County of Los Angeles
Department of Public Works

Water Quality Monitoring
2002 Annual Report

for the

Master Mitigation Plan for the Big Tujunga Wash Mitigation Bank

February 2003

MWH

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Water Quality Monitoring Report
2002 Annual Report

ANNUAL SUMMARY

Water quality sampling was conducted at four sampling stations at the County of Los Angeles Department of Public Works (LADPW) Big Tujunga Wash mitigation bank for four quarters of 2002. Samples were collected at three points along Haines Canyon Creek (the inflow to the Tujunga ponds, the outflow from the ponds, and in Haines Canyon Creek leaving the mitigation bank site) and in Big Tujunga Wash in March, June, September, and December of 2002. Parameters monitored included temperature, dissolved oxygen, pH, nutrients, turbidity, and bacteria levels. Both field meters and laboratory analyses were used in the water quality sampling program.

In Big Tujunga Wash, flow was not observed on any of the sampling dates during 2002. Water was present at all other stations for all four sampling dates. For most parameters, observed water quality met Regional Water Quality Control Board (Regional Board) Basin Plan objectives and EPA's recommended water quality criteria for freshwaters. Temperatures were cool enough and dissolved oxygen concentrations generally high enough for growth and survival of warmwater fish species. Observed pH values ranged from 7.1 to 8.3 units; residual chlorine was not present; and turbidity levels were generally low. Excessive nutrient conditions were not noted, but nitrate-nitrogen values at the Tujunga ponds were somewhat higher in 2002 than in 2001. A degree of nitrogen reduction was observed between inflow and outflow from the Tujunga ponds. Fecal coliform levels were observed in excess of water contact recreation standards in one location on one date (December), although the duplicate sample did not exceed standards.

Quarterly sampling will continue through 2005. Future results will be compared with baseline 2000 data and with the 2001 and 2002 results. Development of the Canyon Trails Golf Course upstream is on-going. Once operational, water quality in the mitigation bank area will be compared with 2000/2001 conditions to determine the impact, if any, of neighboring developments.

BACKGROUND

LADPW purchased a 207-acre parcel in Big Tujunga Wash as a mitigation bank for County flood control projects throughout Los Angeles. In coordination with local agencies, the County defined a number of measures to improve habitat quality at the site. A Master Mitigation Plan (MMP) was prepared to guide the implementation of these enhancements. The MMP also includes a five-year monitoring program to gather data on conditions at the site during implementation of the improvements. The MMP was prepared and is being implemented by Chambers Group, Inc. MWH, a subconsultant to Chambers Group, is responsible for the water quality monitoring program described in the MMP. This is the annual water quality report for 2002 – data from the fourth quarter of 2002 are included. The five-year program began in the fourth quarter of 2000.

The project site is located just east of Hansen Dam in the Shadow Hills area of unincorporated Los Angeles County. Both Big Tujunga Wash, an intermittent stream, and Haines Canyon Creek, a perennial stream, traverse the project site in an east-to-west direction. The two Tujunga ponds are located at the far eastern portion of the site.

Project Site Activities

A timeline of project-related activities that could influence water quality is presented in **Table 1**. This table will be updated and expanded as the monitoring program progresses.

Table 1
Major Activities to Date at the Big Tujunga Wash Mitigation Bank

Month/Year	Activity
4/00	Baseline water quality sampling
11/00 to present	Arundo, tamarisk, and pepper tree removal Chemical (Rodeo®) application Upland planting
12/00 to present	Water hyacinth removal
12/14/00	Water quality sampling
1/01 to present	Exotic animal (crayfish and bullfrog) removal
2/01	Partial riparian planting
3/01	Selective clearing at Canyon Trails Golf Course
3/12/01	Water quality sampling
6/19/01	Water quality sampling
9/11/01	Water quality sampling
12/12/01	Water quality sampling
1/02	Final riparian planting
2/02	Upland replacement planting
3/26/02	Water quality sampling
3/02 to 6/02	Continued removal of crayfish, bullfrogs and their tadpoles, and exotic fish species; periodic spraying for *Arundo* control
6/25/02	Water quality sampling
9/12/02	Water quality sampling
10/02	Grading at Canyon Trails Golf Course begins
12/19/02	Water quality sampling

Water Quality Monitoring Program

In order to establish water quality upstream and downstream of the site, quarterly sampling and analysis will be performed for five years, for a total of 20 individual sampling days. The monitoring program has been designed to specifically address inputs to the site from upstream land uses such as the Canyon Trails Golf Course. Potential impacts to aquatic species from run-on to the site that contains excessive nutrients or pesticides are of primary concern.

According to Joe Shohtoku of Foothill Golf (pers. comm. October 3, 2002), grading at the Canyon Trails Golf Course began in October 2002. The golf course has established and is implementing an erosion control plan including catchment basins and silt beds, and has also prepared a stormwater pollution prevention plan. Therefore, the impact of golf course grading on turbidity in the incoming water is anticipated to be minimal at present. The golf course is monitoring on a quarterly basis the quality of water entering the property and of downstream groundwater near Foothill Boulevard. These data will be shared with LADPW. Sampling parameters of the LADPW monitoring program will be modified as appropriate as more information on golf course-related pesticides and herbicides become available. Testing for pesticides and herbicides will be conducted at the Big Tujunga Wash sampling stations after use begins at the golf course, which is scheduled to be June 2003 according to Mr. John Reidinger of Foothill Golf (pers. comm. January 30, 2003).

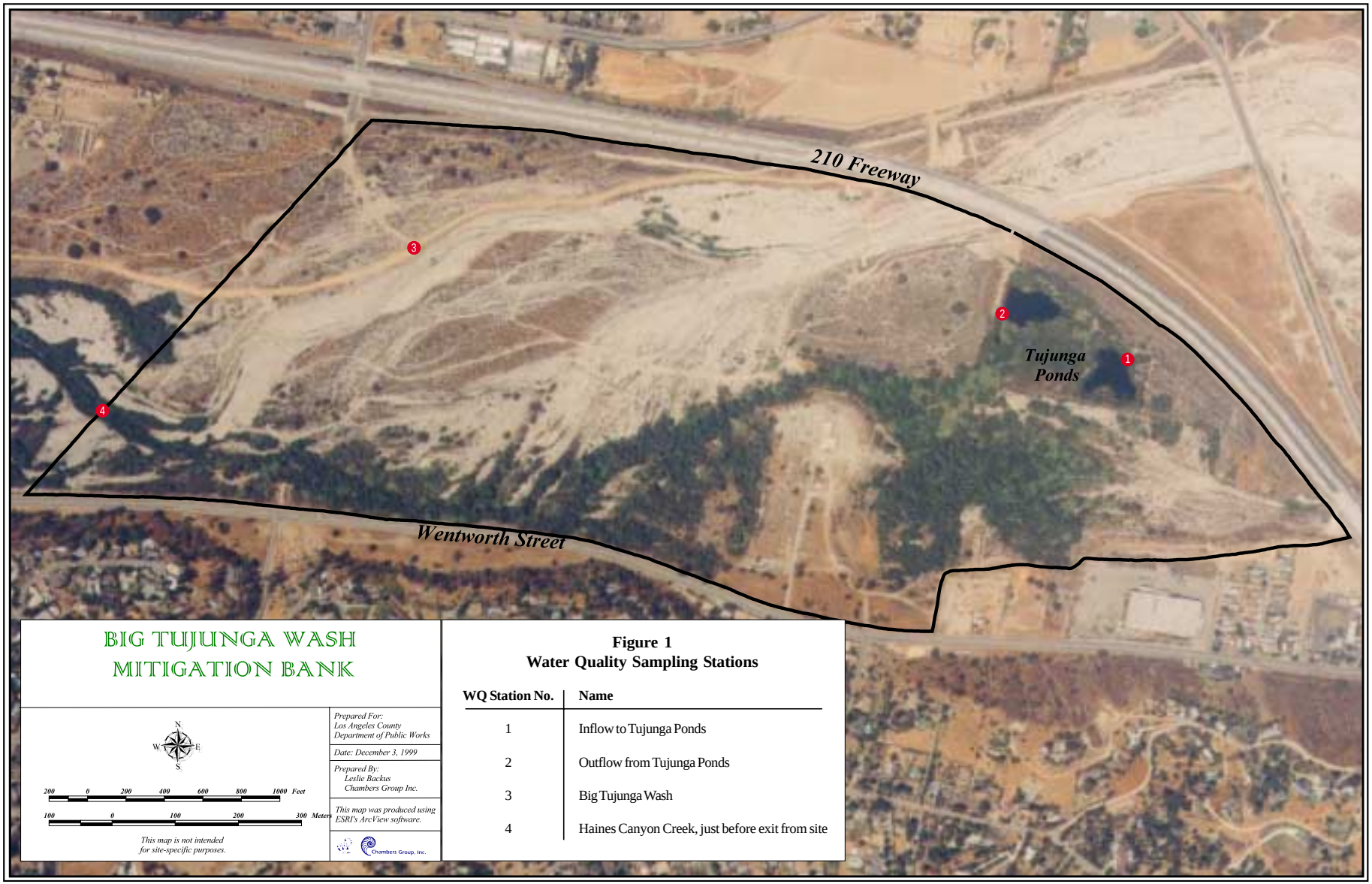
MATERIALS AND METHODS

Sampling Stations

Four sampling locations have been identified for the five-year monitoring program (**Figure 1**). **Table 2** summarizes sampling locations and the conditions observed on December 19, 2002. The coordinates of the sampling stations were determined by a hand-held Global Positioning System.

Table 2
Big Tujunga Wash
Water Quality Sampling Locations and Conditions for the 4th Quarter 2002

Date	December 19, 2002		
Air Temperature	Approximately 68 degrees Fahrenheit		
Skies	Clear		
Water Volume	Big Tujunga Wash sampling station dry		
Sampling Locations	**Latitude**	**Longitude**	**Time of sample**
Haines Canyon Creek, just before exit from site	N 34 16' 2.9"	W 118 21' 22.2"	11:40
Haines Canyon Creek, inflow to Tujunga Ponds	N 34 16' 6.9"	W 118 20' 18.7"	12:45
Haines Canyon Creek, outflow from Tujunga Ponds	N 34 16' 7.1"	W 118 20' 28.3"	13:25
Big Tujunga Wash	N 34 16' 11.7"	W 118 21' 4.0"	Station dry



BIG TUJUNGA WASH MITIGATION BANK

N
W E
S

200 0 200 400 600 800 1000 Feet

100 0 100 200 300 Meters

This map is not intended for site-specific purposes.

Prepared For:
Los Angeles County Department of Public Works

Date: December 3, 1999

Prepared By:
Leslie Backus
Chambers Group Inc.

This map was produced using ESRI's ArcView software.

Chambers Group, Inc.

Figure 1
Water Quality Sampling Stations

WQ Station No.	Name
1	Inflow to Tujunga Ponds
2	Outflow from Tujunga Ponds
3	Big Tujunga Wash
4	Haines Canyon Creek, just before exit from site

Sampling Parameters

Table 3 summarizes the sampling parameters included in the water quality monitoring program. The following meters were used in the field:

- YSI Model 57 – dissolved oxygen and temperature
- HACH DR 700 – total residual chlorine
- Orion 230A – pH

All other analyses were performed in duplicate at MWH Laboratories, Monrovia, California. Samples were taken at mid-depth, along a transect perpendicular to the stream channel alignment. Note that sampling for pesticides and herbicides will begin after specific chemicals have been identified by the golf course owners. Quality assurance/quality control (QA/QC) procedures in the laboratory followed the methods described in the MWH Laboratories *Quality Assurance Manual*.

Table 3
Big Tujunga Wash
Water Quality Sampling Parameters

Parameter	Analysis Location	Analytical Method
total Kjeldahl nitrogen (TKN)	laboratory	EPA 351.2
nitrate (NO_2)	laboratory	EPA 300.0 by IC
nitrate (NO_3)	laboratory	EPA 300.0 by IC
ammonia (NH_4)	laboratory	EPA 350.1
orthophosphorus	laboratory	EPA 365.1
total coliform	laboratory	Standard Methods 9221
fecal coliform	laboratory	Standard Methods 9221
total organic halogens (organochlorides)	not sampled in 2002	--
total phosphorus	laboratory	EPA 365.4
organophosphate (total P minus ortho-P)	calculation	--
turbidity	laboratory	EPA 180.1
glyphosate (Roundup)	not sampled in 2002	--
1 golf course herbicide (if not Roundup)	not sampled in 2002	--
1 golf course insecticide	not sampled in 2002	--
1 golf course fungicide	not sampled in 2002	--

Table 3 (Continued)
Big Tujunga Wash
Water Quality Sampling Parameters

Parameter	Analysis Location	Analytical Method
dissolved oxygen	field	Standard Methods 4500-O G
total residual chlorine	field	Standard Methods 4500-Cl D
temperature	field	Standard Methods 2550
pH	field	Standard Methods 4500-H+

Sources for analytical methods:

EPA. Method and Guidance for Analysis of Water.

American Public Health Association, American Waterworks Association, and Water Environment Federation. 1998. Standard Methods for the Examination of Water and Wastewater, 20th Edition. Washington D.C.

Discharge Measurements. In addition to the water quality monitoring conducted in December 2002, flows in the outlet of Big Tujunga Ponds and in Haines Canyon Creek leaving the site were estimated using a simple field procedure. The technique uses a float (an object such as an orange, ping-pong ball, pine cone, etc.) to measure stream velocity.

Calculating flow then involves solving the following equation:

$$Flow = ALC / T$$

Where:

A = Average cross-sectional area of the stream (stream width multiplied by average water depth)

L = Length of the stream reach measured (usually 20 ft)

C = A coefficient or correction factor (0.8 for rocky-bottom streams or 0.9 for muddy-bottom streams). This allows you to correct for the fact that water at the surface travels faster than near the stream bottom due to resistance from gravel, cobble, etc. Multiplying the surface velocity by a correction coefficient decreases the value and gives a better measure of the stream's overall velocity.

T = Time, in seconds, for the float to travel the length of L

RESULTS

Baseline Water Quality

Sampling and analysis conducted by LADPW prior to implementation of the MMP is considered the baseline for water quality conditions at the site. The results of analyses conducted in April 2000 are presented in **Table 4**.

Table 4
Big Tujunga Wash Baseline Water Quality (2000)

Parameter	Units	Date	Haines Canyon Creek, inflow to Tujunga Ponds	Haines Canyon Creek, outflow from Tujunga Ponds	Big Tujunga Wash	Haines Canyon Creek, just before exit from site
Total coliform	MPN/ 100 ml	4/12/00	3000	5000	170	1700
		4/18/00	2200	170000	2400	70000
Fecal coliform	MPN/ 100 ml	4/12/00	500	300	40	80
		4/18/00	500	30000	2400	50000
Ammonia-N	mg/L	4/12/00	0	0	0	0
		4/18/00	0	0	0	0
Nitrate-N	mg/L	4/12/00	8.38	5.19	0	3.73
		4/18/00	8.2	3.91	0.253	0.438
Nitrite-N	mg/L	4/12/00	0.061	0	0	0
		4/18/00	0.055	0	0	0
Kjeldahl-N	mg/L	4/12/00	0	0.1062	0.163	0
		4/18/00	0	0.848	0.42	0.428
Dissolved phosphorus	mg/L	4/12/00	0.078	0.056	0	0.063
		4/18/00	0.089	0.148	0.111	0.163
Total phosphorus	mg/L	4/12/00	0.086	0.062	0	0.066
		4/18/00	0.113	0.153	0.134	0.211
pH	std units	4/12/00	7.78	7.68	7.96	7.91
		4/18/00	7.18	7.47	7.45	7.06
Turbidity	NTU	4/12/00	1.83	0.38	1.75	0.6
		4/18/00	4.24	323	4070	737

2002 Water Quality Results

Water Quality

Results of water quality analyses conducted by MWH Laboratories for samples collected in 2002 are appended to this report (**Appendix A**) and summarized in **Tables 5**, **6**, **7** and **8**, and on **Figures 2**, **3**, **4**, **5** and **6**. Where duplicate analyses were conducted, the average value is graphed. Note that the yields (percent recoveries) of QC samples were within acceptable limits (percentages) for all except one sample in 2002. The yield for the Matrix Spike Duplicate of the total phosphorus sample exceeded the upper limit of 110 percent by 2.5 percentage points.

Table 5
Summary of Big Tujunga Wash Water Quality Results
1st Quarter 2002 (3/26/02)

Parameter	Units	Inflow to Tujunga Ponds 1	Inflow to Tujunga Ponds 2 (duplicate)	Outflow from Tujunga Ponds 1	Outflow from Tujunga Ponds 2 (duplicate)	Big Tujunga Wash 1	Big Tujunga Wash 2 (duplicate)	Haines Cyn Creek exiting site 1	Haines Cyn Creek exiting site 2 (duplicate)
Temperature	°C	18.5	--	18.0	--	*	--	17.0	--
Dissolved Oxygen	mg/L	9.3	--	9.2	--	*	--	8.9	--
pH	std units	7.3	--	7.7	--	*	--	8.3	--
Total residual chlorine	mg/L	ND	--	ND	--	*	--	ND	--
Ammonia-Nitrogen	mg/L	ND	ND	ND	ND	*	*	ND	ND
Kjeldahl Nitrogen	mg/L	0.28	0.30	ND	ND	*	*	ND	ND
Nitrite-Nitrogen	mg/L	ND	ND	ND	ND	*	*	ND	ND
Nitrate-Nitrogen	mg/L	9.1	8.9	7.3	7.0	*	*	6.4	6.4
Orthophospate-P	mg/L	ND	ND	ND	ND	*	*	0.015	0.014
Total phosphorus-P	mg/L	ND	ND	ND	ND	*	*	ND (MRL 0.02)	ND (MRL 0.02)
Turbidity	NTU	1.2	1.1	0.70	0.70	*	*	0.35	0.30
Fecal Coliform Bacteria	MPN/100ml	4	<2	4	8	*	*	50	50
Total Coliform Bacteria	MPN/100ml	500	900	130	220	*	*	900	900

* No sample on this date – station dry
NTU nephelometric turbidity units
MRL method reporting limit
MPN most probable number
ND non-detect

Table 6
Summary of Big Tujunga Wash Water Quality Results
2nd Quarter 2002 (6/25/02)

Parameter	Units	Inflow to Tujunga Ponds 1	Inflow to Tujunga Ponds 2 (duplicate)	Outflow from Tujunga Ponds 1	Outflow from Tujunga Ponds 2 (duplicate)	Big Tujunga Wash 1	Big Tujunga Wash 2 (duplicate)	Haines Cyn Creek exiting site 1	Haines Cyn Creek exiting site 2 (duplicate)
Temperature	°C	22.5	--	22.5	--	*	--	20.5	--
Dissolved Oxygen	mg/L	8.3	--	8.4	--	*	--	8.6	--
pH	std units	7.5	--	7.6	--	*	--	8.2	--
Total residual chlorine	mg/L	ND	--	ND	--	*	--	ND	--
Ammonia-Nitrogen	mg/L	ND	ND	ND	ND	*	*	ND	ND
Kjeldahl Nitrogen	mg/L	0.56	0.37	0.32	0.60	*	*	0.26	0.28
Nitrite-Nitrogen	mg/L	ND	ND	ND	ND	*	*	ND	ND
Nitrate-Nitrogen	mg/L	8.9	8.9	7.1	6.7	*	*	5.6	5.9
Orthophospate-P	mg/L	ND	ND	0.05	0.02	*	*	0.02	0.02
Total phosphorus-P	mg/L	ND	ND	ND	ND	*	*	ND (MRL 0.02)	0.37 (MRL 0.02)
Turbidity	NTU	0.70	0.70	1.0	1.5	*	*	1.4	1.6
Fecal Coliform Bacteria	MPN/100ml	8	7	11	13	*	*	170	60
Total Coliform Bacteria	MPN/100ml	1300	1400	300	300	*	*	2300	3000

* No sample on this date – station dry
NTU nephelometric turbidity units
MRL method reporting limit
MPN most probable number
ND non-detect

Table 7
Summary of Big Tujunga Wash Water Quality Results
3rd Quarter 2002 (9/12/02)

Parameter	Units	Inflow to Tujunga Ponds 1	Inflow to Tujunga Ponds 2 (duplicate)	Outflow from Tujunga Ponds 1	Outflow from Tujunga Ponds 2 (duplicate)	Big Tujunga Wash 1	Big Tujunga Wash 2 (duplicate)	Haines Cyn Creek exiting site 1	Haines Cyn Creek exiting site 2 (duplicate)
Temperature	°C	21.4	--	22.0	--	*	--	21.0	--
Dissolved Oxygen	mg/L	8.5	--	8.3	--	*	--	8.3	--
pH	std units	7.1	--	7.3	--	*	--	8.3	--
Total residual chlorine	mg/L	ND	--	ND	--	*	--	ND	--
Ammonia-Nitrogen	mg/L	ND	ND	ND	ND	*	*	ND	ND
Kjeldahl Nitrogen	mg/L	0.20	0.47	ND	ND	*	*	0.23	ND
Nitrite-Nitrogen	mg/L	ND	ND	ND	ND	*	*	ND	ND
Nitrate-Nitrogen	mg/L	9.1	9.0	6.8	6.8	*	*	6.1	6.1
Orthophospate-P	mg/L	0.014	0.016	ND	ND	*	*	0.011	0.011
Total phosphorus-P	mg/L	0.03	0.05	ND	ND	*	*	0.02 (MRL 0.02)	ND (MRL 0.02)
Turbidity	NTU	2.4	2.7	0.75	0.70	*	*	2.6	4.5
Fecal Coliform Bacteria	MPN/100ml	7	2	4	2	*	*	<2	<2
Total Coliform Bacteria	MPN/100ml	2400	3000	5000	500	*	*	500	3000

* No sample on this date – station dry
NTU nephelometric turbidity units
MRL method reporting limit
MPN most probable number
ND non-detect

Table 8
Summary of Big Tujunga Wash Water Quality Results
4th Quarter 2002 (12/19/02)

Parameter	Units	Inflow to Tujunga Ponds 1	Inflow to Tujunga Ponds 2 (duplicate)	Outflow from Tujunga Ponds 1	Outflow from Tujunga Ponds 2 (duplicate)	Big Tujunga Wash 1	Big Tujunga Wash 2 (duplicate)	Haines Cyn Creek exiting site 1	Haines Cyn Creek exiting site 2 (duplicate)
Temperature	°C	15.8	--	14.7	--	*	--	11.7	--
Dissolved Oxygen	mg/L	6.98	--	6.31	--	*	--	9.75	--
pH	std units	7.06	--	7.12	--	*	--	8.19	--
Total residual chlorine	mg/L	ND	--	ND	--	*	--	ND	--
Ammonia-Nitrogen	mg/L	ND	ND	ND	ND	*	*	ND	ND
Kjeldahl Nitrogen	mg/L	ND	0.2	0.51	0.24	*	*	0.29	ND
Nitrite-Nitrogen	mg/L	ND	ND	ND	ND	*	*	ND	ND
Nitrate-Nitrogen	mg/L	10	9.8	7.8	7.9	*	*	4.9	5.0
Orthophospate-P	mg/L	0.043	0.046	0.029	0.028	*	*	0.035	0.032
Total phosphorus-P	mg/L	0.03	0.04	0.03	0.03	*	*	0.06	0.021
Turbidity	NTU	0.65	0.60	0.60	0.65	*	*	4.8	2.8
Fecal Coliform Bacteria	MPN/100ml	30	13	94	80	*	*	300	30
Total Coliform Bacteria	MPN/100ml	1400	2800	300	1700	*	*	5000	3000

* No sample on this date – station dry
NTU nephelometric turbidity units
MRL method reporting limit
MPN most probable number
ND non-detect

Figure 2
Dissolved Oxygen – 2001 and 2002

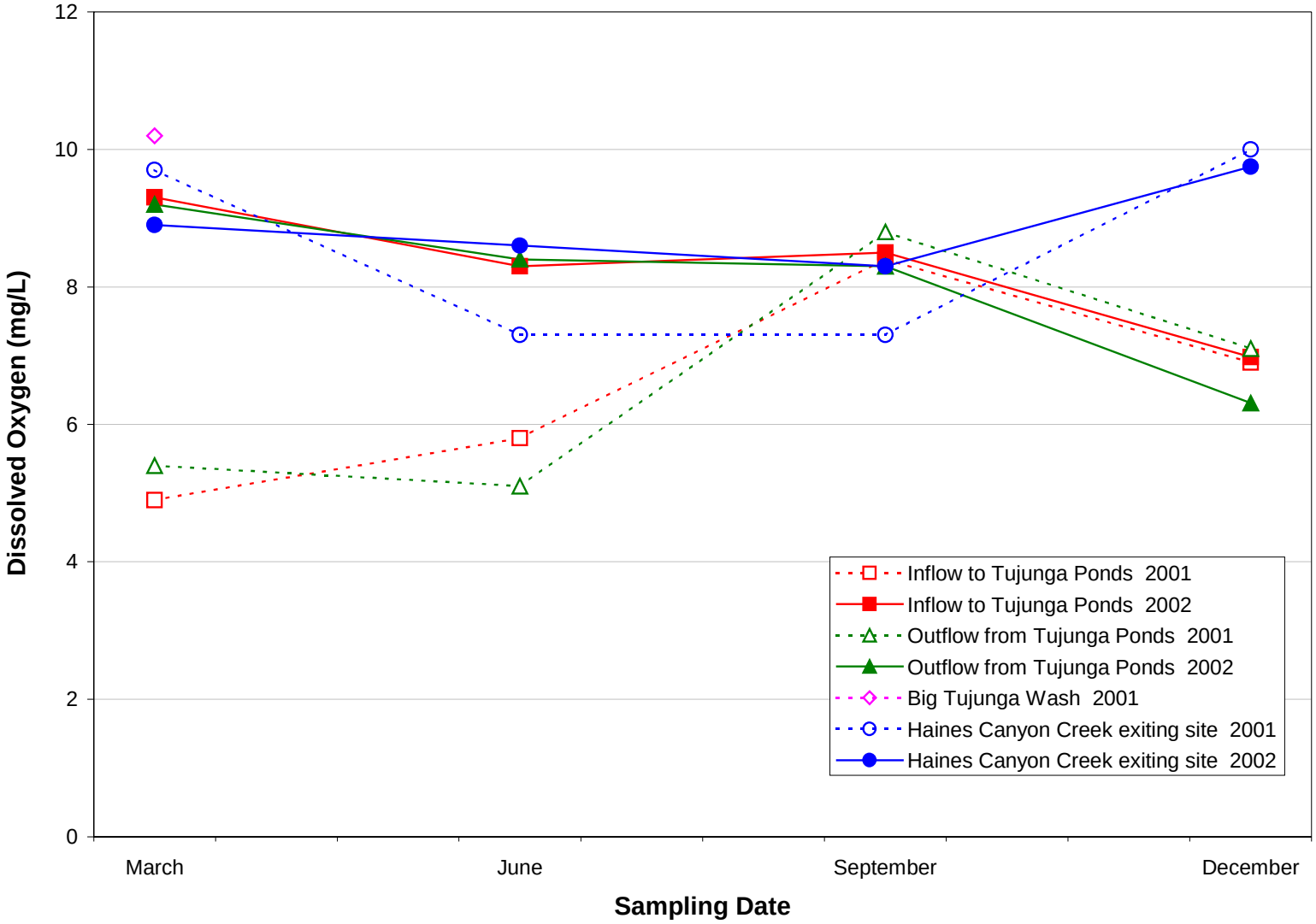


Figure 3
Nitrate Nitrogen – 2001 and 2002

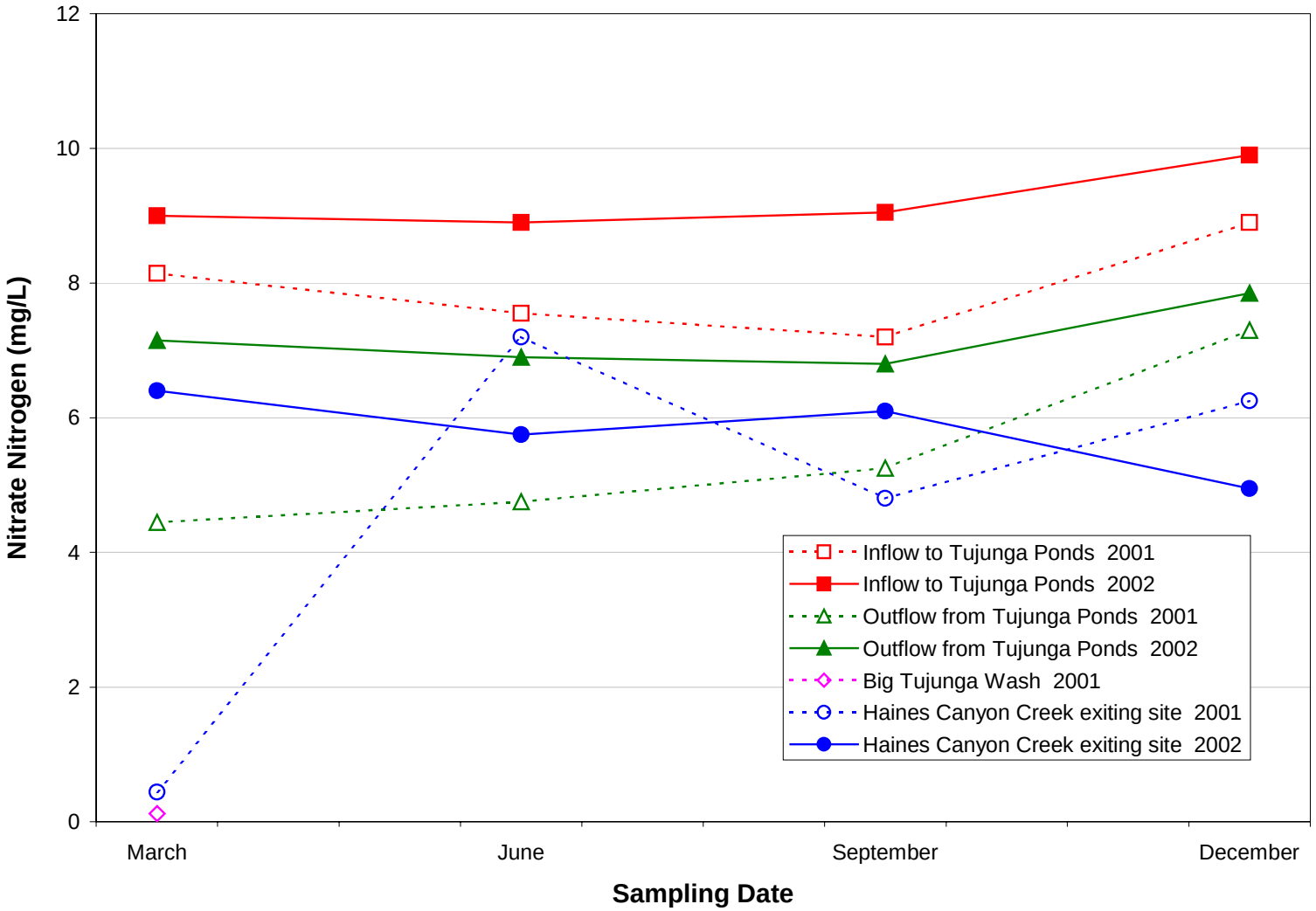


Figure 4
Total Phosphorus – 2001 and 2002

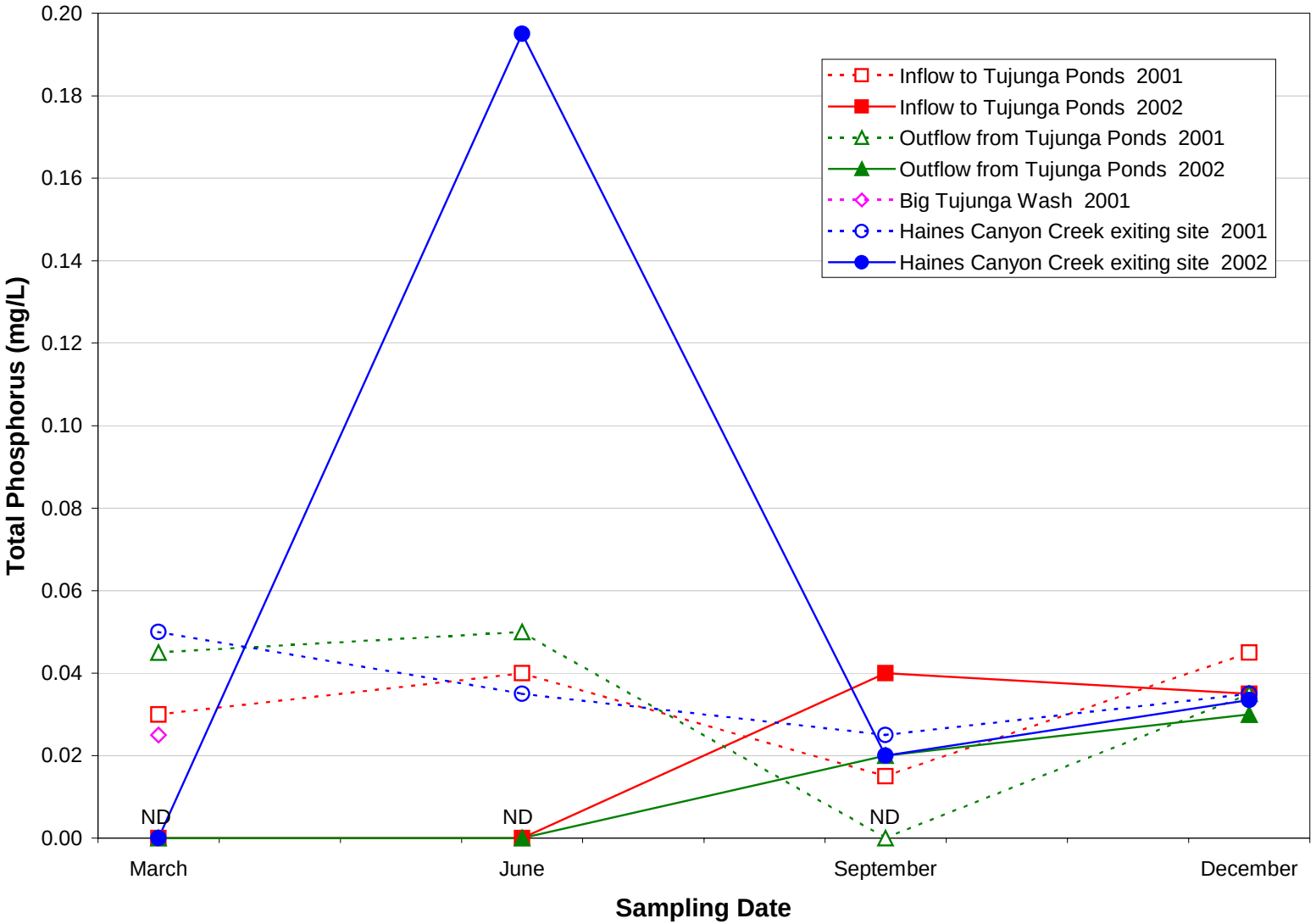


Figure 5
Turbidity – 2001 and 2002

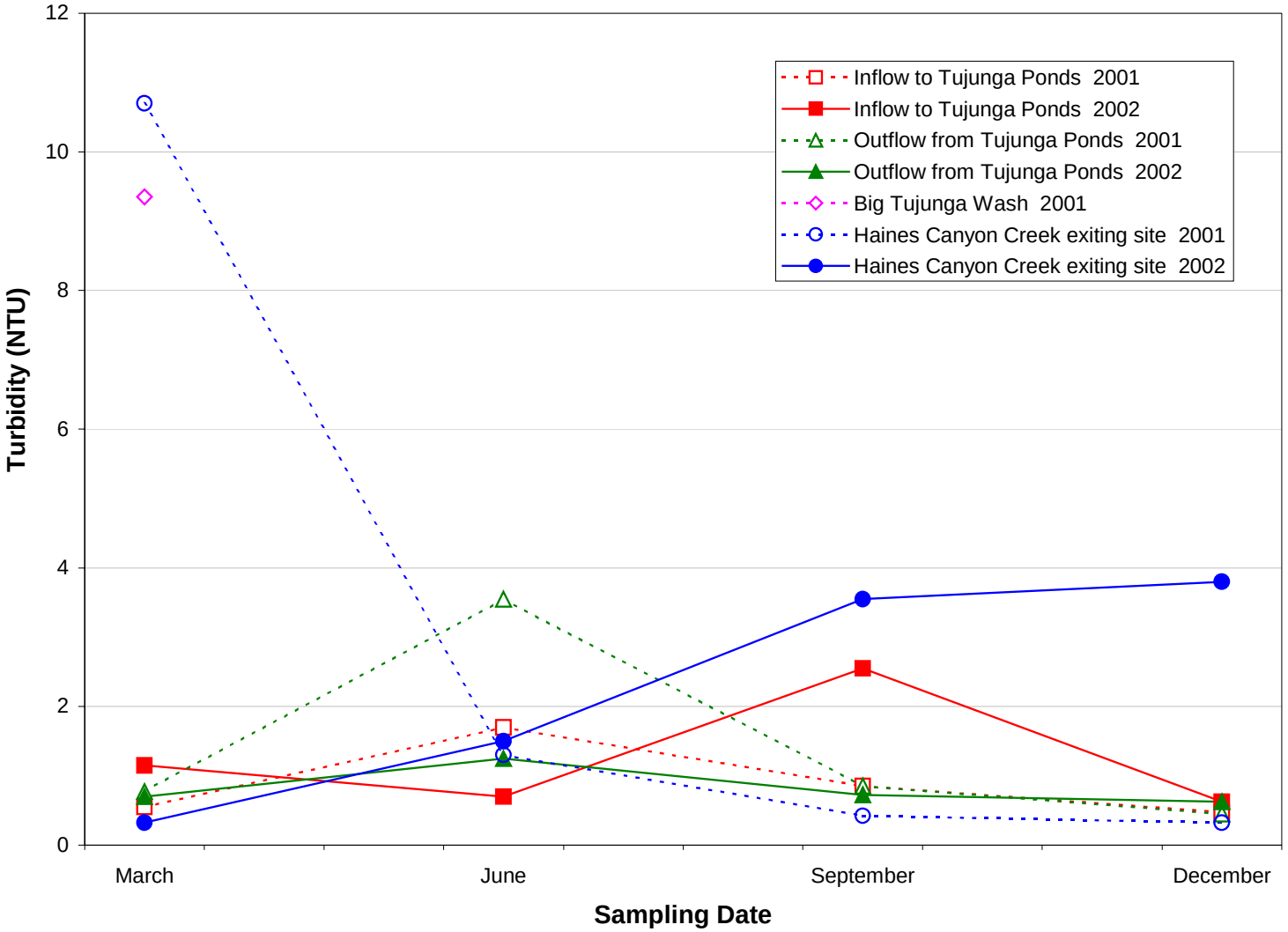
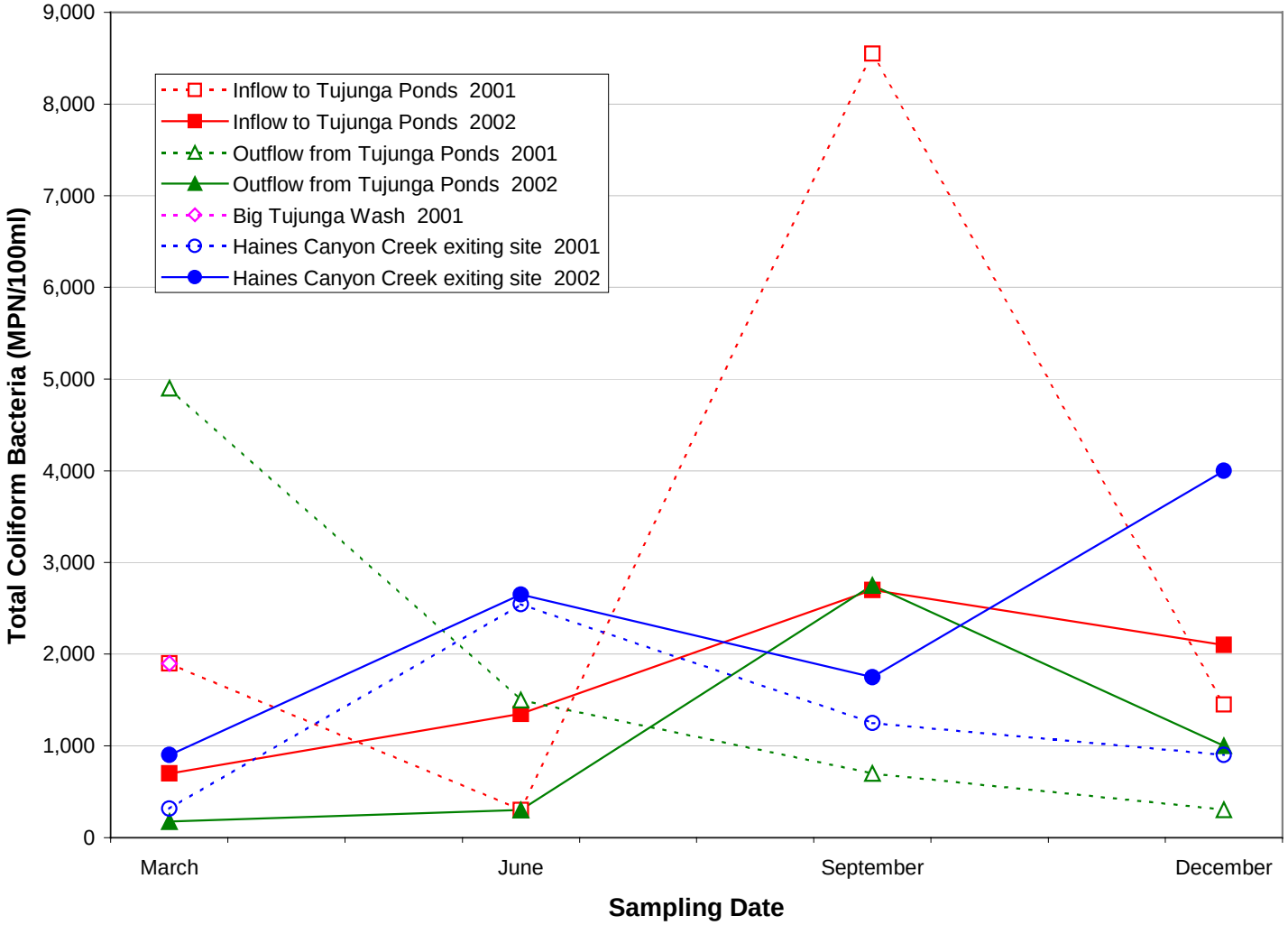


Figure 6
Total Coliform Bacteria – 2001 and 2002



Discharge Measurements

Using the field technique described above, flows in the outlet from Big Tujunga Ponds and in Haines Canyon Creek leaving the site were approximated. Estimated flows for the four sampling dates in 2002 are summarized in **Table 9.**

Table 9
Estimated Flows for 2002
(cubic feet per second)

Sampling Date	Outlet of Big Tujunga Ponds	Haines Canyon Creek leaving the site
3/26/02	3.10	4.80
6/25/02	3.92	4.85
9/12/02	3.44	3.16
12/19/02	4.31	6.57

For future sampling events, these and future approximated flow volumes will be compared with water quality data.

Aquatic Life Criteria

Tables 10 and **14** present objectives established by the Los Angeles Regional Water Quality Control Board (Regional Board) for protection of beneficial uses in Big Tujunga Wash including wildlife habitat. EPA's criteria for freshwater aquatic life are also presented in **Tables 10, 11, 12, 13** and **15**.

Table 10
National and Local Recommended Water Quality Criteria - Freshwaters

Parameter	Basin Plan Objectives[a]	EPA Criteria		
		CMC	CCC	Human Health
Temperature (^{o}C)		See Table 15	See Table 15	--
Dissolved oxygen (mg/L)	>7.0 mean >5.0 min	5.0[b] (warmwater, early life stages, 1-day minimum)	6.0[b] (warmwater, early life stages, 7-day mean)	--
pH	6.5 - 8.5	--	6.5-9.0[c,d]	5.0-9.0[c,d]
Total residual chlorine (mg/L)	0.1	0.019[c,d]	0.011[c,d]	4.0 (maximum residual disinfectant level goal)

Table 10 (Continued)
National and Local Recommended Water Quality Criteria – Freshwaters

Parameter	Basin Plan Objectives[a]	EPA Criteria		
		CMC	CCC	Human Health
Fecal coliform (MPN/100 ml)	200[e] (water contact recreation)	--	--	Swimming stds: 33[f] (geometric mean for enterococci) 126[f] (geometric mean for *E. coli*)
Ammonia-nitrogen (mg/L)	See Table 14	See Tables 11, 12, and 13	See Tables 11, 12, and 13	--
Nitrite-nitrogen (mg/L)	1	--	--	1 (primary drinking water std.)
Nitrate-nitrogen (mg/L)	10	--	--	10 (primary drinking water std.)
Total phosphates (mg/L)		<0.05 – 0.1[d] (recommendation for streams, no criterion)		--
Turbidity (NTU)	g	h	h	5 (secondary drinking water standard) 0.5 – 1.0 (std. for systems that filter)

Table 10 - Footnotes

CMC Criteria Maximum Concentration or acute criterion

CCC Criteria Continuous Concentration or chronic criterion

a Source: California Regional Water Quality Control Board, Los Angeles Region. 1994. Water Quality Control Plan (Basin Plan).

b Source: USEPA. 1986. Ambient Water Quality Criteria for Dissolved Oxygen. EPA 440-5-86-003. Washington, D.C.

c Source: USEPA. 1999. National Recommended Water Quality Criteria – Correction. EPA 822-Z-99-001. Washington, D.C.

d Source: USEPA. 1986. Quality Criteria for Water. EPA 440/5-86-001. Washington, D.C.

e Standard based on a minimum of not less than four samples for any 30-day period, 10% of total samples during any 30-day period shall not exceed 400/100ml.

f Source: USEPA. 1986. Ambient Water Quality Criteria for Bacteria – 1986. EPA 440-5-84-002. Washington, D.C.

g Narrative criterion: "Waters shall be free of changes in turbidity that cause nuisance or adversely affect beneficial uses."

h Narrative criterion for freshwater fish and other aquatic life: "Settleable and suspended solids should not reduce the depth of the compensation point for photosynthetic activity by more than 10 percent from the seasonally established norm for aquatic life."

Table 11
Numeric Values of the Criterion Maximum Concentration (CMC) with Salmonids Present and Absent and the Criterion Continuous Concentration (CCC) for Ammonia Nitrogen (mg/L)

pH	CMC with Salmonids Present	CMC with Salmonids Absent	CCC
6.5	32.6	48.8	3.48
6.6	31.3	46.8	3.42
6.7	29.8	44.6	3.36
6.8	28.1	42.0	3.28
6.9	26.2	39.1	3.19
7.0	24.1	36.1	3.08
7.1	22.0	32.8	2.96
7.2	19.7	29.5	2.81
7.3	17.5	26.2	2.65
7.4	15.4	23.0	2.47
7.5	13.3	19.9	2.28
7.6	11.4	17.0	2.07
7.7	9.65	14.4	1.87
7.8	8.11	12.1	1.66
7.9	6.77	10.1	1.46
8.0	5.62	8.4	1.27
8.1	4.64	6.95	1.09
8.2	3.83	5.72	0.935
8.3	3.15	4.71	0.795
8.4	2.59	3.88	0.673
8.5	2.14	3.2	0.568
8.6	1.77	2.65	0.480
8.7	1.47	2.2	0.406
8.8	1.23	1.84	0.345
8.9	1.04	1.56	0.295
9.0	0.885	1.32	0.254

Source: USEPA. 1999. 1999 Update of Ambient Water Quality Criteria for Ammonia. EPA 822-R-99-014. Washington, D.C.

Table 12
Temperature and pH-Dependent Values of the Ammonia-Nitrogen CCC (Chronic Criterion) for Fish Early Life Stages Absent

CCC for Fish Early Life Stages Absent, mg N/L										
	Temperature (°Celsius)									
pH	0-7	8	9	10	11	12	13	14	15*	16*
6.5	10.8	10.1	9.51	8.92	8.36	7.84	7.35	6.89	6.46	6.06
6.6	10.7	9.99	9.37	8.79	8.24	7.72	7.24	6.79	6.36	5.97
6.7	10.5	9.81	9.20	8.62	8.08	7.58	7.11	6.66	6.25	5.86
6.8	10.2	9.58	8.98	8.42	7.90	7.40	6.94	6.51	6.10	5.72
6.9	9.93	9.31	8.73	8.19	7.68	7.20	6.75	6.33	5.93	5.56
7.0	9.60	9.00	8.43	7.91	7.41	6.95	6.52	6.11	5.73	5.37
7.1	9.20	8.63	8.09	7.58	7.11	6.67	6.25	5.86	5.49	5.15
7.2	8.75	8.20	7.69	7.21	6.76	6.34	5.94	5.57	5.22	4.90
7.3	8.24	7.73	7.25	6.79	6.37	5.97	5.60	5.25	4.92	4.61
7.4	7.69	7.21	6.76	6.33	5.94	5.57	5.22	4.89	4.59	4.30
7.5	7.09	6.64	6.23	5.84	5.48	5.13	4.81	4.51	4.23	3.97
7.6	6.46	6.05	5.67	5.32	4.99	4.68	4.38	4.11	3.85	3.61
7.7	5.81	5.45	5.11	4.79	4.49	4.21	3.95	3.70	3.47	3.25
7.8	5.17	4.84	4.54	4.26	3.99	3.74	3.51	3.29	3.09	2.89
7.9	4.54	4.26	3.99	3.74	3.51	3.29	3.09	2.89	2.71	2.54
8.0	3.95	3.70	3.47	3.26	3.05	2.86	2.68	2.52	2.36	2.21
8.1	3.41	3.19	2.99	2.81	2.63	2.47	2.31	2.17	2.03	1.91
8.2	2.91	2.73	2.56	2.40	2.25	2.11	1.98	1.85	1.74	1.63
8.3	2.47	2.32	2.18	2.04	1.91	1.79	1.68	1.58	1.48	1.39
8.4	2.09	1.96	1.84	1.73	1.62	1.52	1.42	1.33	1.25	1.17
8.5	1.77	1.66	1.55	1.46	1.37	1.28	1.20	1.13	1.06	0.990
8.6	1.49	1.40	1.31	1.23	1.15	1.08	1.01	0.951	0.892	0.836
8.7	1.26	1.18	1.11	1.04	0.976	0.915	0.858	0.805	0.754	0.707
8.8	1.07	1.01	0.944	0.885	0.829	0.778	0.729	0.684	0.641	0.601
8.9	0.917	0.860	0.806	0.756	0.709	0.664	0.623	0.584	0.548	0.513
9.0	0.790	0.740	0.694	0.651	0.610	0.572	0.536	0.503	0.471	0.442

* At 15° C and above, the criterion for fish ELS absent is the same as the criterion for fish ELS present.

Source: USEPA. 1999. 1999 Update of Ambient Water Quality Criteria for Ammonia. EPA 822-R-99-014. Washington, D.C.

Table 13
Temperature and pH-Dependent Values of the Ammonia-Nitrogen CCC (Chronic Criterion) for Fish Early Life Stages Present

CCC for Fish Early Life Stages Present, mg N/L										
	Temperature (° Celsius)									
pH	0	14	16	18	20	22	24	26	28	30
6.5	6.67	6.67	6.06	5.33	4.68	4.12	3.62	3.18	2.80	2.46
6.6	6.57	6.57	5.97	5.25	4.61	4.05	3.56	3.13	2.75	2.42
6.7	6.44	6.44	5.86	5.15	4.52	3.98	3.50	3.07	2.70	2.37
6.8	6.29	6.29	5.72	5.03	4.42	3.89	3.42	3.00	2.64	2.32
6.9	6.12	6.12	5.56	4.89	4.30	3.78	3.32	2.92	2.57	2.25
7.0	5.91	5.91	5.37	4.72	4.15	3.65	3.21	2.82	2.48	2.18
7.1	5.67	5.67	5.15	4.53	3.98	3.50	3.08	2.70	2.38	2.09
7.2	5.39	5.39	4.90	4.31	3.78	3.33	2.92	2.57	2.26	1.99
7.3	5.08	5.08	4.61	4.06	3.57	3.13	2.76	2.42	2.13	1.87
7.4	4.73	4.73	4.30	3.78	3.32	2.92	2.57	2.26	1.98	1.74
7.5	4.36	4.36	3.97	3.49	3.06	2.69	2.37	2.08	1.83	1.61
7.6	3.98	3.98	3.61	3.18	2.79	2.45	2.16	1.90	1.67	1.47
7.7	3.58	3.58	3.25	2.86	2.51	2.21	1.94	1.71	1.50	1.32
7.8	3.18	3.18	2.89	2.54	2.23	1.96	1.73	1.52	1.33	1.17
7.9	2.80	2.80	2.54	2.24	1.96	1.73	1.52	1.33	1.17	1.03
8.0	2.43	2.43	2.21	1.94	1.71	1.50	1.32	1.16	1.02	0.897
8.1	2.10	2.10	1.91	1.68	1.47	1.29	1.14	1.00	0.879	0.773
8.2	1.79	1.79	1.63	1.43	1.26	1.11	0.973	0.855	0.752	0.661
8.3	1.52	1.52	1.39	1.22	1.07	0.941	0.827	0.727	0.639	0.562
8.4	1.29	1.29	1.17	1.03	0.906	0.796	0.700	0.615	0.541	0.475
8.5	1.09	1.09	0.990	0.870	0.765	0.672	0.591	0.520	0.457	0.401
8.6	0.920	0.920	0.836	0.735	0.646	0.568	0.499	0.439	0.386	0.339
8.7	0.778	0.778	0.707	0.622	0.547	0.480	0.422	0.371	0.326	0.287
8.8	0.661	0.661	0.601	0.528	0.464	0.408	0.359	0.315	0.277	0.244
8.9	0.565	0.565	0.513	0.451	0.397	0.349	0.306	0.269	0.237	0.208
9.0	0.486	0.486	0.442	0.389	0.342	0.300	0.264	0.232	0.204	0.179

Source: USEPA. 1999. 1999 Update of Ambient Water Quality Criteria for Ammonia. EPA 822-R-99-014. Washington, D.C.

Table 14
Maximum One-Hour Average Concentration for Total Ammonia (mg/L NH_3)

pH	Temperature (°Celsius)						
	0	5	10	15	20	25	30
6.50	35	33	31	30	29	20	14.3
6.75	32	30	28	27	27	18.6	13.2
7.00	28	26	25	24	23	16.4	11.6
7.25	23	22	20	19.7	19.2	13.4	9.5
7.50	17.4	16.3	15.5	14.9	14.6	10.2	7.3
7.75	12.2	11.4	10.9	10.5	10.3	7.2	5.2
8.00	8.0	7.5	7.1	6.9	6.8	4.8	3.5
8.25	4.5	4.2	4.1	4.0	3.9	2.8	2.1
8.50	2.6	2.4	2.3	2.3	2.3	1.71	1.28
8.75	1.47	1.40	1.37	1.38	1.42	1.07	0.83
9.00	0.86	0.83	0.83	0.86	0.91	0.72	0.58

Source: California Regional Water Quality Control Board, Los Angeles Region. 1994. Water Quality Control Plan (Basin Plan). Taken from USEPA. 1986. Quality Criteria for Water. EPA 440/5-86-001. Washington, D.C.

Table 15
Example Calculated Values for Maximum Weekly Average Temperature for Growth and Short-Term Maxima for Survival of Juvenile and Adult Fishes During the Summer

Species	Growth (°Celsius)	Maxima (°Celsius)
Black crappie	27	--
Bluegill	32	35
Channel catfish	32	35
Emerald shiner	30	--
Largemouth bass	32	34
Brook trout	19	24

Source: USEPA. 1986. Quality Criteria for Water. EPA 440/5-86-001. Washington, D.C.

DISCUSSION

Results from the four quarters of sampling in 2002 are discussed by parameter in **Table 16**.

Table 16
Discussion of 2002 Big Tujunga Wash Sampling Results

Parameter	Discussion
Temperature	• Temperatures in Haines Canyon Creek leaving the site were generally 1-3 ºC cooler than temperatures in the Tujunga ponds. • Seasonal fluctuations of up to 9 ºC were observed – December readings were lowest, and June readings were highest. • Observed temperatures during all sample periods were below levels of concern for growth and survival of warm water fish species.
Dissolved oxygen	• Dissolved oxygen (DO) levels in Haines Canyon Creek leaving the site correlated with temperature – higher DO values were observed on dates with lower temperature. DO concentrations in the ponds did not follow this pattern, but readings of inflow to and outflow from the ponds were very similar. • Seasonal fluctuations of up to 2.9 mg/L in DO were observed – highest overall readings were observed in December. • All DO readings in 2002 were above the recommended minimum for warmwater fish species of 5.0 mg/L.
pH	• In general, pH values observed in Haines Canyon Creek leaving the site were approximately 1 unit higher than values observed in the ponds. For any given date, the pH of waters flowing into and out of the ponds varied by 0.4 units or less. • The maximum seasonal pH fluctuation at any station in 2002 was 0.58 units. • The pH values of water from all stations for all four sampling periods were within the 6.5 to 8.5 range identified in the Basin Plan.
Total residual chlorine	• Total residual chlorine readings on all sampling dates were below the detection limit.

Table 16 (Continued)
Discussion of 2002 Big Tujunga Wash Sampling Results

Parameter	Discussion
Nitrogen	• Ammonia-nitrogen and nitrite-nitrogen were not detected in any of the samples during 2002. • Kjeldahl nitrogen (organic plus ammonia) readings were consistently low (<1 mg/L) at all stations on all dates. • Nitrate-nitrogen was consistently higher in waters flowing into the ponds than the outflow (up to 2.25 mg/L higher). Nitrate in Haines Canyon Creek was consistently lower than values observed in the ponds. • Nitrate-nitrogen values observed at the ponds were consistently higher (0.6 to 2.7 mg/L higher) in 2002 than in 2001. • All except one (Inflow to Tujunga Ponds 1 in December at 10 mg/L) nitrate-nitrogen readings were below the drinking water standard of 10 mg/L.
Phosphorus	• Phosphorus was not detected from the ponds in March and June. The proportion of total phosphorus present as reactive orthophosphate ranged from all to approximately 30 percent. • Baseline total phosphorus observed in April 2000 was significantly higher than 2001 and 2002 readings (up to 0.211 mg/L in April 2000). This may be attributable to releases from sediment disturbances caused by a rain event in 2000. • Total phosphorus values at all stations for all four quarters were at or below the low end of EPA's recommendation for streams of <0.05 – 1.0 mg/L total phosphates. (The reading of 0.37 mg/L in June at Haines Canyon Creek is most likely a sampling or laboratory error since the result for the duplicate sample was non-detect.)
Turbidity	• Turbidity values in 2002 were similar to those of 2001. • All 2002 turbidity values were below the drinking water standard of 5 NTU and were not excessive for aquatic life.
Bacteria	• Fecal coliform levels in 2002 ranged from <2 to 300 MPN/100 ml. Total coliforms were much higher – up to 5,000 MPN/100 ml in two samples (Outflow from the ponds in September and Haines Canyon Creek leaving the site in December). • Again, due to the rain event, baseline coliform data from April 18th 2000 showed the highest total coliform levels (170,000 MPN/100 ml in the outflow from the ponds). • Fecal coliform levels exceeded the water contact recreation standard of 200 MPN/100 ml in December in one sample from Haines Canyon Creek leaving the site (although sufficient samples were not taken per the standard). Note, the duplicate sample on this date at this location was lower than the standard.

Glossary

Ammonia-Nitrogen – NH_3-N is a gaseous alkaline compound of nitrogen and hydrogen that is highly soluble in water. Un-ionized ammonia (NH_3) is toxic to aquatic organisms. The proportions of NH_3 and ammonium (NH_4^+) and hydroxide (OH^-) ions are dependent on temperature, pH, and salinity.

Chlorine, residual – The chlorination of water supplies and wastewaters serves to destroy or deactivate disease-producing organisms. Residual chlorine in natural waters is an aquatic toxicant.

Coliform Bacteria – several genera of bacteria belonging to the family Enterobacteriaceae. Based on the method of detection, the coliform group is historically defined as facultative anaerobic, gram-negative, nonspore-forming, rod-shaped bacteria that ferment lactose with gas and acid formation within 48 hours at 35°C.

Fecal Coliform Bacteria – part of the intestinal flora of warm-blooded animals. Presence in surface waters is considered an indication of pollution.

Kjeldahl Nitrogen – Named for the laboratory technique used for detection, Kjeldahl nitrogen includes organic nitrogen and ammonia nitrogen.

Nitrate-Nitrogen – $NO3^-$-N is an essential nutrient for many photosynthetic autotrophs.

Nitrite-Nitrogen – $NO2^-$-N is an intermediate oxidation state of nitrogen, both in the oxidation of ammonia to nitrate and in the reduction of nitrate.

Orthophosphorus – the reactive form of phosphorus, commonly used as fertilizer.

pH – the hydrogen ion activity of water (pH) is measured on a logarithmic scale, ranging from 0 to 14. The pH of "pure" water at 25°C is 7.0 (neutral). Low pH is acidic; high pH is basic or alkaline.

Total Phosphorus – In natural waters, phosphorus occurs almost solely as orthophosphates, condensed phosphates, and organically bound phosphate. Phosphorus is essential to the growth of organisms.

Turbidity – attributable to the suspended and colloidal matter in water, including clay, silt, finely divided organic and inorganic matter, soluble colored organic compounds, and plankton and other microscopic organisms. The reduction of clearness in turbid waters diminishes the penetration of light and therefore can adversely affect photosynthesis.

APPENDIX A

BIG TUJUNGA WASH WATER QUALITY MONITORING PROGRAM

LABORATORY RESULTS

BIG TUJUNGA WASH WATER QUALITY MONITORING PROGRAM
MARCH 2002 LABORATORY RESULTS

MWH Laboratories
MONTGOMERY WATSON HARZA

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Laboratory Report

for

Applied Research MWA - Joe Marcinko
Montgomery Watson

327 West Maple Avenue

Monrovia , CA 91106

Attention: Joe Marcinko
Fax: (626) 359-3593

DATE OF ISSUE
APR 1 1 2002
MWH LABORATORIES

HDS Hillary Strayer
Project Manager

ACCREDITED IN ACCORDANCE WITH nelac 01114CA

Report#: 93807
BIG TJ

Laboratory certifies that the test results meet all **NELAC** requirements unless noted in the Comments section or the Case Narrative. Following the cover page are QC Report,QC Summary,Data Report,Hits Report, totaling 11 page[s].

Montgomery Watson Laboratories
555 E. Walnut St., Pasadena, CA 91101
PHONE: 626-568-6400/FAX: 626-568-6324

ACKNOWLEDGMENT OF SAMPLES RECEIVED

Applied Research MWA - Joe Marcinko
Montgomery Watson
327 West Maple Avenue
Monrovia, CA 91106
Attn: Joe Marcinko
Phone: (626) 303-5845

Customer Code: ARD-JM
PO#: 1341410.5620.011801
Group#: 93807
Project#: BIG TJ
Proj Mgr: Hillary Strayer
Phone: (626) 568-6412

The following samples were received from you on **03/27/02**. They have been scheduled for the tests listed beside each sample. If this information is incorrect, please contact your service representative. Thank you for using Montgomery Watson Laboratories.

Sample#	Sample Id	Matrix	Sample Date
	Tests Scheduled		
2203270128	SITE 1 INFLOW TO TJ POND 1	Water	27-mar-2002 12:37:00
	FECCOL NH3 NO2-N NO3 OPO4 T-P		
	TKN TOTCOL TURB		
2203270132	SITE 1 INFLOW TO TJ POND 2	Water	27-mar-2002 12:55:00
	FECCOL NH3 NO2-N NO3 OPO4 T-P		
	TKN TOTCOL TURB		
2203270134	SITE 2 OUTFLOW FROM TJ POND 1	Water	27-mar-2002 13:25:00
	FECCOL NH3 NO2-N NO3 OPO4 T-P		
	TKN TOTCOL TURB		
2203270136	SITE 2 OUTFLOW FROM TJ POND 2	Water	27-mar-2002 13:35:00
	FECCOL NH3 NO2-N NO3 OPO4 T-P		
	TKN TOTCOL TURB		
2203270137	SITE 4 HAINES CYN CRK 1	Water	27-mar-2002 11:40:00
	FECCOL NH3 NO2-N NO3 OPO4 T-P		
	TKN TOTCOL TURB		
2203270138	SITE 4 HAINES CYN CRK 2	Water	27-mar-2002 11:55:00
	FECCOL NH3 NO2-N NO3 OPO4 T-P		
	TKN TOTCOL TURB		

Test Acronym Description

Test Acronym	Description
FECCOL 49	Fecal Coliform Bacteria
NH3 55	Ammonia Nitrogen
NO2-N 56	Nitrite, Nitrogen by IC
NO3 51	Nitrate as Nitrogen by IC
OPO4 60	Orthophosphate-P
T-P 17	Total phosphorus-P
TKN 64	Kjeldahl Nitrogen
TOTCOL 70	Total Coliform Bacteria
TURB 88	Turbidity

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Laboratory
Data Report
#93807

Applied Research MWA - Joe Marcinko
Joe Marcinko
Montgomery Watson
327 West Maple Avenue
Monrovia , CA 91106

Samples Received
03/27/02

Prepared	Analyzed	QC Ref#	Method	Analyte	Result	Units	MRL	Dilution
SITE 1 INFLOW TO TJ POND 1 (2203270128) Sampled on 03/27/02 12:37								
	03/27/02 15:37		(ML/SM9221C)	Fecal Coliform Bacteria	4	MPNM	2.0	1
	03/28/02 00:00	167327	(ML/EPA 350.1)	Ammonia Nitrogen	ND	mg/l	0.050	1
	03/27/02 16:28	167296	(ML/EPA 300.0)	Nitrite, Nitrogen by IC	ND	mg/l	0.20	2
	03/27/02 16:28	167299	(ML/EPA 300.0)	Nitrate as Nitrogen by IC	9.1	mg/l	0.20	2
	03/28/02 00:00	167403	(ML/S4500P-E)	Orthophosphate-P	ND	mg/l	0.010	1
	04/02/02 17:08	167732	(S4500PE/E365.1)	Total phosphorus-P	ND	mg/l	0.020	1
	04/03/02 00:00	168393	(ML/EPA 351.2)	Kjeldahl Nitrogen	0.28	mg/l	0.20	1
	03/27/02 15:37		(ML/SM9221B)	Total Coliform Bacteria	500	MPNM	2.0	1
	03/27/02 11:00	167249	(ML/EPA 180.1)	Turbidity	1.2	NTU	0.050	1
SITE 1 INFLOW TO TJ POND 2 (2203270132) Sampled on 03/27/02 12:55								
	03/27/02 15:46		(ML/SM9221C)	Fecal Coliform Bacteria	<2	MPNM	2.0	1
	03/28/02 00:00	167327	(ML/EPA 350.1)	Ammonia Nitrogen	ND	mg/l	0.050	1
	03/27/02 16:49	167296	(ML/EPA 300.0)	Nitrite, Nitrogen by IC	ND	mg/l	0.20	2
	03/27/02 16:49	167299	(ML/EPA 300.0)	Nitrate as Nitrogen by IC	8.9	mg/l	0.20	2
	03/28/02 00:00	167403	(ML/S4500P-E)	Orthophosphate-P	ND	mg/l	0.010	1
	04/02/02 17:08	167732	(S4500PE/E365.1)	Total phosphorus-P	ND	mg/l	0.020	1
	04/03/02 00:00	168394	(ML/EPA 351.2)	Kjeldahl Nitrogen	0.30	mg/l	0.20	1
	03/27/02 15:46		(ML/SM9221B)	Total Coliform Bacteria	900	MPNM	2.0	1
	03/27/02 11:00	167249	(ML/EPA 180.1)	Turbidity	1.1	NTU	0.050	1
SITE 2 OUTFLOW FROM TJ POND 1 (2203270134) Sampled on 03/27/02 13:25								
	03/27/02 15:57		(ML/SM9221C)	Fecal Coliform Bacteria	4	MPNM	2.0	1
	03/28/02 00:00	167327	(ML/EPA 350.1)	Ammonia Nitrogen	ND	mg/l	0.050	1
	03/27/02 17:00	167296	(ML/EPA 300.0)	Nitrite, Nitrogen by IC	ND	mg/l	0.20	2
	03/27/02 17:00	167299	(ML/EPA 300.0)	Nitrate as Nitrogen by IC	7.3	mg/l	0.20	2
	03/28/02 00:00	167403	(ML/S4500P-E)	Orthophosphate-P	ND	mg/l	0.010	1
	04/02/02 17:08	167732	(S4500PE/E365.1)	Total phosphorus-P	ND	mg/l	0.020	1
	04/03/02 00:00	168394	(ML/EPA 351.2)	Kjeldahl Nitrogen	ND	mg/l	0.20	1
	03/27/02 15:57		(ML/SM9221B)	Total Coliform Bacteria	130	MPNM	2.0	1
	03/27/02 11:00	167249	(ML/EPA 180.1)	Turbidity	0.70	NTU	0.050	1

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Laboratory
Data Report
#93807

Applied Research MWA - Joe Marcinko
(continued)

Prepared	Analyzed	QC Ref#	Method	Analyte	Result	Units	MRL	Dilution
SITE 2 OUTFLOW FROM TJ POND 2 (2203270136) Sampled on 03/27/02 13:35								
	03/27/02 16:00		(ML/SM9221C)	Fecal Coliform Bacteria	8	MPNM	2.0	1
	03/28/02 00:00	167327	(ML/EPA 350.1)	Ammonia Nitrogen	ND	mg/l	0.050	1
	03/27/02 16:39	167296	(ML/EPA 300.0)	Nitrite, Nitrogen by IC	ND	mg/l	0.20	2
	03/27/02 16:39	167299	(ML/EPA 300.0)	Nitrate as Nitrogen by IC	7.0	mg/l	0.20	2
	03/28/02 00:00	167403	(ML/S4500P-E)	Orthophosphate-P	ND	mg/l	0.010	1
	04/02/02 17:08	167732	(S4500PE/E365.1)	Total phosphorus-P	ND	mg/l	0.020	1
	04/03/02 00:00	168394	(ML/EPA 351.2)	Kjeldahl Nitrogen	ND	mg/l	0.20	1
	03/27/02 16:00		(ML/SM9221B)	Total Coliform Bacteria	220	MPNM	2.0	1
	03/27/02 11:00	167252	(ML/EPA 180.1)	Turbidity	0.70	NTU	0.050	1
SITE 4 HAINES CYN CRK 1 (2203270137) Sampled on 03/27/02 11:40								
	03/27/02 16:05		(ML/SM9221C)	Fecal Coliform Bacteria	50	MPNM	2.0	1
	03/28/02 00:00	167327	(ML/EPA 350.1)	Ammonia Nitrogen	ND	mg/l	0.050	1
	03/28/02 14:48	167305	(ML/EPA 300.0)	Nitrite, Nitrogen by IC	ND	mg/l	0.20	2
	03/28/02 14:48	167307	(ML/EPA 300.0)	Nitrate as Nitrogen by IC	6.4	mg/l	0.20	2
	03/28/02 00:00	167403	(ML/S4500P-E)	Orthophosphate-P	0.015	mg/l	0.010	1
	04/02/02 17:08	167732	(S4500PE/E365.1)	Total phosphorus-P	ND	mg/l	0.020	1
	04/03/02 00:00	168394	(ML/EPA 351.2)	Kjeldahl Nitrogen	ND	mg/l	0.20	1
	03/27/02 16:05		(ML/SM9221B)	Total Coliform Bacteria	900	MPNM	2.0	1
	03/27/02 11:00	167249	(ML/EPA 180.1)	Turbidity	0.35	NTU	0.050	1
SITE 4 HAINES CYN CRK 2 (2203270138) Sampled on 03/27/02 11:55								
	03/27/02 16:04		(ML/SM9221C)	Fecal Coliform Bacteria	50	MPNM	2.0	1
	03/28/02 00:00	167327	(ML/EPA 350.1)	Ammonia Nitrogen	ND	mg/l	0.050	1
	03/28/02 14:58	167305	(ML/EPA 300.0)	Nitrite, Nitrogen by IC	ND	mg/l	0.20	2
	03/28/02 14:58	167307	(ML/EPA 300.0)	Nitrate as Nitrogen by IC	6.4	mg/l	0.20	2
	03/28/02 00:00	167403	(ML/S4500P-E)	Orthophosphate-P	0.014	mg/l	0.010	1
	04/02/02 17:08	167732	(S4500PE/E365.1)	Total phosphorus-P	ND	mg/l	0.020	1
	04/03/02 00:00	168394	(ML/EPA 351.2)	Kjeldahl Nitrogen	ND	mg/l	0.20	1
	03/27/02 16:04		(ML/SM9221B)	Total Coliform Bacteria	900	MPNM	2.0	1
	03/27/02 11:00	167249	(ML/EPA 180.1)	Turbidity	0.30	NTU	0.050	1

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Laboratory
QC Summary
#93807

Applied Research MWA - Joe Marcinko

QC Ref #167249 - Turbidity **Analysis Date: 03/27/2002**

2203270128	SITE 1 INFLOW TO TJ POND 1
2203270132	SITE 1 INFLOW TO TJ POND 2
2203270134	SITE 2 OUTFLOW FROM TJ POND 1
2203270137	SITE 4 HAINES CYN CRK 1
2203270138	SITE 4 HAINES CYN CRK 2

QC Ref #167252 - Turbidity **Analysis Date: 03/27/2002**

2203270136	SITE 2 OUTFLOW FROM TJ POND 2

QC Ref #167296 - Nitrite, Nitrogen by IC **Analysis Date: 03/27/2002**

2203270128	SITE 1 INFLOW TO TJ POND 1
2203270132	SITE 1 INFLOW TO TJ POND 2
2203270134	SITE 2 OUTFLOW FROM TJ POND 1
2203270136	SITE 2 OUTFLOW FROM TJ POND 2

QC Ref #167299 - Nitrate as Nitrogen by IC **Analysis Date: 03/27/2002**

2203270128	SITE 1 INFLOW TO TJ POND 1
2203270132	SITE 1 INFLOW TO TJ POND 2
2203270134	SITE 2 OUTFLOW FROM TJ POND 1
2203270136	SITE 2 OUTFLOW FROM TJ POND 2

QC Ref #167305 - Nitrite, Nitrogen by IC **Analysis Date: 03/28/2002**

2203270137	SITE 4 HAINES CYN CRK 1
2203270138	SITE 4 HAINES CYN CRK 2

QC Ref #167307 - Nitrate as Nitrogen by IC **Analysis Date: 03/28/2002**

2203270137	SITE 4 HAINES CYN CRK 1
2203270138	SITE 4 HAINES CYN CRK 2

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(continued)

QC Ref #167327 - Ammonia Nitrogen **Analysis Date: 03/28/2002**

2203270128	SITE 1 INFLOW TO TJ POND 1
2203270132	SITE 1 INFLOW TO TJ POND 2
2203270134	SITE 2 OUTFLOW FROM TJ POND 1
2203270136	SITE 2 OUTFLOW FROM TJ POND 2
2203270137	SITE 4 HAINES CYN CRK 1
2203270138	SITE 4 HAINES CYN CRK 2

QC Ref #167403 - Orthophosphate-P **Analysis Date: 03/28/2002**

2203270128	SITE 1 INFLOW TO TJ POND 1
2203270132	SITE 1 INFLOW TO TJ POND 2
2203270134	SITE 2 OUTFLOW FROM TJ POND 1
2203270136	SITE 2 OUTFLOW FROM TJ POND 2
2203270137	SITE 4 HAINES CYN CRK 1
2203270138	SITE 4 HAINES CYN CRK 2

QC Ref #167732 - Total phosphorus-P **Analysis Date: 04/02/2002**

2203270128	SITE 1 INFLOW TO TJ POND 1
2203270132	SITE 1 INFLOW TO TJ POND 2
2203270134	SITE 2 OUTFLOW FROM TJ POND 1
2203270136	SITE 2 OUTFLOW FROM TJ POND 2
2203270137	SITE 4 HAINES CYN CRK 1
2203270138	SITE 4 HAINES CYN CRK 2

QC Ref #168393 - Kjeldahl Nitrogen **Analysis Date: 04/03/2002**

2203270128	SITE 1 INFLOW TO TJ POND 1

QC Ref #168394 - Kjeldahl Nitrogen **Analysis Date: 04/03/2002**

2203270132	SITE 1 INFLOW TO TJ POND 2
2203270134	SITE 2 OUTFLOW FROM TJ POND 1
2203270136	SITE 2 OUTFLOW FROM TJ POND 2
2203270137	SITE 4 HAINES CYN CRK 1
2203270138	SITE 4 HAINES CYN CRK 2

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QC Summary
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Applied Research MWA - Joe Marcinko
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QC Report
#93807

Applied Research MWA - Joe Marcinko

QC Ref #167249 Turbidity

QC	Analyte	Spiked	Recovered	Yield (%)	Limits (%)	RPD (%)
DUP	Turbidity	0.70	0.70		(0.00 - 20.00)	0.0

QC Ref #167252 Turbidity

QC	Analyte	Spiked	Recovered	Yield (%)	Limits (%)	RPD (%)
DUP	Turbidity	0.70	0.70		(0.00 - 20.00)	0.0

QC Ref #167296 Nitrite, Nitrogen by IC

QC	Analyte	Spiked	Recovered	Yield (%)	Limits (%)	RPD (%)
LCS1	Nitrite, Nitrogen by IC	1.0	1.03	103.0	(90.00 - 110.00)	
LCS2	Nitrite, Nitrogen by IC	1.0	1.03	103.0	(90.00 - 110.00)	0.00
MBLK	Nitrite, Nitrogen by IC	ND				
MS	Nitrite, Nitrogen by IC	1.0	1.04	104.0	(80.00 - 120.00)	
MSD	Nitrite, Nitrogen by IC	1.0	1.04	104.0	(80.00 - 120.00)	0.00

QC Ref #167299 Nitrate as Nitrogen by IC

QC	Analyte	Spiked	Recovered	Yield (%)	Limits (%)	RPD (%)
LCS1	Nitrate as Nitrogen by IC	2.5	2.7	108.0	(90.00 - 110.00)	
LCS2	Nitrate as Nitrogen by IC	2.5	2.69	107.6	(90.00 - 110.00)	0.37
MBLK	Nitrate as Nitrogen by IC	ND				
MS	Nitrate as Nitrogen by IC	2.5	2.73	109.2	(80.00 - 120.00)	
MSD	Nitrate as Nitrogen by IC	2.5	2.73	109.2	(80.00 - 120.00)	0.00

Spikes which exceed Limits and Method Blanks with positive results are highlighted by Underlining. Criteria for MS and DUP are advisory only, batch control is based on LCS. Criteria for duplicates are advisory only, unless otherwise specified in the method.

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Laboratory
QC Report
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Applied Research MWA - Joe Marcinko
(continued)

QC Ref #167305 Nitrite, Nitrogen by IC

QC	Analyte	Spiked	Recovered	Yield (%)	Limits (%)	RPD (%)
LCS1	Nitrite, Nitrogen by IC	1.0	1.03	103.0	(90.00 - 110.00)	
LCS2	Nitrite, Nitrogen by IC	1.0	1.03	103.0	(90.00 - 110.00)	0.00
MBLK	Nitrite, Nitrogen by IC	ND				
MS	Nitrite, Nitrogen by IC	1.0	1.04	104.0	(80.00 - 120.00)	
MSD	Nitrite, Nitrogen by IC	1.0	1.03	103.0	(80.00 - 120.00)	0.97

QC Ref #167307 Nitrate as Nitrogen by IC

QC	Analyte	Spiked	Recovered	Yield (%)	Limits (%)	RPD (%)
LCS1	Nitrate as Nitrogen by IC	2.5	2.72	108.8	(90.00 - 110.00)	
LCS2	Nitrate as Nitrogen by IC	2.5	2.71	108.4	(90.00 - 110.00)	0.37
MBLK	Nitrate as Nitrogen by IC	ND				
MS	Nitrate as Nitrogen by IC	2.5	2.74	109.6	(80.00 - 120.00)	
MSD	Nitrate as Nitrogen by IC	2.5	2.72	108.8	(80.00 - 120.00)	0.73

QC Ref #167327 Ammonia Nitrogen

QC	Analyte	Spiked	Recovered	Yield (%)	Limits (%)	RPD (%)
MS	Spiked sample	Lab # 22	03260195		(0.00 - 0.00)	
LCS1	Ammonia Nitrogen	1.00	1.02	102.0	(90.00 - 110.00)	
LCS2	Ammonia Nitrogen	1.00	1.01	101.0	(90.00 - 110.00)	0.99
MBLK	Ammonia Nitrogen	ND				
MS	Ammonia Nitrogen	1.00	0.990	99.0	(90.00 - 110.00)	
MSD	Ammonia Nitrogen	1.00	1.00	100.0	(90.00 - 110.00)	1.0

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Applied Research MWA - Joe Marcinko
(continued)

QC Ref #167403 Orthophosphate-P

QC	Analyte	Spiked	Recovered	Yield (%)	Limits (%)	RPD (%)
MS	Spiked sample	Lab # 22	03270137		(0.00 - 0.00)	
LCS1	Orthophosphate-P	0.5	0.518	103.6	(90.00 - 110.00)	
LCS2	Orthophosphate-P	0.5	0.521	104.2	(90.00 - 110.00)	0.58
MBLK	Orthophosphate-P	ND				
MS	Orthophosphate-P	0.5	0.508	101.6	(80.00 - 120.00)	
MSD	Orthophosphate-P	0.5	0.517	103.4	(80.00 - 120.00)	1.8

QC Ref #167732 Total phosphorus-P

QC	Analyte	Spiked	Recovered	Yield (%)	Limits (%)	RPD (%)
MS	Spiked sample	Lab # 22	03270124		(0.00 - 0.00)	
LCS1	Total phosphorus-P	0.4	0.440	110.0	(90.00 - 110.00)	
LCS2	Total phosphorus-P	0.4	0.410	102.5	(90.00 - 110.00)	7.1
MBLK	Total phosphorus-P	ND				
MS	Total phosphorus-P	0.4	0.411	102.7	(80.00 - 120.00)	
MSD	Total phosphorus-P	0.4	0.412	103.0	(80.00 - 120.00)	0.24

QC Ref #168393 Kjeldahl Nitrogen

QC	Analyte	Spiked	Recovered	Yield (%)	Limits (%)	RPD (%)
MS	Spiked sample	Lab # 22	03230019		(0.00 - 0.00)	
LCS1	Kjeldahl Nitrogen	4	4.00	100.0	(70.00 - 130.00)	
LCS2	Kjeldahl Nitrogen	4	3.60	90.0	(70.00 - 130.00)	11
MBLK	Kjeldahl Nitrogen	ND				
MS	Kjeldahl Nitrogen	4	3.76	94.0	(70.00 - 130.00)	
MSD	Kjeldahl Nitrogen	4	3.76	94.0	(70.00 - 130.00)	0.00

Spikes which exceed Limits and Method Blanks with positive results are highlighted by Underlining.
Criteria for MS and DUP are advisory only, batch control is based on LCS. Criteria for duplicates are advisory only, unless otherwise specified in the method.

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QC Report
#93807

Applied Research MWA - Joe Marcinko
(continued)

QC Ref #168394 Kjeldahl Nitrogen

QC	Analyte	Spiked	Recovered	Yield (%)	Limits (%)	RPD (%)
MS	Spiked sample	Lab # 22	03270129		(0.00 - 0.00)	
LCS1	Kjeldahl Nitrogen	4	3.90	97.5	(70.00 - 130.00)	
LCS2	Kjeldahl Nitrogen	4	3.90	97.5	(70.00 - 130.00)	0.00
MBLK	Kjeldahl Nitrogen	ND				
MS	Kjeldahl Nitrogen	4	4.29	107.2	(70.00 - 130.00)	
MSD	Kjeldahl Nitrogen	4	4.16	104.0	(70.00 - 130.00)	3.1

Spikes which exceed Limits and Method Blanks with positive results are highlighted by Underlining.
Criteria for MS and DUP are advisory only, batch control is based on LCS. Criteria for duplicates are advisory only, unless otherwise specified in the method.

BIG TUJUNGA WASH WATER QUALITY MONITORING PROGRAM
JUNE 2002 LABORATORY RESULTS

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Laboratory Report

for

Applied Research MWA - Joe Marcinko
Montgomery Watson

327 West Maple Avenue

Monrovia , CA 91106

Attention: Joe Marcinko
Fax: (626) 359-3593

DATE OF ISSUE

JUL 1 0 2002

MWH LABORATORIES

HDS Hillary Strayer
Project Manager

ACCREDITED IN ACCORDANCE WITH nelac 01114CA

Report#: 97553
BIG TJ

Laboratory certifies that the test results meet all **NELAC** requirements unless noted in the Comments section or the Case Narrative. Following the cover page are QC Report,QC Summary,Data Report,Hits Report, totaling 9 page[s].

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PHONE: 626-568-6400/FAX: 626-568-6324

ACKNOWLEDGMENT OF SAMPLES RECEIVED

Applied Research MWA - Joe Marcinko
Montgomery Watson
327 West Maple Avenue
Monrovia, CA 91106
Attn: Joe Marcinko
Phone: (626) 303-5845

Customer Code: ARD-JM
PO#: 1341410.5620.011801
Group#: 97553
Project#: BIG TJ
Proj Mgr: Hillary Strayer
Phone: (626) 568-6412

The following samples were received from you on **06/25/02**. They have been scheduled for the tests listed beside each sample. If this information is incorrect, please contact your service representative. Thank you for using MWH Laboratories.

Sample#	Sample Id	Matrix	Sample Date
	Tests Scheduled		
2206250093	SITE 1 INFLOW TO TJ POND 1	Water	25-jun-2002 12:10:00
	FECCOL NH3 NO2-N NO3 OPO4 T-P		
	TKN TOTCOL TURB		
2206250094	SITE 1 INFLOW TO TJ POND 2	Water	25-jun-2002 12:17:00
	FECCOL NH3 NO2-N NO3 OPO4 T-P		
	TKN TOTCOL TURB		
2206250095	SITE 2 OUTFLOW FROM TJ POND 1	Water	25-jun-2002 12:45:00
	FECCOL NH3 NO2-N NO3 OPO4 T-P		
	TKN TOTCOL TURB		
2206250096	SITE 2 OUTFLOW FROM TJ POND 2	Water	25-jun-2002 12:55:00
	FECCOL NH3 NO2-N NO3 OPO4 T-P		
	TKN TOTCOL TURB		
2206250097	SITE 4 HAINES CANYON CREEK 1	Water	25-jun-2002 10:55:00
	FECCOL NH3 NO2-N NO3 OPO4 T-P		
	TKN TOTCOL TURB		
2206250098	SITE 4 HAINES CANYON CREEK 2	Water	25-jun-2002 11:09:00
	FECCOL NH3 NO2-N NO3 OPO4 T-P		
	TKN TOTCOL TURB		

Test Acronym Description

Test Acronym	Description
FECCOL	Fecal Coliform Bacteria
NH3	Ammonia Nitrogen
NO2-N	Nitrite, Nitrogen by IC
NO3	Nitrate as Nitrogen by IC
OPO4	Orthophosphate-P
T-P	Total phosphorus-P
TKN	Kjeldahl Nitrogen
TOTCOL	Total Coliform Bacteria
TURB	Turbidity

6/26/02

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Laboratory
Data Report
#97553

Applied Research MWA - Joe Marcinko
Joe Marcinko
Montgomery Watson
327 West Maple Avenue
Monrovia , CA 91106

Samples Received
06/25/02

Prepared	Analyzed	QC Ref#	Method	Analyte	Result	Units	MRL	Dilution
SITE 1 INFLOW TO TJ POND 1 (2206250093) Sampled on 06/25/02 12:10								
	06/25/02 15:41		(ML/SM9221C)	Fecal Coliform Bacteria	8	MPNM	2.0	1
	06/27/02 00:00	175125	(ML/EPA 350.1)	Ammonia Nitrogen	ND	mg/l	0.050	1
	06/26/02 14:20	175186	(ML/EPA 300.0)	Nitrite, Nitrogen by IC	ND	mg/l	0.20	2
	06/26/02 14:20	175187	(ML/EPA 300.0)	Nitrate as Nitrogen by IC	8.9	mg/l	0.20	2
	06/26/02 00:00	175115	(ML/S4500P-E)	Orthophosphate-P	ND	mg/l	0.010	1
	07/03/02 07:46	175473	(S4500PE/E365.1)	Total phosphorus-P	ND	mg/l	0.020	1
	07/03/02 15:45	175749	(ML/EPA 351.2)	Kjeldahl Nitrogen	0.56	mg/l	0.20	1
	06/25/02 15:41		(ML/SM9221B)	Total Coliform Bacteria	1300	MPNM	2.0	1
	06/25/02 15:00	174906	(ML/EPA 180.1)	Turbidity	0.70	NTU	0.050	1
SITE 1 INFLOW TO TJ POND 2 (2206250094) Sampled on 06/25/02 12:17								
	06/25/02 15:48		(ML/SM9221C)	Fecal Coliform Bacteria	7	MPNM	2.0	1
	06/27/02 00:00	175125	(ML/EPA 350.1)	Ammonia Nitrogen	ND	mg/l	0.050	1
	06/26/02 14:31	175186	(ML/EPA 300.0)	Nitrite, Nitrogen by IC	ND	mg/l	0.20	2
	06/26/02 14:31	175187	(ML/EPA 300.0)	Nitrate as Nitrogen by IC	8.9	mg/l	0.20	2
	06/26/02 00:00	175115	(ML/S4500P-E)	Orthophosphate-P	ND	mg/l	0.010	1
	07/03/02 07:46	175473	(S4500PE/E365.1)	Total phosphorus-P	ND	mg/l	0.020	1
	07/03/02 15:45	175749	(ML/EPA 351.2)	Kjeldahl Nitrogen	0.37	mg/l	0.20	1
	06/25/02 15:48		(ML/SM9221B)	Total Coliform Bacteria	1400	MPNM	2.0	1
	06/25/02 15:00	174906	(ML/EPA 180.1)	Turbidity	0.70	NTU	0.050	1
SITE 2 OUTFLOW FROM TJ POND 1 (2206250095) Sampled on 06/25/02 12:45								
	06/25/02 15:55		(ML/SM9221C)	Fecal Coliform Bacteria	11	MPNM	2.0	1
	06/27/02 00:00	175125	(ML/EPA 350.1)	Ammonia Nitrogen	ND	mg/l	0.050	1
	06/26/02 14:41	175186	(ML/EPA 300.0)	Nitrite, Nitrogen by IC	ND	mg/l	0.20	2
	06/26/02 14:41	175187	(ML/EPA 300.0)	Nitrate as Nitrogen by IC	7.1	mg/l	0.20	2
	06/26/02 00:00	175115	(ML/S4500P-E)	Orthophosphate-P	0.05	mg/l	0.010	1
	07/03/02 07:46	175473	(S4500PE/E365.1)	Total phosphorus-P	ND	mg/l	0.020	1
	07/03/02 15:45	175749	(ML/EPA 351.2)	Kjeldahl Nitrogen	0.32	mg/l	0.20	1
	06/25/02 15:55		(ML/SM9221B)	Total Coliform Bacteria	300	MPNM	2.0	1
	06/25/02 15:00	174906	(ML/EPA 180.1)	Turbidity	1.0	NTU	0.050	1

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Laboratory
Data Report
#97553

Applied Research MWA - Joe Marcinko
(continued)

Prepared	Analyzed	QC Ref#	Method	Analyte	Result	Units	MRL	Dilution
SITE 2 OUTFLOW FROM TJ POND 2 (2206250096) Sampled on 06/25/02 12:55								
	06/25/02 16:01		(ML/SM9221C)	Fecal Coliform Bacteria	13	MPNM	2.0	1
	06/27/02 00:00	175125	(ML/EPA 350.1)	Ammonia Nitrogen	ND	mg/l	0.050	1
	06/26/02 14:52	175186	(ML/EPA 300.0)	Nitrite, Nitrogen by IC	ND	mg/l	0.20	2
	06/26/02 14:52	175187	(ML/EPA 300.0)	Nitrate as Nitrogen by IC	6.7	mg/l	0.20	2
	06/26/02 00:00	175115	(ML/S4500P-E)	Orthophosphate-P	ND	mg/l	0.010	1
	07/03/02 07:46	175473	(S4500PE/E365.1)	Total phosphorus-P	0.02	mg/l	0.020	1
	07/03/02 15:45	175749	(ML/EPA 351.2)	Kjeldahl Nitrogen	0.60	mg/l	0.20	1
	06/25/02 16:01		(ML/SM9221B)	Total Coliform Bacteria	300	MPNM	2.0	1
	06/25/02 15:00	174907	(ML/EPA 180.1)	Turbidity	1.5	NTU	0.050	1
SITE 4 HAINES CANYON CREEK 1 (2206250097) Sampled on 06/25/02 10:55								
	06/25/02 16:07		(ML/SM9221C)	Fecal Coliform Bacteria	170	MPNM	2.0	1
	06/27/02 00:00	175125	(ML/EPA 350.1)	Ammonia Nitrogen	ND	mg/l	0.050	1
	06/26/02 15:03	175186	(ML/EPA 300.0)	Nitrite, Nitrogen by IC	ND	mg/l	0.20	2
	06/26/02 15:03	175187	(ML/EPA 300.0)	Nitrate as Nitrogen by IC	5.6	mg/l	0.20	2
	06/26/02 00:00	175115	(ML/S4500P-E)	Orthophosphate-P	0.02	mg/l	0.010	1
	07/03/02 07:46	175473	(S4500PE/E365.1)	Total phosphorus-P	ND	mg/l	0.020	1
	07/03/02 15:45	175749	(ML/EPA 351.2)	Kjeldahl Nitrogen	0.26	mg/l	0.20	1
	06/25/02 16:07		(ML/SM9221B)	Total Coliform Bacteria	2300	MPNM	2.0	1
	06/25/02 15:00	174906	(ML/EPA 180.1)	Turbidity	1.4	NTU	0.050	1
SITE 4 HAINES CANYON CREEK 2 (2206250098) Sampled on 06/25/02 11:09								
	06/25/02 16:14		(ML/SM9221C)	Fecal Coliform Bacteria	60	MPNM	2.0	1
	06/27/02 00:00	175125	(ML/EPA 350.1)	Ammonia Nitrogen	ND	mg/l	0.050	1
	06/26/02 15:13	175186	(ML/EPA 300.0)	Nitrite, Nitrogen by IC	ND	mg/l	0.20	2
	06/26/02 15:13	175187	(ML/EPA 300.0)	Nitrate as Nitrogen by IC	5.9	mg/l	0.20	2
	06/26/02 00:00	175115	(ML/S4500P-E)	Orthophosphate-P	0.02	mg/l	0.010	1
	07/03/02 07:46	175473	(S4500PE/E365.1)	Total phosphorus-P	0.37	mg/l	0.020	1
	07/03/02 15:45	175749	(ML/EPA 351.2)	Kjeldahl Nitrogen	0.28	mg/l	0.20	1
	06/25/02 16:14		(ML/SM9221B)	Total Coliform Bacteria	3000	MPNM	2.0	1
	06/25/02 15:00	174906	(ML/EPA 180.1)	Turbidity	1.6	NTU	0.050	1

MWH Laboratories
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Laboratory
QC Summary
#97553

Applied Research MWA - Joe Marcinko

QC Ref #174906 - Turbidity **Analysis Date: 06/25/2002**

2206250093	SITE 1 INFLOW TO TJ POND 1
2206250094	SITE 1 INFLOW TO TJ POND 2
2206250095	SITE 2 OUTFLOW FROM TJ POND 1
2206250097	SITE 4 HAINES CANYON CREEK 1
2206250098	SITE 4 HAINES CANYON CREEK 2

QC Ref #174907 - Turbidity **Analysis Date: 06/25/2002**

2206250096	SITE 2 OUTFLOW FROM TJ POND 2

QC Ref #175115 - Orthophosphate-P **Analysis Date: 06/26/2002**

2206250093	SITE 1 INFLOW TO TJ POND 1
2206250094	SITE 1 INFLOW TO TJ POND 2
2206250095	SITE 2 OUTFLOW FROM TJ POND 1
2206250096	SITE 2 OUTFLOW FROM TJ POND 2
2206250097	SITE 4 HAINES CANYON CREEK 1
2206250098	SITE 4 HAINES CANYON CREEK 2

QC Ref #175125 - Ammonia Nitrogen **Analysis Date: 06/27/2002**

2206250093	SITE 1 INFLOW TO TJ POND 1
2206250094	SITE 1 INFLOW TO TJ POND 2
2206250095	SITE 2 OUTFLOW FROM TJ POND 1
2206250096	SITE 2 OUTFLOW FROM TJ POND 2
2206250097	SITE 4 HAINES CANYON CREEK 1
2206250098	SITE 4 HAINES CANYON CREEK 2

QC Ref #175186 - Nitrite, Nitrogen by IC **Analysis Date: 06/26/2002**

2206250093	SITE 1 INFLOW TO TJ POND 1
2206250094	SITE 1 INFLOW TO TJ POND 2
2206250095	SITE 2 OUTFLOW FROM TJ POND 1
2206250096	SITE 2 OUTFLOW FROM TJ POND 2
2206250097	SITE 4 HAINES CANYON CREEK 1
2206250098	SITE 4 HAINES CANYON CREEK 2

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Laboratory
QC Summary
#97553

Applied Research MWA - Joe Marcinko
(continued)

QC Ref #175187 - Nitrate as Nitrogen by IC Analysis Date: 06/26/2002

2206250093	SITE 1 INFLOW TO TJ POND 1
2206250094	SITE 1 INFLOW TO TJ POND 2
2206250095	SITE 2 OUTFLOW FROM TJ POND 1
2206250096	SITE 2 OUTFLOW FROM TJ POND 2
2206250097	SITE 4 HAINES CANYON CREEK 1
2206250098	SITE 4 HAINES CANYON CREEK 2

QC Ref #175473 - Total phosphorus-P Analysis Date: 07/03/2002

2206250093	SITE 1 INFLOW TO TJ POND 1
2206250094	SITE 1 INFLOW TO TJ POND 2
2206250095	SITE 2 OUTFLOW FROM TJ POND 1
2206250096	SITE 2 OUTFLOW FROM TJ POND 2
2206250097	SITE 4 HAINES CANYON CREEK 1
2206250098	SITE 4 HAINES CANYON CREEK 2

QC Ref #175749 - Kjeldahl Nitrogen Analysis Date: 07/03/2002

2206250093	SITE 1 INFLOW TO TJ POND 1
2206250094	SITE 1 INFLOW TO TJ POND 2
2206250095	SITE 2 OUTFLOW FROM TJ POND 1
2206250096	SITE 2 OUTFLOW FROM TJ POND 2
2206250097	SITE 4 HAINES CANYON CREEK 1
2206250098	SITE 4 HAINES CANYON CREEK 2

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QC Report
#97553

Applied Research MWA - Joe Marcinko

QC Ref #174906 Turbidity

QC	Analyte	Spiked	Recovered	Yield (%)	Limits (%)	RPD (%)
DUP	Turbidity	1.0	1.0		(0.00 - 20.00)	0.0

QC Ref #174907 Turbidity

QC	Analyte	Spiked	Recovered	Yield (%)	Limits (%)	RPD (%)
DUP	Turbidity	1.5	1.5		(0.00 - 20.00)	0.0

QC Ref #175115 Orthophosphate-P

QC	Analyte	Spiked	Recovered	Yield (%)	Limits (%)	RPD (%)
MS	Spiked sample	Lab # 22	06250097		(0.00 - 0.00)	
LCS1	Orthophosphate-P	0.5	0.525	105.0	(90.00 - 110.00)	
LCS2	Orthophosphate-P	0.5	0.519	103.8	(90.00 - 110.00)	1.1
MBLK	Orthophosphate-P	ND				
MS	Orthophosphate-P	0.5	0.522	104.4	(80.00 - 120.00)	
MSD	Orthophosphate-P	0.5	0.524	104.8	(80.00 - 120.00)	0.38

QC Ref #175125 Ammonia Nitrogen

QC	Analyte	Spiked	Recovered	Yield (%)	Limits (%)	RPD (%)
MS	Spiked sample	Lab # 22	06250093		(0.00 - 0.00)	
LCS1	Ammonia Nitrogen	1.00	1.06	106.0	(90.00 - 110.00)	
LCS2	Ammonia Nitrogen	1.00	1.07	107.0	(90.00 - 110.00)	0.94
MBLK	Ammonia Nitrogen	ND				
MS	Ammonia Nitrogen	1.00	1.01	101.0	(90.00 - 110.00)	
MSD	Ammonia Nitrogen	1.00	1.02	102.0	(90.00 - 110.00)	0.99

Spikes which exceed Limits and Method Blanks with positive results are highlighted by Underlining.
Criteria for MS and DUP are advisory only, batch control is based on LCS. Criteria for duplicates are advisory only, unless otherwise specified in the method.

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Applied Research MWA - Joe Marcinko
(continued)

QC Ref #175186 Nitrite, Nitrogen by IC

QC	Analyte	Spiked	Recovered	Yield (%)	Limits (%)	RPD (%)
LCS1	Nitrite, Nitrogen by IC	1.0	1.02	102.0	(90.00 - 110.00)	
LCS2	Nitrite, Nitrogen by IC	1.0	1.01	101.0	(90.00 - 110.00)	0.99
MBLK	Nitrite, Nitrogen by IC	ND				
MS	Nitrite, Nitrogen by IC	1.0	0.972	97.2	(80.00 - 120.00)	
MSD	Nitrite, Nitrogen by IC	1.0	0.986	98.6	(80.00 - 120.00)	1.4

QC Ref #175187 Nitrate as Nitrogen by IC

QC	Analyte	Spiked	Recovered	Yield (%)	Limits (%)	RPD (%)
LCS1	Nitrate as Nitrogen by IC	2.5	2.52	100.8	(90.00 - 110.00)	
LCS2	Nitrate as Nitrogen by IC	2.5	2.52	100.8	(90.00 - 110.00)	0.00
MBLK	Nitrate as Nitrogen by IC	ND				
MS	Nitrate as Nitrogen by IC	2.5	2.45	98.0	(80.00 - 120.00)	
MSD	Nitrate as Nitrogen by IC	2.5	2.46	98.4	(80.00 - 120.00)	0.41

QC Ref #175473 Total phosphorus-P

QC	Analyte	Spiked	Recovered	Yield (%)	Limits (%)	RPD (%)
MS	Spiked sample	Lab # 22	06250022		(0.00 - 0.00)	
LCS1	Total phosphorus-P	0.4	0.410	102.5	(90.00 - 110.00)	
LCS2	Total phosphorus-P	0.4	0.430	107.5	(90.00 - 110.00)	4.8
MBLK	Total phosphorus-P	ND				
MS	Total phosphorus-P	0.4	0.420	105.0	(80.00 - 120.00)	
MSD	Total phosphorus-P	0.4	0.430	107.5	(80.00 - 120.00)	2.4

Spikes which exceed Limits and Method Blanks with positive results are highlighted by Underlining. Criteria for MS and DUP are advisory only, batch control is based on LCS. Criteria for duplicates are advisory only, unless otherwise specified in the method.

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Applied Research MWA - Joe Marcinko
(continued)

QC Ref #175749 Kjeldahl Nitrogen

QC	Analyte	Spiked	Recovered	Yield (%)	Limits (%)	RPD (%)
MS	Spiked sample	Lab # 22	06250093		(0.00 - 0.00)	
LCS1	Kjeldahl Nitrogen	4	3.80	95.0	(70.00 - 130.00)	
LCS2	Kjeldahl Nitrogen	4	3.80	95.0	(70.00 - 130.00)	0.00
MBLK	Kjeldahl Nitrogen	ND				
MS	Kjeldahl Nitrogen	4	3.77	94.2	(70.00 - 130.00)	
MSD	Kjeldahl Nitrogen	4	3.88	97.0	(70.00 - 130.00)	2.9

Spikes which exceed Limits and Method Blanks with positive results are highlighted by Underlining.
Criteria for MS and DUP are advisory only, batch control is based on LCS. Criteria for duplicates are advisory only, unless otherwise specified in the method.

MWH Laboratories
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ACKNOWLEDGMENT OF SAMPLES RECEIVED

Applied Research MWA - Joe Marcinko
Montgomery Watson
327 West Maple Avenue
Monrovia, CA 91106
Attn: Joe Marcinko
Phone: (626) 303-5845

Customer Code: ARD-JM
PO#: 1341410.5620.011801
Group#: 97553
Project#: BIG TJ
Proj Mgr: Hillary Strayer
Phone: (626) 568-6412

The following samples were received from you on **06/25/02.** They have been scheduled for the tests listed beside each sample. If this information is incorrect, please contact your service representative. Thank you for using MWH Laboratories.

Sample#	Sample Id	Matrix	Sample Date
	Tests Scheduled		
2206250093	SITE 1 INFLOW TO TJ POND 1	Water	25-jun-2002 12:10:00
	FECCOL NH3 NO2-N NO3 OPO4 T-P		
	TKN TOTCOL TURB		
2206250094	SITE 1 INFLOW TO TJ POND 2	Water	25-jun-2002 12:17:00
	FECCOL NH3 NO2-N NO3 OPO4 T-P		
	TKN TOTCOL TURB		
2206250095	SITE 2 OUTFLOW FROM TJ POND 1	Water	25-jun-2002 12:45:00
	FECCOL NH3 NO2-N NO3 OPO4 T-P		
	TKN TOTCOL TURB		
2206250096	SITE 2 OUTFLOW FROM TJ POND 2	Water	25-jun-2002 12:55:00
	FECCOL NH3 NO2-N NO3 OPO4 T-P		
	TKN TOTCOL TURB		
2206250097	SITE 4 HAINES CANYON CREEK 1	Water	25-jun-2002 10:55:00
	FECCOL NH3 NO2-N NO3 OPO4 T-P		
	TKN TOTCOL TURB		
2206250098	SITE 4 HAINES CANYON CREEK 2	Water	25-jun-2002 11:09:00
	FECCOL NH3 NO2-N NO3 OPO4 T-P		
	TKN TOTCOL TURB		

Test Acronym Description

Test Acronym	Description
FECCOL	Fecal Coliform Bacteria
NH3	Ammonia Nitrogen
NO2-N	Nitrite, Nitrogen by IC
NO3	Nitrate as Nitrogen by IC
OPO4	Orthophosphate-P
T-P	Total phosphorus-P
TKN	Kjeldahl Nitrogen
TOTCOL	Total Coliform Bacteria
TURB	Turbidity

MONTGOMERY WATSON LABORATORIES CHAIN OF CUSTODY RECORD

97553

555 E. Walnut St., Pasadena, CA 91101
(626) 568-6400 (800) 566-5227

MWLABS USE ONLY:

LOGIN COMMENTS: _____

SAMPLES CHECKED/LOGGED IN BY: MD

SAMPLE TEMP, RECEIPT AT LAB 15°C (Compliance: 4 +/- 2*C)

SAMPLES RECEIVED DAY OF COLLECTION? ☐ (check for yes)

BLUE ICE: FROZEN ✓ PARTIALLY FROZEN ___ THAWED ___

TO BE COMPLETED BY SAMPLER:

TAT requested: STD __XXX__ 1 week _____ 3 day _____ 1 day _____

COMPLIANCE SAMPLES ☐ (check for yes)
- Requires state forms ☐
NON-COMPLIANCE SAMPLES ☐

REGULATION: _____
(SDWA, Phase V, NPDES, FDA, ...)

PROJECT CODE	PROJECT JOB # / P.O.#	CLIENT CODE
Big TJ Sampling	1341597.5620.011801	ARD-JM/JF

REFER TO ATTACHED BOTTLE ORDER FOR ANALYSES ☐ (check for yes)

SAMPLER(S): PRINTED NAME AND SIGNATURE
Darren Giles

ANALYSES REQUIRED (mark an 'X' in all tests required for each sample line)

TIME	DATE	SITE NAME or LOCATION	IDENTIFIER, STATE ID #	MATRIX *	GRAB	COMP	TKN, T-P, NH3-N	NO2,NO3,O-PO4, Turbidity	T & F Coliforms											SAMPLER COMMENTS
1210	25-Jun	SITE 1	Inflow to TJ Pond #1		X		X	X	X											
1217	25-Jun	SITE 1	Inflow to TJ Pond #2		X		X	X	X											
1245	25-Jun	SITE 2	Outflow from TJ Pond #1		X		X	X	X											
1255	25-Jun	SITE 2	Outflow from TJ Pond #2		X		X	X	X											
1055	25-Jun	SITE 4	Haines Canyon Creek #1		X		X	X	X											
1109	25-Jun	SITE 4	Haines Canyon Creek #2		X		X	X	X											

* MATRIX TYPES:

Reported by Volume:
RSW = Raw Surface Water
RGW = Raw Ground Water
FW = Other Finished Water
CFW = Chlor(am)inated Finished Water
SW = Storm Water
WW = Other Waste Water
CWW = Chlorinated Waste Water

Reported by Weight:
SO = Soil
SL = Sludge

	SIGNATURE	PRINT NAME	COMPANY/TITLE	DATE	TIME
RELINQUISHED BY:					
RECEIVED BY:		M. DE MESA	M.W.L	6-15-2	

SPECIAL INSTRUCTIONS

SCANNED

BIG TUJUNGA WASH WATER QUALITY MONITORING PROGRAM
SEPTEMBER 2002 LABORATORY RESULTS

MWH Laboratories
MONTGOMERY WATSON HARZA

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Laboratory Report

for

Applied Research Dept, MWH (Darren Giles)
327 West Maple Avenue

Monrovia , CA 91016

Attention: Darren Giles
Fax: (626) 359-3593

DATE OF ISSUE
SEP 2 [illegible] 2012
MWH LABORATORIES

HDS Hillary Strayer
Project Manager

ACCREDITED IN ACCORDANCE WITH nelac 01114CA

Report#: 100568
BIG-TJ

Laboratory certifies that the test results meet all **NELAC** requirements unless noted in the Comments section or the Case Narrative. Following the cover page are QC Report,QC Summary,Data Report,Hits Report, totaling 9 page[s].

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PHONE: 626-568-6400/FAX: 626-568-6324

ACKNOWLEDGMENT OF SAMPLES RECEIVED

Applied Research Dept, MWH (Darren Giles)
327 West Maple Avenue
Monrovia, CA 91016
Attn: Darren Giles
Phone: (626) 303-5945

Customer Code: ARD-DG
PO#: 1341410.5620.011801
Group#: 100568
Project#: BIG-TJ
Proj Mgr: Hillary Strayer
Phone: (626) 568-6412

The following samples were received from you on **09/12/02.** They have been scheduled for the tests listed beside each sample. If this information is incorrect, please contact your service representative. Thank you for using MWH Laboratories.

Sample#	Sample Id	Matrix	Sample Date	Tests Scheduled
2209120230	SITE 1 INFLOW TO TJ POND 1	Water	12-sep-2002 12:42:00	FECCOL NH3 NO2-N NO3 OPO4 T-P TKN TOTCOL TURB
2209120231	SITE 1 INFLOW TO TJ POND 2	Water	12-sep-2002 12:50:00	FECCOL NH3 NO2-N NO3 OPO4 T-P TKN TOTCOL TURB
2209120232	SITE 2 OUTFLOW FROM TJ POND 1	Water	12-sep-2002 13:15:00	FECCOL NH3 NO2-N NO3 OPO4 T-P TKN TOTCOL TURB
2209120233	SITE 2 OUTFLOW FROM TJ POND 2	Water	12-sep-2002 13:26:00	FECCOL NH3 NO2-N NO3 OPO4 T-P TKN TOTCOL TURB
2209120234	SITE 4 HAINES CANYON CREEK 1	Water	12-sep-2002 11:20:00	FECCOL NH3 NO2-N NO3 OPO4 T-P TKN TOTCOL TURB
2209120235	SITE 4 HAINES CANYON CREEK 2	Water	12-sep-2002 11:35:00	FECCOL NH3 NO2-N NO3 OPO4 T-P TKN TOTCOL TURB

Test Acronym Description

Test Acronym	Description
FECCOL	Fecal Coliform Bacteria
NH3	Ammonia Nitrogen
NO2-N	Nitrite, Nitrogen by IC
NO3	Nitrate as Nitrogen by IC
OPO4	Orthophosphate-P
T-P	Total phosphorus-P
TKN	Kjeldahl Nitrogen
TOTCOL	Total Coliform Bacteria
TURB	Turbidity

MWH Laboratories
MONTGOMERY WATSON HARZA

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Laboratory
Data Report
#100568

Applied Research Dept, MWH (Darren Giles)
Darren Giles
327 West Maple Avenue
Monrovia , CA 91016

Samples Received
09/12/02

Prepared	Analyzed	QC Ref#	Method	Analyte	Result	Units	MRL	Dilution
SITE 1 INFLOW TO TJ POND 1 (2209120230) Sampled on 09/12/02 12:42								
	09/12/02 16:15		(ML/SM9221C)	Fecal Coliform Bacteria	7	MPNM	2.0	1
	09/19/02 00:00	181291	(ML/EPA 350.1)	Ammonia Nitrogen	ND	mg/l	0.050	1
	09/13/02 18:36	180976	(ML/EPA 300.0)	Nitrite, Nitrogen by IC	ND	mg/l	0.20	2
	09/13/02 18:36	180977	(ML/EPA 300.0)	Nitrate as Nitrogen by IC	9.1	mg/l	0.20	2
	09/13/02 00:00	180957	(ML/S4500P-E)	Orthophosphate-P	0.014	mg/l	0.010	1
	09/18/02 16:23	181232	(S4500PE/E365.1)	Total phosphorus-P	0.03	mg/l	0.020	1
	09/18/02 13:42	181547	(ML/EPA 351.2)	Kjeldahl Nitrogen	0.20	mg/l	0.20	1
	09/12/02 16:15		(ML/SM9221B)	Total Coliform Bacteria	2400	MPNM	2.0	1
	09/12/02 19:00	181016	(ML/EPA 180.1)	Turbidity	2.4	NTU	0.050	1
SITE 1 INFLOW TO TJ POND 2 (2209120231) Sampled on 09/12/02 12:50								
	09/12/02 16:25		(ML/SM9221C)	Fecal Coliform Bacteria	2	MPNM	2.0	1
	09/19/02 00:00	181291	(ML/EPA 350.1)	Ammonia Nitrogen	ND	mg/l	0.050	1
	09/13/02 18:47	180976	(ML/EPA 300.0)	Nitrite, Nitrogen by IC	ND	mg/l	0.20	2
	09/13/02 18:47	180977	(ML/EPA 300.0)	Nitrate as Nitrogen by IC	9.0	mg/l	0.20	2
	09/13/02 00:00	180957	(ML/S4500P-E)	Orthophosphate-P	0.016	mg/l	0.010	1
	09/18/02 16:23	181232	(S4500PE/E365.1)	Total phosphorus-P	0.05	mg/l	0.020	1
	09/18/02 13:42	181547	(ML/EPA 351.2)	Kjeldahl Nitrogen	0.47	mg/l	0.20	1
	09/12/02 16:25		(ML/SM9221B)	Total Coliform Bacteria	3000	MPNM	2.0	1
	09/12/02 19:00	181016	(ML/EPA 180.1)	Turbidity	2.7	NTU	0.050	1
SITE 2 OUTFLOW FROM TJ POND 1 (2209120232) Sampled on 09/12/02 13:15								
	09/12/02 16:35		(ML/SM9221C)	Fecal Coliform Bacteria	4	MPNM	2.0	1
	09/19/02 00:00	181291	(ML/EPA 350.1)	Ammonia Nitrogen	ND	mg/l	0.050	1
	09/13/02 18:58	180976	(ML/EPA 300.0)	Nitrite, Nitrogen by IC	ND	mg/l	0.20	2
	09/13/02 18:58	180977	(ML/EPA 300.0)	Nitrate as Nitrogen by IC	6.8	mg/l	0.20	2
	09/13/02 00:00	180957	(ML/S4500P-E)	Orthophosphate-P	ND	mg/l	0.010	1
	09/18/02 16:23	181232	(S4500PE/E365.1)	Total phosphorus-P	ND	mg/l	0.020	1
	09/18/02 13:42	181547	(ML/EPA 351.2)	Kjeldahl Nitrogen	ND	mg/l	0.20	1
	09/12/02 16:35		(ML/SM9221B)	Total Coliform Bacteria	5000	MPNM	2.0	1
	09/12/02 19:00	181016	(ML/EPA 180.1)	Turbidity	0.75	NTU	0.050	1

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Laboratory
Data Report
#100568

Applied Research Dept, MWH (Darren Giles)
(continued)

Prepared	Analyzed	QC Ref#	Method	Analyte	Result	Units	MRL	Dilution
SITE 2 OUTFLOW FROM TJ POND 2 (2209120233) Sampled on 09/12/02 13:26								
	09/12/02 16:45		(ML/SM9221C)	Fecal Coliform Bacteria	2	MPNM	2.0	1
	09/19/02 00:00	181291	(ML/EPA 350.1)	Ammonia Nitrogen	ND	mg/l	0.050	1
	09/13/02 19:08	180976	(ML/EPA 300.0)	Nitrite, Nitrogen by IC	ND	mg/l	0.20	2
	09/13/02 19:08	180977	(ML/EPA 300.0)	Nitrate as Nitrogen by IC	6.8	mg/l	0.20	2
	09/13/02 00:00	180957	(ML/S4500P-E)	Orthophosphate-P	ND	mg/l	0.010	1
	09/18/02 16:23	181232	(S4500PE/E365.1)	Total phosphorus-P	ND	mg/l	0.020	1
	09/18/02 13:42	181547	(ML/EPA 351.2)	Kjeldahl Nitrogen	ND	mg/l	0.20	1
	09/12/02 16:45		(ML/SM9221B)	Total Coliform Bacteria	500	MPNM	2.0	1
	09/12/02 19:00	181016	(ML/EPA 180.1)	Turbidity	0.70	NTU	0.050	1
SITE 4 HAINES CANYON CREEK 1 (2209120234) Sampled on 09/12/02 11:20								
	09/12/02 16:50		(ML/SM9221C)	Fecal Coliform Bacteria	<2	MPNM	2.0	1
	09/19/02 00:00	181291	(ML/EPA 350.1)	Ammonia Nitrogen	ND	mg/l	0.050	1
	09/13/02 19:19	180976	(ML/EPA 300.0)	Nitrite, Nitrogen by IC	ND	mg/l	0.20	2
	09/13/02 19:19	180977	(ML/EPA 300.0)	Nitrate as Nitrogen by IC	6.1	mg/l	0.20	2
	09/13/02 00:00	180957	(ML/S4500P-E)	Orthophosphate-P	0.011	mg/l	0.010	1
	09/18/02 16:23	181232	(S4500PE/E365.1)	Total phosphorus-P	0.02	mg/l	0.020	1
	09/18/02 13:42	181547	(ML/EPA 351.2)	Kjeldahl Nitrogen	0.23	mg/l	0.20	1
	09/12/02 16:50		(ML/SM9221B)	Total Coliform Bacteria	500	MPNM	2.0	1
	09/12/02 19:00	181016	(ML/EPA 180.1)	Turbidity	2.6	NTU	0.050	1
SITE 4 HAINES CANYON CREEK 2 (2209120235) Sampled on 09/12/02 11:35								
	09/14/02 17:00		(ML/SM9221C)	Fecal Coliform Bacteria	<2	MPNM	2.0	1
	09/19/02 00:00	181291	(ML/EPA 350.1)	Ammonia Nitrogen	ND	mg/l	0.050	1
	09/13/02 19:29	180976	(ML/EPA 300.0)	Nitrite, Nitrogen by IC	ND	mg/l	0.20	2
	09/13/02 19:29	180977	(ML/EPA 300.0)	Nitrate as Nitrogen by IC	6.1	mg/l	0.20	2
	09/13/02 00:00	180957	(ML/S4500P-E)	Orthophosphate-P	0.011	mg/l	0.010	1
	09/18/02 16:23	181232	(S4500PE/E365.1)	Total phosphorus-P	ND	mg/l	0.020	1
	09/18/02 13:42	181547	(ML/EPA 351.2)	Kjeldahl Nitrogen	ND	mg/l	0.20	1
	09/12/02 17:00		(ML/SM9221B)	Total Coliform Bacteria	3000	MPNM	2.0	1
	09/12/02 19:00	181016	(ML/EPA 180.1)	Turbidity	4.5	NTU	0.050	1

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Laboratory
QC Summary
#100568

Applied Research Dept, MWH (Darren Giles)

QC Ref #180957 - Orthophosphate-P **Analysis Date: 09/13/2002**

2209120230	SITE 1 INFLOW TO TJ POND 1
2209120231	SITE 1 INFLOW TO TJ POND 2
2209120232	SITE 2 OUTFLOW FROM TJ POND 1
2209120233	SITE 2 OUTFLOW FROM TJ POND 2
2209120234	SITE 4 HAINES CANYON CREEK 1
2209120235	SITE 4 HAINES CANYON CREEK 2

QC Ref #180976 - Nitrite, Nitrogen by IC **Analysis Date: 09/13/2002**

2209120230	SITE 1 INFLOW TO TJ POND 1
2209120231	SITE 1 INFLOW TO TJ POND 2
2209120232	SITE 2 OUTFLOW FROM TJ POND 1
2209120233	SITE 2 OUTFLOW FROM TJ POND 2
2209120234	SITE 4 HAINES CANYON CREEK 1
2209120235	SITE 4 HAINES CANYON CREEK 2

QC Ref #180977 - Nitrate as Nitrogen by IC **Analysis Date: 09/13/2002**

2209120230	SITE 1 INFLOW TO TJ POND 1
2209120231	SITE 1 INFLOW TO TJ POND 2
2209120232	SITE 2 OUTFLOW FROM TJ POND 1
2209120233	SITE 2 OUTFLOW FROM TJ POND 2
2209120234	SITE 4 HAINES CANYON CREEK 1
2209120235	SITE 4 HAINES CANYON CREEK 2

QC Ref #181016 - Turbidity **Analysis Date: 09/12/2002**

2209120230	SITE 1 INFLOW TO TJ POND 1
2209120231	SITE 1 INFLOW TO TJ POND 2
2209120232	SITE 2 OUTFLOW FROM TJ POND 1
2209120233	SITE 2 OUTFLOW FROM TJ POND 2
2209120234	SITE 4 HAINES CANYON CREEK 1
2209120235	SITE 4 HAINES CANYON CREEK 2

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Applied Research Dept, MWH (Darren Giles)
(continued)

QC Ref #181232 - Total phosphorus-P **Analysis Date: 09/18/2002**

2209120230	SITE 1 INFLOW TO TJ POND 1
2209120231	SITE 1 INFLOW TO TJ POND 2
2209120232	SITE 2 OUTFLOW FROM TJ POND 1
2209120233	SITE 2 OUTFLOW FROM TJ POND 2
2209120234	SITE 4 HAINES CANYON CREEK 1
2209120235	SITE 4 HAINES CANYON CREEK 2

QC Ref #181291 - Ammonia Nitrogen **Analysis Date: 09/19/2002**

2209120230	SITE 1 INFLOW TO TJ POND 1
2209120231	SITE 1 INFLOW TO TJ POND 2
2209120232	SITE 2 OUTFLOW FROM TJ POND 1
2209120233	SITE 2 OUTFLOW FROM TJ POND 2
2209120234	SITE 4 HAINES CANYON CREEK 1
2209120235	SITE 4 HAINES CANYON CREEK 2

QC Ref #181547 - Kjeldahl Nitrogen **Analysis Date: 09/18/2002**

2209120230	SITE 1 INFLOW TO TJ POND 1
2209120231	SITE 1 INFLOW TO TJ POND 2
2209120232	SITE 2 OUTFLOW FROM TJ POND 1
2209120233	SITE 2 OUTFLOW FROM TJ POND 2
2209120234	SITE 4 HAINES CANYON CREEK 1
2209120235	SITE 4 HAINES CANYON CREEK 2

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Laboratory
QC Report
#100568

Applied Research Dept, MWH (Darren Giles)

QC Ref #180957 Orthophosphate-P

QC	Analyte	Spiked	Recovered	Units	Yield (%)	Limits (%)	RPD (%)
MS	Spiked sample	Lab # 22	09120230	MGL		(0-0)	
LCS1	Orthophosphate-P	0.5	0.511	MGL	102.2	(90-110)	
LCS2	Orthophosphate-P	0.5	0.516	MGL	103.2	(90-110)	0.97
MBLK	Orthophosphate-P	ND	<0.01	MGL			
MS	Orthophosphate-P	0.5	0.534	MGL	106.8	(80-120)	
MSD	Orthophosphate-P	0.5	0.528	MGL	105.6	(80-120)	1.1

QC Ref #180976 Nitrite, Nitrogen by IC

QC	Analyte	Spiked	Recovered	Units	Yield (%)	Limits (%)	RPD (%)
LCS1	Nitrite, Nitrogen by IC	1.0	1.01	MGL	101.0	(90-110)	
LCS2	Nitrite, Nitrogen by IC	1.0	1.00	MGL	100.0	(90-110)	1.00
MBLK	Nitrite, Nitrogen by IC	ND	<0.10	MGL			
MS	Nitrite, Nitrogen by IC	1.0	0.943	MGL	94.3	(80-120)	
MSD	Nitrite, Nitrogen by IC	1.0	0.902	MGL	90.2	(80-120)	4.4

QC Ref #180977 Nitrate as Nitrogen by IC

QC	Analyte	Spiked	Recovered	Units	Yield (%)	Limits (%)	RPD (%)
LCS1	Nitrate as Nitrogen by IC	2.5	2.5	MGL	100.0	(90-110)	
LCS2	Nitrate as Nitrogen by IC	2.5	2.47	MGL	98.8	(90-110)	1.2
MBLK	Nitrate as Nitrogen by IC	ND	<0.10	MGL			
MS	Nitrate as Nitrogen by IC	2.5	2.4	MGL	96.0	(80-120)	
MSD	Nitrate as Nitrogen by IC	2.5	2.36	MGL	94.4	(80-120)	1.7

Spikes which exceed Limits and Method Blanks with positive results are highlighted by Underlining. Criteria for MS and DUP are advisory only, batch control is based on LCS. Criteria for duplicates are advisory only, unless otherwise specified in the method.

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Laboratory
QC Report
#100568

Applied Research Dept, MWH (Darren Giles)
(continued)

QC Ref #181016 Turbidity

QC	Analyte	Spiked	Recovered	Units	Yield (%)	Limits (%)	RPD (%)
DUP	Turbidity	0.05	0.05	NTU		(0-20)	0.0

QC Ref #181232 Total phosphorus-P

QC	Analyte	Spiked	Recovered	Units	Yield (%)	Limits (%)	RPD (%)
MS	Spiked sample	Lab # 22	09120230	MGL		(0-0)	
LCS1	Total phosphorus-P	0.4	0.420	MGL	105.0	(90-110)	
LCS2	Total phosphorus-P	0.4	0.430	MGL	107.5	(90-110)	2.4
MBLK	Total phosphorus-P	ND	<0.02	MGL			
MS	Total phosphorus-P	0.4	0.420	MGL	105.0	(90-110)	
MSD	Total phosphorus-P	0.4	0.420	MGL	105.0	(90-110)	0.00
RPD_LCS	Total phosphorus-P	105.000	107.500	MGL	2.4	(0-10)	
RPD_MS	Total phosphorus-P	105.000	105.000	MGL	0.0	(0-10)	

QC Ref #181291 Ammonia Nitrogen

QC	Analyte	Spiked	Recovered	Units	Yield (%)	Limits (%)	RPD (%)
MS	Spiked sample	Lab # 22	09120230	MGL		(0-0)	
LCS1	Ammonia Nitrogen	1.00	1.04	MGL	104.0	(90-110)	
LCS2	Ammonia Nitrogen	1.00	1.04	MGL	104.0	(90-110)	0.00
MBLK	Ammonia Nitrogen	ND	<0.05	MGL			
MS	Ammonia Nitrogen	1.00	0.993	MGL	99.3	(90-110)	
MSD	Ammonia Nitrogen	1.00	0.991	MGL	99.1	(90-110)	0.20

Spikes which exceed Limits and Method Blanks with positive results are highlighted by Underlining. Criteria for MS and DUP are advisory only, batch control is based on LCS. Criteria for duplicates are advisory only, unless otherwise specified in the method.

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QC Report
#100568

Applied Research Dept, MWH (Darren Giles)
(continued)

QC Ref #181547 Kjeldahl Nitrogen

QC	Analyte	Spiked	Recovered	Units	Yield (%)	Limits (%)	RPD (%)
MS	Spiked sample	Lab # 22	09120060	MGL		(0-0)	
LCS1	Kjeldahl Nitrogen	4	3.80	MGL	95.0	(90-110)	
LCS2	Kjeldahl Nitrogen	4	3.80	MGL	95.0	(90-110)	0.00
MBLK	Kjeldahl Nitrogen	ND	<0.20	MGL			
MS	Kjeldahl Nitrogen	4	3.75	MGL	93.8	(90-110)	
MSD	Kjeldahl Nitrogen	4	3.66	MGL	91.5	(90-110)	2.4
RPD_LCS	Kjeldahl Nitrogen	95.000	95.000	MGL	0.0	(0-10)	
RPD_MS	Kjeldahl Nitrogen	93.750	91.500	MGL	2.4	(0-10)	

Spikes which exceed Limits and Method Blanks with positive results are highlighted by Underlining. Criteria for MS and DUP are advisory only, batch control is based on LCS. Criteria for duplicates are advisory only, unless otherwise specified in the method.

MONTGOMERY WATSON LABORATORIES — CHAIN OF CUSTODY RECORD

100568

555 E. Walnut St., Pasadena, CA 91101
(626) 568-6400 (800) 566-5227

MWLABS USE ONLY:

LOGIN COMMENTS: _____

SAMPLES CHECKED/LOGGED IN BY: MLD

SAMPLE TEMP, RECEIPT AT LAB 11 °C (Compliance: 4 +/- 2*C)

SAMPLES RECEIVED DAY OF COLLECTION? ☐ (check for yes)

BLUE ICE: FROZEN ✓ PARTIALLY FROZEN ___ THAWED ___

TO BE COMPLETED BY SAMPLER:

TAT requested: STD __XXX__ 1 week _____ 3 day _____ 1 day _____

COMPLIANCE SAMPLES ☐ (check for yes)
- Requires state forms ☐
NON-COMPLIANCE SAMPLES ☐

REGULATION: _____ (SDWA, Phase V, NPDES, FDA, ...)

REFER TO ATTACHED BOTTLE ORDER FOR ANALYSES ☐ (check for yes)

PROJECT CODE	PROJECT JOB # / P.O.#	CLIENT CODE
Big TJ Sampling	1341597.5620.011801	ARD-DG/JF

SAMPLER(S): PRINTED NAME AND SIGNATURE
Darren Giles

ANALYSES REQUIRED (mark an 'X' in all tests required for each sample line)

TIME	DATE	SITE NAME or LOCATION	IDENTIFIER, STATE ID #	MATRIX *	GRAB	COMP	TKN, T-P, NH3-N	NO2,NO3,O-PO4, Turbidity	T & F Coliforms												SAMPLER COMMENTS
12:42	12-Sep	SITE 1	Inflow to TJ Pond #1		X		X	X	X												
12:50	12-Sep	SITE 1	Inflow to TJ Pond #2		X		X	X	X												
13:15	12-Sep	SITE 2	Outflow from TJ Pond #1		X		X	X	X												
13:20	12-Sep	SITE 2	Outflow from TJ Pond #2		X		X	X	X												
11:20	12-Sep	SITE 4	Haines Canyon Creek #1		X		X	X	X												
11:35	12-Sep	SITE 4	Haines Canyon Creek #2		X		X	X	X												

* MATRIX TYPES:

Reported by Volume:
- RSW = Raw Surface Water
- RGW = Raw Ground Water
- FW = Other Finished Water
- CFW = Chlor(am)inated Finished Water
- SW = Storm Water
- WW = Other Waste Water
- CWW = Chlorinated Waste Water

Reported by Weight:
- SO = Soil
- SL = Sludge

	SIGNATURE	PRINT NAME	COMPANY/TITLE	DATE	TIME
RELINQUISHED BY:		DARREN GILES	MWH ARD	9/12	
RECEIVED BY:		M. DEUSA	M.W.H.	9-12-2	

SPECIAL INSTRUCTIONS

SCANNED

BIG TUJUNGA WASH WATER QUALITY MONITORING PROGRAM
DECEMBER 2002 LABORATORY RESULTS

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Laboratory Report

for

Applied Research Dept, MWH (Darren Giles)
327 West Maple Avenue

Monrovia , CA 91016

Attention: Darren Giles
Fax: (626) 359-3593

DATE OF ISSUE
JAN 23 2003
MWH LABORATORIES

ACCREDITED IN ACCORDANCE WITH nelac 01114CA

HDS Hillary Strayer
Project Manager

Report#: 104298
BIG-TJ

Laboratory certifies that the test results meet all **NELAC** requirements unless noted in the Comments section or the Case Narrative. Following the cover page are Comments,QC Report,QC Summary,Data Report,Hits Report, totaling 10 page[s].

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Report
Comments
#104298

(QC Ref#: 188611)
Test: Total phosphorus-P (S4500PE/E365.1)
QC Type: MSD
The MSD is within the method limit of 80-120%.

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Laboratory
Data Report
#104298

Applied Research Dept, MWH (Darren Giles)
Darren Giles
327 West Maple Avenue
Monrovia , CA 91016

Samples Received
12/19/02

Prepared	Analyzed	QC Ref#	Method	Analyte	Result	Units	MRL	Dilution
SITE 1 INFLOW TO TJ POND 1 (2212190255) Sampled on 12/19/02 12:36								
	12/19/02 14:57		(ML/SM9221C)	Fecal Coliform Bacteria	30	MPNM	2.0	1
	12/27/02 00:00	188535	(ML/EPA 350.1)	Ammonia Nitrogen	ND	mg/l	0.10	2
	12/19/02 15:58	188154	(ML/EPA 300.0)	Nitrite, Nitrogen by IC	ND	mg/l	0.20	2
	12/19/02 15:58	188156	(ML/EPA 300.0)	Nitrate as Nitrogen by IC	10	mg/l	0.20	2
	12/19/02 15:30	188278	(ML/S4500P-E)	Orthophosphate-P	0.043	mg/l	0.010	1
	01/15/03 00:00	189383	(S4500PE/E365.1)	Total phosphorus-P	0.03	mg/l	0.020	1
	12/27/02 00:00	189214	(ML/EPA 351.2)	Kjeldahl Nitrogen	ND	mg/l	0.20	1
	12/19/02 14:57		(ML/SM9221B)	Total Coliform Bacteria	1400	MPNM	2.0	1
	12/19/02 16:00	188261	(ML/EPA 180.1)	Turbidity	0.65	NTU	0.050	1
SITE 1 INFLOW TO TJ POND 2 (2212190258) Sampled on 12/19/02 12:45								
	12/19/02 14:57		(ML/SM9221C)	Fecal Coliform Bacteria	13	MPNM	2.0	1
	12/27/02 00:00	188535	(ML/EPA 350.1)	Ammonia Nitrogen	ND	mg/l	0.050	1
	12/19/02 16:08	188154	(ML/EPA 300.0)	Nitrite, Nitrogen by IC	ND	mg/l	0.20	2
	12/19/02 16:08	188156	(ML/EPA 300.0)	Nitrate as Nitrogen by IC	9.8	mg/l	0.20	2
	12/19/02 15:30	188278	(ML/S4500P-E)	Orthophosphate-P	0.046	mg/l	0.010	1
	01/15/03 00:00	189383	(S4500PE/E365.1)	Total phosphorus-P	0.04	mg/l	0.020	1
	12/27/02 00:00	189214	(ML/EPA 351.2)	Kjeldahl Nitrogen	0.2	mg/l	0.20	1
	12/19/02 14:57		(ML/SM9221B)	Total Coliform Bacteria	2800	MPNM	2.0	1
	12/19/02 16:00	188261	(ML/EPA 180.1)	Turbidity	0.60	NTU	0.050	1
SITE 2 OUTFLOW FROM TJ POND 1 (2212190260) Sampled on 12/19/02 13:15								
	12/19/02 14:57		(ML/SM9221C)	Fecal Coliform Bacteria	94	MPNM	2.0	1
	12/27/02 00:00	188535	(ML/EPA 350.1)	Ammonia Nitrogen	ND	mg/l	0.050	1
	12/19/02 16:19	188154	(ML/EPA 300.0)	Nitrite, Nitrogen by IC	ND	mg/l	0.20	2
	12/19/02 16:19	188156	(ML/EPA 300.0)	Nitrate as Nitrogen by IC	7.8	mg/l	0.20	2
	12/19/02 15:30	188278	(ML/S4500P-E)	Orthophosphate-P	0.029	mg/l	0.010	1
	01/15/03 00:00	189383	(S4500PE/E365.1)	Total phosphorus-P	0.03	mg/l	0.020	1
	12/27/02 00:00	189214	(ML/EPA 351.2)	Kjeldahl Nitrogen	0.51	mg/l	0.20	1
	12/19/02 14:57		(ML/SM9221B)	Total Coliform Bacteria	300	MPNM	2.0	1
	12/19/02 16:00	188261	(ML/EPA 180.1)	Turbidity	0.60	NTU	0.050	1

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Laboratory
Data Report
#104298

Applied Research Dept, MWH (Darren Giles)
(continued)

Prepared	Analyzed	QC Ref#	Method	Analyte	Result	Units	MRL	Dilution
SITE 2 OUTFLOW FROM TJ PLND 2 (2212190261) Sampled on 12/19/02 13:38								
	12/19/02 14:57		(ML/SM9221C)	Fecal Coliform Bacteria	80	MPNM	2.0	1
	12/27/02 00:00	188535	(ML/EPA 350.1)	Ammonia Nitrogen	ND	mg/l	0.050	1
	12/19/02 16:30	188154	(ML/EPA 300.0)	Nitrite, Nitrogen by IC	ND	mg/l	0.20	2
	12/19/02 16:30	188156	(ML/EPA 300.0)	Nitrate as Nitrogen by IC	7.9	mg/l	0.20	2
	12/19/02 15:30	188278	(ML/S4500P-E)	Orthophosphate-P	0.028	mg/l	0.010	1
	01/15/03 00:00	189383	(S4500PE/E365.1)	Total phosphorus-P	0.03	mg/l	0.020	1
	12/27/02 00:00	189214	(ML/EPA 351.2)	Kjeldahl Nitrogen	0.24	mg/l	0.20	1
	12/19/02 14:57		(ML/SM9221B)	Total Coliform Bacteria	1700	MPNM	2.0	1
	12/19/02 16:00	188261	(ML/EPA 180.1)	Turbidity	0.65	NTU	0.050	1
SITE 4 HAINES CANYON CREEK 1 (2212190262) Sampled on 12/19/02 11:25								
	12/19/02 14:57		(ML/SM9221C)	Fecal Coliform Bacteria	300	MPNM	2.0	1
	12/27/02 00:00	188535	(ML/EPA 350.1)	Ammonia Nitrogen	ND	mg/l	0.050	1
	12/19/02 16:40	188154	(ML/EPA 300.0)	Nitrite, Nitrogen by IC	ND	mg/l	0.20	2
	12/19/02 16:40	188156	(ML/EPA 300.0)	Nitrate as Nitrogen by IC	4.9	mg/l	0.20	2
	12/19/02 15:30	188278	(ML/S4500P-E)	Orthophosphate-P	0.035	mg/l	0.010	1
	01/15/03 00:00	189383	(S4500PE/E365.1)	Total phosphorus-P	0.06	mg/l	0.020	1
	12/27/02 00:00	189214	(ML/EPA 351.2)	Kjeldahl Nitrogen	0.29	mg/l	0.20	1
	12/19/02 14:57		(ML/SM9221B)	Total Coliform Bacteria	5000	MPNM	2.0	1
	12/19/02 16:00	188261	(ML/EPA 180.1)	Turbidity	4.8	NTU	0.050	1
SITE 4 HAINES CANYON CREEK 2 (2212190263) Sampled on 12/19/02 11:40								
	12/19/02 14:57		(ML/SM9221C)	Fecal Coliform Bacteria	30	MPNM	2.0	1
	12/27/02 00:00	188535	(ML/EPA 350.1)	Ammonia Nitrogen	ND	mg/l	0.050	1
	12/19/02 17:12	188154	(ML/EPA 300.0)	Nitrite, Nitrogen by IC	ND	mg/l	0.20	2
	12/19/02 17:12	188156	(ML/EPA 300.0)	Nitrate as Nitrogen by IC	5.0	mg/l	0.20	2
	12/19/02 15:30	188278	(ML/S4500P-E)	Orthophosphate-P	0.032	mg/l	0.010	1
	12/26/02 00:00	188611	(S4500PE/E365.1)	Total phosphorus-P	0.021	mg/l	0.020	1
	12/27/02 00:00	189214	(ML/EPA 351.2)	Kjeldahl Nitrogen	ND	mg/l	0.20	1
	12/19/02 14:57		(ML/SM9221B)	Total Coliform Bacteria	3000	MPNM	2.0	1
	12/19/02 16:00	188261	(ML/EPA 180.1)	Turbidity	2.8	NTU	0.050	1

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1 800 566 LABS (1 800 566 5227)

Laboratory
QC Summary
#104298

Applied Research Dept, MWH (Darren Giles)

QC Ref #188154 - Nitrite, Nitrogen by IC **Analysis Date: 12/19/2002**

2212190255	SITE 1 INFLOW TO TJ POND 1
2212190258	SITE 1 INFLOW TO TJ POND 2
2212190260	SITE 2 OUTFLOW FROM TJ POND 1
2212190261	SITE 2 OUTFLOW FROM TJ PLND 2
2212190262	SITE 4 HAINES CANYON CREEK 1
2212190263	SITE 4 HAINES CANYON CREEK 2

QC Ref #188156 - Nitrate as Nitrogen by IC **Analysis Date: 12/19/2002**

2212190255	SITE 1 INFLOW TO TJ POND 1
2212190258	SITE 1 INFLOW TO TJ POND 2
2212190260	SITE 2 OUTFLOW FROM TJ POND 1
2212190261	SITE 2 OUTFLOW FROM TJ PLND 2
2212190262	SITE 4 HAINES CANYON CREEK 1
2212190263	SITE 4 HAINES CANYON CREEK 2

QC Ref #188261 - Turbidity **Analysis Date: 12/19/2002**

2212190255	SITE 1 INFLOW TO TJ POND 1
2212190258	SITE 1 INFLOW TO TJ POND 2
2212190260	SITE 2 OUTFLOW FROM TJ POND 1
2212190261	SITE 2 OUTFLOW FROM TJ PLND 2
2212190262	SITE 4 HAINES CANYON CREEK 1
2212190263	SITE 4 HAINES CANYON CREEK 2

QC Ref #188278 - Orthophosphate-P **Analysis Date: 12/19/2002**

2212190255	SITE 1 INFLOW TO TJ POND 1
2212190258	SITE 1 INFLOW TO TJ POND 2
2212190260	SITE 2 OUTFLOW FROM TJ POND 1
2212190261	SITE 2 OUTFLOW FROM TJ PLND 2
2212190262	SITE 4 HAINES CANYON CREEK 1
2212190263	SITE 4 HAINES CANYON CREEK 2

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Laboratory
QC Summary
#104298

Applied Research Dept, MWH (Darren Giles)
(continued)

QC Ref #188535 - Ammonia Nitrogen **Analysis Date: 12/27/2002**

2212190255	SITE 1 INFLOW TO TJ POND 1
2212190258	SITE 1 INFLOW TO TJ POND 2
2212190260	SITE 2 OUTFLOW FROM TJ POND 1
2212190261	SITE 2 OUTFLOW FROM TJ PLND 2
2212190262	SITE 4 HAINES CANYON CREEK 1
2212190263	SITE 4 HAINES CANYON CREEK 2

QC Ref #188611 - Total phosphorus-P **Analysis Date: 12/26/2002**

2212190263	SITE 4 HAINES CANYON CREEK 2

QC Ref #189214 - Kjeldahl Nitrogen **Analysis Date: 12/27/2002**

2212190255	SITE 1 INFLOW TO TJ POND 1
2212190258	SITE 1 INFLOW TO TJ POND 2
2212190260	SITE 2 OUTFLOW FROM TJ POND 1
2212190261	SITE 2 OUTFLOW FROM TJ PLND 2
2212190262	SITE 4 HAINES CANYON CREEK 1
2212190263	SITE 4 HAINES CANYON CREEK 2

QC Ref #189383 - Total phosphorus-P **Analysis Date: 01/15/2003**

2212190255	SITE 1 INFLOW TO TJ POND 1
2212190258	SITE 1 INFLOW TO TJ POND 2
2212190260	SITE 2 OUTFLOW FROM TJ POND 1
2212190261	SITE 2 OUTFLOW FROM TJ PLND 2
2212190262	SITE 4 HAINES CANYON CREEK 1

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Laboratory
QC Report
#104298

Applied Research Dept, MWH (Darren Giles)

QC Ref #188154 Nitrite, Nitrogen by IC

QC	Analyte	Spiked	Recovered	Units	Yield (%)	Limits (%)	RPD (%)
LCS1	Nitrite, Nitrogen by IC	1.0	0.991	MGL	99.1	(90-110)	
LCS2	Nitrite, Nitrogen by IC	1.0	1.03	MGL	103.0	(90-110)	3.9
MBLK	Nitrite, Nitrogen by IC	ND	<0.10	MGL			
MS	Nitrite, Nitrogen by IC	1.0	1.02	MGL	102.0	(80-120)	
MSD	Nitrite, Nitrogen by IC	1.0	1.02	MGL	102.0	(80-120)	0.00

QC Ref #188156 Nitrate as Nitrogen by IC

QC	Analyte	Spiked	Recovered	Units	Yield (%)	Limits (%)	RPD (%)
LCS1	Nitrate as Nitrogen by IC	2.5	2.6	MGL	104.0	(90-110)	
LCS2	Nitrate as Nitrogen by IC	2.5	2.58	MGL	103.2	(90-110)	0.77
MBLK	Nitrate as Nitrogen by IC	ND	<0.10	MGL			
MS	Nitrate as Nitrogen by IC	2.5	2.5	MGL	100.0	(80-120)	
MSD	Nitrate as Nitrogen by IC	2.5	2.5	MGL	100.0	(80-120)	0.00

QC Ref #188261 Turbidity

QC	Analyte	Spiked	Recovered	Units	Yield (%)	Limits (%)	RPD (%)
DUP	Turbidity	2.8	2.8	NTU		(0-20)	0.0

QC Ref #188278 Orthophosphate-P

QC	Analyte	Spiked	Recovered	Units	Yield (%)	Limits (%)	RPD (%)
MS	Spiked sample	Lab # 22	12190255	MGL		(0-0)	
LCS1	Orthophosphate-P	0.5	0.516	MGL	103.2	(90-110)	
LCS2	Orthophosphate-P	0.5	0.522	MGL	104.4	(90-110)	1.2
MBLK	Orthophosphate-P	ND	<0.01	MGL			
MS	Orthophosphate-P	0.5	0.524	MGL	104.8	(80-120)	
MSD	Orthophosphate-P	0.5	0.517	MGL	103.4	(80-120)	1.3

Spikes which exceed Limits and Method Blanks with positive results are highlighted by Underlining. Criteria for MS and DUP are advisory only, batch control is based on LCS. Criteria for duplicates are advisory only, unless otherwise specified in the method.

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Laboratory
QC Report
#104298

Applied Research Dept, MWH (Darren Giles)
(continued)

QC Ref #188535 Ammonia Nitrogen

QC	Analyte	Spiked	Recovered	Units	Yield (%)	Limits (%)	RPD (%)
MS	Spiked sample	Lab # 22	12190255	MGL		(0-0)	
LCS1	Ammonia Nitrogen	1.00	1.02	MGL	102.0	(90-110)	
LCS2	Ammonia Nitrogen	1.00	1.02	MGL	102.0	(90-110)	0.00
MBLK	Ammonia Nitrogen	ND	<0.05	MGL			
MS	Ammonia Nitrogen	1.00	0.932	MGL	93.2	(90-110)	
MSD	Ammonia Nitrogen	1.00	0.934	MGL	93.4	(90-110)	0.21

QC Ref #188611 Total phosphorus-P

QC	Analyte	Spiked	Recovered	Units	Yield (%)	Limits (%)	RPD (%)
MS	Spiked sample	Lab # 22	12170029	MGL		(0-0)	
LCS1	Total phosphorus-P	0.4	0.409	MGL	102.2	(90-110)	
LCS2	Total phosphorus-P	0.4	0.402	MGL	100.5	(90-110)	1.7
MBLK	Total phosphorus-P	ND	<0.02	MGL			
MS	Total phosphorus-P	0.4	0.43	MGL	107.5	(90-110)	
MSD	Total phosphorus-P	0.4	0.45	MGL	112.5	(90-110)	4.5
RPD_LCS	Total phosphorus-P	102.250	100.500	MGL	1.7	(0-10)	
RPD_MS	Total phosphorus-P	107.500	112.500	MGL	4.5	(0-10)	

QC Ref #189214 Kjeldahl Nitrogen

QC	Analyte	Spiked	Recovered	Units	Yield (%)	Limits (%)	RPD (%)
LCS1	Kjeldahl Nitrogen	4	3.77	MGL	94.2	(90-110)	
LCS2	Kjeldahl Nitrogen	4	4.20	MGL	105.0	(90-110)	11
MBLK	Kjeldahl Nitrogen	ND	<0.20	MGL			
RPD_LCS	Kjeldahl Nitrogen	94.250	105.000	MGL	10.8	(0-20)	

Spikes which exceed Limits and Method Blanks with positive results are highlighted by Underlining. Criteria for MS and DUP are advisory only, batch control is based on LCS. Criteria for duplicates are advisory only, unless otherwise specified in the method.

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Applied Research Dept, MWH (Darren Giles)
(continued)

QC Ref #189383 Total phosphorus-P

QC	Analyte	Spiked	Recovered	Units	Yield (%)	Limits (%)	RPD (%)
MS	Spiked sample	Lab # 22	12190255	MGL		(0-0)	
LCS1	Total phosphorus-P	0.4	0.430	MGL	107.5	(90-110)	
LCS2	Total phosphorus-P	0.4	0.410	MGL	102.5	(90-110)	4.8
MBLK	Total phosphorus-P	ND	<0.02	MGL			
MS	Total phosphorus-P	0.4	0.430	MGL	107.5	(90-110)	
MSD	Total phosphorus-P	0.4	0.410	MGL	102.5	(90-110)	4.8
RPD_LCS	Total phosphorus-P	107.500	102.500	MGL	4.8	(0-10)	
RPD_MS	Total phosphorus-P	107.500	102.500	MGL	4.8	(0-10)	

Spikes which exceed Limits and Method Blanks with positive results are highlighted by Underlining.
Criteria for MS and DUP are advisory only, batch control is based on LCS. Criteria for duplicates are advisory only, unless otherwise specified in the method.

MONTGOMERY WATSON LABORATORIES — CHAIN OF CUSTODY RECORD

104298

555 E. Walnut St., Pasadena, CA 91101
(626) 568-6400 (800) 566-5227

MWLABS USE ONLY:

LOGIN COMMENTS: _____

SAMPLES CHECKED/LOGGED IN BY: _____

SAMPLE TEMP, RECEIPT AT LAB 3 (Compliance: 4 +/- 2*C)

SAMPLES RECEIVED DAY OF COLLECTION? ☐ (check for yes)

BLUE ICE: FROZEN ✓ PARTIALLY FROZEN ___ THAWED ___

TO BE COMPLETED BY SAMPLER:

TAT requested: STD __XXX__ 1 week _____ 3 day _____ 1 day _____

(check for yes)

COMPLIANCE SAMPLES ☐
- Requires state forms ☐
NON-COMPLIANCE SAMPLES ☐

REGULATION: _____ (SDWA, Phase V, NPDES, FDA, ...)

PROJECT CODE	PROJECT JOB # / P.O.#	CLIENT CODE
Big TJ Sampling	1341597.5620.011801	ARD-DG/JF

REFER TO ATTACHED BOTTLE ORDER FOR ANALYSES ☐ (check for yes)

SAMPLER(S): PRINTED NAME AND SIGNATURE

Darren Giles

ANALYSES REQUIRED (mark an 'X' in all tests required for each sample line)

TIME	DATE	SITE NAME or LOCATION	IDENTIFIER, STATE ID #	MATRIX *	GRAB	COMP	TKN, T-P, NH3-N	NO2,NO3,O-PO4, Turbidity	T & F Coliforms	SAMPLER COMMENTS
12:30	19-Dec	SITE 1	Inflow to TJ Pond #1		X		X	X	X	
12:45	19-Dec	SITE 1	Inflow to TJ Pond #2		X		X	X	X	
13:25	19-Dec	SITE 2	Outflow from TJ Pond #1		X		X	X	X	
13:38	19-Dec	SITE 2	Outflow from TJ Pond #2		X		X	X	X	
	~~19-Dec~~	~~SITE 3~~	~~Big TJ Wash #1~~		~~X~~		~~X~~	~~X~~	~~X~~	
	~~19-Dec~~	~~SITE 3~~	~~Big TJ Wash #2~~		~~X~~		~~X~~	~~X~~	~~X~~	
11:25	19-Dec	SITE 4	Haines Canyon Creek #1		X		X	X	X	
11:40	19-Dec	SITE 4	Haines Canyon Creek #2		X		X	X	X	

* MATRIX TYPES:

Reported by Volume:

RSW = Raw Surface Water
RGW = Raw Ground Water
FW = Other Finished Water
CFW = Chlor(am)inated Finished Water
SW = Storm Water
WW = Other Waste Water
CWW = Chlorinated Waste Water

Reported by Weight:

SO = Soil
SL = Sludge

	SIGNATURE	PRINT NAME	COMPANY/TITLE	DATE	TIME
RELINQUISHED BY:		DARREN GILES	MWH	12/19/02	
RECEIVED BY:				12/19/02	14:10

SPECIAL INSTRUCTIONS

SCANNED