# County of Los Angeles
# Department of Public Works

## Water Quality Monitoring
## 2001 Annual Report

## for the

## Master Mitigation Plan for the Big Tujunga Wash Mitigation Bank

**February 2002**

MWH
MONTGOMERY WATSON HARZA

# Water Quality Monitoring
# 2001 Annual Report

**for**

# Master Mitigation Plan for the Big Tujunga Wash Mitigation Bank

**February 2002**

***Prepared For:***

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# Water Quality Monitoring Report
## 2001 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 2001. 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 2001. 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 only observed on one sampling date (March). 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 6.9 to 8.4 units; residual chlorine was not present; and turbidity levels were generally low. Excessive nutrient conditions were not noted – 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 two locations on one date (September sampling), although duplicate samples did not exceed standards.

Quarterly sampling will continue through 2005. Future results will be compared with baseline 2000 data and with the 2001 results summarized in this annual report. 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 2001 – data from the fourth quarter of 2001 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<br>Chemical (Rodeo®) application<br>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 |

## 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. Separate water quality monitoring is underway by others in coordination with the

golf course development. These data will be shared with LADPW. Grading at the Canyon Trails Golf Course is anticipated to begin in April 2002. At the earliest, grass planting (and fertilizer use) is expected to begin in October 2002. Testing for golf course-related pesticides or herbicides will be conducted at the Big Tujunga Wash sampling stations after use begins at Canyon Trails.

## 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 12, 2001. 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 2001**

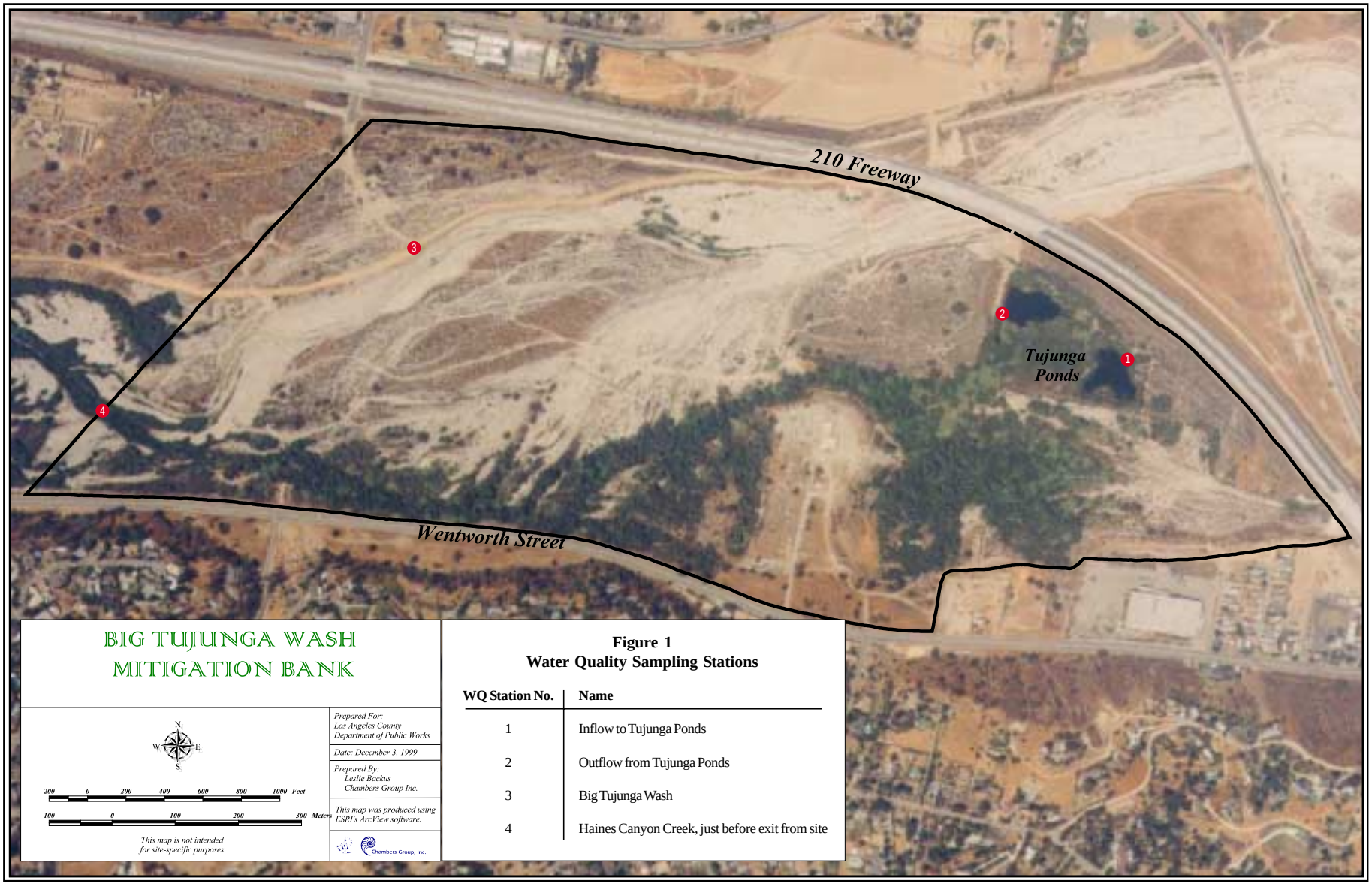
| **Date** | December 12, 2001 | | |
|---|---|---|---|
| **Air Temperature** | Approximately 65 degrees Fahrenheit | | |
| **Skies** | Clear | | |
| **Water Volume** | Big Tujunga Wash sampling station dry | | |
| **Sampling Locations** | **Latitude** | **Longitude** | **Time of sample** |
| Haines Canyon Creek, just before exit from site | N 34 16' 2.9" | W 118 21' 22.2" | 9:30 |
| Haines Canyon Creek, inflow to Tujunga Ponds | N 34 16' 6.9" | W 118 20' 18.7" | 10:12 |
| Haines Canyon Creek, outflow from Tujunga Ponds | N 34 16' 7.1" | W 118 20' 28.3" | 11:05 |
| Big Tujunga Wash | N 34 16' 11.7" | W 118 21' 4.0" | Station dry |

### 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 Montgomery Watson Laboratories, Pasadena, 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




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 |

control (QA/QC) procedures in the laboratory followed the methods described in the Montgomery Watson 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 2001 | -- |
| total phosphorus | laboratory | EPA 365.4 |
| organophosphate (total P minus ortho-P) | calculation | -- |
| turbidity | laboratory | EPA 180.1 |
| glyphosate (Roundup) | not sampled in 2001 | -- |
| 1 golf course herbicide (if not Roundup) | not sampled in 2001 | -- |
| 1 golf course insecticide | not sampled in 2001 | -- |
| 1 golf course fungicide | not sampled in 2001 | -- |
| 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.

## 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**.

### 2001 Water Quality Results

Results of analyses conducted by Montgomery Watson Laboratories for samples collected in 2001 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 samples in 2001.

**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 |

## Table 5
## Summary of Big Tujunga Wash Water Quality Results
## 1st Quarter 2001 (3/12/01)

| 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 | 17.5 | -- | 16.7 | -- | 13.5 | -- | 14.3 | -- |
| Dissolved Oxygen | mg/L | 4.9 | -- | 5.4 | -- | 10.2 | -- | 9.7 | -- |
| pH | std units | 7.0 | -- | 7.0 | -- | 8.3 | -- | 8.2 | -- |
| Total residual chlorine | mg/L | 0.03 | -- | 0.02 | -- | 0.05 | -- | 0.03 | -- |
| Ammonia-Nitrogen | mg/L | ND | ND | ND | ND | ND | ND | ND | ND |
| Kjeldahl Nitrogen | mg/L | 0.28 | 0.41 | 0.51 | 0.48 | 0.49 | 0.57 | 0.47 | 0.43 |
| Nitrite-Nitrogen | mg/L | ND | ND | ND | ND | ND | ND | ND | ND |
| Nitrate-Nitrogen | mg/L | 8.19 | 8.10 | 4.48 | 4.41 | 0.12 | 0.12 | 0.45 | 0.43 |
| Orthophospate-P | mg/L | 0.035 (MRL 0.010) | 0.037 (MRL 0.010) | 0.039 | 0.039 (MRL 0.010) | 0.012 | 0.012 | 0.016 | 0.016 |
| Total phosphorus-P | mg/L | 0.03 (MRL 0.020) | 0.03 (MRL 0.020) | 0.06 | 0.03 (MRL 0.020) | 0.04 | ND (<0.020) | 0.05 | 0.05 |
| Turbidity | NTU | 0.60 | 0.50 | 0.75 | 0.80 | 9.6 | 9.1 | 9.4 | 12 |
| Fecal Coliform Bacteria | MPN/100ml | 4 | 4 | 80 | 30 | 140 | 60 | 23 | 130 |
| Total Coliform Bacteria | MPN/100ml | 2200 | 1600 | 2800 | 7000 | 3000 | 800 | 350 | 280 |

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 2001 (6/19/01)

| 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 | 22.3 | -- | 22.7 | -- | * | -- | 21.5 | -- |
| Dissolved Oxygen | mg/L | 5.8 | -- | 5.1 | -- | * | -- | 7.3 | -- |
| pH | std units | 6.9 | -- | 6.9 | -- | * | -- | 7.9 | -- |
| Total residual chlorine | mg/L | ND | -- | ND | -- | * | -- | ND | -- |
| Ammonia-Nitrogen | mg/L | ND | ND | ND | ND | * | * | ND | ND |
| Kjeldahl Nitrogen | mg/L | ND | ND | 0.31 | 0.36 | * | * | ND | ND |
| Nitrite-Nitrogen | mg/L | 0.1 | 0.1 | ND | ND | * | * | ND | ND |
| Nitrate-Nitrogen | mg/L | 7.6 | 7.5 | 4.7 | 4.8 | * | * | 9.6 | 4.8 |
| Orthophospate-P | mg/L | 0.022 | 0.023 | 0.021 | 0.023 | * | * | 0.027 | 0.027 |
| Total phosphorus-P | mg/L | 0.04 | 0.04 | 0.06 | 0.04 | * | * | 0.03 | 0.04 |
| Turbidity | NTU | 1.5 | 1.9 | 4.2 | 2.9 | * | * | 1.4 | 1.2 |
| Fecal Coliform Bacteria | MPN/100ml | 4 | 8 | 17 | 7 | * | * | 23 | 40 |
| Total Coliform Bacteria | MPN/100ml | 300 | 300 | 1600 | 1400 | * | * | 5000 | 93 |

* 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 2001 (9/11/01)

| 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 | 21.3 | -- | 21.3 | -- | * | -- | 20.3 | -- |
| Dissolved Oxygen | mg/L | 8.4 | -- | 8.8 | -- | * | -- | 7.3 | -- |
| pH | std units | 7.0 | -- | 7.2 | -- | * | -- | 8.0 | -- |
| Total residual chlorine | mg/L | ND | -- | ND | -- | * | -- | ND | -- |
| Ammonia-Nitrogen | mg/L | ND | ND | ND | ND | * | * | 0.093 | ND |
| Kjeldahl Nitrogen | mg/L | 0.37 | 0.71 | 0.35 | 0.47 | * | * | 0.45 | 0.54 |
| Nitrite-Nitrogen | mg/L | ND | ND | ND | ND | * | * | ND | ND |
| Nitrate-Nitrogen | mg/L | 7.2 | 7.2 | 5.2 | 5.3 | * | * | 4.8 | 4.8 |
| Orthophospate-P | mg/L | ND | ND | ND | ND | * | * | 0.016 | 0.016 |
| Total phosphorus-P | mg/L | 0.02 | ND | ND | ND | * | * | 0.04 | ND (MRL 0.02) |
| Turbidity | NTU | 0.60 | 1.1 | 0.95 | 0.75 | * | * | 0.45 | 0.40 |
| Fecal Coliform Bacteria | MPN/100ml | 11 | 17 | 900 | 130 | * | * | 240 | 110 |
| Total Coliform Bacteria | MPN/100ml | 1100 | 16000 | 900 | 500 | * | * | 1400 | 1100 |

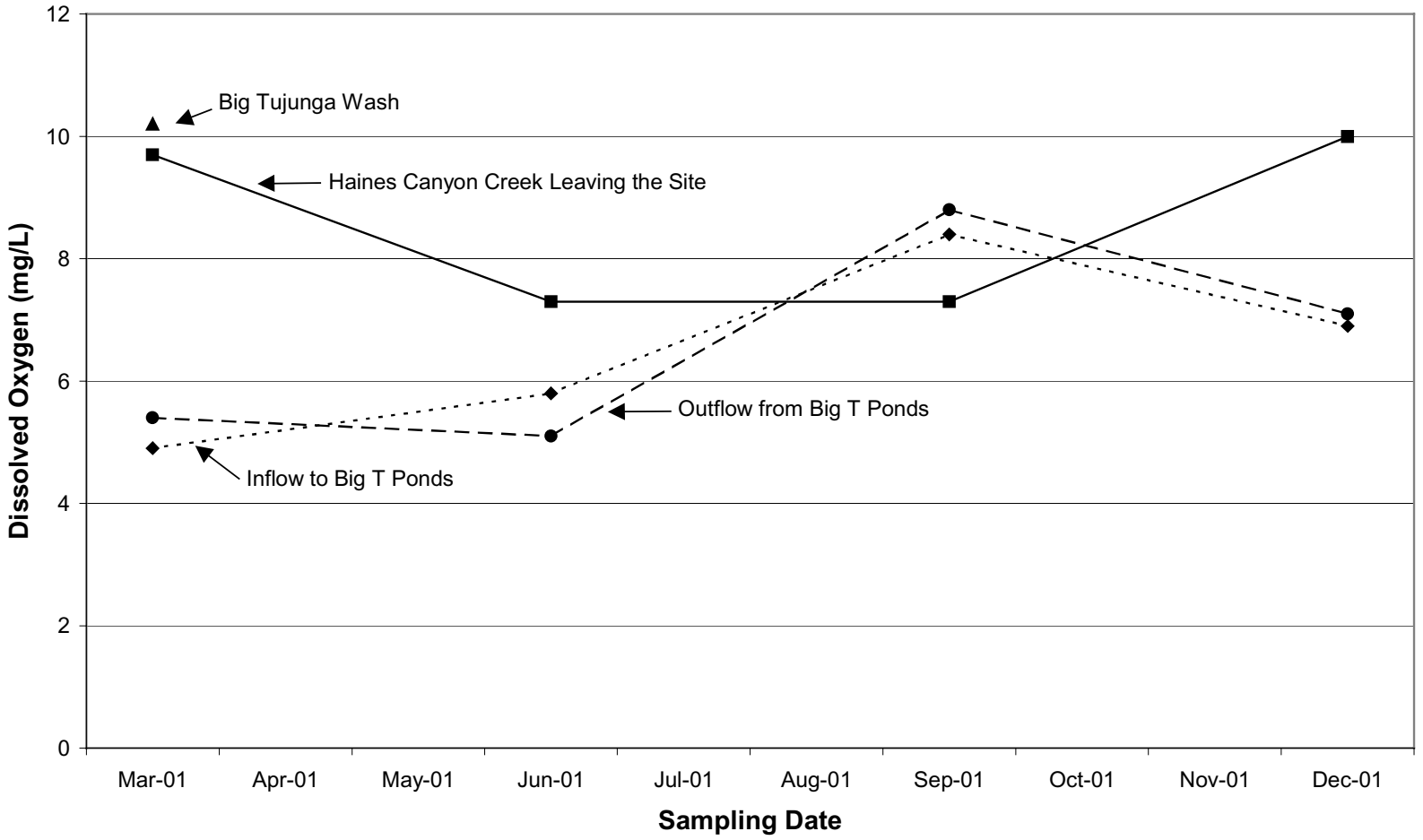
* No sample on this date – station dry
NTU nephelometric turbidity units
MRL method reporting limit
MPN most probable number
ND non-detect

## Table 8
## Summary of Big Tujunga Wash Water Quality Results
## 4th Quarter 2001 (12/12/01)

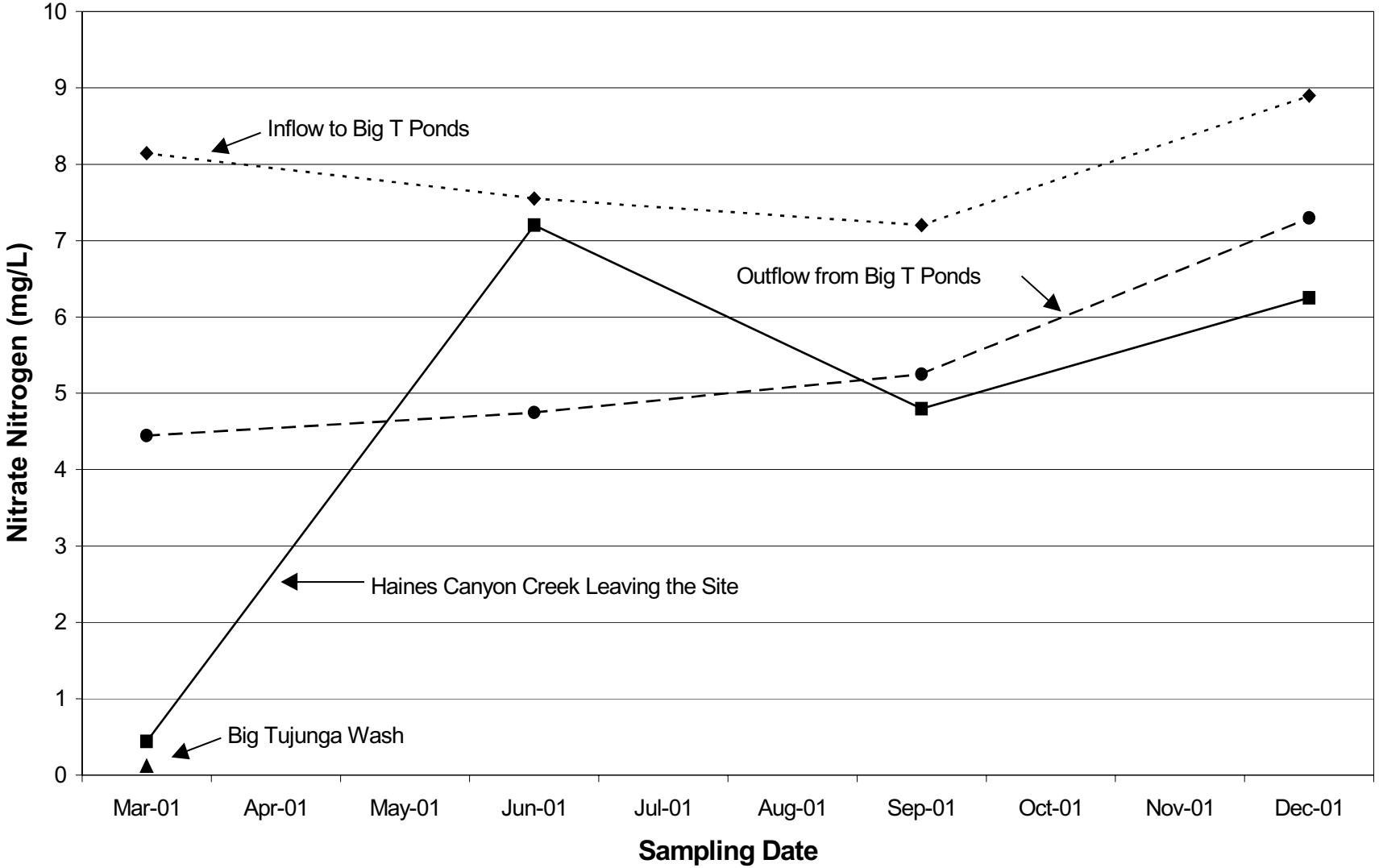
| Parameter | Units | Inflow to Tujunga Ponds 1 | Inflow to Tujunga Ponds 2 (duplicate) | Outflow from Tujunga Ponds 1 | Outflow from Tujunga Ponds 2 (duplicate) | Big Tujunga Wash 1 | Big Tujunga Wash 2 (duplicate) | Haines Cyn Creek exiting site 1 | Haines Cyn Creek exiting site 2 (duplicate) |
|---|---|---|---|---|---|---|---|---|---|
| Temperature | °C | 15 | -- | 14 | -- | * | -- | 12 | -- |
| Dissolved Oxygen | mg/L | 6.9 | -- | 7.1 | -- | * | -- | 10.0 | -- |
| pH | std units | 7.5 | -- | 7.7 | -- | * | -- | 8.4 | -- |
| Total residual chlorine | mg/L | ND | -- | ND | -- | * | -- | ND | -- |
| Ammonia-Nitrogen | mg/L | ND | ND | ND | ND | * | * | ND | ND |
| Kjeldahl Nitrogen | mg/L | 0.31 | 0.43 | ND | 0.44 | * | * | 0.45 | 0.54 |
| Nitrite-Nitrogen | mg/L | ND | ND | ND | ND | * | * | ND | ND |
| Nitrate-Nitrogen | mg/L | 8.9 | 8.9 | 7.3 | 7.3 | * | * | 6.1 | 6.4 |
| Orthophospate-P | mg/L | 0.028 | 0.029 | 0.024 | 0.026 | * | * | 0.024 | 0.034 |
| Total phosphorus-P | mg/L | 0.04 | 0.05 | 0.04 | 0.03 | * | * | 0.03 | 0.04 |
| Turbidity | NTU | 0.50 | 0.45 | 0.40 | 0.50 | * | * | 0.25 | 0.40 |
| Fecal Coliform Bacteria | MPN/100ml | <2 | 4 | 4 | 14 | * | * | 30 | 17 |
| Total Coliform Bacteria | MPN/100ml | 2400 | 500 | 110 | 500 | * | * | 900 | 900 |

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

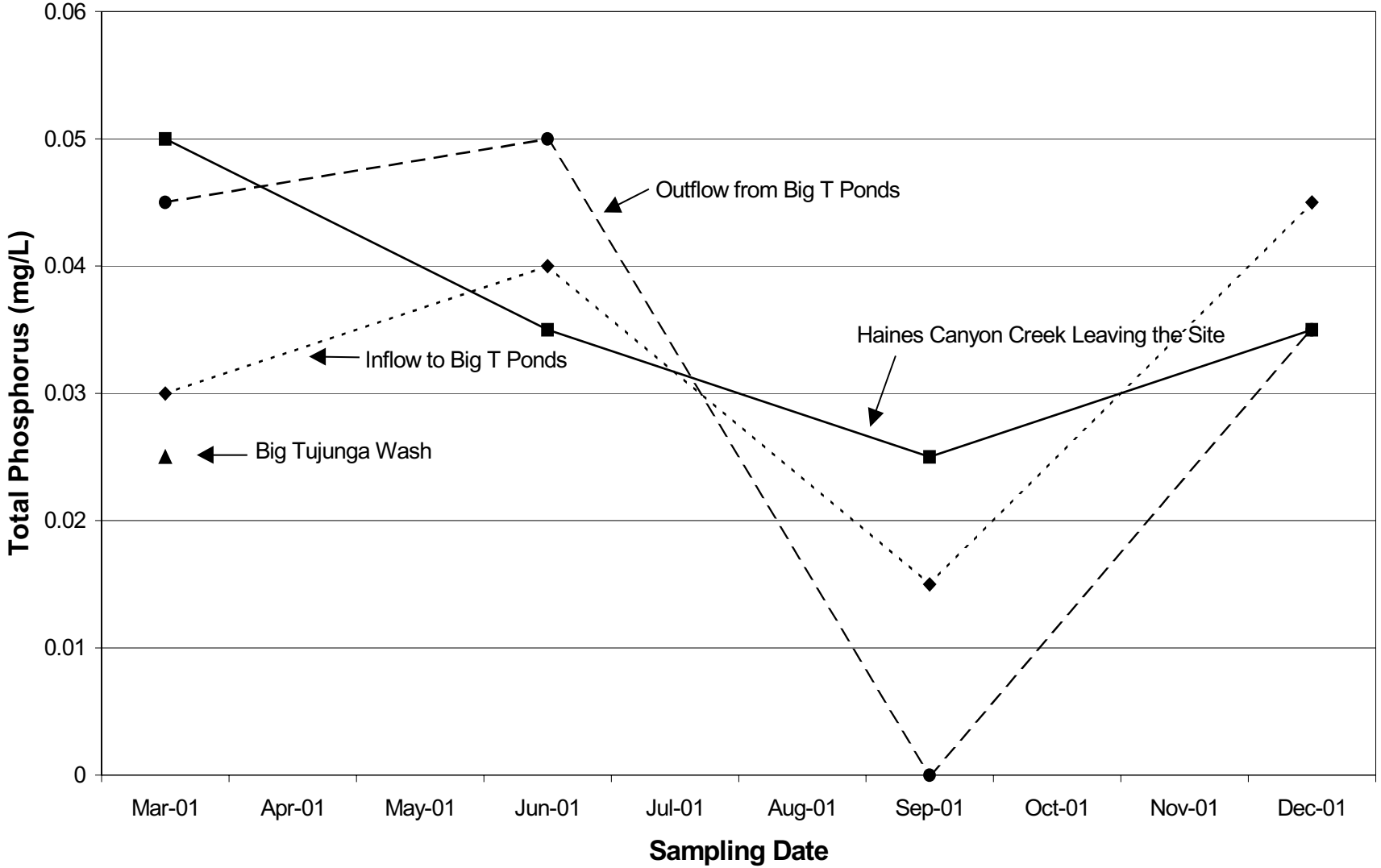
**Figure 2**
**Dissolved Oxygen - 2001**



## Figure 3
## Nitrate-Nitrogen - 2001



## Figure 4
## Total Phosphorus - 2001



## Figure 5
## Turbidity - 2001

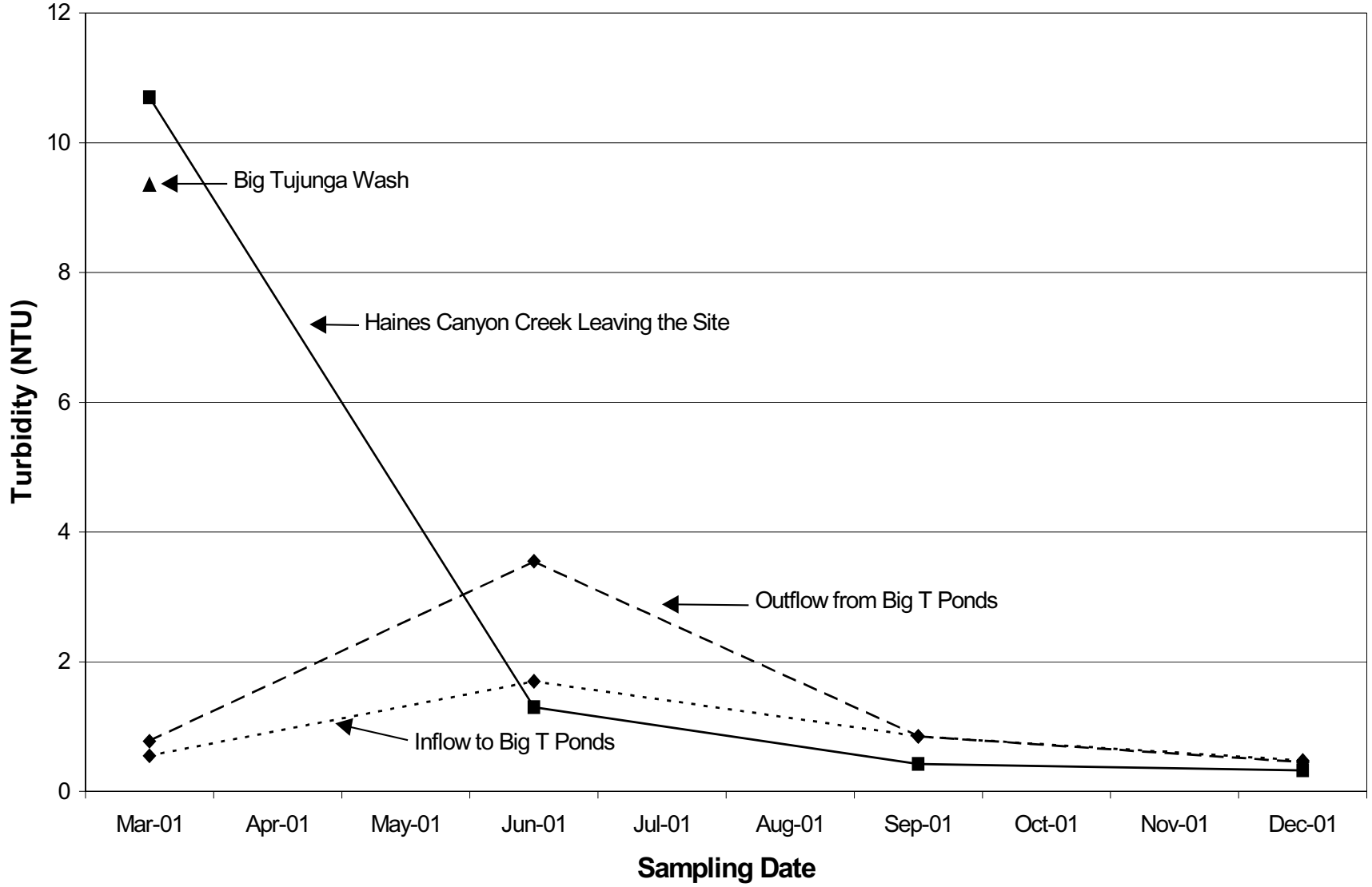
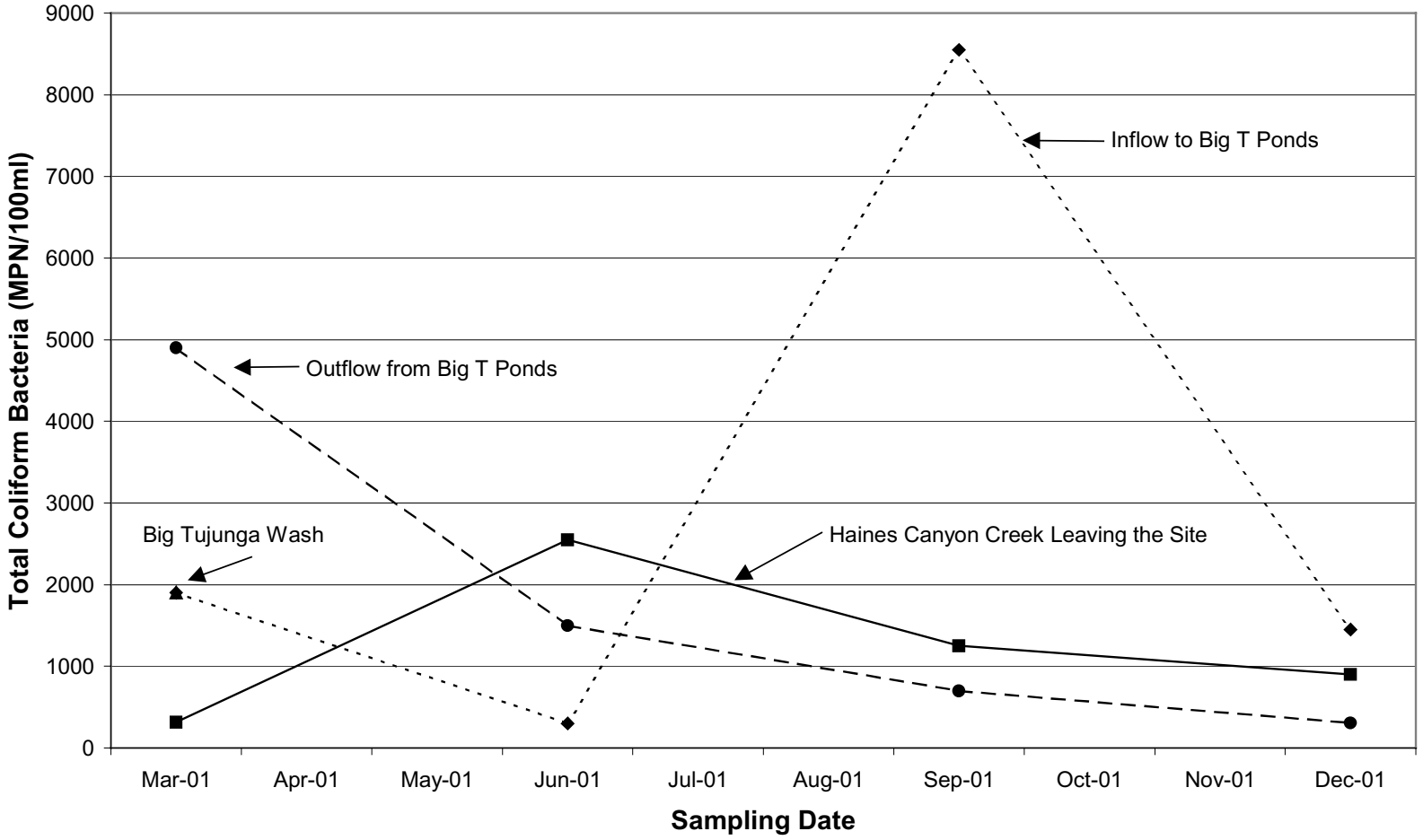


**Figure 6**
**Total Coliform Bacteria - 2001**



**Aquatic Life Criteria**

**Tables 9** and **13** 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 9, 10, 11, 12** and **14**.

**Table 9**
**National and Local Recommended Water Quality Criteria - Freshwaters**

| Parameter | Basin Plan Objectives[a] | EPA Criteria | | |
|---|---|---|---|---|
| | | CMC | CCC | Human Health |
| Temperature ($^{o}$C) | | See Table 14 | See Table 14 | -- |
| Dissolved oxygen (mg/L) | >7.0 mean<br>>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) |
| 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 13 | See Tables 10, 11, and 12 | See Tables 10, 11 and 12 | -- |
| 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 9 - 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 10
## 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 11
## 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 12
## 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 13
## 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 14
## 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 2001 are discussed by parameter in **Table 15**.

**Table 15**
**Discussion of 2001 Big Tujunga Wash Sampling Results**

| Parameter | Discussion |
|---|---|
| Temperature | • Temperatures in Haines Canyon Creek leaving the site are generally 1-3 ºC cooler than temperatures in the Tujunga ponds.<br>• Seasonal fluctuations of up to 9 ºC were observed – December readings were lowest, June readings were highest.<br>• 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. For the only date with observed flow in Big Tujunga Wash (March), DO was quite high (over 10 mg/L).<br>• Seasonal fluctuations of up to 3.7 mg/L in DO were observed – highest overall readings were observed in December.<br>• Only one DO reading in 2001 (inflow to the ponds in March) was below 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 (and the one data point for Big Tujunga Wash) were 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 0.2 units or less.<br>• The maximum seasonal pH fluctuation at any station in 2001 was 1.1 units.<br>• The pH of water from all stations for all four sampling periods was within the 6.5 to 8.5 range identified in the Basin Plan. |
| Total residual chlorine | • Residual chlorine detected during the March sampling is believed to be the result of turbidity interference. Once this interference was accounted for, readings on all other dates were below the detection limit. |

## Table 15 (Continued)
## Discussion of 2001 Big Tujunga Wash Sampling Results

| Parameter | Discussion |
|---|---|
| Nitrogen | • Ammonia-nitrogen was detected in only one sample – a very low reading in September at Haines Canyon Creek leaving the site. Similarly, nitrite-nitrogen was only detected at one station on one date – inflow to the ponds in June. Kjeldahl nitrogen (organic plus ammonia) readings were consistently low (<1 mg/L) at all stations on all dates. Nitrate-nitrogen is consistently higher in waters flowing into the ponds than the outflow (up to 3.7 mg/L higher). On the one date with flow in Big Tujunga Wash, nitrate was very low both in the Wash and in Haines Canyon Creek leaving the site (<0.5 mg/L). Without flows from the Wash, nitrate in Haines Canyon Creek was similar or just slightly lower than values observed in the ponds.<br>• Baseline nitrate data collected in April 2000 were similar to March 2001 data – on both dates flow was observed in Big Tujunga Wash.<br>• Nitrate-nitrogen readings at all stations were below the drinking water standard of 10 mg/L. The one detectable ammonia reading was below acute and chronic criteria presented in Tables 10-13. |
| Phosphorus | • Phosphorus levels were the lowest in September and generally similar in the other three quarters. The proportion of total phosphorus present as reactive orthophosphate ranged from all to approximately half.<br>• Baseline total phosphorus observed in April 2000 was significantly higher than 2001 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.<br>• 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. |
| Turbidity | • 2001 turbidity values were below 4 NTU, except in March when flow was present in Big Tujunga Wash. Flows in the Wash and Haines Canyon Creek leaving the site were slightly turbid in March (9.1 – 12 NTU).<br>• Baseline sampling in 2000 was similar to 2001 readings on April 12$^{th}$ but a rain event resulted in very high turbidity (up to 4070 NTU in the Wash) on April 18$^{th}$.<br>• Observed turbidity values in 2001 were not excessive for aquatic life. The drinking water standard of 5 NTU was only exceeded in March in the Wash and in Haines Canyon Creek. |

## Table 15 (Continued)
## Discussion of 2001 Big Tujunga Wash Sampling Results

| Parameter | Discussion |
|---|---|
| Bacteria | • Fecal coliform levels in 2001 ranged from <2 to 900 MPN/100ml. Total coliforms were much higher – up to 16,000 MPN/100ml in one sample from the inflow to the ponds in September.<br>• Again, due to the rain event, baseline coliform data from April 18th 2000 showed the highest total coliform levels (170,000 MPN/100ml in the outflow from the ponds).<br>• Fecal coliform levels exceeded the water contact recreation standard of 200 MPN/100ml in September in one sample from the outflow from the ponds and one sample from Haines Canyon Creek leaving the site (although sufficient samples were not taken per the standard). Note, duplicate samples on this date at these locations were 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
# 2001 LABORATORY RESULTS

# BIG TUJUNGA WASH WATER QUALITY MONITORING PROGRAM
# MARCH 2001 LABORATORY RESULTS

**MONTGOMERY WATSON LABORATORIES**
a Division of Montgomery Watson Americas, Inc.
555 East Walnut Street
Pasadena, California 91101
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1 800 566 LABS (1 800 566 5227)

# 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

MAR 2 3 2001

MONTGOMERY WATSON LABS

HDS Hillary Strayer
Project Manager

Report#: 76260
BIG TJ

aboratory certifies that the test results meet all **NELAC** requirements unless oted in the Comments section or the Case Narrative. Following the cover page are QC Report,QC Summary,Data Report,Hits Report, totaling 12 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#: 1341369.5620.011800
Group#: 76260
Project#: BIG TJ
Proj Mgr: Hillary Strayer
Phone: (626) 568-6412

The following samples were received from you on **03/12/01**. 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.

| ample# | Sample Id | Matrix | Sample Date |
|---|---|---|---|
| | Tests Scheduled | | |
| 103120066 | SITE 1 INFLOW TO TJ POND 1 | Water | 12-mar-2001 10:25:00 |
| | FECCOL NH3 NO2-N NO3 OPO4 T-P | | |
| | TKN TOTCOL TURB | | |
| 2103120071 | SITE 1 INFLOW TO TJ POND 2 | Water | 12-mar-2001 10:45:00 |
| | FECCOL NH3 NO2-N NO3 OPO4 T-P | | |
| | TKN TOTCOL TURB | | |
| 2103120072 | SITE 2 OUTFLOW FROM TJ POND 1 | Water | 12-mar-2001 11:07:00 |
| | FECCOL NH3 NO2-N NO3 OPO4 T-P | | |
| | TKN TOTCOL TURB | | |
| 2103120073 | SITE 2 OUTFLOW FROM TJ POND 2 | Water | 12-mar-2001 11:25:00 |
| | FECCOL NH3 NO2-N NO3 OPO4 T-P | | |
| | TKN TOTCOL TURB | | |
| 2103120075 | SITE 3 BIG TJ WASH 1 | Water | 12-mar-2001 11:45:00 |
| | FECCOL NH3 NO2-N NO3 OPO4 T-P | | |
| | TKN TOTCOL TURB | | |
| 2103120076 | SITE 3 BIG TJ WASH 2 | Water | 12-mar-2001 12:01:00 |
| | FECCOL NH3 NO2-N NO3 OPO4 T-P | | |
| | TKN TOTCOL TURB | | |
| 103120077 | SITE 4 HAINES CANYON CREEK 1 | Water | 12-mar-2001 12:34:00 |
| | FECCOL NH3 NO2-N NO3 OPO4 T-P | | |
| | TKN TOTCOL TURB | | |
| 103120078 | SITE 4 HAINES CANYON CREEK 2 | Water | 12-mar-2001 12:45:00 |
| | 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-N by IC |

Applied Research MWA - Joe Marcinko
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Group#: 76260
Project#: BIG TJ
Proj Mgr: Hillary Strayer
Phone: (626) 568-6412

## Test Acronym Description

| Test Acronym | Description |
|---|---|
| OPO4 | Orthophosphate-P |
| T-P | Total phosphorus-P |
| TKN | Kjeldahl Nitrogen |
| TOTCOL | Total Coliform Bacteria |
| TURB | Turbidity |

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Laboratory
Data Report
#76260

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

Samples Received
03/12/01

| Prepared | Analyzed | QC Ref# | Method | Analyte | Result | Units | MRL | Dilution |
|---|---|---|---|---|---|---|---|---|
| **SITE 1 INFLOW TO TJ POND 1 (2103120066) Sampled on 03/12/01 10:25** | | | | | | | | |
| | 03/12/01 14:42 | | ( ML/SM9221C ) | Fecal Coliform Bacteria | 4 | MPNM | 2.0 | 1 |
| | 03/14/01 00:00 | 137124 | ( ML/EPA 350.1 ) | Ammonia Nitrogen | ND | mg/l | 0.050 | 1 |
| | 03/13/01 00:00 | 136912 | ( ML/EPA 300.0 ) | Nitrite, Nitrogen by IC | ND | mg/l | 0.10 | 1 |
| | 03/12/01 00:00 | 136914 | ( ML/EPA 300.0 ) | Nitrate-N by IC | 8.19 | mg/l | 0.10 | 1 |
| | 03/13/01 00:00 | 136742 | ( ML/S4500P-E ) | Orthophosphate-P | 0.035 | mg/l | 0.010 | 1 |
| | 03/21/01 17:54 | 137308 | ( S4500PE/E365.1) | Total phosphorus-P | 0.03 | mg/l | 0.020 | 1 |
| | 03/21/01 17:48 | 137306 | ( ML/EPA 351.2 ) | Kjeldahl Nitrogen | 0.28 | mg/l | 0.20 | 1 |
| | 03/12/01 14:42 | | ( ML/SM9221B ) | Total Coliform Bacteria | 2200 | MPNM | 2.0 | 1 |
| | 03/13/01 00:00 | 136931 | ( ML/EPA 180.1 ) | Turbidity | 0.60 | NTU | 0.050 | 1 |
| **SITE 1 INFLOW TO TJ POND 2 (2103120071) Sampled on 03/12/01 10:45** | | | | | | | | |
| | 03/12/01 14:48 | | ( ML/SM9221C ) | Fecal Coliform Bacteria | 4 | MPNM | 2.0 | 1 |
| | 03/14/01 00:00 | 137124 | ( ML/EPA 350.1 ) | Ammonia Nitrogen | ND | mg/l | 0.050 | 1 |
| | 03/13/01 00:00 | 136912 | ( ML/EPA 300.0 ) | Nitrite, Nitrogen by IC | ND | mg/l | 0.20 | 2 |
| | 03/12/01 00:00 | 136914 | ( ML/EPA 300.0 ) | Nitrate-N by IC | 8.10 | mg/l | 0.20 | 2 |
| | 03/13/01 00:00 | 136742 | ( ML/S4500P-E ) | Orthophosphate-P | 0.037 | mg/l | 0.010 | 1 |
| | 03/21/01 17:54 | 137308 | ( S4500PE/E365.1) | Total phosphorus-P | 0.03 | mg/l | 0.020 | 1 |
| | 03/21/01 17:48 | 137306 | ( ML/EPA 351.2 ) | Kjeldahl Nitrogen | 0.41 | mg/l | 0.20 | 1 |
| | 03/12/01 14:48 | | ( ML/SM9221B ) | Total Coliform Bacteria | 1600 | MPNM | 2.0 | 1 |
| | 03/13/01 00:00 | 136931 | ( ML/EPA 180.1 ) | Turbidity | 0.50 | NTU | 0.050 | 1 |
| **SITE 2 OUTFLOW FROM TJ POND 1 (2103120072) Sampled on 03/12/01 11:07** | | | | | | | | |
| | 03/12/01 14:55 | | ( ML/SM9221C ) | Fecal Coliform Bacteria | 80 | MPNM | 2.0 | 1 |
| | 03/14/01 00:00 | 137124 | ( ML/EPA 350.1 ) | Ammonia Nitrogen | ND | mg/l | 0.050 | 1 |
| | 03/13/01 00:00 | 136912 | ( ML/EPA 300.0 ) | Nitrite, Nitrogen by IC | ND | mg/l | 0.20 | 2 |
| | 03/12/01 00:00 | 136914 | ( ML/EPA 300.0 ) | Nitrate-N by IC | 4.48 | mg/l | 0.20 | 2 |
| | 03/13/01 00:00 | 136742 | ( ML/S4500P-E ) | Orthophosphate-P | 0.039 | mg/l | 0.010 | 1 |
| | 03/21/01 18:55 | 137309 | ( S4500PE/E365.1) | Total phosphorus-P | 0.06 | mg/l | 0.020 | 1 |
| | 03/21/01 17:52 | 137307 | ( ML/EPA 351.2 ) | Kjeldahl Nitrogen | 0.51 | mg/l | 0.20 | 1 |
| | 03/12/01 14:55 | | ( ML/SM9221B ) | Total Coliform Bacteria | 2800 | MPNM | 2.0 | 1 |
| | 03/13/01 00:00 | 136931 | ( ML/EPA 180.1 ) | Turbidity | 0.75 | NTU | 0.050 | 1 |

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Data Report
#76260

Applied Research MWA - Joe Marcinko
(continued)

| repared | Analyzed | QC Ref# | Method | Analyte | Result | Units | MRL | Dilution |
|---|---|---|---|---|---|---|---|---|
| **ITE 2 OUTFLOW FROM TJ POND 2 (2103120073) Sampled on 03/12/01 11:25** | | | | | | | | |
| | 03/12/01 15:02 | | ( ML/SM9221C ) | Fecal Coliform Bacteria | 30 | MPNM | 2.0 | 1 |
| | 03/14/01 00:00 | 137124 | ( ML/EPA 350.1 ) | Ammonia Nitrogen | ND | mg/l | 0.050 | 1 |
| | 03/13/01 00:00 | 136912 | ( ML/EPA 300.0 ) | Nitrite, Nitrogen by IC | ND | mg/l | 0.20 | 2 |
| | 03/12/01 00:00 | 136914 | ( ML/EPA 300.0 ) | Nitrate-N by IC | 4.41 | mg/l | 0.20 | 2 |
| | 03/13/01 00:00 | 136742 | ( ML/S4500P-E ) | Orthophosphate-P | 0.039 | mg/l | 0.010 | 1 |
| | 03/21/01 18:55 | 137309 | ( S4500PE/E365.1) | Total phosphorus-P | 0.03 | mg/l | 0.020 | 1 |
| | 03/21/01 17:52 | 137307 | ( ML/EPA 351.2 ) | Kjeldahl Nitrogen | 0.48 | mg/l | 0.20 | 1 |
| | 03/12/01 15:02 | | ( ML/SM9221B ) | Total Coliform Bacteria | 7000 | MPNM | 2.0 | 1 |
| | 03/13/01 00:00 | 136931 | ( ML/EPA 180.1 ) | Turbidity | 0.80 | NTU | 0.050 | 1 |
| **ITE 3 BIG TJ WASH 1 (2103120075) Sampled on 03/12/01 11:45** | | | | | | | | |
| | 03/12/01 15:08 | | ( ML/SM9221C ) | Fecal Coliform Bacteria | 140 | MPNM | 2.0 | 1 |
| | 03/14/01 00:00 | 137124 | ( ML/EPA 350.1 ) | Ammonia Nitrogen | ND | mg/l | 0.050 | 1 |
| | 03/13/01 00:00 | 136912 | ( ML/EPA 300.0 ) | Nitrite, Nitrogen by IC | ND | mg/l | 0.10 | 1 |
| | 03/12/01 00:00 | 136914 | ( ML/EPA 300.0 ) | Nitrate-N by IC | 0.12 | mg/l | 0.10 | 1 |
| | 03/13/01 00:00 | 136742 | ( ML/S4500P-E ) | Orthophosphate-P | 0.012 | mg/l | 0.010 | 1 |
| | 03/21/01 18:55 | 137309 | ( S4500PE/E365.1) | Total phosphorus-P | 0.04 | mg/l | 0.020 | 1 |
| | 03/21/01 17:52 | 137307 | ( ML/EPA 351.2 ) | Kjeldahl Nitrogen | 0.49 | mg/l | 0.20 | 1 |
| | 03/12/01 15:08 | | ( ML/SM9221B ) | Total Coliform Bacteria | 3000 | MPNM | 2.0 | 1 |
| | 03/13/01 00:00 | 136931 | ( ML/EPA 180.1 ) | Turbidity | 9.6 | NTU | 0.050 | 1 |
| **SITE 3 BIG TJ WASH 2 (2103120076) Sampled on 03/12/01 12:01** | | | | | | | | |
| | 03/12/01 15:16 | | ( ML/SM9221C ) | Fecal Coliform Bacteria | 60 | MPNM | 2.0 | 1 |
| | 03/14/01 00:00 | 137124 | ( ML/EPA 350.1 ) | Ammonia Nitrogen | ND | mg/l | 0.050 | 1 |
| | 03/13/01 00:00 | 136912 | ( ML/EPA 300.0 ) | Nitrite, Nitrogen by IC | ND | mg/l | 0.10 | 1 |
| | 03/12/01 00:00 | 136914 | ( ML/EPA 300.0 ) | Nitrate-N by IC | 0.12 | mg/l | 0.10 | 1 |
| | 03/13/01 00:00 | 136742 | ( ML/S4500P-E ) | Orthophosphate-P | 0.012 | mg/l | 0.010 | 1 |
| | 03/21/01 18:55 | 137309 | ( S4500PE/E365.1) | Total phosphorus-P | ND | mg/l | 0.020 | 1 |
| | 03/21/01 17:52 | 137307 | ( ML/EPA 351.2 ) | Kjeldahl Nitrogen | 0.57 | mg/l | 0.20 | 1 |
| | 03/12/01 15:16 | | ( ML/SM9221B ) | Total Coliform Bacteria | 800 | MPNM | 2.0 | 1 |
| | 03/13/01 00:00 | 136931 | ( ML/EPA 180.1 ) | Turbidity | 9.1 | NTU | 0.050 | 1 |

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Data Report
#76260

Applied Research MWA - Joe Marcinko
(continued)

| repared | Analyzed | QC Ref# | Method | Analyte | Result | Units | MRL | Dilution |
|---|---|---|---|---|---|---|---|---|
| SITE 4 HAINES CANYON CREEK 1 (2103120077) Sampled on 03/12/01 12:34 | | | | | | | | |
| | 03/12/01 15:22 | | ( ML/SM9221C ) | Fecal Coliform Bacteria | 23 | MPNM | 2.0 | 1 |
| | 03/14/01 00:00 | 137124 | ( ML/EPA 350.1 ) | Ammonia Nitrogen | ND | mg/l | 0.050 | 1 |
| | 03/13/01 00:00 | 136912 | ( ML/EPA 300.0 ) | Nitrite, Nitrogen by IC | ND | mg/l | 0.10 | 1 |
| | 03/12/01 00:00 | 136914 | ( ML/EPA 300.0 ) | Nitrate-N by IC | 0.45 | mg/l | 0.10 | 1 |
| | 03/13/01 00:00 | 136742 | ( ML/S4500P-E ) | Orthophosphate-P | 0.016 | mg/l | 0.010 | 1 |
| | 03/21/01 18:55 | 137309 | ( S4500PE/E365.1) | Total phosphorus-P | 0.05 | mg/l | 0.020 | 1 |
| | 03/21/01 17:52 | 137307 | ( ML/EPA 351.2 ) | Kjeldahl Nitrogen | 0.47 | mg/l | 0.20 | 1 |
| | 03/12/01 15:22 | | ( ML/SM9221B ) | Total Coliform Bacteria | 350 | MPNM | 2.0 | 1 |
| | 03/13/01 00:00 | 136931 | ( ML/EPA 180.1 ) | Turbidity | 9.4 | NTU | 0.050 | 1 |
| SITE 4 HAINES CANYON CREEK 2 (2103120078) Sampled on 03/12/01 12:45 | | | | | | | | |
| | 03/12/01 15:33 | | ( ML/SM9221C ) | Fecal Coliform Bacteria | 130 | MPNM | 2.0 | 1 |
| | 03/14/01 00:00 | 137124 | ( ML/EPA 350.1 ) | Ammonia Nitrogen | ND | mg/l | 0.050 | 1 |
| | 03/13/01 00:00 | 136912 | ( ML/EPA 300.0 ) | Nitrite, Nitrogen by IC | ND | mg/l | 0.10 | 1 |
| | 03/12/01 00:00 | 136914 | ( ML/EPA 300.0 ) | Nitrate-N by IC | 0.43 | mg/l | 0.10 | 1 |
| | 03/13/01 00:00 | 136742 | ( ML/S4500P-E ) | Orthophosphate-P | 0.016 | mg/l | 0.010 | 1 |
| | 03/21/01 18:55 | 137309 | ( S4500PE/E365.1) | Total phosphorus-P | 0.05 | mg/l | 0.020 | 1 |
| | 03/21/01 17:52 | 137307 | ( ML/EPA 351.2 ) | Kjeldahl Nitrogen | 0.43 | mg/l | 0.20 | 1 |
| | 03/12/01 15:33 | | ( ML/SM9221B ) | Total Coliform Bacteria | 280 | MPNM | 2.0 | 1 |
| | 03/13/01 00:00 | 136931 | ( ML/EPA 180.1 ) | Turbidity | 12 | NTU | 0.050 | 1 |

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#76260

Applied Research MWA - Joe Marcinko

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**QC Ref #136742 - Orthophosphate-P** **Analysis Date: 03/13/2001**

| | |
|---|---|
| 2103120066 | SITE 1 INFLOW TO TJ POND 1 |
| 2103120071 | SITE 1 INFLOW TO TJ POND 2 |
| 2103120072 | SITE 2 OUTFLOW FROM TJ POND 1 |
| 2103120073 | SITE 2 OUTFLOW FROM TJ POND 2 |
| 2103120075 | SITE 3 BIG TJ WASH 1 |
| 2103120076 | SITE 3 BIG TJ WASH 2 |
| 2103120077 | SITE 4 HAINES CANYON CREEK 1 |
| 2103120078 | SITE 4 HAINES CANYON CREEK 2 |

**QC Ref #136912 - Nitrite, Nitrogen by IC** **Analysis Date: 03/13/2001**

| | |
|---|---|
| 2103120066 | SITE 1 INFLOW TO TJ POND 1 |
| 2103120071 | SITE 1 INFLOW TO TJ POND 2 |
| 2103120072 | SITE 2 OUTFLOW FROM TJ POND 1 |
| 2103120073 | SITE 2 OUTFLOW FROM TJ POND 2 |
| 2103120075 | SITE 3 BIG TJ WASH 1 |
| 2103120076 | SITE 3 BIG TJ WASH 2 |
| 2103120077 | SITE 4 HAINES CANYON CREEK 1 |
| 2103120078 | SITE 4 HAINES CANYON CREEK 2 |

**QC Ref #136914 - Nitrate-N by IC** **Analysis Date: 03/12/2001**

| | |
|---|---|
| 2103120066 | SITE 1 INFLOW TO TJ POND 1 |
| 2103120071 | SITE 1 INFLOW TO TJ POND 2 |
| 2103120072 | SITE 2 OUTFLOW FROM TJ POND 1 |
| 2103120073 | SITE 2 OUTFLOW FROM TJ POND 2 |
| 2103120075 | SITE 3 BIG TJ WASH 1 |
| 2103120076 | SITE 3 BIG TJ WASH 2 |
| 2103120077 | SITE 4 HAINES CANYON CREEK 1 |
| 2103120078 | SITE 4 HAINES CANYON CREEK 2 |

**QC Ref #136931 - Turbidity** **Analysis Date: 03/13/2001**

| | |
|---|---|
| 2103120066 | SITE 1 INFLOW TO TJ POND 1 |
| 2103120071 | SITE 1 INFLOW TO TJ POND 2 |
| 2103120072 | SITE 2 OUTFLOW FROM TJ POND 1 |
| 2103120073 | SITE 2 OUTFLOW FROM TJ POND 2 |
| 2103120075 | SITE 3 BIG TJ WASH 1 |
| 2103120076 | SITE 3 BIG TJ WASH 2 |
| 2103120077 | SITE 4 HAINES CANYON CREEK 1 |

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(continued)

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| | |
|---|---|
| 2103120078 | SITE 4 HAINES CANYON CREEK 2 |

**QC Ref #137124 - Ammonia Nitrogen** **Analysis Date: 03/14/2001**

| | |
|---|---|
| 2103120066 | SITE 1 INFLOW TO TJ POND 1 |
| 2103120071 | SITE 1 INFLOW TO TJ POND 2 |
| 2103120072 | SITE 2 OUTFLOW FROM TJ POND 1 |
| 2103120073 | SITE 2 OUTFLOW FROM TJ POND 2 |
| 2103120075 | SITE 3 BIG TJ WASH 1 |
| 2103120076 | SITE 3 BIG TJ WASH 2 |
| 2103120077 | SITE 4 HAINES CANYON CREEK 1 |
| 2103120078 | SITE 4 HAINES CANYON CREEK 2 |

**QC Ref #137306 - Kjeldahl Nitrogen** **Analysis Date: 03/21/2001**

| | |
|---|---|
| 2103120066 | SITE 1 INFLOW TO TJ POND 1 |
| 2103120071 | SITE 1 INFLOW TO TJ POND 2 |

**QC Ref #137307 - Kjeldahl Nitrogen** **Analysis Date: 03/21/2001**

| | |
|---|---|
| 2103120072 | SITE 2 OUTFLOW FROM TJ POND 1 |
| 2103120073 | SITE 2 OUTFLOW FROM TJ POND 2 |
| 2103120075 | SITE 3 BIG TJ WASH 1 |
| 2103120076 | SITE 3 BIG TJ WASH 2 |
| 2103120077 | SITE 4 HAINES CANYON CREEK 1 |
| 2103120078 | SITE 4 HAINES CANYON CREEK 2 |

**QC Ref #137308 - Total phosphorus-P** **Analysis Date: 03/21/2001**

| | |
|---|---|
| 2103120066 | SITE 1 INFLOW TO TJ POND 1 |
| 2103120071 | SITE 1 INFLOW TO TJ POND 2 |

**QC Ref #137309 - Total phosphorus-P** **Analysis Date: 03/21/2001**

| | |
|---|---|
| 2103120072 | SITE 2 OUTFLOW FROM TJ POND 1 |
| 2103120073 | SITE 2 OUTFLOW FROM TJ POND 2 |
| 2103120075 | SITE 3 BIG TJ WASH 1 |
| 2103120076 | SITE 3 BIG TJ WASH 2 |
| 2103120077 | SITE 4 HAINES CANYON CREEK 1 |

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2103120078 SITE 4 HAINES CANYON CREEK 2

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## QC Ref #136742 Orthophosphate-P

| QC | Analyte | Spiked | Recovered | Yield (%) | Limits (%) | RPD (%) |
|---|---|---|---|---|---|---|
| MS | Spiked sample | Lab # 21 | 03120078 | | ( 0.00 - 0.00 ) | |
| LCS1 | Orthophosphate-P | 0.5 | 0.494 | 98.8 | ( 80.00 - 120.00 ) | |
| LCS2 | Orthophosphate-P | 0.5 | 0.497 | 99.4 | ( 80.00 - 120.00 ) | 0.61 |
| MBLK | Orthophosphate-P | ND | | | | |
| MS | Orthophosphate-P | 0.5 | 0.491 | 98.2 | ( 80.00 - 120.00 ) | |
| MSD | Orthophosphate-P | 0.5 | 0.494 | 98.8 | ( 80.00 - 120.00 ) | 0.61 |

## QC Ref #136912 Nitrite, Nitrogen by IC

| QC | Analyte | Spiked | Recovered | Yield (%) | Limits (%) | RPD (%) |
|---|---|---|---|---|---|---|
| MS | Spiked sample | Lab # 21 | 03120078 | | ( 0.00 - 0.00 ) | |
| LCS1 | Nitrite, Nitrogen by IC | 1.0 | 1.06 | 106.0 | ( 90.00 - 110.00 ) | |
| LCS2 | Nitrite, Nitrogen by IC | 1.0 | 1.03 | 103.0 | ( 90.00 - 110.00 ) | 2.9 |
| MBLK | Nitrite, Nitrogen by IC | ND | | | | |
| MS | Nitrite, Nitrogen by IC | 1.0 | 1.04 | 104.0 | ( 82.00 - 114.00 ) | |
| MSD | Nitrite, Nitrogen by IC | 1.0 | 1.04 | 104.0 | ( 82.00 - 114.00 ) | 0.00 |

## QC Ref #136914 Nitrate-N by IC

| QC | Analyte | Spiked | Recovered | Yield (%) | Limits (%) | RPD (%) |
|---|---|---|---|---|---|---|
| MS | Spiked sample | Lab # 21 | 03120078 | | ( 0.00 - 0.00 ) | |
| LCS1 | Nitrate-N by IC | 2.5 | 2.44 | 97.6 | ( 94.00 - 106.00 ) | |
| LCS2 | Nitrate-N by IC | 2.5 | 2.45 | 98.0 | ( 94.00 - 106.00 ) | 0.41 |
| MBLK | Nitrate-N by IC | ND | | | | |
| MS | Nitrate-N by IC | 2.5 | 2.48 | 99.2 | ( 85.00 - 118.00 ) | |
| MSD | Nitrate-N by IC | 2.5 | 2.48 | 99.2 | ( 85.00 - 118.00 ) | 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 Ref #136931 Turbidity

| QC | Analyte | Spiked | Recovered | Yield (%) | Limits (%) | RPD (%) |
|---|---|---|---|---|---|---|
| DUP | Turbidity | 12 | 12 | | ( 0.00 - 20.00 ) | 0.0 |

## QC Ref #137124 Ammonia Nitrogen

| QC | Analyte | Spiked | Recovered | Yield (%) | Limits (%) | RPD (%) |
|---|---|---|---|---|---|---|
| MS | Spiked sample | Lab # 21 | 03120040 | | ( 0.00 - 0.00 ) | |
| LCS1 | Ammonia Nitrogen | 1.00 | 1.00 | 100.0 | ( 80.00 - 120.00 ) | |
| LCS2 | Ammonia Nitrogen | 1.00 | 0.996 | 99.6 | ( 80.00 - 120.00 ) | 0.40 |
| MBLK | Ammonia Nitrogen | ND | | | | |
| MS | Ammonia Nitrogen | 1.00 | 0.939 | 93.9 | ( 80.00 - 120.00 ) | |
| MSD | Ammonia Nitrogen | 1.00 | 0.954 | 95.4 | ( 80.00 - 120.00 ) | 1.6 |

## QC Ref #137306 Kjeldahl Nitrogen

| QC | Analyte | Spiked | Recovered | Yield (%) | Limits (%) | RPD (%) |
|---|---|---|---|---|---|---|
| MS | Spiked sample | Lab # 21 | 03120024 | | ( 0.00 - 0.00 ) | |
| LCS1 | Kjeldahl Nitrogen | 4 | 4.33 | 108.2 | ( 70.00 - 130.00 ) | |
| LCS2 | Kjeldahl Nitrogen | 4 | 3.62 | 90.5 | ( 70.00 - 130.00 ) | 18 |
| MBLK | Kjeldahl Nitrogen | ND | | | | |
| MS | Kjeldahl Nitrogen | 4 | 3.48 | 87.0 | ( 70.00 - 130.00 ) | |
| MSD | Kjeldahl Nitrogen | 4 | 3.36 | 84.0 | ( 70.00 - 130.00 ) | 3.5 |

## QC Ref #137307 Kjeldahl Nitrogen

| QC | Analyte | Spiked | Recovered | Yield (%) | Limits (%) | RPD (%) |
|---|---|---|---|---|---|---|
| MS | Spiked sample | Lab # 21 | 03120075 | | ( 0.00 - 0.00 ) | |
| LCS1 | Kjeldahl Nitrogen | 4 | 4.33 | 108.2 | ( 70.00 - 130.00 ) | |
| LCS2 | Kjeldahl Nitrogen | 4 | 4.24 | 106.0 | ( 70.00 - 130.00 ) | 2.1 |

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.

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| | | | | | | |
|---|---|---|---|---|---|---|
| MBLK | Kjeldahl Nitrogen | ND | | | | |
| MS | Kjeldahl Nitrogen | 4 | 3.74 | 93.5 | ( 70.00 - 130.00 ) | |
| MSD | Kjeldahl Nitrogen | 4 | 3.77 | 94.2 | ( 70.00 - 130.00 ) | 0.80 |

## QC Ref #137308 Total phosphorus-P

| QC | Analyte | Spiked | Recovered | Yield (%) | Limits (%) | RPD (%) |
|---|---|---|---|---|---|---|
| MS | Spiked sample | Lab # 21 | 03120024 | | ( 0.00 - 0.00 ) | |
| LCS1 | Total phosphorus-P | 0.4 | 0.408 | 102.0 | ( 80.00 - 120.00 ) | |
| LCS2 | Total phosphorus-P | 0.4 | 0.385 | 96.2 | ( 80.00 - 120.00 ) | 5.8 |
| MBLK | Total phosphorus-P | ND | | | | |
| MS | Total phosphorus-P | 0.4 | 0.440 | 110.0 | ( 80.00 - 120.00 ) | |
| MSD | Total phosphorus-P | 0.4 | 0.440 | 110.0 | ( 80.00 - 120.00 ) | 0.00 |

## QC Ref #137309 Total phosphorus-P

| QC | Analyte | Spiked | Recovered | Yield (%) | Limits (%) | RPD (%) |
|---|---|---|---|---|---|---|
| MS | Spiked sample | Lab # 21 | 03120072 | | ( 0.00 - 0.00 ) | |
| LCS1 | Total phosphorus-P | 0.4 | 0.365 | 91.2 | ( 80.00 - 120.00 ) | |
| LCS2 | Total phosphorus-P | 0.4 | 0.362 | 90.5 | ( 80.00 - 120.00 ) | 0.83 |
| MBLK | Total phosphorus-P | ND | | | | |
| MS | Total phosphorus-P | 0.4 | 0.380 | 95.0 | ( 80.00 - 120.00 ) | |
| MSD | Total phosphorus-P | 0.4 | 0.380 | 95.0 | ( 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.

# BIG TUJUNGA WASH WATER QUALITY MONITORING PROGRAM
# JUNE 2001 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





HDS Hillary Strayer
Project Manager

Report#: 81535
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 8 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#: 81535
Project#: BIG TJ
Proj Mgr: Hillary Strayer
Phone: (626) 568-6412

The following samples were received from you on **06/19/01**. 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 | | |
| 2106190162 | SITE 1 INFLOW TO TJ POND 1 | Water | 19-jun-2001 11:40:00 |
| | FECCOL NH3 NO2-N NO3 OPO4 T-P | | |
| | TKN TOTCOL TURB | | |
| 2106190164 | SITE 1 INFLOW TO TJ POND 2 | Water | 19-jun-2001 11:51:00 |
| | FECCOL NH3 NO2-N NO3 OPO4 T-P | | |
| | TKN TOTCOL TURB | | |
| 2106190165 | SITE 2 OUTFLOW FR TJ POND 1 | Water | 19-jun-2001 12:16:00 |
| | FECCOL NH3 NO2-N NO3 OPO4 T-P | | |
| | TKN TOTCOL TURB | | |
| 2106190166 | SITE 2 OUTFLOW FR TJ POND 2 | Water | 19-jun-2001 12:25:00 |
| | FECCOL NH3 NO2-N NO3 OPO4 T-P | | |
| | TKN TOTCOL TURB | | |
| 2106190167 | SITE 4 HAINES CYN CRK 1 | Water | 19-jun-2001 10:47:00 |
| | FECCOL NH3 NO2-N NO3 OPO4 T-P | | |
| | TKN TOTCOL TURB | | |
| 2106190168 | SITE 4 HAINES CYN CRK 2 | Water | 19-jun-2001 10:59:00 |
| | 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-N by IC |
| OPO4 | Orthophosphate-P |
| T-P | Total phosphorus-P |
| TKN | Kjeldahl Nitrogen |
| TOTCOL | Total Coliform Bacteria |
| TURB | Turbidity |

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**Laboratory Data Report #81535**

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

Samples Received
06/19/01

| Prepared | Analyzed | QC Ref# | Method | Analyte | Result | Units | MRL | Dilution |
|---|---|---|---|---|---|---|---|---|
| **SITE 1 INFLOW TO TJ POND 1 (2106190162) Sampled on 06/19/01 11:40** | | | | | | | | |
| | 06/19/01 14:40 | | ( ML/SM9221C ) | Fecal Coliform Bacteria | 4 | MPNM | 2.0 | 1 |
| | 06/21/01 00:00 | 145417 | ( ML/EPA 350.1 ) | Ammonia Nitrogen | ND | mg/l | 0.050 | 1 |
| | 06/19/01 18:37 | 144916 | ( ML/EPA 300.0 ) | Nitrite, Nitrogen by IC | 0.1 | mg/l | 0.10 | 1 |
| | 06/19/01 18:37 | 144913 | ( ML/EPA 300.0 ) | Nitrate-N by IC | 7.6 | mg/l | 0.10 | 1 |
| | 06/19/01 00:00 | 144550 | ( ML/S4500P-E ) | Orthophosphate-P | 0.022 | mg/l | 0.010 | 1 |
| | 06/27/01 16:17 | 145280 | ( S4500PE/E365.1) | Total phosphorus-P | 0.04 | mg/l | 0.020 | 1 |
| | 06/26/01 15:30 | 145145 | ( ML/EPA 351.2 ) | Kjeldahl Nitrogen | ND | mg/l | 0.20 | 1 |
| | 06/19/01 14:40 | | ( ML/SM9221B ) | Total Coliform Bacteria | 300 | MPNM | 2.0 | 1 |
| | 06/19/01 15:00 | 144630 | ( ML/EPA 180.1 ) | Turbidity | 1.5 | NTU | 0.050 | 1 |
| **SITE 1 INFLOW TO TJ POND 2 (2106190164) Sampled on 06/19/01 11:51** | | | | | | | | |
| | 06/19/01 14:40 | | ( ML/SM9221C ) | Fecal Coliform Bacteria | 8 | MPNM | 2.0 | 1 |
| | 06/21/01 00:00 | 145417 | ( ML/EPA 350.1 ) | Ammonia Nitrogen | ND | mg/l | 0.050 | 1 |
| | 06/19/01 17:23 | 144916 | ( ML/EPA 300.0 ) | Nitrite, Nitrogen by IC | 0.1 | mg/l | 0.10 | 1 |
| | 06/19/01 17:23 | 144913 | ( ML/EPA 300.0 ) | Nitrate-N by IC | 7.5 | mg/l | 0.10 | 1 |
| | 06/19/01 00:00 | 144550 | ( ML/S4500P-E ) | Orthophosphate-P | 0.023 | mg/l | 0.010 | 1 |
| | 06/27/01 16:17 | 145280 | ( S4500PE/E365.1) | Total phosphorus-P | 0.04 | mg/l | 0.020 | 1 |
| | 06/26/01 15:30 | 145145 | ( ML/EPA 351.2 ) | Kjeldahl Nitrogen | ND | mg/l | 0.20 | 1 |
| | 06/19/01 14:40 | | ( ML/SM9221B ) | Total Coliform Bacteria | 300 | MPNM | 2.0 | 1 |
| | 06/19/01 15:00 | 144630 | ( ML/EPA 180.1 ) | Turbidity | 1.9 | NTU | 0.050 | 1 |
| **SITE 2 OUTFLOW FR TJ POND 1 (2106190165) Sampled on 06/19/01 12:16** | | | | | | | | |
| | 06/19/01 14:40 | | ( ML/SM9221C ) | Fecal Coliform Bacteria | 17 | MPNM | 2.0 | 1 |
| | 06/21/01 00:00 | 145417 | ( ML/EPA 350.1 ) | Ammonia Nitrogen | ND | mg/l | 0.050 | 1 |
| | 06/19/01 16:51 | 144916 | ( ML/EPA 300.0 ) | Nitrite, Nitrogen by IC | ND | mg/l | 0.20 | 2 |
| | 06/19/01 16:51 | 144913 | ( ML/EPA 300.0 ) | Nitrate-N by IC | 4.7 | mg/l | 0.20 | 2 |
| | 06/19/01 00:00 | 144550 | ( ML/S4500P-E ) | Orthophosphate-P | 0.021 | mg/l | 0.010 | 1 |
| | 06/27/01 16:17 | 145280 | ( S4500PE/E365.1) | Total phosphorus-P | 0.06 | mg/l | 0.020 | 1 |
| | 06/26/01 15:30 | 145145 | ( ML/EPA 351.2 ) | Kjeldahl Nitrogen | 0.31 | mg/l | 0.20 | 1 |
| | 06/19/01 14:40 | | ( ML/SM9221B ) | Total Coliform Bacteria | 1600 | MPNM | 2.0 | 1 |
| | 06/19/01 15:00 | 144630 | ( ML/EPA 180.1 ) | Turbidity | 4.2 | NTU | 0.050 | 1 |

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Laboratory
Data Report
#81535

Applied Research MWA - Joe Marcinko
(continued)

| Prepared | Analyzed | QC Ref# | Method | Analyte | Result | Units | MRL | Dilution |
|---|---|---|---|---|---|---|---|---|
| **SITE 2 OUTFLOW FR TJ POND 2 (2106190166) Sampled on 06/19/01 12:25** | | | | | | | | |
| | 06/19/01 14:40 | | ( ML/SM9221C ) | Fecal Coliform Bacteria | 7 | MPNM | 2.0 | 1 |
| | 06/21/01 00:00 | 145417 | ( ML/EPA 350.1 ) | Ammonia Nitrogen | ND | mg/l | 0.050 | 1 |
| | 06/19/01 19:08 | 144916 | ( ML/EPA 300.0 ) | Nitrite, Nitrogen by IC | ND | mg/l | 0.10 | 1 |
| | 06/19/01 19:08 | 144913 | ( ML/EPA 300.0 ) | Nitrate-N by IC | 4.8 | mg/l | 0.10 | 1 |
| | 06/19/01 00:00 | 144550 | ( ML/S4500P-E ) | Orthophosphate-P | 0.023 | mg/l | 0.010 | 1 |
| | 06/27/01 16:17 | 145280 | ( S4500PE/E365.1) | Total phosphorus-P | 0.04 | mg/l | 0.020 | 1 |
| | 06/26/01 15:30 | 145145 | ( ML/EPA 351.2 ) | Kjeldahl Nitrogen | 0.36 | mg/l | 0.20 | 1 |
| | 06/19/01 14:40 | | ( ML/SM9221B ) | Total Coliform Bacteria | 1400 | MPNM | 2.0 | 1 |
| | 06/19/01 15:00 | 144630 | ( ML/EPA 180.1 ) | Turbidity | 2.9 | NTU | 0.050 | 1 |
| **SITE 4 HAINES CYN CRK 1 (2106190167) Sampled on 06/19/01 10:47** | | | | | | | | |
| | 06/19/01 14:40 | | ( ML/SM9221C ) | Fecal Coliform Bacteria | 23 | MPNM | 2.0 | 1 |
| | 06/21/01 00:00 | 145417 | ( ML/EPA 350.1 ) | Ammonia Nitrogen | ND | mg/l | 0.050 | 1 |
| | 06/19/01 17:12 | 144916 | ( ML/EPA 300.0 ) | Nitrite, Nitrogen by IC | ND | mg/l | 0.20 | 2 |
| | 06/19/01 17:12 | 144913 | ( ML/EPA 300.0 ) | Nitrate-N by IC | 9.6 | mg/l | 0.20 | 2 |
| | 06/19/01 00:00 | 144550 | ( ML/S4500P-E ) | Orthophosphate-P | 0.027 | mg/l | 0.010 | 1 |
| | 06/27/01 16:17 | 145280 | ( S4500PE/E365.1) | Total phosphorus-P | 0.03 | mg/l | 0.020 | 1 |
| | 06/26/01 15:30 | 145145 | ( ML/EPA 351.2 ) | Kjeldahl Nitrogen | ND | mg/l | 0.20 | 1 |
| | 06/19/01 14:40 | | ( ML/SM9221B ) | Total Coliform Bacteria | 5000 | MPNM | 2.0 | 1 |
| | 06/19/01 15:00 | 144630 | ( ML/EPA 180.1 ) | Turbidity | 1.4 | NTU | 0.050 | 1 |
| **SITE 4 HAINES CYN CRK 2 (2106190168) Sampled on 06/19/01 10:59** | | | | | | | | |
| | 06/19/01 14:40 | | ( ML/SM9221C ) | Fecal Coliform Bacteria | 40 | MPNM | 2.0 | 1 |
| | 06/21/01 00:00 | 145417 | ( ML/EPA 350.1 ) | Ammonia Nitrogen | ND | mg/l | 0.050 | 1 |
| | 06/19/01 17:01 | 144916 | ( ML/EPA 300.0 ) | Nitrite, Nitrogen by IC | ND | mg/l | 0.20 | 2 |
| | 06/19/01 17:01 | 144913 | ( ML/EPA 300.0 ) | Nitrate-N by IC | 4.8 | mg/l | 0.20 | 2 |
| | 06/19/01 00:00 | 144550 | ( ML/S4500P-E ) | Orthophosphate-P | 0.027 | mg/l | 0.010 | 1 |
| | 06/27/01 16:17 | 145280 | ( S4500PE/E365.1) | Total phosphorus-P | 0.04 | mg/l | 0.020 | 1 |
| | 06/26/01 15:30 | 145145 | ( ML/EPA 351.2 ) | Kjeldahl Nitrogen | ND | mg/l | 0.20 | 1 |
| | 06/19/01 14:40 | | ( ML/SM9221B ) | Total Coliform Bacteria | 93 X | MPNM | 2.0 | 1 |
| | 06/19/01 15:00 | 144630 | ( ML/EPA 180.1 ) | Turbidity | 1.2 | NTU | 0.050 | 1 |

Called Kelly to V/V
7/11/01
10:15 AM

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**Laboratory QC Summary #81535**

Applied Research MWA - Joe Marcinko

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**QC Ref #144550 - Orthophosphate-P** **Analysis Date: 06/19/2001**

| | |
|---|---|
| 2106190162 | SITE 1 INFLOW TO TJ POND 1 |
| 2106190164 | SITE 1 INFLOW TO TJ POND 2 |
| 2106190165 | SITE 2 OUTFLOW FR TJ POND 1 |
| 2106190166 | SITE 2 OUTFLOW FR TJ POND 2 |
| 2106190167 | SITE 4 HAINES CYN CRK 1 |
| 2106190168 | SITE 4 HAINES CYN CRK 2 |

**QC Ref #144630 - Turbidity** **Analysis Date: 06/19/2001**

| | |
|---|---|
| 2106190162 | SITE 1 INFLOW TO TJ POND 1 |
| 2106190164 | SITE 1 INFLOW TO TJ POND 2 |
| 2106190165 | SITE 2 OUTFLOW FR TJ POND 1 |
| 2106190166 | SITE 2 OUTFLOW FR TJ POND 2 |
| 2106190167 | SITE 4 HAINES CYN CRK 1 |
| 2106190168 | SITE 4 HAINES CYN CRK 2 |

**QC Ref #144913 - Nitrate-N by IC** **Analysis Date: 06/19/2001**

| | |
|---|---|
| 2106190162 | SITE 1 INFLOW TO TJ POND 1 |
| 2106190164 | SITE 1 INFLOW TO TJ POND 2 |
| 2106190165 | SITE 2 OUTFLOW FR TJ POND 1 |
| 2106190166 | SITE 2 OUTFLOW FR TJ POND 2 |
| 2106190167 | SITE 4 HAINES CYN CRK 1 |
| 2106190168 | SITE 4 HAINES CYN CRK 2 |

**QC Ref #144916 - Nitrite, Nitrogen by IC** **Analysis Date: 06/19/2001**

| | |
|---|---|
| 2106190162 | SITE 1 INFLOW TO TJ POND 1 |
| 2106190164 | SITE 1 INFLOW TO TJ POND 2 |
| 2106190165 | SITE 2 OUTFLOW FR TJ POND 1 |
| 2106190166 | SITE 2 OUTFLOW FR TJ POND 2 |
| 2106190167 | SITE 4 HAINES CYN CRK 1 |
| 2106190168 | SITE 4 HAINES CYN CRK 2 |

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Applied Research MWA - Joe Marcinko
(continued)

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**QC Ref #145145 - Kjeldahl Nitrogen** **Analysis Date: 06/26/2001**

| | |
|---|---|
| 2106190162 | SITE 1 INFLOW TO TJ POND 1 |
| 2106190164 | SITE 1 INFLOW TO TJ POND 2 |
| 2106190165 | SITE 2 OUTFLOW FR TJ POND 1 |
| 2106190166 | SITE 2 OUTFLOW FR TJ POND 2 |
| 2106190167 | SITE 4 HAINES CYN CRK 1 |
| 2106190168 | SITE 4 HAINES CYN CRK 2 |

**QC Ref #145280 - Total phosphorus-P** **Analysis Date: 06/27/2001**

| | |
|---|---|
| 2106190162 | SITE 1 INFLOW TO TJ POND 1 |
| 2106190164 | SITE 1 INFLOW TO TJ POND 2 |
| 2106190165 | SITE 2 OUTFLOW FR TJ POND 1 |
| 2106190166 | SITE 2 OUTFLOW FR TJ POND 2 |
| 2106190167 | SITE 4 HAINES CYN CRK 1 |
| 2106190168 | SITE 4 HAINES CYN CRK 2 |

**QC Ref #145417 - Ammonia Nitrogen** **Analysis Date: 06/21/2001**

| | |
|---|---|
| 2106190162 | SITE 1 INFLOW TO TJ POND 1 |
| 2106190164 | SITE 1 INFLOW TO TJ POND 2 |
| 2106190165 | SITE 2 OUTFLOW FR TJ POND 1 |
| 2106190166 | SITE 2 OUTFLOW FR TJ POND 2 |
| 2106190167 | SITE 4 HAINES CYN CRK 1 |
| 2106190168 | SITE 4 HAINES CYN CRK 2 |

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#81535

Applied Research MWA - Joe Marcinko

## QC Ref #144550 Orthophosphate-P

| QC | Analyte | Spiked | Recovered | Yield (%) | Limits (%) | RPD (%) |
|---|---|---|---|---|---|---|
| MS | Spiked sample | Lab # 21 | 06190166 | | ( 0.00 - 0.00 ) | |
| LCS1 | Orthophosphate-P | 0.5 | 0.496 | 99.2 | ( 90.00 - 110.00 ) | |
| LCS2 | Orthophosphate-P | 0.5 | 0.500 | 100.0 | ( 90.00 - 110.00 ) | 0.80 |
| MBLK | Orthophosphate-P | ND | | | | |
| MS | Orthophosphate-P | 0.5 | 0.512 | 102.4 | ( 80.00 - 120.00 ) | |
| MSD | Orthophosphate-P | 0.5 | 0.519 | 103.8 | ( 80.00 - 120.00 ) | 1.4 |

## QC Ref #144630 Turbidity

| QC | Analyte | Spiked | Recovered | Yield (%) | Limits (%) | RPD (%) |
|---|---|---|---|---|---|---|
| DUP | Turbidity | 0.45 | 0.45 | | ( 0.00 - 20.00 ) | 0.0 |

## QC Ref #144913 Nitrate-N by IC

| QC | Analyte | Spiked | Recovered | Yield (%) | Limits (%) | RPD (%) |
|---|---|---|---|---|---|---|
| MS | Spiked sample | Lab # 21 | 06190010 | | ( 0.00 - 0.00 ) | |
| LCS1 | Nitrate-N by IC | 2.5 | 2.62 | 104.8 | ( 90.00 - 110.00 ) | |
| LCS2 | Nitrate-N by IC | 2.5 | 2.62 | 104.8 | ( 90.00 - 110.00 ) | 0.00 |
| MBLK | Nitrate-N by IC | ND | | | | |
| MS | Nitrate-N by IC | 2.5 | 2.65 | 106.0 | ( 80.00 - 120.00 ) | |
| MSD | Nitrate-N by IC | 2.5 | 2.55 | 102.0 | ( 80.00 - 120.00 ) | 3.8 |

## QC Ref #144916 Nitrite, Nitrogen by IC

| QC | Analyte | Spiked | Recovered | Yield (%) | Limits (%) | RPD (%) |
|---|---|---|---|---|---|---|
| MS | Spiked sample | Lab # 21 | 06190010 | | ( 0.00 - 0.00 ) | |
| LCS1 | Nitrite, Nitrogen by IC | 1.0 | 1.06 | 106.0 | ( 90.00 - 110.00 ) | |
| LCS2 | Nitrite, Nitrogen by IC | 1.0 | 1.06 | 106.0 | ( 90.00 - 110.00 ) | 0.00 |
| MBLK | Nitrite, Nitrogen by IC | ND | | | | |
| MS | Nitrite, Nitrogen by IC | 1.0 | 1.05 | 105.0 | ( 80.00 - 120.00 ) | |

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
#81535

Applied Research MWA - Joe Marcinko
(continued)

| | | | | | | |
|---|---|---|---|---|---|---|
| MSD | Nitrite, Nitrogen by IC | 1.0 | 1.05 | 105.0 | ( 80.00 - 120.00 ) | 0.00 |

## QC Ref #145145 Kjeldahl Nitrogen

| QC | Analyte | Spiked | Recovered | Yield (%) | Limits (%) | RPD (%) |
|---|---|---|---|---|---|---|
| MS | Spiked sample | Lab # 21 | 06190270 | | ( 0.00 - 0.00 ) | |
| LCS1 | Kjeldahl Nitrogen | 4 | 3.78 | 94.5 | ( 70.00 - 130.00 ) | |
| LCS2 | Kjeldahl Nitrogen | 4 | 4.16 | 104.0 | ( 70.00 - 130.00 ) | 9.6 |
| MBLK | Kjeldahl Nitrogen | ND | | | | |
| MS | Kjeldahl Nitrogen | 4 | 4.35 | 108.7 | ( 70.00 - 130.00 ) | |
| MSD | Kjeldahl Nitrogen | 4 | 3.76 | 94.0 | ( 70.00 - 130.00 ) | 15 |

## QC Ref #145280 Total phosphorus-P

| QC | Analyte | Spiked | Recovered | Yield (%) | Limits (%) | RPD (%) |
|---|---|---|---|---|---|---|
| MS | Spiked sample | Lab # 21 | 06190270 | | ( 0.00 - 0.00 ) | |
| LCS1 | Total phosphorus-P | 0.4 | 0.375 | 93.8 | ( 90.00 - 110.00 ) | |
| LCS2 | Total phosphorus-P | 0.4 | 0.395 | 98.8 | ( 90.00 - 110.00 ) | 5.2 |
| MBLK | Total phosphorus-P | ND | | | | |
| MS | Total phosphorus-P | 0.4 | 0.410 | 102.5 | ( 80.00 - 120.00 ) | |
| MSD | Total phosphorus-P | 0.4 | 0.390 | 97.5 | ( 80.00 - 120.00 ) | 5.0 |

## QC Ref #145417 Ammonia Nitrogen

| QC | Analyte | Spiked | Recovered | Yield (%) | Limits (%) | RPD (%) |
|---|---|---|---|---|---|---|
| MS | Spiked sample | Lab # 21 | 06200147 | | ( 0.00 - 0.00 ) | |
| LCS1 | Ammonia Nitrogen | 1.00 | 0.971 | 97.1 | ( 90.00 - 110.00 ) | |
| LCS2 | Ammonia Nitrogen | 1.00 | 0.942 | 94.2 | ( 90.00 - 110.00 ) | 3.0 |
| MBLK | Ammonia Nitrogen | ND | | | | |
| MS | Ammonia Nitrogen | 0.500 | 0.474 | 94.8 | ( 90.00 - 110.00 ) | |
| MSD | Ammonia Nitrogen | 0.500 | 0.480 | 96.0 | ( 90.00 - 110.00 ) | 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.

# BIG TUJUNGA WASH WATER QUALITY MONITORING PROGRAM
# SEPTEMBER 2001 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
SEP 28 2001
MWH LABORATORIES

ACCREDITED IN ACCORDANCE WITH nelac 01114CA

HDS Hillary Strayer
Project Manager

Report#: 85458
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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Laboratory
Data Report
#85458

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

Samples Received
09/11/01

| Prepared | Analyzed | QC Ref# | Method | Analyte | Result | Units | MRL | Dilution |
|---|---|---|---|---|---|---|---|---|
| **SITE 1 INFLOW TO TJ POND 1 (2109110190) Sampled on 09/11/01 11:20** | | | | | | | | |
| | 09/11/01 13:58 | | ( ML/SM9221C ) | Fecal Coliform Bacteria | 11 | MPNM | 2.0 | 1 |
| | 09/13/01 00:00 | 151875 | ( ML/EPA 350.1 ) | Ammonia Nitrogen | ND | mg/l | 0.050 | 1 |
| | 09/11/01 00:00 | 151664 | ( ML/EPA 300.0 ) | Nitrite, Nitrogen by IC | ND | mg/l | 0.20 | 2 |
| | 09/11/01 00:00 | 151665 | ( ML/EPA 300.0 ) | Nitrate-N by IC | 7.2 | mg/l | 0.20 | 2 |
| | 09/13/01 00:00 | 151679 | ( ML/S4500P-E ) | Orthophosphate-P | ND | mg/l | 0.010 | 1 |
| | 09/19/01 21:37 | 152362 | ( S4500PE/E365.1) | Total phosphorus-P | 0.02 | mg/l | 0.020 | 1 |
| | 09/19/01 19:22 | 152361 | ( ML/EPA 351.2 ) | Kjeldahl Nitrogen | 0.37 | mg/l | 0.20 | 1 |
| | 09/11/01 13:58 | | ( ML/SM9221B ) | Total Coliform Bacteria | 1100 | MPNM | 2.0 | 1 |
| | 09/11/01 14:00 | 151737 | ( ML/EPA 180.1 ) | Turbidity | 0.60 | NTU | 0.050 | 1 |
| **SITE 1 INFLOW TO TJ POND 2 (2109110191) Sampled on 09/11/01 11:28** | | | | | | | | |
| | 09/11/01 14:05 | | ( ML/SM9221C ) | Fecal Coliform Bacteria | 17 | MPNM | 2.0 | 1 |
| | 09/13/01 00:00 | 151875 | ( ML/EPA 350.1 ) | Ammonia Nitrogen | ND | mg/l | 0.050 | 1 |
| | 09/11/01 00:00 | 151664 | ( ML/EPA 300.0 ) | Nitrite, Nitrogen by IC | ND | mg/l | 0.20 | 2 |
| | 09/11/01 00:00 | 151665 | ( ML/EPA 300.0 ) | Nitrate-N by IC | 7.2 | mg/l | 0.20 | 2 |
| | 09/13/01 00:00 | 151679 | ( ML/S4500P-E ) | Orthophosphate-P | ND | mg/l | 0.010 | 1 |
| | 09/19/01 21:37 | 152362 | ( S4500PE/E365.1) | Total phosphorus-P | ND | mg/l | 0.020 | 1 |
| | 09/19/01 19:22 | 152361 | ( ML/EPA 351.2 ) | Kjeldahl Nitrogen | 0.71 | mg/l | 0.20 | 1 |
| | 09/11/01 14:05 | | ( ML/SM9221B ) | Total Coliform Bacteria | 16000 | MPNM | 2.0 | 1 |
| | 09/11/01 14:00 | 151737 | ( ML/EPA 180.1 ) | Turbidity | 1.1 | NTU | 0.050 | 1 |
| **SITE 2 OUTFLOW FROM TJ POND 1 (2109110192) Sampled on 09/11/01 11:46** | | | | | | | | |
| | 09/11/01 14:11 | | ( ML/SM9221C ) | Fecal Coliform Bacteria | 900 | MPNM | 2.0 | 1 |
| | 09/13/01 00:00 | 151875 | ( ML/EPA 350.1 ) | Ammonia Nitrogen | ND | mg/l | 0.050 | 1 |
| | 09/11/01 00:00 | 151664 | ( ML/EPA 300.0 ) | Nitrite, Nitrogen by IC | ND | mg/l | 0.20 | 2 |
| | 09/11/01 00:00 | 151665 | ( ML/EPA 300.0 ) | Nitrate-N by IC | 5.2 | mg/l | 0.20 | 2 |
| | 09/13/01 00:00 | 151679 | ( ML/S4500P-E ) | Orthophosphate-P | ND | mg/l | 0.010 | 1 |
| | 09/19/01 21:37 | 152362 | ( S4500PE/E365.1) | Total phosphorus-P | ND | mg/l | 0.020 | 1 |
| | 09/19/01 19:22 | 152361 | ( ML/EPA 351.2 ) | Kjeldahl Nitrogen | 0.35 | mg/l | 0.20 | 1 |
| | 09/11/01 14:11 | | ( ML/SM9221B ) | Total Coliform Bacteria | 900 | MPNM | 2.0 | 1 |
| | 09/11/01 14:00 | 151737 | ( ML/EPA 180.1 ) | Turbidity | 0.95 | NTU | 0.050 | 1 |

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Data Report
#85458

Applied Research MWA - Joe Marcinko
(continued)

| Prepared | Analyzed | QC Ref# | Method | Analyte | Result | Units | MRL | Dilution |
|---|---|---|---|---|---|---|---|---|
| **SITE 2 OUTFLOW FROM TJ POND 2 (2109110193) Sampled on 09/11/01 11:57** | | | | | | | | |
| | 09/11/01 14:20 | | ( ML/SM9221C ) | Fecal Coliform Bacteria | 130 | MPNM | 2.0 | 1 |
| | 09/13/01 00:00 | 151875 | ( ML/EPA 350.1 ) | Ammonia Nitrogen | ND | mg/l | 0.050 | 1 |
| | 09/11/01 00:00 | 151664 | ( ML/EPA 300.0 ) | Nitrite, Nitrogen by IC | ND | mg/l | 0.20 | 2 |
| | 09/11/01 00:00 | 151665 | ( ML/EPA 300.0 ) | Nitrate-N by IC | 5.3 | mg/l | 0.20 | 2 |
| | 09/13/01 00:00 | 151679 | ( ML/S4500P-E ) | Orthophosphate-P | ND | mg/l | 0.010 | 1 |
| | 09/19/01 21:37 | 152362 | ( S4500PE/E365.1) | Total phosphorus-P | ND | mg/l | 0.020 | 1 |
| | 09/19/01 19:22 | 152361 | ( ML/EPA 351.2 ) | Kjeldahl Nitrogen | 0.47 | mg/l | 0.20 | 1 |
| | 09/11/01 14:20 | | ( ML/SM9221B ) | Total Coliform Bacteria | 500 | MPNM | 2.0 | 1 |
| | 09/11/01 14:00 | 151738 | ( ML/EPA 180.1 ) | Turbidity | 0.75 | NTU | 0.050 | 1 |
| **SITE 4 HAINES CYN CRK 1 (2109110194) Sampled on 09/11/01 10:30** | | | | | | | | |
| | 09/11/01 14:28 | | ( ML/SM9221C ) | Fecal Coliform Bacteria | 240 | MPNM | 2.0 | 1 |
| | 09/13/01 00:00 | 151875 | ( ML/EPA 350.1 ) | Ammonia Nitrogen | 0.093 | mg/l | 0.050 | 1 |
| | 09/11/01 00:00 | 151664 | ( ML/EPA 300.0 ) | Nitrite, Nitrogen by IC | ND | mg/l | 0.20 | 2 |
| | 09/11/01 00:00 | 151665 | ( ML/EPA 300.0 ) | Nitrate-N by IC | 4.8 | mg/l | 0.20 | 2 |
| | 09/13/01 00:00 | 151679 | ( ML/S4500P-E ) | Orthophosphate-P | 0.016 | mg/l | 0.010 | 1 |
| | 09/19/01 21:37 | 152362 | ( S4500PE/E365.1) | Total phosphorus-P | 0.04 | mg/l | 0.020 | 1 |
| | 09/19/01 19:22 | 152361 | ( ML/EPA 351.2 ) | Kjeldahl Nitrogen | 0.45 | mg/l | 0.20 | 1 |
| | 09/11/01 14:28 | | ( ML/SM9221B ) | Total Coliform Bacteria | 1400 | MPNM | 2.0 | 1 |
| | 09/11/01 14:00 | 151737 | ( ML/EPA 180.1 ) | Turbidity | 0.45 | NTU | 0.050 | 1 |
| **SITE 4 HAINES CYN CRK 2 (2109110195) Sampled on 09/11/01 10:41** | | | | | | | | |
| | 09/11/01 14:35 | | ( ML/SM9221C ) | Fecal Coliform Bacteria | 110 | MPNM | 2.0 | 1 |
| | 09/13/01 00:00 | 151875 | ( ML/EPA 350.1 ) | Ammonia Nitrogen | ND | mg/l | 0.050 | 1 |
| | 09/11/01 00:00 | 151664 | ( ML/EPA 300.0 ) | Nitrite, Nitrogen by IC | ND | mg/l | 0.20 | 2 |
| | 09/11/01 00:00 | 151665 | ( ML/EPA 300.0 ) | Nitrate-N by IC | 4.8 | mg/l | 0.20 | 2 |
| | 09/13/01 00:00 | 151679 | ( ML/S4500P-E ) | Orthophosphate-P | 0.016 | mg/l | 0.010 | 1 |
| | 09/19/01 21:37 | 152362 | ( S4500PE/E365.1) | Total phosphorus-P | ND | mg/l | 0.020 | 1 |
| | 09/19/01 19:22 | 152361 | ( ML/EPA 351.2 ) | Kjeldahl Nitrogen | 0.54 | mg/l | 0.20 | 1 |
| | 09/11/01 14:35 | | ( ML/SM9221B ) | Total Coliform Bacteria | 1100 | MPNM | 2.0 | 1 |
| | 09/11/01 14:00 | 151737 | ( ML/EPA 180.1 ) | Turbidity | 0.40 | NTU | 0.050 | 1 |

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**QC Ref #151664 - Nitrite, Nitrogen by IC** **Analysis Date: 09/11/2001**

| | |
|---|---|
| 2109110190 | SITE 1 INFLOW TO TJ POND 1 |
| 2109110191 | SITE 1 INFLOW TO TJ POND 2 |
| 2109110192 | SITE 2 OUTFLOW FROM TJ POND 1 |
| 2109110193 | SITE 2 OUTFLOW FROM TJ POND 2 |
| 2109110194 | SITE 4 HAINES CYN CRK 1 |
| 2109110195 | SITE 4 HAINES CYN CRK 2 |

**QC Ref #151665 - Nitrate-N by IC** **Analysis Date: 09/11/2001**

| | |
|---|---|
| 2109110190 | SITE 1 INFLOW TO TJ POND 1 |
| 2109110191 | SITE 1 INFLOW TO TJ POND 2 |
| 2109110192 | SITE 2 OUTFLOW FROM TJ POND 1 |
| 2109110193 | SITE 2 OUTFLOW FROM TJ POND 2 |
| 2109110194 | SITE 4 HAINES CYN CRK 1 |
| 2109110195 | SITE 4 HAINES CYN CRK 2 |

**QC Ref #151679 - Orthophosphate-P** **Analysis Date: 09/13/2001**

| | |
|---|---|
| 2109110190 | SITE 1 INFLOW TO TJ POND 1 |
| 2109110191 | SITE 1 INFLOW TO TJ POND 2 |
| 2109110192 | SITE 2 OUTFLOW FROM TJ POND 1 |
| 2109110193 | SITE 2 OUTFLOW FROM TJ POND 2 |
| 2109110194 | SITE 4 HAINES CYN CRK 1 |
| 2109110195 | SITE 4 HAINES CYN CRK 2 |

**QC Ref #151737 - Turbidity** **Analysis Date: 09/11/2001**

| | |
|---|---|
| 2109110190 | SITE 1 INFLOW TO TJ POND 1 |
| 2109110191 | SITE 1 INFLOW TO TJ POND 2 |
| 2109110192 | SITE 2 OUTFLOW FROM TJ POND 1 |
| 2109110194 | SITE 4 HAINES CYN CRK 1 |
| 2109110195 | SITE 4 HAINES CYN CRK 2 |

**QC Ref #151738 - Turbidity** **Analysis Date: 09/11/2001**

| | |
|---|---|
| 2109110193 | SITE 2 OUTFLOW FROM TJ POND 2 |

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**QC Ref #151875 - Ammonia Nitrogen** **Analysis Date: 09/13/2001**

| | |
|---|---|
| 2109110190 | SITE 1 INFLOW TO TJ POND 1 |
| 2109110191 | SITE 1 INFLOW TO TJ POND 2 |
| 2109110192 | SITE 2 OUTFLOW FROM TJ POND 1 |
| 2109110193 | SITE 2 OUTFLOW FROM TJ POND 2 |
| 2109110194 | SITE 4 HAINES CYN CRK 1 |
| 2109110195 | SITE 4 HAINES CYN CRK 2 |

**QC Ref #152361 - Kjeldahl Nitrogen** **Analysis Date: 09/19/2001**

| | |
|---|---|
| 2109110190 | SITE 1 INFLOW TO TJ POND 1 |
| 2109110191 | SITE 1 INFLOW TO TJ POND 2 |
| 2109110192 | SITE 2 OUTFLOW FROM TJ POND 1 |
| 2109110193 | SITE 2 OUTFLOW FROM TJ POND 2 |
| 2109110194 | SITE 4 HAINES CYN CRK 1 |
| 2109110195 | SITE 4 HAINES CYN CRK 2 |

**QC Ref #152362 - Total phosphorus-P** **Analysis Date: 09/19/2001**

| | |
|---|---|
| 2109110190 | SITE 1 INFLOW TO TJ POND 1 |
| 2109110191 | SITE 1 INFLOW TO TJ POND 2 |
| 2109110192 | SITE 2 OUTFLOW FROM TJ POND 1 |
| 2109110193 | SITE 2 OUTFLOW FROM TJ POND 2 |
| 2109110194 | SITE 4 HAINES CYN CRK 1 |
| 2109110195 | SITE 4 HAINES CYN CRK 2 |

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## QC Ref #151664 Nitrite, Nitrogen by IC

| QC | Analyte | Spiked | Recovered | Yield (%) | Limits (%) | RPD (%) |
|---|---|---|---|---|---|---|
| MS | Spiked sample | Lab # 21 | 08300116 | | ( 0.00 - 0.00 ) | |
| LCS1 | Nitrite, Nitrogen by IC | 1.0 | 0.97 | 97.0 | ( 90.00 - 110.00 ) | |
| LCS2 | Nitrite, Nitrogen by IC | 1.0 | 0.967 | 96.7 | ( 90.00 - 110.00 ) | 0.31 |
| MBLK | Nitrite, Nitrogen by IC | ND | | | | |
| MS | Nitrite, Nitrogen by IC | 1.0 | 0.943 | 94.3 | ( 80.00 - 120.00 ) | |
| MSD | Nitrite, Nitrogen by IC | 1.0 | 0.962 | 96.2 | ( 80.00 - 120.00 ) | 2.0 |

## QC Ref #151665 Nitrate-N by IC

| QC | Analyte | Spiked | Recovered | Yield (%) | Limits (%) | RPD (%) |
|---|---|---|---|---|---|---|
| MS | Spiked sample | Lab # 21 | 08300116 | | ( 0.00 - 0.00 ) | |
| LCS1 | Nitrate-N by IC | 2.5 | 2.58 | 103.2 | ( 90.00 - 110.00 ) | |
| LCS2 | Nitrate-N by IC | 2.5 | 2.59 | 103.6 | ( 90.00 - 110.00 ) | 0.39 |
| MBLK | Nitrate-N by IC | ND | | | | |
| MS | Nitrate-N by IC | 2.5 | 2.53 | 101.2 | ( 80.00 - 120.00 ) | |
| MSD | Nitrate-N by IC | 2.5 | 2.56 | 102.4 | ( 80.00 - 120.00 ) | 1.2 |

## QC Ref #151679 Orthophosphate-P

| QC | Analyte | Spiked | Recovered | Yield (%) | Limits (%) | RPD (%) |
|---|---|---|---|---|---|---|
| MS | Spiked sample | Lab # 21 | 09110190 | | ( 0.00 - 0.00 ) | |
| LCS1 | Orthophosphate-P | 0.5 | 0.514 | 102.8 | ( 90.00 - 110.00 ) | |
| LCS2 | Orthophosphate-P | 0.5 | 0.512 | 102.4 | ( 90.00 - 110.00 ) | 0.39 |
| MBLK | Orthophosphate-P | ND | | | | |
| MS | Orthophosphate-P | 0.5 | 0.511 | 102.2 | ( 80.00 - 120.00 ) | |
| MSD | Orthophosphate-P | 0.5 | 0.512 | 102.4 | ( 80.00 - 120.00 ) | 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 Ref #151737 Turbidity

| QC | Analyte | Spiked | Recovered | Yield (%) | Limits (%) | RPD (%) |
|---|---|---|---|---|---|---|
| DUP | Turbidity | 0.95 | 0.95 | | ( 0.00 - 20.00 ) | 0.0 |

## QC Ref #151738 Turbidity

| QC | Analyte | Spiked | Recovered | Yield (%) | Limits (%) | RPD (%) |
|---|---|---|---|---|---|---|
| DUP | Turbidity | 4.8 | 4.8 | | ( 0.00 - 20.00 ) | 0.0 |

## QC Ref #151875 Ammonia Nitrogen

| QC | Analyte | Spiked | Recovered | Yield (%) | Limits (%) | RPD (%) |
|---|---|---|---|---|---|---|
| MS | Spiked sample | Lab # 21 | 09110091 | | ( 0.00 - 0.00 ) | |
| LCS1 | Ammonia Nitrogen | 1.00 | 1.00 | 100.0 | ( 90.00 - 110.00 ) | |
| LCS2 | Ammonia Nitrogen | 1.00 | 1.03 | 103.0 | ( 90.00 - 110.00 ) | 3.0 |
| MBLK | Ammonia Nitrogen | ND | | | | |
| MS | Ammonia Nitrogen | 1.00 | 0.934 | 93.4 | ( 90.00 - 110.00 ) | |
| MSD | Ammonia Nitrogen | 1.00 | 0.942 | 94.2 | ( 90.00 - 110.00 ) | 0.85 |

## QC Ref #152361 Kjeldahl Nitrogen

| QC | Analyte | Spiked | Recovered | Yield (%) | Limits (%) | RPD (%) |
|---|---|---|---|---|---|---|
| MS | Spiked sample | Lab # 21 | 09110190 | | ( 0.00 - 0.00 ) | |
| LCS1 | Kjeldahl Nitrogen | 4 | 4.11 | 102.8 | ( 70.00 - 130.00 ) | |
| LCS2 | Kjeldahl Nitrogen | 4 | 3.88 | 97.0 | ( 70.00 - 130.00 ) | 5.8 |
| MBLK | Kjeldahl Nitrogen | ND | | | | |
| MS | Kjeldahl Nitrogen | 4 | 3.98 | 99.5 | ( 70.00 - 130.00 ) | |
| MSD | Kjeldahl Nitrogen | 4 | 4.26 | 106.5 | ( 70.00 - 130.00 ) | 6.8 |

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
# DECEMBER 2001 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

HDS Hillary Strayer
Project Manager

Report#: 73125
BIG TJ

aboratory certifies that the test results meet all QA/QC requirements unless oted in the Comments section or the Case Narrative. Following the cover page re QC Report,QC Summary,Data Report,Hits Report, totaling 12 page[s].

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Laboratory
Data Report
#73125

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

Samples Received
12/14/00

| repared | Analyzed | QC Ref# | Method | Analyte | Result | Units | MRL | Dilution |
|---|---|---|---|---|---|---|---|---|
| **JPPER TJ POND [redacted] 1 (2012140256) Sampled on 12/14/00 11:03** | | | | | | | | |
| | 12/14/00 02:05 | | ( ML/SM9221C ) | Fecal Coliform Bacteria | <2 | MPN/mL | 2.0 | 1 |
| | 12/21/00 12:00 | 131209 | ( ML/EPA 350.1 ) | Ammonia Nitrogen | ND | mg/l | 0.050 | 1 |
| | 12/15/00 12:00 | 130737 | ( ML/EPA 300.0 ) | Nitrite, Nitrogen by IC | ND | mg/l | 0.10 | 1 |
| | 12/15/00 12:00 | 130738 | ( ML/EPA 300.0 ) | Nitrate-N by IC | 9.65 | mg/l | 0.10 | 1 |
| | 12/15/00 12:00 | 130704 | ( ML/S4500P-E ) | Orthophosphate-P | 0.065 | mg/l | 0.010 | 1 |
| | 12/20/00 03:44 | 130996 | ( S4500PE/E365.1) | Total phosphorus-P | 0.07 | mg/l | 0.020 | 1 |
| | 12/19/00 04:13 | 130896 | ( ML/EPA 351.2 ) | Kjeldahl Nitrogen | ND | mg/l | 0.20 | 1 |
| | 12/14/00 02:05 | | ( ML/SM9221B ) | Total Coliform Bacteria | 3000 | MPN/mL | 2.0 | 1 |
| | 12/15/00 12:00 | 130746 | ( ML/EPA 180.1 ) | Turbidity | 0.90 | NTU | 0.050 | 1 |
| **JPPER TJ POND [redacted] 2 (2012140257) Sampled on 12/14/00 11:12** | | | | | | | | |
| | 12/14/00 02:05 | | ( ML/SM9221C ) | Fecal Coliform Bacteria | 2 | MPN/mL | 2.0 | 1 |
| | 12/21/00 12:00 | 131209 | ( ML/EPA 350.1 ) | Ammonia Nitrogen | ND | mg/l | 0.050 | 1 |
| | 12/15/00 12:00 | 130737 | ( ML/EPA 300.0 ) | Nitrite, Nitrogen by IC | ND | mg/l | 0.20 | 2 |
| | 12/15/00 12:00 | 130738 | ( ML/EPA 300.0 ) | Nitrate-N by IC | 9.40 | mg/l | 0.20 | 2 |
| | 12/15/00 12:00 | 130704 | ( ML/S4500P-E ) | Orthophosphate-P | 0.064 | mg/l | 0.010 | 1 |
| | 12/20/00 04:12 | 130998 | ( S4500PE/E365.1) | Total phosphorus-P | 0.07 | mg/l | 0.020 | 1 |
| | 12/19/00 04:13 | 130896 | ( ML/EPA 351.2 ) | Kjeldahl Nitrogen | 0.28 | mg/l | 0.20 | 1 |
| | 12/14/00 02:05 | | ( ML/SM9221B ) | Total Coliform Bacteria | 9000 | MPN/mL | 2.0 | 1 |
| | 12/15/00 12:00 | 130746 | ( ML/EPA 180.1 ) | Turbidity | 0.60 | NTU | 0.050 | 1 |
| **OWER TJ POND [redacted] 1 (2012140258) Sampled on 12/14/00 11:41** | | | | | | | | |
| | 12/14/00 02:05 | | ( ML/SM9221C ) | Fecal Coliform Bacteria | 13 | MPN/mL | 2.0 | 1 |
| | 12/21/00 12:00 | 131209 | ( ML/EPA 350.1 ) | Ammonia Nitrogen | ND | mg/l | 0.050 | 1 |
| | 12/15/00 12:00 | 130737 | ( ML/EPA 300.0 ) | Nitrite, Nitrogen by IC | ND | mg/l | 0.20 | 2 |
| | 12/15/00 12:00 | 130738 | ( ML/EPA 300.0 ) | Nitrate-N by IC | 7.29 | mg/l | 0.20 | 2 |
| | 12/15/00 12:00 | 130704 | ( ML/S4500P-E ) | Orthophosphate-P | 0.040 | mg/l | 0.010 | 1 |
| | 12/20/00 04:12 | 130998 | ( S4500PE/E365.1) | Total phosphorus-P | 0.04 | mg/l | 0.020 | 1 |
| | 12/19/00 04:13 | 130896 | ( ML/EPA 351.2 ) | Kjeldahl Nitrogen | ND | mg/l | 0.20 | 1 |
| | 12/14/00 02:05 | | ( ML/SM9221B ) | Total Coliform Bacteria | 2200 | MPN/mL | 2.0 | 1 |
| | 12/15/00 12:00 | 130746 | ( ML/EPA 180.1 ) | Turbidity | 0.50 | NTU | 0.050 | 1 |

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(continued)

| Prepared | Analyzed | QC Ref# | Method | Analyte | Result | Units | MRL | Dilution |
|---|---|---|---|---|---|---|---|---|
| LOWER TJ POND [redacted] 2 (2012140259) Sampled on 12/14/00 11:48 | | | | | | | | |
| | 12/14/00 02:05 | | ( ML/SM9221C ) | Fecal Coliform Bacteria | 13 | MPN/mL | 2.0 | 1 |
| | 12/21/00 12:00 | 131209 | ( ML/EPA 350.1 ) | Ammonia Nitrogen | ND | mg/l | 0.050 | 1 |
| | 12/15/00 12:00 | 130737 | ( ML/EPA 300.0 ) | Nitrite, Nitrogen by IC | ND | mg/l | 0.20 | 2 |
| | 12/15/00 12:00 | 130738 | ( ML/EPA 300.0 ) | Nitrate-N by IC | 7.17 | mg/l | 0.20 | 2 |
| | 12/15/00 12:00 | 130704 | ( ML/S4500P-E ) | Orthophosphate-P | 0.040 | mg/l | 0.010 | 1 |
| | 12/20/00 04:12 | 130998 | ( S4500PE/E365.1) | Total phosphorus-P | 0.05 | mg/l | 0.020 | 1 |
| | 12/19/00 04:13 | 130896 | ( ML/EPA 351.2 ) | Kjeldahl Nitrogen | 0.43 | mg/l | 0.20 | 1 |
| | 12/14/00 02:05 | | ( ML/SM9221B ) | Total Coliform Bacteria | 3000 | MPN/mL | 2.0 | 1 |
| | 12/15/00 12:00 | 130746 | ( ML/EPA 180.1 ) | Turbidity | 1.0 | NTU | 0.050 | 1 |
| BIG TJ WASH STREAM 1 (2012140260) Sampled on 12/14/00 12:11 | | | | | | | | |
| | 12/14/00 02:05 | | ( ML/SM9221C ) | Fecal Coliform Bacteria | 300 | MPN/mL | 2.0 | 1 |
| | 12/21/00 12:00 | 131209 | ( ML/EPA 350.1 ) | Ammonia Nitrogen | ND | mg/l | 0.050 | 1 |
| | 12/15/00 12:00 | 130737 | ( ML/EPA 300.0 ) | Nitrite, Nitrogen by IC | ND | mg/l | 0.10 | 1 |
| | 12/15/00 12:00 | 130738 | ( ML/EPA 300.0 ) | Nitrate-N by IC | ND | mg/l | 0.10 | 1 |
| | 12/15/00 12:00 | 130704 | ( ML/S4500P-E ) | Orthophosphate-P | 0.014 | mg/l | 0.010 | 1 |
| | 12/20/00 04:12 | 130998 | ( S4500PE/E365.1) | Total phosphorus-P | 0.03 | mg/l | 0.020 | 1 |
| | 12/19/00 04:13 | 130896 | ( ML/EPA 351.2 ) | Kjeldahl Nitrogen | 0.70 | mg/l | 0.20 | 1 |
| | 12/14/00 02:05 | | ( ML/SM9221B ) | Total Coliform Bacteria | 1400 | MPN/mL | 2.0 | 1 |
| | 12/15/00 12:00 | 130747 | ( ML/EPA 180.1 ) | Turbidity | 1.6 | NTU | 0.050 | 1 |
| BIG TJ WASH STREAM 2 (2012140261) Sampled on 12/14/00 12:22 | | | | | | | | |
| | 12/14/00 02:05 | | ( ML/SM9221C ) | Fecal Coliform Bacteria | 500 | MPN/mL | 2.0 | 1 |
| | 12/21/00 12:00 | 131209 | ( ML/EPA 350.1 ) | Ammonia Nitrogen | ND | mg/l | 0.050 | 1 |
| | 12/15/00 12:00 | 130737 | ( ML/EPA 300.0 ) | Nitrite, Nitrogen by IC | ND | mg/l | 0.10 | 1 |
| | 12/15/00 12:00 | 130738 | ( ML/EPA 300.0 ) | Nitrate-N by IC | ND | mg/l | 0.10 | 1 |
| | 12/15/00 12:00 | 130704 | ( ML/S4500P-E ) | Orthophosphate-P | 0.014 | mg/l | 0.010 | 1 |
| | 12/20/00 04:12 | 130998 | ( S4500PE/E365.1) | Total phosphorus-P | ND | mg/l | 0.020 | 1 |
| | 12/19/00 04:13 | 130896 | ( ML/EPA 351.2 ) | Kjeldahl Nitrogen | 0.62 | mg/l | 0.20 | 1 |
| | 12/14/00 02:05 | | ( ML/SM9221B ) | Total Coliform Bacteria | 2400 | MPN/mL | 2.0 | 1 |
| | 12/15/00 12:00 | 130747 | ( ML/EPA 180.1 ) | Turbidity | 2.2 | NTU | 0.050 | 1 |

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(continued)

| repared | Analyzed | QC Ref# | Method | Analyte | Result | Units | MRL | Dilution |
|---|---|---|---|---|---|---|---|---|
| **HAYNES MIT BANK EXIT STRM 1 (2012140262)** | | | | **Sampled on 12/14/00 09:47** | | | | |
| | 12/14/00 02:05 | | ( ML/SM9221C ) | Fecal Coliform Bacteria | 80 | MPN/mL | 2.0 | 1 |
| | 12/21/00 12:00 | 131211 | ( ML/EPA 350.1 ) | Ammonia Nitrogen | ND | mg/l | 0.050 | 1 |
| | 12/15/00 12:00 | 130737 | ( ML/EPA 300.0 ) | Nitrite, Nitrogen by IC | ND | mg/l | 0.10 | 1 |
| | 12/15/00 12:00 | 130738 | ( ML/EPA 300.0 ) | Nitrate-N by IC | 1.59 | mg/l | 0.10 | 1 |
| | 12/15/00 12:00 | 130704 | ( ML/S4500P-E ) | Orthophosphate-P | 0.016 | mg/l | 0.010 | 1 |
| | 12/20/00 04:12 | 130998 | ( S4500PE/E365.1) | Total phosphorus-P | 0.02 | mg/l | 0.020 | 1 |
| | 12/19/00 04:13 | 130856 | ( ML/EPA 351.2 ) | Kjeldahl Nitrogen | 0.72 | mg/l | 0.20 | 1 |
| | 12/14/00 02:05 | | ( ML/SM9221B ) | Total Coliform Bacteria | 900 | MPN/mL | 2.0 | 1 |
| | 12/15/00 12:00 | 130746 | ( ML/EPA 180.1 ) | Turbidity | 1.8 | NTU | 0.050 | 1 |
| **HAYNES MIT BANK EXIT STREAM 2 (2012140263)** | | | | **Sampled on 12/14/00 09:55** | | | | |
| | 12/14/00 02:05 | | ( ML/SM9221C ) | Fecal Coliform Bacteria | 110 | MPN/mL | 2.0 | 1 |
| | 12/21/00 12:00 | 131211 | ( ML/EPA 350.1 ) | Ammonia Nitrogen | ND | mg/l | 0.050 | 1 |
| | 12/15/00 12:00 | 130737 | ( ML/EPA 300.0 ) | Nitrite, Nitrogen by IC | ND | mg/l | 0.10 | 1 |
| | 12/15/00 12:00 | 130738 | ( ML/EPA 300.0 ) | Nitrate-N by IC | 1.56 | mg/l | 0.10 | 1 |
| | 12/15/00 12:00 | 130704 | ( ML/S4500P-E ) | Orthophosphate-P | 0.016 | mg/l | 0.010 | 1 |
| | 12/20/00 04:12 | 130998 | ( S4500PE/E365.1) | Total phosphorus-P | ND | mg/l | 0.020 | 1 |
| | 12/19/00 04:13 | 130856 | ( ML/EPA 351.2 ) | Kjeldahl Nitrogen | ND | mg/l | 0.20 | 1 |
| | 12/14/00 02:05 | | ( ML/SM9221B ) | Total Coliform Bacteria | 3000 | MPN/mL | 2.0 | 1 |
| | 12/15/00 12:00 | 130746 | ( ML/EPA 180.1 ) | Turbidity | 1.4 | NTU | 0.050 | 1 |

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#: 1341369.5620.011800
Group#: 73125
Project#: BIG TJ
Proj Mgr: Hillary Strayer
Phone: (626) 568-6412

The following samples were received from you on **12/14/00**. 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 | Tests Scheduled | Matrix | Sample Date |
|---|---|---|---|---|
| 012140256 | UPPER TJ POND [redacted] 1 | | Water | 14-dec-2000 11:03:00 |
| | FECCOL NH3 NO2-N NO3 OPO4 T-P | | | |
| | TKN TOTCOL TURB | | | |
| 012140257 | UPPER TJ POND [redacted] 2 | | Water | 14-dec-2000 11:12:00 |
| | FECCOL NH3 NO2-N NO3 OPO4 T-P | | | |
| | TKN TOTCOL TURB | | | |
| 012140258 | LOWER TJ POND [redacted] 1 | | Water | 14-dec-2000 11:41:00 |
| | FECCOL NH3 NO2-N NO3 OPO4 T-P | | | |
| | TKN TOTCOL TURB | | | |
| 012140259 | LOWER TJ POND [redacted] 2 | | Water | 14-dec-2000 11:48:00 |
| | FECCOL NH3 NO2-N NO3 OPO4 T-P | | | |
| | TKN TOTCOL TURB | | | |
| 012140260 | BIG TJ WASH STREAM 1 | | Water | 14-dec-2000 12:11:00 |
| | FECCOL NH3 NO2-N NO3 OPO4 T-P | | | |
| | TKN TOTCOL TURB | | | |
| 012140261 | BIG TJ WASH STREAM 2 | | Water | 14-dec-2000 12:22:00 |
| | FECCOL NH3 NO2-N NO3 OPO4 T-P | | | |
| | TKN TOTCOL TURB | | | |
| 012140262 | HAYNES MIT BANK EXIT STRM 1 | | Water | 14-dec-2000 09:47:00 |
| | FECCOL NH3 NO2-N NO3 OPO4 T-P | | | |
| | TKN TOTCOL TURB | | | |
| 012140263 | HAYNES MIT BANK EXIT STREAM 2 | | Water | 14-dec-2000 09:55:00 |
| | 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-N by IC |

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Group#: 73125
Project#: BIG TJ
Proj Mgr: Hillary Strayer
Phone: (626) 568-6412

## Test Acronym Description

| Test Acronym | Description |
|---|---|
| OPO4 | Orthophosphate-P |
| T-P | Total phosphorus-P |
| TKN | Kjeldahl Nitrogen |
| TOTCOL | Total Coliform Bacteria |
| TURB | Turbidity |

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Laboratory
QC Summary
#73125

Applied Research MWA - Joe Marcinko

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QC Ref #130704 - Orthophosphate-P Analysis Date: 12/15/2000

| | |
|---|---|
| 2012140256 | UPPER TJ POND [redacted] 1 |
| 2012140257 | UPPER TJ POND [redacted] 2 |
| 2012140258 | LOWER TJ POND [redacted] 1 |
| 2012140259 | LOWER TJ POND [redacted] 2 |
| 2012140260 | BIG TJ WASH STREAM 1 |
| 2012140261 | BIG TJ WASH STREAM 2 |
| 2012140262 | HAYNES MIT BANK EXIT STRM 1 |
| 2012140263 | HAYNES MIT BANK EXIT STREAM 2 |

QC Ref #130737 - Nitrite, Nitrogen by IC Analysis Date: 12/15/2000

| | |
|---|---|
| 2012140256 | UPPER TJ POND [redacted] 1 |
| 2012140257 | UPPER TJ POND [redacted] 2 |
| 2012140258 | LOWER TJ POND [redacted] 1 |
| 2012140259 | LOWER TJ POND [redacted] 2 |
| 2012140260 | BIG TJ WASH STREAM 1 |
| 2012140261 | BIG TJ WASH STREAM 2 |
| 2012140262 | HAYNES MIT BANK EXIT STRM 1 |
| 2012140263 | HAYNES MIT BANK EXIT STREAM 2 |

QC Ref #130738 - Nitrate-N by IC Analysis Date: 12/15/2000

| | |
|---|---|
| 2012140256 | UPPER TJ POND [redacted] 1 |
| 2012140257 | UPPER TJ POND [redacted] 2 |
| 2012140258 | LOWER TJ POND [redacted] 1 |
| 2012140259 | LOWER TJ POND [redacted] 2 |
| 2012140260 | BIG TJ WASH STREAM 1 |
| 2012140261 | BIG TJ WASH STREAM 2 |
| 2012140262 | HAYNES MIT BANK EXIT STRM 1 |
| 2012140263 | HAYNES MIT BANK EXIT STREAM 2 |

QC Ref #130746 - Turbidity Analysis Date: 12/15/2000

| | |
|---|---|
| 2012140256 | UPPER TJ POND [redacted] 1 |
| 2012140257 | UPPER TJ POND [redacted] 2 |
| 2012140258 | LOWER TJ POND [redacted] 1 |
| 2012140259 | LOWER TJ POND [redacted] 2 |
| 2012140262 | HAYNES MIT BANK EXIT STRM 1 |
| 2012140263 | HAYNES MIT BANK EXIT STREAM 2 |

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(continued)

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QC Ref #130747 - Turbidity Analysis Date: 12/15/2000

| | |
|---|---|
| 2012140260 | BIG TJ WASH STREAM 1 |
| 2012140261 | BIG TJ WASH STREAM 2 |

QC Ref #130896 - Kjeldahl Nitrogen Analysis Date: 12/19/2000

| | |
|---|---|
| 2012140256 | UPPER TJ POND [redacted] 1 |
| 2012140257 | UPPER TJ POND [redacted] 2 |
| 2012140258 | LOWER TJ POND [redacted] 1 |
| 2012140259 | LOWER TJ POND [redacted] 2 |
| 2012140260 | BIG TJ WASH STREAM 1 |
| 2012140261 | BIG TJ WASH STREAM 2 |
| 2012140262 | HAYNES MIT BANK EXIT STRM 1 |
| 2012140263 | HAYNES MIT BANK EXIT STREAM 2 |

QC Ref #130996 - Total phosphorus-P Analysis Date: 12/20/2000

| | |
|---|---|
| 2012140256 | UPPER TJ POND EFFLUENT 1 |

QC Ref #130998 - Total phosphorus-P Analysis Date: 12/20/2000

| | |
|---|---|
| 2012140257 | UPPER TJ POND [redacted] 2 |
| 2012140258 | LOWER TJ POND [redacted] 1 |
| 2012140259 | LOWER TJ POND [redacted] 2 |
| 2012140260 | BIG TJ WASH STREAM 1 |
| 2012140261 | BIG TJ WASH STREAM 2 |
| 2012140262 | HAYNES MIT BANK EXIT STRM 1 |
| 2012140263 | HAYNES MIT BANK EXIT STREAM 2 |

QC Ref #131209 - Ammonia Nitrogen Analysis Date: 12/21/2000

| | |
|---|---|
| 2012140256 | UPPER TJ POND [redacted] 1 |
| 2012140257 | UPPER TJ POND [redacted] 2 |
| 2012140258 | LOWER TJ POND [redacted] 1 |
| 2012140259 | LOWER TJ POND [redacted] 2 |
| 2012140260 | BIG TJ WASH STREAM 1 |
| 2012140261 | BIG TJ WASH STREAM 2 |

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(continued)

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QC Ref #131211 - Ammonia Nitrogen Analysis Date: 12/21/2000

| | |
|---|---|
| 2012140262 | HAYNES MIT BANK EXIT STRM 1 |
| 2012140263 | HAYNES MIT BANK EXIT STREAM 2 |

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## QC Ref #130704 Orthophosphate-P

| QC | Analyte | Spiked | Recovered | Yield (%) | Limits (%) | RPD (%) |
|---|---|---|---|---|---|---|
| MS | Spiked sample | Lab # 20 | 12140261 | | ( 0.00 - 0.00 ) | |
| LCS1 | Orthophosphate-P | 0.5 | 0.505 | 101.0 | ( 80.00 - 120.00 ) | |
| LCS2 | Orthophosphate-P | 0.5 | 0.507 | 101.4 | ( 80.00 - 120.00 ) | 0.40 |
| MBLK | Orthophosphate-P | ND | | | | |
| MS | Orthophosphate-P | 0.5 | 0.505 | 101.0 | ( 80.00 - 120.00 ) | |
| MSD | Orthophosphate-P | 0.5 | 0.502 | 100.4 | ( 80.00 - 120.00 ) | 0.60 |

## QC Ref #130737 Nitrite, Nitrogen by IC

| QC | Analyte | Spiked | Recovered | Yield (%) | Limits (%) | RPD (%) |
|---|---|---|---|---|---|---|
| MS | Spiked sample | Lab # 20 | 12150001 | | ( 0.00 - 0.00 ) | |
| LCS1 | Nitrite, Nitrogen by IC | 1.0 | 1.05 | 105.0 | ( 90.00 - 110.00 ) | |
| LCS2 | Nitrite, Nitrogen by IC | 1.0 | 1.03 | 103.0 | ( 90.00 - 110.00 ) | 1.9 |
| MBLK | Nitrite, Nitrogen by IC | ND | | | | |
| MS | Nitrite, Nitrogen by IC | 1.0 | 0.925 | 92.5 | ( 82.00 - 114.00 ) | |
| MSD | Nitrite, Nitrogen by IC | 1.0 | 0.956 | 95.6 | ( 82.00 - 114.00 ) | 3.3 |

## QC Ref #130738 Nitrate-N by IC

| QC | Analyte | Spiked | Recovered | Yield (%) | Limits (%) | RPD (%) |
|---|---|---|---|---|---|---|
| MS | Spiked sample | Lab # 20 | 12140246 | | ( 0.00 - 0.00 ) | |
| LCS1 | Nitrate-N by IC | 2.5 | 2.62 | 104.8 | ( 94.00 - 106.00 ) | |
| LCS2 | Nitrate-N by IC | 2.5 | 2.64 | 105.6 | ( 94.00 - 106.00 ) | 0.76 |
| MBLK | Nitrate-N by IC | ND | | | | |
| MS | Nitrate-N by IC | 2.5 | 2.71 | 108.4 | ( 85.00 - 118.00 ) | |
| MSD | Nitrate-N by IC | 2.5 | 2.71 | 108.4 | ( 85.00 - 118.00 ) | 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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Applied Research MWA - Joe Marcinko
(continued)

## QC Ref #130746 Turbidity

| QC | Analyte | Spiked | Recovered | Yield (%) | Limits (%) | RPD (%) |
|---|---|---|---|---|---|---|
| DUP-2012140253 | Turbidity | 1.0 | 1.0 | | ( 0.00 - 20.00 ) | 0.0 |

## QC Ref #130747 Turbidity

| QC | Analyte | Spiked | Recovered | Yield (%) | Limits (%) | RPD (%) |
|---|---|---|---|---|---|---|
| DUP-2012140234 | Turbidity | 57 | 57 | | ( 0.00 - 20.00 ) | 0.0 |

## QC Ref #130896 Kjeldahl Nitrogen

| QC | Analyte | Spiked | Recovered | Yield (%) | Limits (%) | RPD (%) |
|---|---|---|---|---|---|---|
| MS | Spiked sample | Lab # 20 | 12120078 | | ( 0.00 - 0.00 ) | |
| LCS1 | Kjeldahl Nitrogen | 4 | 4.23 | 105.8 | ( 70.00 - 130.00 ) | |
| LCS2 | Kjeldahl Nitrogen | 4 | 4.35 | 108.7 | ( 70.00 - 130.00 ) | 2.8 |
| MBLK | Kjeldahl Nitrogen | ND | | | | |
| MS | Kjeldahl Nitrogen | 4 | 4.37 | 109.2 | ( 70.00 - 130.00 ) | |
| MSD | Kjeldahl Nitrogen | 4 | 4.44 | 111.0 | ( 70.00 - 130.00 ) | 1.6 |

## QC Ref #130996 Total phosphorus-P

| QC | Analyte | Spiked | Recovered | Yield (%) | Limits (%) | RPD (%) |
|---|---|---|---|---|---|---|
| MS | Spiked sample | Lab # 20 | 12130406 | | ( 0.00 - 0.00 ) | |
| LCS1 | Total phosphorus-P | 0.4 | 0.412 | 103.0 | ( 80.00 - 120.00 ) | |
| LCS2 | Total phosphorus-P | 0.4 | 0.400 | 100.0 | ( 80.00 - 120.00 ) | 3.0 |
| 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 | 0.400 | 100.0 | ( 80.00 - 120.00 ) | 4.9 |

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QC Report
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Applied Research MWA - Joe Marcinko
(continued)

## QC Ref #130998 Total phosphorus-P

| QC | Analyte | Spiked | Recovered | Yield (%) | Limits (%) | RPD (%) |
|---|---|---|---|---|---|---|
| MS | Spiked sample | Lab # 20 | 12140257 | | ( 0.00 - 0.00 ) | |
| LCS1 | Total phosphorus-P | 0.4 | 0.423 | 105.7 | ( 80.00 - 120.00 ) | |
| LCS2 | Total phosphorus-P | 0.4 | 0.419 | 104.7 | ( 80.00 - 120.00 ) | 0.95 |
| MBLK | Total phosphorus-P | ND | | | | |
| MS | Total phosphorus-P | 0.4 | 0.430 | 107.5 | ( 80.00 - 120.00 ) | |
| MSD | Total phosphorus-P | 0.4 | 0.410 | 102.5 | ( 80.00 - 120.00 ) | 4.8 |

## QC Ref #131209 Ammonia Nitrogen

| QC | Analyte | Spiked | Recovered | Yield (%) | Limits (%) | RPD (%) |
|---|---|---|---|---|---|---|
| MS | Spiked sample | Lab # 20 | 12140116 | | ( 0.00 - 0.00 ) | |
| LCS1 | Ammonia Nitrogen | 1.00 | 1.02 | 102.0 | ( 80.00 - 120.00 ) | |
| LCS2 | Ammonia Nitrogen | 1.00 | 1.02 | 102.0 | ( 80.00 - 120.00 ) | 0.00 |
| MBLK | Ammonia Nitrogen | ND | | | | |
| MS | Ammonia Nitrogen | 1.00 | 0.933 | 93.3 | ( 80.00 - 120.00 ) | |
| MSD | Ammonia Nitrogen | 1.00 | 0.934 | 93.4 | ( 80.00 - 120.00 ) | 0.11 |

## QC Ref #131211 Ammonia Nitrogen

| QC | Analyte | Spiked | Recovered | Yield (%) | Limits (%) | RPD (%) |
|---|---|---|---|---|---|---|
| MS | Spiked sample | Lab # 20 | 12140004 | | ( 0.00 - 0.00 ) | |
| LCS1 | Ammonia Nitrogen | 1.00 | 1.02 | 102.0 | ( 80.00 - 120.00 ) | |
| LCS2 | Ammonia Nitrogen | 1.00 | 1.01 | 101.0 | ( 80.00 - 120.00 ) | 0.99 |
| MBLK | Ammonia Nitrogen | ND | | | | |
| MS | Ammonia Nitrogen | 1.00 | 0.967 | 96.7 | ( 80.00 - 120.00 ) | |
| MSD | Ammonia Nitrogen | 1.00 | 0.968 | 96.8 | ( 80.00 - 120.00 ) | 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.