10	8.4	0.39	0.05	0.31	0.04	7748	0.76	1.03	2.87	895	0.09	0.12	0.33	7361	0.73	0.98	3	851	0.08	0.11	0.32	0.010	45	0.00441	0.00595	0.01661
672	1/4/1978	7	1.35	0.822	100	0.8	0.37	0.27	0.29	0.21	7292	0.72	0.97	2.70	5,227	0.51	0.70	1.94	6927	0.68	0.92	3	4,966	0.49	0.66	1.84	0.058	261	0.02574	0.03476	0.09694
674	1/6/1978	9	0.54	0.224	27	1.3	0.18	0.05	0.14	0.04	3460	0.34	0.46	1.28	1,007	0.10	0.13	0.37	3287	0.32	0.44	1	956	0.09	0.13	0.35	0.011	50	0.00496	0.00669	0.01867
675	1/9/1978	32	1.7	0.804	98	2.0	0.22	0.16	0.17	0.12	4412	0.43	0.59	1.64	3,128	0.31	0.42	1.16	4192	0.41	0.56	2	2,972	0.29	0.40	1.10	0.035	156	0.01541	0.02080	0.05801
676	1/14/1978	26	1.75	0.785	96	3.9	0.27	0.19	0.21	0.15	5232	0.52	0.70	1.94	3,664	0.36	0.49	1.36	4970	0.49	0.66	2	3,481	0.34	0.46	1.29	0.041	183	0.01804	0.02437	0.06795
677	1/16/1978	14	1.77	0.971	118	1.3	0.15	0.12	0.12	0.09	2988	0.29	0.40	1.11	2,315	0.23	0.31	0.86	2838	0.28	0.38	1	2,199	0.22	0.29	0.82	0.026	116	0.01140	0.01539	0.04293
678	1/19/1978	8	0.34	0.132	16	2.5	0.18	0.03	0.14	0.03	3505	0.35	0.47	1.30	643	0.06	0.09	0.24	3329	0.33	0.44	1	611	0.06	0.08	0.23	0.007	32	0.00317	0.00427	0.01192
679	2/5/1978	26	1	0.42	51	16.1	0.54	0.26	0.42	0.20	10708	1.05	1.42	3.97	5,088	0.50	0.68	1.89	10172	1.00	1.35	4	4,834	0.48	0.64	1.79	0.056	254	0.02506	0.03384	0.09436
680	2/7/1978	7	0.68	0.291	35	2.0	0.35	0.13	0.28	0.10	6940	0.68	0.92	2.57	2,500	0.25	0.33	0.93	6593	0.65	0.88	2	2,375	0.23	0.32	0.88	0.028	125	0.01231	0.01663	0.04636

681	2/8/1978	39	3.53	1.827	222	-0.5	0.20	0.19	0.16	0.15	4021	0.40	0.53	1.49	3,778	0.37	0.50	1.40	3820	0.38	0.51	1	3,589	0.35	0.48	1.33	0.042	189	0.01861	0.02512	0.07006
682	2/12/1978	21	1.49	0.757	92	3.0	0.19	0.13	0.15	0.10	3683	0.36	0.49	1.37	2,531	0.25	0.34	0.94	3499	0.34	0.47	1	2,404	0.24	0.32	0.89	0.028	127	0.01246	0.01683	0.04694
683	2/26/1978	11	0.12	0.022	3	13.7	0.50	0.02	0.39	0.01	9900	0.98	1.32	3.67	329	0.03	0.04	0.12	9405	0.93	1.25	3	312	0.03	0.04	0.12	0.004	16	0.00162	0.00219	0.00610
684	2/28/1978	63	5.14	2.81	342	-1.3	0.46	0.46	0.36	0.36	9156	0.90	1.22	3.40	9,033	0.89	1.20	3.35	8698	0.86	1.16	3	8,582	0.85	1.14	3.18	0.100	452	0.04449	0.06007	0.16752
685	3/3/1978	45	3.36	1.776	216	1.6	0.11	0.10	0.09	0.08	2177	0.21	0.29	0.81	2,034	0.20	0.27	0.75	2068	0.20	0.28	1	1,932	0.19	0.26	0.72	0.023	102	0.01002	0.01353	0.03772
686	3/9/1978	1	0.07	0.005	1	6.0	0.31	0.00	0.24	0.00	6137	0.60	0.82	2.28	47	0.00	0.01	0.02	5830	0.57	0.78	2	45	0.00	0.01	0.02	0.001	2	0.00023	0.00031	0.00087
690	3/22/1978	4	0.74	0.32	39	12.5	0.54	0.21	0.43	0.17	10728	1.06	1.43	3.98	4,164	0.41	0.55	1.54	10191	1.00	1.36	4	3,955	0.39	0.53	1.47	0.046	208	0.02051	0.02769	0.07721
691	3/30/1978	23	0.59	0.235	29	7.1	0.49	0.15	0.38	0.12	9684	0.95	1.29	3.59	2,933	0.29	0.39	1.09	9200	0.91	1.22	3	2,786	0.27	0.37	1.03	0.033	147	0.01444	0.01950	0.05439
692	3/31/1978	5	0.15	0.046	6	1.2	0.38	0.03	0.30	0.02	7477	0.74	0.99	2.77	510	0.05	0.07	0.19	7103	0.70	0.94	3	484	0.05	0.06	0.18	0.006	25	0.00251	0.00339	0.00945
693	4/4/1978	4	0.26	0.094	11	3.5	0.44	0.06	0.34	0.05	8673	0.85	1.15	3.22	1,165	0.11	0.15	0.43	8239	0.81	1.10	3	1,107	0.11	0.15	0.41	0.013	58	0.00574	0.00775	0.02161
694	4/6/1978	4	0.37	0.146	18	2.3	0.43	0.09	0.34	0.07	8569	0.84	1.14	3.18	1,720	0.17	0.23	0.64	8141	0.80	1.08	3	1,634	0.16	0.22	0.61	0.019	86	0.00847	0.01144	0.03191
695	4/8/1978	1	0.07	0.005	1	1.7	0.39	0.00	0.31	0.00	7776	0.77	1.03	2.88	59	0.01	0.01	0.02	7387	0.73	0.98	3	56	0.01	0.01	0.02	0.001	3	0.00029	0.00040	0.00110
696	4/15/1978	10	0.81	0.349	42	6.5	0.51	0.21	0.40	0.17	10048	0.99	1.34	3.73	4,167	0.41	0.55	1.55	9545	0.94	1.27	4	3,959	0.39	0.53	1.47	0.046	208	0.02052	0.02771	0.07728
697	4/25/1978	16	0.16	0.025	3	9.0	0.50	0.02	0.39	0.01	9921	0.98	1.32	3.68	374	0.04	0.05	0.14	9425	0.93	1.25	3	355	0.03	0.05	0.13	0.004	19	0.00184	0.00248	0.00693
698	4/30/1978	2	0.1	0.019	2	5.8	0.55	0.02	0.43	0.01	10819	1.07	1.44	4.01	311	0.03	0.04	0.12	10278	1.01	1.37	4	295	0.03	0.04	0.11	0.003	16	0.00153	0.00207	0.00577
699	9/5/1978	16	0.35	0.121	15	126.9	0.62	0.10	0.48	0.08	12160	1.20	1.62	4.51	2,061	0.20	0.27	0.76	11552	1.14	1.54	4	1,958	0.19	0.26	0.73	0.023	103	0.01015	0.01371	0.03823
702	11/10/1978	40	0.76	0.286	35	64.1	0.62	0.22	0.48	0.17	12159	1.20	1.62	4.51	4,321	0.43	0.57	1.60	11551	1.14	1.54	4	4,104	0.40	0.55	1.52	0.048	216	0.02128	0.02873	0.08012
703	11/13/1978	6	0.2	0.064	8	2.8	0.46	0.04	0.36	0.03	9041	0.89	1.20	3.35	846	0.08	0.11	0.31	8589	0.85	1.14	3	804	0.08	0.11	0.30	0.009	42	0.00417	0.00563	0.01569
704	11/21/1978	5	0.97	0.475	58	7.8	0.54	0.28	0.42	0.22	10551	1.04	1.40	3.91	5,462	0.54	0.73	2.03	10024	0.99	1.33	4	5,189	0.51	0.69	1.92	0.061	273	0.02690	0.03632	0.10130
705	11/23/1978	12	0.35	0.127	15	0.2	0.27	0.05	0.21	0.04	5257	0.52	0.70	1.95	931	0.09	0.12	0.35	4994	0.49	0.66	2	885	0.09	0.12	0.33	0.010	47	0.00459	0.00619	0.01727
707	12/16/1978	20	0.49	0.188	23	24.0	0.59	0.15	0.46	0.12	11664	1.15	1.55	4.33	2,924	0.29	0.39	1.08	11080	1.09	1.47	4	2,778	0.27	0.37	1.03	0.032	146	0.01440	0.01944	0.05422
708	12/18/1978	20	0.94	0.41	50	0.5	0.45	0.21	0.35	0.17	8947	0.88	1.19	3.32	4,179	0.41	0.56	1.55	8499	0.84	1.13	3	3,970	0.39	0.53	1.47	0.046	209	0.02058	0.02779	0.07749
709	1/5/1979	25	2.16	0.986	120	16.7	0.56	0.44	0.44	0.34	11080	1.09	1.47	4.11	8,641	0.85	1.15	3.21	10526	1.04	1.40	4	8,209	0.81	1.09	3.04	0.096	432	0.04256	0.05746	0.16025
710	1/9/1979	8	0.13	0.029	4	3.6	0.29	0.01	0.23	0.01	5756	0.57	0.77	2.13	251	0.02	0.03	0.09	5468	0.54	0.73	2	238	0.02	0.03	0.09	0.003	13	0.00123	0.00167	0.00465
711	1/14/1979	3	0.14	0.038	5	5.4	0.44	0.02	0.34	0.02	8593	0.85	1.14	3.19	487	0.05	0.06	0.18	8164	0.80	1.09	3	463	0.05	0.06	0.17	0.005	24	0.00240	0.00324	0.00903
712	1/15/1979	27	1.54	0.696	85	-0.4	0.40	0.26	0.31	0.21	7907	0.78	1.05	2.93	5,191	0.51	0.69	1.93	7512	0.74	1.00	3	4,931	0.49	0.66	1.83	0.058	260	0.02556	0.03452	0.09626
714	1/18/1979	11	0.24	0.069	8	2.4	0.25	0.03	0.20	0.02	4976	0.49	0.66	1.85	500	0.05	0.07	0.19	4727	0.47	0.63	2	475	0.05	0.06	0.18	0.006	25	0.00246	0.00333	0.00927
716	1/30/1979	44	2.6	1.176	143	10.6	0.50	0.42	0.39	0.33	9888	0.97	1.32	3.67	8,262	0.81	1.10	3.06	9394	0.93	1.25	3	7,849	0.77	1.04	2.91	0.092	413	0.04069	0.05494	0.15322
717	2/1/1979	22	0.8	0.388	47	3.5	0.17	0.07	0.13	0.06	3254	0.32	0.43	1.21	1,460	0.14	0.19	0.54	3091	0.30	0.41	1	1,387	0.14	0.18	0.51	0.016	73	0.00719	0.00971	0.02708
718	2/13/1979	6	0.32	0.122	15	11.8	0.48	0.08	0.38	0.06	9480	0.93	1.26	3.52	1,619	0.16	0.22	0.60	9006	0.89	1.20	3	1,538	0.15	0.20	0.57	0.018	81	0.00797	0.01077	0.03003
720	2/20/1979	27	1.36	0.62	75	5.5	0.50	0.31	0.39	0.24	9889	0.97	1.32	3.67	6,071	0.60	0.81	2.25	9394	0.93	1.25	3	5,768	0.57	0.77	2.14	0.068	304	0.02990	0.04037	0.11259
721	2/23/1979	5	0.3	0.111	14	2.2	0.29	0.05	0.23	0.04	5691	0.56	0.76	2.11	892	0.09	0.12	0.33	5406	0.53	0.72	2	847	0.08	0.11	0.31	0.010	45	0.00439	0.00593	0.01653
722	3/1/1979	7	0.5	0.207	25	6.0	0.43	0.12	0.34	0.09	8453	0.83	1.12	3.14	2,301	0.23	0.31	0.85	8031	0.79	1.07	3	2,186	0.22	0.29	0.81	0.026	115	0.01133	0.01530	0.04267
723	3/12/1979	17	0.11	0.005	1	11.0	0.53	0.00	0.42	0.00	10467	1.03	1.39	3.88	80	0.01	0.01	0.03	9944	0.98	1.32	4	76	0.01	0.01	0.03	0.001	4	0.00039	0.00053	0.00148
724	3/17/1979	4	0.85	0.398	48	3.9	0.56	0.26	0.44	0.20	11031	1.09	1.47	4.09	5,043	0.50	0.67	1.87	10479	1.03	1.39	4	4,791	0.47	0.64	1.78	0.056	252	0.02484	0.03353	0.09352
725	3/18/1979	14	0.86	0.374	46	1.0	0.34	0.15	0.27	0.12	6685	0.66	0.89	2.48	2,920	0.29	0.39	1.08	6351	0.63	0.84	2	2,774	0.27	0.37	1.03	0.032	146	0.01438	0.01942	0.05415
726	3/20/1979	10	0.21	0.059	7	1.2	0.25	0.02	0.19	0.02	4890	0.48	0.65	1.81	423	0.04	0.06	0.16	4646	0.46	0.62	2	402	0.04	0.05	0.15	0.005	21	0.00209	0.00282	0.00785
729	3/26/1979	35	2.86	1.605	195	5.2	0.40	0.37	0.31	0.29	7916	0.78	1.05	2.94	7,242	0.71	0.96	2.69	7520	0.74	1.00	3	6,880	0.68	0.92	2.55	0.080	362	0.03567	0.04816	0.13431
730	3/28/1979	8	0.4	0.164	20	1.6	0.13	0.03	0.10	0.02	2634	0.26	0.35	0.98	586	0.06	0.08	0.22	2502	0.25	0.33	1	557	0.05	0.07	0.21	0.007	29	0.00289	0.00390	0.01087
732	10/19/1979	18	0.77	0.326	40	204.0	0.62	0.24	0.48	0.19	12160	1.20	1.62	4.51	4,788	0.47	0.64	1.78	11552	1.14	1.54	4	4,548	0.45	0.60	1.69	0.053	239	0.02358	0.03184	0.08879
733	11/7/1979	12	0.2	0.052	6	18.5	0.59	0.05	0.46	0.04	11591	1.14	1.54	4.30	889	0.09	0.12	0.33	11012	1.08	1.46	4	845	0.08	0.11	0.31	0.010	44	0.00438	0.00591	0.01649
735	12/11/1979	8	0.11	0.02	2	43.2	0.62	0.02	0.48	0.01	12150	1.20	1.62	4.51	367	0.04	0.05	0.14	11543	1.14	1.54	4	349	0.03	0.05	0.13	0.004	18	0.00181	0.00244	0.00681
736	12/24/1979	11	0.4	0.154	19	3.0	0.60	0.13	0.47	0.10	11892	1.17	1.58	4.41	2,504	0.25	0.33	0.93	11297	1.11	1.50	4	2,378	0.23	0.32	0.88	0.028	125	0.01233	0.01665	0.04643
737	1/7/1980	6	0.11	0.02	2	13.3	0.59	0.02	0.46	0.01	11557	1.14	1.54	4.29	349	0.03	0.05	0.13	10979	1.08	1.46	4	332	0.03	0.04	0.12	0.004	17	0.00172	0.00232	0.00648
739	1/8/1980	60	3.77	1.894	230	-0.7	0.57	0.53	0.44	0.42	11132	1.10	1.48	4.13	10,524	1.04	1.40	3.90	10575	1.04	1.41	4	9,998	0.98	1.33	3.71	0.117	526	0.05183	0.06998	0.19516
740	1/12/1980	8	0.3	0.116	14	2.7	0.19	0.03	0.15	0.02	3703	0.36	0.49	1.37	604	0.06	0.08	0.22	3517	0.35	0.47	1	574	0.06	0.08	0.21	0.007	30	0.00297	0.00402	0.01120
741	1/13/1980	30	0.33	0.091	11	0.0	0.16	0.02	0.12	0.02	3099	0.31	0.41	1.15	404	0.04	0.05	0.15	2944	0.29	0.39	1	384	0.04	0.05	0.14	0.004	20	0.00199	0.00269	0.00749
744	1/28/1980	49	2.84	1.522	185	12.8	0.51	0.46	0.40	0.36	9990	0.98	1.33	3.71	9,024	0.89	1.20	3.35	9490	0.93	1.26	4	8,573	0.84	1.14	3.18	0.100	451	0.04444	0.06001	0.16735
745	2/13/1980	55	4.84	2.571	313	14.0	0.50	0.49	0.39	0.39	9916	0.98	1.32	3.68	9,724	0.96	1.29	3.61	9420	0.93	1.25	3	9,238	0.91	1.23	3.43	0.108	486	0.04789	0.06467	0.18034
746	2/16/1980	20	3.07	1.635	199	2.1	0.14	0.13	0.11	0.10	2744	0.27	0.36	1.02	2,521	0.25	0.34	0.94	2607	0.26	0.35	1	2,395	0.24	0.32	0.89	0.028	126	0.01242	0.01676	0.04675
747	2/17/1980	85	4.84	2.334	284	-2.0	(0.15)	(0.15)	(0.12)	(0.11)	-2940	-0.29	-0.39	-1.09	(2,858)	(0.28)	(0.38)	(1.06)	-2793	-0.28	-0.37	-1	(2,715)	(0.27)	(0.36)	(1.01)	(0.032)	(143)	(0.01408)	(0.01901)	(0.05301)
748	3/2/1980	26	2.56	1.428	174	12.6	0.47	0.42	0.37	0.33	9299	0.92	1.24	3.45	8,260	0.81	1.10	3.06	8834	0.87	1.17	3	7,847	0.77	1.04	2.91	0.092	413	0.04068	0.05493	0.15318
749	3/5/1980	23	1.3	0.569	69	2.1	0.17	0.10	0.14	0.08	3410	0.34	0.45	1.26	1,986	0.20	0.26	0.74	3240	0.32	0.43	1	1,887	0.19	0.25	0.70	0.022	99	0.00978	0.01321	0.03684
751	3/18/1980	4	0.18	0.056	7	13.0	0.50	0.04	0.39	0.03	9757	0.96	1.30	3.62	804	0.08	0.11	0.30	9269	0.91	1.23	3	763	0.08	0.10	0.28	0.009	40	0.00396	0.00534	0.01490
752	3/21/1980	2	0.12	0.028	3	3.0	0.50	0.02	0.39	0.02	9879	0.97	1.31	3.66	416	0.04	0.06	0.15	9385	0.92	1.25	3	395	0.04	0.05	0.15	0.005	21	0.00205	0.00276	0.00771
753	3/25/1980	8	0.61	0.255	31	3.8	0.53	0.17	0.41	0.13	10409	1.03	1.38	3.86	3,372	0.33	0.45	1.25	9888	0.97	1.32	4	3,203	0.32	0.43	1.19	0.037	169	0.01661	0.02242	0.06253
756	4/28/1980	4	0.18	0.056	7	33.6	0.61	0.05	0.48	0.04	12054	1.19	1.60	4.47	993	0.10	0.13	0.37	11451	1.13	1.52	4	943	0.09	0.13	0.35	0.011	50	0.00489	0.00660	0.01841
758	5/10/1980	5	0.1	0.017	2	11.3	0.60	0.02	0.47	0.01	11862	1.17	1.58	4.40	306	0.03	0.04	0.11	11269	1.11	1.50	4	290	0.03	0.04	0.11	0.003	15	0.00150	0.00203	0.00567
760	12/3/1980	25	0.85	0.352	43	206.7	0.62	0.26	0.48	0.20	12160	1.20	1.62	4.51	5,076	0.50	0.68	1.88	11552	1.14	1.54	4	4,822	0.48	0.64	1.79	0.056	254	0.02500	0.03376	0.09414
761	1/11/1981	8	0.1	0.015	2	38.0	0.61	0.01	0.48	0.01	12096	1.19	1.61	4.49	275	0.03	0.04	0.10	11492	1.13	1.53	4	262	0.03	0.03	0.10	0.003	14	0.00136	0.00183	0.00511
763	1/23/1981	5	0.32	0.122	15	11.8	0.61	0.10	0.48	0.08	12073	1.19	1.61	4.48	2,062	0.20	0.27	0.76	11469	1.13	1.53	4	1,959	0.19	0.26	0.73	0.023	103	0.01015	0.01371	0.03824
764	1/28/1981	9	0.84	0.398	48	4.5	0.55	0.25	0.43	0.20	10880	1.07	1.45	4.04	4,974	0.49	0.66	1.84	10336	1.02	1.37	4	4,725	0.47	0.63	1.75	0.055	249	0.02450	0.03308	0.09224
765	1/29/1981	11	0.65	0.273	33	0.7	0.33	0.11	0.25	0.09	6423	0.63	0.85	2.38	2,199	0.22	0.29	0.82	6102	0.60	0.81	2	2,089	0.21	0.28	0.77	0.024	110	0.01083	0.01462	0.04078
766	1/30/1981	2	0.1	0.019	2	1.3	0.27	0.01	0.21	0.01	5354	0.53	0.71	1.99	154	0.02	0.02	0.06	5086	0.50	0.68	2	146	0.01	0.02	0.05	0.002	8	0.00076	0.00102	0.00285
767	2/8/1981	19	0.68	0.283	34	8.0	0.48	0.17	0.37	0.13	9376	0.92	1.25	3.48	3,304	0.33	0.44	1.23	8907	0.88	1.18	3	3,139	0.31	0.42	1.16	0.037	165	0.01627	0.02197	0.06127
768	2/25/1981	5	0.6	0.254	31	17.2	0.57	0.19	0.45	0.14	11317	1.11	1.51	4.20	3,654	0.36	0.49	1.36	10751	1.06	1.43	4	3,471	0.34	0.46	1.29	0.041	183	0.01800	0.02430	0.06776
769	2/28/1981	7	0.2	0.064	8	2.2	0.44	0.04	0.34	0.03	8689	0.86	1.16	3.22	813	0.08	0.11	0.30	8255	0.81	1.10	3	772	0.08	0.10	0.29	0.009	41	0.00400	0.00541	0.01508
770	3/1/1981	11	1.25	0.638	78	0.3	0.41	0.25	0.32	0.20	8037	0.79	1.07	2.98	5,019	0.49	0.67	1.86	7635	0.75	1.02	3	4,768	0.47	0.63	1.77	0.056	251	0.02472	0.03338	0.09308
771	3/2/1981	8	0.77	0.37	45	0.6	0.19	0.08	0.14	0.06	3653	0.36	0.49	1.35	1,583	0.16	0.21	0.59	3470	0.34	0.46	1	1,504	0.15	0.20	0.56	0.018	79	0.00780	0.01053	0.02936
772	3/4/1981	15	0.96	0.419	51	2.0	0.21	0.10	0.16	0.08	4145	0.41	0.55	1.54	1,967	0.19	0.26	0.73	3938	0.39	0.52	1	1,868	0.18	0.25	0.69	0.022	98	0.00969	0.01308	0.03647
774	3/19/1981	15	1.09	0.547	67	14.3	0.52	0.29	0.41	0.23	10225	1.01	1.36	3.79	5,809	0.57	0.77	2.15	9714	0.96	1.29	4	5,519	0.54	0.73	2.05	0.065	290	0.02861	0.03863	0.10774
775	4/2/1981	2	0.13	0.033	4	13.4	0.53	0.03	0.42	0.02	10508	1.04	1.40	3.90	519	0.05	0.07	0.19	9982	0.98	1.33	4	493	0.05	0.07	0.18	0.006	26	0.00256	0.00345	0.00963
776	4/18/1981	5	0.18	0.056	7	16.0	0.60	0.05	0.47	0.04	11814	1.16	1.57	4.38	973	0.10	0.13	0.36	11224	1.11	1.49	4	925	0.09	0.12	0.34	0.011	49	0.00479	0.00647	0.01805
777	4/18/1981	18	0.21	0.052	6	0.0	0.55	0.04	0.43	0.03	10835	1.07	1.44	4.02	831	0.08	0.11	0.31	10293	1.01	1.37	4	790	0.08	0.11	0.29	0.009	42	0.00409	0.00553	0.01542
779	9/30/1981	16	0.49	0.189	23	164.2	0.62	0.16	0.48	0.12	12160	1.20	1.62	4.51	3,062	0.30	0.41	1.14	11552	1.14	1.54	4	2,909	0.29	0.39	1.08	0.034	153	0.01508	0.02036	0.05679
781	11/26/1981	2	0.19	0.061	7	56.9	0.62	0.06	0.48	0.04	12156	1.20	1.62	4.51	1,087	0.11	0.14	0.40	11548	1.14	1.54	4	1,032	0.10	0.14	0.38	0.012	54	0.00535	0.00723	0.02015
782	11/27/1981	24	1.61	0.778	95	-0.4	0.56	0.39	0.44	0.30	11016	1.09	1.47	4.09	7,679	0.76	1.02	2.85	10465	1.03	1.39	4	7,295	0.72	0.97	2.71	0.085	384	0.03782	0.05106	0.14240
784	12/30/1981	13	0.45	0.175	21	32.1	0.61	0.14	0.47	0.11	11941	1.18	1.59	4.43	2,813	0.28	0.37	1.04	11344	1.12	1.51	4	2,672	0.26	0.36	0.99	0.031	141	0.01385	0.01871	0.05217
785	1/1/1982	5	0.53	0.231	28	1.9	0.49	0.15	0.39	0.12	9717	0.96	1.29	3.60	2,901	0.29	0.39	1.08	9231	0.91	1.23	3	2,756	0.27	0.37	1.02	0.032	145	0.01429	0.01929	0.05380
786	1/2/1982	3	0.12	0.028	3	0.9	0.37	0.02	0.29	0.01	7351	0.72	0.98	2.73	309	0.03	0.04	0.11	6983	0.69	0.93	3	294	0.03	0.04	0.11	0.003	15	0.00152	0.00206	0.00574
787	1/4/1982	18	0.39	0.145	18	1.8	0.40	0.08	0.32	0.06	7976	0.79	1.06	2.96	1,592	0.16	0.21	0.59	7577	0.75	1.01	3	1,512	0.15	0.20	0.56	0.018	80	0.00784	0.01058	0.02952
788	1/19/1982	34	1	0.42	51	13.9	0.56	0.27	0.44	0.21	10991	1.08	1.46	4.08	5,223	0.51	0.69	1.94	10442	1.03	1.39	4	4,962	0.49	0.66	1.84	0.058	261	0.02572	0.03473	0.09686
789	1/28/1982	3	0.13	0.033	4	8.5	0.50	0.02	0.39	0.02	9758	0.96	1.30	3.62	482	0.05	0.06	0.18	9270	0.91	1.23	3	458	0.05	0.06	0.17	0.005	24	0.00237	0.00321	0.00894
791	2/10/1982	9	0.66	0.28	34	12.5	0.58	0.20	0.46	0.16	11480	1.13	1.53	4.26	4,011	0.40	0.53	1.49	10906	1.07	1.45	4	3,810	0.38	0.51	1.41	0.045	201	0.01975	0.02667	0.07438
793	3/1/1982	3	0.09	0.014	2	19.0	0.59	0.01	0.46	0.01	11634	1.15	1.55	4.32	247	0.02	0.03	0.09	11052	1.09	1.47	4	235	0.02	0.03	0.09	0.003	12	0.00122	0.00164	0.00459
794	3/2/1982	7	0.16	0.048	6	0.3	0.58	0.04	0.45	0.03	11416	1.12	1.52	4.23	811	0.08	0.11	0.30	10845	1.07	1.44	4	770	0.08	0.10	0.29	0.009	41	0.00399	0.00539	0.01504
795	3/11/1982	10	0.34	0.13	16	8.9	0.59	0.11	0.46	0.08	11600	1.14	1.54	4.30	2,099	0.21	0.28	0.78	11020	1.09	1.47	4	1,994	0.20	0.27	0.74	0.023	105	0.01034	0.01396	0.03892
796	3/14/1982	22	0.44	0.161	20	1.7	0.51	0.11	0.40	0.09	9966	0.98	1.33	3.70	2,182	0.21	0.29	0.81	9468	0.93	1.26	4	2,073	0.20	0.28	0.77	0.024	109	0.01075	0.01451	0.04047
797	3/16/1982	66	2.02	0.853	104	-0.9	0.37	0.27	0.29	0.21	7320	0.72	0.97	2.71	5,344	0.53	0.71	1.98	6954	0.68	0.92	3	5,076	0.50	0.68	1.88	0.059	267	0.02632	0.03553	0.09910
798	3/25/1982	12	0.23	0.076	9	9.2	0.44	0.05	0.34	0.04	8632	0.85	1.15	3.20	951	0.09	0.13	0.35	8201	0.81	1.09	3	903	0.09	0.12	0.33	0.011	48	0.00468	0.00632	0.01763
799	3/29/1982	6	0.26	0.094	11	3.7	0.47	0.06	0.37	0.05	9238	0.91	1.23	3.43	1,241	0.12	0.17	0.46	8776	0.86	1.17	3	1,179	0.12	0.16	0.44	0.014	62	0.00611	0.00825	0.02302
800	4/1/1982	11	0.84	0.363	44	2.0	0.45	0.19	0.35	0.15	8853	0.87	1.18	3.28	3,782	0.37	0.50	1.40	8410	0.83	1.12	3	3,593	0.35	0.48	1.33	0.042	189	0.01863	0.02515	0.07014
802	4/11/1982	6	0.49	0.2	24	10.0	0.50	0.13	0.39	0.10	9929	0.98	1.32	3.68	2,625	0.26	0.35	0.97	9433	0.93	1.25	3	2,494	0.25	0.33	0.92	0.029	131	0.01293	0.01746	0.04868
803	5/4/1982	5	0.1	0.019	2	22.9	0.60	0.02	0.47	0.01	11811	1.16	1.57	4.38	340	0.03	0.05	0.13	11221	1.11	1.49	4	323	0.03	0.04	0.12	0.004	17	0.00167	0.00226	0.00630
805	9/8/1982	5	0.19	0.061	7	127.0	0.62	0.06	0.48	0.04	12160	1.20	1.62	4.51	1,087	0.11	0.14	0.40	11552	1.14	1.54	4	1,033	0.10	0.14	0.38	0.012	54	0.00535	0.00723	0.02016
807	9/17/1982	3	0.13	0.033	4	9.1	0.60	0.03	0.47	0.02	11780	1.16	1.57	4.37	582	0.06	0.08	0.22	11191	1.10	1.49	4	553	0.05	0.07	0.21	0.006	29	0.00287	0.00387	0.01079
808	9/25/1982	17	0.51	0.204	25	7.1	0.60	0.16	0.47	0.13	11737	1.16	1.56	4.35	3,156	0.31	0.42	1.17	11150	1.10	1.48	4	2,998	0.30	0.40	1.11	0.035	158	0.01554	0.02098	0.05852
809	10/26/1982	8	0.1	0.011	1	30.0	0.61	0.01	0.48	0.01	12047	1.19	1.60	4.47	202	0.02	0.03	0.07	11444	1.13	1.52	4	192	0.02	0.03	0.07	0.002	10	0.00099	0.00134	0.00374
810	10/30/1982	4	0.09	0.014	2	4.3	0.61	0.01	0.47	0.01	11967	1.18	1.59	4.44	254	0.03	0.03	0.09	11369	1.12	1.51	4	242	0.02	0.03	0.09	0.003	13	0.00125	0.00169	0.00472
811	11/9/1982	33	1.52	0.667	81	8.2	0.61	0.39	0.48	0.30	11986	1.18	1.59	4.45	7,681	0.76	1.02	2.85	11387	1.12	1.51	4	7,297	0.72	0.97	2.71	0.085	384	0.03783	0.05108	0.14244
812	11/18/1982	9	0.56	0.233	28	9.4	0.48	0.14	0.38	0.11	9491	0.93	1.26	3.52	2,854	0.28	0.38	1.06	9016	0.89	1.20	3	2,711	0.27	0.36	1.01	0.032	143	0.01406	0.01898	0.05293
813	11/29/1982	7	0.1	0.013	2	10.0	0.53	0.01	0.41	0.01	10405	1.02	1.38	3.86	206	0.02	0.03	0.08	9885	0.97	1.31	4	195	0.02	0.03	0.07	0.002	10	0.00101	0.00137	0.00381
814	11/29/1982	12	2.23	1.314	160	0.3	0.52	0.45	0.41	0.35	10274	1.01	1.37	3.81	8,907	0.88	1.18	3.30	9760	0.96	1.30	4	8,461	0.83	1.13	3.14	0.099	445	0.04387	0.05923	0.16517
816	12/22/1982	16	1.03	0.452	55	21.7	0.57	0.29	0.45	0.22	11269	1.11	1.50	4.18	5,639	0.56	0.75	2.09	10706	1.05	1.42	4	5,357	0.53	0.71	1.99	0.063	282	0.02777	0.03750	0.10457
818	1/19/1983	4	0.42	0.169	21	27.6	0.60	0.14	0.47	0.11	11889	1.17	1.58	4.41	2,717	0.27	0.36	1.01	11294	1.11	1.50	4	2,581	0.25	0.34	0.96	0.030	136	0.01338	0.01807	0.05038
819	1/22/1983	21	1.53	0.767	93	2.3	0.50	0.35	0.39	0.27	9865	0.97	1.31	3.66	6,826	0.67	0.91	2.53	9372	0.92	1.25	3	6,485	0.64	0.86	2.41	0.076	341	0.03362	0.04539	0.12659
820	1/24/1983	8	1.2	0.541	66	1.8	0.24	0.14	0.19	0.11	4739	0.47	0.63	1.76	2,674	0.26	0.36	0.99	4502	0.44	0.60	2	2,540	0.25	0.34	0.94	0.030	134	0.01317	0.01778	0.04958
821	1/27/1983	12	1.95	1.316	160	2.3	0.22	0.19	0.17	0.15	4407	0.43	0.59	1.63	3,822	0.38	0.51	1.42	4186	0.41	0.56	2	3,631	0.36	0.48	1.35	0.042	191	0.01882	0.02542	0.07088
822	1/28/1983	5	1.39	0.864	105	1.5	0.13	0.09	0.10	0.07	2467	0.24	0.33	0.92	1,812	0.18	0.24	0.67	2344	0.23	0.31	1	1,722	0.17	0.23	0.64	0.020	91	0.00892	0.01205	0.03361
823	2/2/1983	12	0.74	0.32	39	4.0	0.25	0.10	0.20	0.08	4936	0.49	0.66	1.83	1,916	0.19	0.25	0.71	4689	0.46	0.62	2	1,820	0.18	0.24	0.67	0.021	96	0.00943	0.01274	0.03552
824	2/5/1983	10	0.25	0.085	10	2.7	0.28	0.03	0.22	0.03	5468	0.54	0.73	2.03	669	0.07	0.09	0.25	5195	0.51	0.69	2	635	0.06	0.08	0.24	0.007	33	0.00329	0.00445	0.01241
825	2/6/1983	37	0.63	0.233	28	-0.4	0.23	0.07	0.18	0.05	4438	0.44	0.59	1.65	1,334	0.13	0.18	0.49	4216	0.42	0.56	2	1,268	0.12	0.17	0.47	0.015	67	0.00657	0.00887	0.02475
828	2/24/1983	2	0.11	0.024	3	17.4	0.56	0.02	0.43	0.02	10935	1.08	1.45	4.06	396	0.04	0.05	0.15	10388	1.02	1.38	4	376	0.04	0.05	0.14	0.004	20	0.00195	0.00263	0.00734
829	2/25/1983	12	1.03	0.454	55	1.3	0.55	0.27	0.43	0.21	10763	1.06	1.43	3.99	5,402	0.53	0.72	2.00	10225	1.01	1.36	4	5,132	0.51	0.68	1.90	0.060	270	0.02660	0.03592	0.10018
830	2/26/1983	118	6.36	3.361	409	-3.9	0.08	0.08	0.06	0.06	1488	0.15	0.20	0.55	1,479	0.15	0.20	0.55	1413	0.14	0.19	1	1,405	0.14	0.19	0.52	0.016	74	0.00729	0.00984	0.02743
831	3/5/1983	8	0.27	0.097	12	6.5	0.33	0.05	0.26	0.04	6438	0.63	0.86	2.39	891	0.09	0.12	0.33	6116	0.60	0.81	2	846	0.08	0.11	0.31	0.010	45	0.00439	0.00592	0.01652
833	3/13/1983	7	0.23	0.076	9	7.6	0.48	0.05	0.37	0.04	9398	0.93	1.25	3.49	1,035	0.10	0.14	0.38	8928	0.88	1.19	3	983	0.10	0.13	0.36	0.011	52	0.00510	0.00688	0.01919
834	3/16/1983	6	0.24	0.085	10	3.0	0.48	0.06	0.38	0.05	9459	0.93	1.26	3.51	1,157	0.11	0.15	0.43	8986	0.89	1.20	3	1,099	0.11	0.15	0.41	0.013	58	0.00570	0.00769	0.02146
835	3/17/1983	22	0.43	0.148	18	0.1	0.42	0.09	0.33	0.07	8357	0.82	1.11	3.10	1,698	0.17	0.23	0.63	7939	0.78	1.06	3	1,614	0.16	0.21	0.60	0.019	85	0.00836	0.01129	0.03150
836	3/20/1983	4	0.71	0.433	53	2.9	0.42	0.20	0.33	0.16	8209	0.81	1.09	3.04	3,986	0.39	0.53	1.48	7799	0.77	1.04	3	3,787	0.37	0.50	1.40	0.044	199	0.01963	0.02651	0.07392
837	3/22/1983	7	0.37	0.146	18	1.4	0.27	0.05	0.21	0.04	5385	0.53	0.72	2.00	1,081	0.11	0.14	0.40	5116	0.50	0.68	2	1,027	0.10	0.14	0.38	0.012	54	0.00533	0.00719	0.02005
838	3/23/1983	20	1.06	0.558	68	0.2	0.23	0.13	0.18	0.10	4490	0.44	0.60	1.67	2,584	0.25	0.34	0.96	4266	0.42	0.57	2	2,454	0.24	0.33	0.91	0.029	129	0.01272	0.01718	0.04791
839	3/27/1983	8	0.21	0.067	8	4.0	0.29	0.03	0.22	0.02	5660	0.56	0.75	2.10	553	0.05	0.07	0.21	5377	0.53	0.72	2	525	0.05	0.07	0.19	0.006	28	0.00272	0.00368	0.01026
840	4/5/1983	3	0.25	0.089	11	8.5	0.48	0.06	0.38	0.05	9509	0.94	1.26	3.53	1,214	0.12	0.16	0.45	9034	0.89	1.20	3	1,154	0.11	0.15	0.43	0.013	61	0.00598	0.00808	0.02252
842	4/17/1983	30	1.68	0.834	101	10.9	0.56	0.41	0.44	0.32	11055	1.09	1.47	4.10	7,982	0.79	1.06	2.96	10502	1.03	1.40	4	7,583	0.75	1.01	2.81	0.089	399	0.03931	0.05308	0.14803
843	4/19/1983	30	1.43	0.671	82	1.0	0.21	0.13	0.16	0.10	4061	0.40	0.54	1.51	2,611	0.26	0.35	0.97	3858	0.38	0.51	1	2,481	0.24	0.33	0.92	0.029	131	0.01286	0.01737	0.04843
845	4/28/1983	37	1.69	0.81	99	7.0	0.38	0.27	0.29	0.21	7399	0.73	0.98	2.74	5,265	0.52	0.70	1.95	7029	0.69	0.93	3	5,002	0.49	0.67	1.86	0.058	263	0.02593	0.03501	0.09764
846	4/30/1983	3	0.13	0.033	4	2.3	0.23	0.01	0.18	0.01	4459	0.44	0.59	1.65	220	0.02	0.03	0.08	4236	0.42	0.56	2	209	0.02	0.03	0.08	0.002	11	0.00108	0.00146	0.00408

847	5/1/1983	2	0.32	0.129	16	0.6	0.24	0.04	0.19	0.03	4789	0.47	0.64	1.78	860	0.08	0.11	0.32	4549	0.45	0.61	2	817	0.08	0.11	0.30	0.010	43	0.00424	0.00572	0.01595
850	8/15/1983	5	0.19	0.057	7	105.4	0.62	0.05	0.48	0.04	12160	1.20	1.62	4.51	1,019	0.10	0.14	0.38	11552	1.14	1.54	4	968	0.10	0.13	0.36	0.011	51	0.00502	0.00677	0.01889
851	8/18/1983	27	0.58	0.221	27	2.0	0.58	0.17	0.45	0.13	11355	1.12	1.51	4.21	3,267	0.32	0.43	1.21	10787	1.06	1.43	4	3,103	0.31	0.41	1.15	0.036	163	0.01609	0.02172	0.06058
854	9/29/1983	8	0.31	0.112	14	41.5	0.62	0.10	0.48	0.08	12126	1.19	1.61	4.50	1,915	0.19	0.25	0.71	11520	1.13	1.53	4	1,820	0.18	0.24	0.67	0.021	96	0.00943	0.01274	0.03552
855	9/30/1983	31	1.94	0.977	119	-0.4	0.51	0.40	0.40	0.31	10115	1.00	1.35	3.75	7,857	0.77	1.05	2.91	9609	0.95	1.28	4	7,464	0.74	0.99	2.77	0.087	393	0.03870	0.05225	0.14571
856	10/4/1983	3	0.24	0.085	10	4.6	0.32	0.04	0.25	0.03	6346	0.63	0.84	2.35	776	0.08	0.10	0.29	6029	0.59	0.80	2	737	0.07	0.10	0.27	0.009	39	0.00382	0.00516	0.01440
857	10/7/1983	3	0.11	0.024	3	2.0	0.35	0.01	0.28	0.01	6950	0.68	0.92	2.58	251	0.02	0.03	0.09	6603	0.65	0.88	2	239	0.02	0.03	0.09	0.003	13	0.00124	0.00167	0.00466
859	11/1/1983	4	0.44	0.179	22	25.5	0.60	0.14	0.47	0.11	11870	1.17	1.58	4.40	2,852	0.28	0.38	1.06	11277	1.11	1.50	4	2,709	0.27	0.36	1.00	0.032	143	0.01405	0.01897	0.05289
860	11/11/1983	70	0.84	0.331	40	6.5	0.54	0.22	0.42	0.17	10681	1.05	1.42	3.96	4,255	0.42	0.57	1.58	10147	1.00	1.35	4	4,042	0.40	0.54	1.50	0.047	213	0.02096	0.02829	0.07891
861	11/20/1983	4	0.15	0.042	5	8.9	0.51	0.03	0.40	0.03	10106	1.00	1.34	3.75	631	0.06	0.08	0.23	9601	0.95	1.28	4	599	0.06	0.08	0.22	0.007	32	0.00311	0.00420	0.01170
862	11/24/1983	8	1.02	0.478	58	4.1	0.53	0.28	0.42	0.22	10490	1.03	1.40	3.89	5,454	0.54	0.73	2.02	9966	0.98	1.33	4	5,181	0.51	0.69	1.92	0.061	273	0.02686	0.03627	0.10114
864	12/3/1983	7	0.52	0.212	26	8.4	0.48	0.13	0.37	0.10	9444	0.93	1.26	3.50	2,623	0.26	0.35	0.97	8972	0.88	1.19	3	2,492	0.25	0.33	0.92	0.029	131	0.01292	0.01745	0.04865
865	12/9/1983	7	0.78	0.338	41	5.9	0.48	0.19	0.37	0.15	9445	0.93	1.26	3.50	3,823	0.38	0.51	1.42	8973	0.88	1.19	3	3,632	0.36	0.48	1.35	0.042	191	0.01883	0.02543	0.07091
866	12/11/1983	4	0.1	0.019	2	2.0	0.35	0.01	0.28	0.01	6967	0.69	0.93	2.58	200	0.02	0.03	0.07	6618	0.65	0.88	2	190	0.02	0.03	0.07	0.002	10	0.00099	0.00133	0.00371
867	12/24/1983	33	1.78	0.921	112	11.6	0.55	0.41	0.43	0.32	10746	1.06	1.43	3.99	8,132	0.80	1.08	3.02	10208	1.01	1.36	4	7,725	0.76	1.03	2.87	0.090	407	0.04005	0.05408	0.15081
868	1/16/1984	2	0.16	0.047	6	22.8	0.58	0.04	0.45	0.03	11471	1.13	1.53	4.25	798	0.08	0.11	0.30	10898	1.07	1.45	4	759	0.07	0.10	0.28	0.009	40	0.00393	0.00531	0.01481
870	3/14/1984	5	0.28	0.103	13	57.3	0.62	0.09	0.48	0.07	12158	1.20	1.62	4.51	1,778	0.18	0.24	0.66	11550	1.14	1.54	4	1,689	0.17	0.22	0.63	0.020	89	0.00876	0.01182	0.03297
871	4/6/1984	5	0.31	0.117	14	22.7	0.61	0.10	0.48	0.08	12030	1.18	1.60	4.46	1,978	0.19	0.26	0.73	11428	1.13	1.52	4	1,879	0.19	0.25	0.70	0.022	99	0.00974	0.01315	0.03668
872	4/19/1984	4	0.37	0.146	18	12.8	0.59	0.12	0.46	0.09	11677	1.15	1.55	4.33	2,344	0.23	0.31	0.87	11093	1.09	1.48	4	2,227	0.22	0.30	0.83	0.026	117	0.01155	0.01559	0.04348
875	8/15/1984	6	0.4	0.158	19	117.9	0.62	0.13	0.48	0.10	12160	1.20	1.62	4.51	2,619	0.26	0.35	0.97	11552	1.14	1.54	4	2,488	0.25	0.33	0.92	0.029	131	0.01290	0.01742	0.04857
876	9/11/1984	12	0.22	0.067	8	26.5	0.61	0.06	0.48	0.05	12036	1.19	1.60	4.46	1,176	0.12	0.16	0.44	11434	1.13	1.52	4	1,118	0.11	0.15	0.41	0.013	59	0.00579	0.00782	0.02182
878	10/17/1984	3	0.15	0.042	5	35.8	0.62	0.04	0.48	0.03	12139	1.20	1.61	4.50	758	0.07	0.10	0.28	11532	1.14	1.53	4	720	0.07	0.10	0.27	0.008	38	0.00373	0.00504	0.01406
879	11/8/1984	6	0.31	0.116	14	21.8	0.61	0.10	0.48	0.08	12097	1.19	1.61	4.49	1,973	0.19	0.26	0.73	11492	1.13	1.53	4	1,874	0.18	0.25	0.70	0.022	99	0.00972	0.01312	0.03659
880	11/13/1984	10	0.38	0.141	17	4.6	0.56	0.11	0.43	0.08	10959	1.08	1.46	4.06	2,133	0.21	0.28	0.79	10411	1.03	1.38	4	2,026	0.20	0.27	0.75	0.024	107	0.01050	0.01418	0.03955
883	11/24/1984	9	0.68	0.289	35	11.0	0.57	0.20	0.44	0.16	11221	1.11	1.49	4.16	4,020	0.40	0.53	1.49	10659	1.05	1.42	4	3,819	0.38	0.51	1.42	0.045	201	0.01980	0.02673	0.07456
885	12/3/1984	6	0.11	0.02	2	8.5	0.52	0.02	0.41	0.01	10287	1.01	1.37	3.82	311	0.03	0.04	0.12	9773	0.96	1.30	4	295	0.03	0.04	0.11	0.003	16	0.00153	0.00207	0.00577
886	12/7/1984	10	0.74	0.315	38	4.4	0.55	0.21	0.43	0.16	10840	1.07	1.44	4.02	4,156	0.41	0.55	1.54	10298	1.01	1.37	4	3,948	0.39	0.53	1.46	0.046	208	0.02047	0.02764	0.07708
887	12/10/1984	10	0.76	0.396	48	2.3	0.40	0.18	0.32	0.14	7974	0.79	1.06	2.96	3,632	0.36	0.48	1.35	7575	0.75	1.01	3	3,451	0.34	0.46	1.28	0.040	182	0.01789	0.02415	0.06736
888	12/15/1984	9	0.76	0.369	45	4.7	0.39	0.17	0.30	0.13	7614	0.75	1.01	2.82	3,293	0.32	0.44	1.22	7233	0.71	0.96	3	3,128	0.31	0.42	1.16	0.037	165	0.01622	0.02190	0.06106
889	12/18/1984	44	1.94	0.977	119	0.6	0.25	0.19	0.19	0.15	4865	0.48	0.65	1.80	3,779	0.37	0.50	1.40	4622	0.46	0.61	2	3,590	0.35	0.48	1.33	0.042	189	0.01861	0.02513	0.07009
890	12/26/1984	33	1.22	0.526	64	7.0	0.37	0.20	0.29	0.16	7237	0.71	0.96	2.68	4,009	0.39	0.53	1.49	6875	0.68	0.91	3	3,809	0.38	0.51	1.41	0.045	200	0.01975	0.02666	0.07435
891	1/7/1985	21	0.24	0.061	7	10.6	0.48	0.04	0.38	0.03	9519	0.94	1.27	3.53	851	0.08	0.11	0.32	9043	0.89	1.20	3	808	0.08	0.11	0.30	0.009	43	0.00419	0.00566	0.01578
892	1/28/1985	7	0.47	0.193	23	21.1	0.60	0.15	0.47	0.12	11852	1.17	1.58	4.40	3,039	0.30	0.40	1.13	11259	1.11	1.50	4	2,887	0.28	0.38	1.07	0.034	152	0.01497	0.02021	0.05636
893	2/1/1985	12	0.3	0.103	13	4.0	0.51	0.07	0.40	0.06	10048	0.99	1.34	3.73	1,470	0.14	0.20	0.55	9546	0.94	1.27	4	1,396	0.14	0.19	0.52	0.016	73	0.00724	0.00977	0.02725
894	2/8/1985	18	2.53	1.427	174	5.9	0.53	0.47	0.41	0.36	10348	1.02	1.38	3.84	9,190	0.91	1.22	3.41	9831	0.97	1.31	4	8,731	0.86	1.16	3.24	0.102	460	0.04526	0.06112	0.17044
897	3/7/1985	4	0.09	0.014	2	26.4	0.59	0.01	0.46	0.01	11635	1.15	1.55	4.32	247	0.02	0.03	0.09	11053	1.09	1.47	4	235	0.02	0.03	0.09	0.003	12	0.00122	0.00165	0.00459
898	3/11/1985	1	0.07	0.005	1	4.0	0.59	0.00	0.46	0.00	11675	1.15	1.55	4.33	89	0.01	0.01	0.03	11091	1.09	1.48	4	85	0.01	0.01	0.03	0.001	4	0.00044	0.00059	0.00166
899	3/18/1985	7	0.12	0.024	3	6.8	0.60	0.02	0.47	0.02	11897	1.17	1.58	4.41	430	0.04	0.06	0.16	11302	1.11	1.50	4	409	0.04	0.05	0.15	0.005	22	0.00212	0.00286	0.00798
900	3/27/1985	12	0.91	0.398	48	8.2	0.60	0.28	0.47	0.22	11890	1.17	1.58	4.41	5,435	0.54	0.72	2.02	11295	1.11	1.50	4	5,164	0.51	0.69	1.92	0.060	272	0.02677	0.03615	0.10080
902	5/8/1985	7	0.23	0.074	9	42.5	0.62	0.07	0.48	0.05	12118	1.19	1.61	4.49	1,301	0.13	0.17	0.48	11512	1.13	1.53	4	1,236	0.12	0.16	0.46	0.014	65	0.00641	0.00865	0.02413
903	11/10/1985	30	0.9	0.407	50	184.8	0.62	0.29	0.48	0.22	12160	1.20	1.62	4.51	5,650	0.56	0.75	2.10	11552	1.14	1.54	4	5,367	0.53	0.71	1.99	0.063	282	0.02783	0.03757	0.10478
905	11/24/1985	33	1.22	0.526	64	12.2	0.55	0.30	0.43	0.24	10768	1.06	1.43	3.99	5,966	0.59	0.79	2.21	10230	1.01	1.36	4	5,667	0.56	0.75	2.10	0.066	298	0.02938	0.03967	0.11063
906	11/29/1985	15	0.78	0.334	41	3.9	0.38	0.15	0.30	0.12	7473	0.74	0.99	2.77	2,998	0.30	0.40	1.11	7099	0.70	0.94	3	2,848	0.28	0.38	1.06	0.033	150	0.01476	0.01993	0.05559
907	12/2/1985	14	0.26	0.084	10	2.7	0.33	0.04	0.26	0.03	6534	0.64	0.87	2.42	790	0.08	0.11	0.29	6207	0.61	0.83	2	751	0.07	0.10	0.28	0.009	40	0.00389	0.00526	0.01466
910	1/5/1986	13	0.11	0.017	2	33.1	0.61	0.02	0.48	0.01	12019	1.18	1.60	4.46	310	0.03	0.04	0.11	11418	1.12	1.52	4	294	0.03	0.04	0.11	0.003	15	0.00152	0.00206	0.00574
912	1/30/1986	1	0.25	0.089	11	25.0	0.62	0.08	0.48	0.06	12135	1.20	1.61	4.50	1,550	0.15	0.21	0.57	11528	1.14	1.53	4	1,472	0.15	0.20	0.55	0.017	77	0.00763	0.01030	0.02874
913	1/30/1986	3	1.19	0.94	114	0.5	0.54	0.41	0.42	0.32	10666	1.05	1.42	3.96	8,146	0.80	1.08	3.02	10133	1.00	1.35	4	7,739	0.76	1.03	2.87	0.090	407	0.04012	0.05417	0.15108
914	1/31/1986	10	0.59	0.245	30	0.5	0.16	0.05	0.12	0.04	3102	0.31	0.41	1.15	973	0.10	0.13	0.36	2947	0.29	0.39	1	924	0.09	0.12	0.34	0.011	49	0.00479	0.00647	0.01804
915	2/7/1986	10	0.27	0.097	12	6.8	0.38	0.05	0.30	0.04	7571	0.75	1.01	2.81	1,047	0.10	0.14	0.39	7193	0.71	0.96	3	995	0.10	0.13	0.37	0.012	52	0.00516	0.00697	0.01942
916	2/13/1986	28	1.44	0.637	78	4.1	0.44	0.27	0.34	0.21	8655	0.85	1.15	3.21	5,399	0.53	0.72	2.00	8222	0.81	1.09	3	5,129	0.51	0.68	1.90	0.060	270	0.02659	0.03591	0.10013
917	2/14/1986	42	3.18	1.911	233	0.0	0.16	0.15	0.13	0.12	3212	0.32	0.43	1.19	3,041	0.30	0.40	1.13	3052	0.30	0.41	1	2,889	0.28	0.38	1.07	0.034	152	0.01498	0.02023	0.05640
918	2/17/1986	8	0.12	0.026	3	2.1	0.14	0.01	0.11	0.00	2773	0.27	0.37	1.03	108	0.01	0.01	0.04	2634	0.26	0.35	1	103	0.01	0.01	0.04	0.001	5	0.00053	0.00072	0.00201
919	2/19/1986	7	1.08	0.559	68	1.7	0.22	0.13	0.17	0.10	4322	0.43	0.57	1.60	2,490	0.25	0.33	0.92	4106	0.40	0.55	2	2,365	0.23	0.31	0.88	0.028	124	0.01226	0.01656	0.04617
921	3/8/1986	15	1.21	0.6	73	16.4	0.54	0.32	0.42	0.25	10600	1.04	1.41	3.93	6,380	0.63	0.85	2.37	10070	0.99	1.34	4	6,061	0.60	0.81	2.25	0.071	319	0.03142	0.04243	0.11832
922	3/9/1986	21	0.83	0.352	43	0.8	0.25	0.10	0.19	0.08	4912	0.48	0.65	1.82	2,050	0.20	0.27	0.76	4666	0.46	0.62	2	1,948	0.19	0.26	0.72	0.023	103	0.01010	0.01364	0.03802
924	3/13/1986	9	0.62	0.263	32	3.3	0.29	0.10	0.23	0.08	5794	0.57	0.77	2.15	1,925	0.19	0.26	0.71	5505	0.54	0.73	2	1,829	0.18	0.24	0.68	0.021	96	0.00948	0.01280	0.03569
925	3/15/1986	25	2.55	1.325	161	1.1	0.25	0.21	0.19	0.17	4842	0.48	0.64	1.80	4,208	0.41	0.56	1.56	4600	0.45	0.61	2	3,998	0.39	0.53	1.48	0.047	210	0.02073	0.02799	0.07805
926	4/5/1986	21	0.45	0.162	20	20.2	0.56	0.12	0.44	0.10	11029	1.09	1.47	4.09	2,428	0.24	0.32	0.90	10478	1.03	1.39	4	2,307	0.23	0.31	0.86	0.027	121	0.01196	0.01615	0.04503
927	7/22/1986	9	0.18	0.047	6	107.7	0.62	0.04	0.48	0.03	12160	1.20	1.62	4.51	846	0.08	0.11	0.31	11552	1.14	1.54	4	804	0.08	0.11	0.30	0.009	42	0.00417	0.00563	0.01570
928	9/24/1986	25	1.97	0.898	109	62.2	0.62	0.46	0.48	0.36	12160	1.20	1.62	4.51	9,096	0.90	1.21	3.37	11552	1.14	1.54	4	8,641	0.85	1.15	3.20	0.101	455	0.04480	0.06049	0.16868
929	10/2/1986	2	0.53	0.332	40	8.5	0.44	0.18	0.35	0.14	8758	0.86	1.16	3.25	3,497	0.34	0.47	1.30	8320	0.82	1.11	3	3,322	0.33	0.44	1.23	0.039	175	0.01722	0.02325	0.06485
931	11/17/1986	14	0.91	0.458	56	45.4	0.62	0.31	0.48	0.24	12123	1.19	1.61	4.50	6,121	0.60	0.81	2.27	11517	1.13	1.53	4	5,815	0.57	0.77	2.16	0.068	306	0.03015	0.04071	0.11352
932	12/5/1986	24	0.37	0.126	15	17.3	0.57	0.10	0.45	0.08	11315	1.11	1.50	4.20	1,990	0.20	0.26	0.74	10749	1.06	1.43	4	1,874	0.18	0.25	0.70	0.022	99	0.00980	0.01323	0.03690
933	1/4/1987	20	1.12	0.49	60	28.6	0.61	0.32	0.48	0.25	12055	1.19	1.60	4.47	6,373	0.63	0.85	2.36	11452	1.13	1.52	4	6,054	0.60	0.81	2.25	0.071	319	0.03139	0.04238	0.11819
934	1/6/1987	15	0.27	0.077	9	1.7	0.35	0.04	0.27	0.03	6813	0.67	0.91	2.53	760	0.07	0.10	0.28	6472	0.64	0.86	2	722	0.07	0.10	0.27	0.008	38	0.00374	0.00505	0.01409
935	2/9/1987	6	0.17	0.05	6	33.9	0.61	0.05	0.48	0.04	12037	1.19	1.60	4.46	889	0.09	0.12	0.33	11435	1.13	1.52	4	845	0.08	0.11	0.31	0.010	44	0.00438	0.00591	0.01649
936	2/13/1987	12	0.6	0.25	30	3.2	0.58	0.19	0.45	0.14	11457	1.13	1.52	4.25	3,651	0.36	0.49	1.35	10884	1.07	1.45	4	3,469	0.34	0.46	1.29	0.041	183	0.01798	0.02428	0.06771
938	2/22/1987	2	0.07	0.005	1	8.7	0.54	0.00	0.42	0.00	10570	1.04	1.41	3.92	81	0.01	0.01	0.03	10041	0.99	1.34	4	77	0.01	0.01	0.03	0.001	4	0.00040	0.00054	0.00150
939	2/24/1987	8	0.37	0.14	17	2.0	0.55	0.11	0.43	0.08	10839	1.07	1.44	4.02	2,096	0.21	0.28	0.78	10297	1.01	1.37	4	1,991	0.20	0.26	0.74	0.023	105	0.01032	0.01394	0.03887
940	3/5/1987	21	0.42	0.165	20	8.0	0.55	0.12	0.43	0.10	10800	1.06	1.44	4.01	2,416	0.24	0.32	0.90	10260	1.01	1.36	4	2,296	0.23	0.31	0.85	0.027	121	0.01190	0.01607	0.04481
941	3/14/1987	3	0.18	0.056	7	9.3	0.55	0.05	0.43	0.04	10871	1.07	1.45	4.03	895	0.09	0.12	0.33	10327	1.02	1.37	4	851	0.08	0.11	0.32	0.010	45	0.00441	0.00595	0.01661
942	3/21/1987	4	0.33	0.127	15	6.3	0.56	0.10	0.44	0.08	11101	1.09	1.48	4.12	1,966	0.19	0.26	0.73	10546	1.04	1.40	4	1,868	0.18	0.25	0.69	0.022	98	0.00968	0.01308	0.03647
948	10/22/1987	12	0.77	0.33	40	214.5	0.62	0.25	0.48	0.19	12160	1.20	1.62	4.51	4,833	0.48	0.64	1.79	11552	1.14	1.54	4	4,591	0.45	0.61	1.70	0.054	242	0.02380	0.03214	0.08963
952	10/29/1987	2	0.18	0.056	7	6.8	0.50	0.04	0.39	0.03	9938	0.98	1.32	3.69	819	0.08	0.11	0.30	9441	0.93	1.26	4	778	0.08	0.10	0.29	0.009	41	0.00403	0.00544	0.01518
953	10/31/1987	39	1.45	0.62	75	0.2	0.47	0.29	0.36	0.22	9192	0.91	1.22	3.41	5,643	0.56	0.75	2.09	8732	0.86	1.16	3	5,361	0.53	0.71	1.99	0.063	282	0.02779	0.03753	0.10465
954	11/3/1987	24	0.45	0.156	19	2.8	0.30	0.06	0.24	0.05	5946	0.59	0.79	2.21	1,266	0.12	0.17	0.47	5648	0.56	0.75	2	1,203	0.12	0.16	0.45	0.014	63	0.00624	0.00842	0.02348
955	11/5/1987	7	0.53	0.222	27	1.2	0.29	0.08	0.22	0.06	5651	0.56	0.75	2.10	1,632	0.16	0.22	0.61	5368	0.53	0.71	2	1,550	0.15	0.21	0.58	0.018	82	0.00804	0.01085	0.03026
956	11/13/1987	3	0.07	0.005	1	8.3	0.46	0.00	0.36	0.00	9041	0.89	1.20	3.35	69	0.01	0.01	0.03	8589	0.85	1.14	3	66	0.01	0.01	0.02	0.001	3	0.00034	0.00046	0.00128
958	12/4/1987	13	1.04	0.76	92	20.0	0.60	0.41	0.47	0.32	11841	1.17	1.57	4.39	8,154	0.80	1.08	3.02	11249	1.11	1.50	4	7,746	0.76	1.03	2.87	0.091	408	0.04016	0.05422	0.15121
960	12/16/1987	33	0.52	0.193	23	10.5	0.49	0.13	0.38	0.10	9619	0.95	1.28	3.57	2,466	0.24	0.33	0.91	9138	0.90	1.22	3	2,343	0.23	0.31	0.87	0.027	123	0.01215	0.01640	0.04574
961	12/29/1987	5	0.23	0.08	10	13.0	0.56	0.06	0.44	0.05	11034	1.09	1.47	4.09	1,275	0.13	0.17	0.47	10482	1.03	1.39	4	1,211	0.12	0.16	0.45	0.014	64	0.00628	0.00848	0.02365
962	1/5/1988	16	0.16	0.029	4	6.0	0.56	0.02	0.43	0.02	10957	1.08	1.46	4.06	477	0.05	0.06	0.18	10409	1.03	1.38	4	453	0.04	0.06	0.17	0.005	24	0.00235	0.00317	0.00885
963	1/16/1988	24	1.49	0.684	83	10.8	0.59	0.39	0.46	0.30	11675	1.15	1.55	4.33	7,589	0.75	1.01	2.81	11091	1.09	1.48	4	7,210	0.71	0.96	2.67	0.084	379	0.03738	0.05047	0.14075
964	2/2/1988	11	0.64	0.271	33	15.7	0.55	0.19	0.43	0.15	10830	1.07	1.44	4.02	3,686	0.36	0.49	1.37	10289	1.01	1.37	4	3,502	0.34	0.47	1.30	0.041	184	0.01815	0.02451	0.06835
965	2/27/1988	3	0.07	0.005	1	25.0	0.60	0.00	0.47	0.00	11880	1.17	1.58	4.41	91	0.01	0.01	0.03	11286	1.11	1.50	4	86	0.01	0.01	0.03	0.001	5	0.00045	0.00060	0.00168
966	2/28/1988	10	0.38	0.143	17	0.5	0.60	0.12	0.47	0.09	11809	1.16	1.57	4.38	2,328	0.23	0.31	0.86	11219	1.11	1.49	4	2,211	0.22	0.29	0.82	0.026	116	0.01146	0.01548	0.04316
967	2/29/1988	26	0.67	0.263	32	0.1	0.48	0.16	0.38	0.13	9508	0.94	1.26	3.53	3,158	0.31	0.42	1.17	9032	0.89	1.20	3	3,000	0.30	0.40	1.11	0.035	158	0.01555	0.02100	0.05857
968	3/1/1988	3	0.22	0.076	9	1.5	0.37	0.04	0.29	0.03	7294	0.72	0.97	2.71	803	0.08	0.11	0.30	6930	0.68	0.92	3	763	0.08	0.10	0.28	0.009	40	0.00396	0.00534	0.01490
969	4/14/1988	20	0.42	0.159	19	42.7	0.62	0.13	0.48	0.10	12119	1.19	1.61	4.49	2,625	0.26	0.35	0.97	11513	1.13	1.53	4	2,493	0.25	0.33	0.92	0.029	131	0.01293	0.01745	0.04867
970	4/19/1988	22	1.53	0.941	114	4.3	0.54	0.41	0.42	0.32	10541	1.04	1.40	3.91	8,055	0.79	1.07	2.99	10014	0.99	1.33	4	7,652	0.75	1.02	2.84	0.089	403	0.03967	0.05357	0.14938
971	4/21/1988	4	0.48	0.28	34	1.7	0.21	0.07	0.17	0.06	4175	0.41	0.56	1.55	1,459	0.14	0.19	0.54	3967	0.39	0.53	1	1,386	0.14	0.18	0.51	0.016	73	0.00718	0.00970	0.02705
974	11/13/1988	7	0.37	0.146	18	206.0	0.62	0.12	0.48	0.10	12160	1.20	1.62	4.51	2,442	0.24	0.32	0.91	11552	1.14	1.54	4	2,319	0.23	0.31	0.86	0.027	122	0.01202	0.01624	0.04528
975	11/23/1988	5	0.18	0.056	7	9.6	0.58	0.05	0.45	0.04	11350	1.12	1.51	4.21	935	0.09	0.12	0.35	10783	1.06	1.43	4	888	0.09	0.12	0.33	0.010	47	0.00460	0.00622	0.01734
976	11/25/1988	6	0.15	0.04	5	1.2	0.54	0.03	0.42	0.03	10635	1.05	1.41	3.94	633	0.06	0.08	0.23	10103	1.00	1.34	4	602	0.06	0.08	0.22	0.007	32	0.00312	0.00421	0.01175
977	12/15/1988	25	1.32	0.584	71	19.3	0.61	0.36	0.47	0.28	11925	1.17	1.59	4.42	7,059	0.70	0.94	2.62	11329	1.12	1.51	4	6,706	0.66	0.89	2.49	0.078	353	0.03477	0.04695	0.13092
978	12/18/1988	2	0.11	0.024	3	2.9	0.35	0.01	0.28	0.01	6946	0.68	0.92	2.58	251	0.02	0.03	0.09	6599	0.65	0.88	2	239	0.02	0.03	0.09	0.003	13	0.00124	0.00167	0.00466
979	12/20/1988	9	1.2	0.552	67	2.0	0.40	0.23	0.31	0.18	7819	0.77	1.04	2.90	4,468	0.44	0.59	1.66	7428	0.73	0.99	3	4,245	0.42	0.56	1.57	0.050	223	0.02201	0.02971	0.08286
980	12/22/1988	4	0.19	0.061	7	1.8	0.26	0.02	0.20	0.02	5027	0.50	0.67	1.86	449	0.04	0.06	0.17	4776	0.47	0.64	2	427	0.04	0.06	0.16	0.005	22	0.00221	0.00299	0.00833
981	12/24/1988	11	0.87	0.381	46	1.2	0.28	0.13	0.22	0.10	5594	0.55	0.74	2.07	2,477	0.24	0.33	0.92	5314	0.52	0.71	2	2,353	0.23	0.31	0.87	0.028	124	0.01220	0.01647	0.04594
982	12/31/1988	20	0.14	0.012	1	6.0	0.39	0.01	0.30	0.01	7650	0.75	1.02	2.84	140	0.01	0.02	0.05	7267	0.72	0.97	3	133	0.01	0.02	0.05	0.002	7	0.00069	0.00093	0.00259
984	1/5/1989	10	0.63	0.268	33	4.8	0.48	0.16	0.38	0.13	9482	0.93	1.26	3.52	3,198	0.31	0.43	1.19	9008	0.89	1.20	3	3,038	0.30	0.40	1.13	0.036	160	0.01575	0.02127	0.05931
986	2/2/1989	5	0.33	0.127	15	27.3	0.60	0.11	0.47	0.08	11906	1.17	1.58	4.42	2,109	0.21	0.28	0.78	11311	1.11	1.50	4	2,003	0.20	0.27	0.74	0.023	105	0.01039	0.01402	0.03911
987	2/3/1989	26	0.7	0.291	35	0.4	0.50	0.18	0.39	0.14	9897	0.97	1.32	3.67	3,566	0.35	0.47	1.32	9402	0.93	1.25	3	3,387	0.33	0.45	1.26	0.040	178	0.01756	0.02371	0.06613
988	2/8/1989	6	0.14	0.038	5	4.3	0.44	0.02	0.34	0.02	8621	0.85	1.15	3.20	489	0.05	0.06	0.18	8190	0.81	1.09	3	464	0.05	0.06	0.17	0.005	24	0.00241	0.00325	0.00906
989	2/8/1989	16	0.67	0.282	34	0.2	0.42	0.15	0.33	0.11	8209	0.81	1.09	3.04	2,884	0.28	0.38	1.07	7799	0.77	1.04	3	2,740	0.27	0.36	1.02	0.032	144	0.01421	0.01918	0.05349
991	3/2/1989	18	0.3	0.101	12	20.4	0.58	0.08	0.46	0.07	11506	1.13	1.53	4.27	1,652	0.16	0.22	0.61	10930	1.08	1.45	4	1,570	0.15	0.21	0.58	0.018	83	0.00814	0.01099	0.03064
992	3/25/1989	12	0.46	0.186	23	22.4	0.61	0.15	0.48	0.12	11986	1.18	1.59	4.45	2,977	0.29	0.40	1.10	11386	1.12	1.51	4	2,828	0.28	0.38	1.05	0.033	149	0.01466	0.01980	0.05521
996	9/16/1989	3	0.07	0.005	1	175.8	0.62	0.00	0.48	0.00	12160	1.20	1.62	4.51	93	0.01	0.01	0.03	11552	1.14	1.54	4	88	0.01	0.01	0.03	0.001	5	0.00046	0.00062	0.00172
997	9/19/1989	4	0.27	0.099	12	2.0	0.61	0.09	0.48	0.07	12087	1.19	1.61	4.48	1,704	0.17	0.23	0.63	11482	1.13	1.53	4	1,619	0.16	0.22	0.60	0.019	85	0.00839	0.01133	0.03160
999	10/22/1989	23	0.28	0.094	11	32.3	0.62	0.08	0.48	0.06	12117	1.19	1.61	4.49	1,635	0.16	0.22	0.60	11511	1.13	1.53	4	1,547	0.15	0.21	0.57	0.018	81	0.00802	0.01083	0.03019
1000	10/25/1989	2	0.11	0.024	3	2.5	0.55	0.02	0.43	0.02	10913	1.07	1.45	4.05	395	0.04	0.05	0.15	10367	1.02	1.38	4	375	0.04	0.05	0.14	0.004	20	0.00194	0.00262	0.00732
1001	11/26/1989	4	0.29	0.108	13	32.0	0.62	0.09	0.48	0.07	12119	1.19	1.61	4.49	1,851	0.18	0.25	0.69	11513	1.13	1.53	4	1,759	0.17	0.23	0.65	0.021	93	0.00912	0.01231	0.03434
1002	1/2/1990	4	0.45	0.205	25	36.7	0.62	0.17	0.48	0.13	12133	1.20	1.61	4.50	3,276	0.32	0.44	1.21	11526	1.14	1.53	4	3,112	0.31	0.41	1.15	0.036	164	0.01613	0.02178	0.06075
1003	1/12/1990	12	0.2	0.054	7	10.3	0.57	0.05	0.44	0.04	11155	1.10	1.48	4.14	887	0.09	0.12	0.33	10597	1.04	1.41	4	843	0.08	0.11	0.31	0.010	44	0.00437	0.00590	0.01646
1004	1/13/1990	5	0.18	0.055	7	0.8	0.53	0.04	0.41	0.03	10432	1.03	1.39	3.87	845	0.08	0.11	0.31	9911	0.98	1.32	4	802	0.08	0.11	0.30	0.009	42	0.00416	0.00562	0.01566
1006	1/16/1990	6	0.26	0.092	11	2.7	0.52	0.07	0.41	0.05	10268	1.01	1.37	3.81	1,352	0.13	0.18	0.50	9754	0.96	1.30	4	1,285	0.13	0.17	0.48	0.015	68	0.00666	0.00899	0.02508
1007	1/30/1990	3	0.14	0.036	4	13.9	0.58	0.03	0.46	0.02	11503	1.13	1.53	4.27	618	0.06	0.08	0.23	10928	1.08	1.45	4	588	0.06	0.08	0.22	0.007	31	0.00305	0.00411	0.01147
1009	3/30/1990	3	0.12	0.028	3	39.0	0.62	0.03	0.48	0.02	12146	1.20	1.62	4.50	511	0.05	0.07	0.19	11539	1.14	1.53	4	485	0.05	0.06	0.18	0.006	26	0.00252	0.00340	0.00948
1011	4/4/1990	3	0.34	0.132	16	24.2	0.62	0.11	0.48	0.09	12128	1.19	1.61	4.50	2,224	0.22	0.30	0.83	11521	1.13	1.53	4	2,113	0.21	0.28	0.78	0.025	111	0.01096	0.01479	0.04125
1012	4/16/1990	8	0.11	0.016	2	11.8	0.59	0.01	0.46	0.01	11580	1.14	1.54	4.29	281	0.03	0.04	0.10	11001	1.08	1.46	4	267	0.03	0.04	0.10	0.003	14	0.00138	0.00187	0.00521
1013	4/23/1990	4	0.1	0.017	2	7.0	0.60	0.02	0.47	0.01	11775	1.16	1.57	4.37	303	0.03	0.04	0.11	11187	1.10	1.49	4	288	0.03	0.04	0.11	0.003	15	0.00149	0.00202	0.00562
1015	5/27/1990	11	1.07	0.587	71	33.9	0.62	0.37	0.48	0.29	12146	1.20	1.62	4.51	7,213	0.71	0.96	2.68	11539	1.14	1.53	4	6,853	0.67	0.91	2.54	0.080	361	0.03553	0.04797	0.13377
1017	11/19/1990	4	0.17	0.052	6	175.8	0.62	0.05	0.48	0.04	12160	1.20	1.62	4.51	933	0.09	0.12	0.35	11552	1.14	1.54	4	886	0.09	0.12	0.33	0.010	47	0.00459	0.00620	0.01730
1019	1/3/1991	43	1.35	0.569	69	42.5	0.62	0.36	0.48	0.28	12153	1.20	1.62	4.51	7,079	0.70	0.94	2.63	11546	1.14	1.54	4	6,725	0.66	0.89	2.49	0.079	354	0.03486	0.04708	0.13128
1020	1/9/1991	5	0.34	0.132	16	5.9	0.44	0.08	0.34	0.06	8575	0.84	1.14	3.18	1,573	0.15	0.21	0.58	8146	0.80	1.08	3	1,494	0.15	0.20	0.55	0.017	79	0.00775	0.01046	0.02917
1021	2/27/1991	54	4.95	2.384	290	46.8	0.62	0.60	0.48	0.47	12137	1.20	1.61	4.50	11,824	1.16	1.57	4.39	11530	1.14	1.53	4	11,233	1.11	1.49	4.17	0.131	591	0.05823	0.07863	0.21928
1022	3/4/1991	2	0.22	0.075	9	5.2	0.29	0.03	0.23	0.02	5687	0.56	0.76	2.11	618	0.06	0.08	0.23	5402	0.53	0.72	2	588	0.06	0.08	0.22	0.007	31	0.00305	0.00411	0.01147
1024	3/13/1991	3	0.08	0.009	1	8.6	0.48	0.01	0.38	0.01	9533	0.94	1.27	3.54	131	0.01	0.02	0.05	9056	0.89	1.20	3	124	0.01	0.02	0.05	0.001	7	0.00064	0.00087	0.00243

1025	3/18/1991	10	2.48	1.557	189	4.9	0.54	0.49	0.42	0.38	10594	1.04	1.41	3.93	9,624	0.95	1.28	3.57	10065	0.99	1.34	4	9,142	0.90	1.22	3.39	0.107	481	0.04740	0.06400	0.17847
1026	3/20/1991	6	0.52	0.214	26	1.0	0.11	0.03	0.09	0.02	2188	0.22	0.29	0.81	613	0.06	0.08	0.23	2078	0.20	0.28	1	582	0.06	0.08	0.22	0.007	31	0.00302	0.00407	0.01136
1027	3/25/1991	11	0.7	0.33	40	4.5	0.30	0.12	0.23	0.09	5825	0.57	0.77	2.16	2,315	0.23	0.31	0.86	5533	0.55	0.74	2	2,199	0.22	0.29	0.82	0.026	116	0.01140	0.01539	0.04293
1028	3/26/1991	32	1.09	0.463	56	-0.3	0.16	0.08	0.13	0.06	3214	0.32	0.43	1.19	1,635	0.16	0.22	0.61	3054	0.30	0.41	1	1,553	0.15	0.21	0.58	0.018	82	0.00805	0.01087	0.03032
1032	7/8/1991	6	0.13	0.031	4	103.9	0.62	0.03	0.48	0.02	12160	1.20	1.62	4.51	565	0.06	0.08	0.21	11552	1.14	1.54	4	537	0.05	0.07	0.20	0.006	28	0.00278	0.00376	0.01048
1033	10/26/1991	17	0.37	0.135	16	109.3	0.62	0.12	0.48	0.09	12160	1.20	1.62	4.51	2,276	0.22	0.30	0.84	11552	1.14	1.54	4	2,162	0.21	0.29	0.80	0.025	114	0.01121	0.01514	0.04221
1034	12/7/1991	10	0.17	0.048	6	42.3	0.62	0.04	0.48	0.03	12143	1.20	1.61	4.50	863	0.08	0.11	0.32	11536	1.14	1.53	4	819	0.08	0.11	0.30	0.010	43	0.00425	0.00574	0.01600
1037	12/27/1991	58	2.97	1.54	187	17.5	0.61	0.55	0.48	0.43	12043	1.19	1.60	4.47	10,911	1.07	1.45	4.05	11441	1.13	1.52	4	10,365	1.02	1.38	3.84	0.121	546	0.05374	0.07256	0.20234
1038	1/3/1992	17	0.2	0.048	6	5.4	0.32	0.02	0.25	0.02	6221	0.61	0.83	2.31	442	0.04	0.06	0.16	5910	0.58	0.79	2	420	0.04	0.06	0.16	0.005	22	0.00218	0.00294	0.00820
1039	1/5/1992	25	1.27	0.557	68	1.0	0.33	0.19	0.26	0.15	6446	0.63	0.86	2.39	3,705	0.36	0.49	1.37	6123	0.60	0.81	2	3,519	0.35	0.47	1.31	0.041	185	0.01824	0.02464	0.06870
1040	1/7/1992	10	0.27	0.093	11	2.0	0.24	0.03	0.19	0.02	4678	0.46	0.62	1.74	622	0.06	0.08	0.23	4444	0.44	0.59	2	591	0.06	0.08	0.22	0.007	31	0.00307	0.00414	0.01154
1041	2/5/1992	44	1.88	0.878	107	27.5	0.60	0.44	0.47	0.35	11818	1.16	1.57	4.38	8,748	0.86	1.16	3.24	11228	1.11	1.49	4	8,310	0.82	1.11	3.08	0.097	437	0.04308	0.05817	0.16223
1042	2/9/1992	68	4.64	2.469	300	1.3	0.22	0.21	0.17	0.17	4327	0.43	0.58	1.60	4,229	0.42	0.56	1.57	4110	0.40	0.55	2	4,017	0.40	0.53	1.49	0.047	211	0.02083	0.02812	0.07842
1043	2/13/1992	7	0.69	0.318	39	3.0	0.19	0.07	0.15	0.06	3662	0.36	0.49	1.36	1,414	0.14	0.19	0.52	3478	0.34	0.46	1	1,344	0.13	0.18	0.50	0.016	71	0.00697	0.00940	0.02623
1044	2/15/1992	10	0.74	0.476	58	1.5	0.19	0.10	0.15	0.08	3820	0.38	0.51	1.42	1,980	0.20	0.26	0.73	3629	0.36	0.48	1	1,881	0.19	0.25	0.70	0.022	99	0.00975	0.01317	0.03672
1046	3/1/1992	40	2.81	1.307	159	14.1	0.51	0.44	0.40	0.35	10121	1.00	1.35	3.75	8,760	0.86	1.17	3.25	9615	0.95	1.28	4	8,322	0.82	1.11	3.09	0.097	438	0.04314	0.05825	0.16245
1047	3/6/1992	4	0.67	0.387	47	4.0	0.27	0.12	0.21	0.10	5379	0.53	0.72	2.00	2,409	0.24	0.32	0.89	5110	0.50	0.68	2	2,289	0.23	0.30	0.85	0.027	120	0.01187	0.01602	0.04468
1048	3/20/1992	33	1.66	1.051	128	12.7	0.51	0.41	0.40	0.32	10032	0.99	1.33	3.72	8,034	0.79	1.07	2.98	9531	0.94	1.27	4	7,632	0.75	1.02	2.83	0.089	402	0.03957	0.05342	0.14899
1049	3/22/1992	27	1.23	0.568	69	1.0	0.16	0.09	0.12	0.07	3060	0.30	0.41	1.14	1,781	0.18	0.24	0.66	2907	0.29	0.39	1	1,692	0.17	0.22	0.63	0.020	89	0.00877	0.01184	0.03302
1051	3/26/1992	14	0.73	0.315	38	4.0	0.27	0.10	0.21	0.08	5328	0.52	0.71	1.98	2,043	0.20	0.27	0.76	5061	0.50	0.67	2	1,941	0.19	0.26	0.72	0.023	102	0.01006	0.01358	0.03788
1052	4/1/1992	2	0.33	0.127	15	5.7	0.38	0.07	0.30	0.05	7538	0.74	1.00	2.80	1,335	0.13	0.18	0.50	7161	0.71	0.95	3	1,268	0.12	0.17	0.47	0.015	67	0.00658	0.00888	0.02476
1056	10/21/1992	2	0.1	0.019	2	202.8	0.62	0.02	0.48	0.01	12160	1.20	1.62	4.51	350	0.03	0.05	0.13	11552	1.14	1.54	4	332	0.03	0.04	0.12	0.004	17	0.00172	0.00232	0.00648
1058	10/29/1992	17	0.5	0.201	24	7.7	0.61	0.16	0.48	0.13	12016	1.18	1.60	4.46	3,190	0.31	0.42	1.18	11416	1.12	1.52	4	3,031	0.30	0.40	1.12	0.035	160	0.01571	0.02121	0.05916
1060	12/6/1992	25	2.94	2.017	245	36.8	0.61	0.59	0.48	0.46	12112	1.19	1.61	4.49	11,565	1.14	1.54	4.29	11507	1.13	1.53	4	10,986	1.08	1.46	4.07	0.128	578	0.05696	0.07690	0.21446
1062	12/17/1992	5	0.22	0.075	9	10.7	0.45	0.05	0.35	0.04	8792	0.87	1.17	3.26	956	0.09	0.13	0.35	8352	0.82	1.11	3	908	0.09	0.12	0.34	0.011	48	0.00471	0.00636	0.01773
1063	12/27/1992	9	0.46	0.188	23	9.6	0.54	0.14	0.43	0.11	10726	1.06	1.43	3.98	2,689	0.26	0.36	1.00	10189	1.00	1.36	4	2,554	0.25	0.34	0.95	0.030	134	0.01324	0.01788	0.04986
1064	12/29/1992	24	0.95	0.403	49	0.4	0.42	0.19	0.33	0.15	8230	0.81	1.09	3.05	3,797	0.37	0.50	1.41	7818	0.77	1.04	3	3,607	0.36	0.48	1.34	0.042	190	0.01870	0.02525	0.07041
1065	1/2/1993	7	0.38	0.15	18	3.6	0.36	0.07	0.28	0.06	7070	0.70	0.94	2.62	1,454	0.14	0.19	0.54	6716	0.66	0.89	2	1,381	0.14	0.18	0.51	0.016	73	0.00716	0.00967	0.02697
1066	1/6/1993	47	4.28	2.047	249	2.0	0.35	0.34	0.28	0.26	6962	0.69	0.93	2.58	6,661	0.66	0.89	2.47	6614	0.65	0.88	2	6,328	0.62	0.84	2.35	0.074	333	0.03281	0.04430	0.12353
1068	1/10/1993	16	0.33	0.116	14	3.4	0.21	0.03	0.16	0.03	4119	0.41	0.55	1.53	672	0.07	0.09	0.25	3913	0.39	0.52	1	638	0.06	0.08	0.24	0.007	34	0.00331	0.00447	0.01246
1069	1/12/1993	45	3.08	1.67	203	0.5	0.20	0.19	0.16	0.15	3974	0.39	0.53	1.47	3,668	0.36	0.49	1.36	3775	0.37	0.50	1	3,484	0.34	0.46	1.29	0.041	183	0.01806	0.02439	0.06802
1070	1/15/1993	83	3.53	1.594	194	-0.8	(0.05)	(0.04)	(0.04)	(0.03)	-888	-0.09	-0.12	-0.33	(811)	(0.08)	(0.11)	(0.30)	-843	-0.08	-0.11	0	(770)	(0.08)	(0.10)	(0.29)	(0.009)	(41)	(0.00399)	(0.00539)	(0.01503)
1071	1/30/1993	4	0.11	0.022	3	15.6	0.51	0.02	0.40	0.01	10135	1.00	1.35	3.76	337	0.03	0.04	0.12	9628	0.95	1.28	4	320	0.03	0.04	0.12	0.004	17	0.00166	0.00224	0.00624
1072	2/7/1993	30	2.59	1.288	157	6.6	0.56	0.48	0.44	0.38	11054	1.09	1.47	4.10	9,523	0.94	1.27	3.53	10501	1.03	1.40	4	9,047	0.89	1.20	3.36	0.106	476	0.04690	0.06333	0.17660
1073	2/18/1993	51	3.3	1.675	204	8.5	0.41	0.38	0.32	0.30	8165	0.80	1.09	3.03	7,541	0.74	1.00	2.80	7757	0.76	1.03	3	7,164	0.71	0.95	2.66	0.084	377	0.03714	0.05015	0.13985
1074	2/23/1993	15	0.46	0.184	22	4.0	0.25	0.06	0.19	0.05	4916	0.48	0.65	1.82	1,210	0.12	0.16	0.45	4670	0.46	0.62	2	1,149	0.11	0.15	0.43	0.013	60	0.00596	0.00804	0.02243
1075	2/26/1993	18	0.2	0.057	7	2.4	0.29	0.02	0.23	0.02	5729	0.56	0.76	2.12	480	0.05	0.06	0.18	5443	0.54	0.72	2	456	0.04	0.06	0.17	0.005	24	0.00236	0.00319	0.00890
1077	3/25/1993	30	2.46	1.4	170	26.0	0.60	0.53	0.47	0.41	11812	1.16	1.57	4.38	10,435	1.03	1.39	3.87	11222	1.11	1.49	4	9,913	0.98	1.32	3.68	0.116	522	0.05139	0.06939	0.19352
1078	3/27/1993	5	0.27	0.099	12	2.3	0.20	0.03	0.16	0.02	3917	0.39	0.52	1.45	552	0.05	0.07	0.20	3722	0.37	0.49	1	525	0.05	0.07	0.19	0.006	28	0.00272	0.00367	0.01024
1081	6/5/1993	8	0.76	0.362	44	69.0	0.62	0.26	0.48	0.21	12157	1.20	1.62	4.51	5,183	0.51	0.69	1.92	11549	1.14	1.54	4	4,924	0.48	0.65	1.83	0.058	259	0.02553	0.03447	0.09612
1082	10/10/1993	12	0.16	0.038	5	127.3	0.62	0.03	0.48	0.03	12160	1.20	1.62	4.51	689	0.07	0.09	0.26	11552	1.14	1.54	4	655	0.06	0.09	0.24	0.008	34	0.00339	0.00458	0.01278
1083	11/11/1993	5	0.17	0.052	6	30.9	0.62	0.05	0.48	0.04	12141	1.20	1.61	4.50	931	0.09	0.12	0.35	11534	1.14	1.53	4	885	0.09	0.12	0.33	0.010	47	0.00459	0.00619	0.01727
1085	11/30/1993	3	0.47	0.219	27	18.8	0.61	0.17	0.48	0.14	12051	1.19	1.60	4.47	3,441	0.34	0.46	1.28	11448	1.13	1.52	4	3,261	0.32	0.43	1.21	0.038	172	0.01694	0.02288	0.06381
1086	12/11/1993	6	0.33	0.125	15	11.3	0.57	0.10	0.44	0.08	11197	1.10	1.49	4.15	1,955	0.19	0.26	0.73	10638	1.05	1.41	4	1,857	0.18	0.25	0.69	0.022	98	0.00963	0.01300	0.03626
1087	12/14/1993	4	0.34	0.132	16	2.9	0.51	0.09	0.40	0.07	10065	0.99	1.34	3.73	1,846	0.18	0.25	0.68	9561	0.94	1.27	4	1,754	0.17	0.23	0.65	0.020	92	0.00909	0.01228	0.03423
1088	12/18/1993	4	0.11	0.024	3	4.2	0.49	0.02	0.39	0.01	9720	0.96	1.29	3.61	352	0.03	0.05	0.13	9234	0.91	1.23	3	334	0.03	0.04	0.12	0.004	18	0.00173	0.00234	0.00652
1089	1/24/1994	5	0.33	0.127	15	36.7	0.62	0.11	0.48	0.09	12119	1.19	1.61	4.50	2,147	0.21	0.29	0.80	11513	1.13	1.53	4	2,039	0.20	0.27	0.76	0.024	107	0.01057	0.01428	0.03981
1090	2/4/1994	14	0.69	0.288	35	9.5	0.58	0.21	0.45	0.16	11431	1.13	1.52	4.24	4,084	0.40	0.54	1.51	10859	1.07	1.44	4	3,880	0.38	0.52	1.44	0.045	204	0.02012	0.02716	0.07575
1091	2/6/1994	33	0.75	0.301	37	1.5	0.41	0.15	0.32	0.12	8129	0.80	1.08	3.02	3,008	0.30	0.40	1.12	7723	0.76	1.03	3	2,858	0.28	0.38	1.06	0.033	150	0.01481	0.02000	0.05578
1092	2/17/1994	9	0.77	0.334	41	9.8	0.50	0.20	0.39	0.16	9891	0.97	1.32	3.67	3,968	0.39	0.53	1.47	9397	0.93	1.25	3	3,769	0.37	0.50	1.40	0.044	198	0.01954	0.02639	0.07358
1093	2/20/1994	8	1	0.442	54	2.7	0.38	0.19	0.30	0.15	7572	0.75	1.01	2.81	3,730	0.37	0.50	1.38	7194	0.71	0.96	3	3,544	0.35	0.47	1.31	0.041	187	0.01837	0.02481	0.06918
1096	3/7/1994	1	0.12	0.028	3	15.6	0.55	0.02	0.43	0.02	10777	1.06	1.43	4.00	453	0.04	0.06	0.17	10238	1.01	1.36	4	431	0.04	0.06	0.16	0.005	23	0.00223	0.00302	0.00841
1097	3/19/1994	13	0.92	0.524	64	10.8	0.59	0.33	0.46	0.25	11633	1.15	1.55	4.31	6,429	0.63	0.85	2.38	11051	1.09	1.47	4	6,107	0.60	0.81	2.27	0.071	321	0.03166	0.04275	0.11922
1098	3/24/1994	16	0.77	0.325	40	4.5	0.41	0.16	0.32	0.12	8017	0.79	1.07	2.97	3,149	0.31	0.42	1.17	7616	0.75	1.01	3	2,992	0.29	0.40	1.11	0.035	157	0.01551	0.02094	0.05840
1099	4/9/1994	3	0.07	0.005	1	15.9	0.56	0.00	0.44	0.00	10988	1.08	1.46	4.08	84	0.01	0.01	0.03	10438	1.03	1.39	4	80	0.01	0.01	0.03	0.001	4	0.00041	0.00056	0.00156
1101	4/25/1994	4	0.48	0.197	24	16.0	0.61	0.16	0.47	0.12	11961	1.18	1.59	4.44	3,121	0.31	0.42	1.16	11363	1.12	1.51	4	2,965	0.29	0.39	1.10	0.035	156	0.01537	0.02076	0.05789
1102	4/26/1994	11	0.1	0.014	2	0.4	0.46	0.01	0.36	0.01	8980	0.88	1.19	3.33	191	0.02	0.03	0.07	8531	0.84	1.13	3	181	0.02	0.02	0.07	0.002	10	0.00094	0.00127	0.00354
1103	4/27/1994	9	0.17	0.042	5	1.0	0.46	0.03	0.36	0.02	9141	0.90	1.22	3.39	571	0.06	0.08	0.21	8684	0.86	1.15	3	542	0.05	0.07	0.20	0.006	29	0.00281	0.00380	0.01058
1105	5/8/1994	10	0.17	0.042	5	10.0	0.56	0.03	0.44	0.03	11020	1.09	1.47	4.09	688	0.07	0.09	0.26	10469	1.03	1.39	4	654	0.06	0.09	0.24	0.008	34	0.00339	0.00458	0.01276
1107	10/4/1994	28	0.13	0.01	1	148.0	0.62	0.01	0.48	0.01	12160	1.20	1.62	4.51	185	0.02	0.02	0.07	11552	1.14	1.54	4	176	0.02	0.02	0.07	0.002	9	0.00091	0.00123	0.00344
1110	11/8/1994	11	0.14	0.033	4	34.5	0.62	0.03	0.48	0.02	12157	1.20	1.62	4.51	600	0.06	0.08	0.22	11549	1.14	1.54	4	570	0.06	0.08	0.21	0.007	30	0.00296	0.00399	0.01114
1111	11/10/1994	4	0.31	0.117	14	2.0	0.59	0.10	0.46	0.08	11683	1.15	1.55	4.33	1,921	0.19	0.26	0.71	11099	1.09	1.48	4	1,825	0.18	0.24	0.68	0.021	96	0.00946	0.01277	0.03562
1112	11/26/1994	9	0.16	0.042	5	15.3	0.60	0.04	0.47	0.03	11750	1.16	1.56	4.36	734	0.07	0.10	0.27	11162	1.10	1.48	4	697	0.07	0.09	0.26	0.008	37	0.00361	0.00488	0.01361
1113	12/12/1994	3	0.29	0.108	13	16.8	0.61	0.09	0.48	0.07	11996	1.18	1.60	4.45	1,833	0.18	0.24	0.68	11396	1.12	1.52	4	1,741	0.17	0.23	0.65	0.020	92	0.00903	0.01219	0.03399
1114	12/24/1994	5	1.05	0.677	82	11.7	0.59	0.38	0.46	0.30	11639	1.15	1.55	4.32	7,522	0.74	1.00	2.79	11057	1.09	1.47	4	7,146	0.70	0.95	2.65	0.084	376	0.03705	0.05002	0.13949
1116	1/3/1995	9	0.45	0.179	22	9.0	0.47	0.11	0.37	0.09	9293	0.92	1.24	3.45	2,233	0.22	0.30	0.83	8828	0.87	1.17	3	2,121	0.21	0.28	0.79	0.025	112	0.01100	0.01485	0.04140
1117	1/4/1995	18	3.24	1.749	213	0.4	0.37	0.34	0.29	0.27	7276	0.72	0.97	2.70	6,779	0.67	0.90	2.51	6912	0.68	0.92	3	6,440	0.63	0.86	2.39	0.075	339	0.03339	0.04508	0.12572
1118	1/7/1995	50	1.82	0.803	98	0.9	0.08	0.06	0.07	0.05	1665	0.16	0.22	0.62	1,179	0.12	0.16	0.44	1581	0.16	0.21	1	1,120	0.11	0.15	0.42	0.013	59	0.00581	0.00784	0.02187
1119	1/10/1995	27	3.55	2.07	252	1.9	0.14	0.13	0.11	0.10	2752	0.27	0.37	1.02	2,637	0.26	0.35	0.98	2614	0.26	0.35	1	2,505	0.25	0.33	0.93	0.029	132	0.01299	0.01754	0.04891
1120	1/12/1995	7	0.37	0.146	18	1.5	0.10	0.02	0.08	0.02	2025	0.20	0.27	0.75	407	0.04	0.05	0.15	1924	0.19	0.26	1	386	0.04	0.05	0.14	0.005	20	0.00200	0.00270	0.00754
1121	1/14/1995	4	0.17	0.05	6	2.6	0.22	0.02	0.17	0.01	4331	0.43	0.58	1.61	320	0.03	0.04	0.12	4114	0.41	0.55	2	304	0.03	0.04	0.11	0.004	16	0.00158	0.00213	0.00593
1124	1/22/1995	74	2.89	1.281	156	5.0	0.38	0.33	0.30	0.26	7577	0.75	1.01	2.81	6,517	0.64	0.87	2.42	7199	0.71	0.96	3	6,191	0.61	0.82	2.30	0.072	326	0.03210	0.04334	0.12086
1125	2/8/1995	12	0.18	0.045	5	15.7	0.52	0.04	0.41	0.03	10332	1.02	1.37	3.83	690	0.07	0.09	0.26	9816	0.97	1.31	4	655	0.06	0.09	0.24	0.008	34	0.00340	0.00459	0.01279
1126	2/13/1995	25	1.11	0.485	59	4.4	0.54	0.28	0.42	0.22	10646	1.05	1.42	3.95	5,590	0.55	0.74	2.07	10114	1.00	1.35	4	5,310	0.52	0.71	1.97	0.062	279	0.02753	0.03717	0.10366
1128	3/2/1995	23	0.38	0.133	16	16.1	0.56	0.10	0.44	0.08	11045	1.09	1.47	4.10	2,040	0.20	0.27	0.76	10493	1.03	1.40	4	1,938	0.19	0.26	0.72	0.023	102	0.01005	0.01356	0.03783
1129	3/4/1995	33	1.65	0.743	90	0.7	0.47	0.32	0.37	0.25	9252	0.91	1.23	3.43	6,295	0.62	0.84	2.33	8790	0.87	1.17	3	5,980	0.59	0.80	2.22	0.070	315	0.03100	0.04186	0.11674
1130	3/10/1995	45	3.69	2.396	292	3.6	0.31	0.30	0.24	0.23	6068	0.60	0.81	2.25	5,915	0.58	0.79	2.19	5765	0.57	0.77	2	5,619	0.55	0.75	2.08	0.066	296	0.02913	0.03933	0.10969
1131	3/21/1995	10	0.47	0.189	23	10.5	0.43	0.11	0.34	0.09	8558	0.84	1.14	3.17	2,155	0.21	0.29	0.80	8131	0.80	1.08	3	2,048	0.20	0.27	0.76	0.024	108	0.01061	0.01433	0.03997
1132	3/23/1995	9	0.79	0.36	44	1.8	0.38	0.16	0.30	0.13	7476	0.74	0.99	2.77	3,174	0.31	0.42	1.18	7102	0.70	0.94	3	3,015	0.30	0.40	1.12	0.035	159	0.01563	0.02111	0.05886
1133	4/16/1995	9	0.54	0.222	27	23.6	0.59	0.17	0.46	0.13	11643	1.15	1.55	4.32	3,362	0.33	0.45	1.25	11060	1.09	1.47	4	3,194	0.31	0.42	1.18	0.037	168	0.01656	0.02236	0.06235
1136	5/15/1995	9	0.15	0.033	4	28.6	0.61	0.03	0.48	0.02	12016	1.18	1.60	4.46	594	0.06	0.08	0.22	11415	1.12	1.52	4	564	0.06	0.07	0.21	0.007	30	0.00292	0.00395	0.01101
1137	6/15/1995	4	0.22	0.075	9	31.3	0.62	0.07	0.48	0.05	12140	1.20	1.61	4.50	1,320	0.13	0.18	0.49	11533	1.14	1.53	4	1,254	0.12	0.17	0.47	0.015	66	0.00650	0.00878	0.02448
1138	6/16/1995	7	0.38	0.148	18	0.5	0.55	0.11	0.43	0.09	10901	1.07	1.45	4.04	2,215	0.22	0.29	0.82	10356	1.02	1.38	4	2,105	0.21	0.28	0.78	0.025	111	0.01091	0.01473	0.04108
1140	11/1/1995	6	0.09	0.008	1	137.6	0.62	0.01	0.48	0.01	12160	1.20	1.62	4.51	148	0.01	0.02	0.06	11552	1.14	1.54	4	141	0.01	0.02	0.05	0.002	7	0.00073	0.00099	0.00275
1141	12/12/1995	27	0.81	0.331	40	40.3	0.62	0.25	0.48	0.19	12159	1.20	1.62	4.51	4,844	0.48	0.64	1.80	11551	1.14	1.54	4	4,601	0.45	0.61	1.71	0.054	242	0.02385	0.03221	0.08983
1142	12/23/1995	14	0.53	0.217	26	9.7	0.54	0.15	0.42	0.12	10576	1.04	1.41	3.92	2,996	0.30	0.40	1.11	10047	0.99	1.34	4	2,846	0.28	0.38	1.06	0.033	150	0.01476	0.01992	0.05556
1143	1/16/1996	6	0.3	0.109	13	24.4	0.60	0.09	0.47	0.07	11883	1.17	1.58	4.41	1,831	0.18	0.24	0.68	11289	1.11	1.50	4	1,739	0.17	0.23	0.65	0.020	92	0.00902	0.01218	0.03395
1144	1/19/1996	3	0.09	0.014	2	2.3	0.54	0.01	0.42	0.01	10541	1.04	1.40	3.91	224	0.02	0.03	0.08	10014	0.99	1.33	4	213	0.02	0.03	0.08	0.002	11	0.00110	0.00149	0.00416
1145	1/21/1996	5	0.61	0.259	32	2.2	0.54	0.18	0.43	0.14	10731	1.06	1.43	3.98	3,520	0.35	0.47	1.31	10194	1.00	1.36	4	3,344	0.33	0.44	1.24	0.039	176	0.01734	0.02341	0.06528
1146	1/27/1996	5	0.07	0.003	0	6.1	0.49	0.00	0.39	0.00	9715	0.96	1.29	3.60	45	0.00	0.01	0.02	9229	0.91	1.23	3	42	0.00	0.01	0.02	0.000	2	0.00022	0.00030	0.00083
1147	1/31/1996	34	2.15	1.464	178	1.7	0.51	0.46	0.40	0.36	10125	1.00	1.35	3.76	9,055	0.89	1.20	3.36	9618	0.95	1.28	4	8,602	0.85	1.14	3.19	0.101	453	0.04459	0.06021	0.16792
1148	2/3/1996	4	0.17	0.052	6	3.2	0.23	0.02	0.18	0.01	4458	0.44	0.59	1.65	342	0.03	0.05	0.13	4235	0.42	0.56	2	325	0.03	0.04	0.12	0.004	17	0.00168	0.00227	0.00634
1149	2/19/1996	55	4.02	1.911	233	13.9	0.53	0.51	0.42	0.40	10540	1.04	1.40	3.91	9,979	0.98	1.33	3.70	10013	0.99	1.33	4	9,480	0.93	1.26	3.52	0.111	499	0.04915	0.06636	0.18506
1150	2/25/1996	5	0.29	0.108	13	5.4	0.30	0.05	0.24	0.04	5943	0.59	0.79	2.20	908	0.09	0.12	0.34	5646	0.56	0.75	2	863	0.08	0.11	0.32	0.010	45	0.00447	0.00604	0.01684
1151	2/27/1996	5	0.4	0.16	19	2.2	0.34	0.07	0.26	0.06	6635	0.65	0.88	2.46	1,445	0.14	0.19	0.54	6303	0.62	0.84	2	1,373	0.14	0.18	0.51	0.016	72	0.00712	0.00961	0.02679
1152	3/4/1996	21	0.7	0.295	36	4.8	0.41	0.15	0.32	0.12	8165	0.80	1.09	3.03	2,973	0.29	0.40	1.10	7756	0.76	1.03	3	2,825	0.28	0.38	1.05	0.033	149	0.01464	0.01977	0.05514
1153	3/12/1996	35	1.4	0.6	73	6.7	0.45	0.27	0.36	0.21	8956	0.88	1.19	3.32	5,391	0.53	0.72	2.00	8509	0.84	1.13	3	5,121	0.50	0.68	1.90	0.060	270	0.02655	0.03585	0.09997
1155	4/1/1996	4	0.1	0.017	2	20.0	0.57	0.01	0.45	0.01	11301	1.11	1.50	4.19	291	0.03	0.04	0.11	10736	1.06	1.43	4	277	0.03	0.04	0.10	0.003	15	0.00143	0.00194	0.00540
1156	4/16/1996	18	0.27	0.081	10	14.1	0.61	0.07	0.47	0.06	11933	1.18	1.59	4.43	1,395	0.14	0.19	0.52	11336	1.12	1.51	4	1,325	0.13	0.18	0.49	0.015	70	0.00687	0.00928	0.02587
1157	4/17/1996	10	0.34	0.124	15	1.0	0.54	0.09	0.42	0.07	10707	1.05	1.42	3.97	1,856	0.18	0.25	0.69	10172	1.00	1.35	4	1,763	0.17	0.23	0.65	0.021	93	0.00914	0.01234	0.03442
1159	10/30/1996	14	1.05	0.463	56	194.5	0.62	0.31	0.48	0.25	12160	1.20	1.62	4.51	6,186	0.61	0.82	2.29	11552	1.14	1.54	4	5,877	0.58	0.78	2.18	0.069	309	0.03047	0.04114	0.11472
1160	11/20/1996	41	1.55	0.674	82	20.3	0.59	0.38	0.46	0.30	11559	1.14	1.54	4.29	7,452	0.73	0.99	2.76	10981	1.08	1.46	4	7,079	0.70	0.94	2.63	0.083	373	0.03670	0.04955	0.13819
1162	12/9/1996	10	1.7	0.856	104	18.1	0.57	0.41	0.44	0.32	11161	1.10	1.48	4.14	8,162	0.80	1.09	3.03	10603	1.04	1.41	4	7,753	0.76	1.03	2.88	0.091	408	0.04020	0.05427	0.15136
1163	12/10/1996	37	1.32	0.559	68	-0.2	0.14	0.08	0.11	0.06	2777	0.27	0.37	1.03	1,600	0.16	0.21	0.59	2638	0.26	0.35	1	1,520	0.15	0.20	0.56	0.018	80	0.00788	0.01064	0.02967
1164	12/22/1996	5	0.34	0.128	16	11.2	0.46	0.08	0.36	0.06	9153	0.90	1.22	3.39	1,633	0.16	0.22	0.61	8695	0.86	1.16	3	1,551	0.15	0.21	0.58	0.018	82	0.00804	0.01086	0.03028
1165	12/27/1996	13	0.41	0.164	20	4.5	0.48	0.11	0.37	0.08	9409	0.93	1.25	3.49	2,094	0.21	0.28	0.78	8939	0.88	1.19	3	1,989	0.20	0.26	0.74	0.023	105	0.01031	0.01393	0.03884
1166	1/1/1997	33	0.44	0.147	18	4.2	0.47	0.09	0.36	0.07	9161	0.90	1.22	3.40	1,851	0.18	0.25	0.69	8703	0.86	1.16	3	1,758	0.17	0.23	0.65	0.021	93	0.00911	0.01231	0.03432
1168	1/12/1997	23	1.34	0.588	72	9.5	0.53	0.32	0.42	0.25	10528	1.04	1.40	3.90	6,259	0.62	0.83	2.32	10002	0.99	1.33	4	5,946	0.59	0.79	2.21	0.069	313	0.03082	0.04162	0.11607
1169	1/13/1997	5	0.07	0.005	1	1.4	0.28	0.00	0.22	0.00	5457	0.54	0.73	2.02	42	0.00	0.01	0.02	5184	0.51	0.69	2	40	0.00	0.01	0.01	0.000	2	0.00021	0.00028	0.00077
1170	1/15/1997	13	1	0.447	54	0.7	0.30	0.15	0.23	0.12	5913	0.58	0.79	2.19	2,936	0.29	0.39	1.09	5618	0.55	0.75	2	2,789	0.27	0.37	1.03	0.033	147	0.01446	0.01952	0.05445
1172	1/21/1997	42	1.46	0.621	76	4.7	0.34	0.21	0.27	0.17	6794	0.67	0.90	2.52	4,175	0.41	0.56	1.55	6455	0.64	0.86	2	3,966	0.39	0.53	1.47	0.046	209	0.02056	0.02777	0.07743
1173	1/25/1997	39	1.19	0.502	61	2.1	0.24	0.13	0.18	0.10	4654	0.46	0.62	1.73	2,500	0.25	0.33	0.93	4421	0.44	0.59	2	2,375	0.23	0.32	0.88	0.028	125	0.01231	0.01663	0.04637
1176	9/25/1997	12	0.45	0.179	22	242.4	0.62	0.15	0.48	0.12	12160	1.20	1.62	4.51	2,922	0.29	0.39	1.08	11552	1.14	1.54	4	2,776	0.27	0.37	1.03	0.032	146	0.01439	0.01943	0.05418
1177	11/10/1997	13	0.57	0.244	30	45.5	0.62	0.19	0.48	0.15	12145	1.20	1.62	4.50	3,794	0.37	0.50	1.41	11537	1.14	1.53	4	3,604	0.36	0.48	1.34	0.042	190	0.01869	0.02523	0.07036
1178	11/13/1997	12	0.35	0.134	16	2.5	0.47	0.09	0.37	0.07	9290	0.92	1.24	3.45	1,727	0.17	0.23	0.64	8825	0.87	1.17	3	1,641	0.16	0.22	0.61	0.019	86	0.00851	0.01149	0.03203
1180	11/26/1997	16	0.77	0.429	52	12.5	0.56	0.27	0.44	0.21	11070	1.09	1.47	4.11	5,340	0.53	0.71	1.98	10516	1.04	1.40	4	5,073	0.50	0.67	1.88	0.059	267	0.02630	0.03551	0.09903
1181	11/30/1997	10	0.36	0.135	16	3.6	0.40	0.08	0.31	0.06	7924	0.78	1.05	2.94	1,483	0.15	0.20	0.55	7528	0.74	1.00	3	1,409	0.14	0.19	0.52	0.016	74	0.00730	0.00986	0.02750
1182	12/5/1997	34	1.54	0.722	88	3.8	0.43	0.29	0.33	0.22	8446	0.83	1.12	3.13	5,658	0.56	0.75	2.10	8024	0.79	1.07	3	5,375	0.53	0.71	1.99	0.063	283	0.02787	0.03763	0.10493
1183	12/7/1997	3	0.08	0.009	1	2.1	0.24	0.00	0.19	0.00	4787	0.47	0.64	1.78	66	0.01	0.01	0.02	4548	0.45	0.60	2	62	0.01	0.01	0.02	0.001	3	0.00032	0.00044	0.00122
1184	12/18/1997	11	0.9	0.411	50	10.0	0.50	0.23	0.39	0.18	9819	0.97	1.31	3.64	4,594	0.45	0.61	1.70	9328	0.92	1.24	3	4,365	0.43	0.58	1.62	0.051	230	0.02263	0.03055	0.08520
1185	1/3/1998	11	0.17	0.043	5	15.3	0.56	0.04	0.43	0.03	10962	1.08	1.46	4.07	700	0.07	0.09	0.26	10414	1.03	1.39	4	665	0.07	0.09	0.25	0.008	35	0.00345	0.00466	0.01299
1186	1/4/1998	3	0.5	0.228	28	1.5	0.54	0.16	0.42	0.12	10555	1.04	1.40	3.91	3,117	0.31	0.41	1.16	10027	0.99	1.33	4	2,961	0.29	0.39	1.10	0.035	156	0.01535	0.02073	0.05780
1187	1/9/1998	21	2.15	1.208	147	3.9	0.46	0.39	0.36	0.31	9152	0.90	1.22	3.39	7,719	0.76	1.03	2.86	8694	0.86	1.16	3	7,333	0.72	0.98	2.72	0.086	386	0.03802	0.05133	0.14315
1188	1/13/1998	5	0.1	0.017	2	3.5	0.25	0.01	0.20	0.01	4956	0.49	0.66	1.84	128	0.01	0.02	0.05	4708	0.46	0.63	2	121	0.01	0.02	0.04	0.001	6	0.00063	0.00085	0.00237
1190	1/19/1998	3	0.17	0.052	6	5.9	0.43	0.03	0.33	0.03	8432	0.83	1.12	3.13	647	0.06	0.09	0.24	8011	0.79	1.07	3	615	0.06	0.08	0.23	0.007	32	0.00319	0.00430	0.01200
1191	1/29/1998	6	0.96	0.492	60	9.9	0.55	0.29	0.43	0.23	10763	1.06	1.43	3.99	5,706	0.56	0.76	2.12	10225	1.01	1.36	4	5,420	0.53	0.72	2.01	0.063	285	0.02810	0.03794	0.10581
1193	2/2/1998	11	0.2	0.058	7	3.3	0.37	0.03	0.29	0.02	7321	0.72	0.97	2.72	624	0.06	0.08	0.23	6955	0.69	0.93	3	592	0.06	0.08	0.22	0.007	31	0.00307	0.00415	0.01157
1194	2/3/1998	15	1.62	0.793	96	0.7	0.36	0.25	0.28	0.20	7101	0.70	0.94	2.63	4,999	0.49	0.66	1.85	6746	0.66	0.90	3	4,749	0.47	0.63	1.76	0.056	250	0.02462	0.03324	0.09271

1195	2/6/1998	14	1.9	1.071	130	2.5	0.24	0.19	0.18	0.15	4654	0.46	0.62	1.73	3,755	0.37	0.50	1.39	4421	0.44	0.59	2	3,567	0.35	0.47	1.32	0.042	188	0.01849	0.02497	0.06963
1196	2/7/1998	9	1.79	0.919	112	1.0	0.11	0.08	0.08	0.06	2075	0.20	0.28	0.77	1,569	0.15	0.21	0.58	1972	0.19	0.26	1	1,491	0.15	0.20	0.55	0.017	78	0.00773	0.01043	0.02910
1197	2/8/1998	7	0.25	0.085	10	0.7	0.07	0.01	0.06	0.01	1419	0.14	0.19	0.53	174	0.02	0.02	0.06	1348	0.13	0.18	0	165	0.02	0.02	0.06	0.002	9	0.00085	0.00115	0.00322
1198	2/14/1998	10	2.18	1.192	145	5.2	0.31	0.26	0.24	0.20	6139	0.60	0.82	2.28	5,154	0.51	0.69	1.91	5832	0.57	0.78	2	4,896	0.48	0.65	1.82	0.057	258	0.02538	0.03427	0.09558
1199	2/16/1998	13	0.51	0.206	25	1.9	0.16	0.04	0.13	0.03	3198	0.31	0.43	1.19	867	0.09	0.12	0.32	3038	0.30	0.40	1	824	0.08	0.11	0.31	0.010	43	0.00427	0.00577	0.01608
1200	2/19/1998	5	0.7	0.301	37	2.8	0.26	0.09	0.20	0.07	5033	0.50	0.67	1.87	1,862	0.18	0.25	0.69	4781	0.47	0.64	2	1,769	0.17	0.24	0.66	0.021	93	0.00917	0.01238	0.03453
1201	2/21/1998	14	1.78	1.036	126	1.5	0.23	0.19	0.18	0.15	4596	0.45	0.61	1.70	3,659	0.36	0.49	1.36	4367	0.43	0.58	2	3,476	0.34	0.46	1.29	0.041	183	0.01802	0.02433	0.06786
1202	2/23/1998	31	2.55	1.165	142	-0.2	0.04	0.03	0.03	0.02	720	0.07	0.10	0.27	599	0.06	0.08	0.22	684	0.07	0.09	0	569	0.06	0.08	0.21	0.007	30	0.00295	0.00398	0.01111
1203	3/5/1998	9	0.28	0.098	12	10.5	0.44	0.06	0.34	0.05	8583	0.85	1.14	3.18	1,199	0.12	0.16	0.44	8154	0.80	1.08	3	1,139	0.11	0.15	0.42	0.013	60	0.00590	0.00797	0.02223
1204	3/13/1998	13	0.48	0.195	24	7.3	0.51	0.13	0.40	0.10	10107	1.00	1.34	3.75	2,615	0.26	0.35	0.97	9602	0.95	1.28	4	2,484	0.24	0.33	0.92	0.029	131	0.01288	0.01739	0.04849
1205	3/25/1998	19	1.83	0.827	101	10.5	0.55	0.39	0.43	0.31	10767	1.06	1.43	3.99	7,742	0.76	1.03	2.87	10228	1.01	1.36	4	7,355	0.72	0.98	2.73	0.086	387	0.03813	0.05148	0.14357
1206	3/28/1998	7	0.23	0.076	9	2.7	0.28	0.03	0.22	0.02	5472	0.54	0.73	2.03	603	0.06	0.08	0.22	5199	0.51	0.69	2	572	0.06	0.08	0.21	0.007	30	0.00297	0.00401	0.01117
1207	3/31/1998	17	1.24	0.601	73	2.5	0.34	0.21	0.27	0.16	6719	0.66	0.89	2.49	4,048	0.40	0.54	1.50	6383	0.63	0.85	2	3,846	0.38	0.51	1.43	0.045	202	0.01994	0.02692	0.07508
1210	4/4/1998	6	0.29	0.108	13	4.0	0.31	0.05	0.25	0.04	6202	0.61	0.82	2.30	947	0.09	0.13	0.35	5891	0.58	0.78	2	900	0.09	0.12	0.33	0.011	47	0.00467	0.00630	0.01757
1211	4/11/1998	8	0.59	0.247	30	6.5	0.45	0.14	0.35	0.11	8893	0.88	1.18	3.30	2,806	0.28	0.37	1.04	8448	0.83	1.12	3	2,666	0.26	0.35	0.99	0.031	140	0.01382	0.01866	0.05204
1212	5/2/1998	5	0.1	0.019	2	20.5	0.59	0.02	0.46	0.01	11590	1.14	1.54	4.30	333	0.03	0.04	0.12	11010	1.08	1.46	4	316	0.03	0.04	0.12	0.004	17	0.00164	0.00222	0.00618
1215	5/4/1998	22	0.54	0.206	25	1.5	0.58	0.16	0.45	0.12	11396	1.12	1.52	4.23	3,090	0.30	0.41	1.15	10826	1.07	1.44	4	2,935	0.29	0.39	1.09	0.034	154	0.01522	0.02055	0.05730
1216	5/6/1998	11	0.35	0.136	17	1.0	0.44	0.08	0.35	0.07	8709	0.86	1.16	3.23	1,641	0.16	0.22	0.61	8274	0.81	1.10	3	1,559	0.15	0.21	0.58	0.018	82	0.00808	0.01091	0.03043
1217	5/12/1998	25	2.02	0.909	111	5.4	0.48	0.36	0.37	0.28	9418	0.93	1.25	3.49	7,085	0.70	0.94	2.63	8947	0.88	1.19	3	6,730	0.66	0.90	2.50	0.079	354	0.03489	0.04711	0.13138
1221	11/8/1998	5	0.5	0.207	25	179.5	0.62	0.17	0.48	0.13	12160	1.20	1.62	4.51	3,310	0.33	0.44	1.23	11552	1.14	1.54	4	3,145	0.31	0.42	1.17	0.037	166	0.01630	0.02201	0.06139
1222	11/11/1998	3	0.07	0.005	1	3.0	0.50	0.00	0.39	0.00	9828	0.97	1.31	3.65	75	0.01	0.01	0.03	9337	0.92	1.24	3	71	0.01	0.01	0.03	0.001	4	0.00037	0.00050	0.00139
1223	11/28/1998	13	0.75	0.373	45	16.4	0.60	0.26	0.47	0.20	11795	1.16	1.57	4.37	5,142	0.51	0.68	1.91	11205	1.10	1.49	4	4,885	0.48	0.65	1.81	0.057	257	0.02532	0.03419	0.09535
1224	12/1/1998	5	0.29	0.108	13	3.2	0.42	0.06	0.33	0.05	8354	0.82	1.11	3.10	1,276	0.13	0.17	0.47	7936	0.78	1.06	3	1,212	0.12	0.16	0.45	0.014	64	0.00629	0.00849	0.02367
1227	12/6/1998	2	0.21	0.071	9	4.5	0.46	0.05	0.36	0.04	9133	0.90	1.21	3.39	943	0.09	0.13	0.35	8676	0.85	1.15	3	896	0.09	0.12	0.33	0.010	47	0.00464	0.00627	0.01749
1229	1/20/1999	5	0.13	0.033	4	44.7	0.62	0.03	0.48	0.02	12137	1.20	1.61	4.50	600	0.06	0.08	0.22	11530	1.14	1.53	4	570	0.06	0.08	0.21	0.007	30	0.00295	0.00399	0.01112
1230	1/25/1999	7	0.35	0.134	16	4.8	0.60	0.11	0.47	0.09	11800	1.16	1.57	4.38	2,194	0.22	0.29	0.81	11210	1.10	1.49	4	2,084	0.21	0.28	0.77	0.024	110	0.01080	0.01459	0.04068
1231	1/26/1999	16	0.75	0.311	38	0.5	0.49	0.19	0.39	0.15	9749	0.96	1.30	3.62	3,701	0.36	0.49	1.37	9261	0.91	1.23	3	3,516	0.35	0.47	1.30	0.041	185	0.01823	0.02461	0.06863
1232	1/31/1999	5	0.54	0.226	27	4.8	0.44	0.13	0.34	0.10	8657	0.85	1.15	3.21	2,538	0.25	0.34	0.94	8224	0.81	1.09	3	2,411	0.24	0.32	0.89	0.028	127	0.01250	0.01687	0.04706
1233	2/4/1999	1	0.08	0.009	1	4.5	0.44	0.01	0.34	0.00	8579	0.85	1.14	3.18	118	0.01	0.02	0.04	8150	0.80	1.08	3	112	0.01	0.01	0.04	0.001	6	0.00058	0.00078	0.00218
1235	2/9/1999	7	0.37	0.142	17	4.3	0.50	0.10	0.39	0.08	9903	0.98	1.32	3.67	1,940	0.19	0.26	0.72	9408	0.93	1.25	3	1,843	0.18	0.25	0.68	0.022	97	0.00955	0.01290	0.03597
1237	3/15/1999	6	0.45	0.183	22	33.6	0.61	0.15	0.48	0.12	12072	1.19	1.61	4.48	2,957	0.29	0.39	1.10	11469	1.13	1.53	4	2,809	0.28	0.37	1.04	0.033	148	0.01456	0.01966	0.05483
1238	3/20/1999	5	0.24	0.085	10	4.8	0.53	0.06	0.41	0.05	10398	1.02	1.38	3.86	1,272	0.13	0.17	0.47	9878	0.97	1.31	4	1,208	0.12	0.16	0.45	0.014	64	0.00626	0.00846	0.02359
1239	3/25/1999	13	0.5	0.203	25	4.5	0.53	0.14	0.41	0.11	10344	1.02	1.38	3.84	2,770	0.27	0.37	1.03	9827	0.97	1.31	4	2,631	0.26	0.35	0.98	0.031	138	0.01364	0.01842	0.05136
1241	4/6/1999	30	1.11	0.468	57	10.8	0.55	0.28	0.43	0.22	10830	1.07	1.44	4.02	5,550	0.55	0.74	2.06	10289	1.01	1.37	4	5,273	0.52	0.70	1.96	0.062	278	0.02733	0.03691	0.10293
1242	4/8/1999	1	0.08	0.009	1	2.5	0.36	0.00	0.28	0.00	7001	0.69	0.93	2.60	96	0.01	0.01	0.04	6651	0.66	0.88	2	91	0.01	0.01	0.03	0.001	5	0.00047	0.00064	0.00178
1243	4/11/1999	27	1.34	0.582	71	1.6	0.40	0.23	0.31	0.18	7801	0.77	1.04	2.89	4,609	0.45	0.61	1.71	7411	0.73	0.99	3	4,378	0.43	0.58	1.62	0.051	230	0.02270	0.03065	0.08547
1246	6/2/1999	72	0.98	0.395	48	48.5	0.62	0.28	0.48	0.22	12127	1.19	1.61	4.50	5,513	0.54	0.73	2.04	11520	1.13	1.53	4	5,238	0.52	0.70	1.94	0.061	276	0.02715	0.03666	0.10225
1247	11/8/1999	6	0.43	0.174	21	158.9	0.62	0.14	0.48	0.11	12160	1.20	1.62	4.51	2,850	0.28	0.38	1.06	11552	1.14	1.54	4	2,708	0.27	0.36	1.00	0.032	143	0.01404	0.01896	0.05286
1249	12/31/1999	8	0.4	0.16	19	53.0	0.62	0.13	0.48	0.10	12154	1.20	1.62	4.51	2,647	0.26	0.35	0.98	11546	1.14	1.54	4	2,514	0.25	0.33	0.93	0.029	132	0.01304	0.01760	0.04908
1252	1/24/2000	35	0.51	0.198	24	23.0	0.61	0.16	0.47	0.12	11972	1.18	1.59	4.44	3,138	0.31	0.42	1.16	11373	1.12	1.51	4	2,981	0.29	0.40	1.11	0.035	157	0.01545	0.02087	0.05819
1253	1/30/2000	36	0.28	0.08	10	3.9	0.51	0.06	0.40	0.05	10041	0.99	1.34	3.72	1,160	0.11	0.15	0.43	9539	0.94	1.27	4	1,102	0.11	0.15	0.41	0.013	58	0.00571	0.00772	0.02152
1254	2/10/2000	22	0.53	0.197	24	10.1	0.57	0.15	0.44	0.12	11138	1.10	1.48	4.13	2,907	0.29	0.39	1.08	10581	1.04	1.41	4	2,761	0.27	0.37	1.02	0.032	145	0.01432	0.01933	0.05390
1255	2/12/2000	6	0.62	0.277	34	1.4	0.45	0.15	0.35	0.12	8807	0.87	1.17	3.27	3,050	0.30	0.41	1.13	8366	0.82	1.11	3	2,898	0.29	0.39	1.07	0.034	153	0.01502	0.02028	0.05657
1256	2/12/2000	42	0.48	0.164	20	-1.0	0.25	0.06	0.20	0.04	4975	0.49	0.66	1.85	1,107	0.11	0.15	0.41	4726	0.47	0.63	2	1,052	0.10	0.14	0.39	0.012	55	0.00545	0.00736	0.02053
1257	2/16/2000	18	0.66	0.27	33	2.6	0.31	0.10	0.24	0.08	6031	0.59	0.80	2.24	2,046	0.20	0.27	0.76	5729	0.56	0.76	2	1,944	0.19	0.26	0.72	0.023	102	0.01008	0.01361	0.03795
1258	2/20/2000	34	1.92	0.971	118	2.7	0.31	0.24	0.24	0.19	6146	0.61	0.82	2.28	4,761	0.47	0.63	1.77	5838	0.58	0.78	3	4,523	0.45	0.60	1.68	0.053	238	0.02345	0.03166	0.08830
1259	2/23/2000	10	1.09	0.484	59	2.6	0.21	0.11	0.16	0.09	4157	0.41	0.55	1.54	2,179	0.21	0.29	0.81	3949	0.39	0.53	1	2,070	0.20	0.28	0.77	0.024	109	0.01073	0.01449	0.04042
1260	2/27/2000	6	0.24	0.083	10	4.0	0.29	0.03	0.23	0.03	5704	0.56	0.76	2.12	682	0.07	0.09	0.25	5419	0.53	0.72	2	648	0.06	0.09	0.24	0.008	34	0.00336	0.00454	0.01265
1261	3/3/2000	10	0.28	0.099	12	4.7	0.41	0.06	0.32	0.04	8009	0.79	1.07	2.97	1,129	0.11	0.15	0.42	7609	0.75	1.01	3	1,073	0.11	0.14	0.40	0.013	56	0.00556	0.00751	0.02094
1262	3/4/2000	16	1.78	1.036	126	0.7	0.37	0.29	0.29	0.23	7270	0.72	0.97	2.70	5,788	0.57	0.77	2.15	6906	0.68	0.92	3	5,499	0.54	0.73	2.04	0.064	289	0.02851	0.03849	0.10734
1264	3/8/2000	12	0.71	0.305	37	2.6	0.22	0.08	0.17	0.06	4267	0.42	0.57	1.58	1,595	0.16	0.21	0.59	4054	0.40	0.54	2	1,516	0.15	0.20	0.56	0.019	80	0.00786	0.01061	0.02959
1266	4/17/2000	24	1.49	0.729	89	39.4	0.61	0.41	0.48	0.32	12058	1.19	1.60	4.47	8,120	0.80	1.08	3.01	11455	1.13	1.53	4	7,714	0.76	1.03	2.86	0.090	406	0.03999	0.05400	0.15059
1267	8/29/2000	2	0.07	0.005	1	133.6	0.62	0.00	0.48	0.00	12160	1.20	1.62	4.51	93	0.01	0.01	0.03	11552	1.14	1.54	4	88	0.01	0.01	0.03	0.001	5	0.00046	0.00062	0.00172
1268	9/22/2000	3	0.15	0.04	5	24.7	0.62	0.04	0.48	0.03	12155	1.20	1.62	4.51	724	0.07	0.10	0.27	11547	1.14	1.54	4	688	0.07	0.09	0.26	0.008	36	0.00357	0.00481	0.01342
1269	10/11/2000	2	0.12	0.028	3	18.3	0.61	0.03	0.48	0.02	12071	1.19	1.61	4.48	508	0.05	0.07	0.19	11468	1.13	1.53	4	482	0.05	0.06	0.18	0.006	25	0.00250	0.00338	0.00942
1270	10/26/2000	2	0.07	0.005	1	14.8	0.61	0.00	0.48	0.00	12052	1.19	1.60	4.47	92	0.01	0.01	0.03	11449	1.13	1.52	4	88	0.01	0.01	0.03	0.001	5	0.00045	0.00061	0.00171
1271	10/26/2000	25	0.26	0.088	11	-0.5	0.61	0.08	0.47	0.06	11949	1.18	1.59	4.43	1,510	0.15	0.20	0.56	11352	1.12	1.51	4	1,434	0.14	0.19	0.53	0.017	75	0.00744	0.01004	0.02800
1272	10/29/2000	8	0.53	0.221	27	2.5	0.55	0.16	0.43	0.12	10876	1.07	1.45	4.03	3,129	0.31	0.42	1.16	10332	1.02	1.37	4	2,972	0.29	0.40	1.10	0.035	156	0.01541	0.02081	0.05803
1274	1/8/2001	6	0.27	0.099	12	70.6	0.62	0.09	0.48	0.07	12159	1.20	1.62	4.51	1,714	0.17	0.23	0.64	11551	1.14	1.54	4	1,629	0.16	0.22	0.60	0.019	86	0.00844	0.01140	0.03179
1276	1/10/2001	47	4.31	2.299	280	0.2	0.53	0.52	0.42	0.40	10477	1.03	1.39	3.89	10,170	1.00	1.35	3.77	9953	0.98	1.32	4	9,661	0.95	1.28	3.58	0.113	508	0.05009	0.06763	0.18860
1277	1/24/2001	6	0.3	0.111	14	13.4	0.49	0.08	0.38	0.06	9631	0.95	1.28	3.57	1,509	0.15	0.20	0.56	9149	0.90	1.22	3	1,433	0.14	0.19	0.53	0.017	75	0.00743	0.01003	0.02798
1278	1/26/2001	14	0.71	0.298	36	1.4	0.44	0.16	0.35	0.13	8713	0.86	1.16	3.23	3,199	0.32	0.43	1.19	8278	0.82	1.10	3	3,039	0.30	0.40	1.13	0.036	160	0.01575	0.02127	0.05932
1280	2/10/2001	14	0.37	0.133	16	14.4	0.55	0.10	0.43	0.08	10890	1.07	1.45	4.04	2,011	0.20	0.27	0.75	10346	1.02	1.38	4	1,911	0.19	0.25	0.71	0.022	101	0.00990	0.01337	0.03730
1281	2/11/2001	62	4.07	1.988	242	-1.3	0.42	0.40	0.33	0.32	8371	0.82	1.11	3.10	7,976	0.79	1.06	2.96	7953	0.78	1.06	3	7,577	0.75	1.01	2.81	0.089	399	0.03928	0.05304	0.14791
1283	2/19/2001	8	0.57	0.24	29	7.7	0.37	0.11	0.29	0.09	7317	0.72	0.97	2.71	2,255	0.22	0.30	0.84	6951	0.68	0.92	3	2,142	0.21	0.28	0.79	0.025	113	0.01110	0.01499	0.04182
1284	2/23/2001	5	0.13	0.033	4	3.5	0.38	0.02	0.29	0.01	7416	0.73	0.99	2.75	366	0.04	0.05	0.14	7045	0.69	0.94	3	348	0.03	0.05	0.13	0.004	18	0.00180	0.00244	0.00679
1285	2/24/2001	99	3.51	1.68	204	-3.0	0.25	0.23	0.20	0.18	4976	0.49	0.66	1.85	4,599	0.45	0.61	1.71	4727	0.47	0.62	2	4,369	0.43	0.58	1.62	0.051	230	0.02265	0.03058	0.08528
1286	3/4/2001	42	1.17	0.479	58	6.5	0.34	0.17	0.26	0.14	6612	0.65	0.88	2.45	3,442	0.34	0.46	1.28	6281	0.62	0.84	2	3,270	0.32	0.43	1.21	0.038	172	0.01695	0.02289	0.06384
1287	4/7/2001	20	0.77	0.334	41	32.5	0.61	0.24	0.47	0.19	11946	1.18	1.59	4.43	4,792	0.47	0.64	1.78	11349	1.12	1.51	4	4,552	0.45	0.61	1.69	0.053	240	0.02360	0.03187	0.08887
1288	4/20/2001	8	0.34	0.13	16	13.4	0.56	0.10	0.44	0.08	11087	1.09	1.47	4.11	2,006	0.20	0.27	0.74	10533	1.04	1.40	4	1,905	0.19	0.25	0.71	0.022	100	0.00988	0.01334	0.03720
1292	11/12/2001	2	0.35	0.136	17	205.9	0.62	0.12	0.48	0.09	12160	1.20	1.62	4.51	2,291	0.23	0.30	0.85	11552	1.14	1.54	4	2,177	0.21	0.29	0.81	0.025	115	0.01128	0.01524	0.04249
1293	11/24/2001	6	0.79	0.481	59	11.5	0.59	0.31	0.46	0.24	11551	1.14	1.54	4.28	6,031	0.59	0.80	2.24	10973	1.08	1.46	4	5,729	0.56	0.76	2.12	0.067	302	0.02970	0.04010	0.11184
1294	11/29/2001	5	0.24	0.085	10	4.6	0.42	0.05	0.33	0.04	8261	0.81	1.10	3.06	1,011	0.10	0.13	0.37	7848	0.77	1.04	3	960	0.09	0.13	0.36	0.011	51	0.00498	0.00672	0.01874
1295	12/2/2001	7	0.26	0.094	11	3.3	0.45	0.06	0.35	0.05	8815	0.87	1.17	3.27	1,185	0.12	0.16	0.44	8375	0.82	1.11	3	1,125	0.11	0.15	0.42	0.013	59	0.00583	0.00788	0.02197
1296	12/14/2001	4	0.15	0.042	5	11.4	0.56	0.03	0.43	0.03	10938	1.08	1.45	4.06	683	0.07	0.09	0.25	10391	1.02	1.38	4	649	0.06	0.09	0.24	0.008	34	0.00336	0.00454	0.01266
1297	12/20/2001	16	0.66	0.268	33	5.7	0.57	0.19	0.44	0.15	11173	1.10	1.49	4.14	3,768	0.37	0.50	1.40	10614	1.05	1.41	4	3,580	0.35	0.48	1.33	0.042	188	0.01856	0.02506	0.06988
1298	12/29/2001	10	0.23	0.076	9	8.0	0.52	0.06	0.41	0.04	10276	1.01	1.37	3.81	1,132	0.11	0.15	0.42	9762	0.96	1.30	4	1,075	0.11	0.14	0.40	0.013	57	0.00557	0.00752	0.02098
1299	12/30/2001	4	0.08	0.007	1	1.2	0.48	0.01	0.38	0.00	9523	0.94	1.27	3.53	102	0.01	0.01	0.04	9047	0.89	1.20	3	97	0.01	0.01	0.04	0.001	5	0.00050	0.00068	0.00189
1300	1/2/2002	4	0.12	0.028	3	3.1	0.52	0.02	0.41	0.02	10240	1.01	1.36	3.80	431	0.04	0.06	0.16	9728	0.96	1.29	4	409	0.04	0.05	0.15	0.005	22	0.00212	0.00286	0.00799
1301	1/27/2002	10	0.62	0.263	32	24.3	0.61	0.20	0.48	0.16	12016	1.18	1.60	4.46	3,991	0.39	0.53	1.48	11415	1.12	1.52	4	3,792	0.37	0.50	1.41	0.044	200	0.01966	0.02654	0.07402
1303	2/17/2002	8	0.29	0.103	13	20.4	0.60	0.09	0.47	0.07	11764	1.16	1.56	4.36	1,720	0.17	0.23	0.64	11176	1.10	1.49	4	1,634	0.16	0.22	0.61	0.019	86	0.00847	0.01144	0.03191
1304	3/6/2002	12	0.15	0.033	4	17.0	0.60	0.03	0.47	0.02	11861	1.17	1.58	4.40	586	0.06	0.08	0.22	11268	1.11	1.50	4	557	0.05	0.07	0.21	0.007	29	0.00289	0.00390	0.01087
1305	3/17/2002	2	0.11	0.024	3	10.9	0.60	0.02	0.47	0.02	11908	1.17	1.58	4.42	431	0.04	0.06	0.16	11313	1.11	1.50	4	409	0.04	0.05	0.15	0.005	22	0.00212	0.00286	0.00799
1309	11/7/2002	49	2.31	1.056	128	232.9	0.62	0.50	0.48	0.39	12160	1.20	1.62	4.51	9,756	0.96	1.30	3.62	11552	1.14	1.54	4	9,268	0.91	1.23	3.44	0.108	488	0.04805	0.06488	0.18093
1311	11/30/2002	2	0.07	0.005	1	22.7	0.58	0.00	0.45	0.00	11446	1.13	1.52	4.25	88	0.01	0.01	0.03	10874	1.07	1.45	4	83	0.01	0.01	0.03	0.001	4	0.00043	0.00058	0.00162
1313	12/16/2002	10	1.96	1.41	172	15.6	0.61	0.54	0.48	0.42	12028	1.18	1.60	4.46	10,647	1.05	1.42	3.95	11426	1.13	1.52	4	10,114	1.00	1.35	3.75	0.118	532	0.05243	0.07080	0.19744
1315	12/19/2002	9	1.08	0.501	61	3.0	0.23	0.12	0.18	0.10	4529	0.45	0.60	1.68	2,430	0.24	0.32	0.90	4303	0.42	0.57	2	2,309	0.23	0.31	0.86	0.027	122	0.01197	0.01616	0.04507
1317	12/28/2002	4	0.15	0.04	5	8.8	0.43	0.03	0.34	0.02	8504	0.84	1.13	3.15	506	0.05	0.07	0.19	8079	0.80	1.07	3	481	0.05	0.06	0.18	0.006	25	0.00249	0.00337	0.00939
1318	2/11/2003	56	3.57	1.881	229	41.9	0.62	0.58	0.48	0.45	12127	1.19	1.61	4.50	11,451	1.13	1.52	4.25	11520	1.13	1.53	4	10,878	1.07	1.45	4.03	0.127	573	0.05640	0.07615	0.21236
1319	2/24/2003	13	0.87	0.417	51	13.2	0.49	0.23	0.38	0.18	9638	0.95	1.28	3.57	4,557	0.45	0.61	1.69	9156	0.90	1.22	3	4,329	0.43	0.58	1.61	0.051	228	0.02244	0.03030	0.08450
1320	2/27/2003	8	0.2	0.066	8	2.0	0.33	0.03	0.26	0.02	6510	0.64	0.87	2.41	627	0.06	0.08	0.23	6185	0.61	0.82	2	596	0.06	0.08	0.22	0.007	31	0.00309	0.00417	0.01163
1322	3/15/2003	25	4.27	2.694	328	15.0	0.56	0.55	0.44	0.43	11049	1.09	1.47	4.10	10,873	1.07	1.45	4.03	10497	1.03	1.40	4	10,329	1.02	1.37	3.83	0.121	544	0.05355	0.07230	0.20163
1327	4/14/2003	19	0.65	0.267	32	29.1	0.60	0.20	0.47	0.16	11741	1.16	1.56	4.35	3,948	0.39	0.53	1.46	11154	1.10	1.48	4	3,751	0.37	0.50	1.39	0.044	197	0.01944	0.02625	0.07322
1328	5/2/2003	20	0.99	0.433	53	17.8	0.59	0.29	0.46	0.22	11597	1.14	1.54	4.30	5,631	0.55	0.75	2.09	11017	1.09	1.47	4	5,350	0.53	0.71	1.98	0.063	282	0.02773	0.03745	0.10443
1331	10/31/2003	6	0.56	0.235	29	181.9	0.62	0.19	0.48	0.15	12160	1.20	1.62	4.51	3,683	0.36	0.49	1.37	11552	1.14	1.54	4	3,498	0.34	0.47	1.30	0.041	184	0.01814	0.02449	0.06829
1332	11/3/2003	3	0.1	0.019	2	2.5	0.48	0.01	0.37	0.01	9385	0.92	1.25	3.48	270	0.03	0.04	0.10	8916	0.88	1.19	3	256	0.03	0.03	0.10	0.003	13	0.00133	0.00179	0.00500
1333	11/12/2003	8	0.63	0.383	47	8.8	0.56	0.25	0.44	0.19	11054	1.09	1.47	4.10	4,914	0.48	0.65	1.82	10501	1.03	1.40	4	4,668	0.46	0.62	1.73	0.055	246	0.02420	0.03268	0.09112
1335	12/7/2003	8	0.17	0.048	6	24.2	0.60	0.04	0.47	0.03	11788	1.16	1.57	4.37	837	0.08	0.11	0.31	11198	1.10	1.49	4	795	0.08	0.11	0.30	0.009	42	0.00412	0.00557	0.01553
1337	12/14/2003	3	0.14	0.038	5	7.3	0.59	0.03	0.46	0.03	11640	1.15	1.55	4.32	660	0.06	0.09	0.24	11058	1.09	1.47	4	627	0.06	0.08	0.23	0.007	33	0.00325	0.00439	0.01223
1339	12/24/2003	32	0.96	0.407	50	8.8	0.60	0.28	0.47	0.22	11734	1.16	1.56	4.35	5,452	0.54	0.73	2.02	11147	1.10	1.48	4	5,179	0.51	0.69	1.92	0.061	273	0.02685	0.03625	0.10110
1340	1/2/2004	8	0.44	0.179	22	8.2	0.50	0.12	0.39	0.09	9886	0.97	1.31	3.67	2,375	0.23	0.32	0.88	9392	0.93	1.25	3	2,257	0.22	0.30	0.84	0.026	119	0.01170	0.01580	0.04405
1343	2/2/2004	6	0.49	0.227	28	31.3	0.61	0.18	0.48	0.14	12033	1.19	1.60	4.46	3,540	0.35	0.47	1.31	11431	1.13	1.52	4	3,363	0.33	0.45	1.25	0.039	177	0.01744	0.02354	0.06566
1344	2/3/2004	3	0.25	0.089	11	0.8	0.45	0.06	0.35	0.04	8812	0.87	1.17	3.27	1,125	0.11	0.15	0.42	8371	0.82	1.11	3	1,069	0.11	0.14	0.40	0.012	56	0.00554	0.00748	0.02087
1345	2/18/2004	5	0.18	0.056	7	14.6	0.57	0.05	0.45	0.04	11326	1.12	1.51	4.20	933	0.09	0.12	0.35	10759	1.06	1.43	4	886	0.09	0.12	0.33	0.010	47	0.00459	0.00620	0.01730
1347	2/21/2004	48	1.1	0.451	55	1.0	0.54	0.27	0.42	0.21	10592	1.04	1.41	3.93	5,292	0.52	0.70	1.96	10063	0.99	1.34	4	5,027	0.50	0.67	1.86	0.059	265	0.02606	0.03519	0.09814
1348	2/25/2004	13	2.85	1.693	206	3.7	0.39	0.36	0.30	0.28	7663	0.75	1.02	2.84	7,093	0.70	0.94	2.63	7280	0.72	0.97	3	6,738	0.66	0.90	2.50	0.079	355	0.03493	0.04717	0.13154
1350	3/1/2004	14	1.17	0.519	63	4.3	0.26	0.14	0.20	0.11	5123	0.50	0.68	1.90	2,813	0.28	0.37	1.04	4866	0.48	0.65	2	2,673	0.26	0.36	0.99	0.031	141	0.01385	0.01871	0.05217
1353	10/16/2004	26	0.67	0.263	32	228.1	0.62	0.21	0.48	0.16	12160	1.20	1.62	4.51	4,039	0.40	0.54	1.50	11552	1.14	1.54	4	3,837	0.38	0.51	1.42	0.045	202	0.01989	0.02686	0.07491
1355	10/19/2004	17	2.2	1.205	147	2.3	0.46	0.39	0.36	0.30	9058	0.89	1.20	3.36	7,633	0.75	1.02	2.83	8605	0.85	1.14	3	7,251	0.71	0.96	2.69	0.085	382	0.03759	0.05076	0.14156
1356	10/26/2004	9	1.62	0.733	89	6.6	0.36	0.24	0.28	0.19	7129	0.70	0.95	2.64	4,815	0.47	0.64	1.79	6773	0.67	0.90	3	4,574	0.45	0.61	1.70	0.053	241	0.02371	0.03202	0.08930
1359	11/21/2004	4	0.09	0.014	2	25.1	0.59	0.01	0.46	0.01	11612	1.14	1.54	4.31	247	0.02	0.03	0.09	11031	1.09	1.47	4	235	0.02	0.03	0.09	0.003	12	0.00122	0.00164	0.00458
1360	11/27/2004	7	0.09	0.008	1	6.2	0.60	0.01	0.47	0.01	11773	1.16	1.57	4.37	144	0.01	0.02	0.05	11184	1.10	1.49	4	137	0.01	0.02	0.05	0.002	7	0.00071	0.00096	0.00266
1361	12/5/2004	19	0.51	0.198	24	6.6	0.60	0.16	0.47	0.12	11913	1.17	1.58	4.42	3,122	0.31	0.42	1.16	11317	1.11	1.51	4	2,966	0.29	0.39	1.10	0.035	156	0.01538	0.02076	0.05790
1362	12/7/2004	7	0.11	0.023	3	2.5	0.49	0.02	0.38	0.01	9645	0.95	1.28	3.58	335	0.03	0.04	0.12	9163	0.90	1.22	3	318	0.03	0.04	0.12	0.004	17	0.00165	0.00223	0.00621
1363	12/28/2004	38	6.51	4.331	527	18.6	0.60	0.60	0.47	0.47	11825	1.16	1.57	4.39	11,809	1.16	1.57	4.38	11234	1.11	1.49	4	11,219	1.11	1.49	4.16	0.131	590	0.05816	0.07853	0.21901
1364	12/31/2004	9	1.31	0.768	93	2.8	0.17	0.12	0.13	0.09	3311	0.33	0.44	1.23	2,293	0.23	0.30	0.85	3146	0.31	0.42	1	2,178	0.21	0.29	0.81	0.025	115	0.01129	0.01525	0.04252
1365	1/2/2005	29	1.96	0.887	108	1.2	0.13	0.09	0.10	0.07	2466	0.24	0.33	0.91	1,834	0.18	0.24	0.68	2342	0.23	0.31	1	1,742	0.17	0.23	0.65	0.020	92	0.00903	0.01219	0.03401
1366	1/4/2005	3	0.19	0.061	7	1.8	0.14	0.01	0.11	0.01	2781	0.27	0.37	1.03	249	0.02	0.03	0.09	2642	0.26	0.35	1	236	0.02	0.03	0.09	0.003	12	0.00122	0.00165	0.00461
1367	1/7/2005	35	2.12	1.175	143	1.3	0.20	0.16	0.15	0.13	3862	0.38	0.51	1.43	3,226	0.32	0.43	1.20	3669	0.36	0.49	1	3,065	0.30	0.41	1.14	0.036	161	0.01589	0.02146	0.05983
1368	1/9/2005	50	3.91	2	243	-0.1	0.02	0.02	0.02	0.02	469	0.05	0.06	0.17	447	0.04	0.06	0.17	446	0.04	0.06	0	425	0.04	0.06	0.16	0.005	22	0.00220	0.00297	0.00829
1369	1/26/2005	3	0.08	0.009	1	17.0	0.53	0.01	0.41	0.01	10437	1.03	1.39	3.87	143	0.01	0.02	0.05	9916	0.98	1.32	4	136	0.01	0.02	0.05	0.002	7	0.00071	0.00095	0.00266
1370	1/28/2005	8	0.26	0.09	11	1.7	0.54	0.07	0.42	0.05	10627	1.05	1.41	3.94	1,371	0.14	0.18	0.51	10096	0.99	1.34	4	1,303	0.13	0.17	0.48	0.015	69	0.00675	0.00912	0.02543
1371	2/11/2005	31	2.3	1.083	132	12.4	0.58	0.47	0.45	0.37	11462	1.13	1.52	4.25	9,288	0.91	1.24	3.44	10888	1.07	1.45	4	8,823	0.87	1.17	3.27	0.103	464	0.04574	0.06176	0.17224
1372	2/17/2005	133	8.71	4.32	526	1.0	0.17	0.17	0.13	0.13	3303	0.33	0.44	1.22	3,298	0.32	0.44	1.22	3137	0.31	0.42	1	3,133	0.31	0.42	1.16	0.037	165	0.01624	0.02193	0.06116
1373	3/4/2005	6	0.41	0.168	20	14.5	0.50	0.11	0.39	0.09	9859	0.97	1.31	3.66	2,241	0.22	0.30	0.83	9367	0.92	1.25	3	2,129	0.21	0.28	0.79	0.025	112	0.01104	0.01490	0.04156
1374	3/18/2005	26	0.29	0.097	12	13.1	0.57	0.08	0.44	0.06	11158	1.10	1.48	4.14	1,544	0.15	0.21	0.57	10600	1.04	1.41	4	1,466	0.14	0.20	0.54	0.017	77	0.00760	0.01027	0.02863
1376	3/22/2005	10	1.08	0.573	70	3.6	0.53	0.31	0.42	0.24	10483	1.03	1.39	3.89	6,133	0.60	0.82	2.27	9959	0.98	1.32	4	5,826	0.57	0.77	2.16	0.068	307	0.03021	0.04078	0.11374
1378	3/28/2005	11	0.11	0.014	2	5.3	0.40	0.01	0.31	0.01	7893	0.78	1.05	2.93	168	0.02	0.02	0.06	7498	0.74	1.00	3	159	0.02	0.02	0.06	0.002	8	0.00083	0.00112	0.00311

1380	4/28/2005	8	1.02	0.667	81	30.5	0.61	0.39	0.48	0.31	12027	1.18	1.60	4.46	7,707
1382	5/9/2005	3	0.18	0.056	7	11.3	0.51	0.04	0.40	0.03	10013	0.99	1.33	3.71	825
1383	9/20/2005	7	0.29	0.108	13	133.5	0.62	0.09	0.48	0.07	12160	1.20	1.62	4.51	1,858
1385	10/16/2005	43	1.31	0.558	68	24.5	0.61	0.35	0.48	0.27	12050	1.19	1.60	4.47	6,933
1386	11/9/2005	19	0.22	0.054	7	23.0	0.59	0.05	0.46	0.04	11664	1.15	1.55	4.33	928
1387	12/2/2005	3	0.08	0.009	1	23.3	0.61	0.01	0.48	0.01	12063	1.19	1.60	4.47	166
1390	12/31/2005	7	0.88	0.433	53	28.2	0.62	0.30	0.48	0.23	12150	1.20	1.62	4.51	5,900
1391	1/1/2006	26	1.96	1.114	136	0.1	0.32	0.26	0.25	0.20	6307	0.62	0.84	2.34	5,166
1392	1/14/2006	2	0.1	0.019	2	12.7	0.49	0.01	0.38	0.01	9621	0.95	1.28	3.57	277
1393	2/17/2006	6	0.19	0.055	7	34.1	0.61	0.05	0.48	0.04	12105	1.19	1.61	4.49	980
1394	2/18/2006	11	0.19	0.051	6	0.7	0.57	0.04	0.44	0.03	11206	1.10	1.49	4.16	844
1395	2/27/2006	20	1.99	0.914	111	7.8	0.58	0.44	0.45	0.34	11423	1.13	1.52	4.24	8,615
1396	3/3/2006	11	0.26	0.085	10	3.3	0.29	0.04	0.23	0.03	5758	0.57	0.77	2.14	704
1397	3/6/2006	7	0.16	0.045	5	3.1	0.37	0.02	0.29	0.02	7201	0.71	0.96	2.67	481
1398	3/10/2006	13	0.14	0.019	2	3.3	0.43	0.01	0.33	0.01	8419	0.83	1.12	3.12	242
1399	3/17/2006	2	0.09	0.014	2	7.0	0.53	0.01	0.41	0.01	10381	1.02	1.38	3.85	221
1400	3/18/2006	2	0.13	0.033	4	1.2	0.53	0.03	0.41	0.02	10411	1.03	1.38	3.86	514
1401	3/20/2006	4	0.36	0.141	17	1.9	0.52	0.10	0.41	0.08	10337	1.02	1.37	3.83	2,012
1403	3/27/2006	31	1.68	0.783	95	5.7	0.52	0.36	0.40	0.28	10172	1.00	1.35	3.77	7,114
1404	3/31/2006	12	0.25	0.081	10	3.6	0.31	0.04	0.24	0.03	6164	0.61	0.82	2.29	721
1406	4/4/2006	28	1.69	0.771	94	2.2	0.35	0.24	0.27	0.19	6926	0.68	0.92	2.57	4,805
1407	4/14/2006	11	0.21	0.065	8	9.7	0.45	0.04	0.35	0.03	8861	0.87	1.18	3.29	841
1409	5/21/2006	13	0.85	0.369	45	37.0	0.61	0.27	0.48	0.21	12102	1.19	1.61	4.49	5,233
1411	10/13/2006	2	0.33	0.138	17	144.7	0.62	0.12	0.48	0.09	12160	1.20	1.62	4.51	2,321
1412	11/27/2006	4	0.16	0.045	5	44.3	0.62	0.04	0.48	0.03	12146	1.20	1.62	4.50	811
1413	12/9/2006	5	0.43	0.172	21	12.5	0.61	0.14	0.47	0.11	11965	1.18	1.59	4.44	2,776
1414	12/16/2006	2	0.15	0.042	5	6.5	0.55	0.03	0.43	0.03	10761	1.06	1.43	3.99	672
1416	12/27/2006	11	0.21	0.061	7	10.2	0.58	0.05	0.46	0.04	11521	1.13	1.53	4.27	1,030
1418	1/27/2007	7	0.16	0.043	5	31.1	0.61	0.04	0.48	0.03	12114	1.19	1.61	4.49	774
1420	2/11/2007	6	0.42	0.169	21	14.3	0.61	0.14	0.48	0.11	12001	1.18	1.60	4.45	2,742
1422	2/22/2007	4	0.38	0.15	18	11.4	0.58	0.12	0.45	0.09	11377	1.12	1.51	4.22	2,340
1425	4/15/2007	2	0.2	0.066	8	51.4	0.62	0.06	0.48	0.05	12152	1.20	1.62	4.51	1,171
1426	4/20/2007	13	0.5	0.198	24	4.5	0.58	0.15	0.45	0.12	11458	1.13	1.52	4.25	3,003
1428	9/21/2007	16	0.52	0.199	24	154.0	0.62	0.16	0.48	0.13	12160	1.20	1.62	4.51	3,201
1429	10/12/2007	6	0.95	0.439	53	20.8	0.60	0.30	0.47	0.23	11867	1.17	1.58	4.40	5,818
1430	11/30/2007	14	0.56	0.231	28	47.8	0.62	0.18	0.48	0.14	12135	1.20	1.61	4.50	3,623
1431	12/7/2007	12	0.41	0.16	19	6.3	0.53	0.11	0.41	0.09	10384	1.02	1.38	3.85	2,261
1432	12/17/2007	39	1.25	0.533	65	9.3	0.55	0.31	0.43	0.24	10768	1.06	1.43	3.99	6,017
1433	12/20/2007	3	0.07	0.005	1	2.8	0.34	0.00	0.27	0.00	6788	0.67	0.90	2.52	52

Total	2,970,982
Current per event avg sediment wash off amount (kg/event)	2,851
Annual current sediment wash off amount (kg/yr)	50,356

TMDL states that 64,166 kg/yr of TSS are discharges to the back basins per year, so this value is less, therefore it is more conservative.

1380	0.76	1.03	2.86	11426	1.13	1.52	4	7,322	0.72	0.97	2.72	0.086	385	0.03796	0.05125	0.14293
1382	0.08	0.11	0.31	9513	0.94	1.27	4	784	0.08	0.10	0.29	0.009	41	0.00406	0.00549	0.01530
1383	0.18	0.25	0.69	11552	1.14	1.54	4	1,765	0.17	0.23	0.65	0.021	93	0.00915	0.01235	0.03445
1385	0.68	0.92	2.57	11448	1.13	1.52	4	6,587	0.65	0.88	2.44	0.077	347	0.03415	0.04611	0.12858
1386	0.09	0.12	0.34	11081	1.09	1.47	4	881	0.09	0.12	0.33	0.010	46	0.00457	0.00617	0.01721
1387	0.02	0.02	0.06	11460	1.13	1.52	4	157	0.02	0.02	0.06	0.002	8	0.00082	0.00110	0.00307
1390	0.58	0.78	2.19	11543	1.14	1.54	4	5,605	0.55	0.75	2.08	0.066	295	0.02906	0.03923	0.10941
1391	0.51	0.69	1.92	5992	0.59	0.80	2	4,908	0.48	0.65	1.82	0.057	258	0.02544	0.03436	0.09581
1392	0.03	0.04	0.10	9140	0.90	1.22	3	263	0.03	0.03	0.10	0.003	14	0.00136	0.00184	0.00513
1393	0.10	0.13	0.36	11499	1.13	1.53	4	931	0.09	0.12	0.35	0.011	49	0.00483	0.00652	0.01817
1394	0.08	0.11	0.31	10645	1.05	1.42	4	802	0.08	0.11	0.30	0.009	42	0.00416	0.00561	0.01565
1395	0.85	1.15	3.20	10852	1.07	1.44	4	8,184	0.81	1.09	3.04	0.096	431	0.04243	0.05729	0.15976
1396	0.07	0.09	0.26	5470	0.54	0.73	2	669	0.07	0.09	0.25	0.008	35	0.00347	0.00468	0.01306
1397	0.05	0.06	0.18	6841	0.67	0.91	3	457	0.04	0.06	0.17	0.005	24	0.00237	0.00320	0.00891
1398	0.02	0.03	0.09	7998	0.79	1.06	3	230	0.02	0.03	0.09	0.003	12	0.00119	0.00161	0.00449
1399	0.02	0.03	0.08	9862	0.97	1.31	4	210	0.02	0.03	0.08	0.002	11	0.00109	0.00147	0.00409
1400	0.05	0.07	0.19	9891	0.97	1.32	4	489	0.05	0.06	0.18	0.006	26	0.00253	0.00342	0.00954
1401	0.20	0.27	0.75	9820	0.97	1.31	4	1,911	0.19	0.25	0.71	0.022	101	0.00991	0.01338	0.03731
1403	0.70	0.95	2.64	9664	0.95	1.29	4	6,759	0.67	0.90	2.51	0.079	356	0.03504	0.04731	0.13194
1404	0.07	0.10	0.27	5855	0.58	0.78	2	685	0.07	0.09	0.25	0.008	36	0.00355	0.00479	0.01336
1406	0.47	0.64	1.78	6580	0.65	0.88	2	4,565	0.45	0.61	1.69	0.053	240	0.02367	0.03195	0.08911
1407	0.08	0.11	0.31	8418	0.83	1.12	3	799	0.08	0.11	0.30	0.009	42	0.00414	0.00560	0.01561
1409	0.52	0.70	1.94	11497	1.13	1.53	4	4,972	0.49	0.66	1.84	0.058	262	0.02577	0.03480	0.09705
1411	0.23	0.31	0.86	11552	1.14	1.54	4	2,205	0.22	0.29	0.82	0.026	116	0.01143	0.01544	0.04305
1412	0.08	0.11	0.30	11539	1.14	1.53	4	770	0.08	0.10	0.29	0.009	41	0.00399	0.00539	0.01503
1413	0.27	0.37	1.03	11366	1.12	1.51	4	2,638	0.26	0.35	0.98	0.031	139	0.01367	0.01846	0.05149
1414	0.07	0.09	0.25	10223	1.01	1.36	4	638	0.06	0.08	0.24	0.007	34	0.00331	0.00447	0.01246
1416	0.10	0.14	0.38	10945	1.08	1.46	4	978	0.10	0.13	0.36	0.011	51	0.00507	0.00685	0.01910
1418	0.08	0.10	0.29	11508	1.13	1.53	4	735	0.07	0.10	0.27	0.009	39	0.00381	0.00515	0.01435
1420	0.27	0.36	1.02	11401	1.12	1.52	4	2,605	0.26	0.35	0.97	0.030	137	0.01351	0.01824	0.05086
1422	0.23	0.31	0.87	10808	1.06	1.44	4	2,223	0.22	0.30	0.82	0.026	117	0.01152	0.01556	0.04339
1425	0.12	0.16	0.43	11544	1.14	1.54	4	1,112	0.11	0.15	0.41	0.013	59	0.00577	0.00779	0.02171
1426	0.30	0.40	1.11	10885	1.07	1.45	4	2,853	0.28	0.38	1.06	0.033	150	0.01479	0.01997	0.05569
1428	0.32	0.43	1.19	11552	1.14	1.54	4	3,041	0.30	0.40	1.13	0.036	160	0.01576	0.02129	0.05936
1429	0.57	0.77	2.16	11273	1.11	1.50	4	5,527	0.54	0.74	2.05	0.065	291	0.02865	0.03869	0.10789
1430	0.36	0.48	1.34	11528	1.14	1.53	4	3,442	0.34	0.46	1.28	0.040	181	0.01784	0.02409	0.06719
1431	0.22	0.30	0.84	9865	0.97	1.31	4	2,148	0.21	0.29	0.80	0.025	113	0.01114	0.01504	0.04194
1432	0.59	0.80	2.23	10230	1.01	1.36	4	5,716	0.56	0.76	2.12	0.067	301	0.02963	0.04001	0.11158
1433	0.01	0.01	0.02	6448	0.64	0.86	2	49	0.00	0.01	0.02	0.001	3	0.00026	0.00035	0.00096

Total	33	148,549	15	20	55
Per event avg removal	0	143	0	0	0
Annual removal amount (kg/yr)	**1**	**2518**	**0.2**	**0.3**	**0.9**