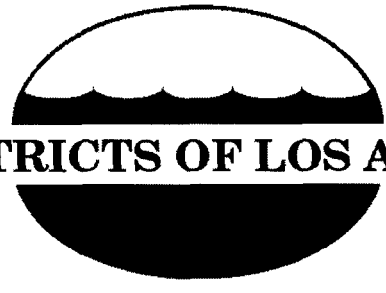
PALMDALE WATER RECLAMATION PLANT

ANNUAL MONITORING REPORT

2003

RWQCB ORDER NO. 6-00-57

MONITORING & REPORTING PROGRAM NO. 00-57



SANITATION DISTRICTS OF LOS ANGELES COUNTY

PALMDALE WATER RECLAMATION PLANT
ANNUAL MONITORING REPORT

2003

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County Sanitation Districts
of Los Angeles County

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CONTENTS

LIST OF TABLES

1.4 Palmdale WRP - Reuse Volumes Reported in Monthly Reports versus Actual Volumes Applied at "Reuse" Center Pivots.
1.5 Palmdale Water Reclamation Plant Reclaimed Usage Monitoring Report-2003

2.1 Wastewater Treatment Plants, Sanitation Districts
2.2 Palmdale WRP Chronology
2.3 Palmdale WRP Plant Operators

3.1 Laboratory Database, List of Constituents and Test Codes

4.1 2003 Influent and Effluent Flows
4.2 2003 Oxidation Pond Freeboard
4.3 2003 Influent Weekly Data
4.4 2003 Influent Monthly Data
4.5 2003 Influent Quarterly and Semiannual Data
4.6 2003 Influent Annual Data
4.7 2003 Effluent to LAWA Site (Ponds 2, 3) Weekly Data
4.8 2003 Effluent to LAWA Site (Ponds 2, 3) Monthly Data
4.9 2003 Effluent to LAWA Site (Ponds 2, 3) Quarterly Data
4.10 2003 Effluent to LAWA Site (Ponds 2, 3) Annual Data
4.11 2003 Effluent to LAWA Site (Ponds 4-7) Weekly Data
4.12 2003 Effluent to LAWA Site (Ponds 4-7) Monthly Data
4.13 2003 Effluent to LAWA Site (Ponds 4-7) Quarterly Data
4.14 2003 Effluent to LAWA Site (Ponds 4-7) Annual Data

5.1 Long Term Tabular Summaries

6.1 2003 Supply Well SW1 Semiannual Data
6.2 2003 Supply Well SW1 Annual Data
6.3 2003 Supply Well SW2 Semiannual Data
6.4 2003 Supply Well SW2 Annual Data
6.5 2003 Supply Well SW5 Semiannual Data
6.6 2003 Supply Well SW5 Annual Data
6.7 2003 Supply Well SW7 Semiannual Data
6.8 2003 Supply Well SW7 Annual Data
6.9 2003 Supply Well SW8 Semiannual Data
6.10 2003 Supply Well SW8 Annual Data
6.11 2003 Supply Well SW9 Semiannual Data
6.12 2003 Supply Well SW9 Annual Data
6.13 2003 Supply Well SW10 Semiannual Data
6.14 2003 Supply Well SW10 Annual Data
6.15 2003 Supply Well SWH2 Semiannual Data
6.16 2003 Supply Well SWH2 Annual Data
6.17 2003 Monitoring Well MW1 Semiannual Data
6.18 2003 Monitoring Well MW1 Annual Data
6.19 2003 Monitoring Well MW2 Semiannual Data
6.20 2003 Monitoring Well MW2 Annual Data
6.21 2003 Monitoring Well MW4 Semiannual Data
6.22 2003 Monitoring Well MW4 Annual Data
6.23 2003 Monitoring Well MW15 Semiannual Data
6.24 2003 Monitoring Well MW15 Annual Data
6.25 2003 Monitoring Well MW16 Semiannual Data
6.26 2003 Monitoring Well MW16 Annual Data

LIST OF FIGURES

Figure

5.5 Effluent Ammonia, Organic N, Nitrate+Nitrite, Total N
5.6 Effluent Total Cyanide
5.7 Effluent Sulfate, Chloride
5.8 Influent and Effluent Phenols
5.9 Influent and Effluent MBAS
5.10 Influent and Effluent BOD, COD
5.11 Influent and Effluent Oil and Grease
5.12 Influent and Effluent Arsenic
5.13 Influent and Effluent Barium
5.14 Influent and Effluent Cadmium
5.15 Influent and Effluent Total Chromium
5.16 Influent and Effluent Copper
5.17 Influent and Effluent Iron
5.18 Influent and Effluent Lead
5.19 Influent and Effluent Mercury
5.20 Influent and Effluent Nickel
5.21 Influent and Effluent Selenium
5.22 Influent and Effluent Silver
5.23 Influent and Effluent Zinc

6.1 Map of Palmdale WRP, Reuse Sites, Monitoring Wells, and Lysimeters
6.2 Estimated Groundwater Elevation and Flow Direction
6.3 SW1 Historical Chloride and TDS Levels
6.4 SW1 Historical MBAS, Ammonia, TKN, and Nitrate Levels
6.5 SW2 Historical Chloride and TDS Levels
6.6 SW2 Historical MBAS, Ammonia, TKN, and Nitrate Levels
6.7 SW5 Historical Chloride and TDS Levels
6.8 SW5 Historical MBAS, Ammonia, TKN, and Nitrate Levels
6.9 SW7 Historical Chloride and TDS Levels
6.10 SW7 Historical MBAS, Ammonia, TKN, and Nitrate Levels
6.11 SW8 Historical Chloride and TDS Levels
6.12 SW8 Historical MBAS, Ammonia, TKN, and Nitrate Levels
6.13 SW9 Historical Chloride and TDS Levels
6.14 SW9 Historical MBAS, Ammonia, TKN, and Nitrate Levels
6.15 SW10 Historical Chloride and TDS Levels
6.16 SW10 Historical MBAS, Ammonia, TKN, and Nitrate Levels
6.17 SW13 Historical Chloride and TDS Levels
6.18 SW13 Historical MBAS, Ammonia, TKN, and Nitrate Levels
6.19 SW14 Historical Chloride and TDS Levels
6.20 SW14 Historical MBAS, Ammonia, TKN, and Nitrate Levels
6.21 SWE Historical Chloride and TDS Levels
6.22 SWE Historical MBAS, Ammonia, TKN, and Nitrate Levels
6.23 SWH2 Historical Chloride and TDS Levels
6.24 SWH2 Historical MBAS, Ammonia, TKN, and Nitrate Levels
6.25 MW1 Historical Chloride and TDS Levels
6.26 MW1 Historical MBAS, Ammonia, TKN, and Nitrate Levels
6.27 MW1 Depth to Groundwater and Groundwater Elevation Levels
6.28 MW2 Historical Chloride and TDS Levels
6.29 MW2 Historical MBAS, Ammonia, TKN, and Nitrate Levels
6.30 MW2 Depth to Groundwater and Groundwater Elevation Levels
6.31 MW4 Historical Chloride and TDS Levels
6.32 MW4 Historical MBAS, Ammonia, TKN, and Nitrate Levels
6.33 MW4 Depth to Groundwater and Groundwater Elevation Levels

PALMDALE WATER RECLAMATION PLANT

CHAPTER 1

PERMIT COMPLIANCE AND RECLAIMED WATER USE REPORT

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PERMIT COMPLIANCE AND RECLAIMED WATER USE REPORT

1.1 INTRODUCTION

This report contains the annual report for the Waste Discharge Permit held by the Palmdale Water Reclamation Plant (WRP) for the year 2003.

1.2 PERMIT REQUIREMENTS

Following are the Waste Discharge and Monitoring and Reporting Requirements as were applied to Palmdale WRP in 2003.

1. The waste discharge requirements (WDRs) for the Palmdale WRP from the California Regional Water Quality Control Board, Lahontan Region (RWQCB) is Board Order No. 6-00-57, which was adopted on June 14, 2000 by the RWQCB.

2. The monitoring and reporting requirements (MRPs) for the Palmdale WRP are included in the Revised Monitoring and Reporting Program No. 00-57, as revised on June 14, 2000 by the RWQCB.

1.3 WDRs COMPLIANCE

Effluent Runoff from Reuse Area

At 7:00 a.m. on Thursday, February 20th, District's staff discovered reclaimed water from the Palmdale WRP flowing off the approved reuse site. It is not known when the water first left the authorized reuse site; however, there was no evidence of any reclaimed water leaving the reuse area when Antelope Valley Farming (AVF) and District's personnel left the site at the end of the workday on February 19, 2003. The off-site flow was stopped within 50 minutes of its initial discovery. The District has estimated that approximately 10,000 gallons of reclaimed water flowed off the approved reuse site at the middle of the north half of Section 10. The reclaimed water was applied by center pivot irrigation to control wind blown sand from damaging a newly planted crop. Saturation of the subsurface soil and the formation of furrows as a result of heavy rainfall in the previous days contributed to the runoff. Since the runoff, the District has taken several actions in order to prevent a similar incident in the future. These actions include installation of berms and catch-and-pump basins, and field grading. Also, AVF was directed not to apply any water to the reuse fields when rain is expected in the area. Furthermore, AVF will inspect the site more frequently, especially during and after rainfall events. Finally, the speed on the center pivots was also modified so that less water is applied with each rotation. The District submitted a spill report to the RWQCB, on March 5, 2003. The District also submitted a second report to the RWQCB, which included the corrective actions taken to prevent future runoff occurrences.

Effluent BOD_5

In May 2003, the 30-day average limit of 30 mg/L for secondary effluent soluble BOD_5 per Board Order No. 6-00-57 was exceeded with a value of 35 mg/L in the effluent from ponds 4-7. On August 17, the soluble BOD_5 in the effluent from ponds 4-7 exceeded the maximum daily

limit of 45 mg/l with a value of 54 mg/l. The most probable cause of the BOD_5 exceedances was the presence of nitrifying bacteria in the samples. As a result of significant populations of nitrifying bacteria in the secondary effluent, higher BOD_5 values are measured due to the production of nitrogenous BOD_5 (from the oxidation of ammonia to nitrate). All weekly samples taken during May or August 2003 had carbonaceous BOD_5 values below 7 mg/l. This demonstrates that most of the BOD_5 demand was due to nitrification. As written, the BOD_5 limits per Board Order No. 6-00-57 apply to soluble BOD_5, which includes the nitrogenous oxygen demand (as opposed to the Lancaster WRP limit that applies only to carbonaceous oxygen demand). As a result, any exceedances of the soluble BOD_5 should be considered violations of the WDRs.

Effluent pH

Some samples taken at the effluent of ponds 2 and 3 in June, July, August, and October 2003 had pH levels that exceeded the upper limit of 9.0, specified in Board Order No. 6-00-57. Table 1.1 summarizes the pH exceedances.

Table 1.1 Effluent from Ponds 2 and 3 pH Exceedances during 2003.

Date	June				July				August	October
	6/9	6/16	6/24	6/30	7/7	7/14	7/21	7/28	8/25	10/6
pH	9.1	9.2	9.5	9.4	9.7	9.7	9.7	9.8	9.2	9.2

These pH exceedances were the result of biological activity in the oxidation ponds. The ponds were designed to be facultative (typical pH range: 6.0-9.0). Often, the ponds tend to become more aerobic during high wind episodes and spring and fall pond overturn periods resulting in higher pH levels. Board Order No. 6-00-57 for the Palmdale WRP does not allow pH exceedances attributed of biological processes (as opposed to the Lancaster WRP permit, which allows exceedances resulting from biological processes). As a result any pH exceedances, although resulting from biological processes in the ponds, should be considered violations of the WDRs.

1.4 MONITORING AND REPORTING

Effluent Sampling

On October 21, the pipes conveying effluent from ponds 2 and 3, and ponds 4-7, were combined. The two pipes now join at the pump station, and the composite flow is pumped to the effluent application site. Therefore, one effluent composite sample has been collected after October 21. In the past, separate samples were collected in the effluent from ponds 2 and 3, and ponds 4-7, because effluent from ponds 2 and 3 was conveyed to the effluent application site independently of the effluent from ponds 4-7.

Groundwater Monitoring

Monitoring wells MW26-MW29 were constructed during February and March of 2003. These wells were first sampled in May 2003 with temporary pumps provided by the District's consultant.

Estimated groundwater flow direction at the sampled wells is shown in Figure 6-2. The groundwater flow direction depicted is based on limited data and may not provide an accurate representation of actual groundwater conditions.

2003 Title 22 MCL Exceedances

Table 1.2 summarizes groundwater quality data exceeding the primary or secondary Maximum Contaminant Levels (MCLs) of Title 22 of California Code of Regulations. Primary MCLs are based on human health, whereas secondary MCLs are based on aesthetic concerns.

In June 2003, the District completed an investigation on elevated groundwater nitrate levels at the area of the Palmdale WRP. The findings of the investigation are included in "*Antidegradation Analysis, Palmdale Water Reclamation Plant, Palmdale, California*", which was submitted to the Regional Board in June 2003.

Table 1.2 2003 Palmdale WRP Groundwater Data Exceeding Primary or Secondary Drinking Water Standards.

Well	Parameter	Jan.	Mar.	Apr.	May	Jun.	Jul.	Sep.	Oct.	Dec.	MCL[1]	MCL[2]
MW2	Diethyl-exyl Phthalate (µg/l)			6.4							4	
	Fe			3.41								0.3
	Mn			0.069								0.05
MW4	NO_3^- (mg/l)							10.7	11.2		10[3]	
MW17	Cr (mg/l)					0.073					0.05	
	Fe (mg/l)					0.436						0.3
MW18	NO_3^- (mg/l)		15.8		14.6			10.7				
MW20	NO_3^- (mg/l)	10								13.4 / 13.6	10[3]	
MW22	Fe (mg/l)	0.98				4.69				1.84		0.3
	Mn (mg/l)					0.073						0.05
MW23	Fe (mg/l)									3.05		0.3
	Mn (mg/l)									0.164		0.05
MW27	Fe (mg/l)				0.366							0.3
	Mn (mg/l)				0.063							0.05
MW28	Fe (mg/l)					5.99						0.3
	Mn (mg/l)					0.095						0.05
MW29	Fe (mg/l)				12.5					1.36		0.3
	Mn (mg/l)									0.076		0.05
	Al (mg/l)									1.49	1	0.2
SW10	NO_3^- (mg/l)				11.9		13.7					

[1] Primary MCL
[2] Secondary MCL
[3] MCL is for Nitrate + Nitrite

As shown in Table 1.2, MW2 and some of the newly constructed wells during 2002 and 2003 had elevated levels of some metals. These elevated metal levels may be attributed to the presence of colloids. Samples are analyzed for total metal content, and therefore are acidified when collected.

Acidification of the samples may result in solubilization of the iron and aluminum colloids, resulting in increased soluble concentrations.

In 2003, MW25 had a detected level of tetrachloroethylene concentration, 0.8 µg/l. Tetrachloroethylene was first detected at MW25 in January 2003. A second confirmatory sample, taken by the District in December 2003, confirmed the level of 0.8 µg/l. Although, this concentration is below the drinking water MCL of 5 µg/l, the District has taken notice of this issue since typically tetrachloroethylene is below the detection level of 0.5 µg/l at wells in the area.

Monitoring and Reporting

Influent was not analyzed for sodium. Sodium is not an MRP requirement but is included in the Sampling and Analysis Plan.

Prior to the diversion of the flow from ponds 2 and 3, effluent from ponds 2 and 3 was not sampled for: calcium, magnesium, aluminum, cobalt, iron, potassium, molybdenum, and vanadium. These constituents are not required in the MRP but are included in the Sampling and Analysis Plan.

Table 1.3 summarizes the groundwater parameters that were not obtained in 2003. Supply wells, SW13 and SW14 were not in service in 2003 and were not sampled. Supply well SWE was also not sampled in 2003 because, despite several attempts, the District's staff could not contact the well owners to obtain information about the well's operation and to get access to the well. Supply well SWH2 was sampled only once during 2003. District's staff could not obtain access to the Air Force Base - regardless, the well was not in operation for most of the second 2003 semester.

The supply wells were not sampled for aluminum, cobalt, molybdenum and vanadium in 2003. These parameters are not required in the MRP but are included in the Sampling and Analysis Plan. In 2004, the District will analyze for these parameters.

Several monitoring wells were not sampled for aluminum, cobalt, molybdenum, and vanadium in 2003. These parameters are not required in the MRP but are included in the Sampling and Analysis Plan. In 2004, the District will analyze for these parameters.

MW19 was out of service in 2003 due to the presence of sand inside the well. During the first quarter of 2004, the District rehabilitated the well, and repaired its pump. The well will be in service, and will be sampled during the second quarter of 2004.

Due to inability to purge them, well MW21 and MW23 were sampled only once, while MW24 was not sampled in 2003. The inability to purge the wells may have resulted from the lack of water or problems with the well pump. The District is investigating the problem at these wells.

Several wells were not sampled for the field parameters pH, temperature, DO, and electrical conductivity. The field parameters were not obtained because the District's apparatus that measures the field parameters could not be fitted to the wellhead. In some cases only DO was not obtained due to problems with equipment calibration. Field parameters were successfully taken during the second semiannual sampling event.

MW28 was inadvertently not sampled for the all the semiannual parameters during the second sampling event in December 2003. The District will perform an additional sampling event in 2004 to make-up for the missed 2003 sampling.

Table 1.3 Palmdale WRP - Groundwater Parameters not Obtained during 2003.

Well	Missed Parameters	Comments
SW1	Aluminum, Cobalt, Molybdenum, Vanadium	Not in MRP but in Sampling and Analysis Plan (SAP).
SW2	Aluminum, Cobalt, Molybdenum, Vanadium	Not in MRP but SAP.
SW5	Aluminum, Cobalt, Molybdenum, Vanadium	Not in MRP but SAP.
SW7	Aluminum, Cobalt, Molybdenum, Vanadium	Not in MRP but SAP.
SW8	Aluminum, Cobalt, Molybdenum, Vanadium	Not in MRP but SAP.
SW9	Aluminum, Cobalt, Molybdenum, Vanadium	Not in MRP but SAP.
SW10	Aluminum, Cobalt, Molybdenum, Vanadium	Not in MRP but SAP.
SW13	No Data	Not in Service.
SW14	No Data	Not in Service.
SWE	No Data	Could not contact Owners to get access.
SWH2	Aluminum, Cobalt, Molybdenum, Vanadium Second Semiannual	Not in MRP but SAP. Not able to get access to Base.
MW2	Aluminum, Cobalt, Molybdenum, Vanadium	Not in MRP but SAP.
MW4	Aluminum, Cobalt, Molybdenum, Vanadium	Not in MRP but SAP.
MW15	Aluminum, Cobalt, Molybdenum, Vanadium	Not in MRP but SAP.
MW17	Aluminum, Cobalt, Molybdenum, Vanadium Second Semiannual	Not in MRP but SAP. Well was dry.
MW19	No Data	Sand in the well.
MW20	Field parameters in one of three sampling events.	Could not connect equipment.
MW21	Molybdenum Second Semiannual	Not in MRP but SAP. Could not purge well.
MW22	Field parameters in one of three sampling events.	Could not connect equipment.
MW23	Aluminum, Cobalt, Molybdenum, Vanadium First Semiannual.	Not in MRP but SAP. Could not purge well.
MW24	No Data.	Could not purge.
MW25	Field parameters during two of three sampling events.	Could not connect equipment.
MW26	DO for first sampling event.	Equipment not calibrated.
MW27	DO for first sampling event.	Equipment not calibrated.
MW28	Second Semiannual	Will take make up sample in 2004
MW29	DO for first sampling event.	Equipment not calibrated.

Lysimeters L1, L3, L4, L6, L8, and L16 were sampled during 2003. On all occasions, complete analysis of lysimeter samples was not possible due to insufficient moisture, or no moisture, in the sample. The District attempted to sample the lysimeters several times during the year. An effort was made to obtain at least one analysis for each parameter included in the MRP. In 2004, the District will install lysimeters at locations where vadose zone moisture is expected to be sufficient for proper analysis.

Corrections to 2003 Monthly Reports

All 2003 monthly reports

In 2003, there were a total of eight center pivots used for irrigation of crops. Five pivots were used for irrigation of fodder crops and were designated as "Reuse" being subject to application of water at agronomic rates. Three pivots were also used for irrigation of fodder crops; however, these pivots were designated as "Land Application" pivots and were not subjected to application at agronomic rates. Nevertheless, the "Land Application" pivots were operated at agronomic rates for most of the year. Agronomic rates were exceeded in the winter when the crop water demand is low. Figure 1.1 shows the center pivots used for crop irrigation. Until October 2003, the reuse volume reported in the monthly reports included both the "Reuse" and "Land Application Pivots"; whereas, only the "Reuse" pivots 1-5 should have been reported. Table 1.4 summarizes the reuse volumes reported in the monthly reports versus the reuse volumes that corresponded to "Reuse" pivots 1-5.

Table 1.4 Palmdale WRP. Reuse Volumes Reported in Monthly Reports versus Actual Volumes Applied at "Reuse" Center Pivots.

Month	Reuse Volumes in Monthly Reports Antelope Valley Farming		Reuse Volumes at Reuse Pivots 1-5 Antelope Valley Farming	
	Total (MG)	Mean (MGD)	Total (MG)	Mean (MGD)
January	42.16	1.36	40.67	1.31
February	71.06	2.54	59.65	2.13
March	57.29	1.85	55.25	1.78
April	95.52	3.18	89.15	2.97
May	74.53	2.4	66.03	2.13
June	62.1	2.07	60.53	2.02
July	134.27	4.33	122.79	3.96
August	118.58	3.83	111.00	3.58
September	115.22	3.84	107.74	3.59
October	104.35	3.37	108.34	3.49
November	29.72	0.99	29.72	0.99
December	23.75	0.77	24.45	0.79
Totals	928.55	2.54	875.32	2.40

January 2003

The total effluent to LAWA site was 230.59 MG instead of 190.14 MG reported in the monthly report. The mean, maximum and minimum values reported in the monthly report are correct as reported.

The soluble BOD_5 level for the effluent from ponds 2 and 3 on January 12, 2003 was 14 mg/l instead of the reported 19 mg/l. The mean soluble BOD_5 for the month was 18 mg/l and the minimum was 14 mg/l.

The soluble carbonaceous BOD_5 level for the effluent from ponds 2 and 3 on January 12, 2003 was 6 mg/l instead of the reported 8 mg/l. The mean soluble carbonaceous BOD_5 for the month was 8 mg/l.

The soluble BOD_5 level for the effluent from ponds 4-7 on January 12, 2003 was 19 mg/l instead of the reported 14 mg/l. The mean soluble BOD_5 for the month was 17 mg/l and the minimum was 19 mg/l.

The soluble carbonaceous BOD_5 level for the effluent from ponds 4-7 on January 12, 2003 was 8 mg/l instead of the reported 6 mg/l. The mean soluble carbonaceous BOD_5 for the month was 6 mg/l and the maximum 8 mg/l.

May 2003

The soluble BOD_5 exceedance of the 30-day average limit of 30 mg/l should have been reported as a compliance violation and not in the "Remarks" section.

The electrical conductivities for wells MW26, MW27, and MW29 were reported at levels higher than the actual levels by a factor of 10. This was noted in the discussion section of the monthly report. The conductivity levels are corrected in this annual report.

June 2003

The pH exceedances of the 9.0 upper limit should have been reported as violations of the WDRs and not in the "Remarks" section.

The levels for TDS, total Kjeldahl nitrogen (TKN), nitrate, sulfate, and chloride at wells MW1, MW16, and MW17 were incorrect in the monthly report due to an error in the laboratory's database. The correct levels at MW1 were: TDS = 151 mg/l, TKN = <0.1 mg/l, nitrate = 0.28 mg/l, sulfate = 17 mg/l, chloride = 3.3 mg/l. The correct levels at MW16 were: TDS = 134 mg/l, TKN = 0.5 mg/l, nitrate = 0.92 mg/l, sulfate = 16 mg/l, chloride = 4.9 mg/l. The correct levels at MW17 were: TDS = 300 mg/l, TKN = <0.1 mg/l, nitrate = 2.18 mg/l, sulfate = 66 mg/l, chloride = 36 mg/l. The results have been corrected in the laboratory's database.

July 2003

The pH exceedances of the 9.0 upper limit should have been reported as violations of the WDRs and not in the "Remarks" section.

August 2003

The soluble BOD_5 exceedance of the maximum limit of 45 mg/l should have been reported as a compliance violation and not in the "Remarks" section.

In the discussion section, the BOD_5 level that exceeded the maximum limit of 45 mg/l was written as 58 mg/l. This was a typographical error. The correct value is 54 mg/l.

The influent phenol level was 57 µg/l instead of the reported 0.057 µg/l.

November 2003

Influent was sampled for several metals. The results were not reported in the monthly report. The November influent results are included in this annual report.

1.5 BIOSOLIDS MANAGEMENT

During 2003, approximately 393 dry tons of biosolids were generated. Approximately 239 dry tons of biosolids were stockpiled during 2003. Approximately 239 dry tons of biosolids remain in stockpiles as of December 31, 2003. No biosolids were removed off-site in 2003.

1.6 OPERATIONAL AND MAINTENANCE ACTIVITIES

Palmdale WRP operates on-site oxidation ponds. Pond 1 has been out of service for over 5 years due to a damaged effluent pipeline. Pond 1 will remain off-line (out of service) until the need for additional oxidation capacity arises in the future.

Ponds 4 and 5 are aerated, which permits pond BOD loadings in excess of 60 lbs/acre/day, while maintaining the remaining ponds below the BOD limit.

On October 21, the pipes conveying effluent from ponds 2 and 3, and ponds 4-7, were combined. The two pipes now join at the pump station, and the composite flow is pumped to the effluent application site. In the past, effluent from ponds 2 and 3 was conveyed to the effluent management site through gravity, whereas effluent from ponds 4-7 was pumped.

1.7 EFFLUENT REUSE

Reclaimed water for irrigation and land application was delivered to the Los Angeles World Airports (LAWA) irrigation site during 2003. The irrigation/land application areas are shown in Figures 1.1 and 2.1.

The LAWA irrigation site is a 2,560 acre area located north and northeast of the Palmdale WRP. During the year, the Sanitation Districts entered into a lease with LAWA for the use of this land. Only a portion of this area is currently dedicated to agricultural irrigation. Reclaimed water that is not used for irrigation is discharged to other portions of the LAWA site for disposal. The areas used for irrigation and the responsible operators are:

Harrington Farms	-	24 acres for growing pistachio trees
Tree Mover, Inc.	-	40 acres for growing Christmas trees, gourds, and landscape plants
Antelope Valley Products	-	20 acres for growing chestnut trees
Antelope Valley Farms, LLC	-	640 acres for growing livestock fodder (alfalfa hay, winter grains, sudan grass)

In 2003, approximately 28.14 MG of reclaimed water were used by Harrington Farms, 105.27 MG by Tree Mover, and 38.76 MG by Antelope Valley Products. Also in 2003, five center-pivot irrigation systems were used by Antelope Valley Farming for irrigation of forage crops. Antelope Valley Farming began irrigating forage crops in March 2002. During 2003, Antelope Valley Farming used 875.32 MG. Table 1.5 summarizes the reclaimed water usage in 2003.

In November 2003, the lease between LAWA and Antelope Valley Products ended and the operation of the chestnut farm ceased. Consequently as of November 2003, no effluent was delivered to the chestnut farm.

In June 2003, the District purchased the tree nursery from Tree Mover Inc. The District continues the cultivation of Christmas trees, which are used for wind barriers at the Palmdale WRP effluent management site.

NAME AND ADDRESS OF RECLAIMED WATER USERS

The Tree Mover
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Lancaster, CA 93539-2471

Harrington Farms
Mr. Lee Harrington
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Maricopa, CA 93252

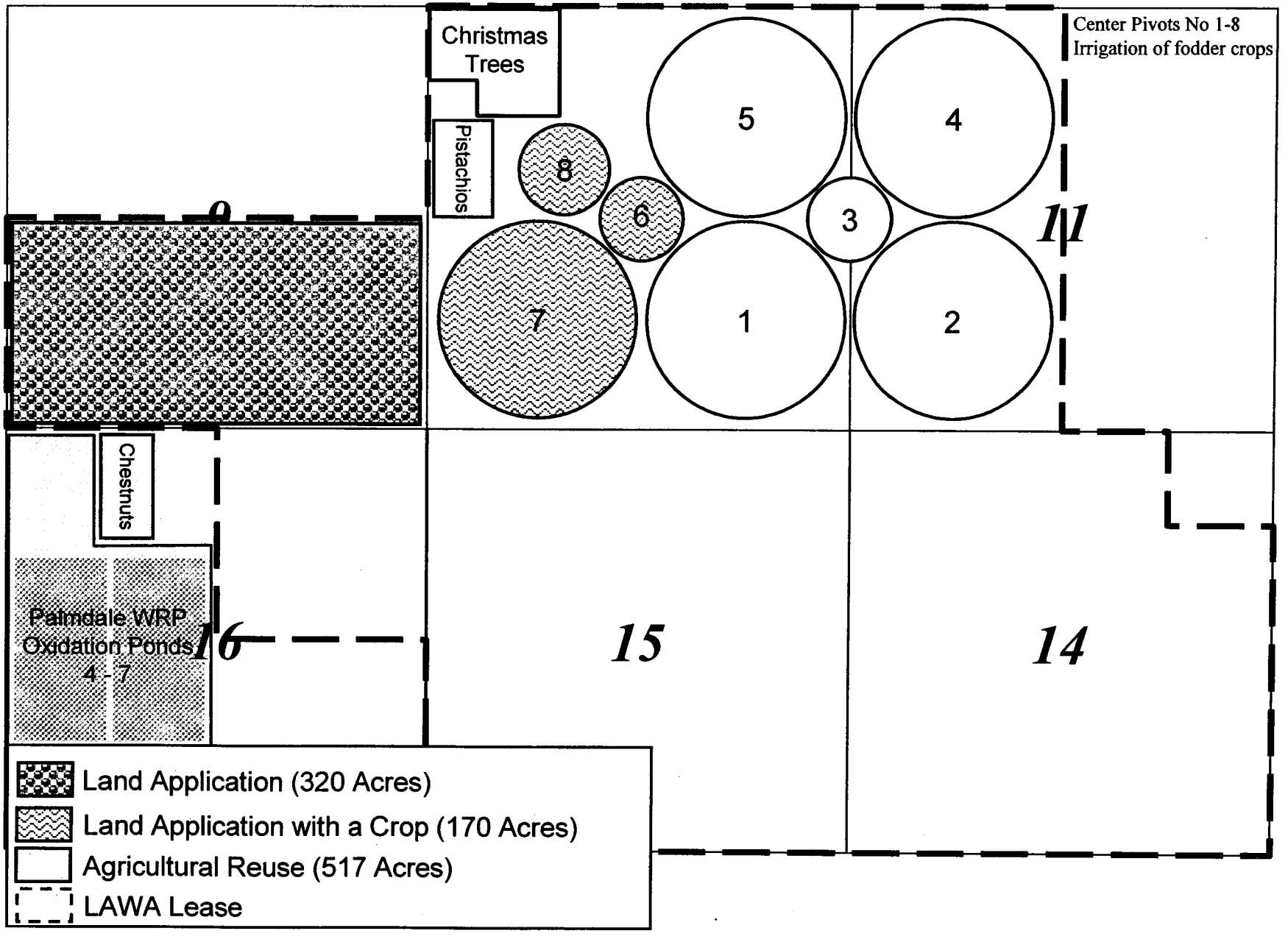
Antelope Valley Products
Mr. Jack Fortner & Mr. James L. Harris
8081 Sunflower Avenue
Alta Loma, CA 91701

Antelope Valley Farming, LCC
Mr. Craig Van Dam
9753 East Avenue F-8
Lancaster, CA 93535

TABLE 1-5
PALMDALE WATER RECLAMATION PLANT
RECLAIMED WATER USAGE MONITORING REPORT- 2003

User	Reclaimed water delivered		Use Area	Type of Use
	Daily Mean (MGD)	Annual Total (MG)	(Acres)	
Harrington Farms	0.08	28.14	24	Pistachio Orchard Irrigation
Tree Mover, Inc. / District	0.29	105.27	40	Irrigation of Christmas trees, and landscape plants
Antelope Valley Products	0.11	38.76	20	Chestnut Orchard Irrigation
Antelope Valley Farming	2.54	875.32	517	Livestock fodder Irrigation
TOTALS	3.02	1047.49	601	

FIGURE 1.1
PALMDALE WRP EFFLUENT MANAGEMENT – OPERATIONS



PALMDALE WATER RECLAMATION PLANT

CHAPTER 2

WASTEWATER FACILITIES AND STAFF

CHAPTER 2

WASTEWATER FACILITIES AND STAFF

2.1 SANITATION DISTRICTS OVERVIEW

The Sanitation Districts operate eleven wastewater treatment plants, listed in Table 2-1, and approximately 1,200 miles of trunk sewers in Los Angeles County. In addition, approximately 9,400 miles of lateral sewers, operated by other agencies, connect to the trunk sewers.

As indicated in Table 2-1, seven treatment plants, including the Joint Water Pollution Control Plant (JWPCP), are grouped into an integrated sewerage system, known as the Joint Outfall System, which treats approximately 95% of the Districts' sewage. These seven plants are all on a single network of sewers. JWPCP is the downstream plant and the other six are upstream plants. Flows from the upstream plants can be bypassed to a limited extent to JWPCP. Sludge from the upstream plants is returned to the sewer system and conveyed to JWPCP for further treatment (anaerobic digestion and dewatering) and disposal.

Two plants, the Saugus and Valencia Water Reclamation Plants, also comprise an integrated system with sludge processing and disposal taking place at the Valencia WRP. These plants are located in the City of Santa Clarita.

The Palmdale and Lancaster WRPs are stand alone facilities, and both these plants have sludge processing facilities.

Seven of the plants provide tertiary treatment consisting of inert media filtration following activated sludge secondary treatment. La Cañada WRP uses extended aeration activated sludge to provide secondary treatment. Two plants, Lancaster and Palmdale WRPs, use oxidation ponds to provide secondary treatment. The Lancaster WRP, in addition, provides a unique form of tertiary treatment to a portion of its effluent; a unit of the Lancaster WRP known as the Antelope Valley Tertiary Treatment Plant removes part of the phosphate in secondary effluent that is then filtered and chlorinated. The phosphate removal inhibits algae growth in recreational lakes that receive the effluent. During the first 10 months of 2002, JWPCP provided pure oxygen activated sludge secondary treatment to approximately two-thirds of its flow, with the balance of flow receiving advanced primary treatment. Beginning October 30, 2002, the JWPCP began providing secondary treatment to all flow.

Most of the plants operate with more than one discharge permit. Eight of the plants have NPDES permits; three do not. Ten of the plants have reuse (non-NPDES) permits and provide reclaimed water for reuse. JWPCP has no reuse permit. Three of the plants (Pomona, San Jose Creek and Whittier Narrows) are also covered by a permit with requirements for groundwater replenishment.

TABLE 2-1
SANITATION DISTRICTS
WASTEWATER TREATMENT PLANTS

Plant	Design Capacity (MGD)	Treatment Level	Sludge Treatment Facilities	NPDES Permit	Reuse Permit	Groundwater Recharge Permit
Joint Outfall Sewerage System						
La Cañada WRP	0.2	Secondary[3]			X	
Long Beach WRP	25	Tertiary[1]		X	X	
Los Coyotes WRP	37.5	Tertiary[1]		X	X	
Pomona WRP	15	Tertiary[1]		X	X	X
San Jose Creek WRP	100	Tertiary[1]		X	X	X
Whittier Narrows WRP	15	Tertiary[1]		X	X	X
Joint Water Pollution Control Plant (JWPCP)	400	Partial Secondary[2]	X	X		
Subtotal	592.7					
Santa Clarita Valley Sewerage System						
Saugus WRP	6.5	Tertiary[1]		X	X	
Valencia WRP	12.6	Tertiary[1]	X	X	X	
Subtotal	19.1					
Stand-alone Plants						
Lancaster WRP	16.0	Secondary[4]	X		X	
(Antelope Valley Tertiary Treatment Plant)[5]	0.6[5]	Tertiary[5]				
Palmdale WRP	15.0	Secondary[4]	X		X	
Subtotal	31.0					
Entire Sanitation Districts						
Total	642.8					

1.Tertiary treatment consists of activated sludge secondary followed by inert media filtration and disinfection.

2.During the first 10 months of 2002, the JWPCP had 400 MGD of advanced primary treatment capacity plus 200 MGD of pure oxygen activated sludge secondary capacity, and final effluent is a blend of primary and secondary effluents.

3.The La Cañada WRP has extended aeration activated sludge secondary treatment.

4.The Lancaster and Palmdale WRPs have oxidation ponds.

5.The Antelope Valley Tertiary Treatment Plant is part of the Lancaster WRP. It removes a portion of the phosphate from, and filters and chlorinates a portion of the Lancaster WRP effluent.

2.2 PALMDALE WATER RECLAMATION PLANT

The Palmdale WRP is located at 39300 30th Street East, Palmdale, California, 93550.

As indicated in Table 2-1, the plant has one wastewater permit for irrigation with and disposal of reclaimed water. Figure 2-1 shows the details of the plant (including both 30th and 40th street sites), the City of Los Angeles World Airports' (LAWA) irrigation site, and the locations of the groundwater monitoring wells.

Process Description

Figure 2-2 is a process schematic of the plant that uses the following process sequence: comminution, primary sedimentation and oxidation ponds. Primary sludge and primary skimmings are anaerobically digested. The digested sludge is dried in drying beds and stockpiled on site.

Chronology

The chronology in Table 2-2 is provided as background in understanding how the plant evolved to its present state of development.

Facility Improvements in 2003

On October 21, 2003, the pipes conveying effluent from ponds 2 and 3, and ponds 4-7 were converged. The two pipes now join at the pump station and the composite flow is pumped to the effluent management site. Prior to October 2003, effluent from ponds 2 and 3 was conveyed through gravity, and only effluent from ponds 4-7 was pumped to the effluent management site. In 2004, the Districts continued to implement improvements in effluent application practices at the LAWA land application and reuse sites.

Treatment Plant Operators

Operators at the Palmdale WRP and their certifications are listed in Table 2-3.

TABLE 2-2
PALMDALE WATER RECLAMATION PLANT
CHRONOLOGY

Item	Contract Number	Date
District 20 formed		08/07/51
Palmdale Treatment Plant completed (0.75 MGD)	767	09/04/53
District 20 enlarged (0.75 TO 2.5 MGD)		1956
Oxidation Ponds 5 and 6	1122	09/22/57
Digester Tank No. 2	1135	01/08/58
Dike Lining Pond 6	1239	10/03/58
Percolation Ponds 1 and 2	1237	11/03/58
District 20 Effluent Line	1238	11/14/58
Dike Lining Pond 5	1255	01/27/59
Effluent use for irrigation began		05/01/59
Oxidation ponds 1-4 and percolation ponds 1-4 combined	1398	08/03/61
District 20 Stage I Expansion (2.5 MGD to 3.1 MGD)	1996	09/14/72
Interim disposal ponds 6-9		10/80
Effluent Relief Line (24-inch)	2671	01/09/84
DOA Effluent Delivery Line (18-inch)		01/20/84
Stage II Expansion (3.1 MGD to 6.5 MGD)	2883	02/22/89
Oxidation Ponds 4 and 5	2975	05/05/89
Primary Effluent Relief Line	3055	07/19/90
Stage III Expansion (6.5 MGD to 8 MGD)	3098	07/14/93
Pond Effluent System	3168	10/30/92
Fire Protection & Water Supply Improvements	3213	11/04/92
Stage IV Groundwater Monitoring Facilities	3340	12/29/95
Stage IV Expansion (8.0 MGD to 15.0 MGD	3341	02/26/97*

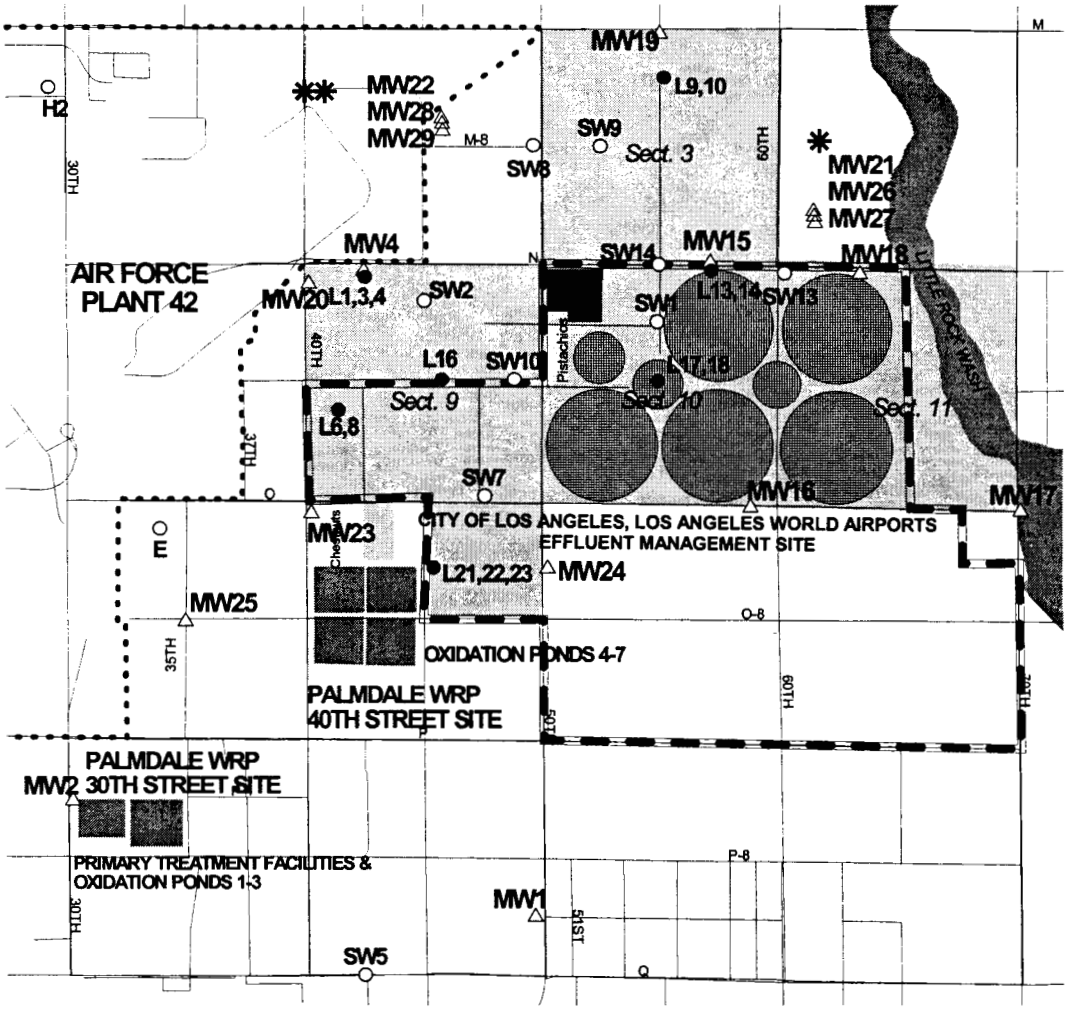
* The treatment facilities for Stage IV expansion were placed in operation in July 1996.

TABLE 2-3

PALMDALE WATER RECLAMATION PLANT
2003 TREATMENT PLANT OPERATORS

Operator	Shift	Certification
Tim Linn, Supervisor	Day	Grade III
Roberto Martinez	Day	Grade III
William Zeller	Day	Grade II
James Barrick	Day	Grade II

FIGURE 2-1
PALMDALE WATER RECLAMATION PLANT
Effluent Spreading/Reuse Sites, Wells and Lysimeters



MW21 - Shallow	MW22 - Shallow
MW26 - Medium	MW28 - Medium
MW27 - Deep	MW29 - Deep

0.6 0 0.6 1.2 Miles

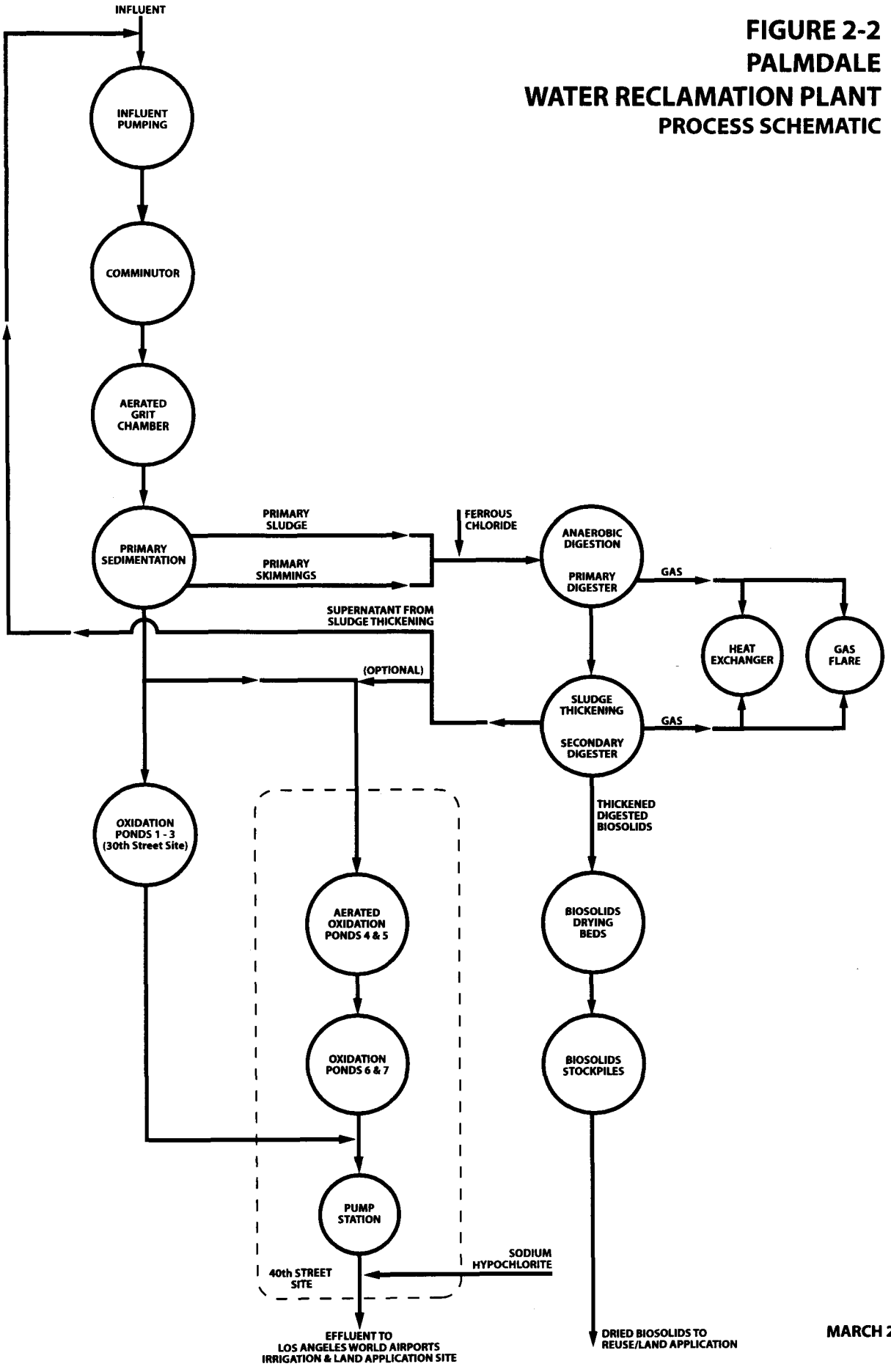
- SUPPLY WELL
- MONITORING WELL
- LYSIMETER
- PREVIOUS EFFLUENT SPREADING/REUSE AREA
- CENTER PIVOTS - FODDER CROPS
- NEW LEASED AREA
- AIR FORCE PLANT 42

N

SANITATION DISTRICTS OF LOS ANGELES COUNTY

UPDATED: 03/23/2004
P:\GIS\Palm\FIG2-1_2004-03-23

FIGURE 2-2
PALMDALE
WATER RECLAMATION PLANT
PROCESS SCHEMATIC



MARCH 2004

PALMDALE WATER RECLAMATION PLANT

CHAPTER 3

LABORATORIES

CHAPTER 3

LABORATORIES

3.1 INTRODUCTION

The Sanitation Districts operate ten laboratories located at nine of its eleven treatment plants. The Laboratories Section consists of five major subsections: San Jose Creek Water Quality Laboratory (SJCWQL), Joint Water Pollution Control Plant Water Quality Laboratory (JWPCPWQL), Treatment Plant Laboratories (TPLs), Quality Assurance/Sample Receiving, and Laboratory Services.

The eight treatment plant laboratories are the Long Beach, Los Coyotes, Pomona, San Jose Creek, Whittier Narrows, Saugus, Valencia and Lancaster TPLs. These laboratories are concerned primarily with process control of the treatment plants. Additional duties of the TPLs include a portion of the monitoring (generally simpler tests which do not require specialized equipment or expertise) pursuant to waste discharge and water reclamation permits.

The two water quality laboratories are the SJCWQL and the JWPCPWQL. They utilize specialized equipment and expertise to perform tests that the TPLs are unable to perform. The JWPCPWQL also functions as a TPL; it includes a group that conducts process control tests for the JWPCP treatment plant.

During July of 2003, the Analytical Chemistry Group of the SJCWQL was reorganized as part of the San Jose Creek TPL. This greatly increased the capabilities of that TPL to include more complex testing and the addition of specialized equipment. To reflect the increase in both size and the analytical testing resources of that laboratory, the San Jose Creek TPL was renamed the San Jose Creek Analytical Plant Laboratory (SJCAPL).

There are no laboratories at the La Cañada and Palmdale plants; consequently, the San Jose Creek APL also functions as the TPL for the La Cañada Water Reclamation Plant, and the Lancaster TPL also functions as the TPL for the Palmdale Water Reclamation Plant.

3.2 QUALITY ASSURANCE ACTIVITIES

The Quality Assurance (QA) Group of the Sanitation Districts Laboratory Section is responsible for monitoring the validity and quality of analytical data produced in all ten laboratories. In order to accomplish this goal, a quality assurance plan prepared by the QA Group is strictly adhered to. The plan includes routine QA activities that are performed in the laboratories in order to assure the defensibility of data reported.

In 2003, routine intralaboratory and interlaboratory QA activities that were performed included, but were not limited to, the following:

Intralaboratory Quality Control

1. A routine practice of running laboratory control samples, duplicates and matrix spikes or duplicate spikes for every ten samples, or every analytical batch of less than ten samples, was maintained for most sample types. Control limits have been established for both precision and accuracy for most analytes, and quality control data were plotted on control charts for trend analyses. For situations where the data were outside of the control limits,

corrective action was initiated and maintained at the bench level until the problems were solved.

2. A reagent or method blank was routinely run with each batch of samples as a contamination check.

3. Calibration standards were analyzed as required. For some tests, a daily calibration verification standard was used to check the initial calibration curve. For other tests, a multi-point calibration curve was prepared on each day of analysis.

4. For some organic constituents, surrogate standards were added to every sample, duplicate, spike, and blank. The results were compared to established acceptance limits. When unacceptable QA results were obtained, corrective action was performed.

5. Instrument QA was also performed (e.g., for GC/MS, mass calibration and tuning were performed to meet ion abundance criteria, etc.).

6. In 2003 at SJCWQL and JWPCPWQL, chemical and bacteriological suitability testing was conducted monthly on laboratory purified water used for microbiological testing.

7. The annual Inhibitory Residue Test was performed in 2003.

8. Positive, negative, and sterility checks were performed on each batch of prepared media.

9. The Biology Group performed routine toxicity bioassay QA by running a known toxicant with every batch of samples. They also performed other QA activities as required for a biology laboratory.

Interlaboratory Quality Control

1. The nine laboratories supplying data for NPDES monitoring programs (i.e., all the laboratories except the Lancaster TPL) participated in the EPA's Discharge Monitoring Report (DMR) QA by analyzing chemistry samples purchased from one of the EPA certified suppliers. Overall performance was satisfactory.

2. In 2003, to comply with a NPDES permit requirement, the SJCWQL Biology Group performed bioassay testing for standard toxicants purchased from one of the EPA certified suppliers. Overall performance was satisfactory.

3. In 2003, all ten Districts' laboratories participated in the California Department of Health Services' Environmental Laboratory Accreditation Program (ELAP) Performance Evaluation studies. Overall performance was satisfactory.

4. The Districts' ten laboratories analyzed microbiology samples purchased from one of the EPA certified suppliers in 2003 as part of its ELAP certification for microbiology. Overall performance was satisfactory.

5. Quality control samples in the form of QC check standards, either prepared in-house or purchased from commercial sources, were issued by the QA Group to all Districts' laboratories. In situations where the results were not acceptable, the analysts and their supervisors were informed and error resolutions were performed. This consisted of checking calculations, data transcription, instrumentation, methodology, etc. Follow-up

check samples were issued to verify that the analyses were back in control. Out of 1547 QC check samples issued in 2003, only 59 (3.8%) required error resolution.

6. The QA Group also issued split samples collected from one of the water reclamation plants to assess analysis in a real environmental matrix. Results of these analyses were also submitted to the QA Group for statistical evaluation.

7. An MF coliform standard and multiple analyst plate count was distributed to all the laboratories on a monthly basis.

8. In 2003, all ten laboratories were site-visited and audited by the QA Group in preparation for the ELAP re-certification process of the laboratories scheduled for 2004.

3.3 LABORATORY TEST CODES

The Districts use a unique 3-character code to identify each constituent in the laboratory database. Priority pollutants and other significant constituents are organized into the following groups:

Test Group	Test Code Series
Physical Properties and Solids	100
Nitrogens and Sulfurs	200
Miscellaneous	300
Carbons	400
Chlorinated Pesticides and PCBs	500
Volatile Organic Compounds	600
Metals	700
Base-Neutral/Acid Extractable Compounds	800
Dioxins	D00
Furans	F00

In the laboratory data summaries, the constituents are sorted in numerical order according to the test code. Both the constituent name and test code are given at the top of each column in the data summary. Table 3-1 is provided for assistance in finding specific constituents in the summaries. One can first look for the desired constituent in this table (arranged alphabetically) to find the test code. Then, knowing the test code, one can find the desired constituent and its data in the tables which follow Table 3-1 (arranged in numerical order).

3.4 DETECTION AND REPORTING LIMITS

Each analytical method has a Minimum Detection Limit (MDL), which is the lowest level that can possibly be detected. The lowest level that can be detected with statistical significance corresponds to the lower level of the analytical calibration curve. This level is called the Minimum Level (ML), or the Reporting Minimum Level (RML). RML can be equal or higher than the ML. The RML is equal to the ML if the sample is not diluted, and increases with dilution. The analytical test methods and their MDL, ML, and RML, used for effluent and receiving water monitoring are shown in the Appendix of this report. In this annual report, sample results below the RML are indicated by the use of the less than symbol (<) followed by the RML.

TABLE 3-1
LABORATORY DATABASE
CONSTITUENTS IN ALPHABETICAL ORDER

TEST DESCRIPTION	TEST CODE
% MOISTURE	158
% ORGANIC MATTER	406
1,1,1,2-TETRACHLOROETHANE	6D5
1,1,1-TRICHLOROETHANE	603
1,1,2,2-TETRACHLOROETHANE	653
1,1,2-TRICHLOROETHANE	618
1,1-DICHLOROETHANE	616
1,1-DICHLOROETHENE	605
1,1-DICHLOROPROPENE	6C7
1,2,3,4-TETRAMETHYLBENZENE	686
1,2,3-TRICHLOROBENZENE	889
1,2,3-TRICHLOROPROPANE	6D6
1,2,4,5-TETRACHLOROBENZENE	8E7
1,2,4-TRICHLOROBENZENE	846
1,2-DIBROMO-3-CHLOROPROPANE	6C3
1,2-DIBROMOETHANE	673
1,2-DICHLOROBENZENE	819
1,2-DICHLOROETHANE	619
1,2-DICHLOROETHANE-D4	S10
1,2-DICHLOROPROPANE	650
1,2-DIPHENYLHYDRAZINE	829
1,3,5-TRICHLOROBENZENE	899
1,3,5-TRIMETHYLBENZENE	661
1,3-BUTADIENE	675
1,3-DICHLOROBENZENE	820
1,3-DICHLOROPROPANE	6C5
1,4-DICHLOROBENZENE	821
1,4-DICHLOROBENZENE-D4	I01
1,4-DICHLOROBENZENE-D4	S20
1,4-DICHLOROBUTANE	S08
1,4-DIOXANE	696
1,4-DIOXANE-D8	I06
1,4-NAPHTHOQUINONE	8C7
1234678HEPCHLRDIBENZDIOXIN	D27
1234678HEPTCHLORDIBENZFURAN	F23
1234789HEPTCHLORDIBENZFURAN	F24
123478HEXCHLORDIBENZDIOXIN	D24
123478HEXCHLORODIBENZOFURAN	F19
1234TETRCHLORDIBENZDIOXIN	D18
123678HEXCHLORDIBENZDIOXIN	D25
123678HEXCHLORODIBENZOFURAN	F20
123789HEXCHLORDIBENZDIOXIN	D26
123789HEXCHLORODIBENZOFURAN	F22
12378PENCHLORDIBENZDIOXIN	D22
12378PENTACHLORODIBENZFURAN	F17
123TRICHLORODIBENZODIOXIN	D14
123TRICHLORODIBENZOFURAN	F15
12478PENCHLORDIBENZDIOXIN	D23
124TRICHLORODIBENZODIOXIN	D15

TABLE 3-1
LABORATORY DATABASE
CONSTITUENTS IN ALPHABETICAL ORDER

TEST DESCRIPTION	TEST CODE
1278TETRCHLORDIBENZDIOXIN	D19
12DICHLORODIBENZOFURAN	F13
1378TETRCHLORDIBENZDIOXIN	D20
16DICHLORODIBENZODIOXIN	D11
178TRICHLORODIBENZODIOXIN	D16
17-ALPHA ETHYNYLESTRADIOL	E03
17-BETA ESTRADIOL	E02
1-BROMO-2-FLUOROETHANE	I05
1CHLORODIBENZODIOXIN	D09
1CHLORODIBENZOFURAN	F09
1-METHYLNAPHTHALENE	894
1-METHYLPHENANTHRENE	896
1-NAPHTHYLAMINE	8C8
1-PROPANOL	671
2,2-DICHLOROPROPANE	6C6
2,3,4,5-TETRACHLOROPHENOL	687
2,3,4,6-TETRACHLOROPHENOL	8E8
2,3,4-TRICHLOROPHENOL	693
2,3,5,6-TETRACHLOROPHENOL	688
2,3,5-TRICHLOROPHENOL	689
2,3,5-TRIMETHYLNAPHTHALENE	898
2,3,6-TRICHLOROPHENOL	690
2,3,7,8-TCDD	844
2,3-BENZOFLUORENE	884
2,3-DICHLOROANILINE	864
2,4,5,6-TETRACHLORO-M-XYLENE	S13
2,4,5-T	5C1
2,4,5-TP(SILVEX)	518
2,4,5-TRICHLOROPHENOL	691
2,4,6-TRIBROMOPHENOL	S06
2,4,6-TRICHLOROPHENOL	664
2,4,6-TRICHLOROPHENOL	856
2,4-D(ACID)	517
2,4-DB	5C2
2,4-DICHLOROPHENOL	658
2,4-DICHLOROPHENOL	847
2,4-DIMETHYLPHENOL	626
2,4-DIMETHYLPHENOL	848
2,4-DINITROPHENOL	849
2,4-DINITROTOLUENE	826
2,6-DICHLOROPHENOL	8A9
2,6-DIMETHYLNAPHTHALENE	892
2,6-DINITROTOLUENE	827
2.4-DP (DICHLORPROP)	5B7
234678HEXCHLORODIBENZOFURAN	F21
23478PENTACHLORODIBENZFURAN	F18
2378TETRACHLORODIBENZOFURAN	F16
2378TETRCHLORDIBENZDIOXIN	D21
237TRICHLORODIBENZODIOXIN	D17

TABLE 3-1
LABORATORY DATABASE
CONSTITUENTS IN ALPHABETICAL ORDER

TEST DESCRIPTION	TEST CODE
23DICHLORODIBENZODIOXIN	D12
23DICHLORODIBENZOFURAN	F14
27DICHLORODIBENZODIOXIN	D13
2-ACETYLAMINOFLUORENE	8A2
2-BUTANONE	680
2CHLORODIBENZODIOXIN	D10
2CHLORODIBENZOFURAN	F10
2-CHLOROETHYLVINYLETHER	648
2-CHLORONAPHTHALENE	815
2-CHLOROPHENOL	657
2-CHLOROPHENOL	845
2-ETHYLTOLUENE	660
2-FLUOROBIPHENYL	S05
2-FLUOROPHENOL	S01
2-HEXANONE	699
2-METHYL FLUORANTHENE	887
2-METHYL-4,6DINITROPHENOL	850
2-METHYLNAPHTHALENE	895
2-METHYLNAPHTHALENE	8C6
2-NAPHTHYLAMINE	8C9
2-NITROPHENOL	851
2-PROPANOL	672
3,3'-DICHLOROBENZIDINE	822
3,3'-DIMETHYLBENZIDINE	8B3
3,4,5-TRICHLOROPHENOL	692
3,6-DIMETHYLPHENANTHRENE	893
3CHLORODIBENZOFURAN	F11
3-METHYLCHOLANTHRENE	8C4
4-AMINOBIPHENYL	8A3
4-BROMOFLUOROBENZENE	S12
4-BROMOPHENYL PHENYLETHER	813
4-CHLORO-3-METHYLPHENOL	656
4-CHLORO-3-METHYLPHENOL	853
4CHLORODIBENZOFURAN	F12
4-CHLOROPHENYLPHENYLETHER	816
4-METHYL-2-PENTANONE	681
4-NITROPHENOL	852
4-NONYLPHENOL	E05
4-TER OCTYLPHENOL	E06
5-NITRO-O-TOLUIDINE	8D9
7,12-DIMETHYLBENZ(A)ANTHRACENE	8B2
7,12DIMETHYLBENZ(A)ANTHRACENE	888
9,10-DIPHENYLANTHRACENE	883
90 FATHEAD ACUTE	B18
90 MENIDIA ACUTE	B19
ACENAPHTHENE	800
ACENAPHTHENE-D10	S22
ACENAPHTHYLENE	801
ACETIC ACID	639

TABLE 3-1
LABORATORY DATABASE
CONSTITUENTS IN ALPHABETICAL ORDER

TEST DESCRIPTION	TEST CODE
ACETONE	676
ACETONITRILE	665
ACETOPHENONE	8A1
ACID CONC.	344
ACIDITY	318
ACROLEIN	654
ACRYLONITRILE	655
ACTINOLITE FIBERS	CA1
ADA (ANTHRAQUINONE DSA)	329
AEROBIC PLATE COUNT	354
AIR (O2 + AR + N2)	331
ALDRIN	512
ALGAE COUNT	360
ALLYL CHLORIDE	6B8
ALPHA-BHC	508
ALUMINUM	707
AMMONIA NITROGEN	1S6
AMMONIA NITROGEN	201
AMOSITE FIBERS	CA2
ANAEROBIC PLATE COUNT	355
ANTHOPHYLLITE FIBERS	CA3
ANTHRACENE	802
ANTIMONY	725
ARGON (AR)	333
AROCLOR 1016	535
AROCLOR 1221	536
AROCLOR 1232	537
AROCLOR 1242	519
AROCLOR 1248	538
AROCLOR 1254	520
AROCLOR 1260	539
ARSENIC	705
ATRAZINE	550
AVAILABLE CALCIUM OXIDE	321
AVAILABLE CYANIDE	212
AVAILABLE PHOSPHORUS	339
BACTERIOPHAGE	382
BARIUM	706
BENZENE	620
BENZIDINE	803
BENZO(A)ANTHRACENE	804
BENZO(A)PYRENE	805
BENZO(B)FLUORANTHENE	806
BENZO(E)PYRENE	890
BENZO(G.H.I.)PERYLENE	807
BENZO(K)FLUORANTHENE	808
BENZYL ALCOHOL	8A4
BENZYL CHLORIDE	678
BERYLLIUM	726

TABLE 3-1
LABORATORY DATABASE
CONSTITUENTS IN ALPHABETICAL ORDER

TEST DESCRIPTION	TEST CODE
BETA-BHC	523
BICARBONATE ALKALINITY	306
BIOLOGICAL EXAMINATION	X06
BIPHENYL	891
BIS(2-CHLOROETHYL)ETHER	810
BIS(2-CL-ETHOXY)METHANE	809
BIS(2-CL-ISOPROPYL)ETHER	811
BISMUTH	727
BISPHENOL A	E04
BORON	314
BROMIDE	319
BROMOCHLOROMETHANE	6B9
BROMODICHLOROMETHANE	608
BROMOETHANE	694
BROMOFORM	610
BROMOMETHANE	646
BULK DENSITY	161
BUTANE	635
BUTYLBENZYL PHTHALATE	814
BUTYRIC ACID	642
C. PERFRINGENS	B51
CADMIUM	708
CALCIUM	703
CALCIUM-HARDNESS	701
CAM TEST	C01
CAMPYLOBACTER	386
CARBAZOLE	859
CARBON DIOXIDE (CO2)	336
CARBON DISULFIDE	285
CARBON DISULFIDE	698
CARBON MONOXIDE (CO)	337
CARBON TETRACHLORIDE	604
CARBONACEOUS BOD5 (CBOD5)	412
CARBONATE ALKALINITY	307
CARBONYL SULFIDE	284
CATION EXCH. CAPACITY	108
CCL4 ACTIVITY (CARBON)	121
CERIO. CHRONIC-SURVIVAL	B06
CERIO.CHRONIC-REPRODUCTION	B07
CERIUM	728
CESIUM	729
CHLORIDE	301
CHLORIDE MASS EMISS. RATE	973
CHLORINATED PESTICIDES	5B0
CHLORINE DEMAND	303
CHLORINE REQUIR.	304
CHLORINE RESIDUAL	302
CHLOROBENZENE	611
CHLOROBENZENE-D5	I04

TABLE 3-1
LABORATORY DATABASE
CONSTITUENTS IN ALPHABETICAL ORDER

TEST DESCRIPTION	TEST CODE
CHLOROBENZILATE	8A6
CHLOROETHANE	647
CHLOROFORM	602
CHLOROMETHANE	649
CHLOROPHYLL A	364
CHLOROPICRIN	6B3
CHLOROPRENE	6C2
CHLORPYRIFOS	5D8
CHRYSENE	817
CHRYSENE-D12	S24
CHRYSOTILE FIBERS	CA4
CIS-1,2-DICHLOROETHYLENE	677
CIS-1,3-DICHLOROPROPENE	651
CIS-CHLORDANE	526
CIS-CHLORDENE	541
CIS-NONACHLOR	543
CLOSTRIDIUM PERFRINGENS	375
CN AMENABLE TO CHLORINE	210
COBALT	711
COLOR, APPARENT	104
COLOR,TRUE	132
CONDUCTIVITY	102
CONDUCTIVITY	1S4
COPPER	712
CROCIDOLITE FIBERS	CA5
CRYPTOSPORIDIUM	B53
DALAPON	5B5
DECACH3CYCLOPENTASILOXANE	6E0
DECACHLOROBIPHENYL	S14
DECAFLUOROBIPHENYL	S04
DECAMETHYLTETRASILOXANE	6G0
DELTA-BHC	524
DEMETON	5D3
DEPTH TO BOTTOM	901
DEPTH TO WATER	1S8
DEPTH TO WATER	900
DEUTERIUM	133
DIALLATE	8A7
DIAZINON	5D9
DIBENZO(A,H)ANTHRACENE	818
DIBENZOFURAN	8A8
DIBROMOCHLOROMETHANE	609
DIBROMOFLUOROMETHANE	S09
DICAMBA	5B6
DICHLORODIBENZODIOXINS	D02
DICHLORODIBENZOFURANS	F02
DICHLORVOS	5B1
DICYCLOPENTADIENE	6B5
DIELDRIN	513

TABLE 3-1
LABORATORY DATABASE
CONSTITUENTS IN ALPHABETICAL ORDER

TEST DESCRIPTION	TEST CODE
DIETHYL PHTHALATE	823
DIETHYL SULFIDE	290
DIETHYLAMINE	6E3
DIETHYLHEXYL PHTHALATE	812
DI-ISOPROPYL ETHER	6F4
DIMETHOATE	5C7
DIMETHYL PHTHALATE	824
DIMETHYL SULFIDE	286
DIMETHYLDISULFIDE	291
DI-N-BUTYL PHTHALATE	825
DI-N-OCTYL PHTHALATE	828
DINOSEB	5C3
DIPHENYLAMINE	8B5
DIQUAT	5E1
DISSOLVED CARBON DIOXIDE	409
DISSOLVED ORGANIC CARBON	455
DISSOLVED OXYGEN	115
DISSOLVED OXYGEN	1S3
DISULFOTON	5C8
DIVERSITY INDEX	361
DNA SEQUENCING	X11
DODECACH3CYCLOHEXSILOXANE	6G3
DODECAMETHYLPENTASILOXANE	6G1
E. COLI	B50
E. COLI (IDEXX)	366
E.COLI(MF)	B49
ECE (SOIL SALINITY)	E01
EDTA	327
EDTA-IRON(I)	347
ENDOSULFAN I	531
ENDOSULFAN II	532
ENDOSULFAN SULFATE	533
ENDRIN	514
ENDRIN ALDEHYDE	534
ENTEROCOCCUS	359
ENTEROCOCCUS (IDEXX)	367
ENTEROCOCCUS (MF)	357
ENTEROPATHOGENIC E. COLI	383
EPA EXTRACTION PROCEDURE	172
ETHANE	633
ETHANOL	623
ETHYL ACETATE	6E4
ETHYL BENZENE	624
ETHYL MERCAPTAN	260
ETHYL MERCAPTAN	283
ETHYL METHACRYLATE	6D8
ETHYL METHANESULFONATE	8B6
ETHYL PARATHION	5D1
ETHYL-TERT BUTYL ETHER	6F5

TABLE 3-1
LABORATORY DATABASE
CONSTITUENTS IN ALPHABETICAL ORDER

TEST DESCRIPTION	TEST CODE
FAMPHUR	8B7
FATHEAD 96H-ACUTE-100%EFF	B02
FATHEAD 96H-ACUTE-CONC	B03
FATHEAD 96H-ACUTE-TITLE22	B01
FATHEAD CHRONIC-GROWTH	B05
FATHEAD CHRONIC-SURVIVAL	B04
FECAL COLIFORM	351
FECAL COLIFORM (MF)	356
FECAL STREPTOCOCCUS	353
FERRIC IRON	746
FERROUS CHLORIDE	348
FERROUS IRON	745
FIELD CONDUCTIVITY	906
FIELD DISSOLVED CO2	908
FIELD DISSOLVED O2	907
FIELD HYDROGEN SULFIDE	910
FIELD PH	905
FIELD TOTAL ALKALINITY	909
FIELD WATER TEMPERATURE	904
FLASH POINT	105
FLOATABLE SOLIDS	157
FLOC/FILAMENT SURVEY	X10
FLOW	Z01
FLUORANTHENE	830
FLUORENE	831
FLUORIDE	313
FLUORIDE MASS EMISS. RATE	974
FLUOROBENZENE	I03
FLUOROMETER READING	362
FORMALDEHYDE	697
FREE ALKALI	345
FREE CYANIDE	207
FREON 11 (CCL3F)	669
FREON 12 (CCL2F2)	668
FREON 21 (CHCL2F)	670
FREON TF	617
GAMMA RADIATION	372
GC/MS SCAN	X03
GIARDIA	B52
GOLD	730
GROSS ALPHA RADIOACTIVITY	370
GROSS BETA RADIOACTIVITY	371
GUTHION	5D4
HEAT OF COMBUSTION	112
HEATING VALUE OF GAS	338
HEPTACHLOR	510
HEPTACHLOR EPOXIDE	511
HEPTACHLORODIBENZODIOXINS	D07
HEPTACHLORODIBENZOFURANS	F07

TABLE 3-1
LABORATORY DATABASE
CONSTITUENTS IN ALPHABETICAL ORDER

TEST DESCRIPTION	TEST CODE
HEXACH3CYCLOTRISILOXANE	6G2
HEXACHLOROBENZENE	832
HEXACHLOROBUTADIENE	833
HEXACHLOROCYCLOPENTADIENE	834
HEXACHLORODIBENZODIOXINS	D06
HEXACHLORODIBENZOFURANS	F06
HEXACHLOROETHANE	835
HEXACHLOROPROPENE	8B8
HEXAMETHYLDISILOXANE	6F8
HEXANE	637
HEXAVALENT CHROMIUM	710
HOLD FOR TEST ASSIGNMENT	170
HPLC SCAN	X09
HYDROCARBONS-METHOD 418.1	C18
HYDROCARBONS-MODIFIED8015	C15
HYDROGEN (H2)	340
HYDROGEN CYANIDE	209
HYDROGEN SULFIDE	261
HYDROGEN SULFIDE	281
HYDROSCAN	173
HYDROXIDE ALKALINITY	308
HYMENOLEPIS	392
INDENO(1,2,3-C,D)PYRENE	836
INFRARED SCAN	X02
ION CHROMATOGRAPHY SCAN	X08
IRON	713
ISOBUTYL ALCOHOL	6C9
ISOBUTYL MERCAPTAN	289
ISOBUTYRALDEHYDE	6E7
ISOBUTYRIC ACID	641
ISODRIN	8B9
ISOPHORONE	837
ISOPROPYL ACETATE	6E8
ISOPROPYL ETHER	6E9
ISOPROPYL MERCAPTAN	287
ISOPROPYLBENZENE	684
ISOSAFROLE	8C1
ISOVALERIC ACID	643
KEPONE	5C5
KEPONE	8C2
LANTHANUM	731
LAS	343
LEAD	714
LIMONENE	659
LINDANE (GAMMA-BHC)	509
LITHIUM	715
LOSS ON IGNITION	169
LOWER EXPLOSIVE LIMIT	1B0
M+P CRESOL	862

TABLE 3-1
LABORATORY DATABASE
CONSTITUENTS IN ALPHABETICAL ORDER

TEST DESCRIPTION	TEST CODE
M+P-CRESOL	628
M+P-XYLENE	695
MACROCYSTIS-GERMINATION	B09
MACROCYSTIS-GERMTUBLENGTH	B10
MAGNESIUM	704
MAGNESIUM-HARDNESS	702
MALATHION	5D5
MANGANESE	716
MBAS	315
MCPA	5B9
MCPP	5B8
M-DICHLOROBENZENE	614
M-DINITROBENZENE	8B4
MENIDIA ACUTE,%SURVIVAL	B17
MENIDIA-GROWTH	B15
MENIDIA-SURVIVAL	B14
MERCAPTANS	258
MERCURY	717
METALS SCAN	X05
METHACRYLONITRILE	6D1
METHANE	632
METHANE (CH4)	335
METHANOL	622
METHAPYRILENE	8C3
METHOXYCLOR	516
METHYL CELLOSOLVE	6F1
METHYL FORMATE	6F2
METHYL IODIDE	6D2
METHYL MERCAPTAN	259
METHYL MERCAPTAN	282
METHYL METHACRYLATE	6D7
METHYL METHANESULFONATE	8C5
METHYL PARATHION	5C9
METHYL PYRENE	886
METHYLCYCLOHEXANE	I02
METHYLENE BROMIDE	6D3
METHYLENE CHLORIDE	601
METHYL-TERT-BUTYL-ETHER	662
MEVINPHOS	5B2
MICROSCOPIC EXAM	X04
MICROTOX-15	B32
MICROTOX-5	B31
MIREX	552
M-NITROANILINE	8D2
MOLYBDENUM	732
MONOCHLORODIBENZODIOXINS	D01
MONOCHLORODIBENZOFURANS	F01
M-XYLENE	666
MYSID-FECUNDITY	B12

TABLE 3-1
LABORATORY DATABASE
CONSTITUENTS IN ALPHABETICAL ORDER

TEST DESCRIPTION	TEST CODE
MYSID-GROWTH	B13
MYSID-SURVIVAL	B11
NALED (DIBROM)	5B3
N-AMYL ACETATE	6E1
NAPHTHALENE	838
NAPHTHALENE-D8	S21
N-BUTYL ACETATE	6E2
N-BUTYL MERCAPTAN	295
N-DECANE	865
NEUTRALIZATION CAPACITY	369
N-HEPTANE	6E5
N-HEXANE	6E6
NICKEL	718
NID	316
NITRATE NITROGEN	1S7
NITRATE NITROGEN	204
NITRITE NITROGEN	205
NITROBENZENE	839
NITROBENZENE-D5	S03
NITROGEN (N2)	334
NITROMETHANE	6B0
N-NITROSODIETHYLAMINE	8D5
N-NITROSODIMETHYLAMINE	840
N-NITROSODI-N-BUTYLAMINE	8D4
N-NITROSODI-N-PROPYLAMINE	841
N-NITROSODIPHENYLAMINE	857
N-NITROSOMETHYLETHYLAMINE	8D6
N-NITROSOPIPERIDINE	8D7
N-NITROSOPYRROLIDINE	8D8
NO TEST REQUESTED	999
NOCARDIA	358
N-OCTADECANE	866
NONMETHANE ORGANICS (TCA)	415
NONMETHANE ORGANICS TO-12	416
NON-POLAR OIL AND GREASE	414
NONVOLATILE DISSOL SOLIDS	166
NOX (AS NO2)	211
N-PROPYL MERCAPTAN	293
N-PROPYLBENZENE	685
O,O,O-TRIETHYLPHOSPHOROTHIOATE	8F1
O+P DICHLOROBENZENE	674
O+P-XYLENE	667
OBJECTIONABLE INSOLUBLES	322
O-CRESOL	627
O-CRESOL	861
OCTACH3CYCLOTETRASILOXANE	6D9
OCTACHLORODIBENZODIOXIN	D08
OCTACHLORODIBENZOFURAN	F08
OCTAMETHYLTRISILOXANE	6F9

TABLE 3-1
LABORATORY DATABASE
CONSTITUENTS IN ALPHABETICAL ORDER

TEST DESCRIPTION	TEST CODE
O-DICHLOROBENZENE	613
ODOR	109
ODOR CHARACTERIZATION	X07
OIL & GREASE	408
OIL & GREASE MASS EM.RATE	975
O-NITROANILINE	8D1
OP'-DDD	503
OP'-DDE	501
OP'-DDT	505
ORGANIC LEAD	7A1
ORGANIC NITROGEN	202
ORTHO PHOSPHATE	311
O-TOLUIDINE	8E9
OXYCHLORDANE	529
OXYGEN (O2)	332
O-XYLENE	629
P(DIMETHYLAMINO)AZOBENZENE	8B1
PAINT FILTER TEST	127
PALLADIUM	M02
PARAQUAT	5E2
PCB CONGENER 101	567
PCB CONGENER 105	568
PCB CONGENER 110	569
PCB CONGENER 114	570
PCB CONGENER 118	571
PCB CONGENER 119	572
PCB CONGENER 123	573
PCB CONGENER 126	574
PCB CONGENER 128	575
PCB CONGENER 138	576
PCB CONGENER 149	577
PCB CONGENER 151	578
PCB CONGENER 153	579
PCB CONGENER 156	580
PCB CONGENER 157	581
PCB CONGENER 158	582
PCB CONGENER 167	583
PCB CONGENER 168	584
PCB CONGENER 169	585
PCB CONGENER 170	586
PCB CONGENER 177	587
PCB CONGENER 18	554
PCB CONGENER 180	588
PCB CONGENER 183	589
PCB CONGENER 187	590
PCB CONGENER 189	591
PCB CONGENER 194	592
PCB CONGENER 200	593
PCB CONGENER 201	594

TABLE 3-1
LABORATORY DATABASE
CONSTITUENTS IN ALPHABETICAL ORDER

TEST DESCRIPTION	TEST CODE
PCB CONGENER 206	595
PCB CONGENER 28	555
PCB CONGENER 37	556
PCB CONGENER 44	557
PCB CONGENER 49	558
PCB CONGENER 52	559
PCB CONGENER 66	560
PCB CONGENER 70	561
PCB CONGENER 74	562
PCB CONGENER 77	563
PCB CONGENER 81	564
PCB CONGENER 87	565
PCB CONGENER 99	566
P-CHLOROANILINE	8A5
PCNB(PENTACHLORONITROBENZENE)	5D7
P-CRESOL	863
P-DICHLOROBENZENE	615
PEAK FLOW	Z02
PENTACHLOROBENZENE	8E1
PENTACHLORODIBENZODIOXINS	D05
PENTACHLORODIBENZOFURANS	F05
PENTACHLORONITROBENZENE	8E2
PENTACHLOROPHENOL	663
PENTACHLOROPHENOL	854
PENTANE	636
PERCENT METHANE IN GAS	902
PERCENT OXYGEN IN GAS	903
PERCHLORATE	3B2
PERMANENT GASES, TOTAL	330
PERYLENE	897
PERYLENE-D12	S25
PH	101
PH	1S1
PHENACETIN	8E3
PHENANTHRENE	842
PHENANTHRENE-D10	S23
PHENOL	855
PHENOL(BY GC)	631
PHENOL-D5	S02
PHENOLS	312
PHENYLACETIC ACID	860
PHORATE	5D2
PHOSGENE	6B2
PHTHALATE ESTERS	6B4
PHYS/CHEM PROPERTIES	X01
PICLORAM	5C4
PLATINUM	M01
PLUTONIUM	128
P-NITROANILINE	8D3

TABLE 3-1
LABORATORY DATABASE
CONSTITUENTS IN ALPHABETICAL ORDER

TEST DESCRIPTION	TEST CODE
POLYCHLORINATED PHENOLS	6B1
POTASSIUM	325
POTASSIUM	719
POTASSIUM-40	131
PP'-DDD	504
PP'-DDE	502
PP'-DDT	506
P-PHENYLENEDIAMINE	8E4
PRODUCTION DATA	PRD
PRONAMIDE	8E5
PROPANE	634
PROPIONIC ACID	640
PROPIONITRILE	6D4
P-TERPHENYL-D14	S07
PURPLE URCHIN FERTILIZAT.	B23
P-XYLENE	630
PYRENE	843
PYRIDINE	858
RADIUM 226+228	126
RADON	123
RAINFALL	998
REDOX	1S5
RELATIVE % HUMIDITY	159
SAFROLE	8E6
SALINITY	317
SALMONELLA	385
SAMPLE VOLUME	165
SAR	107
SEC-BUTYL MERCAPTAN	288
SELENASTRUM CHRONIC-GROW'	B08
SELENIUM	720
SEMI-VOLATILE TTO	T10
SER	106
SETTLEABLE SOLIDS	156
SIEVE ANALYSIS <#100SIEVE	379
SIEVE ANALYSIS <#30 SIEVE	185
SIEVE ANALYSIS >#10 SIEVE	176
SIEVE ANALYSIS >#100SIEVE	378
SIEVE ANALYSIS >#12 SIEVE	182
SIEVE ANALYSIS >#16 SIEVE	183
SIEVE ANALYSIS >#20 SIEVE	184
SIEVE ANALYSIS >#30 SIEVE	177
SIEVE ANALYSIS >#4 SIEVE	180
SIEVE ANALYSIS >#45 SIEVE	178
SIEVE ANALYSIS >#60 SIEVE	179
SIEVE ANALYSIS >#8 SIEVE	181
SIEVE ANALYSIS >3/4"SIEVE	376
SIEVE ANALYSIS >3/8"SIEVE	377
SILICON	721

TABLE 3-1
LABORATORY DATABASE
CONSTITUENTS IN ALPHABETICAL ORDER

TEST DESCRIPTION	TEST CODE
SILVER	722
SIMAZINE	551
SLAKING RATE-40 DEG C INC	323
SLUDGE VOLUME (CYLINDER)	162
SLUDGE VOLUME INDEX	164
SLUDGE VOLUME-SETTLEOMETER	163
SODIUM	723
SODIUM POTASSIUM TARTRATE	346
SOLUBLE ALUMINUM	775
SOLUBLE ANTIMONY	757
SOLUBLE ARSENIC	755
SOLUBLE BARIUM	756
SOLUBLE BERYLLIUM	771
SOLUBLE BOD	402
SOLUBLE CADMIUM	758
SOLUBLE CALCIUM	753
SOLUBLE CALCIUM-HARDNESS	751
SOLUBLE CARBOHYDRATES	413
SOUBLE CARBONACEOUS BOD	462
SOLUBLE CHLORIDE	341
SOLUBLE CHROMIUM	759
SOLUBLE COBALT	761
SOLUBLE COD	404
SOLUBLE COPPER	762
SOLUBLE IRON	763
SOLUBLE LEAD	764
SOLUBLE MAGNESIUM	754
SOLUBLE MAGNESIUM-HARDNESS	752
SOLUBLE MANGANESE	766
SOLUBLE MERCURY	767
SOLUBLE MOLYBDENUM	782
SOLUBLE NICKEL	768
SOLUBLE ORTHO-PHOSPHATE	342
SOLUBLE PHOSPHATE	320
SOLUBLE POTASSIUM	769
SOLUBLE SELENIUM	770
SOLUBLE SILICON	776
SOLUBLE SILVER	772
SOLUBLE SODIUM	773
SOLUBLE SULFATE	263
SOLUBLE SULFIDE	252
SOLUBLE THALLIUM	784
SOLUBLE TIN	785
SOLUBLE VANADIUM	787
SOLUBLE ZINC	774
SORBITOL	328
SPECIFIC GRAVITY	113
SPINDLE NO. (VISCOSITY)	118
STANDARD PLATE COUNT	352

TABLE 3-1
LABORATORY DATABASE
CONSTITUENTS IN ALPHABETICAL ORDER

TEST DESCRIPTION	TEST CODE
STATIC FISH BIOASSAY	363
STICKLEBACK ACUTE,%SURVIVAL	B16
STRONTIUM	733
STRONTIUM-90	124
STYRENE	682
SULFATE	257
SULFATE MASS EMISS. RATE	972
SULFATE REDUCING BACTERIA	374
SULFITE	254
SULFUR DIOXIDE	292
SUSPENDED SOLIDS	151
SUSPENDED SOLIDS @ PH 7	150
SYM-TRINITROBENZENE	8F2
T. INTERMEDIUS/NOVELLUS	397
T. NEAPOLITANUS	398
T. THIOOXIDANS	399
T-1,4-DICHLORO-2-BUTENE	6C4
TANNIN & LIGNIN	407
TASTE	110
TCLP EXTRACTION	174
TECHNICAL CHLORDANE	540
TEMPERATURE	111
TEMPERATURE	1S2
TEMPERATURE (VISCOSITY)	120
TERT AMYL METHYL ETHER	6F6
TERT BUTYL ALCOHOL	6F7
TERT-BUTYL MERCAPTAN	294
TETRACHLORODIBENZODIOXINS	D04
TETRACHLORODIBENZOFURANS	F04
TETRACHLOROETHYLENE	607
TETRAHYDROFURAN	679
THALLIUM	734
THERMOPHILIC FUNGI	381
THIOCYANATE	256
THIONAZIN	5C6
THIOSULFATE	253
THORIUM	129
TICH	522
TIN	735
TITANIUM	736
TOLUENE	621
TOLUENE-D8	S11
TOPSMELT ACUTE	B22
TOPSMELT CHRONIC GROWTH	B21
TOPSMELT CHRONIC SURVIVAL	B20
TOTAL ALKALINITY	305
TOTAL ASBESTOS	CA0
TOTAL ASCARIS	389
TOTAL BOD	401

TABLE 3-1
LABORATORY DATABASE
CONSTITUENTS IN ALPHABETICAL ORDER

TEST DESCRIPTION	TEST CODE
TOTAL CARBAMATE PESTICIDES	5B4
TOTAL CHROMIUM	709
TOTAL COD	403
TOTAL COLIFORM	350
TOTAL COLIFORM (IDEXX)	365
TOTAL COLIFORM (MF)	349
TOTAL CYANIDE	206
TOTAL DETECTABLE DDT	507
TOTAL DETECTABLE PCBS	521
TOTAL DETECTED CHLORDANES	530
TOTAL DETECTED PESTICIDES	549
TOTAL DISSOLVED SOLIDS	155
TOTAL ENTERIC BACTERIA	384
TOTAL ENTERIC VIRUSES	395
TOTAL FUNGI	380
TOTAL HARDNESS	309
TOTAL HCH	525
TOTAL HYDROCARBONS	417
TOTAL KJELDAHL NITROGEN	203
TOTAL LIPIDS	411
TOTAL METALS	M03
TOTAL NITROG.MASS EM.RATE	971
TOTAL NITROGEN	208
TOTAL NITROGEN	326
TOTAL NO3 + NO2 NITROGEN	951
TOTAL ORGANIC CARBON	405
TOTAL ORGANIC HALOGEN(TOX)	410
TOTAL PARASITES	388
TOTAL PARTICULATES	160
TOTAL PHOSPHATE	310
TOTAL PHOSPHOROUS	324
TOTAL SOLIDS	153
TOTAL SULFIDE	251
TOTAL SULFUR	255
TOTAL SURFACTANTS	3B1
TOTAL THIOBACILLUS SP	396
TOTAL TOXIC ORGANICS	T01
TOTAL XYLENE ISOMERS	6B7
TOXAPHENE	515
TOXIC ORGANIC MGT PLAN	TMP
TOXOCARA	393
TRANS-1,2-DICHLOROETHYLENE	645
TRANS-1,3-DICHLOROPROPENE	652
TRANS-CHLORDANE	527
TRANS-CHLORDENE	542
TRANS-NONACHLOR	528
TRANSPARENCY (SECCHI DISK)	116
TREMOLITE FIBERS	CA6
TRIBUTYL TIN	553

TABLE 3-1
LABORATORY DATABASE
CONSTITUENTS IN ALPHABETICAL ORDER

TEST DESCRIPTION	TEST CODE
TRICHLORODIBENZODIOXINS	D03
TRICHLORODIBENZOFURANS	F03
TRICHLOROETHYLENE	606
TRICHURIS	391
TRIETHYLAMINE	6F3
TRIPHENYLENE	885
TRITIUM	122
TTO FOR ALUMINUM FORMING	T11
TTO FOR COIL COATING	T02
TTO FOR COPPER FORMING	T03
TTO FOR E&EC SUBCAT A&B	T04
TTO FOR E&EC SUBCAT C	T05
TTO FOR ELECTROPL&METAL FINISHING	T06
TTO FOR INDUSTRIAL LAUNDRY	T12
TTO FOR METAL MOLD & CAST	T07
TTO FOR TRUCK WASHES	T08
TURBIDITY	103
URANIUM	125
UV ABSORBING ORGANICS	149
VALERIC ACID	644
VANADIUM	737
VANADIUM-48	130
VAPAM (METAM-SODIUM)	5D6
VIABLE ASCARIS	390
VINYL ACETATE	625
VINYL CHLORIDE	612
VISCOMETER SPINDLE RPM	119
VISCOSITY	114
VISCOSITY(BROOKFIELD LVT)	117
VOLATILE ACIDS	638
VOLATILE DISSOLVED SOLIDS	168
VOLATILE SUSPENDED SOLIDS	152
VOLATILE TOTAL SOLIDS	154
VOLATILE TTO	T09
W.E.T. DI WATER	175
WASTE EXTRACTION TEST	171
YERSINIA	387
ZINC	724

PALMDALE WATER RECLAMATION PLANT

CHAPTER 4

2003 WASTEWATER MONITORING DATA

CHAPTER 4

WASTEWATER MONITORING DATA

4.1 INTRODUCTION

This chapter contains data that are related to the operation and performance of the treatment plant. The data are summarized in Tables and are presented in the following order: flow data, freeboard data, influent water quality data, and effluent water quality data. All data are presented together with descriptive statistics and WDR limits. For the purpose of calculating annual averages for parameters taken monthly or less frequently, data that are collected during the same month are averaged first, and the average level for that month is entered in the calculation along with the data taken during the remaining of the year. In calculating averages, levels below the Minimum Detection Limit (MDL), or Reporting Minimum Limit (RML) are assumed to be equal to the MDL or RML, and not zero. Additional data and follow-up samples are averaged and are presented for the month these were collected, or for the month where compliance was assessed.

The data summaries may contain results, which were not reported in monthly monitoring reports. Additional data can result from sampling conducted for purposes other than routine monitoring. The additional sampling may have been performed by other agencies (i.e., Regional Water Quality Control Board or USEPA), or by the District for a special study, or as a sampling follow-up to a questionable sample.

4.2 TABULAR AND GRAPHICAL SUMMARIES

Data are summarized in Tables 4.1 – 4.14. The Tables summarize and present the results for the month the samples were collected. Influent and effluent data are summarized in Tables based on the location and frequency that are collected.

Selected data for 2003 are summarized in Figures 4.1 – 4.9. Levels below the MDL or RML are presented as the numerical levels of the MDL or RML.

EXHIBIT I-4 TO CITY OF LOS ANGELES' RESPONSE TO DISCOVERY ORDER

TABLE 4.1

PALMDALE WATER RECLAMATION PLANT

2003 INFLUENT AND EFFLUENT FLOWS

Month	INFLUENT[1]			EFFLUENT										
				TO LAWA		REUSE			LAND APPLICATION with CROP			LAND APPLICATION		
	Monthly Mean (MGD)	Maximum Instantaneous (MGD)	Total Influent (MG)	Monthly Mean (MGD)	Total (MG)	Monthly Mean (MGD)	Total (MG)	% Flow (%)	Monthly Mean (MGD)	Total (MG)	% Flow (%)	Monthly Mean (MGD)	Total (MG)	% Flow (%)
January	8.86	14.6	274.72	7.44	230.59	1.5	46.72	20.3%	0.0	1.2	0.5%	5.9	182.7	79.2%
February	9.04	18.2	253.15	8.63	241.55	2.4	67.67	28.0%	1.0	28.0	11.6%	5.2	145.9	60.4%
March	8.93	14.0	276.96	7.87	244.02	2.2	67.31	27.6%	1.0	32.2	13.2%	4.7	144.5	59.2%
April	8.79	14.2	263.56	8.09	242.71	3.6	107.3	44.2%	1.5	45.2	18.6%	3.0	90.2	37.2%
May	8.97	15.8	278.01	7.80	241.85	2.5	78.58	32.5%	1.8	55.9	23.1%	3.5	107.4	44.4%
June	9.00	13.3	270.04	7.26	217.81	2.7	80.33	36.9%	0.4	13.4	6.2%	4.1	124.1	57.0%
July	9.25	14.6	286.69	7.53	233.56	4.9	152.3	65.2%	1.5	46.3	19.8%	1.1	34.9	15.0%
August	9.27	14.5	287.40	7.75	240.28	4.1	127.74	53.2%	0.9	27.5	11.4%	2.7	85.0	35.4%
September	9.53	14.5	285.86	8.58	257.27	4.3	129.03	50.2%	1.1	32.1	12.5%	3.2	96.1	37.4%
October	9.53	14.6	285.75	9.09	281.73	4.2	129.38	45.9%	1.1	32.7	11.6%	3.9	119.7	42.5%
November	9.70	18.0	291.10	9.67	290.16	1.0	29.72	10.2%	1.5	45.6	15.7%	7.2	214.8	74.0%
December	9.54	15.5	295.59	8.36	259.19	1.0	31.41	12.1%	1.9	60.0	23.1%	5.4	167.8	64.7%
Mean	9.2	15.2	279.1	8.2	248.4	2.9	87.3	35.5%	1.1	35.0	14.0%	4.2	126.1	50.5%
Max	9.7	18.2	295.6	9.7	290.2	4.9	152.3	65.2%	1.9	60.0	23.1%	7.2	214.8	79.2%
Min	8.8	13.3	253.2	7.3	217.8	1.0	29.7	10.2%	0.0	1.2	0.5%	1.1	34.9	15.0%
Total			3,348.8		2,980.7		1,047.5			420.1			1,513.1	
Limits	15.5	37.5												

[1] Represents influent to secondary treatment.

TABLE 4.2
PALMDALE WATER RECLAMATION PLANT
2003 OXIDATION POND FREEBOARD

Month	Pond 2		Pond 3		Pond 4		Pond 5		Pond 6		Pond 7	
	Mean (inches)	Min (inches)	Mean (inches)	Min (inches)	Mean (inches)	Min (inches)	Mean (inches)	Min (inches)	Mean (inches)	Min (inches)	Mean (inches)	Min (inches)
January	37	37	37	37	40	40	40	40	29	29	30	30
February	37	37	37	37	40	40	40	40	29	29	30	30
March	37	37	37	37	40	40	40	40	28	26	28	26
April	37	37	37	37	40	40	40	40	28	26	28	26
May	37	37	37	37	40	40	40	40	30	29	30	29
June	37	37	37	37	40	39	40	40	29	29	29	29
July	37	37	37	37	39	39	40	39	29	29	29	29
August	37	37	37	37	39	39	39	39	29	29	29	29
September	37	37	37	37	39	39	39	39	29	28	29	29
October	37	37	37	37	39	39	39	39	32	28	33	29
November	37	37	37	37	40	39	39	39	36	35	43	36
December	37	37	37	37	40	39	39	39	34	31	40	31
Mean	37	37	37	37	40	39	40	40	30	29	32	29
Max	37	37	37	37	40	40	40	40	36	35	43	36
Min	37	37	37	37	39	39	39	39	28	26	28	26
Limits Min		24		24		24		24		24		24

TABLE 4.3

PALMDALE WATER RECLAMATION PLANT

2003 INFLUENT WEEKLY DATA

	Total BOD_5 (mg/l)	Total COD (mg/l)
Jan. 2003		
Mean	**319**	**592**
Max.	335	640
Min.	286	554
Feb. 2003		
Mean	**353**	**617**
Max.	384	642
Min.	322	572
Mar. 2003		
Mean	**333**	**669**
Max.	394	730
Min.	283	629
Apr. 2003		
Mean	**311**	**684**
Max.	328	711
Min.	297	660
May 2003		
Mean	**321**	**667**
Max.	360	747
Min.	289	598
Jun. 2003		
Mean	**341**	**860**
Max.	400	1140
Min.	301	573
Jul. 2003		
Mean	**313**	**681**
Max.	324	813
Min.	299	622
Aug. 2003		
Mean	**317**	**601**
Max.	383	750
Min.	282	508
Sep. 2003		
Mean	**245**	**505**
Max.	256	535
Min.	228	479
Oct. 2003		
Mean	**244**	**553**
Max.	260	567
Min.	223	527
Nov. 2003		
Mean	**270**	**571**
Max.	288	609
Min.	255	512
Dec. 2003		
Mean	**268**	**550**
Max.	293	584
Min.	236	500
Annual		
Mean	303	629
Max.	400	1140
Min.	223	479

TABLE 4.4

PALMDALE WATER RECLAMATION PLANT

2003 INFLUENT MONTHLY DATA

TEST	INFLUENT	UNIT	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Mean	Max	Min
201	Ammonia	mg-N/l	28.3	29.4	29.5	33	31.8	32.1	30.2	26.6	26.9	24.3	26.3	27.5	28.8	33	24.3
203	Kjeldahl Nitrogen	mg-N/l	47	45.5	47.8	49.8	44.4	49.5	44.6	38.1	39.8	36.1	40.9	41.9	43.8	49.8	36.1
204	Nitrate	mg-N/l	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.02	< 0.04	< 0.04	< 0.02
205	Nitrite	mg-N/l	< 0.02	< 0.02	< 0.02	0.018	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.04	< 0.02	< 0.04	0.018
315	MBAS	mg/l	12.4	14.5	17.5	16.2	17.3	13.6	18.5	13.1	7.9	14.3	18.7	15.3	14.9	18.7	7.9

TABLE 4.5

PALMDALE WATER RECLAMATION PLANT

2003 INFLUENT QUARTERLY AND SEMI-ANNUAL DATA

TEST	INFLUENT QUARTERLY DATA	UNIT	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Mean	Max	Min
			February	June	August	November			
C15	Total Petroleum Hydrocarbons	µg/l	11200	14000	9400	10000	11150	14000	9400
TEST	**INFLUENT SEMI-ANNUAL DATA**	**UNIT**	**February**	**June**	**August**	**November**	**Mean**	**Max**	**Min**
155	Total Dissolved Solids	mg/l	535		459		497.0	535	459
602	Chloroform	µg/l	2.4	9	5		5.5	9.0	2.4
608	Bromodichloromethane	µg/l	1.8	2	< 0.5		< 1.4	2.0	< 0.5
609	Dibromochloromethane	µg/l	3.6	1	< 0.5		< 1.7	3.6	< 0.5
610	Bromoform	µg/l	2.9	< 0.5	< 0.5		< 1.3	2.9	< 0.5

TABLE 4.6

PALMDALE WATER RECLAMATION PLANT

2003 INFLUENT ANNUAL DATA

TEST	METALS	UNIT	JULY	AUGUST	NOVEMBER
703	Calcium	mg/l			26.6
704	Magnesium	mg/l			10.2
705	Arsenic	mg/l		< 0.001	
706	Barium	mg/l		0.04	
707	Aluminum	mg/l			2.37
708	Cadmium	mg/l		< 0.0004	
709	Total Chromium	mg/l		< 0.01	
711	Cobalt	mg/l			< 0.01
712	Copper	mg/l		0.056	
713	Iron	mg/l			0.584
714	Lead	mg/l		0.003	
716	Manganese	mg/l		0.021	
717	Mercury	mg/l		0.00017	
718	Nickel	mg/l		< 0.02	
719	Potassium	mg/l			14.7
720	Selenium	mg/l		< 0.001	
722	Silver	mg/l		< 0.025	
723	Sodium	mg/l			
724	Zinc	mg/l		0.483	
725	Antimony	mg/l		0.0009	
726	Beryllium	mg/l		< 0.0005	
732	Molybdenum	mg/l			< 0.04
734	Thallium	mg/l		< 0.001	
737	Vanadium	mg/l			< 0.02

TEST	ANNUAL ACID EXTRACTIBLES	UNIT	JULY	AUGUST	NOVEMBER
845	2-Chlorophenol	µg/l		< 50	
847	2,4-Dichlorophenol	µg/l		< 50	
848	2,4-Dimethylphenol	µg/l		< 20	
849	2,4-Dinitrophenol	µg/l		< 50	
850	2-Methyl-4,6-Dinitrophenol (p-Chloro-m-Cresol)	µg/l		< 50	
851	2-Nitrophenol	µg/l		< 100	
852	4-Nitrophenol	µg/l		< 100	
853	4-Chloro-3-Methylphenol (4,6-Dinitro-o-Cresol)	µg/l		< 10	
854	Pentachlorophenol	µg/l		< 50	
855	Phenol	µg/l		< 10	
856	2,4,6-Trichlorophenol	µg/l		< 100	

TABLE 4.6 (continued)

PALMDALE WATER RECLAMATION PLANT

2003 INFLUENT ANNUAL DATA

TEST	ANNUAL PESTICIDES & PCBs	UNIT	JULY	AUGUST	NOVEMBER
502	PP'-DDE	µg/l		< 0.01	
504	PP'-DDD	µg/l			
506	PP'-DDT	µg/l		< 0.01	
508	Alpha-BHC	µg/l		< 0.01	
509	Lindane (Gamma-BHC)	µg/l		< 0.01	
510	Heptachlor	µg/l		< 0.01	
511	Heptachlor Epoxide	µg/l		< 0.01	
512	Aldrin	µg/l		< 0.01	
513	Dieldrin	µg/l		< 0.01	
514	Endrin	µg/l		< 0.01	
515	Toxaphene	µg/l		< 0.5	
519	Aroclor 1242	µg/l		< 0.1	
520	Aroclor 1254	µg/l		< 0.05	
523	Beta-BHC	µg/l		< 0.01	
524	Delta-BHC	µg/l		< 0.01	
531	Endosulfan I	µg/l		< 0.01	
532	Endosulfan II	µg/l		< 0.01	
533	Endosulfan Sulfate	µg/l		< 0.1	
534	Endrin Aldehyde	µg/l		< 0.04	
535	Aroclor 1016	µg/l		< 0.1	
536	Aroclor 1221	µg/l		< 0.1	
537	Aroclor 1232	µg/l		< 0.1	
538	Aroclor 1248	µg/l		< 0.1	
539	Aroclor 1260	µg/l		< 0.1	
540	Technical Chlordane	µg/l		< 0.05	

TEST	ANNUAL VOLATILE ORGANICS	UNIT	JULY	AUGUST	NOVEMBER
601	Methylene Chloride	µg/l		2	
603	1,1,1-Trichloroethane	µg/l		< 0.5	
604	Carbon Tetrachloride	µg/l		< 0.5	
605	1,1-Dichloroethene	µg/l		< 0.5	
606	Trichloroethylene	µg/l		< 0.5	
607	Tetrachloroethylene	µg/l		< 0.5	
611	Chlorobenzene	µg/l		< 0.5	
612	Vinyl Chloride	µg/l		< 0.5	
613	o-Dichlorobenzene (1,2-Dichlorobenzene)	µg/l		< 0.5	
614	m-Dichlorobenzene (1,3-Dichlorobenzene)	µg/l		< 0.5	
615	p-Dichlorobenzene (1,4-Dichlorobenzene)	µg/l		9	
616	1,1-Dichloroethane	µg/l		< 0.5	
618	1,1,2-Trichloroethane	µg/l		< 0.5	
619	1,2-Dichloroethane	µg/l		< 0.5	
620	Benzene	µg/l		< 0.5	
621	Toluene	µg/l		2	
624	Ethyl Benzene	µg/l		0.7	
645	Trans-1,2-Dichloroethylene	µg/l		< 0.5	
646	Bromomethane	µg/l		< 0.5	
647	Chloroethane	µg/l		< 0.5	
648	2-Chloroethylvinylether	µg/l		< 0.5	
649	Chloromethane	µg/l		< 0.5	
650	1,2-Dichloropropane	µg/l		< 0.5	
651	Cis-1,3-Dichloropropene	µg/l		< 0.5	
652	Trans-1,3-Dichloropropene	µg/l		< 0.5	
653	1,1,2,2-Tetrachloroethane	µg/l		< 0.5	
654	Acrolein	µg/l		< 10	
655	Acrylonitrile	µg/l		< 5	

TABLE 4.6 (continued)

PALMDALE WATER RECLAMATION PLANT

2003 INFLUENT ANNUAL DATA

TEST	ANNUAL BASE/NEUTRAL EXTRACTIBLES	UNIT	JULY	AUGUST	NOVEMBER
800	Acenaphthene	µg/l		< 10	
801	Acenaphthylene	µg/l		< 100	
802	Anthracene	µg/l		< 100	
803	Benzidine	µg/l		< 50	
804	Benzoanthracene	µg/l		< 50	
805	Benzopyrene	µg/l		< 0.02	
806	Benzofluoranthene	µg/l		< 0.02	
807	1,12-Benzoperylene	µg/l		< 50	
808	Benzo(k)fluoranthene	µg/l		< 0.02	
809	Bis(2-chloroethoxy)methane	µg/l		< 50	
810	Bis(2-Chloroethyl)ether	µg/l		< 10	
811	Bis(2-chloroisopropyl)ether	µg/l		< 20	
812	Bis(2-diethylhexyl)phthalate	µg/l	< 50	22	
813	4-Bromophenyl Phenyl Ether	µg/l		< 50	
814	Butylbenzyl Phthalate	µg/l		< 100	
815	2-Chloronaphthalene	µg/l		< 100	
816	4-Chlorophenyl Phenyl Ether	µg/l		< 50	
817	Chrysene	µg/l		< 0.02	
818	1,2,5,6-Dibenzanthracene	µg/l		< 0.02	
819	1,2-Dichlorobenzene	µg/l		< 20	
820	1,3-Dichlorobenzene	µg/l		< 10	
821	1,4-Dichlorobenzene	µg/l		< 10	
822	3,3'-Dichlorobenzidine	µg/l		< 50	
823	Diethyl Phthalate	µg/l		< 20	
824	Dimethyl Phthalate	µg/l		< 20	
825	Di-n-Butyl Phthalate	µg/l		< 100	
826	2,4-Dinitrotoluene	µg/l		< 50	
827	2,6-Dinitrotoluene	µg/l		< 50	
828	Di-n-Octyl Phthalate	µg/l		< 100	
829	1,2-Diphenylhydrazine	µg/l		< 10	
830	Fluoranthene	µg/l		< 10	
831	Fluorene	µg/l		< 100	
832	Hexachlorobenzene	µg/l		< 10	
833	Hexachlorobutadiene	µg/l		< 10	
834	Hexachlorocyclopentadiene	µg/l		< 50	
835	Hexachloroethane	µg/l		< 10	
836	Indeno(1,2,3-c,d)pyrene	µg/l		< 0.02	
837	Isophorone	µg/l		< 10	
838	Naphthalene	µg/l		< 10	
839	Nitrobenzene	µg/l		< 10	
840	n-Nitrosodimethylamine	µg/l		< 50	
841	n-Nitrosodi-n-propylamine	µg/l		< 50	
842	Phenanthrene	µg/l		< 50	
843	Pyrene	µg/l		< 100	
846	1,2,4-Trichlorobenzene	µg/l		< 50	
857	n-Nitrosodiphenylamine	µg/l		< 10	

TEST	ANNUAL MISCELLANEOUS	UNIT	JULY	AUGUST	NOVEMBER
206	Total Cyanides	µg/l		< 5	
312	Total Phenols	µg/l		57	

TABLE 4.7
PALMDALE WATER RECLAMATION PLANT
2003 EFFLUENT TO LAWA SITE (PONDS 2, 3) WEEKLY DATA

Monthly Statistics	Suspended Solids mg/l	Soluble BOD_5 mg/l	Soluble COD mg/l	Soluble Carb. BOD_5 (SCBOD) mg/l	pH 0-14	Temp. °C	Dissolved Oxygen mg/l
Jan. 2003							
Mean	**120**	**18**	**110**	**8**	**8.2**	**7.5**	**3.7**
Max.	143	21	124	10	8.3	8.9	4.9
Min.	94	14	93	6	8.0	6.5	2.5
Feb. 2003							
Mean	**185**	**23**	**128**	**< 9**	**8.3**	**8.6**	**4.7**
Max.	244	38	137	17	8.4	9.8	5.5
Min.	154	11	121	< 4	8.1	7.5	3.3
Mar. 2003							
Mean	**203**	**29**	**150**	**11**	**8.1**	**10.9**	**5.6**
Max.	282	33	158	14	8.3	13.2	9.4
Min.	122	24	144	6	7.9	9.8	3.0
Apr. 2003							
Mean	**301**	**27**	**161**	**11**	**8.4**	**12.5**	**4.6**
Max.	420	31	168	13	9.0	14.2	6.2
Min.	185	23	152	8	7.7	10.2	2.8
May 2003							
Mean	**137**	**25**	**159**	**11**	**8.2**	**16.5**	**2.3**
Max.	180	32	185	15	8.6	19.9	3.5
Min.	108	14	132	5	7.8	13.0	1.8
Jun. 2003							
Mean	**268**	**9**	**115**	**< 4**	**9.2**	**20.3**	**3.5**
Max.	324	15	134	6	9.5	20.9	4.6
Min.	164	4	90	< 3	9.0	19.5	2.3
Jul. 2003							
Mean	**378**	**6**	**115**	**< 4**	**9.7**	**22.6**	**3.9**
Max.	448	9	121	5	9.8	24.0	6.1
Min.	332	4	109	3	9.7	20.4	1.3
Aug. 2003							
Mean	**191**	**9**	**118**	**< 4**	**8.3**	**22.6**	**3.5**
Max.	243	15	142	4	9.2	25.0	5.4
Min.	136	6	101	< 3	7.2	21.2	1.7
Sep. 2003							
Mean	**193**	**11**	**116**	**< 5**	**8.8**	**20.1**	**3.9**
Max.	226	14	133	7	8.9	21.2	4.3
Min.	144	7	96	< 3	8.8	19.6	3.2
Oct. 2003							
Mean	**169**	**< 5**	**89**	**< 3**	**8.8**	**15.2**	**3.4**
Max.	205	6	94	< 3	9.2	18.3	5.4
Min.	146	< 4	84	< 3	8.3	10.1	2.3
Nov. 2003 Mean Max. Min.	Effluent combined with Ponds 4-7						
Dec. 2003 Mean Max. Min.							
Annual							
Mean	214	< 16	126	< 7	8.6	15.7	3.9
Max.	448	38	185	17	9.8	25.0	9.4
Min.	94	< 4	84	< 3	7.2	6.5	1.3
Limits		30/45[1]			9>pH>6		DO>1

[1] 30-day average = 30 mg/l. Maximum = 45 mg/l.

TABLE 4.8

PALMDALE WATER RECLAMATION PLANT

2003 EFFLUENT TO LAWA SITE (PONDS 2, 3) MONTHLY DATA

TEST	MONTHLY PARAMETERS	UNIT	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Mean	Max	Min	LIMIT
155	Total Dissolved Solids	mg/l	594	596	537	587	657	611	676	658	661	577	615	676	537	
201	Ammonia	mg-N/l	8.4	11.5	6.9	1	9.7	1.2	< 0.1	1	2	0.1	< 4.19	11.50	< 0.1	
202	Organic Nitrogen	mg-N/l	13.7	29.4	25.2	40.9	36.2	19.5	35.8	30.4	26.3	17.3	27.5	40.9	13.7	
203	Kjeldahl Nitrogen	mg-N/l	22.1	40.9	32.1	41.9	45.9	20.7	35.9	31.4	28.3	17.4	31.7	45.9	17.4	
204	Nitrate	mg-N/l	< 0.04	< 0.04	0.11	0.16	0.36	0.14	< 0.04	0.06	0.04	< 0.04	< 0.10	0.36	< 0.04	
205	Nitrite	mg-N/l	0.075	0.04	0.48	0.316	0.48	0.5	0.03	0.03	0.35	0.1	0.24	0.50	0.03	
257	Sulfate	mg/l	68	69	61	72	82	91	161	100	68	18.3	79	161	18.3	
301	Chloride	mg/l	146	144	117	152	155	179	189	146	149	144	152	189	117	
315	MBAS	mg/l	0.02	0.5	0.3	0.2	0.2	0.2	0.2	0.1	0.1	0.17	0.20	0.50	0.02	[1]
723	Sodium	mg/l	135	130	120	140	150	160	150	170	160	150	147	170	120	

[1] 30-day average = 1.0 mg/l / Maximum = 2.0 mg/l

TABLE 4.9

PALMDALE WATER RECLAMATION PLANT

2003 EFFLUENT TO LAWA SITE (PONDS 2, 3) QUARTERLY DATA

TEST	QUARTERLY COMPOSITE SAMPLES	UNIT	1st Quarter		2nd Quarter	3rd Quarter	Mean	Max	Min
			Feb	Apr	June	August			
405	Total Organic Carbon	µg/l	53800		58900	44500	52400	58900	44500
712	Copper	mg/l	0.026		0.021	0.019	0.022	0.026	0.019
720	Selenium	mg/l	< 0.001		< 0.001	<0.001	< 0.001	< 0.001	< 0.001
724	Zinc	mg/l		0.282	0.142	0.149	0.191	0.282	0.142
TEST	**QUARTERLY GRAB SAMPLES**	**UNIT**	**February**		**June**	**August**	**Mean**	**Max**	**Min**
C15	Total Petroleum Hydrocarbons	µg/l	3340		1600	990	1977	3340	990
408	Oil and Grease	µg/l	6.5		5.7	4.6	5.6	6.5	4.6
602	Chloroform	µg/l	< 0.5		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
608	Bromodichloromethane	µg/l	< 0.5		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
609	Dibromochloromethane	µg/l	< 0.5		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
610	Bromoform	µg/l	< 0.5		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5

TABLE 4.10

PALMDALE WATER RECLAMATION PLANT

2003 EFFLUENT TO LAWA SITE (PONDS 2, 3) ANNUAL DATA

TEST	ANNUAL METALS	UNIT	JULY	AUGUST	LIMIT
703	Calcium	mg/l			
704	Magnesium	mg/l			
705	Arsenic	mg/l		< 0.001	
706	Barium	mg/l		0.023	
707	Aluminum	mg/l			
708	Cadmium	mg/l		< 0.0004	
709	Total Chromium	mg/l		< 0.01	
710	Hexavalent Chromium	mg/l		< 0.01	
711	Cobalt	mg/l			
713	Iron	mg/l			
714	Lead	mg/l		< 0.002	
716	Manganese	mg/l		0.022	
717	Mercury	mg/l		0.00005	
718	Nickel	mg/l		< 0.02	
719	Potassium	mg/l			
722	Silver	mg/l		< 0.025	
725	Antimony	mg/l		0.0006	
726	Beryllium	mg/l		< 0.001	
732	Molybdenum	mg/l			
734	Thallium	mg/l		< 0.001	
737	Vanadium	mg/l			

TEST	ANNUAL ACID EXTRACTIBLES	UNIT	JULY	AUGUST	LIMIT
845	2-Chlorophenol	µg/l		< 25	
847	2,4-Dichlorophenol	µg/l		< 25	
848	2,4-Dimethylphenol	µg/l		< 10	
849	2,4-Dinitrophenol	µg/l		< 25	
850	2-Methyl-4,6-Dinitrophenol (p-Chloro-m-Cresol)	µg/l		< 25	
851	2-Nitrophenol	µg/l		< 50	
852	4-Nitrophenol	µg/l		< 50	
853	4-Chloro-3-Methylphenol (4,6-Dinitro-o-Cresol)	µg/l		< 5	
854	Pentachlorophenol	µg/l		< 25	
855	Phenol	µg/l		< 5	
856	2,4,6-Trichlorophenol	µg/l		< 50	

TABLE 4.10 (continued)

PALMDALE WATER RECLAMATION PLANT

2003 EFFLUENT TO LAWA SITE (PONDS 2, 3) ANNUAL DATA

TEST	ANNUAL PESTICIDES & PCBs	UNIT	JULY	AUGUST	LIMIT
502	PP'-DDE	µg/l		< 0.01	
504	PP'-DDD	µg/l		< 0.01	
506	PP'-DDT	µg/l		< 0.01	
508	Alpha-BHC	µg/l		< 0.01	
509	Lindane (Gamma-BHC)	µg/l		< 0.01	
510	Heptachlor	µg/l		< 0.01	
511	Heptachlor Epoxide	µg/l		< 0.01	
512	Aldrin	µg/l		< 0.01	
513	Dieldrin	µg/l		< 0.01	
514	Endrin	µg/l		< 0.01	
515	Toxaphene	µg/l		< 0.5	
519	Aroclor 1242	µg/l		< 0.1	
520	Aroclor 1254	µg/l		< 0.05	
523	Beta-BHC	µg/l		< 0.01	
524	Delta-BHC	µg/l		< 0.01	
531	Endosulfan I	µg/l		< 0.01	
532	Endosulfan II	µg/l		< 0.01	
533	Endosulfan Sulfate	µg/l		< 0.1	
534	Endrin Aldehyde	µg/l		< 0.04	
535	Aroclor 1016	µg/l		< 0.1	
536	Aroclor 1221	µg/l		< 0.1	
537	Aroclor 1232	µg/l		< 0.1	
538	Aroclor 1248	µg/l		< 0.1	
539	Aroclor 1260	µg/l		< 0.1	
540	Technical Chlordane	µg/l		< 0.05	

TEST	ANNUAL VOLATILE ORGANICS	UNIT	JULY	AUGUST	LIMIT
601	Methylene Chloride	µg/l		< 0.5	
603	1,1,1-Trichloroethane	µg/l		< 0.5	
604	Carbon Tetrachloride	µg/l		< 0.5	
605	1,1-Dichloroethene	µg/l		< 0.5	
606	Trichloroethylene	µg/l		< 0.5	
607	Tetrachloroethylene	µg/l		< 0.5	
611	Chlorobenzene	µg/l		< 0.5	
612	Vinyl Chloride	µg/l		< 0.5	
613	o-Dichlorobenzene (1,2-Dichlorobenzene)	µg/l		< 0.5	
614	m-Dichlorobenzene (1,3-Dichlorobenzene)	µg/l		< 0.5	
615	p-Dichlorobenzene (1,4-Dichlorobenzene)	µg/l		< 0.5	
616	1,1-Dichloroethane	µg/l		< 0.5	
618	1,1,2-Trichloroethane	µg/l		< 0.5	
619	1,2-Dichloroethane	µg/l		< 0.5	
620	Benzene	µg/l		< 0.5	
621	Toluene	µg/l		< 0.5	
624	Ethyl Benzene	µg/l		< 0.5	
645	Trans-1,2-Dichloroethylene	µg/l		< 0.5	
646	Bromomethane	µg/l		< 0.5	
647	Chloroethane	µg/l		< 0.5	
648	2-Chloroethylvinylether	µg/l		< 0.5	
649	Chloromethane	µg/l		< 0.5	
650	1,2-Dichloropropane	µg/l		< 0.5	
651	Cis-1,3-Dichloropropene	µg/l		< 0.5	
652	Trans-1,3-Dichloropropene	µg/l		< 0.5	
653	1,1,2,2-Tetrachloroethane	µg/l		< 0.5	
654	Acrolein	µg/l		< 2	
655	Acrylonitrile	µg/l		< 2	
662	Methyl Tertiary Butyl Ether	µg/l		< 0.5	

TABLE 4.10 (continued)

PALMDALE WATER RECLAMATION PLANT

2003 EFFLUENT TO LAWA SITE (PONDS 2, 3) ANNUAL DATA

TEST	ANNUAL BASE/NEUTRAL EXTRACTIBLES	UNIT	JULY	AUGUST	LIMIT
800	Acenaphthene	µg/l		< 5	
801	Acenaphthylene	µg/l		< 50	
802	Anthracene	µg/l		< 50	
803	Benzidine	µg/l		< 25	
804	Benzoanthracene	µg/l		< 25	
805	Benzopyrene	µg/l		< 0.02	
806	Benzofluoranthene	µg/l		< 0.02	
807	1,12-Benzoperylene	µg/l		< 25	
808	Benzo(k)fluoranthene	µg/l		< 0.02	
809	Bis(2-chloroethoxy)methane	µg/l		< 25	
810	Bis(2-Chloroethyl)ether	µg/l		< 5	
811	Bis(2-chloroisopropyl)ether	µg/l		< 10	
812	Bis(2-diethylhexyl)phthalate	µg/l	< 25	< 10	
813	4-Bromophenyl Phenyl Ether	µg/l		< 25	
814	Butylbenzyl Phthalate	µg/l		< 50	
815	2-Chloronaphthalene	µg/l		< 50	
816	4-Chlorophenyl Phenyl Ether	µg/l		< 25	
817	Chrysene	µg/l		< 0.02	
818	1,2,5,6-Dibenzanthracene	µg/l		< 0.02	
819	1,2-Dichlorobenzene	µg/l		< 10	
820	1,3-Dichlorobenzene	µg/l		< 5	
821	1,4-Dichlorobenzene	µg/l		< 5	
822	3,3'-Dichlorobenzidine	µg/l		< 25	
823	Diethyl Phthalate	µg/l		< 10	
824	Dimethyl Phthalate	µg/l		< 10	
825	Di-n-Butyl Phthalate	µg/l		< 50	
826	2,4-Dinitrotoluene	µg/l		< 25	
827	2,6-Dinitrotoluene	µg/l		< 25	
828	Di-n-Octyl Phthalate	µg/l		< 50	
829	1,2-Diphenylhydrazine	µg/l		< 5	
830	Fluoranthene	µg/l		< 5	
831	Fluorene	µg/l		< 50	
832	Hexachlorobenzene	µg/l		< 5	
833	Hexachlorobutadiene	µg/l		< 5	
834	Hexachlorocyclopentadiene	µg/l		< 25	
835	Hexachloroethane	µg/l		< 5	
836	Indeno(1,2,3-c,d)pyrene	µg/l		< 0.02	
837	Isophorone	µg/l		< 5	
838	Naphthalene	µg/l		< 5	
839	Nitrobenzene	µg/l		< 5	
840	n-Nitrosodimethylamine	µg/l		< 25	
841	n-Nitrosodi-n-propylamine	µg/l		< 25	
842	Phenanthrene	µg/l		< 25	
843	Pyrene	µg/l		< 50	
844	2,3,7,8-TCDD	µg/l		< 6.6	
846	1,2,4-Trichlorobenzene	µg/l		< 25	
857	n-Nitrosodiphenylamine	µg/l		< 5	

TEST	ANNUAL MISCELLANEOUS PARAMETERS	UNIT	JULY	AUGUST	LIMIT
206	Total Cyanides	µg/l		< 5	
312	Total Phenols	µg/l		< 11	

TABLE 4.11
PALMDALE WATER RECLAMATION PLANT
2003 EFFLUENT TO LAWA SITE (PONDS 4-7) WEEKLY DATA

Monthly Statistics	Suspended Solids mg/l	Soluble BOD_5 mg/l	Soluble COD mg/l	Soluble Carb. BOD_5 (SCBOD) mg/l	pH 0-14	Temp. °C	Dissolved Oxygen mg/l
Jan. 2003							
Mean	**71**	**17**	**78**	**6**	**7.8**	**7.7**	**2.3**
Max.	82	19	81	8	8.0	9.1	2.9
Min.	62	16	74	4	7.7	6.6	1.8
Feb. 2003							
Mean	77	**21**	77	7	**7.7**	**8.6**	**3.4**
Max.	91	25	90	10	7.8	9.9	5.1
Min.	60	14	66	5	7.7	7.4	1.3
Mar. 2003							
Mean	77	**10**	**78**	**< 4**	**7.8**	**11.0**	**6.0**
Max.	88	13	86	6	7.9	13.0	8.3
Min.	68	8	62	< 3	7.7	9.8	5.0
Apr. 2003							
Mean	**72**	**12**	**80**	**< 3**	**8.2**	**12.8**	**6.4**
Max.	80	12	87	3	8.6	15.1	10.2
Min.	63	11	72	< 3	8.0	9.8	3.7
May 2003							
Mean	**100**	**35**	**82**	**6**	**8.0**	**16.3**	**3.5**
Max.	110	41	86	7	8.3	19.8	4.7
Min.	94	32	77	5	7.8	13.1	2.5
Jun. 2003							
Mean	**86**	**16**	**83**	**< 3**	**8.6**	**20.3**	**3.5**
Max.	98	34	95	4	8.8	20.9	6.3
Min.	70	11	68	< 3	8.3	19.4	1.4
Jul. 2003							
Mean	**119**	**16**	**71**	**< 4**	**8.6**	**22.4**	**3.6**
Max.	168	26	72	5	8.9	24.0	5.4
Min.	72	5	69	< 3	8.0	20.1	1.5
Aug. 2003							
Mean	**76**	**25**	**71**	**< 5**	**8.0**	**22.6**	**3.3**
Max.	100	54	78	7	8.6	25.0	6.1
Min.	48	11	61	< 3	7.4	21.0	1.0
Sep. 2003							
Mean	**65**	**12**	**77**	**< 3**	**8.4**	**19.9**	**5.2**
Max.	80	12	81	3	8.5	21.0	6.1
Min.	56	10	73	< 3	8.2	19.4	4.3
Oct. 2003							
Mean	**76**	**14**	**79**	**< 5**	**8.5**	**17.7**	**2.5**
Max.	84	18	91	6	8.7	18.2	3.3
Min.	64	11	72	3	8.3	16.9	1.4
Nov. 2003[1]							
Mean	**75**	**8**	**70**	**< 5**	**8.4**	**10.7**	**7.9**
Max.	88	13	73	7	8.9	13.0	10.5
Min.	64	5	64	< 3	7.8	6.3	4.3
Dec. 2003[1]							
Mean	**86**	**11**	**71**	**6**	**8.3**	**6.9**	**7.3**
Max.	92	16	73	9	8.5	8.3	7.8
Min.	72	8	66	4	8.1	5.6	6.2
Annual							
Mean	82	16	76	< 5	8.2	14.7	4.6
Max.	168	54	95	10	8.9	25.0	10.5
Min.	48	5	61	< 3	7.4	5.6	1.0
Limits		30/45[2]			9>pH>6		DO>1

[1] Combined flow from Ponds 2-7

[2] 30-day average = 30 mg/l. Maximum = 45 mg/l.

TABLE 4.12

PALMDALE WATER RECLAMATION PLANT

2003 EFFLUENT TO LAWA SITE (PONDS 4-7) MONTHLY DATA

TEST	MONTHLY PARAMETERS	UNIT	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov[2]	Dec[2]	Mean	Max	Min	LIMIT
155	Total Dissolved Solids	mg/l	564	516	505	538	555	522	530	485	463	467	454	439	503	564	439	
201	Ammonia	mg-N/l	24.4	24.6	22.5	18.2	21.8	19.7	7.3	17.6	20.2	20.3	20.2	22.4	19.9	24.6	7.3	
202	Organic Nitrogen	mg-N/l	12	14.3	8.6	10.6	10.4	11.7	30.8	9.9	5	12.2	9.5	12.3	12.3	30.8	5	
203	Kjeldahl Nitrogen	mg-N/l	36.4	38.9	31.1	28.8	32.2	31.4	38.1	27.5	25.2	32.5	29.7	34.7	32.2	38.9	25.2	
204	Nitrate	mg-N/l	0.14	0.13	0.24	0.11	0.23	0.18	0.63	0.12	0.08	0.15	0.11	0.12	0.19	0.63	0.08	
205	Nitrite	mg-N/l	0.055	0.03	0.08	0.134	0.27	0.44	5.76	0.16	0.1	0.05	0.09	0.06	0.602	5.76	0.03	
257	Sulfate	mg/l	68	73	65	70	76	71	76	77	51	68.9	64	176	78	176	51	
301	Chloride	mg/l	149	122	119	139	139	141	125	158	94	99	103	106	125	158	94	
315	MBAS	mg/l	0.1	0.2	0.2	0.1	0.1	0.1	0.2	0.1	0.1	0.16	0.2	0.1	0.14	0.2	0.1	[1]
723	Sodium	mg/l	128	120	110	130	120	120	100	110	110	100	116	116	115	130	100	

[1] 30-day average = 1.0 mg/l / Maximum = 2.0 mg/l

[2] Represents combined effluent for Ponds 2-7

TABLE 4.13

PALMDALE WATER RECLAMATION PLANT

2003 EFFLUENT TO LAWA SITES (PONDS 4-7) QUARTERY DATA

TEST	QUARTERLY COMPOSITE SAMPLES	UNIT	1st Quarter		2nd Quarter	3rd Quarter	4th Quarter	Mean	Max	Min
			Feb	April	June	August	November[1]			
405	Total Organic Carbon	µg/l	40000		31200	30100	24000	31325	40000	24000
712	Copper	mg/l	0.018		< 0.008	< 0.008	< 0.008	< 0.011	0.018	< 0.008
720	Selenium	mg/l	< 0.001		< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
724	Zinc	mg/l		0.119	0.122	0.106	0.09	0.10925	0.122	0.09
TEST	**QUARTERLY GRAB SAMPLES**	**UNIT**	**February**		**June**	**August**	**November[1]**	**Mean**	**Max**	**Min**
C15	Total Petroleum Hydrocarbons	µg/l	1240		1380	580	690	972.5	1380	580
408	Oil and Grease	mg/l	4		< 4	< 4	< 5	< 4.25	< 5	< 4
602	Chloroform	µg/l	< 0.5		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
608	Bromodichloromethane	µg/l	< 0.5		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
609	Dibromochloromethane	µg/l	< 0.5		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
610	Bromoform	µg/l	< 0.5		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5

[1] Represents combined effluent for Ponds 2-7

TABLE 4.14

PALMDALE WATER RECLAMATION PLANT

2003 EFFLUENT TO LAWA SITES (PONDS 4-7) ANNUAL DATA

TEST	ANNUAL METALS	UNIT	JULY	AUGUST	NOVEMBER	LIMIT
703	Calcium	mg/l			23.4	
704	Magnesium	mg/l			9.3	
705	Arsenic	mg/l		< 0.001		
706	Barium	mg/l		0.009		
707	Aluminum	mg/l			0.08	
708	Cadmium	mg/l		< 0.0004		
709	Total Chromium	mg/l		< 0.01		
710	Hexavalent Chromium	mg/l		< 0.01		
711	Cobalt	mg/l			< 0.01	
713	Iron	mg/l			0.121	
714	Lead	mg/l		< 0.002		
716	Manganese	mg/l		0.015		
717	Mercury	mg/l		< 0.00004		
718	Nickel	mg/l		< 0.02		
719	Potassium	mg/l			14	
722	Silver	mg/l		< 0.025		
725	Antimony	mg/l		< 0.0005		
726	Beryllium	mg/l		< 0.0005		
732	Molybdenum	mg/l			< 0.04	
734	Thallium	mg/l		< 0.001		
737	Vanadium	mg/l			< 0.02	

TEST	ANNUAL ACID EXTRACTIBLES	UNIT	JULY	AUGUST	NOVEMBER	LIMIT
845	2-Chlorophenol	µg/l		<25		
847	2,4-Dichlorophenol	µg/l		< 25		
848	2,4-Dimethylphenol	µg/l		< 10		
849	2,4-Dinitrophenol	µg/l		< 25		
850	2-Methyl-4,6-Dinitrophenol (p-Chloro-m-Cresol)	µg/l		< 25		
851	2-Nitrophenol	µg/l		< 50		
852	4-Nitrophenol	µg/l		< 50		
853	4-Chloro-3-Methylphenol (4,6-Dinitro-o-Cresol)	µg/l		< 5		
854	Pentachlorophenol	µg/l		< 25		
855	Phenol	µg/l		< 5		
856	2,4,6-Trichlorophenol	µg/l		< 50		

TABLE 4.14

PALMDALE WATER RECLAMATION PLANT

2003 EFFLUENT TO LAWA SITES (PONDS 4-7) ANNUAL DATA

TEST	ANNUAL PESTICIDES & PCBs	UNIT	JULY	AUGUST	NOVEMBER	LIMIT
502	PP'-DDE	µg/l		< 0.01		
504	PP'-DDD	µg/l		< 0.01		
506	PP'-DDT	µg/l		< 0.01		
508	Alpha-BHC	µg/l		< 0.01		
509	Lindane (Gamma-BHC)	µg/l		< 0.01		
510	Heptachlor	µg/l		< 0.01		
511	Heptachlor Epoxide	µg/l		< 0.01		
512	Aldrin	µg/l		< 0.01		
513	Dieldrin	µg/l		< 0.01		
514	Endrin	µg/l		< 0.01		
515	Toxaphene	µg/l		< 0.5		
519	Aroclor 1242	µg/l		< 0.1		
520	Aroclor 1254	µg/l		< 0.05		
523	Beta-BHC	µg/l		< 0.01		
524	Delta-BHC	µg/l		< 0.01		
531	Endosulfan I	µg/l		< 0.01		
532	Endosulfan II	µg/l		< 0.01		
533	Endosulfan Sulfate	µg/l		< 0.1		
534	Endrin Aldehyde	µg/l		< 0.04		
535	Aroclor 1016	µg/l		< 0.1		
536	Aroclor 1221	µg/l		< 0.1		
537	Aroclor 1232	µg/l		< 0.1		
538	Aroclor 1248	µg/l		< 0.1		
539	Aroclor 1260	µg/l		< 0.1		
540	Technical Chlordane	µg/l		< 0.05		

TEST	ANNUAL VOLATILE ORGANICS	UNIT	JULY	AUGUST	NOVEMBER	LIMIT
601	Methylene Chloride	µg/l		< 0.5		
603	1,1,1-Trichloroethane	µg/l		< 0.5		
604	Carbon Tetrachloride	µg/l		< 0.5		
605	1,1-Dichloroethene	µg/l		< 0.5		
606	Trichloroethylene	µg/l		< 0.5		
607	Tetrachloroethylene	µg/l		< 0.5		
611	Chlorobenzene	µg/l		< 0.5		
612	Vinyl Chloride	µg/l		< 0.5		
613	o-Dichlorobenzene (1,2-Dichlorobenzene)	µg/l		< 0.5		
614	m-Dichlorobenzene (1,3-Dichlorobenzene)	µg/l		< 0.5		
615	p-Dichlorobenzene (1,4-Dichlorobenzene)	µg/l		< 0.5		
616	1,1-Dichloroethane	µg/l		< 0.5		
618	1,1,2-Trichloroethane	µg/l		< 0.5		
619	1,2-Dichloroethane	µg/l		< 0.5		
620	Benzene	µg/l		< 0.5		
621	Toluene	µg/l		< 0.5		
624	Ethyl Benzene	µg/l		< 0.5		
645	Trans-1,2-Dichloroethylene	µg/l		< 0.5		
646	Bromomethane	µg/l		< 0.5		
647	Chloroethane	µg/l		< 0.5		
648	2-Chloroethylvinylether	µg/l		< 0.5		
649	Chloromethane	µg/l		< 0.5		
650	1,2-Dichloropropane	µg/l		< 0.5		
651	Cis-1,3-Dichloropropene	µg/l		< 0.5		
652	Trans-1,3-Dichloropropene	µg/l		< 0.5		
653	1,1,2,2-Tetrachloroethane	µg/l		< 0.5		
654	Acrolein	µg/l		< 2		
655	Acrylonitrile	µg/l		< 2		
662	Methyl Tertiary Butyl Ether	µg/l		< 0.5		

TABLE 4.14

PALMDALE WATER RECLAMATION PLANT

2003 EFFLUENT TO LAWA SITES (PONDS 4-7) ANNUAL DATA

TEST	ANNUAL BASE/NEUTRAL EXTRACTIBLES	UNIT	JULY	AUGUST	NOVEMBER	LIMIT
800	Acenaphthene	µg/l		< 5		
801	Acenaphthylene	µg/l		< 50		
802	Anthracene	µg/l		< 50		
803	Benzidine	µg/l		< 25		
804	Benzoanthracene	µg/l		< 25		
805	Benzopyrene	µg/l		< 0.02		
806	Benzofluoranthene	µg/l		< 0.02		
807	1,12-Benzoperylene	µg/l		< 25		
808	Benzo(k)fluoranthene	µg/l		< 0.02		
809	Bis(2-chloroethoxy)methane	µg/l		< 25		
810	Bis(2-Chloroethyl)ether	µg/l		< 5		
811	Bis(2-chloroisopropyl)ether	µg/l		< 10		
812	Bis(2-diethylhexyl)phthalate	µg/l	< 25	< 10		
813	4-Bromophenyl Phenyl Ether	µg/l		< 25		
814	Butylbenzyl Phthalate	µg/l		< 50		
815	2-Chloronaphthalene	µg/l		< 50		
816	4-Chlorophenyl Phenyl Ether	µg/l		< 25		
817	Chrysene	µg/l		< 0.02		
818	1,2,5,6-Dibenzanthracene	µg/l		< 0.02		
819	1,2-Dichlorobenzene	µg/l		< 10		
820	1,3-Dichlorobenzene	µg/l		< 5		
821	1,4-Dichlorobenzene	µg/l		< 5		
822	3,3'-Dichlorobenzidine	µg/l		< 25		
823	Diethyl Phthalate	µg/l		< 10		
824	Dimethyl Phthalate	µg/l		< 10		
825	Di-n-Butyl Phthalate	µg/l		< 50		
826	2,4-Dinitrotoluene	µg/l		< 25		
827	2,6-Dinitrotoluene	µg/l		< 25		
828	Di-n-Octyl Phthalate	µg/l		< 50		
829	1,2-Diphenylhydrazine	µg/l		< 5		
830	Fluoranthene	µg/l		< 5		
831	Fluorene	µg/l		< 50		
832	Hexachlorobenzene	µg/l		< 5		
833	Hexachlorobutadiene	µg/l		< 5		
834	Hexachlorocyclopentadiene	µg/l		< 25		
835	Hexachloroethane	µg/l		< 5		
836	Indeno(1,2,3-c,d)pyrene	µg/l		< 0.02		
837	Isophorone	µg/l		< 5		
838	Naphthalene	µg/l		< 5		
839	Nitrobenzene	µg/l		< 5		
840	n-Nitrosodimethylamine	µg/l		< 25		
841	n-Nitrosodi-n-propylamine	µg/l		< 25		
842	Phenanthrene	µg/l		< 25		
843	Pyrene	µg/l		< 50		
844	2,3,7,8-TCDD	µg/l		< 4.5		
846	1,2,4-Trichlorobenzene	µg/l		< 25		
857	n-Nitrosodiphenylamine	µg/l		< 5		

TEST	ANNUAL MISCELLANEOUS PARAMETERS	UNIT	JULY	AUGUST	NOVEMBER	LIMIT
206	Total Cyanides	µg/l		< 5		
312	Total Phenols	µg/l		< 12		

PALMDALE WATER RECLAMATION PLANT

FIGURES 4.1 – 4.9

GRAPHICAL SUMMARIES

EXHIBIT I-4 TO CITY OF LOS ANGELES' RESPONSE TO DISCOVERY ORDER

FIGURE 4.1
PALMDALE WATER RECLAMATION PLANT
2003 INFLUENT AND EFFLUENT FLOWS

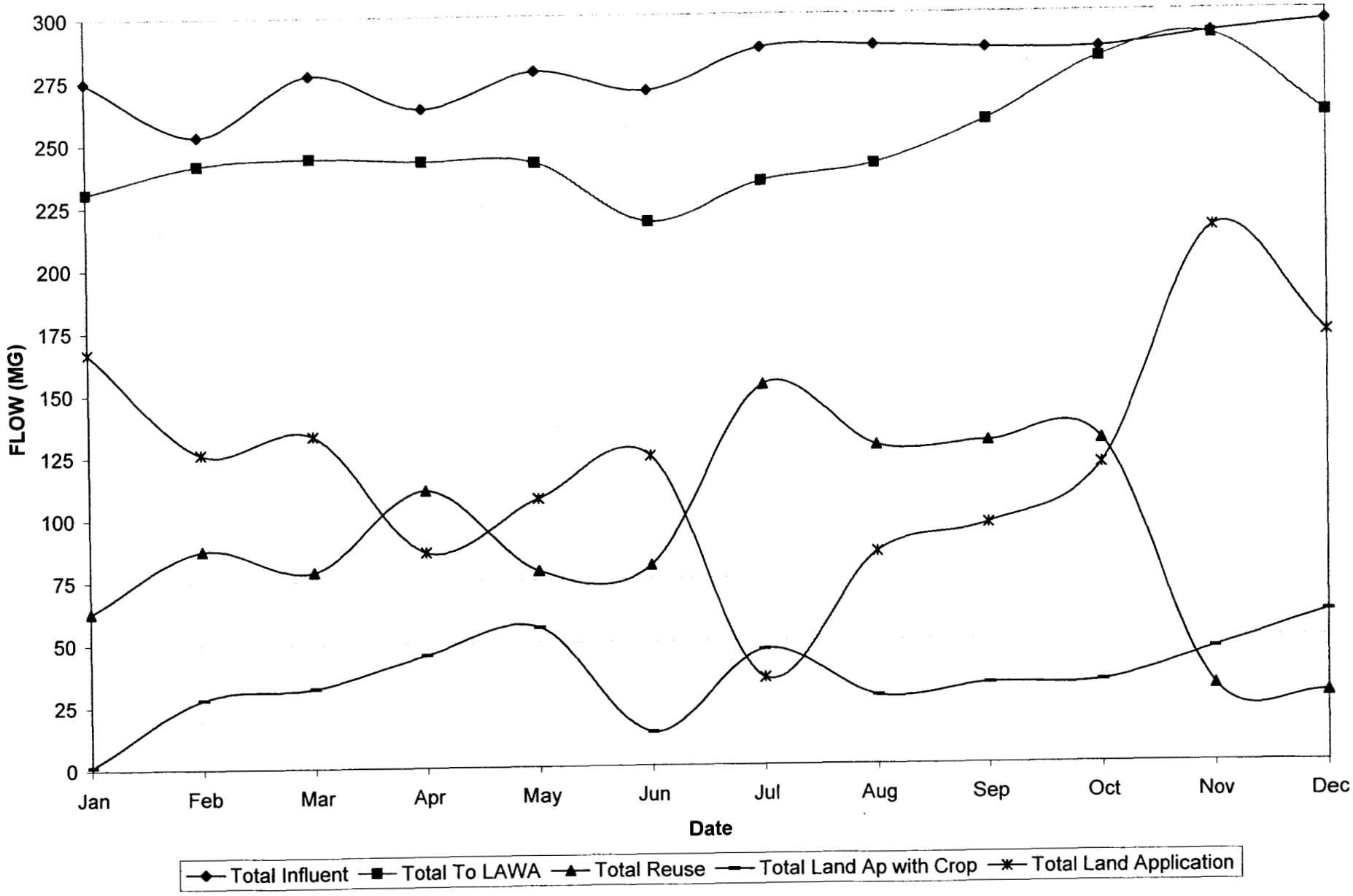


FIGURE 4.2
PALMDALE WATER RECLAMATION PLANT
2003 AVERAGE FREE BOARD

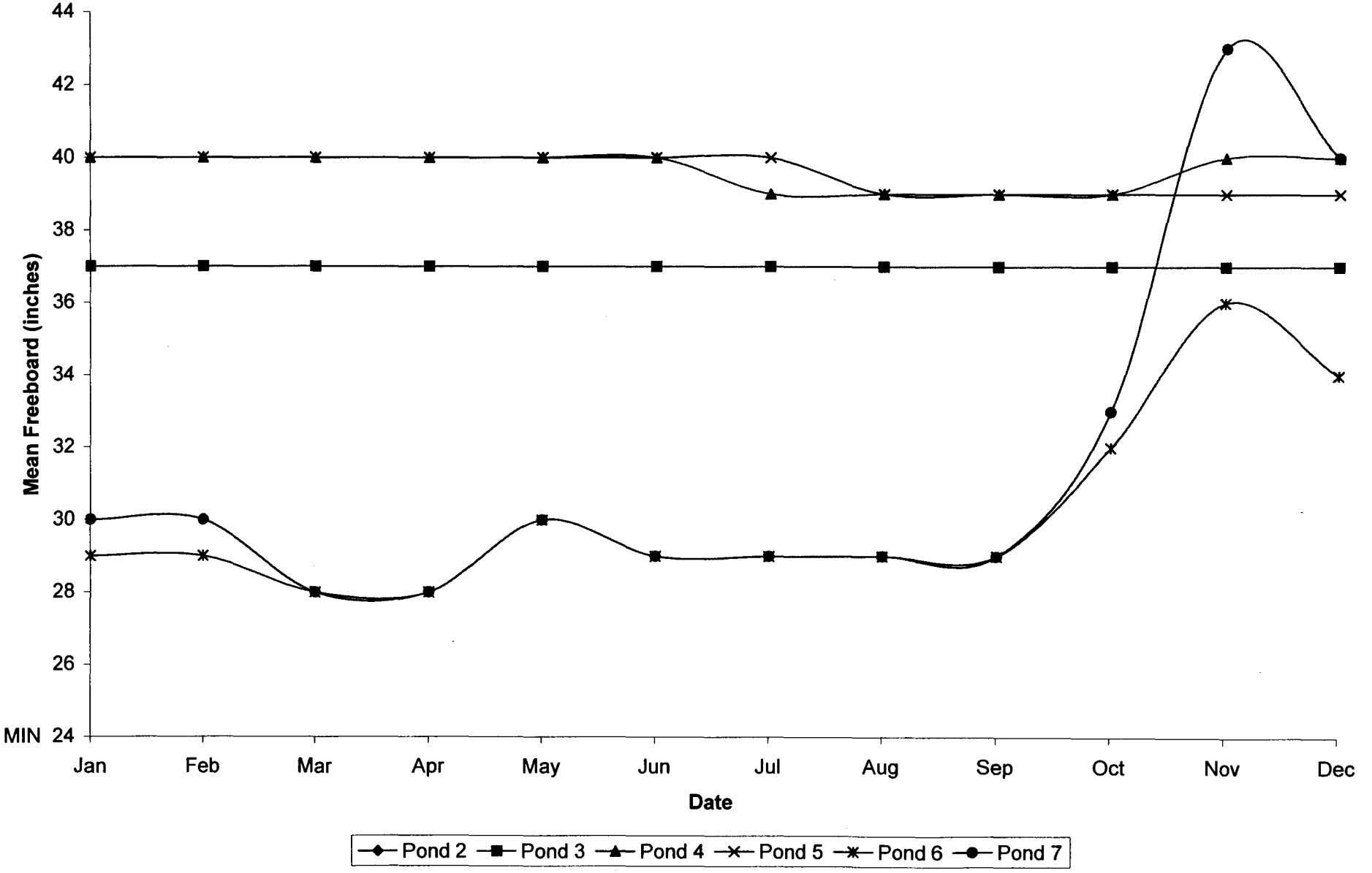


EXHIBIT I-4 TO CITY OF LOS ANGELES' RESPONSE TO DISCOVERY ORDER

FIGURE 4.3
PALMDALE WATER RECLAMATION PLANT
2003 MINIMUM FREE BOARD

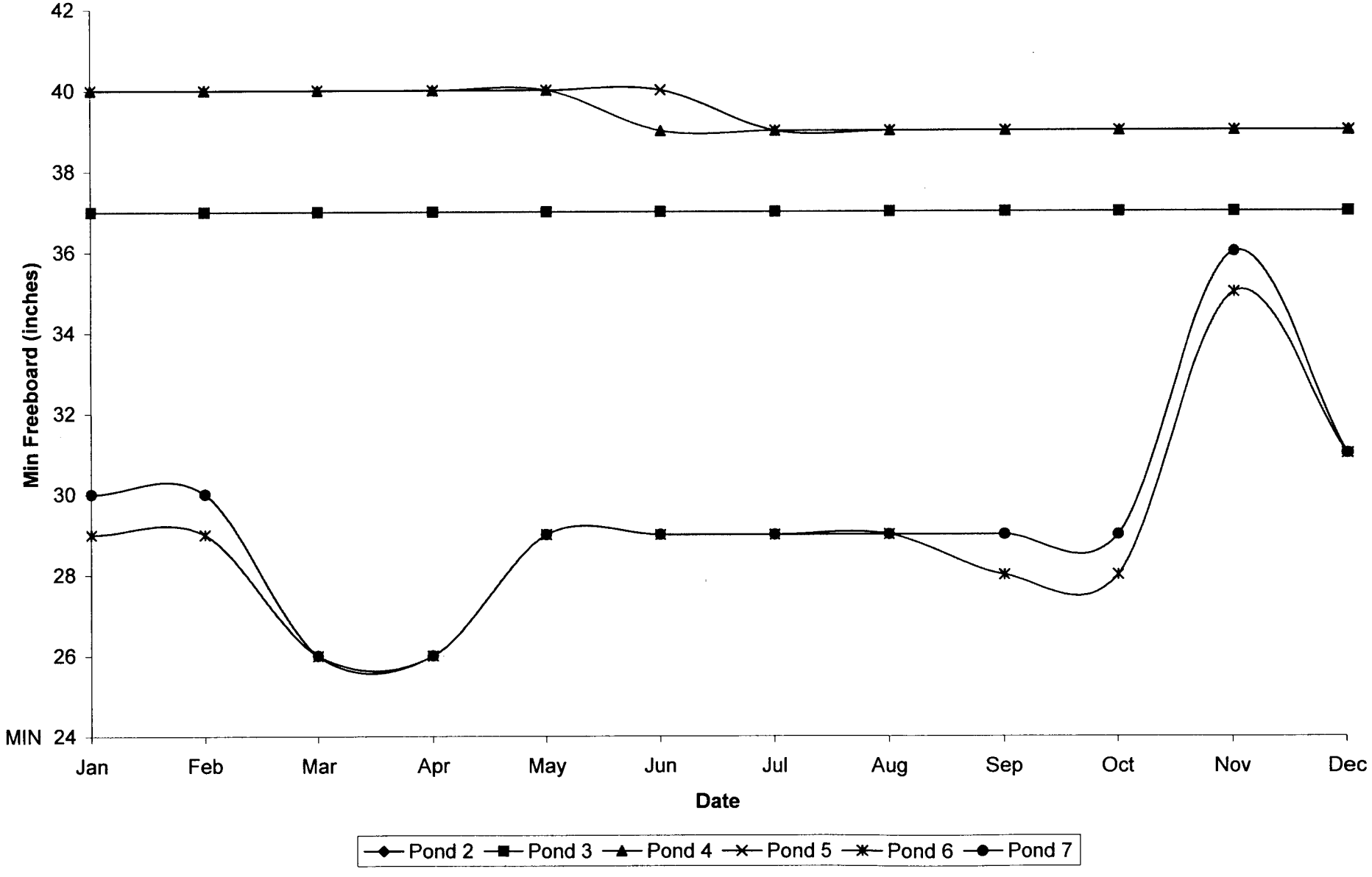


EXHIBIT I-4 TO CITY OF LOS ANGELES' RESPONSE TO DISCOVERY ORDER

FIGURE 4.4
PALMDALE WATER RECLAMATION PLANT
2003 INFLUENT WEEKLY DATA - TOTAL BOD, TOTAL COD

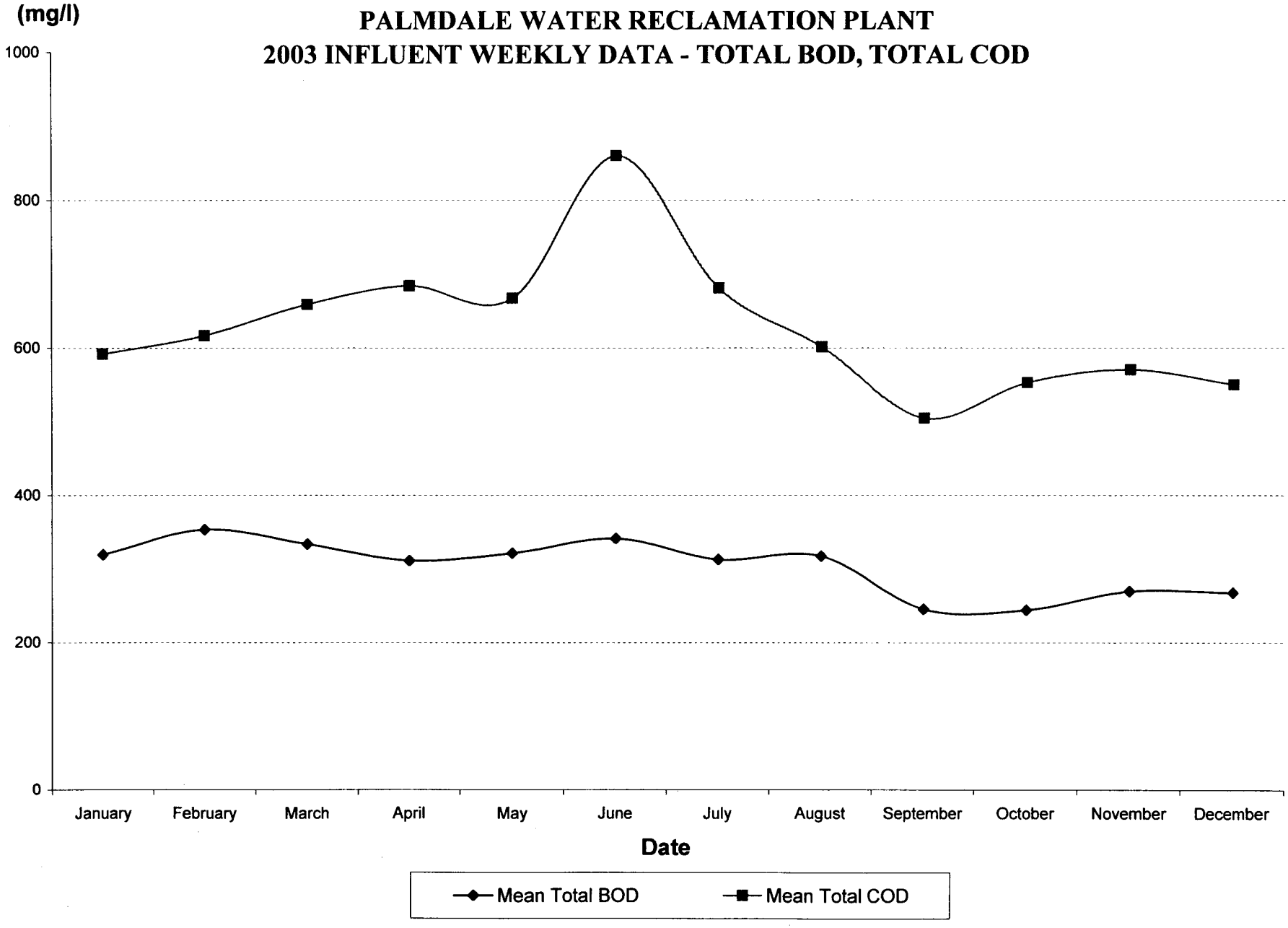


FIGURE 4.5
PALMDALE WATER RECLAMATION PLANT
2003 INFLUENT MONTHLY DATA - MBAS, NH_3, TKN, TDS

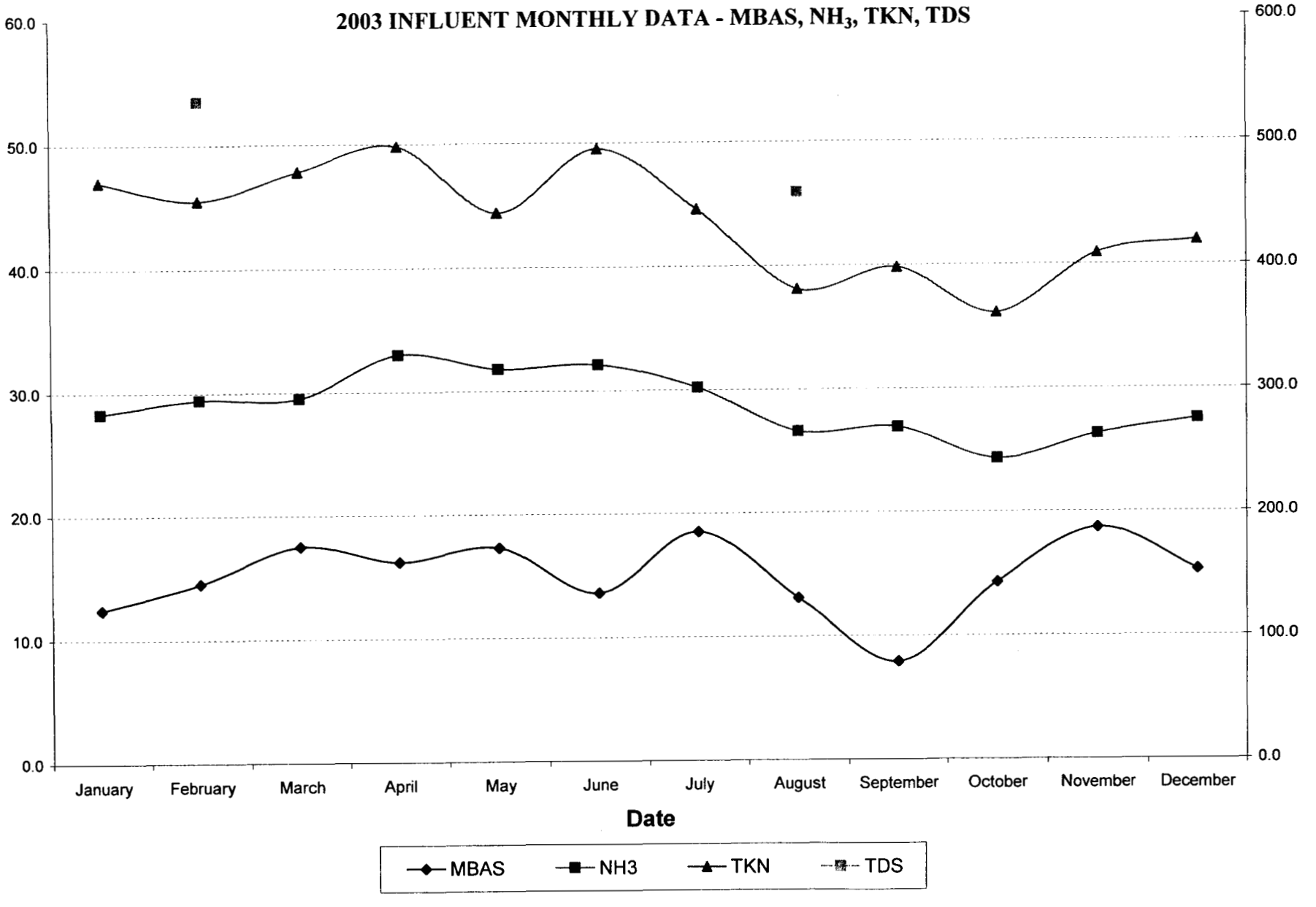


EXHIBIT I-4 TO CITY OF LOS ANGELES' RESPONSE TO DISCOVERY ORDER

FIGURE 4.6
PALMDALE WATER RECLAMATION PLANT
2003 EFFLUENT FROM PONDS 2, 3 WEEKLY DATA - SBOD, SCOD, SCBOD

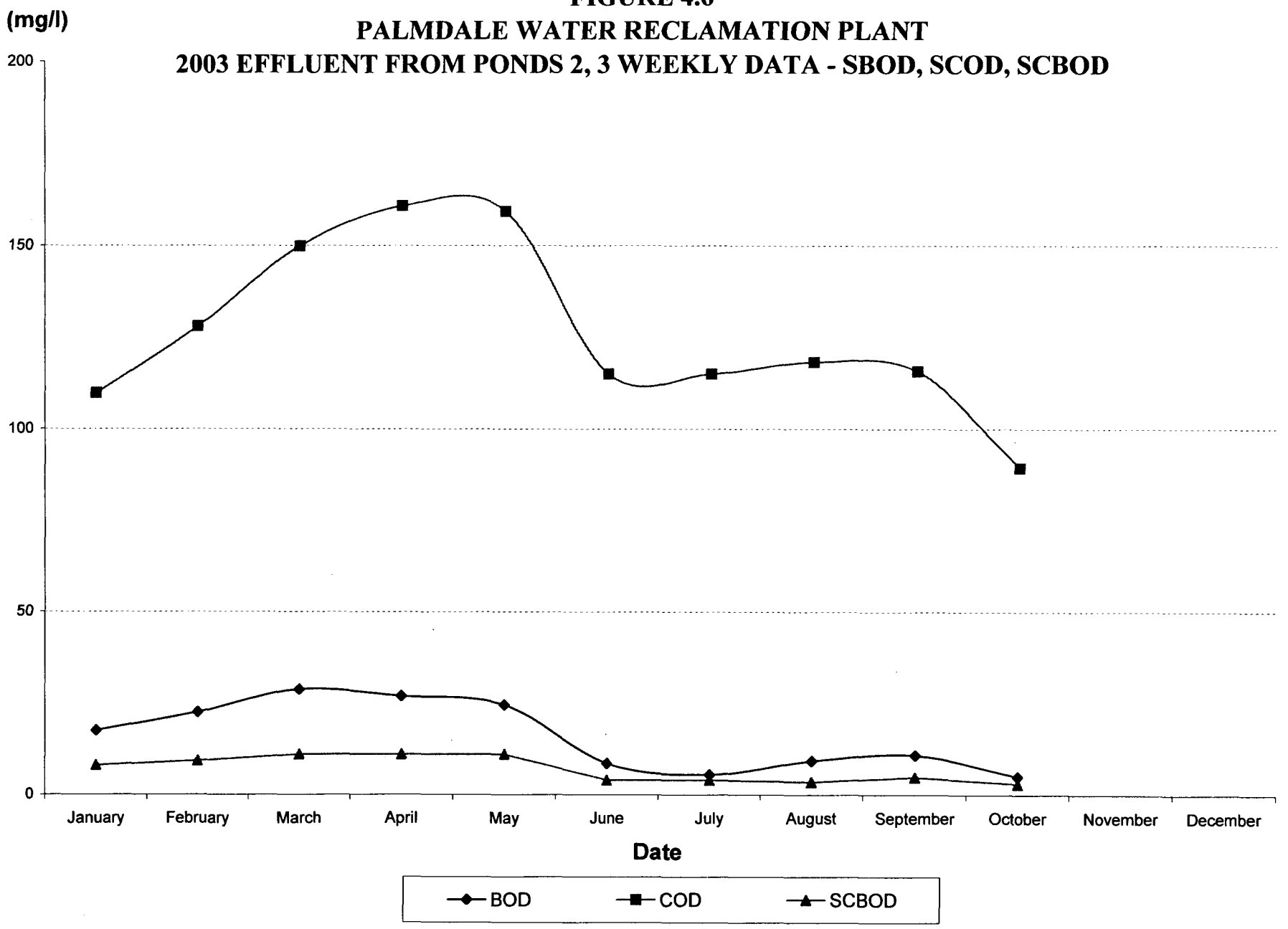


EXHIBIT I-4 TO CITY OF LOS ANGELES' RESPONSE TO DISCOVERY ORDER

FIGURE 4.7
PALMDALE WATER RECLAMATION PLANT
2003 EFFLUENT FROM PONDS 4-7 WEEKLY DATA - SBOD, SCOD, SCBOD

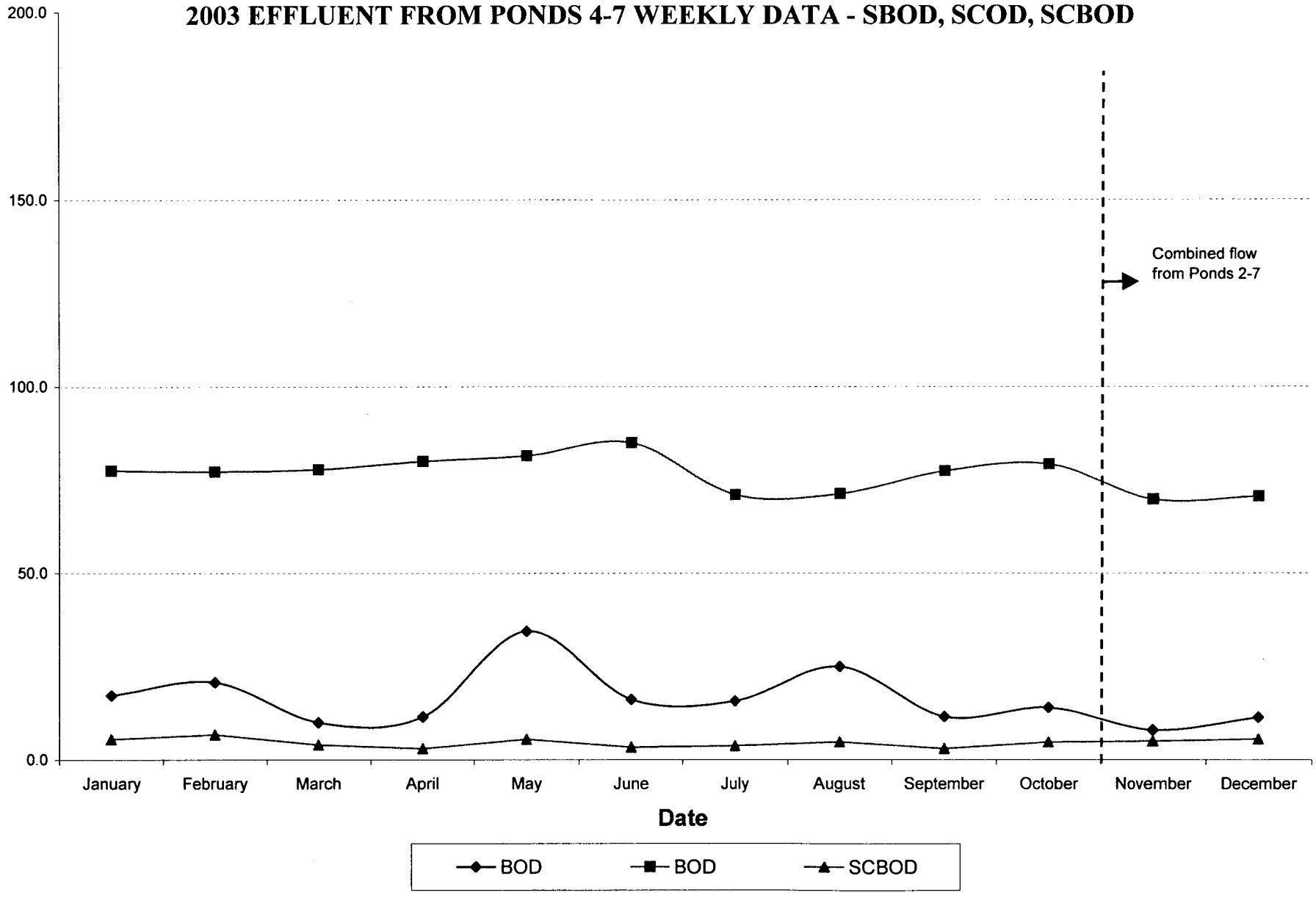


FIGURE 4.8
PALMDALE WATER RECLAMATION PLANT

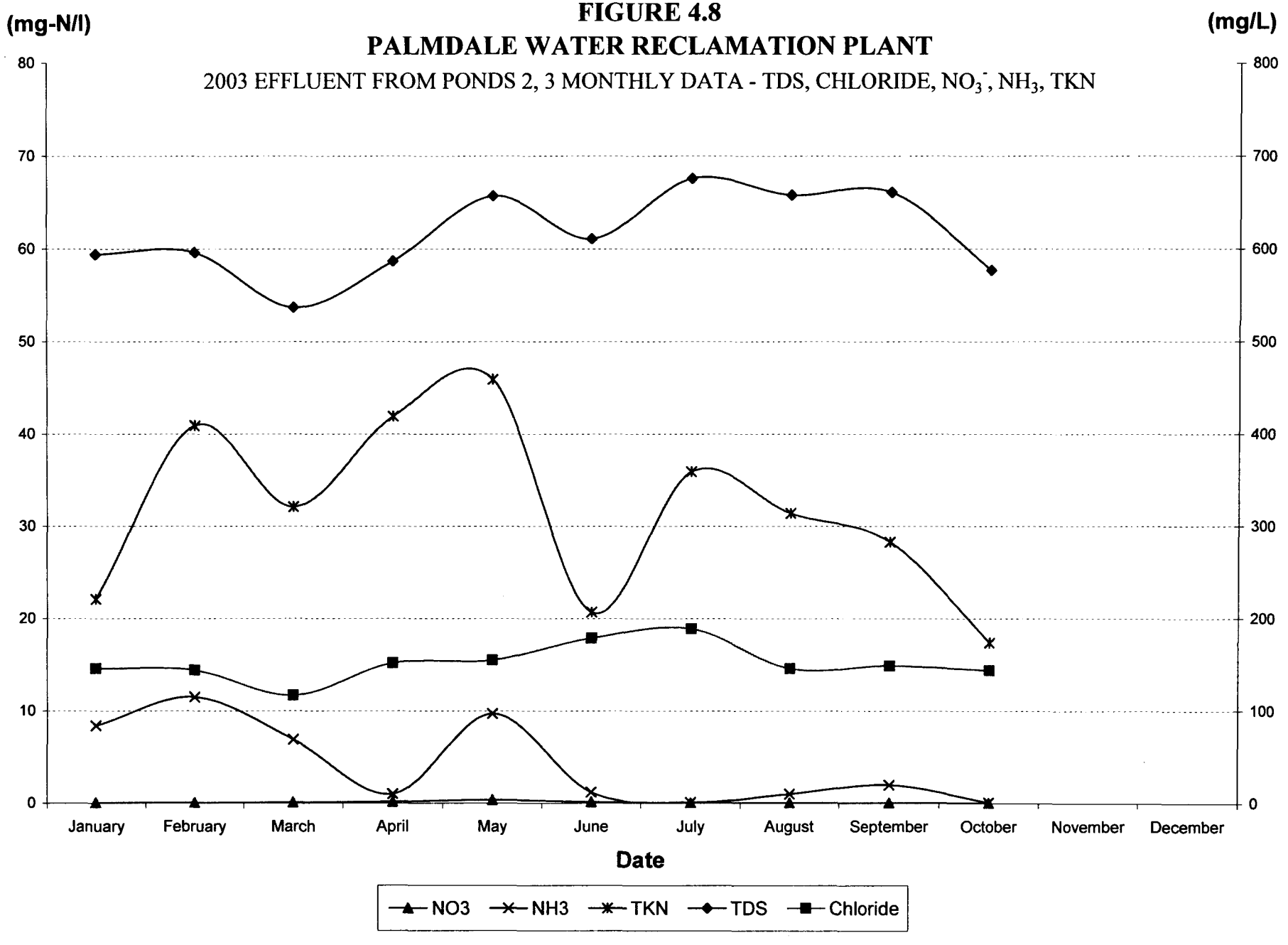


EXHIBIT I-4 TO CITY OF LOS ANGELES' RESPONSE TO DISCOVERY ORDER

FIGURE 4.9
PALMDALE WATER RECLAMATION PLANT

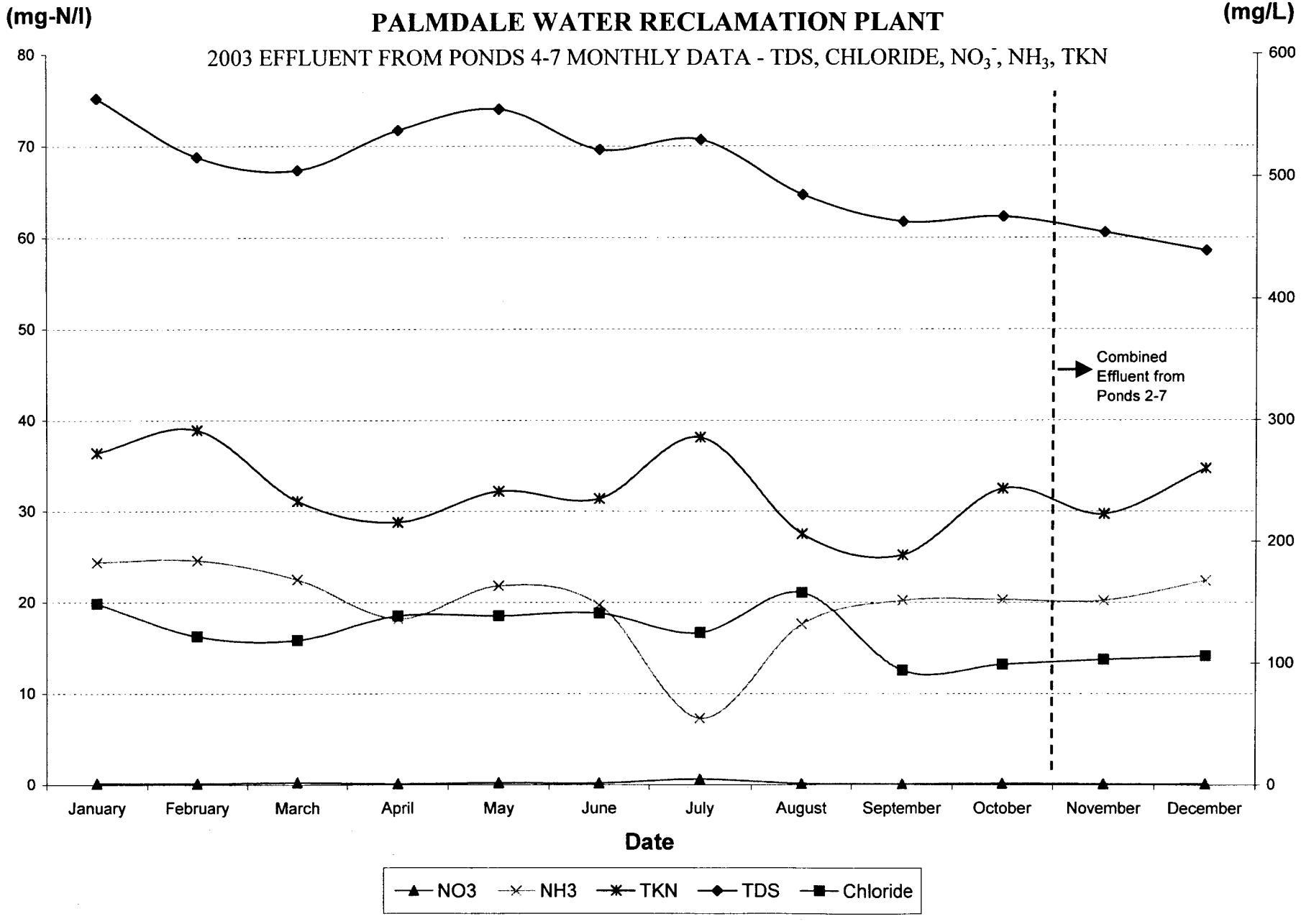


EXHIBIT I-4 TO CITY OF LOS ANGELES' RESPONSE TO DISCOVERY ORDER

PALMDALE WATER RECLAMATION PLANT

CHAPTER 5

LONG TERM
WASTEWATER MONITORING SUMMARIES

CHAPTER 5

LONG TERM WASTEWATER MONITORING SUMMARIES

5.1 INTRODUCTION

Long term monitoring summaries are provided to show trends in wastewater quality and the effects of changes in plant operations. Annual averages are presented in both graphical and tabular form. Only a limited number of parameters, primarily metals, are reported. No permit limits are indicated because they have changed during the life of this plant. The figures and tables in this chapter are for observation of long term trends. Non-detect values are reported here with actual numerical values without the less than designation (<). In addition, in cases where a range in concentration is reported for the annual average, the upper non-detect value of that range is reported as the annual average in Table 5-1 and the Figure. Often, the reported value is actually the method detection level for the constituent. As such, in some cases (e.g., Oil & Grease), a rise in the concentration in the table and graph simply indicates an increase in the analytical detection level from previous years.

5.2 TABULAR AND GRAPHICAL SUMMARIES

Table 5-1 presents summaries of the data presented graphically in the following Figures. Parameters in the tabular summaries are generally arranged in numerical order of the laboratory test codes, which are described in Chapter 3.

Data included in Table 5-1 are also shown graphically in Figures 5.1 – 5.23. Where both influent and effluent values for the same parameter are reported, they are combined in a single graph. The graphs present annual means for the period 1975-2003. Levels below the MDL or RML are presented as the numerical levels of the MDL or RML.

TABLE 5-1 (1 of 7)
PALMDALE WATER RECLAMATION PLANT
LONG TERM TABULAR SUMMARIES (Annual Averages)

Parameter	Total Flow	Total Flow	pH	Suspended Solids	Suspended Solids	Total Dissolved Solids	Total Dissolved Solids
Test Code	001	001	101	151	151	155	155
Sample Loc.	Influent	Effluent	Effluent	Influent	Effluent	Influent	Effluent
Sample Type	Cont.	Cont.	Grab	24-hr	24-hr	24-hr	24-hr
Units	MGD	MGD	pH	mg/L	mg/L	mg/L	mg/L
1975	1.58	0.51	8.44	326	162	422	477
1976	1.62	0.74	7.98	289	119	381	468
1977	1.61	0.77	8.10	421	114	389	465
1978	1.71	0.84	7.96	426	127	405	460
1979	1.83	0.92	8.10	400	115	382	456
1980	1.94	0.86	8.01	289	118	378	436
1981	2.06	0.60	7.85	295	132	390	442
1982	2.22	0.78	7.72	232	140	369	393
1983	2.39	0.92	7.57	247	143	358	389
1984	2.79	1.49	7.52	266	108	368	427
1985	3.29	2.21	7.82	210	88	426	470
1986	3.78	2.36	7.76	242	77	404	462
1987	4.57	3.26	7.60	203	127	423	462
1988	4.79	3.45	7.80	244	136	498	554
1989	6.44	3.59	7.80	341	122	539	667
1990	7.17	4.88	8.00	306	119	525	593
1991	7.86	4.89	8.20	351	141	525	581
1992	7.43	5.53	8.07	290	139	605	469
1993	7.53	6.33	8.25	299	124		590
1994	7.70	6.70	8.30	344	110		543
1995	7.82	7.21	8.30	267	117		526
1996	7.95	7.27	8.30	230	114		497
1997	8.26	7.54	8.20	226	117		496
1998	8.32	8.18	8.40	208	118		489
1999	8.57	7.80	8.20	254	114		483
2000	9.06	8.28	8.30	256	110	499	516
2001	9.17	8.44	8.20	257	106	490	531
2002	8.90	7.79	8.30	234	89	499	556
2003	9.20	8.40	8.20	296	82	497	503

TABLE 5-1 (2 of 7)
PALMDALE WATER RECLAMATION PLANT
LONG TERM TABULAR SUMMARIES (Annual Averages)

Parameter	Ammonia	Organic-Nitrogen	Nitrate	Nitrite	Nitrate + Nitrite	Total Nitrogen
Test Code	201	202	204	205	951	208
Sample Loc.	Effluent	Effluent	Effluent	Effluent	Effluent	Effluent
Sample Type	24-hr	24-hr	24-hr	24-hr	24-hr	24-hr
Units	mg-N/L	mg-N/L	mg-N/L	mg-N/L	mg-N/L	mg-N/L
1975						
1976						
1977						
1978						
1979						
1980						
1981	8.6	16	0.4			
1982	12.3	15.2	0.52			
1983	12.2	17.2	0.19			
1984	11.60	13.40	0.06			
1985	15.70	12.00	0.11			
1986	18.00	10.80	0.21	0.10	0.31	29.11
1987	17.10	13.20	0.10	0.10	0.20	30.50
1988	13.30	23.20	0.09	0.20	0.29	36.79
1989	9.70	19.50	0.25	0.42	0.67	29.87
1990	13.30	9.00	0.11	0.28	0.39	22.69
1991	10.23	15.08	2.60	0.59	3.19	28.50
1992	8.02	15.31	1.87	1.66	3.53	26.87
1993	7.24	13.69	2.49	1.40	3.89	24.82
1994	8.31	14.06	1.63	1.41	3.04	25.41
1995	9.65	14.83	0.65	1.41	2.06	26.54
1996	9.04	13.40	1.19	1.52	2.71	25.15
1997	9.04	11.97	1.40	0.66	2.06	23.07
1998	9.10	13.93	1.56	0.87	2.43	25.46
1999	11.84	12.78	1.52	0.63	2.15	26.75
2000	11.60	12.60	1.17	1.19	2.36	26.56
2001	13.90	12.70	0.82	0.02	0.84	27.45
2002	16.70	15.70	0.27	0.41	0.68	33.20
2003	19.90	12.30	0.19	0.60	0.79	32.20

TABLE 5-1 (3 of 7)
PALMDALE WATER RECLAMATION PLANT
LONG TERM TABULAR SUMMARIES (Annual Averages)

Parameter	Total Cyanide	Sulfate	Chloride	Phenols	Phenols	Fluoride	Boron	Detergents (MBAS)	Detergents (MBAS)
Test Code	206	257	301	312	312	313	314	315	315
Sample Loc.	Effluent	Effluent	Effluent	Influent	Effluent	Effluent	Effluent	Influent	Effluent
Sample Type	24-hr	24-hr	24-hr	24-hr	24-hr	24-hr	24-hr	24-hr	24-hr
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
1975				0.054	0.002			8.40	0.09
1976				0.070	0.003			8.20	0.16
1977				0.170	0.003			8.40	0.10
1978				0.066	0.006			9.10	0.11
1979				0.060	0.004			8.20	0.28
1980				0.050	0.007			5.60	0.16
1981				0.036	0.001			6.10	0.10
1982				0.034	0.003			5.50	0.18
1983				0.044	0.005			3.10	0.12
1984	0.016	62	45	0.047	0.007			5.40	0.14
1985	0.010	62	60	0.062	0.009			5.70	0.21
1986	0.010	72	64	0.058	0.010			6.50	0.16
1987	0.026	77	79	0.045	0.009	0.19	0.47	5.70	0.70
1988	0.010	100	101	0.048	0.005	0.28	0.43	3.80	0.30
1989	0.010	103	123	0.042	0.014	0.26	0.43	6.70	0.45
1990	0.010	72	143	0.049	0.002	0.34	0.55	7.70	0.22
1991	0.010	84	112	0.069	0.016	0.27	0.53	5.80	0.39
1992	0.010	79	112	0.090	0.010	0.28	0.47	5.18	0.26
1993	0.010	69	103	0.061	0.010	0.23	0.70	7.19	0.19
1994	0.010	88	119	0.115	0.003	0.28	0.56	7.22	0.20
1995	0.010	85	98	0.102	0.004	0.24	0.50	5.63	0.19
1996	0.010	74	95	0.053	0.005	0.43	0.48	6.10	0.19
1997	0.010	72	102	0.130	0.001	0.25	0.47	6.88	0.20
1998	0.010	73	102	0.050	0.001	0.25	0.47	7.66	0.25
1999	0.010	72	102	0.029	0.004	0.25	0.44	8.70	0.27
2000	0.010	88	110	0.010	0.006	0.31	0.50	11.70	0.24
2001	0.01	101	119	0.053	0.007	0.29	0.44	10.62	0.31
2002	0.01	71	131	0.041	0.006		0.28	13.40	0.20
2003	0.01	78	125	0.010	0.005			14.90	0.14

TABLE 5-1 (4 of 7)
PALMDALE WATER RECLAMATION PLANT
LONG TERM TABULAR SUMMARIES (Annual Averages)

Parameter	Total BOD	BOD (a)	Total COD	COD (a)	Oil & Grease	Oil & Grease	Arsenic	Arsenic
Test Code	401	401	403	403	408	408	705	705
Sample Loc.	Influent	Effluent	Influent	Effluent	Influent	Effluent	Influent	Effluent
Sample Type	24-hr	24-hr	24-hr	24-hr	Grab	Grab	24-hr	24-hr
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
1975	165	36		277	176	5.0		0.011
1976	175	30		250	161	8.5		0.004
1977	186	30		255	155	5.6		0.003
1978	240	48		274	146	9.4		0.002
1979	201	51		290	134	14.4		0.003
1980	199	49		275	161	6.6		0.002
1981	180	34		277	99	8.4		0.001
1982	220	47	665	290	84	8.0		0.001
1983	264	41	728	284	59	7.0		0.001
1984	248	55	567	229	70	8.0		0.001
1985	271	49	614	209	66	11.0		0.002
1986	275	25	602	103	71	3.4		0.002
1987	248	28	545	103	41	4.9	0.003	0.004
1988	286	21	630	94	50	3.9	0.005	0.003
1989	276	21	633	87	31	1.2	0.008	0.002
1990	276	24	589	94	42	1.7	0.002	0.001
1991	282	22	599	89	54	1.6	0.0025	0.001
1992	274	19	633	68	72	1.9	0.003	0.001
1993	258	25	583	72	50	1.5	0.002	0.001
1994	265	25	581	72		1.3	0.001	0.001
1995	245	21	507	75		1.6	0.002	0.000
1996	236	27	491	73		1.6	0.001	0.001
1997	255	16	509	80		1.7	0.002	0.003
1998	233	27	481	72		1.8	0.001	0.001
1999	238	23	538	78		2.6	0.001	0.001
2000	235	26	535	65		2.7	0.002	0.001
2001	243	22	538	88		5.0	0.001	0.001
2002	268	19	556	81		7.3	0.001	0.001
2003	303	16	628	77		4.3	0.001	0.001

(a) Total BOD or COD until 1986. Soluble BOD or COD after 1986.

TABLE 5-1 (5 of 7)
PALMDALE WATER RECLAMATION PLANT
LONG TERM TABULAR SUMMARIES (Annual Averages)

Parameter	Barium	Barium	Cadmium	Cadmium	Total Chromium	Total Chromium	Copper	Copper
Test Code	706	706	708	708	709	709	712	712
Sample Loc.	Influent	Effluent	Influent	Effluent	Influent	Effluent	Influent	Effluent
Sample Type	24-hr	24-hr	24-hr	24-hr	24-hr	24-hr	24-hr	24-hr
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
1975		0.09		0.002		0.01		0.02
1976		0.10		0.003		0.01		0.02
1977		0.06		0.002		0.00		0.06
1978		0.11		0.003		0.01		0.02
1979		0.20		0.003		0.01		0.03
1980		0.11		0.003		0.00		0.03
1981		0.16		0.002		0.00		0.02
1982		0.05		0.000		0.00		0.03
1983		0.04		0.001		0.01		0.03
1984		0.20		0.001		0.01		0.02
1985		0.03		0.004		0.01		0.03
1986		0.02		0.002		0.01		0.04
1987		0.04	0.001	0.006	0.030	0.02	0.070	0.03
1988		0.04	0.010	0.010	0.010	0.02	0.050	0.03
1989	0.07	0.03	0.01	0.010	0.02	0.02	0.07	0.02
1990	0.06	0.03	0.003	0.008	0.02	0.02	0.09	0.02
1991	0.06	0.03	0.006	0.005	0.02	0.02	0.06	0.02
1992	0.09	0.03	0.010	0.010	0.020	0.02	0.060	0.02
1993	0.06	0.02	0.01	0.010	0.02	0.02	0.06	0.02
1994	0.06	0.02	0.003	0.003	0.01	0.01	0.06	0.01
1995	0.06	0.02	0.003	0.003	0.01	0.01	0.07	0.02
1996	0.06	0.02	0.003	0.003	0.01	0.01	0.08	0.02
1997	0.05	0.11	0.003	0.003	0.02	0.01	0.07	0.14
1998	0.05	0.03	0.003	0.003	0.04	0.04	0.08	0.03
1999	0.05	0.02	0.002	0.002	0.02	0.01	0.05	0.01
2000	0.07	0.02	0.002	0.002	0.08	0.01	0.07	0.01
2001	0.07	0.02	0.002	0.002	0.01	0.01	0.07	0.02
2002	0.04	0.02	0.000	0.000	0.01	0.01	0.04	0.02
2003	0.04	0.01	0.000	0.000	0.01	0.01	0.06	0.01

TABLE 5-1 (6 of 7)
PALMDALE WATER RECLAMATION PLANT
LONG TERM TABULAR SUMMARIES (Annual Averages)

Parameter	Iron	Iron	Lead	Lead	Mercury	Mercury
Test Code	713	713	714	714	717	717
Sample Loc.	Influent	Effluent	Influent	Effluent	Influent	Effluent
Sample Type	24-hr	24-hr	24-hr	24-hr	24-hr	24-hr
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
1975		0.710		0.02		0.0003
1976		0.360		0.03		0.0001
1977		0.260		0.03		0.0004
1978		0.290		0.04		0.0002
1979		0.380		0.03		0.0001
1980		0.360		0.02		0.0001
1981		0.240		0.02		0.0002
1982		0.400		0.02		0.0003
1983		0.500		0.01		0.0002
1984		0.300		0.01		0.0002
1985		0.210		0.01		0.0001
1986		0.470		0.02		0.0002
1987		1.040	0.030	0.02	0.001	0.0002
1988		0.890	0.015	0.02	0.001	0.0002
1989	0.69	0.520	0.04	0.04	0.0004	0.0002
1990	0.92	0.310	0.04	0.04	0.0006	0.0002
1991	0.75	0.470	0.04	0.04	0.0007	0.0001
1992	1.00	1.030	0.040	0.04	0.001	0.0005
1993			0.04	0.04	0.0007	0.0001
1994			0.02	0.02	0.0003	0.0001
1995			0.02	0.02	0.0002	0.0001
1996			0.02	0.02	0.0003	0.0001
1997			0.02	0.02	0.0002	0.0006
1998			0.02	0.02	0.0001	0.0001
1999			0.01	0.01	0.0002	0.0001
2000			0.01	0.01	0.0003	0.0001
2001		0.19	0.01	0.01	0.0003	0.0001
2002			0.00	0.00	0.0002	0.0000
2003	0.584	0.12	0.00	0.00	0.0002	0.0000

TABLE 5-1 (7 of 7)
PALMDALE WATER RECLAMATION PLANT
LONG TERM TABULAR SUMMARIES (Annual Averages)

Parameter	Nickel	Nickel	Selenium	Selenium	Silver	Silver	Zinc	Zinc
Test Code	718	718	720	720	722	722	724	724
Sample Loc.	Influent	Effluent	Influent	Effluent	Influent	Effluent	Influent	Effluent
Sample Type	24-hr	24-hr	24-hr	24-hr	24-hr	24-hr	24-hr	24-hr
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
1975		0.02		0.007		0.005		0.04
1976		0.01		0.005		0.002		0.13
1977		0.01		0.002		0.002		0.27
1978		0.02		0.002		0.004		0.21
1979		0.02		0.004		0.004		0.15
1980		0.03		0.002		0.005		0.17
1981		0.02		0.002		0.002		0.20
1982		0.01		0.001		0.002		0.16
1983		0.02		0.001		0.003		0.09
1984		0.02		0.002		0.003		0.07
1985		0.02		0.004		0.004		0.08
1986		0.01		0.002		0.003		0.06
1987	0.010	0.01	0.003	0.005	0.013	0.008	0.18	0.10
1988	0.015	0.02	0.005	0.002	0.003	0.006	0.37	0.12
1989	0.04	0.03	0.002	0.001	0.005	0.005	0.86	0.29
1990	0.03	0.03	0.001	0.001	0.005	0.005	0.73	0.22
1991	0.03	0.03	0.002	0.001	0.006	0.005	0.36	0.17
1992	0.030	0.03	0.002	0.001	0.008	0.005	0.20	0.22
1993	0.03	0.03	0.001	0.001	0.008	0.005	0.61	0.08
1994	0.01	0.02	0.001	0.001	0.010	0.010	0.61	0.13
1995	0.02	0.02	0.001	0.001	0.010	0.010	0.66	0.11
1996	0.02	0.00	0.001	0.010	0.010	0.010	0.73	0.15
1997	0.02	0.08	0.004	0.004	0.010	0.010	0.49	1.12
1998	0.02	0.02	0.001	0.001	0.010	0.010	0.64	0.19
1999	0.02	0.02	0.001	0.001	0.010	0.010	0.54	0.15
2000	0.02	0.02	0.001	0.001	0.010	0.010	0.51	0.10
2001	0.02	0.02	0.001	0.001	0.01	0.01	0.51	0.11
2002	0.02	0.02	0.001	0.001	0.025	0.025	0.27	0.15
2003	0.02	0.02	0.001	0.001	0.025	0.025	0.48	0.11

PALMDALE WATER RECLAMATION PLANT

FIGURES 5.1 – 5.23

GRAPHICAL SUMMARIES

FIGURE 5.1
PALMDALE WATER RECLAMATION PLANT
INFLUENT AND EFFLUENT - TOTAL FLOW

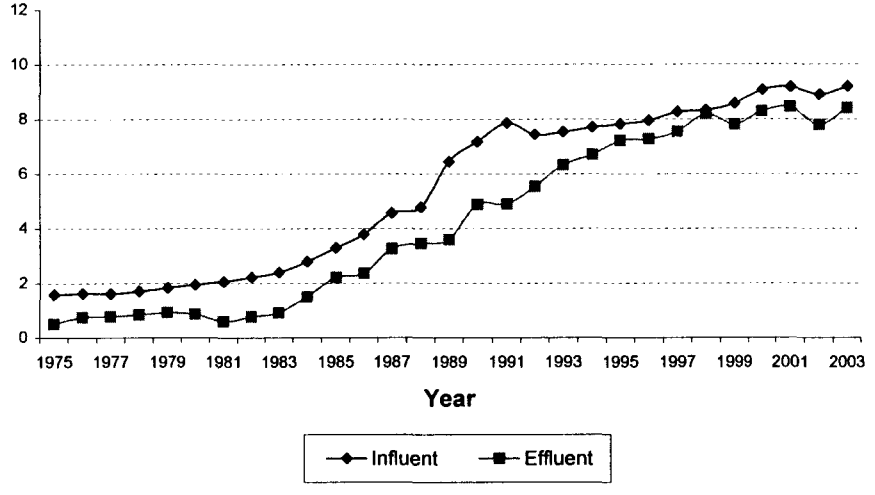


FIGURE 5.2
PALMDALE WATER RECLAMATION PLANT EFFLUENT - pH

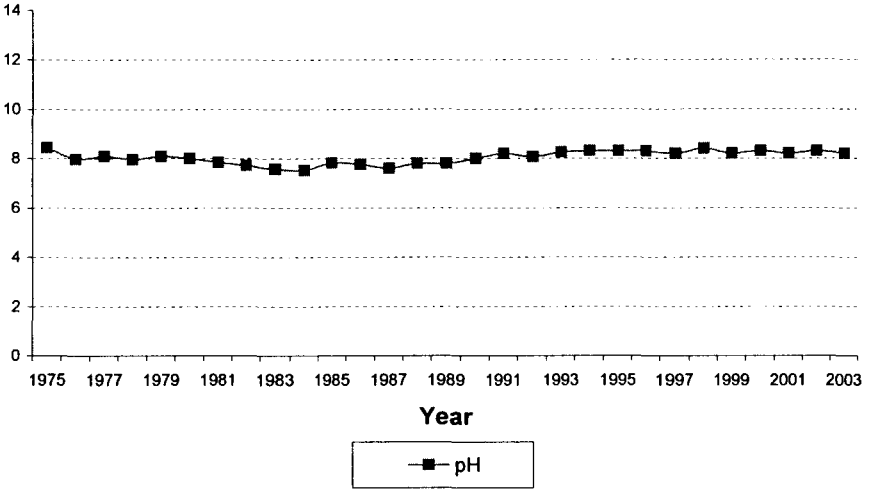


FIGURE 5.3
PALMDALE WATER RECLAMATION PLANT
INFLUENT AND EFFLUENT - SUSPENDED SOLIDS

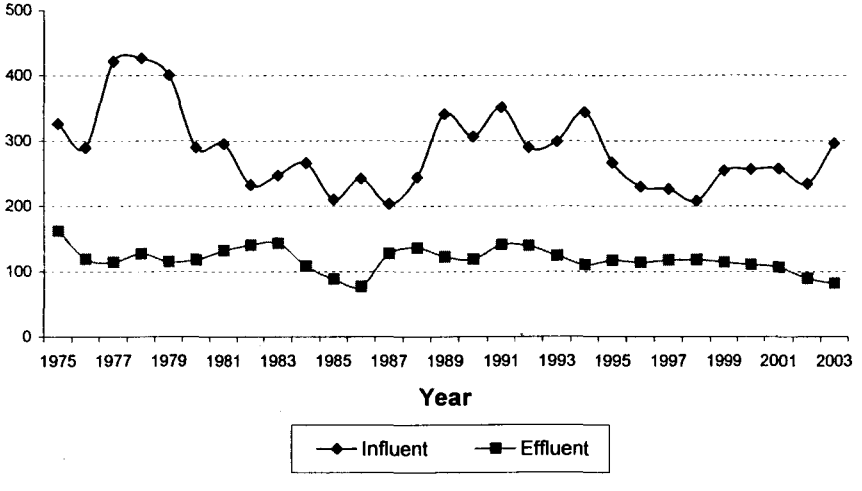


FIGURE 5.4
PALMDALE WATER RECLAMATION PLANT
INFLUENT AND EFFLUENT - TDS (24-HR)

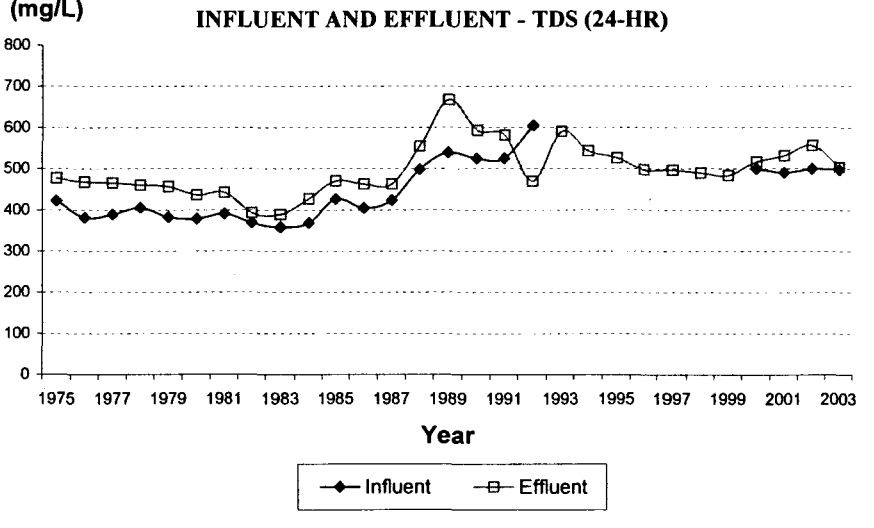


FIGURE 5.5
PALMDALE WATER RECLAMATION PLANT
EFFLUENT - AMMONIA, ORG. N, NITRATE+NITRITE, TOTAL NITROGEN

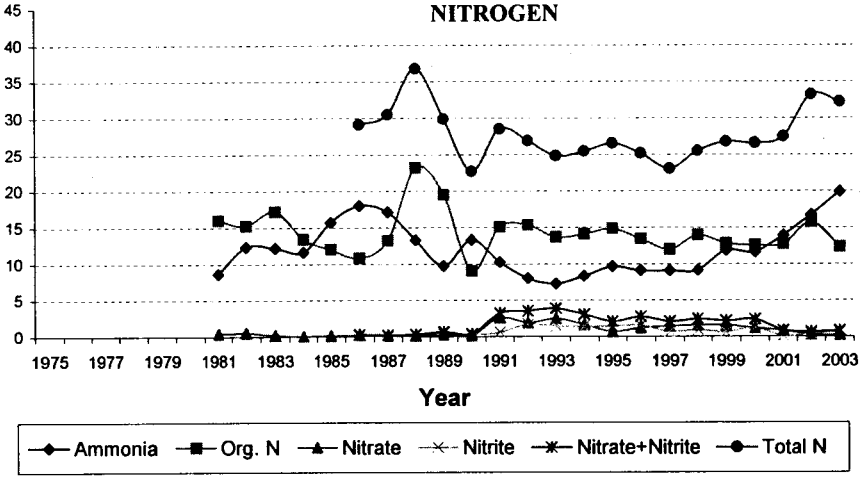


FIGURE 5.6
PALMDALE WATER RECLAMATION PLANT
EFFLUENT - TOTAL CYANIDE

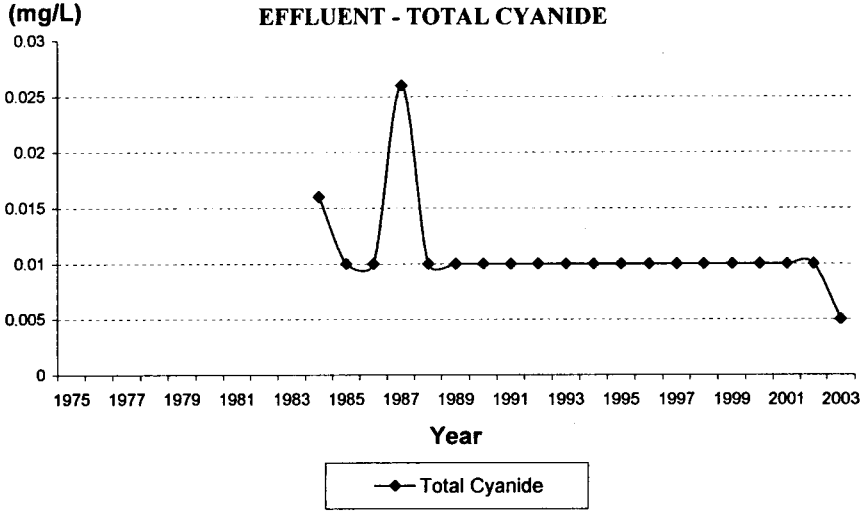


FIGURE 5.7
PALMDALE WATER RECLAMATION PLANT
EFFLUENT - SULFATE, CHLORIDE

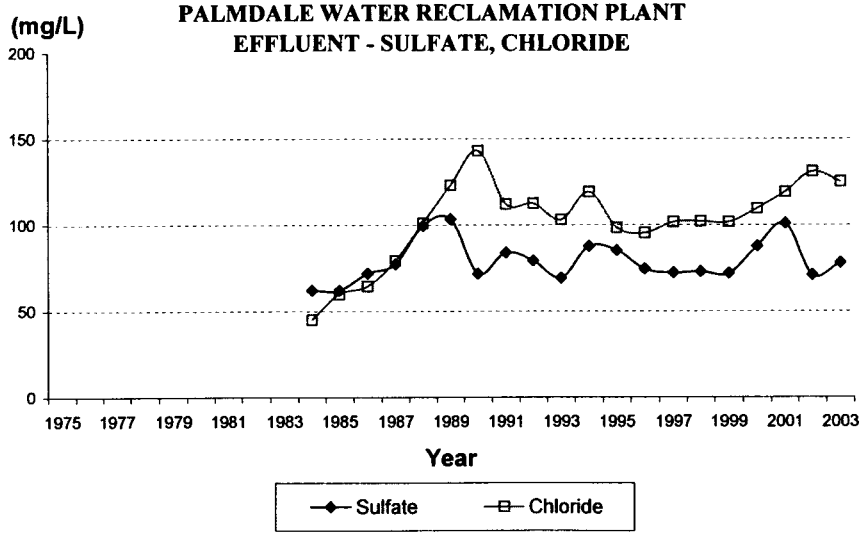


FIGURE 5.8
PALMDALE WATER RECLAMATION PLANT
INFLUENT AND EFFLUENT - PHENOLS

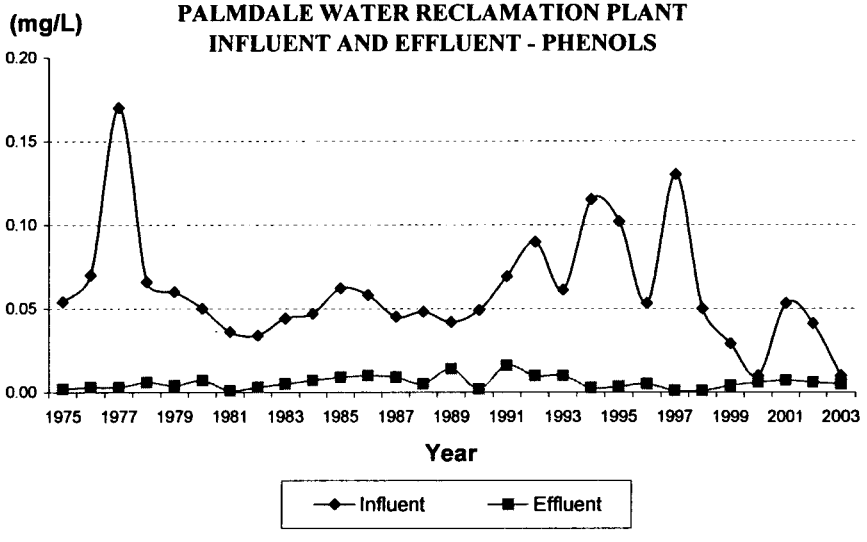


FIGURE 5.9
PALMDALE WATER RECLAMATION PLANT
INFLUENT AND EFFLUENT - DETERGENTS (MBAS)

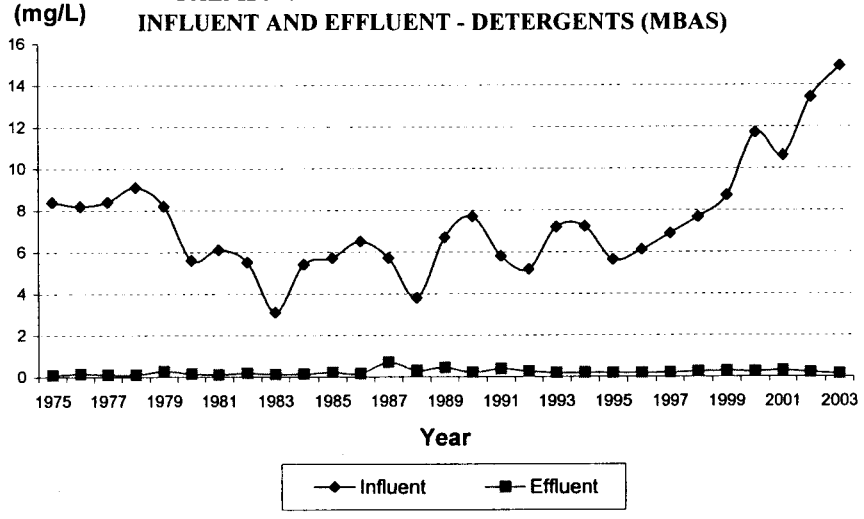


FIGURE 5.10
PALMDALE WATER RECLAMATION PLANT
INFLUENT AND EFFLUENT - BOD, COD

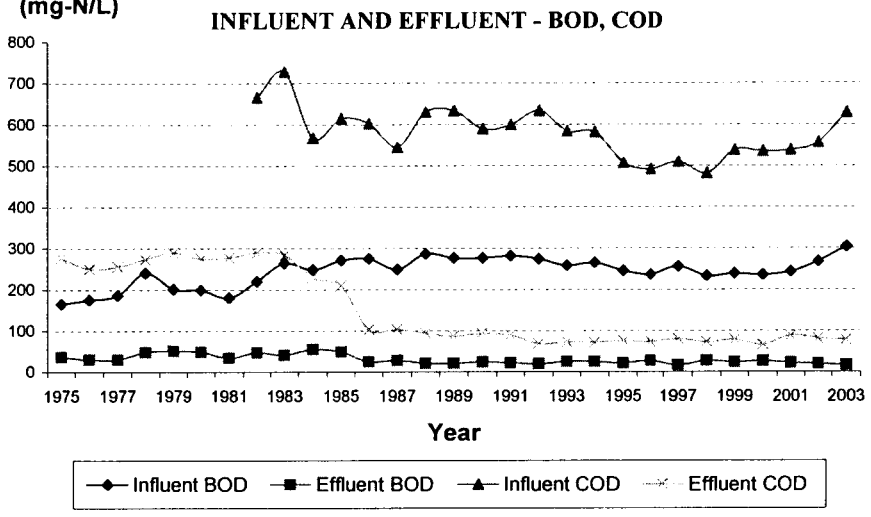


FIGURE 5.11
PALMDALE WATER RECLAMATION PLANT
INFLUENT AND EFFLUENT - OIL AND GREASE

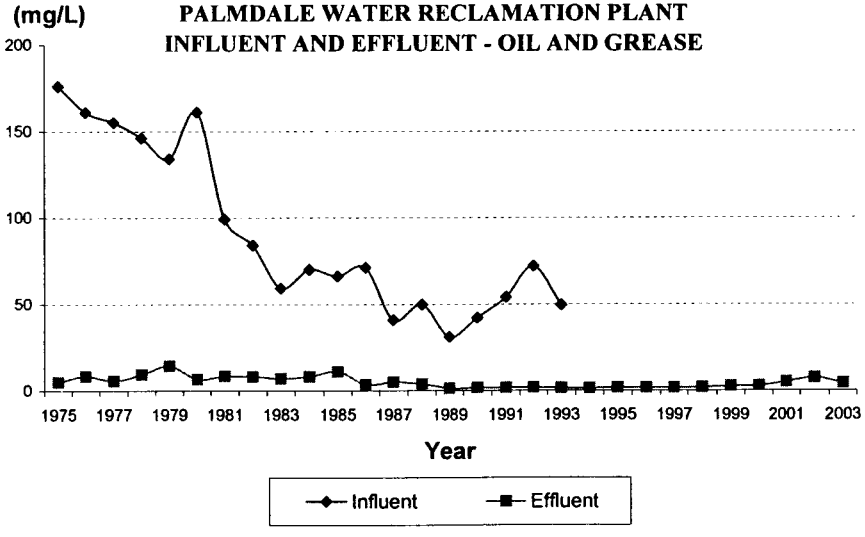


FIGURE 5.12
PALMDALE WATER RECLAMATION PLANT
INFLUENT AND EFFLUENT - ARSENIC

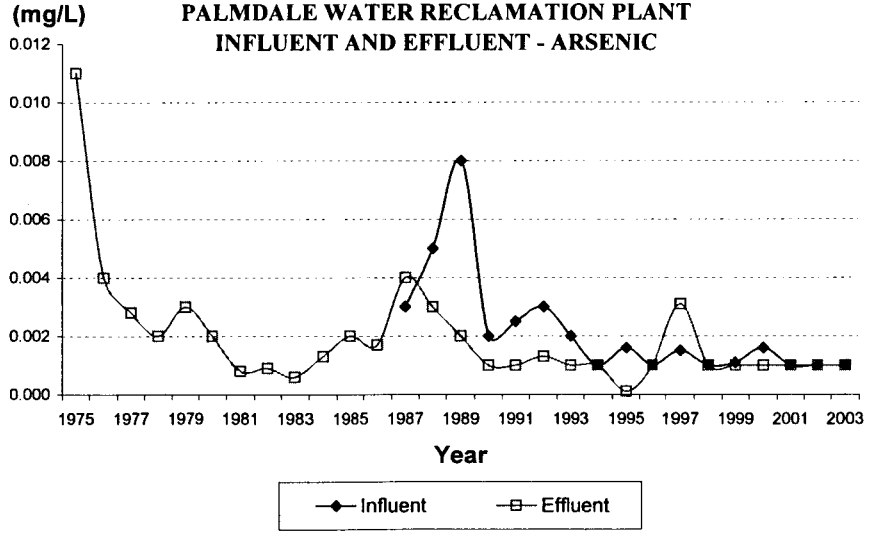


FIGURE 5.13
PALMDALE WATER RECLAMATION PLANT
INFLUENT AND EFFLUENT - BARIUM

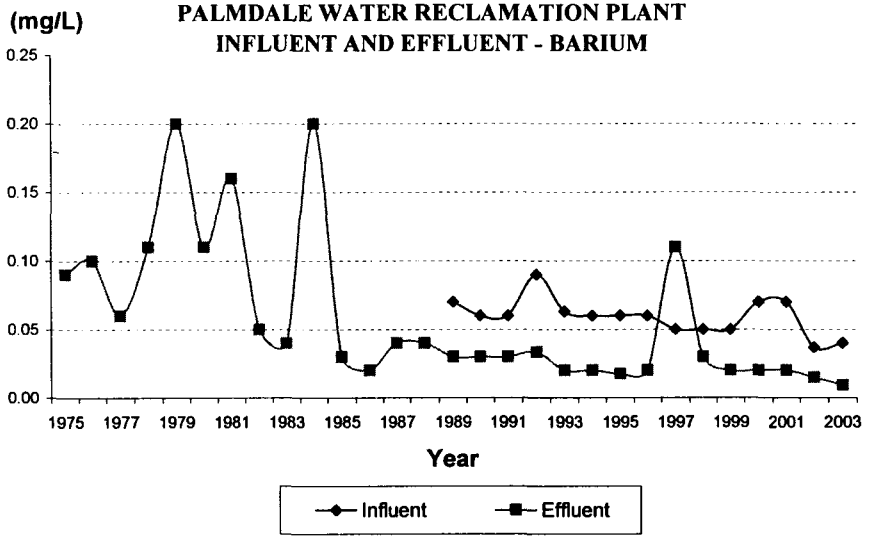


FIGURE 5.14
PALMDALE WATER RECLAMATION PLANT
INFLUENT AND EFFLUENT - CADMIUM

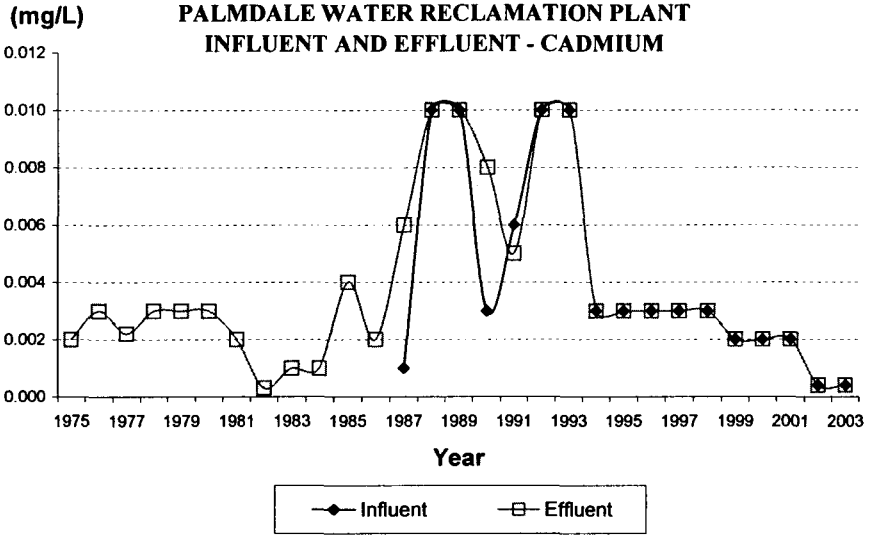


FIGURE 5.15
PALMDALE WATER RECLAMATION PLANT
INFLUENT AND EFFLUENT - TOTAL CHROMIUM

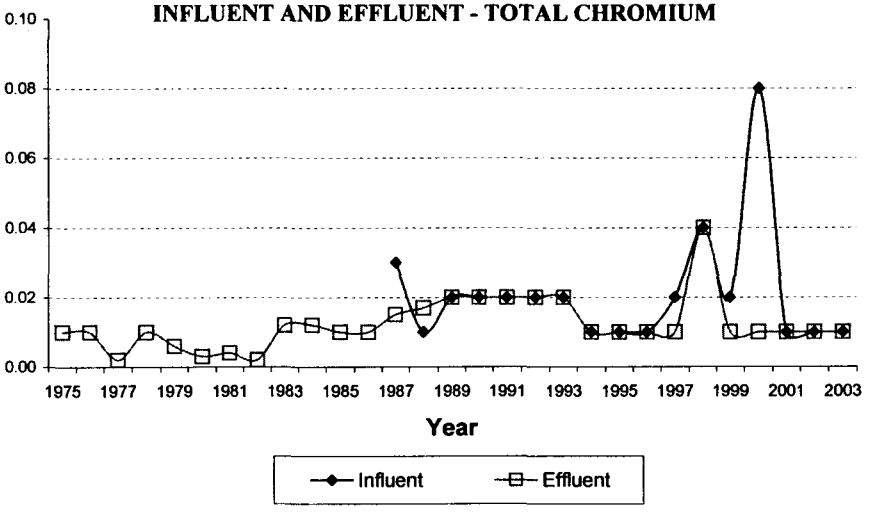


FIGURE 5.16
PALMDALE WATER RECLAMATION PLANT
INFLUENT AND EFFLUENT - COPPER

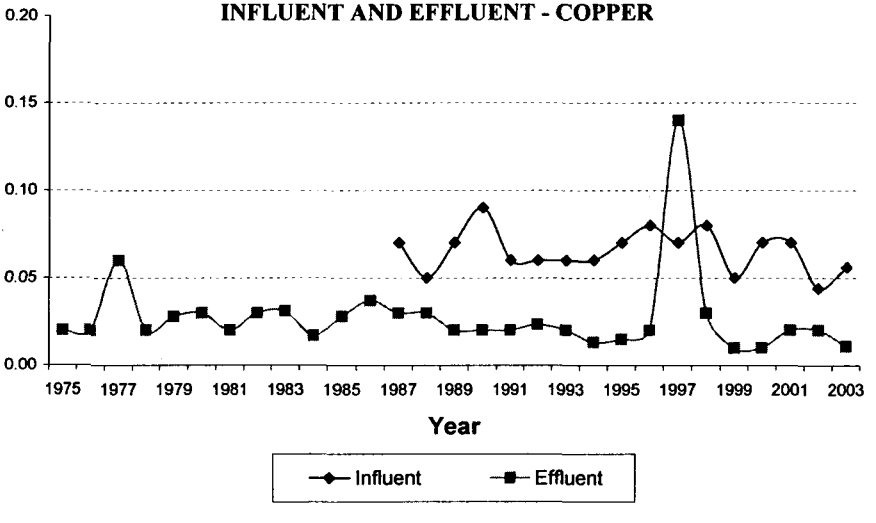


FIGURE 5.17
PALMDALE WATER RECLAMATION PLANT
INFLUENT AND EFFLUENT - IRON

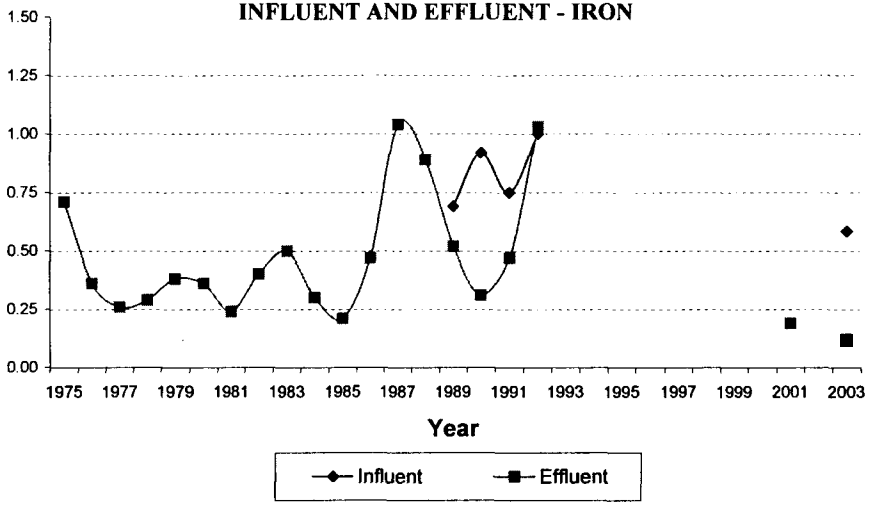


FIGURE 5.18
PALMDALE WATER RECLAMATION PLANT
INFLUENT AND EFFLUENT - LEAD

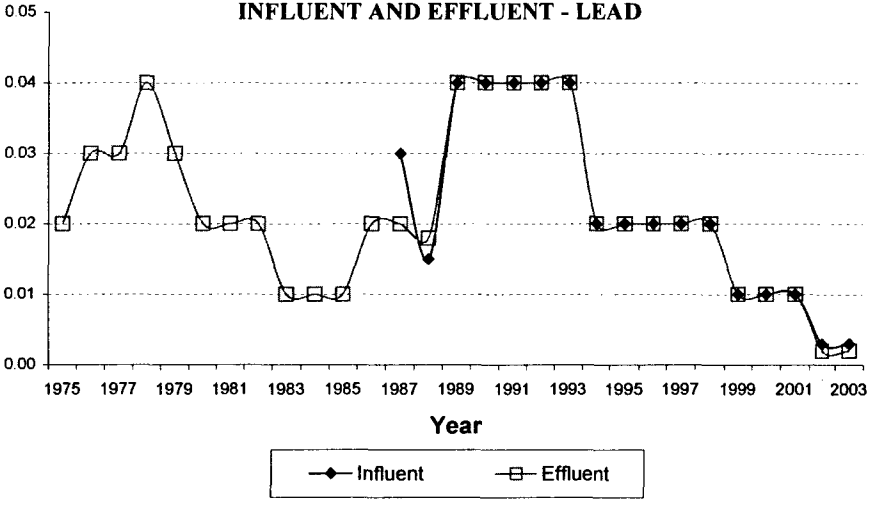


FIGURE 5.19
PALMDALE WATER RECLAMATION PLANT
INFLUENT AND EFFLUENT - MERCURY

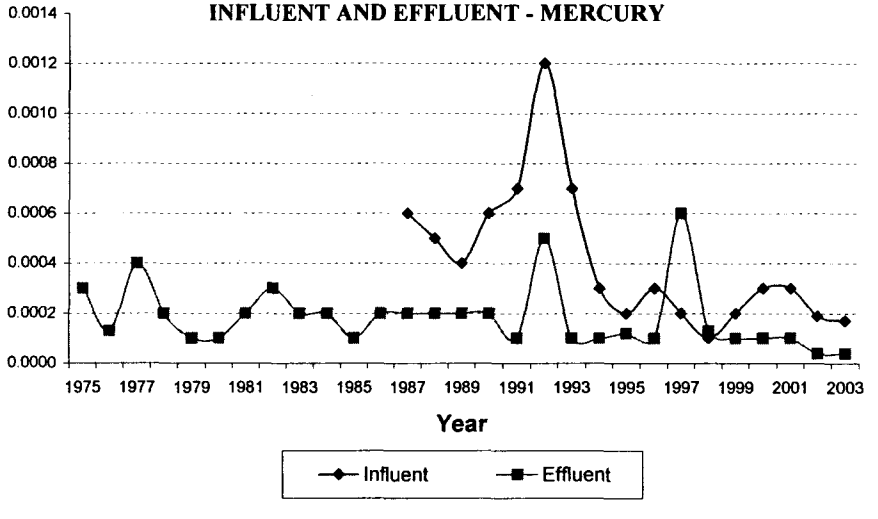


FIGURE 5.20
PALMDALE WATER RECLAMATION PLANT
INFLUENT AND EFFLUENT - NICKEL

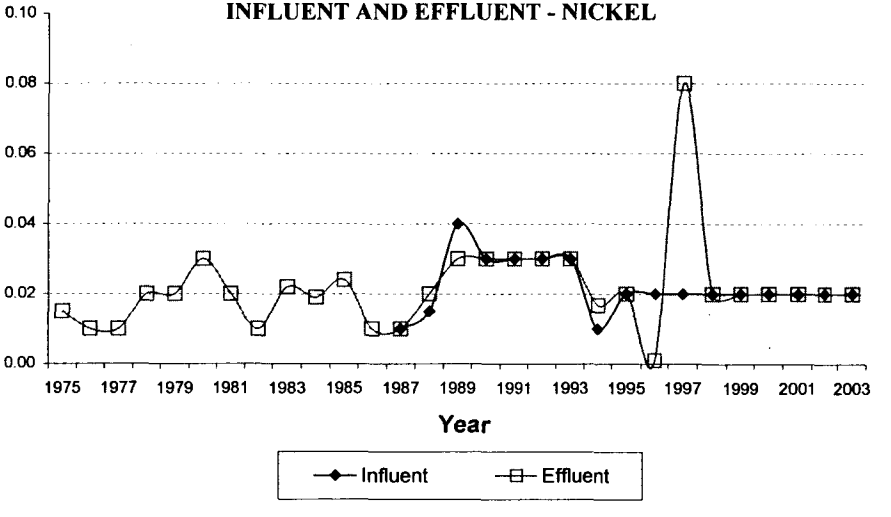


FIGURE 5.21
PALMDALE WATER RECLAMATION PLANT
INFLUENT AND EFFLUENT - SELENIUM

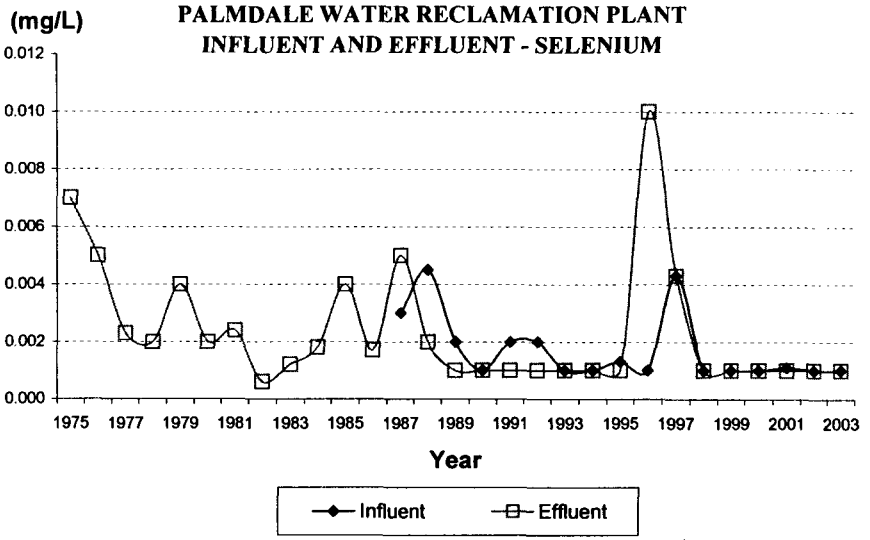


FIGURE 5.22
PALMDALE WATER RECLAMATION PLANT
INFLUENT AND EFFLUENT - SILVER

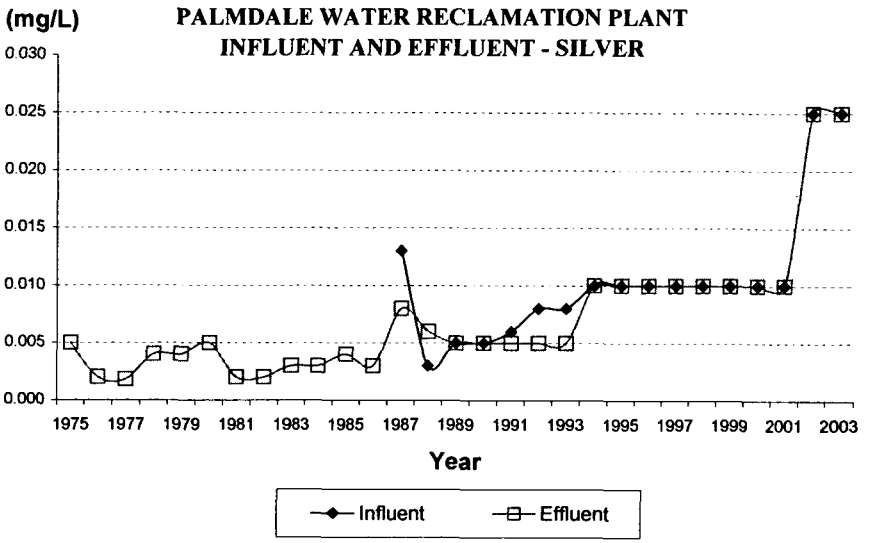
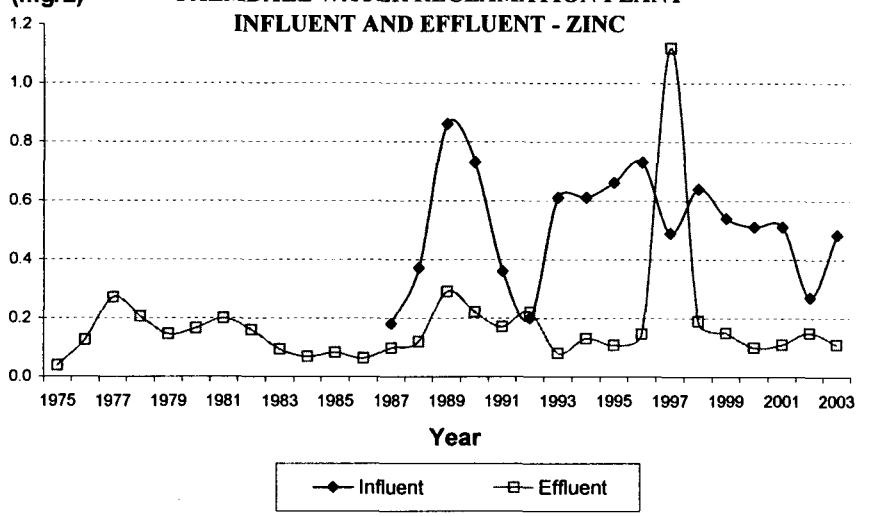


FIGURE 5.23
PALMDALE WATER RECLAMATION PLANT
INFLUENT AND EFFLUENT - ZINC



PALMDALE WATER RECLAMATION PLANT

CHAPTER 6

2003 GROUNDWATER AND LYSIMETER MONITORING DATA

CHAPTER 6

GROUNDWATER AND LYSIMETER MONITORING DATA

6.1 INTRODUCTION

This chapter contains water quality data for monitoring and supply wells, and lysimeters at the Palmdale WRP effluent management area. The data are summarized in Tables. Historical graphs of selected data are also presented in this chapter. All data are presented together with WDR limits. Descriptive statistics are calculated only for semiannual parameters. For the purpose of calculating annual averages, data that are collected during the same month are averaged first, and the average level for that month is entered in the calculation along with the data taken during the remaining of the year. In calculating averages, levels below the Minimum Detection Limit (MDL), or Reporting Minimum Limit (RML) are assumed to be equal to the MDL or RML, and not zero. Additional data and follow-up samples are presented for the month these were collected, or for the month where compliance was assessed.

The data summaries may contain results, which were not reported in monthly monitoring reports. Additional data can result from sampling conducted for purposes other than routine monitoring. The additional sampling may have been performed by other agencies (i.e., Regional Water Quality Control Board or USEPA), or by the District for a special study, or as a sampling follow-up to a questionable sample.

6.2 TABULAR AND GRAPHICAL SUMMARIES

Data are summarized in Tables 6.1 – 6.49. The Tables summarize and present the results for the month the samples were collected. Semiannual and Annual data are reported in separate Tables for each well. Annual data are separated into the following chemical categories: miscellaneous parameters, metals, pesticides and PCBs, volatile organics, base/neutral extractible organics, and acid extractible organics. The column with the header "LIMIT" contains Title 22 of the California Code of Regulations primary or secondary standards.

Figure 6.1 shows the location of the wells and lysimeters. Figure 6.2 shows the estimated groundwater elevations and groundwater flow directions. Historical, including 2003, data of selected parameters are summarized in Figures 6.3 – 6.70. Levels below the MDL or RML are presented as the numerical levels of the MDL or RML.

TABLE 6.1
2003 SEMIANNUAL DATA
SUPPLY WELL, SW1

TEST	SEMIANNUAL MRP PARAMETERS	UNIT	June	July	Mean	Max	Min	LIMIT
1S1	pH	0-14						
1S2	Temperature	°C						
1S3	Dissolved Oxygen	mg/l						
1S4	Electrical Conductivity	µmhos/cm						1600 [1]
900	Depth to Groundwater	ft						
C15	Total Petroleum Hydrocarbons	µg/l	<60	<50	<55	<60	<50	
155	Total Dissolved Solids	mg/l	134	135	135	135	134	1000 [2]
201	Ammonia	mg-N/l	<0.1	<0.1	<0.1	<0.1	<0.1	
203	Kjeldahl Nitrogen	mg-N/l	<0.1	<0.1	<0.1	<0.1	<0.1	
204	Nitrate	mg-N/l	0.72	0.9	0.8	0.9	0.72	10 [3]
205	Nitrite	mg-N/l	<0.02	<0.02	<0.02	<0.02	<0.02	10 [3]
257	Sulfate	mg/l	27	15.5	21.3	27.0	15.5	500 [4]
301	Chloride	mg/l	7	8	7.5	8	7	500 [4]
315	MBAS	mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	0.50
405	Total Organic Carbon	µg/l	190	<500	<345	<500	190	
602	Chloroform	µg/l	<0.5	<0.5	<0.5	<0.5	<0.5	
608	Bromodichloromethane	µg/l	<0.5	<0.5	<0.5	<0.5	<0.5	
609	Dibromochloromethane	µg/l	<0.5	<0.5	<0.5	<0.5	<0.5	
610	Bromoform	µg/l	<0.5	<0.5	<0.5	<0.5	<0.5	
723	Sodium	mg/l	13.3	13.3	13.3	13.3	13.3	

[1] 900 recommended / 1600 upper / 2200 short term

[2] 500 recommended / 1000 upper / 1500 short term

[3] Nitrate+Nitrite = 10

[4] 250 recommended / 500 upper / 600 short term

TABLE 6.2
2003 ANNUAL DATA
SUPPLY WELL, SW1

TEST	ANNUAL MRP (MISCELLANEOUS)	UNIT	June	July	LIMIT
206	Total Cyanides	µg/l	<5		200
312	Total Phenols	µg/l	<12	60	
TEST	**ANNUAL MRP (METALS)**	**UNIT**	**June**	**July**	**LIMIT**
703	Calcium	mg/l	28.5	29.5	
704	Magnesium	mg/l	5.81	5.72	
705	Arsenic	mg/l	<0.001		0.05
706	Barium	mg/l	0.038		1
707	Aluminum	mg/l			1
708	Cadmium	mg/l	<0.0004		0.005
709	Total Chromium	mg/l	<0.01		0.05
711	Cobalt	mg/l			
712	Copper	mg/l	<0.008		1
713	Iron	mg/l	<0.05		0.3
714	Lead	mg/l	<0.002		
716	Manganese	mg/l	<0.005		0.05
717	Mercury	mg/l	<0.00004		0.002
718	Nickel	mg/l	<0.02		0.1
719	Potassium	mg/l	1.8	2	
720	Selenium	mg/l	<0.001		0.05
722	Silver	mg/l	<0.025		0.1
724	Zinc	mg/l	0.044		5
725	Antimony	mg/l	0.0008		0.006
726	Beryllium	mg/l	<0.0005		0.004
732	Molybdenum	mg/l			
734	Thallium	mg/l	<0.001		0.002
737	Vanadium	mg/l			