County of Los Angeles
Department of Public Works

February 2012 Water Quality Monitoring Report

for the

Master Mitigation Plan
for the Big Tujunga Wash Mitigation Area

April 2012

MWH

February 2012 Water Quality Monitoring Report

for

Master Mitigation Plan
for the Big Tujunga Wash Mitigation Area
for Year 2011

April 2012

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Water Quality Monitoring
February 2012

BACKGROUND

The County of Los Angeles Department of Public Works (LACDPW) purchased a 207-acre parcel in Big Tujunga Wash as a mitigation area for County flood control projects throughout Los Angeles County. In coordination with local agencies, the County defined a number of measures to improve habitat quality at the site. A Final Master Mitigation Plan (FMMP) was prepared to guide the implementation of these enhancements. The FMMP also includes a monitoring program to gather data on conditions at the site during implementation of the improvements. The FMMP was prepared and is currently being implemented by ECORP Consulting, Inc. MWH, a subconsultant to ECORP, is responsible for the water quality monitoring program described in the FMMP. Water quality monitoring was conducted on a quarterly basis from the fourth quarter of 2000 through the fourth quarter of 2005. In 2006, monitoring was conducted on a semi-annual basis. In 2007 through 2009 monitoring was conducted annually, in December. In 2010, monitoring was conducted in November; pesticide sampling was conducted in early December. This report presents the results of the water quality sampling for February 2012.

The project site is located just east of Hansen Dam in the Shadow Hills area of the City of Los Angeles. 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 outside of the site boundary, at the far eastern side of the site.

Project Site Activities

A timeline of project-related activities including water quality sampling events is presented in **Table 1**.

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

Date	Activity
4/2000	Baseline water quality sampling
11/2000 to 11/2001	Arundo, tamarisk, and pepper tree removal Chemical (Rodeo®) application
12/2000 to 11/2002	Water hyacinth removal
12/2000	Fish Sampling at Haines Canyon Creek
12/2000	Water quality sampling
1/2001 to present	Exotic aquatic wildlife (non-native fish, crayfish, bullfrog, and turtle) removal – conducted quarterly
2/2001	Partial riparian planting
3/2001	Selective clearing at Canyon Trails Golf Club
3/2001	Water quality sampling
6/2001	Water quality sampling
7/2001	Fish Sampling at Haines Canyon Creek
9/2001	Water quality sampling
10/2001 to 11/2001	Fish Sampling at Haines Canyon Creek

Table 1 (Continued)
Major Activities to Date at the Big Tujunga Wash Mitigation Area

Date	Activity
12/2001	Water quality sampling
1/2002	Final riparian planting
2/2002	Upland replacement planting
3/2002	Water quality sampling
6/2002	Water quality sampling
7/2002	Fish Sampling at Haines Canyon Creek
9/2002	Water quality sampling
10/2002	Grading at Canyon Trails Golf Club begins
11/2002	Fish Sampling at Haines Canyon Creek
12/2002	Water quality sampling
3/2003	Water quality sampling
4/2003	Meeting with Canyon Trails Golf Club to discuss future use of herbicides and fertilizers
6/2003	Water quality sampling
8/2003	Fish Sampling at Haines Canyon Creek
9/2003	Water quality sampling
Fall 2003	Completion of the golf course construction
12/2003	Water quality sampling
1/2004	Fish Sampling at Haines Canyon Creek
4/2004	Water quality sampling
4/2004	Rock Dam Removal Day
6/2004	Angeles National Golf Club (previously named Canyon Trails) opens to the public
7/2004	Water quality sampling
10/2004	Water quality sampling
12/2004	Water quality sampling
4/2005	Water quality sampling
6/2005	Water quality sampling
10/2005	Water quality sampling
12/2005	Water quality sampling
7/2006	Water quality sampling
12/2006	Water quality sampling
12/2007	Water quality sampling
12/2008	Water quality sampling
8/2009 to 10/2009	The Station Fire was the largest fire in the recorded history of Angeles National Forest and the 10th largest fire in California since 1933. The fire burned a total of 160,577 acres. The fire was fully contained on October 16, 2009. (Source: Angeles National Forest Incident Update available - http://www.inciweb.org/incident/1856/)
12/2009	Water quality sampling
11/2010	Water quality sampling
12/2010	Water quality sampling for pesticides
2/2012	Water quality sampling

Upstream Land Uses

The monitoring program has been designed to specifically address inputs to the site from upstream land uses such as the Angeles National Golf Club (previously named Canyon Trails Golf Club). The golf course has been operating since June 2004. Potential impacts to aquatic species from run-on to the site that contains excessive nutrients or pesticides are of primary concern. Pesticides potentially used at the Angeles National Golf Course include herbicides, insecticides, fungicides, and grass growth inhibitors (**Table 2**). Pesticide use reports were supplied by the Golf Club in December 2004, February 2005 and April 2007.

Water quality reports for sampling conducted from 2001 to 2004, and in 2006, were also received from the Golf Club. Concentrations of pesticides (including fungicides, herbicides and insecticides) were not detected in any groundwater monitoring wells or surface water samples during any of the sampling events from 2001 to 2004. Except for nitrate, general chemical parameters did not exceed state drinking water standards. Nitrate concentrations above drinking water limits were detected in two of the groundwater monitoring wells (MW-1 [downgradient] and MW-3 [upgradient]) located on the south side of the golf course site during most sampling events from October 2001 (prior to start of golf course construction) to 2004. In addition, low levels of two VOCs (chloroform and tetrachloroethylene [PCE]) were detected at MW-1 and MW-3 from 2001 to 2004. In both the groundwater and surface water samples collected for the Golf Club during the first and second quarters of 2006, concentrations of pesticides (including fungicides, herbicides and insecticides) were not detected, and general chemical parameters did not exceed state drinking water standards (Angeles National Golf Club, May 2006 and July 2006). No other reports have been received.

Actual use of pesticides is based on golf course maintenance needs. Based on the pesticide use information from the Golf Club, analysis of water samples for glyphosate, chlorpyrifos, and organophosphorous pesticides is included in the sampling program for the Big Tujunga Wash Mitigation Area.

Table 2
Pesticides Potentially Used at the Angeles National Golf Club

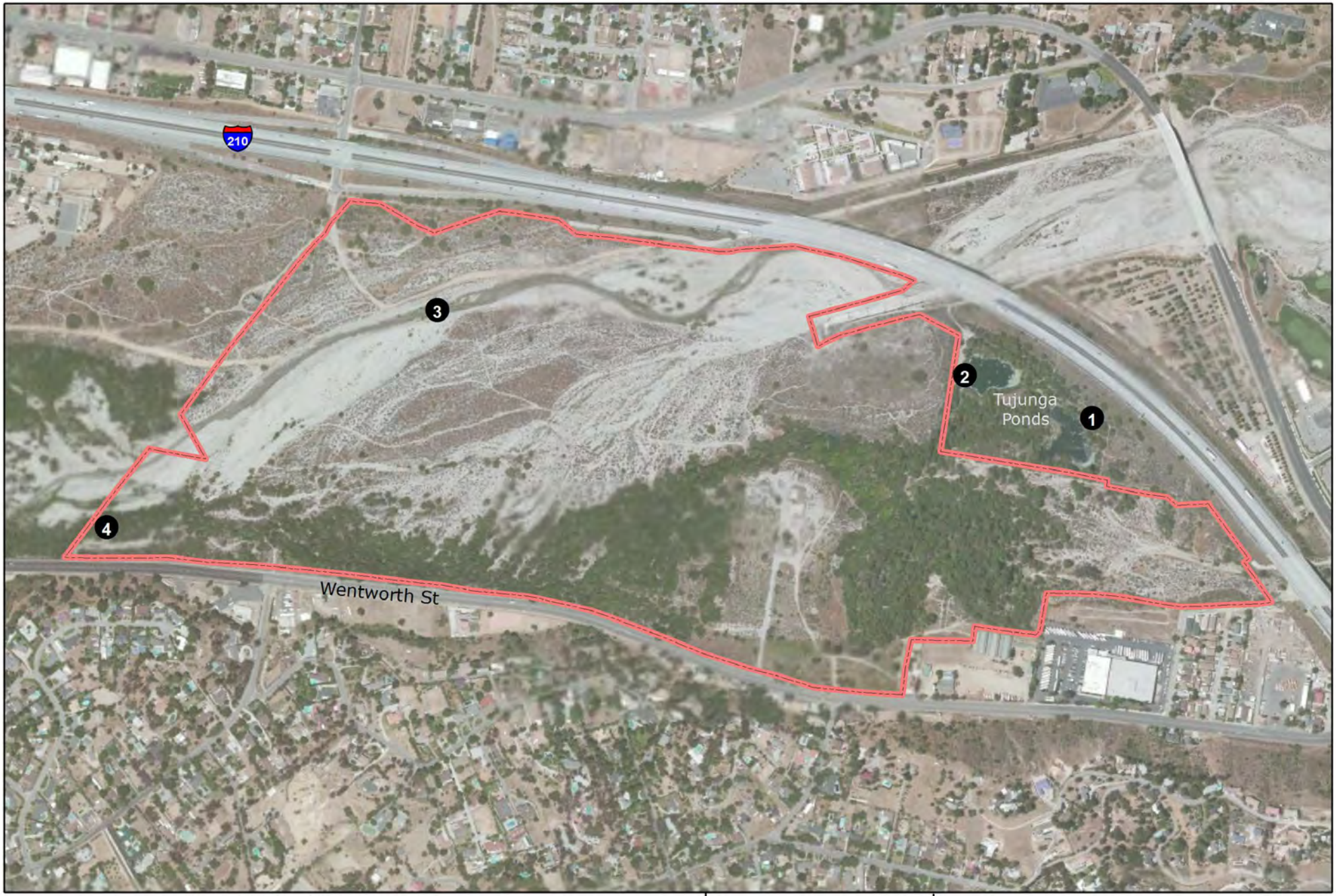
Manufacturer and Product Name	Active Ingredient	Use
Syngenta Primo Maxx	trinexapac-ethyl	grass growth inhibitor used for turf management
Syngenta Reward	diquat dibromide	landscape and aquatic herbicide
Syngenta Barricade	prodiamine	pre-emergent herbicide
Bayer Prostar 70 WP	flutolanil	fungicide
Monsanto QuikPRO	ammonium salt of glyphosphate and diquat dibromide	herbicide
Monsanto Rodeo® Verdicon Kleenup® Pro Lesco Prosecutor	glyphosate	emerged aquatic weed and brush herbicide
Valent ProGibb T&O	gibberellic acid	plant growth regulator
BASF Insignia 20 WG	pyraclostrobin	fungicide
BASF Stalker	Isopropylamine salt of Imazapyr	herbicide
Dow Agrosciences Surflan A.S.	oryzalin	herbicide
Dow Agrosciences Dursban Pro	chlorpyrifos	insecticide
Mycogen Scythe	pelargonic acid	herbicide

Source: J. Reidinger, Angeles National Golf Club, pers. comm. to M. Chimienti, LACDPW, March 18, 2004 and Angeles National Golf Club Monthly Summary Pesticide Use Reports

MATERIALS AND METHODS

Sampling Stations

Four sampling locations have been identified for the monitoring program for the Big Tujunga Wash Mitigation Area (**Figure 1**). **Table 3** summarizes sampling locations and the conditions observed on February 23, 2012.



Key to Features

Mitigation Area

Station Number	Name
1	Inflow to Tujunga Ponds
2	Outflow from Tujunga Ponds
3	Big Tujunga Wash
4	Haines Canyon Creek, just before exit from site

N

0 450 900 Feet

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Date: April 19, 2012

Big Tujunga Wash Mitigation Area
Water Quality Sampling Stations

MWH.

Figure 1

Table 3
Water Quality Sampling Locations and Conditions for February 2012

Date	February 23, 2012		
Air Temperature	Approximately 65-77 degrees Fahrenheit during sample collection period		
Skies	Clear, sunny		
Observations	Water very clear at all locations, low turbidity. Surface vegetation and algae levels relatively low at all stations.		
Sampling Locations	**Latitude**	**Longitude**	**Time of sample**
Haines Canyon Creek	34 16' 0.092'' N	118 21' 25.716' 'W	1120
Haines Canyon Creek, inflow to Tujunga Ponds	34 16' 6.040'' N	118 20' 22.616'' W	1210
Haines Canyon Creek, outflow from Tujunga Ponds	34 16' 8.263'' N	118 20' 30.824'' W	1230
Big Tujunga Wash	34 16' 11.615'' N	118 21' 4.519'' W	1020

Sampling Parameters

Water Quality. **Table 4** summarizes the sampling parameters included in the water quality monitoring program. The following meters were used in the field:

- Dissolved oxygen – YSI 550A Field DO meter and thermometer
- pH and temperature – Orion 230A pH meter with HACH 51935 electrode

Pesticides were analyzed by Emax Laboratories, Inc., Torrance, California. All other analyses were performed at MWH Laboratories, Monrovia, California. Samples were taken at mid-depth, along a transect perpendicular to the stream channel alignment. Quality assurance/quality control (QA/QC) procedures in each laboratory followed the methods described in their respective Quality Assurance Manuals.

Table 4
Water Quality Sampling Parameters

Parameter	Analysis Location	Analytical Method
total Kjeldahl nitrogen (TKN)	laboratory	EPA 351.2
nitrite - nitrogen (NO_2-N)	laboratory	EPA 300.0 by IC
nitrate-nitrogen (NO_3-N)	laboratory	EPA 300.0 by IC
ammonia (NH_4)	laboratory	EPA 350.1
orthophosphate - P	laboratory	Standard Methods 4500PE/EPA 365.1
total phosphorus - P	laboratory	Standard Methods 4500PE/EPA 365.1
total coliform	laboratory	Standard Methods 9221B
fecal coliform	laboratory	Standard Methods 9221C
turbidity	laboratory	EPA 180.1
glyphosate (Roundup/Rodeo)[1]	laboratory	EPA 547
chlorpyrifos[2]	laboratory	EPA 8141A
Organophosphorous Pesticides[3]	laboratory	EPA 8081A
dissolved oxygen	field	Standard Methods 4500-O G
total residual chlorine	laboratory	Standard Methods 4500-Cl
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.

1 First analysis completed in the first quarter of 2004

2 First analysis completed in the fourth quarter of 2004. This analytical method tests for the following chemicals: azinphos-methyl, bolster, coumaphos, diazinon, chlorpyrifos, demeton, dichlorvos, disulfoton, ethoprop, fensulfothion, fenthion, mevinphos, naled, phorate, runnel, stirophos, parathion-methyl, tokuthion, and trichloronate.

3 First analysis completed in December 2007. EPA method 8081A tests for aldrin, BHC, Chlordane, DDD, DDE, DDT, dieldrin, endrin, endosulfan, heptaclor, methoxychlor, and toxaphene.

Discharge Measurements. In addition to the water quality monitoring, flows in the outlet from Big Tujunga Ponds, in Haines Canyon Creek leaving the site, and in Big Tujunga Wash were estimated using a simple field procedure. The technique uses a float to measure stream velocity.

Calculating flow then involves solving the following equation:

$$Flow = ALC / T$$

Where:

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

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

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

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

RESULTS

Baseline Water Quality

Sampling and analysis conducted by LACDPW prior to implementation of the FMMP is considered the baseline for water quality conditions at the site. The results of baseline analyses conducted in April 2000 are presented in **Table 5**. Higher bacteria and turbidity observed in the 4/18/00 samples are attributable to a rain event. Phosphorus levels were also high in the 4/18/00 samples, due to release from sediments.

February 2012 Results

Water Quality

Results of analyses conducted by MWH and Emax Laboratories are appended to this report (**Appendix A**) and summarized in **Table 6**. Note that the yields (percent recoveries) of QC samples were within acceptable limits (percentages) for all samples.

Table 5
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	3,000	5,000	170	1,700
		4/18/00	2,200	170,000	2,400	70,000
Fecal coliform	MPN/ 100 ml	4/12/00	500	300	40	80
		4/18/00	500	30,000	2,400	50,000
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 6
Summary of Water Quality Results – February 23, 2012

Parameter	Units	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
Temperature	°C	18.9	18.0	13.7	17.2
Dissolved Oxygen	mg/L	7.6	8.3	12.5	10.2
pH	std units	6.75	6.82	8.74	8.04
Total residual chlorine	mg/L	ND	ND	ND	ND
Ammonia-Nitrogen	mg/L	ND	ND	ND	ND
Kjeldahl Nitrogen	mg/L	ND	ND	ND	ND
Nitrite-Nitrogen	mg/L	ND	ND	ND	ND
Nitrate-Nitrogen	mg/L	8.7	5.8	ND	5.3
Orthophosphate-P	mg/L	0.039	0.031	0.014	0.030
Total phosphorus-P	mg/L	0.042	0.037	0.029	0.035
Glyphosate	µg/L	ND	ND	ND	ND
Chloropyrifos*	ng/L	ND	ND	ND	ND
Pesticides (EPA 8081A)**	µg/L	ND	ND	ND	ND
Turbidity	NTU	0.56	0.46	0.95	0.31
Fecal Coliform Bacteria	(MPN/100 ml)	14	<2	2	8
Total Coliform Bacteria	(MPN/100 ml)	700	900	280	1100

NTU – nephelometric turbidity units MPN – most probable number ND – non-detect

* The analytical method used for chloropyrifos (EPA 8141A) also tests for the following chemicals: azinphos-methyl, bolster, coumaphos, diazinon, demeton, dichlorvos, disulfoton, ethoprop, fensulfothion, fenthion, mevinphos, naled, phorate, runnel, stirophos, parathion-methyl, tokuthion, and trichloronate.

** EPA method 8081A tests for aldrin, BHC, Chlordane, DDD, DDE, DDT, dieldrin, endrin, endosulfan, heptaclor, methoxychlor, and toxaphene.

Discharge Measurements

Using the field technique described above, flows in the outlet from Big Tujunga Ponds, in Haines Canyon Creek (leaving the site), and in Big Tujunga Wash were approximated. Estimated flows for February 2012 are summarized in **Table 7**.

Table 7
Estimated Flows for February 2012

Sampling Date	Approximate Flow (cubic feet per second)		
	Outlet of Big Tujunga Ponds	Haines Canyon Creek leaving the site	Big Tujunga Wash
2/23/2012	1.9	3.8	18.5

Comparison of Results with Aquatic Life Criteria

Tables 8 through **13** present objectives established by the United States Environmental Protection Agency (USEPA) and the Los Angeles Regional Water Quality Control Board (Regional Board) for protection of beneficial uses including freshwater aquatic life.

Table 8
National and Local Recommended Water Quality Criteria - Freshwaters

Parameter	Basin Plan Objectives[a]	EPA Criteria		
		CMC	CCC	Human Health
Temperature (^{o}C)	b	See Table 13	See Table 13	--
Dissolved oxygen (mg/L)	>7.0 mean >5.0 min	5.0[c] (warmwater, early life stages, 1-day minimum)	6.0[c] (warmwater, early life stages, 7-day mean)	--
pH	6.5 - 8.5	--	6.5-9.0[d,e]	5.0-9.0[d,e]
Total residual chlorine (mg/L)	0.1	0.019[d,e]	0.011[d,e]	4.0 (maximum residual disinfectant level goal)
Fecal coliform (MPN/100 ml)	200[f] (water contact recreation)	--	--	Swimming stds: 33[g] (geometric mean for enterococci) 126[g] (geometric mean for *E. coli*)
Ammonia-nitrogen (mg/L)	See Tables 11 and 12	See Table 9	See Table 10	--
Nitrite-nitrogen (mg/L)	1	--	--	1 (primary drinking water std.)
Nitrate-nitrogen (mg/L)	10	--	--	10 (primary drinking water std.)
Total phosphorus (mg/L)	--	<0.05 – 0.1[e] (recommendation for streams, no criterion)		--
Turbidity (NTU)	h	i	i	5 (secondary drinking water standard) 0.5 – 1.0 (std. for systems that filter)

Notes:

-- No criterion

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 Narrative criterion: "The natural receiving water temperature of all regional waters shall not be altered unless it can be demonstrated to the satisfaction of the Regional Board that such alteration in temperature does not adversely affect beneficial uses."

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

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

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

f 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.

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

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

i 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 9
Temperature and pH-Dependent Values of the CMC (Acute Criterion)
Mussels Absent

CMC: Mussels Absent, mg N/L										
pH	Temperature, C									
	0	14	16	18	20	22	24	26	28	30
6.5	58.0	58.0	58.0	58.0	43.7	37.0	31.4	26.6	22.5	19.1
6.6	55.7	55.7	55.7	55.7	41.9	35.5	30.1	25.5	21.6	18.3
6.7	53.0	53.0	53.0	53.0	39.9	33.8	28.6	24.3	20.6	17.4
6.8	49.9	49.9	49.9	49.9	37.6	31.9	27.0	22.9	19.4	16.4
6.9	46.5	46.5	46.5	46.5	35.1	29.7	25.2	21.3	18.1	15.3
7.0	42.9	42.9	42.9	42.9	32.3	27.4	23.2	19.7	16.7	14.1
7.1	39.1	39.1	39.1	39.1	29.4	24.9	21.1	17.9	15.2	12.8
7.2	35.1	35.1	35.1	35.1	26.4	22.4	19.0	16.1	13.6	11.5
7.3	31.2	31.2	31.2	31.2	23.5	19.9	16.8	14.3	12.1	10.2
7.4	27.3	27.3	27.3	27.3	20.6	17.4	14.8	12.5	10.6	8.98
7.5	23.6	23.6	23.6	23.6	17.8	15.1	12.8	10.8	9.18	7.77
7.6	20.2	20.2	20.2	20.2	15.3	12.9	10.9	9.27	7.86	6.66
7.7	17.2	17.2	17.2	17.2	12.9	11.0	9.28	7.86	6.66	5.64
7.8	14.4	14.4	14.4	14.4	10.9	9.21	7.80	6.61	5.60	4.74
7.9	12.0	12.0	12.0	12.0	9.07	7.69	6.51	5.52	4.67	3.96
8.0	9.99	9.99	9.99	9.99	7.53	6.38	5.40	4.58	3.88	3.29
8.1	8.26	8.26	8.26	8.26	6.22	5.27	4.47	3.78	3.21	2.72
8.2	6.81	6.81	6.81	6.81	5.13	4.34	3.68	3.12	2.64	2.24
8.3	5.60	5.60	5.60	5.60	4.22	3.58	3.03	2.57	2.18	1.84
8.4	4.61	4.61	4.61	4.61	3.48	2.95	2.50	2.11	1.79	1.52
8.5	3.81	3.81	3.81	3.81	2.87	2.43	2.06	1.74	1.48	1.25
8.6	3.15	3.15	3.15	3.15	2.37	2.01	1.70	1.44	1.22	1.04
8.7	2.62	2.62	2.62	2.62	1.97	1.67	1.42	1.20	1.02	0.862
8.8	2.19	2.19	2.19	2.19	1.65	1.40	1.19	1.00	0.851	0.721
8.9	1.85	1.85	1.85	1.85	1.39	1.18	1.00	0.847	0.718	0.608
9.0	1.57	1.57	1.57	1.57	1.19	1.00	0.851	0.721	0.611	0.517

Note: Native species of freshwater mussels are not known for Big Tujunga Wash or Haines Canyon Creek.
CMC – Criteria Maximum Concentration (ammonia)
Source: USEPA. 2009. Draft 2009 Update Aquatic Life Ambient Water Quality Criteria for Ammonia - Freshwater. EPA 822-D-09-001. Washington, D.C.

Table 10
Temperature and pH-Dependent Values of the CCC (Chronic Criterion)
Mussels Absent and Early Fish Life Stages Present

CCC: Mussels Absent and Early Fish Life Stages Present, mg N/L										
pH	Temperature (° Celsius)									
	0	14	16	18	20	22	24	26	28	30
6.5	6.36	6.36	6.36	6.36	6.36	6.11	5.37	4.72	4.15	3.65
6.6	6.26	6.26	6.26	6.26	6.26	6.02	5.29	4.65	4.09	3.60
6.7	6.15	6.15	6.15	6.15	6.15	5.91	5.19	4.57	4.01	3.53
6.8	6.00	6.00	6.00	6.00	6.00	5.77	5.08	4.46	3.92	3.45
6.9	5.84	5.84	5.84	5.84	5.84	5.61	4.93	4.34	3.81	3.35
7.0	5.64	5.64	5.64	5.64	5.64	5.42	4.76	4.19	3.68	3.24
7.1	5.41	5.41	5.41	5.41	5.41	5.20	4.57	4.02	3.53	3.10
7.2	5.14	5.14	5.14	5.14	5.14	4.94	4.35	3.82	3.36	2.95
7.3	4.84	4.84	4.84	4.84	4.84	4.66	4.09	3.60	3.16	2.78
7.4	4.52	4.52	4.52	4.52	4.52	4.34	3.82	3.36	2.95	2.59
7.5	4.16	4.16	4.16	4.16	4.16	4.00	3.52	3.09	2.72	2.39
7.6	3.79	3.79	3.79	3.79	3.79	3.65	3.21	2.82	2.48	2.18
7.7	3.41	3.41	3.41	3.41	3.41	3.28	2.89	2.54	2.23	1.96
7.8	3.04	3.04	3.04	3.04	3.04	2.92	2.57	2.26	1.98	1.74
7.9	2.67	2.67	2.67	2.67	2.67	2.57	2.26	1.98	1.74	1.53
8.0	2.32	2.32	2.32	2.32	2.32	2.23	1.96	1.72	1.52	1.33
8.1	2.00	2.00	2.00	2.00	2.00	1.92	1.69	1.49	1.31	1.15
8.2	1.71	1.71	1.71	1.71	1.71	1.64	1.45	1.27	1.12	0.982
8.3	1.45	1.45	1.45	1.45	1.45	1.40	1.23	1.08	0.949	0.835
8.4	1.23	1.23	1.23	1.23	1.23	1.18	1.04	0.914	0.804	0.706
8.5	1.04	1.04	1.04	1.04	1.04	0.999	0.878	0.772	0.679	0.597
8.6	0.878	0.878	0.878	0.878	0.878	0.844	0.742	0.652	0.573	0.504
8.7	0.742	0.742	0.742	0.742	0.742	0.714	0.628	0.552	0.485	0.426
8.8	0.631	0.631	0.631	0.631	0.631	0.606	0.533	0.469	0.412	0.362
8.9	0.539	0.539	0.539	0.539	0.539	0.518	0.455	0.400	0.352	0.309
9.0	0.464	0.464	0.464	0.464	0.464	0.446	0.392	0.345	0.303	0.266

Note: Native species of freshwater mussels are not known for Big Tujunga Wash or Haines Canyon Creek.
CCC – Criteria Continuous Concentration (ammonia)
Source: USEPA. 2009. Draft 2009 Update Aquatic Life Ambient Water Quality Criteria for Ammonia - Freshwater. EPA 822-D-09-001. Washington, D.C.

Table 11
30-Day Average Objective for Ammonia-N for Freshwaters Applicable to Waters Subject to the "Early Life Stage Present" Condition (mg N/L)

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

Source: California Regional Water Quality Control Board, Los Angeles Region. 2005. Amendments to the Water Quality Control Plan – Los Angeles Region with Respect to Early Life Stage Implementation Provisions of the Inland Surface Water Ammonia Objectives for Freshwaters. Taken from USEPA. 1999. 1999 Update of Ambient Water Quality Criteria for Ammonia. EPA 822-R-99-014. Washington, D.C.

Table 12
One-Hour Average Objective for Ammonia-N for Freshwaters (mg N/L)

pH	Waters Designated COLD and/or MIGR	Waters Not Designated COLD and/or MIGR
6.5	32.6	48.8
6.6	31.3	46.8
6.7	29.8	44.6
6.8	28.1	42.0
6.9	26.2	39.1
7.0	24.1	36.1
7.1	22.0	32.8
7.2	19.7	29.5
7.3	17.5	26.2
7.4	15.4	23.0
7.5	13.3	19.9
7.6	11.4	17.0
7.7	9.65	14.4
7.8	8.11	12.1
7.9	6.77	10.1
8.0	5.62	8.40
8.1	4.64	6.95
8.2	3.83	5.72
8.3	3.15	4.71
8.4	2.59	3.88
8.5	2.14	3.20
8.6	1.77	2.65
8.7	1.47	2.20
8.8	1.23	1.84
8.9	1.04	1.56
9.0	0.885	1.32

Cold – Beneficial use designation of Cold Freshwater Habitat
MIGR – Beneficial use designation of Migration of Aquatic Organisms
Source: California Regional Water Quality Control Board, Los Angeles Region. 2002. Amendments to the Water Quality Control Plan – Los Angeles Region with Respect to Inland Surface Water Ammonia Objectives. Taken from USEPA. 1999. 1999 Update of Ambient Water Quality Criteria for Ammonia. EPA 822-R-99-014. Washington, D.C.

Table 13
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 February 2012 sampling are described by parameter in **Table 14**.

Table 14
Discussion of February 2012 Water Quality Sampling Results

Parameter	Discussion
Temperature	• Observed temperatures were below levels of concern for growth and survival of warmwater fish species at all stations.
Dissolved oxygen	• Dissolved oxygen levels ranged from 7.6 mg/L in the inflow to the Tujunga Ponds to 12.5 in Big Tujunga Wash. DO levels at all stations were above the recommended minimum (5.0 mg/L) and mean (7.0 mg/L) for warmwater fish species.
pH	• Lowest pH was observed in the inflow to Tujunga Ponds (6.75), with highest pH observed in Big Tujunga Wash (8.74). On this date, pH readings in Haines Canyon Creek and the Tujunga Ponds were within the 6.5 to 8.5 range identified in the Basin Plan. The pH of Big Tujunga Wash was slightly above the high end of the range.
Total residual chlorine	• No residual chlorine was detected at any station.
Nitrogen	• Nitrate-nitrogen measurements at all stations were below the drinking water standard of 10 mg/L. • Ammonia was below the detection limit at all stations.
Phosphorus	• Total phosphorus levels at all sites were below EPA's recommended range for streams to prevent excess algae growth (observed range at these four stations was 0.029 to 0.042 mg/L; recommended range is <0.05 – 0.1 mg/L).
Glyphosate	• Glyphosate was not detected at any station.
Chloropyrifos	• Chloropyrifos and the other pesticides tested using EPA's analytical method 8141A were not detected at any station.
Pesticides	• Pesticides analyzed by EPA Method 8081A were not detected at any station.
Turbidity	• Turbidity levels were very low (<1 NTU) at all stations.
Bacteria	• Fecal coliform levels at all stations were well below the water contact recreation standard of 200 MPN/100 ml. Total coliform levels ranged from 280 MPN/100 ml in Big Tujunga Wash to 1,100 MPN/100 ml in Haines Canyon Creek just before exiting from site. [Note that recreation standards are for fecal coliform. Total coliform standards apply to waterbodies where shellfish can be harvested for human consumption.]

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.

Chloropyrifos - white crystal-like solid insecticide widely used in homes and on farms. Used to control cockroaches, fleas, termites, ticks crop pests.

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.

Glyphosate - white compound broad-spectrum herbicide used to kill weeds.

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 MITIGATION AREA
WATER QUALITY MONITORING PROGRAM

LABORATORY RESULTS
February 2012

MWH
LABORATORIES
A Division of MWH Americas, Inc.

750 Royal Oak Dr., Suite 100
Monrovia, California, 91016-3629
Tel: 626 386 1100
Fax: 626 386 1101
1 800 566 LABS (1 800 566 5227)

Laboratory Report

for

MWH Americas - Arcadia
618 Michillinda Ave.
Suite 200
Arcadia, CA 91007
Attention: Sarah Garber

Date of Issue
03/26/2012
MWH LABORATORIES

ACCREDITED IN ACCORDANCE WITH nelac 01114CA

Report#: 389198
Project: BIG-TUJUNGA
Group: Water Quality Monitoring
PO#: 1012733.5620.011601

DST: David S Tripp
Project Manager

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 Hits Reports, Comments, QC Summary, QC Report and Regulatory Forms. This report shall not be reproduced except in full, without the written approval of the laboratory.

MWH LABORATORIES

STATE CERTIFICATION LIST

State	Certification Number	State	Certification Number
Alabama	41060	**Mississippi**	Certified
Alaska	CA00006	**Montana**	Cert 0035
Arizona	AZ0455	**Nevada**	CA00006-2010-1
Arkansas	Certified	**New Hampshire**	2959-11
California – NELAP	01114CA	**New Jersey**	CA 008
California – ELAP	1422	**New Mexico**	Certified
Colorado	Certified	**New York**	11320
Connecticut	PH-0107	**North Carolina**	06701
Delaware	CA 006	**North Dakota**	R-009
Florida	E871024	**Oregon**	CA 200003-009
Georgia	947	**Pennsylvania**	68-565
Guam	11-004r	**Rhode Island**	01114CA
Hawaii	Certified	**South Carolina**	87016001
Idaho	Certified	**South Dakota**	Certified
Illinois	200033	**Tennessee**	TN02839
Indiana	C-CA-01	**Texas**	T104704230-11-2
Kansas	E-10268	**Utah**	Mont-1
Kentucky	90107	**Vermont**	VT0114
Louisiana	LA110022	**Virginia**	00210
Maine	CA0006	**Washington**	C383
Maryland	224	**West Virginia**	9943 C
Commonwealth of Northern Marianas Is.	MP0004	**Wisconsin**	998316660
Massachusetts	M-CA006	**Wyoming**	8TMS-L
Michigan	9906	**EPA Region 5**	Certified

750 Royal Oaks Dr., Ste 100, Monrovia, CA 91016 Tel (626) 386-1100 Fax (626) 386-1101 http://MWHLabs.com

MWH LABORATORIES

Acknowledgement of Samples Received

MWH Americas - Arcadia
618 Michillinda Ave.
Suite 200
Arcadia, CA 91007
Attn: Sarah Garber
Phone: 626-568-6910

Customer Code: MWH-ECORP
Folder #: 389198
Project: BIG-TUJUNGA
Sample Group: Water Quality Monitoring
Project Manager: David S Tripp
Phone: (626) 386-1158
PO #: 1009944.011601

The following samples were received from you on **February 23, 2012**. They have been scheduled for the tests listed below each sample. If this information is incorrect, please contact your service representative. Thank you for using MWH Laboratories.

Sample #	Sample ID	Sample Date
201202230334	BTW022312	Feb 23, 2012 10:20

@608_PEST	@8141EDD	Ammonia Nitrogen
Fecal Coliform Bacteria	Glyphosate	Nitrate as Nitrogen by IC
Nitrate as NO3 (calc)	Nitrite Nitrogen by IC	Orthophosphate as P (OPO4)
Orthophosphate as PO4	Total Chlorine Residual	Total Coliform Bacteria
Total Kjeldahl Nitrogen	Total phosphorus as P	Total phosphorus as PO4- Calc.
Turbidity		

201202230343	HCC022312 Feb 23, 2012 11:20

@608_PEST	@8141EDD	Ammonia Nitrogen
Fecal Coliform Bacteria	Glyphosate	Nitrate as Nitrogen by IC
Nitrate as NO3 (calc)	Nitrite Nitrogen by IC	Orthophosphate as P (OPO4)
Orthophosphate as PO4	Total Chlorine Residual	Total Coliform Bacteria
Total Kjeldahl Nitrogen	Total phosphorus as P	Total phosphorus as PO4- Calc.
Turbidity		

201202230344	TJPIN022312 Feb 23, 2012 12:10

@608_PEST	@8141EDD	Ammonia Nitrogen
Fecal Coliform Bacteria	Glyphosate	Nitrate as Nitrogen by IC
Nitrate as NO3 (calc)	Nitrite Nitrogen by IC	Orthophosphate as P (OPO4)
Orthophosphate as PO4	Total Chlorine Residual	Total Coliform Bacteria
Total Kjeldahl Nitrogen	Total phosphorus as P	Total phosphorus as PO4- Calc.
Turbidity		

201202230345	TJPOUT022312 Feb 23, 2012 12:30

@608_PEST	@8141EDD	Ammonia Nitrogen
Fecal Coliform Bacteria	Glyphosate	Nitrate as Nitrogen by IC
Nitrate as NO3 (calc)	Nitrite Nitrogen by IC	Orthophosphate as P (OPO4)
Orthophosphate as PO4	Total Chlorine Residual	Total Coliform Bacteria
Total Kjeldahl Nitrogen	Total phosphorus as P	Total phosphorus as PO4- Calc.
Turbidity		

Test Description

@608_PEST -- Organochlorine Pesticides	3/50

Reported: 03/26/12

MWH LABORATORIES

Acknowledgement of Samples Received

MWH Americas - Arcadia
618 Michillinda Ave.
Suite 200
Arcadia, CA 91007
Attn: Sarah Garber
Phone: 626-568-6910

Customer Code: MWH-ECORP
Folder #: 389198
Project: BIG-TUJUNGA
Sample Group: Water Quality Monitoring
Project Manager: David S Tripp
Phone: (626) 386-1158
PO #: 1009944.011601

The following samples were received from you on **February 23, 2012**. They have been scheduled for the tests listed below each sample. If this information is incorrect, please contact your service representative. Thank you for using MWH Laboratories.

Sample #	Sample ID	Sample Date
	@8141EDD -- Organophosphorous Pesticides (Subcontracted)	

750 Royal Oaks Dr., Ste 100, Monrovia, CA 91016 Tel (626) 386-1100 Fax (626) 386-1101 http://MWHLabs.com

MWH Laboratories
A Division of MWH Americas, Inc.

CHAIN OF CUSTODY RECORD

750 Royal Oaks Drive, Suite 100
Monrovia, California 91016-3629
Tel: 626 386 1100
Fax: 626 386 1101
1 800 566 LABS (1 800 566 5227)

38 719718

MWH LABS USE ONLY:

LOGIN COMMENTS: _____

SAMPLES CHECKED AGAINST COC BY: W

SAMPLES LOGGED IN BY: JS

SAMPLES REC'D DAY OF COLLECTION? ☑ (check for yes)

SAMPLE TEMP RECEIVED AT:
☐ Colton / Sacramento / Scottsdale _____ °c (Compliance: 4 ± 2 °C)
☑ Monrovia 12.8 °c (Compliance: 4 ± 2 °C)

CONDITION OF BLUE ICE: FROZEN ✓ PARTIALLY FROZEN ___ THAWED ___ WET ICE _____ NO ICE _____

METHOD OF SHIPMENT: Pick-Up / Walk-In / FedEx / UPS / DHL / Area Fast / Top Line / Other: _____

TO BE COMPLETED BY SAMPLER:

COMPANY/AGENCY NAME: MWH

PROJECT CODE: BIG TUJUNGA

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

NON-COMPLIANCE SAMPLES (check for yes) ☒
REGULATION INVOLVED: _____ (eg. SDWA, Phase V, NPDES, FDA....)

Type of samples (circle one): ROUTINE SPECIAL CONFIRMATION

MWH LABS CLIENT CODE: MWH-ECORP

COC ID:

SAMPLE GROUP:

SEE ATTACHED BOTTLE ORDER FOR ANALYSES ☒ (check for yes), OR
list ANALYSES REQUIRED (enter number of bottles sent for each test for each sample)

TAT requested: rush by adv notice only STD___ 1 wk ___ 3 day __ 2 day___ 1 day __

SAMPLE DATE	SAMPLE TIME	SAMPLE ID	CLIENT LAB ID	MATRIX *	Field Data	Field Data
2/23	1120	BTW022312		RSW		
2/23	1120	HCC022312		RSW		
2/23	1210	TJPIN022312		RSW		
2/23	1230	TJPOUT022312		RSW		

5/50

SAMPLER COMMENTS
GPH 02/23/12
14:06

* MATRIX TYPES: RSW = Raw Surface Water; RGW = Raw Ground Water; CFW = Chlor(am)inated Finished Water; FW = Other Finished Water; SEAW = Sea Water; WW = Waste Water; BW = Bottled Water; SW = Storm Water; SO = Soil; SL = Sludge; O = Other - Please Identify

	SIGNATURE	PRINT NAME	COMPANY/TITLE	DATE	TIME
SAMPLED BY:		SARAH GARBER	MWH	2/23/12	1340
RELINQUISHED BY:		SARAH GARBER	MWH	2/23/12	1343
RECEIVED BY:		Chris Cabrera	MWH	2/23/12	1343
RELINQUISHED BY:					
RECEIVED BY:					

PAGE ____ OF ____

MWH LABORATORIES
A Division of MWH Americas, Inc
750 Royal Oaks Drive Suite 100
Monrovia, CA 91016 (626) 386-1100 FAX (626) 386-1124

Kit Order for MWH Americas - Arcadia

David S Tripp is Your MWH Labs Project Manager

Sampler: please return this paper with your samples

Kit #: 46151
Created By: DST
Order Date: 02/23/2012
STG: Bottle Orders

Client Code: MWH-ECORP
Project Code: BIG-TUJUNGA Bottle Orders
Group Name: Water Quality Monitoring
PO#/JOB#: ~~1009944~~.011601
1012733.011601

Ship By:
02/13/2012

Ship Sample Kits to
MWH Americas - Arcadia
618 Michillinda Ave.
Suite 200
Arcadia, CA 91007

Attn: Sarah Garber
Phone: 626-568-6910
Fax:

Send Report to
MWH Americas - Arcadia
618 Michillinda Ave.
Suite 200
Arcadia, CA 91007

Attn: Sarah Garber
Phone: 626-568-6910
Fax:

Billing Address
MWH Americas - Arcadia
618 Michillinda Ave.
Suite 200
Arcadia, CA 91007

Attn: Sarah Garber
Phone: 626-568-6910
Fax:

# of Samples	Tests	Bottles - Qty for each sample, type & preservative if any	UN DOT #
4	@8081A, @DIAZEDD Subbed	2 1L amber glass no preservative	
4	Ammonia Nitrogen, Total Kjeldahl Nitrogen, Total phosphorus as P	1 250ml poly 0.5ml H2SO4 (50%)	UN1830
4	Fecal Coliform Bacteria, Total Coliform Bacteria	1 250ml poly sterilized 0.25ml thio (8%)	
4	Glyphosate	1 125ml amber glass no preservative	
4	Nitrate as Nitrogen by IC, Nitrate as NO3 (calc), Nitrite Nitrogen by IC, Orthophosphate as P, Turbidity	1 125ml poly no preservative	
4	Orthophosphate as PO4	1 125ml poly OPO4_no preservative	
4	Total Chlorine Residual	1 125ml amber glass CHL_no preservative	

Comments

SHIPPING: Please label "BIG T WASH"
Client will pickup the sample kits as early as Monday 2/20 in the AM.

SAMPLER: Please place ice packs in a freezer over night and return samples on ice packs or wet ice to the lab same day collected.

Code	Status	Date Shipped	Via	Tracking #	# of Coolers	Prepared By

MWH
LABORATORIES
A Division of MWH Americas, Inc.

750 Royal Oak Dr., Suite 100
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MWH Americas - Arcadia
Sarah Garber
618 Michillinda Ave.
Suite 200
Arcadia, CA 91007

Group Comments

Analytical results for 608 and 8141 are submitted by Emax Laboratories, Inc. Torrance, CA, CA Certification No. 02116CA

The Comments Report may be blank if there are no comments for this report.

MWH
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750 Royal Oak Dr., Suite 100
Monrovia, California, 91016-3629
Tel: 626 386 1100
Fax: 626 386 1101
1 800 566 LABS (1 800 566 5227)

Laboratory
Hits Report: 389198

MWH Americas - Arcadia
Sarah Garber
618 Michillinda Ave.
Suite 200
Arcadia, CA 91007

Samples Received on:
02/23/2012

Analyzed	Analyte	Sample ID	Result	Federal MCL	Units	MRL
		201202230334 BTW022312				
02/23/2012 15:14	Fecal Coliform Bacteria		2		MPN/100 ml	2
02/23/2012 18:30	Orthophosphate as P		0.014		mg/L	0.01
02/24/2012 14:26	Orthophosphate as PO4		0.043		mg/L	0.031
02/23/2012 15:14	Total Coliform Bacteria		280		MPN/100 ml	2
02/24/2012 14:53	Total phosphorus as P		0.029		mg/L	0.02
02/24/2012 16:38	Total phosphorus as PO4- Calc.		0.088		mg/L	0.031
02/24/2012 11:04	Turbidity		0.95	5	NTU	0.05
		201202230343 HCC022312				
02/23/2012 15:14	Fecal Coliform Bacteria		8		MPN/100 ml	2
02/23/2012 16:33	Nitrate as Nitrogen by IC		5.3	10	mg/L	0.2
02/23/2012 16:33	Nitrate as NO3 (calc)		23	45	mg/L	0.88
02/23/2012 18:31	Orthophosphate as P		0.030		mg/L	0.01
02/24/2012 14:26	Orthophosphate as PO4		0.092		mg/L	0.031
02/23/2012 15:14	Total Coliform Bacteria		1100		MPN/100 ml	2
02/24/2012 14:54	Total phosphorus as P		0.035		mg/L	0.02
02/24/2012 16:38	Total phosphorus as PO4- Calc.		0.11		mg/L	0.031
02/24/2012 11:05	Turbidity		0.31	5	NTU	0.05
		201202230344 TJPIN022312				
02/23/2012 15:14	Fecal Coliform Bacteria		14		MPN/100 ml	2
02/23/2012 16:56	Nitrate as Nitrogen by IC		8.7	10	mg/L	0.2
02/23/2012 16:56	Nitrate as NO3 (calc)		38	45	mg/L	0.88
02/23/2012 18:36	Orthophosphate as P		0.039		mg/L	0.01
02/24/2012 14:26	Orthophosphate as PO4		0.12		mg/L	0.031
02/23/2012 15:14	Total Coliform Bacteria		700		MPN/100 ml	2
02/24/2012 14:56	Total phosphorus as P		0.042		mg/L	0.02
02/24/2012 16:39	Total phosphorus as PO4- Calc.		0.13		mg/L	0.031
02/24/2012 11:06	Turbidity		0.56	5	NTU	0.05
		201202230345 TJPOUT022312				
02/23/2012 17:08	Nitrate as Nitrogen by IC		5.8	10	mg/L	0.2
02/23/2012 17:08	Nitrate as NO3 (calc)		25	45	mg/L	0.88
02/23/2012 18:37	Orthophosphate as P		0.031		mg/L	0.01
02/24/2012 14:26	Orthophosphate as PO4		0.095		mg/L	0.031
02/23/2012 15:14	Total Coliform Bacteria		900		MPN/100 ml	2

SUMMARY OF POSITIVE DATA ONLY

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1 800 566 LABS (1 800 566 5227)

Laboratory
Hits Report: 389198

MWH Americas - Arcadia
Sarah Garber
618 Michillinda Ave.
Suite 200
Arcadia, CA 91007

Samples Received on:
02/23/2012

Analyzed		Analyte	Sample ID	Result	Federal MCL	Units	MRL
02/24/2012	14:57	Total phosphorus as P		0.037		mg/L	0.02
02/24/2012	16:39	Total phosphorus as PO4- Calc.		0.11		mg/L	0.031
02/24/2012	11:08	Turbidity		0.46	5	NTU	0.05

SUMMARY OF POSITIVE DATA ONLY

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Laboratory Data
Report: 389198

MWH Americas - Arcadia
Sarah Garber
618 Michillinda Ave.
Suite 200
Arcadia, CA 91007

Samples Received on:
02/23/2012

Prepared	Analyzed	QC Ref #	Method	Analyte	Result	Units	MRL	Dilution
BTW022312 (201202230334)						**Sampled on 02/23/2012 1020**		
			EPA 8141A - Organophosphorous Pesticides (Sub)					
2/27/2012	02/28/2012	20:13	(EPA 8141A)	Azinphos methyl	ND	ug/L	1.1	1
2/27/2012	02/28/2012	20:13	(EPA 8141A)	Bolstar	ND	ug/L	1.1	1
2/27/2012	02/28/2012	20:13	(EPA 8141A)	Chlorpyrifos	ND	ug/L	1.1	1
2/27/2012	02/28/2012	20:13	(EPA 8141A)	Coumaphos	ND	ug/L	1.1	1
2/27/2012	02/28/2012	20:13	(EPA 8141A)	Demeton	ND	ug/L	1.1	1
2/27/2012	02/28/2012	20:13	(EPA 8141A)	Diazinon	ND	ug/L	1.1	1
2/27/2012	02/28/2012	20:13	(EPA 8141A)	Dichlorvos	ND	ug/L	1.1	1
2/27/2012	02/28/2012	20:13	(EPA 8141A)	Disulfoton	ND	ug/L	1.1	1
2/27/2012	02/28/2012	20:13	(EPA 8141A)	Ethoprop	ND	ug/L	1.1	1
2/27/2012	02/28/2012	20:13	(EPA 8141A)	Fensulfothion	ND	ug/L	1.1	1
2/27/2012	02/28/2012	20:13	(EPA 8141A)	Fenthion	ND	ug/L	1.1	1
2/27/2012	02/28/2012	20:13	(EPA 8141A)	Methyl Parathion	ND	ug/L	1.1	1
2/27/2012	02/28/2012	20:13	(EPA 8141A)	Mevinphos	ND	ug/L	1.1	1
2/27/2012	02/28/2012	20:13	(EPA 8141A)	Naled	ND	ug/L	1.1	1
2/27/2012	02/28/2012	20:13	(EPA 8141A)	Phorate	ND	ug/L	1.1	1
2/27/2012	02/28/2012	20:13	(EPA 8141A)	Ronnel	ND	ug/L	1.1	1
2/27/2012	02/28/2012	20:13	(EPA 8141A)	Stirophos	ND	ug/L	1.1	1
2/27/2012	02/28/2012	20:13	(EPA 8141A)	Tokuthion	ND	ug/L	1.1	1
2/27/2012	02/28/2012	20:13	(EPA 8141A)	Trichloronate	ND	ug/L	1.1	1
2/27/2012	02/28/2012	20:13	(EPA 8141A)	Tributylphosphate	67	%		1
2/27/2012	02/28/2012	20:13	(EPA 8141A)	Triphenyl Phosphate	90	%		1
			EPA 608 - Organochlorine Pesticides					
2/27/2012	02/29/2012	17:03	(EPA 608)	4,4-DDD	ND	ug/L	0.19	1
2/27/2012	02/29/2012	17:03	(EPA 608)	4,4-DDE	ND	ug/L	0.19	1
2/27/2012	02/29/2012	17:03	(EPA 608)	4,4-DDT	ND	ug/L	0.19	1
2/27/2012	02/29/2012	17:03	(EPA 608)	Aldrin	ND	ug/L	0.096	1
2/27/2012	02/29/2012	17:03	(EPA 608)	alpha-BHC	ND	ug/L	0.096	1
2/27/2012	02/29/2012	17:03	(EPA 608)	alpha-Chlordane	ND	ug/L	0.096	1
2/27/2012	02/29/2012	17:03	(EPA 608)	beta-BHC	ND	ug/L	0.096	1
2/27/2012	02/29/2012	17:03	(EPA 608)	delta-BHC	ND	ug/L	0.096	1
2/27/2012	02/29/2012	17:03	(EPA 608)	Dieldrin	ND	ug/L	0.19	1

Rounding on totals after summation.
(c) - indicates calculated results

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1 800 566 LABS (1 800 566 5227)

Laboratory Data
Report: 389198

MWH Americas - Arcadia
Sarah Garber
618 Michillinda Ave.
Suite 200
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Samples Received on:
02/23/2012

Prepared	Analyzed	QC Ref #	Method	Analyte	Result	Units	MRL	Dilution
2/27/2012	02/29/2012 17:03		(EPA 608)	Endosulfan I (Alpha)	ND	ug/L	0.096	1
2/27/2012	02/29/2012 17:03		(EPA 608)	Endosulfan II (Beta)	ND	ug/L	0.19	1
2/27/2012	02/29/2012 17:03		(EPA 608)	Endosulfan Sulfate	ND	ug/L	0.19	1
2/27/2012	02/29/2012 17:03		(EPA 608)	Endrin	ND	ug/L	0.19	1
2/27/2012	02/29/2012 17:03		(EPA 608)	Endrin Aldehyde	ND	ug/L	0.19	1
2/27/2012	02/29/2012 17:03		(EPA 608)	Endrin Ketone	ND	ug/L	0.19	1
2/27/2012	02/29/2012 17:03		(EPA 608)	Gamma-BHC	ND	ug/L	0.096	1
2/27/2012	02/29/2012 17:03		(EPA 608)	gamma-Chlordane	ND	ug/L	0.096	1
2/27/2012	02/29/2012 17:03		(EPA 608)	Heptachlor	ND	ug/L	0.096	1
2/27/2012	02/29/2012 17:03		(EPA 608)	Heptachlor Epoxide	ND	ug/L	0.096	1
2/27/2012	02/29/2012 17:03		(EPA 608)	Methoxychlor	ND	ug/L	0.96	1
2/27/2012	02/29/2012 17:03		(EPA 608)	Toxaphene	ND	ug/L	1.9	1
2/27/2012	02/29/2012 17:03		(EPA 608)	Decachlorobiphenyl	98	%		1
2/27/2012	02/29/2012 17:03		(EPA 608)	Tetrachlorometaxylene	91	%		1
	SM 9221C - Fecal Coliform Bacteria							
	02/23/2012 15:14	641210	(SM 9221C)	Fecal Coliform Bacteria	2	MPN/100 mL	2	1
	SM 9221B - Total Coliform Bacteria							
	02/23/2012 15:14	639862	(SM 9221B)	Total Coliform Bacteria	280	MPN/100 mL	2	1
	S4500PE/ 365.1 - Total phosphorus as PO4- Calc.							
	02/24/2012 16:38		(S4500PE/ 365.1)	Total phosphorus as PO4- Calc.	0.088	mg/L	0.031	1
	4500P-E/365.1 - Orthophosphate as PO4 (CAL)							
	02/24/2012 14:26		(4500P-E/365.1)	Orthophosphate as PO4	0.043	mg/L	0.031	1
	SM 4500-CL G - Total Chlorine Residual							
	02/24/2012 00:00	641032	(SM 4500-CL G)	Total Chlorine Residual	ND	mg/L	0.1	1
	EPA 547 - Glyphosate							
	03/01/2012 13:28	641364	(EPA 547)	Glyphosate	ND	ug/L	6	1
	EPA 300.0 - Nitrate, Nitrite by EPA 300.0							
	02/23/2012 16:45	640666	(EPA 300.0)	Nitrate as Nitrogen by IC	ND	mg/L	0.1	1
	02/23/2012 16:45	640666	(EPA 300.0)	Nitrate as NO3 (calc)	ND	mg/L	0.44	1
	02/23/2012 16:45	640666	(EPA 300.0)	Nitrite Nitrogen by IC	ND	mg/L	0.05	1
	SM4500-PE/EPA 365.1 - Total phosphorus as P (T-P)							
	02/24/2012 14:53	640870	(SM4500-PE/EPA 365.1)	Total phosphorus as P	0.029	mg/L	0.02	1
	EPA 351.2 - Total Kjeldahl Nitrogen							
	02/29/2012 14:25	641727	(EPA 351.2)	Kjeldahl Nitrogen	ND	mg/L	0.2	1

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Laboratory Data
Report: 389198

MWH Americas - Arcadia
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Arcadia, CA 91007

Samples Received on:
02/23/2012

Prepared	Analyzed	QC Ref #	Method	Analyte	Result	Units	MRL	Dilution
		EPA 350.1 - Ammonia Nitrogen						
	02/27/2012 14:51	641126	(EPA 350.1)	Ammonia Nitrogen	ND	mg/L	0.05	1
		EPA 180.1 - Turbidity						
	02/24/2012 11:04	640803	(EPA 180.1)	Turbidity	0.95	NTU	0.05	1
		4500P-E/365.1 - Orthophosphate as P (OPO4)						
	02/23/2012 18:30	640801	(4500P-E/365.1)	Orthophosphate as P	0.014	mg/L	0.01	1
HCC022312 (201202230343)						**Sampled on 02/23/2012 1120**		
		EPA 8141A - Organophosphorous Pesticides (Sub)						
2/27/2012	02/28/2012 20:47		(EPA 8141A)	Azinphos methyl	ND	ug/L	1.1	1
2/27/2012	02/28/2012 20:47		(EPA 8141A)	Bolstar	ND	ug/L	1.1	1
2/27/2012	02/28/2012 20:47		(EPA 8141A)	Chlorpyrifos	ND	ug/L	1.1	1
2/27/2012	02/28/2012 20:47		(EPA 8141A)	Coumaphos	ND	ug/L	1.1	1
2/27/2012	02/28/2012 20:47		(EPA 8141A)	Demeton	ND	ug/L	1.1	1
2/27/2012	02/28/2012 20:47		(EPA 8141A)	Diazinon	ND	ug/L	1.1	1
2/27/2012	02/28/2012 20:47		(EPA 8141A)	Dichlorvos	ND	ug/L	1.1	1
2/27/2012	02/28/2012 20:47		(EPA 8141A)	Disulfoton	ND	ug/L	1.1	1
2/27/2012	02/28/2012 20:47		(EPA 8141A)	Ethoprop	ND	ug/L	1.1	1
2/27/2012	02/28/2012 20:47		(EPA 8141A)	Fensulfothion	ND	ug/L	1.1	1
2/27/2012	02/28/2012 20:47		(EPA 8141A)	Fenthion	ND	ug/L	1.1	1
2/27/2012	02/28/2012 20:47		(EPA 8141A)	Methyl Parathion	ND	ug/L	1.1	1
2/27/2012	02/28/2012 20:47		(EPA 8141A)	Mevinphos	ND	ug/L	1.1	1
2/27/2012	02/28/2012 20:47		(EPA 8141A)	Naled	ND	ug/L	1.1	1
2/27/2012	02/28/2012 20:47		(EPA 8141A)	Phorate	ND	ug/L	1.1	1
2/27/2012	02/28/2012 20:47		(EPA 8141A)	Ronnel	ND	ug/L	1.1	1
2/27/2012	02/28/2012 20:47		(EPA 8141A)	Stirophos	ND	ug/L	1.1	1
2/27/2012	02/28/2012 20:47		(EPA 8141A)	Tokuthion	ND	ug/L	1.1	1
2/27/2012	02/28/2012 20:47		(EPA 8141A)	Trichloronate	ND	ug/L	1.1	1
2/27/2012	02/28/2012 20:47		(EPA 8141A)	Tributylphosphate	67	%		1
2/27/2012	02/28/2012 20:47		(EPA 8141A)	Triphenyl Phosphate	81	%		1
		EPA 608 - Organochlorine Pesticides						
2/27/2012	02/29/2012 17:25		(EPA 608)	4,4-DDD	ND	ug/L	0.19	1
2/27/2012	02/29/2012 17:25		(EPA 608)	4,4-DDE	ND	ug/L	0.19	1
2/27/2012	02/29/2012 17:25		(EPA 608)	4,4-DDT	ND	ug/L	0.19	1
2/27/2012	02/29/2012 17:25		(EPA 608)	Aldrin	ND	ug/L	0.093	1

Rounding on totals after summation.
(c) - indicates calculated results

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Laboratory Data
Report: 389198

MWH Americas - Arcadia
Sarah Garber
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Suite 200
Arcadia, CA 91007

Samples Received on:
02/23/2012

Prepared	Analyzed		QC Ref #	Method	Analyte	Result	Units	MRL	Dilution
2/27/2012	02/29/2012	17:25		(EPA 608)	alpha-BHC	ND	ug/L	0.093	1
2/27/2012	02/29/2012	17:25		(EPA 608)	alpha-Chlordane	ND	ug/L	0.093	1
2/27/2012	02/29/2012	17:25		(EPA 608)	beta-BHC	ND	ug/L	0.093	1
2/27/2012	02/29/2012	17:25		(EPA 608)	delta-BHC	ND	ug/L	0.093	1
2/27/2012	02/29/2012	17:25		(EPA 608)	Dieldrin	ND	ug/L	0.19	1
2/27/2012	02/29/2012	17:25		(EPA 608)	Endosulfan I (Alpha)	ND	ug/L	0.093	1
2/27/2012	02/29/2012	17:25		(EPA 608)	Endosulfan II (Beta)	ND	ug/L	0.19	1
2/27/2012	02/29/2012	17:25		(EPA 608)	Endosulfan Sulfate	ND	ug/L	0.19	1
2/27/2012	02/29/2012	17:25		(EPA 608)	Endrin	ND	ug/L	0.19	1
2/27/2012	02/29/2012	17:25		(EPA 608)	Endrin Aldehyde	ND	ug/L	0.19	1
2/27/2012	02/29/2012	17:25		(EPA 608)	Endrin Ketone	ND	ug/L	0.19	1
2/27/2012	02/29/2012	17:25		(EPA 608)	Gamma-BHC	ND	ug/L	0.093	1
2/27/2012	02/29/2012	17:25		(EPA 608)	gamma-Chlordane	ND	ug/L	0.093	1
2/27/2012	02/29/2012	17:25		(EPA 608)	Heptachlor	ND	ug/L	0.093	1
2/27/2012	02/29/2012	17:25		(EPA 608)	Heptachlor Epoxide	ND	ug/L	0.093	1
2/27/2012	02/29/2012	17:25		(EPA 608)	Methoxychlor	ND	ug/L	0.93	1
2/27/2012	02/29/2012	17:25		(EPA 608)	Toxaphene	ND	ug/L	1.9	1
2/27/2012	02/29/2012	17:25		(EPA 608)	Decachlorobiphenyl	100	%		1
2/27/2012	02/29/2012	17:25		(EPA 608)	Tetrachlorometaxylene	85	%		1
				SM 9221C - Fecal Coliform Bacteria					
	02/23/2012	15:14	641210	(SM 9221C)	Fecal Coliform Bacteria	8	MPN/100 mL	2	1
				SM 9221B - Total Coliform Bacteria					
	02/23/2012	15:14	639862	(SM 9221B)	Total Coliform Bacteria	1100	MPN/100 mL	2	1
				S4500PE/ 365.1 - Total phosphorus as PO4- Calc.					
	02/24/2012	16:38		(S4500PE/ 365.1)	Total phosphorus as PO4- Calc.	0.11	mg/L	0.031	1
				4500P-E/365.1 - Orthophosphate as PO4 (CAL)					
	02/24/2012	14:26		(4500P-E/365.1)	Orthophosphate as PO4	0.092	mg/L	0.031	1
				SM 4500-CL G - Total Chlorine Residual					
	02/24/2012	00:00	641032	(SM 4500-CL G)	Total Chlorine Residual	ND	mg/L	0.1	1
				EPA 547 - Glyphosate					
	03/01/2012	13:40	641364	(EPA 547)	Glyphosate	ND	ug/L	6	1
				EPA 300.0 - Nitrate, Nitrite by EPA 300.0					
	02/23/2012	16:33	640666	(EPA 300.0)	Nitrate as Nitrogen by IC	5.3	mg/L	0.2	2
	02/23/2012	16:33	640666	(EPA 300.0)	Nitrate as NO3 (calc)	23	mg/L	0.88	2
	02/23/2012	16:33	640666	(EPA 300.0)	Nitrite Nitrogen by IC	ND	mg/L	0.1	2

Rounding on totals after summation.
(c) - indicates calculated results

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Laboratory Data
Report: 389198

MWH Americas - Arcadia
Sarah Garber
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Samples Received on:
02/23/2012

Prepared	Analyzed	QC Ref #	Method	Analyte	Result	Units	MRL	Dilution
			SM4500-PE/EPA 365.1 - Total phosphorus as P (T-P)					
	02/24/2012 14:54	640870	(SM4500-PE/EPA 365.1)	Total phosphorus as P	0.035	mg/L	0.02	1
			EPA 351.2 - Total Kjeldahl Nitrogen					
	02/29/2012 14:27	641727	(EPA 351.2)	Kjeldahl Nitrogen	ND	mg/L	0.2	1
			EPA 350.1 - Ammonia Nitrogen					
	02/27/2012 14:52	641126	(EPA 350.1)	Ammonia Nitrogen	ND	mg/L	0.05	1
			EPA 180.1 - Turbidity					
	02/24/2012 11:05	640803	(EPA 180.1)	Turbidity	0.31	NTU	0.05	1
			4500P-E/365.1 - Orthophosphate as P (OPO4)					
	02/23/2012 18:31	640801	(4500P-E/365.1)	Orthophosphate as P	0.030	mg/L	0.01	1
TJPIN022312 (201202230344)						**Sampled on 02/23/2012 1210**		
			EPA 8141A - Organophosphorous Pesticides (Sub)					
2/27/2012	02/28/2012 21:20		(EPA 8141A)	Azinphos methyl	ND	ug/L	1.1	1
2/27/2012	02/28/2012 21:20		(EPA 8141A)	Bolstar	ND	ug/L	1.1	1
2/27/2012	02/28/2012 21:20		(EPA 8141A)	Chlorpyrifos	ND	ug/L	1.1	1
2/27/2012	02/28/2012 21:20		(EPA 8141A)	Coumaphos	ND	ug/L	1.1	1
2/27/2012	02/28/2012 21:20		(EPA 8141A)	Demeton	ND	ug/L	1.1	1
2/27/2012	02/28/2012 21:20		(EPA 8141A)	Diazinon	ND	ug/L	1.1	1
2/27/2012	02/28/2012 21:20		(EPA 8141A)	Dichlorvos	ND	ug/L	1.1	1
2/27/2012	02/28/2012 21:20		(EPA 8141A)	Disulfoton	ND	ug/L	1.1	1
2/27/2012	02/28/2012 21:20		(EPA 8141A)	Ethoprop	ND	ug/L	1.1	1
2/27/2012	02/28/2012 21:20		(EPA 8141A)	Fensulfothion	ND	ug/L	1.1	1
2/27/2012	02/28/2012 21:20		(EPA 8141A)	Fenthion	ND	ug/L	1.1	1
2/27/2012	02/28/2012 21:20		(EPA 8141A)	Methyl Parathion	ND	ug/L	1.1	1
2/27/2012	02/28/2012 21:20		(EPA 8141A)	Mevinphos	ND	ug/L	1.1	1
2/27/2012	02/28/2012 21:20		(EPA 8141A)	Naled	ND	ug/L	1.1	1
2/27/2012	02/28/2012 21:20		(EPA 8141A)	Phorate	ND	ug/L	1.1	1
2/27/2012	02/28/2012 21:20		(EPA 8141A)	Ronnel	ND	ug/L	1.1	1
2/27/2012	02/28/2012 21:20		(EPA 8141A)	Stirophos	ND	ug/L	1.1	1
2/27/2012	02/28/2012 21:20		(EPA 8141A)	Tokuthion	ND	ug/L	1.1	1
2/27/2012	02/28/2012 21:20		(EPA 8141A)	Trichloronate	ND	ug/L	1.1	1
2/27/2012	02/28/2012 21:20		(EPA 8141A)	Tributylphosphate	70	%		1
2/27/2012	02/28/2012 21:20		(EPA 8141A)	Triphenyl Phosphate	89	%		1

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02/23/2012

Prepared	Analyzed	QC Ref #	Method	Analyte	Result	Units	MRL	Dilution
			EPA 608 - Organochlorine Pesticides					
2/27/2012	02/29/2012	17:46	(EPA 608)	4,4-DDD	ND	ug/L	0.19	1
2/27/2012	02/29/2012	17:46	(EPA 608)	4,4-DDE	ND	ug/L	0.19	1
2/27/2012	02/29/2012	17:46	(EPA 608)	4,4-DDT	ND	ug/L	0.19	1
2/27/2012	02/29/2012	17:46	(EPA 608)	Aldrin	ND	ug/L	0.093	1
2/27/2012	02/29/2012	17:46	(EPA 608)	alpha-BHC	ND	ug/L	0.093	1
2/27/2012	02/29/2012	17:46	(EPA 608)	alpha-Chlordane	ND	ug/L	0.093	1
2/27/2012	02/29/2012	17:46	(EPA 608)	beta-BHC	ND	ug/L	0.093	1
2/27/2012	02/29/2012	17:46	(EPA 608)	delta-BHC	ND	ug/L	0.093	1
2/27/2012	02/29/2012	17:46	(EPA 608)	Dieldrin	ND	ug/L	0.19	1
2/27/2012	02/29/2012	17:46	(EPA 608)	Endosulfan I (Alpha)	ND	ug/L	0.093	1
2/27/2012	02/29/2012	17:46	(EPA 608)	Endosulfan II (Beta)	ND	ug/L	0.19	1
2/27/2012	02/29/2012	17:46	(EPA 608)	Endosulfan Sulfate	ND	ug/L	0.19	1
2/27/2012	02/29/2012	17:46	(EPA 608)	Endrin	ND	ug/L	0.19	1
2/27/2012	02/29/2012	17:46	(EPA 608)	Endrin Aldehyde	ND	ug/L	0.19	1
2/27/2012	02/29/2012	17:46	(EPA 608)	Endrin Ketone	ND	ug/L	0.19	1
2/27/2012	02/29/2012	17:46	(EPA 608)	Gamma-BHC	ND	ug/L	0.093	1
2/27/2012	02/29/2012	17:46	(EPA 608)	gamma-Chlordane	ND	ug/L	0.093	1
2/27/2012	02/29/2012	17:46	(EPA 608)	Heptachlor	ND	ug/L	0.093	1
2/27/2012	02/29/2012	17:46	(EPA 608)	Heptachlor Epoxide	ND	ug/L	0.093	1
2/27/2012	02/29/2012	17:46	(EPA 608)	Methoxychlor	ND	ug/L	0.93	1
2/27/2012	02/29/2012	17:46	(EPA 608)	Toxaphene	ND	ug/L	1.9	1
2/27/2012	02/29/2012	17:46	(EPA 608)	Decachlorobiphenyl	98	%		1
2/27/2012	02/29/2012	17:46	(EPA 608)	Tetrachlorometaxylene	76	%		1
			SM 9221C - Fecal Coliform Bacteria					
	02/23/2012	15:14	641210 (SM 9221C)	Fecal Coliform Bacteria	14	MPN/100 mL	2	1
			SM 9221B - Total Coliform Bacteria					
	02/23/2012	15:14	639862 (SM 9221B)	Total Coliform Bacteria	700	MPN/100 mL	2	1
			S4500PE/ 365.1 - Total phosphorus as PO4- Calc.					
	02/24/2012	16:39	(S4500PE/ 365.1)	Total phosphorus as PO4- Calc.	0.13	mg/L	0.031	1
			4500P-E/365.1 - Orthophosphate as PO4 (CAL)					
	02/24/2012	14:26	(4500P-E/365.1)	Orthophosphate as PO4	0.12	mg/L	0.031	1
			SM 4500-CL G - Total Chlorine Residual					
	02/24/2012	00:00	641032 (SM 4500-CL G)	Total Chlorine Residual	ND	mg/L	0.1	1
			EPA 547 - Glyphosate					

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Laboratory Data
Report: 389198

MWH Americas - Arcadia
Sarah Garber
618 Michillinda Ave.
Suite 200
Arcadia, CA 91007

Samples Received on:
02/23/2012

Prepared	Analyzed		QC Ref #	Method	Analyte	Result	Units	MRL	Dilution
	03/01/2012	13:51	641364	(EPA 547)	Glyphosate	ND	ug/L	6	1
				EPA 300.0 - Nitrate, Nitrite by EPA 300.0					
	02/23/2012	16:56	640666	(EPA 300.0)	Nitrate as Nitrogen by IC	8.7	mg/L	0.2	2
	02/23/2012	16:56	640666	(EPA 300.0)	Nitrate as NO3 (calc)	38	mg/L	0.88	2
	02/23/2012	16:56	640666	(EPA 300.0)	Nitrite Nitrogen by IC	ND	mg/L	0.1	2
				SM4500-PE/EPA 365.1 - Total phosphorus as P (T-P)					
	02/24/2012	14:56	640870	(SM4500-PE/EPA 365.1)	Total phosphorus as P	0.042	mg/L	0.02	1
				EPA 351.2 - Total Kjeldahl Nitrogen					
	02/29/2012	14:36	641727	(EPA 351.2)	Kjeldahl Nitrogen	ND	mg/L	0.2	1
				EPA 350.1 - Ammonia Nitrogen					
	02/27/2012	14:53	641126	(EPA 350.1)	Ammonia Nitrogen	ND	mg/L	0.05	1
				EPA 180.1 - Turbidity					
	02/24/2012	11:06	640803	(EPA 180.1)	Turbidity	0.56	NTU	0.05	1
				4500P-E/365.1 - Orthophosphate as P (OPO4)					
	02/23/2012	18:36	640801	(4500P-E/365.1)	Orthophosphate as P	0.039	mg/L	0.01	1
TJPOUT022312 (201202230345)							**Sampled on 02/23/2012 1230**		
				EPA 8141A - Organophosphorous Pesticides (Sub)					
2/27/2012	02/28/2012	21:53		(EPA 8141A)	Azinphos methyl	ND	ug/L	1	1
2/27/2012	02/28/2012	21:53		(EPA 8141A)	Bolstar	ND	ug/L	1	1
2/27/2012	02/28/2012	21:53		(EPA 8141A)	Chlorpyrifos	ND	ug/L	1	1
2/27/2012	02/28/2012	21:53		(EPA 8141A)	Coumaphos	ND	ug/L	1	1
2/27/2012	02/28/2012	21:53		(EPA 8141A)	Demeton	ND	ug/L	1	1
2/27/2012	02/28/2012	21:53		(EPA 8141A)	Diazinon	ND	ug/L	1	1
2/27/2012	02/28/2012	21:53		(EPA 8141A)	Dichlorvos	ND	ug/L	1	1
2/27/2012	02/28/2012	21:53		(EPA 8141A)	Disulfoton	ND	ug/L	1	1
2/27/2012	02/28/2012	21:53		(EPA 8141A)	Ethoprop	ND	ug/L	1	1
2/27/2012	02/28/2012	21:53		(EPA 8141A)	Fensulfothion	ND	ug/L	1	1
2/27/2012	02/28/2012	21:53		(EPA 8141A)	Fenthion	ND	ug/L	1	1
2/27/2012	02/28/2012	21:53		(EPA 8141A)	Methyl Parathion	ND	ug/L	1	1
2/27/2012	02/28/2012	21:53		(EPA 8141A)	Mevinphos	ND	ug/L	1	1
2/27/2012	02/28/2012	21:53		(EPA 8141A)	Naled	ND	ug/L	1	1
2/27/2012	02/28/2012	21:53		(EPA 8141A)	Phorate	ND	ug/L	1	1
2/27/2012	02/28/2012	21:53		(EPA 8141A)	Ronnel	ND	ug/L	1	1

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Laboratory Data
Report: 389198

MWH Americas - Arcadia
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Arcadia, CA 91007

Samples Received on:
02/23/2012

Prepared	Analyzed		QC Ref #	Method	Analyte	Result	Units	MRL	Dilution
2/27/2012	02/28/2012	21:53		(EPA 8141A)	Stirophos	ND	ug/L	1	1
2/27/2012	02/28/2012	21:53		(EPA 8141A)	Tokuthion	ND	ug/L	1	1
2/27/2012	02/28/2012	21:53		(EPA 8141A)	Trichloronate	ND	ug/L	1	1
2/27/2012	02/28/2012	21:53		(EPA 8141A)	Tributylphosphate	69	%		1
2/27/2012	02/28/2012	21:53		(EPA 8141A)	Triphenyl Phosphate	80	%		1
		EPA 608 - Organochlorine Pesticides							
2/27/2012	02/29/2012	18:08		(EPA 608)	4,4-DDD	ND	ug/L	0.2	1
2/27/2012	02/29/2012	18:08		(EPA 608)	4,4-DDE	ND	ug/L	0.2	1
2/27/2012	02/29/2012	18:08		(EPA 608)	4,4-DDT	ND	ug/L	0.2	1
2/27/2012	02/29/2012	18:08		(EPA 608)	Aldrin	ND	ug/L	0.099	1
2/27/2012	02/29/2012	18:08		(EPA 608)	alpha-BHC	ND	ug/L	0.099	1
2/27/2012	02/29/2012	18:08		(EPA 608)	alpha-Chlordane	ND	ug/L	0.099	1
2/27/2012	02/29/2012	18:08		(EPA 608)	beta-BHC	ND	ug/L	0.099	1
2/27/2012	02/29/2012	18:08		(EPA 608)	delta-BHC	ND	ug/L	0.099	1
2/27/2012	02/29/2012	18:08		(EPA 608)	Dieldrin	ND	ug/L	0.2	1
2/27/2012	02/29/2012	18:08		(EPA 608)	Endosulfan I (Alpha)	ND	ug/L	0.099	1
2/27/2012	02/29/2012	18:08		(EPA 608)	Endosulfan II (Beta)	ND	ug/L	0.2	1
2/27/2012	02/29/2012	18:08		(EPA 608)	Endosulfan Sulfate	ND	ug/L	0.2	1
2/27/2012	02/29/2012	18:08		(EPA 608)	Endrin	ND	ug/L	0.2	1
2/27/2012	02/29/2012	18:08		(EPA 608)	Endrin Aldehyde	ND	ug/L	0.2	1
2/27/2012	02/29/2012	18:08		(EPA 608)	Endrin Ketone	ND	ug/L	0.2	1
2/27/2012	02/29/2012	18:08		(EPA 608)	Gamma-BHC	ND	ug/L	0.099	1
2/27/2012	02/29/2012	18:08		(EPA 608)	gamma-Chlordane	ND	ug/L	0.099	1
2/27/2012	02/29/2012	18:08		(EPA 608)	Heptachlor	ND	ug/L	0.099	1
2/27/2012	02/29/2012	18:08		(EPA 608)	Heptachlor Epoxide	ND	ug/L	0.099	1
2/27/2012	02/29/2012	18:08		(EPA 608)	Methoxychlor	ND	ug/L	0.99	1
2/27/2012	02/29/2012	18:08		(EPA 608)	Toxaphene	ND	ug/L	2	1
2/27/2012	02/29/2012	18:08		(EPA 608)	Decachlorobiphenyl	100	%		1
2/27/2012	02/29/2012	18:08		(EPA 608)	Tetrachlorometaxylene	81	%		1
		SM 9221C - Fecal Coliform Bacteria							
	02/23/2012	15:14	641210	(SM 9221C)	Fecal Coliform Bacteria	<2	MPN/100 mL	2	1
		SM 9221B - Total Coliform Bacteria							
	02/23/2012	15:14	639862	(SM 9221B)	Total Coliform Bacteria	900	MPN/100 mL	2	1
		S4500PE/ 365.1 - Total phosphorus as PO4- Calc.							

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Laboratory Data
Report: 389198

MWH Americas - Arcadia
Sarah Garber
618 Michillinda Ave.
Suite 200
Arcadia, CA 91007

Samples Received on:
02/23/2012

Prepared	Analyzed	QC Ref #	Method	Analyte	Result	Units	MRL	Dilution
	02/24/2012 16:39		(S4500PE/ 365.1)	Total phosphorus as PO4- Calc.	0.11	mg/L	0.031	1
	4500P-E/365.1 - Orthophosphate as PO4 (CAL)							
	02/24/2012 14:26		(4500P-E/365.1)	Orthophosphate as PO4	0.095	mg/L	0.031	1
	SM 4500-CL G - Total Chlorine Residual							
	02/24/2012 00:00	641032	(SM 4500-CL G)	Total Chlorine Residual	ND	mg/L	0.1	1
	EPA 547 - Glyphosate							
	03/01/2012 14:03	641364	(EPA 547)	Glyphosate	ND	ug/L	6	1
	EPA 300.0 - Nitrate, Nitrite by EPA 300.0							
	02/23/2012 17:08	640666	(EPA 300.0)	Nitrate as Nitrogen by IC	5.8	mg/L	0.2	2
	02/23/2012 17:08	640666	(EPA 300.0)	Nitrate as NO3 (calc)	25	mg/L	0.88	2
	02/23/2012 17:08	640666	(EPA 300.0)	Nitrite Nitrogen by IC	ND	mg/L	0.1	2
	SM4500-PE/EPA 365.1 - Total phosphorus as P (T-P)							
	02/24/2012 14:57	640870	(SM4500-PE/EPA 365.1)	Total phosphorus as P	0.037	mg/L	0.02	1
	EPA 351.2 - Total Kjeldahl Nitrogen							
	02/29/2012 14:37	641727	(EPA 351.2)	Kjeldahl Nitrogen	ND	mg/L	0.2	1
	EPA 350.1 - Ammonia Nitrogen							
	02/27/2012 14:55	641126	(EPA 350.1)	Ammonia Nitrogen	ND	mg/L	0.05	1
	EPA 180.1 - Turbidity							
	02/24/2012 11:08	640803	(EPA 180.1)	Turbidity	0.46	NTU	0.05	1
	4500P-E/365.1 - Orthophosphate as P (OPO4)							
	02/23/2012 18:37	640801	(4500P-E/365.1)	Orthophosphate as P	0.031	mg/L	0.01	1

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QC Ref # 639862 - Total Coliform Bacteria — **Analysis Date: 02/23/2012**

201202230334	BTW022312	Analyzed by: MIL
201202230343	HCC022312	Analyzed by: MIL
201202230344	TJPIN022312	Analyzed by: MIL
201202230345	TJPOUT022312	Analyzed by: MIL

QC Ref # 640666 - Nitrate, Nitrite by EPA 300.0 — **Analysis Date: 02/23/2012**

201202230334	BTW022312	Analyzed by: SXK
201202230343	HCC022312	Analyzed by: SXK
201202230344	TJPIN022312	Analyzed by: SXK
201202230345	TJPOUT022312	Analyzed by: SXK

QC Ref # 640801 - Orthophosphate as P (OPO4) — **Analysis Date: 02/23/2012**

201202230334	BTW022312	Analyzed by: QMK
201202230343	HCC022312	Analyzed by: QMK
201202230344	TJPIN022312	Analyzed by: QMK
201202230345	TJPOUT022312	Analyzed by: QMK

QC Ref # 640803 - Turbidity — **Analysis Date: 02/24/2012**

201202230334	BTW022312	Analyzed by: NEM
201202230343	HCC022312	Analyzed by: NEM
201202230344	TJPIN022312	Analyzed by: NEM
201202230345	TJPOUT022312	Analyzed by: NEM

QC Ref # 640870 - Total phosphorus as P (T-P) — **Analysis Date: 02/24/2012**

201202230334	BTW022312	Analyzed by: NJR
201202230343	HCC022312	Analyzed by: NJR
201202230344	TJPIN022312	Analyzed by: NJR
201202230345	TJPOUT022312	Analyzed by: NJR

QC Ref # 641032 - Total Chlorine Residual — **Analysis Date: 02/24/2012**

201202230334	BTW022312	Analyzed by: MCP
201202230343	HCC022312	Analyzed by: MCP
201202230344	TJPIN022312	Analyzed by: MCP
201202230345	TJPOUT022312	Analyzed by: MCP

QC Ref # 641126 - Ammonia Nitrogen — **Analysis Date: 02/27/2012**

201202230334	BTW022312	Analyzed by: NJR
201202230343	HCC022312	Analyzed by: NJR
201202230344	TJPIN022312	Analyzed by: NJR
201202230345	TJPOUT022312	Analyzed by: NJR

QC Ref # 641210 - Fecal Coliform Bacteria — **Analysis Date: 02/23/2012**

201202230334	BTW022312	Analyzed by: MIL
201202230343	HCC022312	Analyzed by: MIL
201202230344	TJPIN022312	Analyzed by: MIL
201202230345	TJPOUT022312	Analyzed by: MIL

QC Ref # 641364 - Glyphosate — **Analysis Date: 03/01/2012**

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(continued)

201202230334	BTW022312	Analyzed by: SZZ
201202230343	HCC022312	Analyzed by: SZZ
201202230344	TJPIN022312	Analyzed by: SZZ
201202230345	TJPOUT022312	Analyzed by: SZZ

QC Ref # 641727 - Total Kjeldahl Nitrogen **Analysis Date: 02/29/2012**

201202230334	BTW022312	Analyzed by: NJR
201202230343	HCC022312	Analyzed by: NJR
201202230344	TJPIN022312	Analyzed by: NJR
201202230345	TJPOUT022312	Analyzed by: NJR

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Laboratory
QC Report: 389198

MWH Americas - Arcadia

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield (%)	Limits (%)	RPDLimit (%)	RPD%
QC Ref# 640666 - Nitrate, Nitrite by EPA 300.0 by EPA 300.0							**Analysis Date: 02/23/2012**		
LCS1	Nitrate as Nitrogen by IC		2.5	2.49	mg/L	100	(90-110)		
LCS2	Nitrate as Nitrogen by IC		2.5	2.52	mg/L	101	(90-110)	20	1.2
MBLK	Nitrate as Nitrogen by IC			<0.10	mg/L				
MRL_CHK	Nitrate as Nitrogen by IC		0.05	0.0493	mg/L	99	(50-150)		
MS_201202240091	Nitrate as Nitrogen by IC	ND	1.3	6.78	mg/L	106	(80-120)		
MSD_201202240091	Nitrate as Nitrogen by IC	ND	1.3	6.73	mg/L	105	(80-120)	20	0.74
LCS1	Nitrite Nitrogen by IC		1.0	0.959	mg/L	96	(90-110)		
LCS2	Nitrite Nitrogen by IC		1.0	0.958	mg/L	96	(90-110)	20	0.10
MBLK	Nitrite Nitrogen by IC			<0.10	mg/L				
MRL_CHK	Nitrite Nitrogen by IC		0.05	0.0497	mg/L	99	(50-150)		
MS_201202240091	Nitrite Nitrogen by IC	ND	0.5	2.47	mg/L	99	(80-120)		
MSD_201202240091	Nitrite Nitrogen by IC	ND	0.5	2.48	mg/L	99	(80-120)	20	0.40
QC Ref# 640801 - Orthophosphate as P (OPO4) by 4500P-E/365.1							**Analysis Date: 02/23/2012**		
LCS1	Orthophosphate as P		0.25	0.258	mg/L	103	(90-110)		
LCS2	Orthophosphate as P		0.25	0.255	mg/L	102	(90-110)	20	1.2
MBLK	Orthophosphate as P			<0.01	mg/L				
MRL_CHK	Orthophosphate as P		0.01	0.0110	mg/L	110	(50-150)		
MS_201202230378	Orthophosphate as P	ND	0.5	0.521	mg/L	104	(90-110)		
MS_201202230383	Orthophosphate as P	0.037	0.5	0.547	mg/L	102	(90-110)		
MSD_201202230378	Orthophosphate as P	ND	0.5	0.516	mg/L	103	(90-110)	20	0.96
QC Ref# 640803 - Turbidity by EPA 180.1							**Analysis Date: 02/24/2012**		
DUP1_201202230064	Turbidity	0.069		0.0730	NTU		(0-10)	10	5.6
DUP2_201202230022	Turbidity	0.14		0.141	NTU		(0-10)	10	0.71
LCS1	Turbidity		20	20.9	NTU	105	(90-110)		
LCS2	Turbidity		20	20.9	NTU	105	(90-110)	20	0.0
MBLK	Turbidity			<0.05	NTU				
MRL_CHK	Turbidity		0.05	0.0530	NTU	106	(50-150)		
QC Ref# 640870 - Total phosphorus as P (T-P) by SM4500-PE/EPA 365.1							**Analysis Date: 02/24/2012**		
LCS1	Total phosphorus as P		0.4	0.390	mg/L	98	(90-110)		
LCS2	Total phosphorus as P		0.4	0.392	mg/L	98	(90-110)	20	0.51
MBLK	Total phosphorus as P			<0.02	mg/L				
MRL_CHK	Total phosphorus as P		0.02	0.0278	mg/L	139	(50-150)		
MS_201202140423	Total phosphorus as P	0.027	0.4	0.400	mg/L	93	(90-110)		

Spike recovery is already corrected for native results.
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.
(S) Indicates surrogate compound.
(I) Indicates internal standard compound.
RPD not calculated for LCS2 when different a concentration than LCS1 is used
RPD not calculated for Duplicates when the result is not five times the MRL (Minimum Reporting Level)

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Laboratory
QC Report: 389198

MWH Americas - Arcadia
(continued)

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield (%)	Limits (%)	RPDLimit (%)	RPD%
MS2_201202180210	Total phosphorus as P	0.82	0.4	1.26	mg/L	109	(90-110)		
MSD_201202140423	Total phosphorus as P	0.027	0.4	0.406	mg/L	95	(90-110)	20	1.5
QC Ref# 641126 - Ammonia Nitrogen by EPA 350.1							**Analysis Date: 02/27/2012**		
LCS1	Ammonia Nitrogen		1.0	1.04	mg/L	104	(90-110)		
LCS2	Ammonia Nitrogen		1.0	1.03	mg/L	103	(90-110)	20	0.97
MBLK	Ammonia Nitrogen			<0.05	mg/L				
MRL_CHK	Ammonia Nitrogen		0.05	0.0450	mg/L	90	(50-150)		
MS_201202230116	Ammonia Nitrogen	0.13	1.0	1.15	mg/L	102	(90-110)		
MS2_201202230119	Ammonia Nitrogen	0.10	1.0	1.13	mg/L	103	(90-110)		
MSD_201202230116	Ammonia Nitrogen	0.13	1.0	1.13	mg/L	100	(90-110)	20	1.8
QC Ref# 641364 - Glyphosate by EPA 547							**Analysis Date: 03/01/2012**		
CCCH	Glyphosate		25	21.4	ug/L	86	(80-120)		
CCCM	Glyphosate		10	9.04	ug/L	90	(80-120)		
LCS1	Glyphosate		10	8.68	ug/L	87	(80-120)		
MBLK	Glyphosate			<6	ug/L				
MRL_CHK	Glyphosate		6.0	5.26	ug/L	88	(50-150)		
MS_201202220147	Glyphosate	ND	10	8.42	ug/L	84	(83-119)		
MS2_201202220177	Glyphosate	ND	10	9.44	ug/L	94	(83-119)		
MSD_201202220147	Glyphosate	ND	10	8.65	ug/L	87	(83-119)	20	2.7
QC Ref# 641727 - Total Kjeldahl Nitrogen by EPA 351.2							**Analysis Date: 02/29/2012**		
LCS1	Kjeldahl Nitrogen		4.0	4.35	mg/L	109	(90-110)		
LCS2	Kjeldahl Nitrogen		4.0	4.27	mg/L	107	(90-110)	20	1.9
MBLK	Kjeldahl Nitrogen			<0.1	mg/L				
MRL_CHK	Kjeldahl Nitrogen		0.2	0.167	mg/L	84	(50-150)		
MS_201202230116	Kjeldahl Nitrogen	ND	4.0	4.37	mg/L	104	(90-110)		
MS2_201202230119	Kjeldahl Nitrogen	ND	4.0	4.6	mg/L	**111**	(90-110)		
MSD_201202230116	Kjeldahl Nitrogen	ND	4.0	4.36	mg/L	104	(90-110)	20	0.23

Spike recovery is already corrected for native results.
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.
(S) Indicates surrogate compound.
(I) Indicates internal standard compound.
RPD not calculated for LCS2 when different a concentration than LCS1 is used
RPD not calculated for Duplicates when the result is not five times the MRL (Minimum Reporting Level)

TABLE OF CONTENTS

CLIENT: **MWH LABORATORIES**

PROJECT: **389198**

SDG: **12B225**

** - Not Requested

EMAX LABORATORIES, INC. 1835 W. 205th Street, Torrance, CA 90501 Tel: (310) 618-8889 Fax: (310) 618-0818

LABORATORIES, INC.
1835 W. 205th Street
Torrance, CA 90501
Tel: (310) 618-8889
Fax: (310) 618-0818

Date: 03-08-2012
EMAX Batch No.: 12B225

Attn: Jackie Contreras

MWH Laboratories
750 Royal Oaks Dr., Suite 100
Monrovia CA 91016-3629

Subject: Laboratory Report
Project: 389198

Enclosed is the Laboratory report for samples received on 02/24/12.
The data reported relate only to samples listed below :

Sample ID	Control #	Col Date	Matrix	Analysis
201202230334	B225-01	02/23/12	WATER	PESTICIDES ORGANOCHLORINE
				PESTICIDES ORGANOPHOSPHORUS
201202230343	B225-02	02/23/12	WATER	PESTICIDES ORGANOCHLORINE
				PESTICIDES ORGANOPHOSPHORUS
201202230344	B225-03	02/23/12	WATER	PESTICIDES ORGANOCHLORINE
				PESTICIDES ORGANOPHOSPHORUS
201202230345	B225-04	02/23/12	WATER	PESTICIDES ORGANOCHLORINE
				PESTICIDES ORGANOPHOSPHORUS

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning
these results.

Sincerely yours,

Caspar J. Pang
Laboratory Director

EMAX certifies that results included in this report meets all NELAC & DOD requirements unless noted in the Case Narrative.

NELAC Accredited Certificate Number 02116CA
L-A-B Accredited DoD ELAP and ISO/IEC 17025 Certificate Number L2278 Testing

MWH
LABORATORIES

Ship To:
1835 W. 205th St.
EMAX Laboratories, Inc.

Torrance, CA 90501

Phone: 310-618-8889 Fax: 310-618-0818

Submittal Form & Purchase Order 99-15145

Date: 2/24/2012

REPORTING REQUIRMENTS:** ***Do Not Combine Reports with any other samples submitted under different MWH Folder Numbers!
Report & Invoice must have the MWH Folder # **389198** Sub PO# **99-15145** and Job # **1000014**

Report all quality control data according to Method. Include dates analyzed. Date extracted (if extracted) and Method reference on the report.
Results must have Complete data & QC with Approval Signature.

Reports: Jackie Contreras Sub-Contracting Administrator
EMAIL TO: mwhlabs-subcontractreports@mwhglobal.com
MWH Laboratories 750 Royal Oaks Dr. Ste. 100, Monrovia, CA 91016
Phone (626) 386-1165 Fax (626) 386-1122
Invoices to: MWH LABORATORIES
Accounts Payable PO BOX 6610, Broomfield, CO 80021

Provide in each Report the Specified State *Certification # & Exp Date for requested tests + matrix.*

Samples from: **CALIFORNIA**

12B225

MWH Folder #:	Report Due:	Sub PO #:
389198	03/09/2012	99-15145

JLS	Use MWH Lab Order # for ID	*Client Sample ID for reference only*	Analysis Requested	Sample Date & Time	Matrix	PWS Systemcode	PWSID
EPA 8081A 25/50 1	201202230334 @8081A	BTW022312	Organochlorine Pesticides	02/23/12 1020	DW		
EPA 8081A 2	201202230343 @8081A	HCC022312	Organochlorine Pesticides	02/23/12 1120	DW		
EPA 8081A 3	201202230344 @8081A	TJPIN022312	Organochlorine Pesticides	02/23/12 1210	DW		
EPA 8081A 4	201202230345 @8081A	TJPOUT022312	Organochlorine Pesticides	02/23/12 1230	DW		

T = 13.2°C

Relinquished by: Sample Control Date 2/24/12 Time 1159

Received by: Date 2/24/12 Time 1153

NOTIFICATION REQUIRED IF RECEIVED OUTSIDE OF 0-6 CELSIUS

An Acknowledgement of Receipt is requested to attn: **Jackie Contreras**

EMAX LABORATORIES, INC.

SAMPLE RECEIPT FORM 1

Type of Delivery	Airbill / Tracking Number	ECN 128225
☐ Fedex ☐ UPS ☐ GSO ☐ Others		Recipient L-LUNA
☐ EMAX Courier ☑ Client Delivery		Date 2/24/12 Time 1159

COC Inspection

☑ Client Name ☑ Client PM/FC ☐ Sampler Name N/A ☑ Sampling Date/Time/Location ☑ Sample ID ☑ Matrix

☑ Address ☑ Tel # / Fax # ☑ Courier Signature ☑ Analysis Required ☐ Preservative (if any) ☑ TAT

Safety Issues (if any) ☐ High concentrations expected ☐ Superfund Site samples ☐ Rad screening required

Comments:

Packaging Inspection

Container	☑ Cooler	☐ Box	☐ Other		
Condition	☐ Custody Seal	☑ Intact	☐ Damaged		
Packaging	☑ Bubble Pack	☐ Styrofoam	☐ Popcorn	☑ Sufficient	☐
Temperatures (Cool, =6 °C but not frozen)	A ☑ Cooler 1 3.2 °C	☐ Cooler 2_____ °C	☐ Cooler 3_____ °C	☐ Cooler 4_____ °C	☐ Cooler 5_____ °C
	☐ Cooler 6_____ °C	☐ Cooler 7_____ °C	☐ Cooler 8_____ °C	☐ Cooler 9_____ °C	☐ Cooler 10_____ °C

Thermometer: A - S/N 101541371 *B - S/N 101541382*

Comments: ☐ **Temperature is out of range. PM was informed IMMEDIATELY.**

Note: **pH holding time requirement for water samples is 15 mins. Water samples for pH analysis are received beyond 15 minutes from sampling time.**

DISCREPANCIES

LSID	LSCID	Description Code	Sample Label ID / Information	Corrective Action Code
			2/24/12	

☐ **Continue to next page.**

REVIEWS Sample Labeling Date 2/24/12 2/24/12

SRF Date 2/24/12

PM Date 2/24/12

LEGEND:

Code	Description- Sample Management
A1	Analysis is not indicated in COC.
A2	Analysis is not indicated in label.
A3	Analysis is inconsistent in COC vis-à-vis label.
B1	Sample ID is not indicated in COC.
B2	Sample ID is not indicated in label.
B3	Sample ID is inconsistent in COC vis-à-vis label.
C1	Improper container
C2	Broken container
C3	Leaking container
D1	Date and/or time is not indicated in COC.
D2	Date and/or time is not indicated in label.
D3	Date and/or time is inconsistent in COC vis-à-vis label.
F1	Improper preservation
F2	Insufficient Sample
F3	Bubble is > 6mm. Use vial with smallest bubble first.
F4	Bubble is > 6mm in all vials.
F5	>20 % solid particle
F6	Out of Holding Time

Code	Description-Sample Management
G1	Sample indicated in COC is not received.
G2	MS/MSD is not indicated in COC.
G3	No identified trip blank, proceed as indicated in COC.
G4	Trip Blank is designated in SDG _____
G5	Trip Blank has no sampling date & time. Log-in with earliest sampling date and 0:00 time.
H1	

Code	Description-Project Management
R1	Hold sample(s); wait for further instructions
R2	Proceed as indicated in COC and inform client.
R3	Refer to attached instruction
R4	Cancel the analysis
R5	Inform client.
R6	Proceed as indicated in COC

Richard Beauvil

From: Jaclyn Contreras [Jaclyn.L.Contreras@us.mwhglobal.com]
Sent: Monday, February 27, 2012 2:54 PM
To: Richard Beauvil
Cc: David Tripp
Subject: 389198 - need 8141 as well as 8081A 12B225

Hi Richard
Last week you received 8081 analysis for 4 samples for this report. We will need 8141 performed on this report as well. Is there enough volume to run the requested test? Thanks

jackie

REPORTING CONVENTIONS

DATA QUALIFIERS:

Lab Qualifier	AFCEE Qualifier	Description
J	F	Indicates that the analyte is positively identified and the result is less than RL but greater than MDL.
N		Indicates presumptive evidence of a compound.
B	B	Indicates that the analyte is found in the associated method blank as well as in the sample at above QC level.
E	J	Indicates that the result is above the maximum calibration range.
*	*	Out of QC limit.

Note: The above qualifiers are used to flag the results unless the project requires a different set of qualification criteria.

ACRONYMS AND ABBREVIATIONS:

CRDL	Contract Required Detection Limit
RL	Reporting Limit
MRL	Method Reporting Limit
PQL	Practical Quantitation Limit
MDL	Method Detection Limit
DO	Diluted out

DATES

The date and time information for leaching and preparation reflect the beginning date and time of the procedure unless the method, protocol, or project specifically requires otherwise.

LABORATORY REPORT FOR

MWH LABORATORIES

389198

METHOD 608
PESTICIDES

SDG#: 12B225

CASE NARRATIVE

Client : MWH LABORATORIES

Project : 389198

SDG : 12B225

METHOD 608
PESTICIDES

A total of four (4) water samples were received on 02/24/12 for Pesticides Organochlorine analysis, Method 608 in accordance with USEPA Wastewater Test Methods at 40 CFR Part 136.

Holding Time
Samples were analyzed within the prescribed holding time.

Instrument Performance and Calibration
Instrument performance was checked prior to calibration. DDT and Endrin breakdown were within specification. Multi-calibration points were generated to establish initial calibration (ICAL). ICAL was verified using secondary source (ICV). Continuing calibration (CCV) was carried on at a frequency required by the project. All project calibration requirements were satisfied. Refer to calibration summary forms for ICAL, ICV and CCV for details.

Method Blank
Method blank was analyzed at the frequency required by the project. For this SDG, one method blank was analyzed with the samples. Result was compliant to project requirement.

Lab Control Sample
A set of LCS/LCD was analyzed with the samples in this SDG.
Percent recoveries for CPB046WL/C were all within QC limits.

Matrix QC Sample
No matrix QC sample was designated in this SDG.

Surrogate
Surrogates were added on QC and field samples. Surrogate recoveries were within project QC limits.

Sample Analysis
Samples were analyzed according to prescribed analytical procedures. All project requirements were met otherwise anomalies were discussed within the associated QC parameter. Positive sample results were confirmed by a second column. Relative percentage difference (RPD) between the two results were evaluated. If RPD is less than 40% and peaks are well defined the higher result is reported. Where RPD is greater than 40% the chromatogram is checked for anomalies and results are selected based on processed knowledge. If there is no evidence of any chromatographic ambiguity, the higher result is reported.

LAB CHRONICLE
PESTICIDES

Client : MWH LABORATORIES
Project : 389198

SDG NO. : 12B225
Instrument ID : GCT105

WATER

Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	Analysis DateTime	Extraction DateTime	Sample Data FN	Calibration Data FN	Prep. Batch	Notes
MBLK1W	CPB046WB	1	NA	02/29/1215:58	02/27/1210:45	LB29010A	LB29008A	CPB046W	Method Blank
LCS1W	CPB046WL	1	NA	02/29/1216:20	02/27/1210:45	LB29011A	LB29008A	CPB046W	Lab Control Sample (LCS)
LCD1W	CPB046WC	1	NA	02/29/1216:42	02/27/1210:45	LB29012A	LB29008A	CPB046W	LCS Duplicate
201202230334	B225-01	0.96	NA	02/29/1217:03	02/27/1210:45	LB29013A	LB29008A	CPB046W	Field Sample
201202230343	B225-02	0.93	NA	02/29/1217:25	02/27/1210:45	LB29014A	LB29008A	CPB046W	Field Sample
201202230344	B225-03	0.93	NA	02/29/1217:46	02/27/1210:45	LB29015A	LB29008A	CPB046W	Field Sample
201202230345	B225-04	0.99	NA	02/29/1218:08	02/27/1210:45	LB29016A	LB29008A	CPB046W	Field Sample

FN - Filename
% Moist - Percent Moisture

SAMPLE RESULTS

METHOD 608
PESTICIDES

Client : MWH LABORATORIES	Date Collected: 02/23/12
Project : 389198	Date Received: 02/24/12
Batch No. : 12B225	Date Extracted: 02/27/12 10:45
Sample ID: 201202230334	Date Analyzed: 02/29/12 17:03
Lab Samp ID: B225-01	Dilution Factor: 0.96
Lab File ID: LB29013A	Matrix : WATER
Ext Btch ID: CPB046W	% Moisture : NA
Calib. Ref.: LB29008A	Instrument ID : GCT105

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ALPHA-BHC	(ND)|ND	0.096	0.019|0.019
GAMMA-BHC (LINDANE)	(ND)|ND	0.096	0.019|0.019
BETA-BHC	(ND)|ND	0.096	0.019|0.019
HEPTACHLOR	(ND)|ND	0.096	0.019|0.019
DELTA-BHC	(ND)|ND	0.096	0.019|0.019
ALDRIN	(ND)|ND	0.096	0.019|0.019
HEPTACHLOR EPOXIDE	(ND)|ND	0.096	0.019|0.019
GAMMA-CHLORDANE	(ND)|ND	0.096	0.019|0.019
ALPHA-CHLORDANE	(ND)|ND	0.096	0.019|0.019
ENDOSULFAN I	(ND)|ND	0.096	0.019|0.019
4,4'-DDE	(ND)|ND	0.19	0.019|0.019
DIELDRIN	(ND)|ND	0.19	0.019|0.019
ENDRIN	(ND)|ND	0.19	0.019|0.019
4,4'-DDD	(ND)|ND	0.19	0.019|0.019
ENDOSULFAN II	(ND)|ND	0.19	0.019|0.019
4,4'-DDT	(ND)|ND	0.19	0.019|0.019
ENDRIN ALDEHYDE	(ND)|ND	0.19	0.019|0.019
ENDOSULFAN SULFATE	(ND)|ND	0.19	0.019|0.019
ENDRIN KETONE	(ND)|ND	0.19	0.019|0.019
METHOXYCHLOR	(ND)|ND	0.96	0.19|0.19
TOXAPHENE	(ND)|ND	1.9	0.96|0.96

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	0.3168|(0.3483)	0.3840	82.5|(90.7)	30-140
DECACHLOROBIPHENYL	0.3187|(0.3775)	0.3840	83.0|(98.3)	40-150

RL : Reporting limit
Left of | is related to first column ; Right of | related to second column
Final result indicated by ( )

METHOD 608
PESTICIDES

Client : MWH LABORATORIES	Date Collected: 02/23/12
Project : 389198	Date Received: 02/24/12
Batch No. : 128225	Date Extracted: 02/27/12 10:45
Sample ID: 201202230343	Date Analyzed: 02/29/12 17:25
Lab Samp ID: B225-02	Dilution Factor: 0.93
Lab File ID: LB29014A	Matrix : WATER
Ext Btch ID: CP8046W	% Moisture : NA
Calib. Ref.: LB29008A	Instrument ID : GCT105

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ALPHA-BHC	(ND) | ND	0.093	0.019 | 0.019
GAMMA-BHC (LINDANE)	(ND) | ND	0.093	0.019 | 0.019
BETA-BHC	(ND) | ND	0.093	0.019 | 0.019
HEPTACHLOR	(ND) | ND	0.093	0.019 | 0.019
DELTA-BHC	(ND) | ND	0.093	0.019 | 0.019
ALDRIN	(ND) | ND	0.093	0.019 | 0.019
HEPTACHLOR EPOXIDE	(ND) | ND	0.093	0.019 | 0.019
GAMMA-CHLORDANE	(ND) | ND	0.093	0.019 | 0.019
ALPHA-CHLORDANE	(ND) | ND	0.093	0.019 | 0.019
ENDOSULFAN I	(ND) | ND	0.093	0.019 | 0.019
4,4'-DDE	(ND) | ND	0.19	0.019 | 0.019
DIELDRIN	(ND) | ND	0.19	0.019 | 0.019
ENDRIN	(ND) | ND	0.19	0.019 | 0.019
4,4'-DDD	(ND) | ND	0.19	0.019 | 0.019
ENDOSULFAN II	(ND) | ND	0.19	0.019 | 0.019
4,4'-DDT	(ND) | ND	0.19	0.019 | 0.019
ENDRIN ALDEHYDE	(ND) | ND	0.19	0.019 | 0.019
ENDOSULFAN SULFATE	(ND) | ND	0.19	0.019 | 0.019
ENDRIN KETONE	(ND) | ND	0.19	0.019 | 0.019
METHOXYCHLOR	(ND) | ND	0.93	0.19 | 0.19
TOXAPHENE	(ND) | ND	1.9	0.93 | 0.93

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	0.2976 | (0.3178)	0.3720	80.0 | (85.4)	30-140
DECACHLOROBIPHENYL	0.3127 | (0.3713)	0.3720	84.1 | (99.8)	40-150

RL : Reporting limit
Left of | is related to first column ; Right of | related to second column
Final result indicated by ( )

METHOD 608
PESTICIDES

Client : MWH LABORATORIES	Date Collected: 02/23/12
Project : 389198	Date Received: 02/24/12
Batch No. : 128225	Date Extracted: 02/27/12 10:45
Sample ID: 201202230344	Date Analyzed: 02/29/12 17:46
Lab Samp ID: B225-03	Dilution Factor: 0.93
Lab File ID: LB29015A	Matrix : WATER
Ext Btch ID: CPB046W	% Moisture : NA
Calib. Ref.: LB29008A	Instrument ID : GCT105

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ALPHA-BHC	(ND)|ND	0.093	0.019|0.019
GAMMA-BHC (LINDANE)	(ND)|ND	0.093	0.019|0.019
BETA-BHC	(ND)|ND	0.093	0.019|0.019
HEPTACHLOR	(ND)|ND	0.093	0.019|0.019
DELTA-BHC	(ND)|ND	0.093	0.019|0.019
ALDRIN	(ND)|ND	0.093	0.019|0.019
HEPTACHLOR EPOXIDE	(ND)|ND	0.093	0.019|0.019
GAMMA-CHLORDANE	(ND)|ND	0.093	0.019|0.019
ALPHA-CHLORDANE	(ND)|ND	0.093	0.019|0.019
ENDOSULFAN I	(ND)|ND	0.093	0.019|0.019
4,4'-DDE	(ND)|ND	0.19	0.019|0.019
DIELDRIN	(ND)|ND	0.19	0.019|0.019
ENDRIN	(ND)|ND	0.19	0.019|0.019
4,4'-DDD	(ND)|ND	0.19	0.019|0.019
ENDOSULFAN II	(ND)|ND	0.19	0.019|0.019
4,4'-DDT	(ND)|ND	0.19	0.019|0.019
ENDRIN ALDEHYDE	(ND)|ND	0.19	0.019|0.019
ENDOSULFAN SULFATE	(ND)|ND	0.19	0.019|0.019
ENDRIN KETONE	(ND)|ND	0.19	0.019|0.019
METHOXYCHLOR	(ND)|ND	0.93	0.19|0.19
TOXAPHENE	(ND)|ND	1.9	0.93|0.93

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	0.2796|(0.2839)	0.3720	75.2|(76.3)	30-140
DECACHLOROBIPHENYL	0.3075|(0.3645)	0.3720	82.7|(98.0)	40-150

RL : Reporting limit
Left of | is related to first column ; Right of | related to second column
Final result indicated by ( )

METHOD 608
PESTICIDES

Client : MWH LABORATORIES	Date Collected: 02/23/12
Project : 389198	Date Received: 02/24/12
Batch No. : 12B225	Date Extracted: 02/27/12 10:45
Sample ID: 201202230345	Date Analyzed: 02/29/12 18:08
Lab Samp ID: B225-04	Dilution Factor: 0.99
Lab File ID: LB29016A	Matrix : WATER
Ext Btch ID: CPB046W	% Moisture : NA
Calib. Ref.: LB29008A	Instrument ID : GCT105

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ALPHA-BHC	(ND) | ND	0.099	0.020 | 0.020
GAMMA-BHC (LINDANE)	(ND) | ND	0.099	0.020 | 0.020
BETA-BHC	(ND) | ND	0.099	0.020 | 0.020
HEPTACHLOR	(ND) | ND	0.099	0.020 | 0.020
DELTA-BHC	(ND) | ND	0.099	0.020 | 0.020
ALDRIN	(ND) | ND	0.099	0.020 | 0.020
HEPTACHLOR EPOXIDE	(ND) | ND	0.099	0.020 | 0.020
GAMMA-CHLORDANE	(ND) | ND	0.099	0.020 | 0.020
ALPHA-CHLORDANE	(ND) | ND	0.099	0.020 | 0.020
ENDOSULFAN I	(ND) | ND	0.099	0.020 | 0.020
4,4'-DDE	(ND) | ND	0.20	0.020 | 0.020
DIELDRIN	(ND) | ND	0.20	0.020 | 0.020
ENDRIN	(ND) | ND	0.20	0.020 | 0.020
4,4'-DDD	(ND) | ND	0.20	0.020 | 0.020
ENDOSULFAN II	(ND) | ND	0.20	0.020 | 0.020
4,4'-DDT	(ND) | ND	0.20	0.020 | 0.020
ENDRIN ALDEHYDE	(ND) | ND	0.20	0.020 | 0.020
ENDOSULFAN SULFATE	(ND) | ND	0.20	0.020 | 0.020
ENDRIN KETONE	(ND) | ND	0.20	0.020 | 0.020
METHOXYCHLOR	(ND) | ND	0.99	0.20 | 0.20
TOXAPHENE	(ND) | ND	2.0	0.99 | 0.99

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	0.3154 | (0.3211)	0.3960	79.7 | (81.1)	30-140
DECACHLOROBIPHENYL	0.3352 | (0.3961)	0.3960	84.6 | (100)	40-150

RL : Reporting limit
Left of | is related to first column ; Right of | related to second column
Final result indicated by ( )

QC SUMMARIES

METHOD 608
PESTICIDES

Client : MWH LABORATORIES	Date Collected: NA
Project : 389198	Date Received: 02/27/12
Batch No. : 12B225	Date Extracted: 02/27/12 10:45
Sample ID: MBLK1W	Date Analyzed: 02/29/12 15:58
Lab Samp ID: CPB046WB	Dilution Factor: 1
Lab File ID: LB29010A	Matrix : WATER
Ext Btch ID: CPB046W	% Moisture : NA
Calib. Ref.: LB29008A	Instrument ID : GCT105

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ALPHA-BHC	(ND) | ND	0.10	0.020 | 0.020
GAMMA-BHC (LINDANE)	(ND) | ND	0.10	0.020 | 0.020
BETA-BHC	(ND) | ND	0.10	0.020 | 0.020
HEPTACHLOR	(ND) | ND	0.10	0.020 | 0.020
DELTA-BHC	(ND) | ND	0.10	0.020 | 0.020
ALDRIN	(ND) | ND	0.10	0.020 | 0.020
HEPTACHLOR EPOXIDE	(ND) | ND	0.10	0.020 | 0.020
GAMMA-CHLORDANE	(ND) | ND	0.10	0.020 | 0.020
ALPHA-CHLORDANE	(ND) | ND	0.10	0.020 | 0.020
ENDOSULFAN I	(ND) | ND	0.10	0.020 | 0.020
4,4'-DDE	(ND) | ND	0.20	0.020 | 0.020
DIELDRIN	(ND) | ND	0.20	0.020 | 0.020
ENDRIN	(ND) | ND	0.20	0.020 | 0.020
4,4'-DDD	(ND) | ND	0.20	0.020 | 0.020
ENDOSULFAN II	(ND) | ND	0.20	0.020 | 0.020
4,4'-DDT	(ND) | ND	0.20	0.020 | 0.020
ENDRIN ALDEHYDE	(ND) | ND	0.20	0.020 | 0.020
ENDOSULFAN SULFATE	(ND) | ND	0.20	0.020 | 0.020
ENDRIN KETONE	(ND) | ND	0.20	0.020 | 0.020
METHOXYCHLOR	(ND) | ND	1.0	0.20 | 0.20
TOXAPHENE	(ND) | ND	2.0	1.0 | 1.0

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	0.2804 | (0.2823)	0.4000	70.1 | (70.6)	30-130
DECACHLOROBIPHENYL	0.3366 | (0.4029)	0.4000	84.1 | (101)	40-150

RL : Reporting limit
Left of | is related to first column ; Right of | related to second column
Final result indicated by ( )

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: MWH LABORATORIES
PROJECT: 389198
BATCH NO.: 128225
METHOD: METHOD 608

MATRIX: WATER % MOISTURE: NA
DILUTION FACTOR: 1 1 1
SAMPLE ID: MBLK1W
LAB SAMP ID: CPB046WB CPB046WL CPB046WC
LAB FILE ID: LB29010A LB29011A LB29012A
DATE EXTRACTED: 02/27/1210:45 02/27/1210:45 02/27/1210:45 DATE COLLECTED: NA
DATE ANALYZED: 02/29/1215:58 02/29/1216:20 02/29/1216:42 DATE RECEIVED: 02/27/12
PREP. BATCH: CPB046W CPB046W CPB046W
CALIB. REF: LB29008A LB29008A LB29008A

ACCESSION:

PARAMETER	BLNK RSLT (ug/L)	SPIKE AMT (ug/L)	BS RSLT (ug/L)	BS % REC	SPIKE AMT (ug/L)	BSD RSLT (ug/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
gamma-BHC (Lindane)	(ND) | ND	0.200	0.175 | (0.184)	88 | (92)	0.200	0.171 | (0.184)	86 | (92)	2 | (0)	40-130	30
Heptachlor	(ND) | ND	0.200	(0.175) | 0.173	(88) | 86	0.200	(0.175) | 0.173	(88) | 86	(0) | 0	30-140	30
Aldrin	(ND) | ND	0.200	0.177 | (0.184)	88 | (92)	0.200	0.172 | (0.183)	86 | (92)	3 | (1)	40-130	30
Dieldrin	(ND) | ND	0.200	0.176J | (0.181J)	88 | (90)	0.200	0.174J | (0.179J)	87 | (90)	1 | (1)	60-140	30
Endrin	(ND) | ND	0.200	0.178J | (0.180J)	89 | (90)	0.200	0.179J | (0.180J)	90 | (90)	1 | (0)	50-140	30
4,4'-DDT	(ND) | ND	0.200	(0.194J) | 0.179J	(97) | 90	0.200	(0.194J) | 0.178J	(97) | 89	(0) | 1	60-140	30

SURROGATE PARAMETER	SPIKE AMT (ug/L)	BS RSLT (ug/L)	BS % REC	SPIKE AMT (ug/L)	BSD RSLT (ug/L)	BSD % REC	QC LIMIT (%)
Tetrachloro-m-xylene	0.4000	0.3281 | (0.3396)	82.0 | (84.9)	0.4000	0.2944 | (0.3065)	73.6 | (76.6)	30-130
Decachlorobiphenyl	0.4000	0.3232 | (0.3852)	80.8 | (96.3)	0.4000	0.3229 | (0.3837)	80.7 | (95.9)	40-150

389198

LABORATORY REPORT FOR

MWH LABORATORIES

389198

METHOD 3520C/8141A
ORGANOPHOSPHOROUS COMPOUNDS BY GC

SDG#: 12B225

CASE NARRATIVE

Client : MWH LABORATORIES

Project : 389198

SDG : 12B225

METHOD 3520C/8141A
ORGANOPHOSPHOROUS COMPOUNDS BY GC

A total of four (4) water samples were received on 02/24/12 for Pesticides Organophosphorus analysis, Method 3520C/8141A in accordance with USEPA SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods.

Holding Time
Samples were analyzed within the prescribed holding time.

Calibration
Multi-calibration points were generated to establish initial calibration (ICAL). ICAL was verified using a secondary source (ICV). Continuing calibration (CCV) verifications were carried on a frequency specified by the project. All calibration requirements were within acceptance criteria.

Method Blank
Method blank was analyzed at the frequency required by the project. For this SDG, one method blank was analyzed with the samples. Result was compliant to project requirement.

Lab Control Sample
A set of LCS/LCD was analyzed with the samples in this SDG.
Percent recoveries for NPB003WL/C were all within QC limits.

Matrix QC Sample
No matrix QC sample was designated in this SDG.

Surrogate
Surrogates were added on QC and field samples. Surrogate recoveries were within project QC limits.

Sample Analysis
Samples were analyzed according to prescribed analytical procedures. All project requirements were met otherwise anomalies were discussed within the associated QC parameter.

LAB CHRONICLE
ORGANOPHOSPHOROUS COMPOUNDS BY GC

Client : MWH LABORATORIES
Project : 389198

SDG NO. : 128225
Instrument ID : GCT012

WATER

Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	Analysis DateTime	Extraction DateTime	Sample Data FN	Calibration Data FN	Prep. Batch	Notes
MBLK1W	NPB003WB	1	NA	02/28/1218:33	02/27/1216:00	ZB28009A	ZB28002A	NPB003W	Method Blank
LCS1W	NPB003WL	1	NA	02/28/1219:06	02/27/1216:00	ZB28010A	ZB28002A	NPB003W	Lab Control Sample (LCS)
LCD1W	NPB003WC	1	NA	02/28/1219:40	02/27/1216:00	ZB28011A	ZB28002A	NPB003W	LCS Duplicate
201202230334	B225-01	1.06	NA	02/28/1220:13	02/27/1216:00	ZB28012A	ZB28002A	NPB003W	Field Sample
201202230343	B225-02	1.14	NA	02/28/1220:47	02/27/1216:00	ZB28013A	ZB28002A	NPB003W	Field Sample
201202230344	B225-03	1.06	NA	02/28/1221:20	02/27/1216:00	ZB28014A	ZB28002A	NPB003W	Field Sample
201202230345	B225-04	1.01	NA	02/28/1221:53	02/27/1216:00	ZB28015A	ZB28002A	NPB003W	Field Sample

FN - Filename
% Moist - Percent Moisture

SAMPLE RESULTS

METHOD 3520C/8141A
ORGANOPHOSPHOROUS COMPOUNDS BY GC

Client : MWH LABDRATORIES	Date Collected: 02/23/12
Project : 389198	Date Received: 02/24/12
Batch No. : 128225	Date Extracted: 02/27/12 16:00
Sample ID: 201202230334	Date Analyzed: 02/28/12 20:13
Lab Samp ID: B225-01	Dilution Factor: 1.06
Lab File ID: ZB28012A	Matrix : WATER
Ext Btch ID: NPBD03W	% Moisture : NA
Calib. Ref.: ZB28002A	Instrument ID : GCT012

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
DICHLORVOS	ND	1.1	0.53
MEVINPHOS	ND	1.1	0.53
DEMETON	ND	1.1	0.53
ETHOPROP	ND	1.1	0.53
PHORATE	ND	1.1	0.53
NALED	ND	1.1	0.53
DIAZINON	ND	1.1	0.53
DISULFOTON	ND	1.1	0.53
RONNEL	ND	1.1	0.53
CHLORPYRIFOS	ND	1.1	0.53
FENTHION	ND	1.1	0.53
TRICHLORONATE	ND	1.1	0.53
METHYL PARATHION	ND	1.1	0.53
TOKUTHION	ND	1.1	0.53
STIROPHOS	ND	1.1	0.53
BOLSTAR	ND	1.1	0.53
FENSULFOTHION	ND	1.1	0.53
AZINPHOS-METHYL	ND	1.1	0.53
COUMAPHOS	ND	1.1	0.53

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
TRIBUTYL PHOSPHATE	1.06	1.590	66.5	30-130
TRIPHENYL PHOSPHATE	1.44	1.590	90.3	50-130

METHOD 3520C/8141A
ORGANOPHOSPHOROUS COMPOUNDS BY GC

Client : MWH LABORATORIES	Date Collected: 02/23/12
Project : 389198	Date Received: 02/24/12
Batch No. : 12B225	Date Extracted: 02/27/12 16:00
Sample ID: 201202230343	Date Analyzed: 02/28/12 20:47
Lab Samp ID: B225-02	Dilution Factor: 1.14
Lab File ID: ZB28013A	Matrix : WATER
Ext Btch ID: NPB003W	% Moisture : NA
Calib. Ref.: ZB28002A	Instrument ID : GCT012

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
DICHLORVOS	ND	1.1	0.57
MEVINPHOS	ND	1.1	0.57
DEMETON	ND	1.1	0.57
ETHOPROP	ND	1.1	0.57
PHORATE	ND	1.1	0.57
NALED	ND	1.1	0.57
DIAZINON	ND	1.1	0.57
DISULFOTON	ND	1.1	0.57
RONNEL	ND	1.1	0.57
CHLORPYRIFOS	ND	1.1	0.57
FENTHION	ND	1.1	0.57
TRICHLORONATE	ND	1.1	0.57
METHYL PARATHION	ND	1.1	0.57
TOKUTHION	ND	1.1	0.57
STIROPHOS	ND	1.1	0.57
BOLSTAR	ND	1.1	0.57
FENSULFOTHION	ND	1.1	0.57
AZINPHOS-METHYL	ND	1.1	0.57
COUMAPHOS	ND	1.1	0.57

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
TRIBUTYL PHOSPHATE	1.14	1.710	66.8	30-130
TRIPHENYL PHOSPHATE	1.38	1.710	80.8	50-130

METHOD 3520C/8141A
ORGANOPHOSPHOROUS COMPOUNDS BY GC

Client : MWH LABORATORIES	Date Collected: 02/23/12
Project : 389198	Date Received: 02/24/12
Batch No. : 128225	Date Extracted: 02/27/12 16:00
Sample ID: 201202230344	Date Analyzed: 02/28/12 21:20
Lab Samp ID: B225-03	Dilution Factor: 1.06
Lab File ID: ZB28014A	Matrix : WATER
Ext Btch ID: NPB003W	% Moisture : NA
Calib. Ref.: ZB28002A	Instrument ID : GCT012

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
DICHLORVOS	ND	1.1	0.53
MEVINPHOS	ND	1.1	0.53
DEMETON	ND	1.1	0.53
ETHOPROP	ND	1.1	0.53
PHORATE	ND	1.1	0.53
NALED	ND	1.1	0.53
DIAZINON	ND	1.1	0.53
DISULFOTON	ND	1.1	0.53
RONNEL	ND	1.1	0.53
CHLORPYRIFOS	ND	1.1	0.53
FENTHION	ND	1.1	0.53
TRICHLORONATE	ND	1.1	0.53
METHYL PARATHION	ND	1.1	0.53
TOKUTHION	ND	1.1	0.53
STIROPHOS	ND	1.1	0.53
BOLSTAR	ND	1.1	0.53
FENSULFOTHION	ND	1.1	0.53
AZINPHOS-METHYL	ND	1.1	0.53
COUMAPHOS	ND	1.1	0.53

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
TRIBUTYL PHOSPHATE	1.10	1.590	69.5	30-130
TRIPHENYL PHOSPHATE	1.41	1.590	88.8	50-130

METHOD 3520C/8141A
ORGANOPHOSPHOROUS COMPOUNDS BY GC

Client : MWH LABORATORIES	Date Collected: 02/23/12
Project : 389198	Date Received: 02/24/12
Batch No. : 12B225	Date Extracted: 02/27/12 16:00
Sample ID: 2D1202230345	Date Analyzed: 02/28/12 21:53
Lab Samp ID: B225-04	Dilution Factor: 1.01
Lab File ID: ZB28015A	Matrix : WATER
Ext Btch ID: NPBD03W	% Moisture : NA
Calib. Ref.: ZB28002A	Instrument ID : GCT012

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
DICHLORVOS	ND	1.0	0.51
MEVINPHOS	ND	1.0	0.51
DEMETON	ND	1.0	0.51
ETHOPROP	ND	1.0	0.51
PHORATE	ND	1.0	0.51
NALED	ND	1.0	0.51
DIAZINON	ND	1.0	0.51
DISULFOTON	ND	1.0	0.51
RONNEL	ND	1.0	0.51
CHLORPYRIFOS	ND	1.0	0.51
FENTHION	ND	1.0	0.51
TRICHLORONATE	ND	1.0	0.51
METHYL PARATHION	ND	1.0	0.51
TOKUTHION	ND	1.0	0.51
STIROPHOS	ND	1.0	0.51
BOLSTAR	ND	1.0	0.51
FENSULFOTHION	ND	1.0	0.51
AZINPHOS-METHYL	ND	1.0	0.51
COUMAPHOS	ND	1.0	0.51

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
TRIBUTYL PHOSPHATE	1.04	1.515	68.9	30-130
TRIPHENYL PHOSPHATE	1.21	1.515	79.9	50-130

QC SUMMARIES

METHOD 3520C/8141A
ORGANOPHOSPHOROUS COMPOUNDS BY GC

Client : MWH LABORATORIES	Date Collected: NA
Project : 389198	Date Received: 02/27/12
Batch No. : 128225	Date Extracted: 02/27/12 16:00
Sample ID: MBLK1W	Date Analyzed: 02/28/12 18:33
Lab Samp ID: NP8003WB	Dilution Factor: 1
Lab File ID: ZB28009A	Matrix : WATER
Ext Btch ID: NP8003W	% Moisture : NA
Calib. Ref.: ZB28002A	Instrument ID : GCT012

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
DICHLORVOS	ND	1.0	0.50
MEVINPHOS	ND	1.0	0.50
DEMETON	ND	1.0	0.50
ETHOPROP	ND	1.0	0.50
PHORATE	ND	1.0	0.50
NALED	ND	1.0	0.50
DIAZINDN	ND	1.0	0.50
DISULFOTON	ND	1.0	0.50
RONNEL	ND	1.0	0.50
CHLORPYRIFOS	ND	1.0	0.50
FENTHION	ND	1.0	0.50
TRICHLORONATE	ND	1.0	0.50
METHYL PARATHION	ND	1.0	0.50
TOKUTHION	ND	1.0	0.50
STIROPHOS	ND	1.0	0.50
BOLSTAR	ND	1.0	0.50
FENSULFOTHION	ND	1.0	0.50
AZINPHOS-METHYL	ND	1.0	0.50
COUMAPHOS	ND	1.0	0.50

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
TRIBUTYL PHOSPHATE	1.01	1.500	67.4	30-130
TRIPHENYL PHOSPHATE	1.28	1.500	85.6	50-130

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: MWH LABORATORIES
PROJECT: 389198
BATCH NO.: 12B225
METHOD: METHOD 3520C/8141A

MATRIX: WATER % MOISTURE: NA

DILUTION FACTOR:	1	1	1		
SAMPLE ID:	MBLK1W				
LAB SAMP ID:	NPB003WB	NPB003WL	NPB003WC		
LAB FILE ID:	ZB28009A	ZB28010A	ZB28011A		
DATE EXTRACTED:	02/27/1216:00	02/27/1216:00	02/27/1216:00	DATE COLLECTED:	NA
DATE ANALYZED:	02/28/1218:33	02/28/1219:06	02/28/1219:40	DATE RECEIVED:	02/27/12
PREP. BATCH:	NPB003W	NPB003W	NPB003W		
CALIB. REF:	ZB28002A	ZB28002A	ZB28002A		

ACCESSION:

PARAMETER	BLNK RSLT (ug/L)	SPIKE AMT (ug/L)	BS RSLT (ug/L)	BS % REC	SPIKE AMT (ug/L)	BSD RSLT (ug/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Phorate	ND	1.50	1.03	68	1.50	0.887J	59	15	10-130	30
Ronnel	ND	1.50	1.21	81	1.50	1.04	70	15	30-140	30
Chlorpyrifos	ND	1.50	1.21	81	1.50	1.20	80	1	40-140	30
Tokuthion	ND	1.50	1.32	88	1.50	1.31	88	0	40-130	30
Bolstar	ND	1.50	1.26	84	1.50	1.23	82	3	20-130	30

SURROGATE PARAMETER	SPIKE AMT (ug/L)	BS RSLT (ug/L)	BS % REC	SPIKE AMT (ug/L)	BSD RSLT (ug/L)	BSD % REC	QC LIMIT (%)
Tributyl Phosphate	1.50	1.30	87	1.50	1.12	75	30-130
Triphenyl Phosphate	1.50	1.57	104	1.50	1.49	99	50-130