County of Los Angeles
Department of Public Works

November 2016 Water Quality Monitoring Report

for the

Big Tujunga Wash Mitigation Area

January 2017

MWH now part of Stantec

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Table of Contents

Section Name **Page Number**

LIST OF FIGURES

Figure Number **Page**

LIST OF TABLES

Table Number **Page**

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Water Quality Monitoring
November 2016

EXECUTIVE SUMMARY

As part of a water quality monitoring program on-going since 2000, sampling of the Big Tujunga Ponds and Haines Canyon Creek was conducted on November 7, 2016. The results of the water quality sample are summarized below:

- Observed temperatures were below levels of concern for fish growth and survival.
- Dissolved oxygen levels were below the recommended minimum (5.0 mg/L) at one station (Tujunga Ponds).
- Observed pH levels were within Basin Plan recommendations for aquatic life.
- Nutrient levels were low with one exception; the total phosphorus level was slightly above EPA's recommendations for streams in the outflow from the Tujunga Ponds.
- No pesticides or residual chlorine were observed.
- Turbidity levels were very low.
- Bacteria levels were above the freshwater bacteria standard at one station (Haines Canyon Creek leaving the site). However, the standards are for *E.coli* and the water quality results are for fecal coliform and total coliform.

BACKGROUND

The County of Los Angeles Department of Public Works (LACDPW) purchased an approximately 210-acre parcel in Big Tujunga Wash as a mitigation area for Los Angeles County Flood Control District (LACFCD) projects throughout Los Angeles County. In coordination with local agencies, the LACDPW 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. (ECORP). MWH, now part of Stantec, 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. In 2012, monitoring was conducted in February and November. Since that time, monitoring has been conducted once per year, in October or November. This report presents the results of the water quality sampling for November 2016.

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
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

Date	Activity
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
9/2011 to 1/2012	Water lettuce removal
2/2012	Water quality sampling
11/2012	Water quality sampling
10/2013	Water quality sampling
10/2014	Water quality sampling
11/2015	Water quality sampling
11/07/16	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**).

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, other organophosphorous pesticides, and organochlorine 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

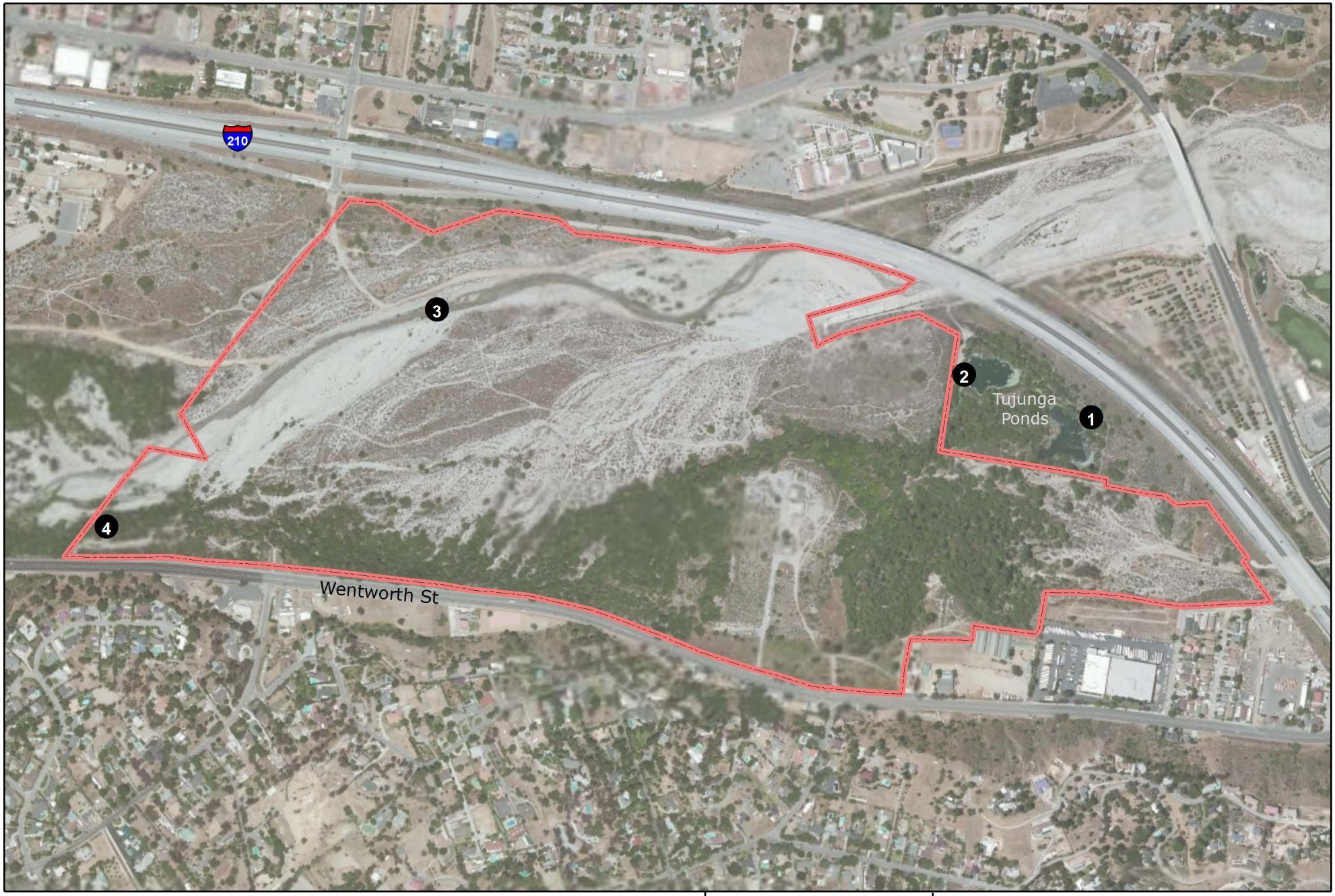
Manufacturer and Product Name	Active Ingredient	Use
Syngenta Primo Maxx	trinexapac-ethyl	grass growth inhibitor used for turf management
Syngenta Reward	diquat dibromide	landscape and aquatic herbicide
Syngenta Barricade	prodiamine	pre-emergent herbicide
Bayer Prostar 70 WP	flutolanil	fungicide
Monsanto 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 (December 2004, February 2005 and April 2007).

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 November 7, 2016.



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 November 2016

Date	November 7, 2016		
Air Temperature	Approximately 78 degrees Fahrenheit during sample collection period		
Skies	Sunny, clear		
Observations	Water clear at all locations; extensive *Lemna* cover on surface of ponds; in-creek bather observed at Haines Canyon Creek leaving the site		
Sampling Locations	**Latitude**	**Longitude**	**Time of sample**
Haines Canyon Creek	34 16’ 0.092’’ N	118 21’ 25.716’ ’W	1330
Haines Canyon Creek, inflow to Tujunga Ponds	34 16’ 6.040’’ N	118 20’ 22.616’’ W	1120
Haines Canyon Creek, outflow from Tujunga Ponds	34 16’ 8.263’’ N	118 20’ 30.824’’ W	1215
Big Tujunga Wash	34 16’ 11.615’’ N	118 21’ 4.519’’ W	station dry

Sampling Parameters

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

- Dissolved oxygen, pH and temperature – YSI 556-01 Multi Probe System

Analytical results for organochlorine pesticides via EPA method 608 were analyzed by APPL Labs, Clovis, California. Analytical results for chlorpyrifos and organophosphorous pesticides via EPA method 8141 were analyzed by Emax Laboratories, Torrance, California. All other analyses were performed at Eurofins Eaton 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 and organophosphorous pesticides[2]	laboratory	EPA 8141A
organochlorine pesticides[3]	laboratory	EPA 608
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 608 tests for aldrin, BHC, Chlordane, DDD, DDE, DDT, dieldrin, endrin, endosulfan, heptaclor, methoxychlor, toxaphene and PCB.

Discharge Measurements. In addition to the water quality monitoring, flows in the outlet from the Tujunga Ponds and in Haines Canyon Creek leaving the site 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 4/18/2000 samples are attributable to a rain event. Phosphorus levels were also high in the 4/18/2000 samples, due to release from sediments.

November 2016 Results

Water Quality

Results of analyses conducted by Eurofins, APPL and Emax Laboratories are appended to this report (**Appendix A**) and summarized in **Table 6**.

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 – November 7, 2016

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	17.5	NA	17.5
Dissolved Oxygen	mg/L	3.1	6.4	NA	9.9
pH	std units	7.03	7.22	NA	8.27
Total residual chlorine	mg/L	ND	ND	NA	ND
Ammonia-Nitrogen	mg/L	ND	ND	NA	ND
Kjeldahl Nitrogen	mg/L	0.21	ND	NA	0.27
Nitrite-Nitrogen	mg/L	ND	ND	NA	ND
Nitrate-Nitrogen	mg/L	7.9	6.0	NA	4.7
Orthophosphate-P	mg/L	0.019	ND	NA	0.021
Total phosphorus-P	mg/L	ND	0.15	NA	ND
Glyphosate	µg/L	ND	ND	NA	ND
Chloropyrifos*	µg/L	ND	ND	NA	ND
Pesticides (EPA 608)**	µg/L	ND	ND	NA	ND
Turbidity	NTU	0.3	0.4	NA	0.2
Fecal Coliform Bacteria	(MPN/100 ml)	94	79	NA	920
Total Coliform Bacteria	(MPN/100 ml)	240	170	NA	1600

NA – data not available; station dry on the sample date

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 608 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 the Tujunga Ponds and in Haines Canyon Creek (leaving the site) were approximated. Estimated flows for November 2016 are summarized in **Table 7**.

Table 7
Estimated Flows for November 2016

Sampling Date	Approximate Flow (cubic feet per second)		
	Haines Canyon Creek, Outflow from Tujunga Ponds	Haines Canyon Creek, just before exit from site	Big Tujunga Wash
11/7/16	0.4	0.8	station dry on sample date

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 (°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)	126[f] (geometric mean for *E. coli*) (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). As amended.

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 Single sample limits – *E. coli* density shall not exceed 235/100 ml.

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 November 2016 sampling are described by parameter in **Table 14**.

Table 14
Discussion of November 2016 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 3.1 mg/L in the Tujunga Ponds to 9.9 mg/L in Haines Canyon Creek leaving the site. DO levels at two stations (outflow from the ponds and Haines Canyon Creek leaving the site) were above the recommended minimum (5.0 mg/L) for warmwater fish species. DO levels in the ponds were below the minimum recommended level for warmwater fish species.
pH	• Lowest pH was observed in the Tujunga Ponds (7.03), with highest pH observed in Haines Canyon Creek leaving the site (8.27). 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.
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 was detectable only in the outflow from the ponds. The observed concentration, 0.15 mg/L, is above the upper end of EPA's recommended range for streams to prevent excess algae growth (recommended range is <0.05 – 0.1 mg/L).
Glyphosate	• Glyphosate was not detected at any station.
Chloropyrifos and Organophosphorous Pesticides	• Chloropyrifos and the other pesticides tested using EPA's analytical method 8141A were not detected at any station.
Organochlorine Pesticides	• Pesticides analyzed by EPA Method 608 were not detected at any station.
Turbidity	• Turbidity levels were very low (<1 NTU) at all stations.
Bacteria	• The fresh water bacteria standard for water contact recreation is for *E. coli* (126 MPN/100 ml geometric mean, 235 MPN/100 ml single sample limits). Observed fecal coliform levels were below the standard in the ponds and in the outflow from the ponds. On this date, fecal coliform levels in Haines Canyon Creek leaving the site were 920 MPN/100 ml. Sampling specifically for *E. coli* was not conducted. It should be noted that in-creek bathing was observed at this sampling location. • Total coliform levels ranged from 170 MPN/100 ml in the outflow from the ponds to 1,600 MPN/100 ml in Haines Canyon Creek leaving the site. [Note that recreation standards are for *E. coli*. Total coliform standards apply to marine waters and 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
November 2016

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

ilac-MRA

ANAB ACCREDITED ISO/IEC 17025 TESTING LABORATORY
AT-1807

Laboratory Report

for

MWH Americas - Pasadena
300 N. Lake Avenue
Suite 400
Pasadena, CA 91101
Attention: Sarah Garber

Date of Issue
12/19/2016

EUROFINS EATON ANALYTICAL

DST: David S Tripp

Project Manager

NELAP ACCREDITED TNI LABORATORY
ORELAP 4034

Report: 620884
Project: BIG-TUJUNGA
Group: TO105697-OM Water
PO#: Quality Monitoring

* Accredited in accordance with TNI 2009 and ISO/IEC 17025:2005.
* Laboratory certifies that the test results meet all **TNI 2009 and ISO/IEC 17025:2005** requirements unless noted under the individual analysis.
* Following the cover page are State Certification List, ISO 17025 Accredited Method List, Acknowledgement of Samples Received, Comments, Hits Report, Data Report, QC Summary, QC Report and Regulatory Forms, as applicable.
* Test results relate only to the sample(s) tested.

STATE CERTIFICATION LIST

State	Certification Number	State	Certification Number
Alabama	41060	**Mississippi**	Certified
----------	--------	**Montana**	Cert 0035
Arizona	AZ0778	**Nebraska**	Certified
Arkansas	Certified	**Nevada**	CA00006-2016
California-Monrovia-ELAP	2813	**New Hampshire ***	2959
California-Colton- ELAP	2812	**New Jersey ***	CA 008
California-Folsom- ELAP	2820	**New Mexico**	Certified
California-Fresno- ELAP	2966	**New York ***	11320
Colorado	Certified	**North Carolina**	06701
Connecticut	PH-0107	**North Dakota**	R-009
Delaware	CA 006	**Oregon (Primary AB) ***	**ORELAP 4034**
Florida *	E871024	**Pennsylvania ***	68-565
Georgia	947	**Puerto Rico**	Certified
Guam	16-003r	**Rhode Island**	LAO00326
Hawaii	Certified	**South Carolina**	87016
Idaho	Certified	**South Dakota**	Certified
Illinois *	200033	**Tennessee**	TN02839
Indiana	C-CA-01	**Texas ***	T104704230-15-9
Kansas *	E-10268	**Utah ***	CA000062016-10
Kentucky	90107	**Vermont**	VT0114
Louisiana *	LA16003	**Virginia ***	460260
Maine	CA0006	**Washington**	C838
Maryland	224	**----------**	**----------**
Commonwealth of Northern Marianas Is.	MP0004	**----------**	**----------**
Massachusetts	M-CA006	**EPA Region 5**	Certified
Michigan	9906	**Los Angeles County Sanitation Districts**	10264

* NELAP/TNI Recognized Accreditation Bodies

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ISO 17025 Accredited Method List

The tests listed below are accredited and meet the requirements of ISO 17025 as verified by the ANSI-ASQ National Accreditation Board/ANAB.

Refer to Certificate and scope of accreditation (AT 1807) found at: http://www.eatonanalytical.com

SPECIFIC TESTS	METHOD OR TECHNIQUE USED	Environ-mental (Drinking Water)	Environ-mental (Waste Water)	Water as a Component of Food and Bev/Bev/ Bottled Water
1,4-Dioxane	EPA 522	x		x
2,3,7,8-TCDD	Modified EPA 1613B	x		x
Acrylamide	In House Method (2440)	x		x
Alkalinity	SM 2320B	x	x	x
Ammonia	EPA 350.1		x	x
Ammonia	SM 4500-NH3 H		x	x
Anions and DBPs by IC	EPA 300.0	x	x	x
Anions and DBPs by IC	EPA 300.1	x		x
Asbestos	EPA 100.2	x	x	
Bicarbonate Alkalinity as HCO3	SM 2320B	x	x	x
BOD / CBOD	SM 5210B		x	x
Bromate	In House Method (2447)	x		x
Carbamates	EPA 531.2	x		x
Carbonate as CO3	SM 2330B	x	x	x
Carbonyls	EPA 556	x		x
COD	EPA 410.4 / SM 5220D		x	
Chloramines	SM 4500-CL G	x	x	x
Chlorinated Acids	EPA 515.4	x		x
Chlorinated Acids	EPA 555	x		x
Chlorine Dioxide	SM 4500-CLO2 D	x		x
Chlorine -Total/Free/ Combined Residual	SM 4500-Cl G	x	x	x
Conductivity	EPA 120.1		x	
Conductivity	SM 2510B	x	x	x
Corrosivity (Langelier Index)	SM 2330B	x		x
Cryptosporidium	EPA 1623	x		x
Cyanide, Amenable	SM 4500-CN G	x	x	
Cyanide, Free	SM 4500CN F	x	x	x
Cyanide, Total	EPA 335.4	x	x	x
Cyanogen Chloride (screen)	In House Method (2470)	x		x
Diquat and Paraquat	EPA 549.2	x		x
DBP/HAA	SM 6251B	x		x
Dissolved Oxygen	SM 4500-O G		x	x
DOC	SM 5310C	x		x
E. Coli	(MTF/EC+MUG)	x		x
E. Coli	CFR 141.21(f)(6)(i)	x		x
E. Coli	SM 9223		x	
E. Coli (Enumeration)	SM 9221B.1/ SM 9221F	x		x
E. Coli (Enumeration)	SM 9223B	x		x
EDB/DCBP	EPA 504.1	x		
EDB/DBCP and DBP	EPA 551.1	x		x
EDTA and NTA	In House Method (2454)	x		x
Endothall	EPA 548.1	x		x
Endothall	In-house Method (2445)	x		x
Enterococci	SM 9230B	x	x	
Fecal Coliform	SM 9221 E (MTF/EC)	x		
Fecal Coliform	SM 9221C, E (MTF/EC)		x	
Fecal Coliform (Enumeration)	SM 9221E (MTF/EC)	x		x
Fecal Coliform with Chlorine Present	SM 9221E		x	
Fecal Streptococci	SM 9230B	x	x	
Fluoride	SM 4500-F C	x	x	x
Giardia	EPA 1623	x		x
Glyphosate	EPA 547	x		x
Gross Alpha/Beta	EPA 900.0	x	x	x
Gross Alpha Coprecipitation	SM 7110 C	x	x	x
Hardness	SM 2340B	x	x	x
Heterotrophic Bacteria	In House Method (2439)	x		x
Heterotrophic Bacteria	SM 9215 B	x		x
Hexavalent Chromium	EPA 218.6	x	x	x
Hexavalent Chromium	EPA 218.7	x		x
Hexavalent Chromium	SM 3500-Cr B		x	
Hormones	EPA 539	x		x
Hydroxide as OH Calc.	SM 2330B	x		x
Kjeldahl Nitrogen	EPA 351.2		x	
Legionella	CDC Legionella	x		x
Mercury	EPA 245.1	x	x	x
Metals	EPA 200.7 / 200.8	x	x	x
Microcystin LR	ELISA (2360)	x		x
NDMA	EPA 521	x		x
NDMA	TQ In house method based on EPA 521 (2425)	x		x
Nitrate/Nitrite Nitrogen	EPA 353.2	x	x	x
OCL, Pesticides/PCB	EPA 505	x		x
Ortho Phosphate	EPA 365.1	x	x	x
Ortho Phosphate	SM 4500P E			x
Ortho Phosphorous	SM 4500P E	x		
Oxyhalides Disinfection Byproducts	EPA 317.0	x		x
Perchlorate	EPA 331.0	x		x
Perchlorate (low and high)	EPA 314.0	x		x
Perfluorinated Alkyl Acids	EPA 537	x		x
pH	EPA 150.1	x		
pH	SM 4500-H+B	x	x	x
Phenylurea Pesticides/ Herbicides	In House Method, based on EPA 532 (2448)	x		x
Pseudomonas	IDEXX Pseudalert (2461)	x		x
Radium-226	GA Institute of Tech	x		x
Radium-228	GA Institute of Tech	x		x
Radon-222	SM 7500RN	x		x
Residue, Filterable	SM 2540C	x	x	x
Residue, Non-filterable	SM 2540D		x	
Residue, Total	SM 2540B		x	x
Residue, Volatile	EPA 160.4		x	
Semi-VOC	EPA 525.2	x		x
Semi-VOC	EPA 625		x	x
Silica	SM 4500-Si D	x	x	
Silica	SM 4500-SiO2 C	x	x	
Sulfide	SM 4500-$S^{=}$ D		x	
Sulfite	SM 4500-SO^{3}B	x	x	x
Surfactants	SM 5540C	x	x	x
Taste and Odor Analytes	SM 6040E	x		x
Total Coliform (P/A)	SM 9221 A, B	x		x
Total Coliform (Enumeration)	SM 9221 A, B, C	x		x
Total Coliform / E. coli	Colisure SM 9223	x		x
Total Coliform	SM 9221B		x	
Total Coliform with Chlorine Present	SM 9221B		x	
Total Coliform / E.coli (P/A and Enumeration)	SM 9223	x		x
TOC	SM 5310C	x	x	x
TOX	SM 5320B		x	
Total Phenols	EPA 420.1		x	
Total Phenols	EPA 420.4	x	x	x
Total Phosphorous	SM 4500 P E		x	
Turbidity	EPA 180.1	x	x	x
Turbidity	SM 2130B	x	x	
Uranium by ICP/MS	EPA 200.8	x		x
UV 254	SM 5910B	x		
VOC	EPA 524.2/EPA 524.3	x		x
VOC	EPA 624		x	x
VOC	EPA SW 846 8260	x		x
VOC	In House Method (2411)	x		x
Yeast and Mold	SM 9610	x		x

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Acknowledgement of Samples Received

Addr: **MWH Americas - Pasadena**
300 N. Lake Avenue
Suite 400
Pasadena, CA 91101

Attn: Sarah Garber
Phone: 626-568-6071

Client ID: MWH-ECORP
Folder #: 620884
Project: BIG-TUJUNGA
Sample Group: TO105697-OM Water Quality Monitoring
Project Manager: David S Tripp
Phone: (626) 386-1158
PO #: 10509893.011801

The following samples were received from you on **November 07, 2016** at **1457**. 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 Eurofins Eaton Analytical.

Sample #	Sample ID	Sample Date
201611070465	PONDSIN110716	11/07/2016 1120

@608_PCBS	@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	

Sample #	Sample ID	Sample Date
201611070466	PONDSOUT110716	11/07/2016 1215

@608_PCBS	@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	

Sample #	Sample ID	Sample Date
201611070467	HCC110716	11/07/2016 1330

@608_PCBS	@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_PCBS -- Organochlorine PCBs

@608_PEST -- Organochlorine Pesticides

@8141EDD -- Organophosphorous Pesticides (Sub)

CHAIN OF CUSTODY RECORD

620884

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EUROFINS EATON ANALYTICAL USE ONLY:

LOGIN COMMENTS: _____

SAMPLES CHECKED AGAINST COC BY: _____

SAMPLES LOGGED IN BY: LS

SAMPLE TEMP RECEIVED AT:

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

☐ _____ (Other) IR Gun ID = _____ (Observation= _____ °C) (Corr.Factor _____ °C) (Final = _____ °C)

☒ Monrovia IR Gun ID = 461A (Observation= 4.2 °C) (Corr.Factor -0.3 °C) (Final = 3.9 °C)

Compliance Acceptance Criteria: (Chemistry: 4 ± 2 °C) (Microbiology: < 10°C)

TYPE OF ICE: Real ✓ Synthetic ____ No Ice ____ **CONDITION OF ICE:** Frozen ✓ Partially Frozen ____ Thawed ____ N/A ____

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

Lisa 15:44 NOV 07 2016

TO BE COMPLETED BY SAMPLER:

COMPANY/AGENCY NAME: MWH - ECORP	**PROJECT CODE:** 10509893.011801
EEA CLIENT CODE:	**COC ID:** / **SAMPLE GROUP:**

(check for yes) (check for yes)

COMPLIANCE SAMPLES ☐ - Requires state forms

NON-COMPLIANCE SAMPLES ☒ REGULATION INVOLVED: _____ (eg. SDWA, NPDES, etc.)

Type of samples (circle one): ROUTINE SPECIAL CONFIRMATION

SEE ATTACHED KIT ORDER FOR ANALYSES ☒ (check for yes), *OR*

~~List ALL 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	SAMPLER COMMENTS
11/7	1120	PONDSINI10716		RSW			
11/7	1215	PONDSOUT10716		RSW			
11/7	1330	HCC110716		RSW			
							4th station Dry NO SAMPLES

* **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 Principal EnviSci	11/7/16	1455
RELINQUISHED BY:					
RECEIVED BY:		Joseph Byrnes	EEA	11/7/16	1457
RELINQUISHED BY:					
RECEIVED BY:					

QA FO 0029.2 (Version 2) (08/28/2014)

PAGE ____ OF ____

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Kit Order for MWH Americas - Pasadena

David S Tripp is your Eurofins Eaton Analytical Service Manager

750 Royal Oaks Drive, Suite 100
Monrovia, California 91016-3629
(626) 386-1100 FAX (626) 386-1101

Note: Sampler Please return this paper with your samples

Kit #: 150581

Client ID: MWH-ECORP
Project Code: BIG-TUJUNGA Bottle Orders
Group Name: Water Quality Monitoring
PO#/JOB#: 10509893.011801

Created By: David S Tripp - [DST]
Deliver By: 11/04/2016
STG: Bottle Orders
Ice Type: W

Ship Sample Kits to	Send Report to	Billing Address
MWH Americas - Pasadena 300 N. Lake Avenue Suite 400 Pasadena, CA 91101 Attn: Sarah Garber Phone: 626-568-6071	MWH Americas - Pasadena 300 N. Lake Avenue Suite 400 Pasadena, CA 91101 Attn: Sarah Garber Phone: 626-568-6071	MWH Americas - Pasadena 300 N. Lake Avenue Suite 400 Pasadena, CA 91101 Attn: Sarah Garber Phone: 626-568-6071

# of Sample	Tests	Bottle Qty - Type [preservative information]	UN DOT #
4	Glyphosate	1 - 125ml amber glass [no preservative]	
4	Total Chlorine Residual 11.7.16	1 - 125ml amber glass [no preservative]	
4	Nitrate as Nitrogen by IC, Nitrate as NO3 (calc), Nitrite Nitrogen by IC, Orthophosphate as P, Turbidity 11.7.16	1 - 125ml poly [no preservative]	
4	Orthophosphate as PO4 11.7.16	1 - 125ml poly [no preservative]	
4	@8081A	2 - 1L amber glass [no preservative]	
4	@8141EDD	2 - 1L amber glass [no preservative]	
4	Ammonia Nitrogen, Total Kjeldahl Nitrogen, Total phosphorus as P	1 - 250ml poly [0.5 ml H2SO4 (50%)]	UN1830
4	Fecal Coliform Bacteria, Total Coliform Bacteria 11.7.16	1 - 250ml poly sterilized [0.25 ml Thio (8%)]	

Comments

SHIPPING: Please label "BIG T WASH" and include wet ice packing instructions. Client will pickup the sample kits on Friday 11/4/16
SAMPLER: Please return samples on fresh wet ice to the lab same day collected.

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

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Laboratory Comments
Report: 620884

MWH Americas - Pasadena
Sarah Garber
300 N. Lake Avenue
Suite 400
Pasadena, CA 91101

Folder Comments

Analytical results for 8141 are submitted by Emax Laboratories, Inc. Torrance, CA, CAELAP 2672 exp 6-30-17
Analytical results for 608 are submitted by APPL Labs, Clovis, CA, CAELAP 1312

Flags Legend:

M2 - Matrix spike recovery was low; the associated blank spike recovery was acceptable.

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

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Tel: (626) 386-1100
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1 800 566 LABS (1 800 566 5227)

Laboratory Hits
Report: 620884

MWH Americas - Pasadena
Sarah Garber
300 N. Lake Avenue
Suite 400
Pasadena, CA 91101

Samples Received on:
11/07/2016 1457

Analyzed	Analyte	Sample ID	Result	Federal MCL	Units	MRL
	201611070465	**PONDSIN110716**				
11/10/2016 15:10	Fecal Coliform Bacteria		94		MPN/100 mL	1.8
11/17/2016 14:56	Kjeldahl Nitrogen		0.21		mg/L	0.2
11/07/2016 21:28	Nitrate as Nitrogen by IC		7.9	10	mg/L	0.2
11/07/2016 21:28	Nitrate as NO3 (calc)		35	45	mg/L	0.88
11/08/2016 17:43	Orthophosphate as P		0.019		mg/L	0.01
11/09/2016 15:01	Orthophosphate as PO4		0.058		mg/L	0.031
11/11/2016 14:05	Total Coliform Bacteria		240		MPN/100 mL	1.8
11/09/2016 09:43	Turbidity		0.29	5	NTU	0.1
	201611070466	**PONDSOUT110716**				
11/10/2016 15:10	Fecal Coliform Bacteria		79		MPN/100 mL	1.8
11/07/2016 21:41	Nitrate as Nitrogen by IC		6.0	10	mg/L	0.2
11/07/2016 21:41	Nitrate as NO3 (calc)		26	45	mg/L	0.88
11/11/2016 14:05	Total Coliform Bacteria		170		MPN/100 mL	1.8
11/15/2016 22:25	Total phosphorus as P		0.15		mg/L	0.02
11/16/2016 19:59	Total phosphorus as PO4- Calc.		0.46		mg/L	0.031
11/09/2016 09:52	Turbidity		0.36	5	NTU	0.1
	201611070467	**HCC110716**				
11/10/2016 15:10	Fecal Coliform Bacteria		920		MPN/100 mL	1.8
11/17/2016 15:04	Kjeldahl Nitrogen		0.27		mg/L	0.2
11/07/2016 21:54	Nitrate as Nitrogen by IC		4.7	10	mg/L	0.2
11/07/2016 21:54	Nitrate as NO3 (calc)		21	45	mg/L	0.88
11/08/2016 17:42	Orthophosphate as P		0.021		mg/L	0.01
11/09/2016 15:01	Orthophosphate as PO4		0.064		mg/L	0.031
11/11/2016 14:05	Total Coliform Bacteria		1600		MPN/100 mL	1.8
11/09/2016 09:56	Turbidity		0.24	5	NTU	0.1

SUMMARY OF POSITIVE DATA ONLY

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1 800 566 LABS (1 800 566 5227)

Laboratory Data
Report: 620884

MWH Americas - Pasadena
Sarah Garber
300 N. Lake Avenue
Suite 400
Pasadena, CA 91101

Samples Received on:
11/07/2016 1457

Prepped	Analyzed	Prep Batch	Analytical Batch	Method	Analyte	Result	Units	MRL	Dilution
PONDSIN110716 (201611070465)							**Sampled on 11/07/2016 1120**		
				SM 9221C - Fecal Coliform Bacteria					
	11/10/16 15:10		948923	(SM 9221C)	Fecal Coliform Bacteria	94	MPN/100 mL	1.8	1
				SM 9221B - Total Coliform Bacteria					
	11/11/16 14:05		948921	(SM 9221B)	Total Coliform Bacteria	240	MPN/100 mL	1.8	1
				S4500PE/ 365.1 - Total phosphorus as PO4- Calc.					
	11/16/16 19:59			(S4500PE/ 365.1)	Total phosphorus as PO4- Calc.	ND	mg/L	0.031	1
				4500P-E/365.1 - Orthophosphate as PO4 (CALC)					
	11/09/16 15:01			(4500P-E/365.1)	Orthophosphate as PO4	0.058	mg/L	0.031	1
				EPA 547 - Glyphosate					
	11/10/16 17:31		949137	(EPA 547)	Glyphosate	ND	ug/L	6	1
				EPA 300.0 - Nitrate, Nitrite by EPA 300.0					
	11/07/16 21:28		947732	(EPA 300.0)	Nitrate as Nitrogen by IC	7.9	mg/L	0.2	2
	11/07/16 21:28		947732	(EPA 300.0)	Nitrate as NO3 (calc)	35	mg/L	0.88	2
	11/07/16 21:28		947732	(EPA 300.0)	Nitrite Nitrogen by IC	ND	mg/L	0.1	2
				SM4500-PE/EPA 365.1 - Total phosphorus as P (T-P)					
	11/15/16 22:23		949661	(SM4500-PE/EPA 365.1)	Total phosphorus as P	ND	mg/L	0.02	1
				EPA 351.2 - Total Kjeldahl Nitrogen					
	11/17/16 14:56		949534	(EPA 351.2)	Kjeldahl Nitrogen	0.21	mg/L	0.2	1
				EPA 350.1 - Ammonia Nitrogen					
	11/14/16 13:07		949504	(EPA 350.1)	Ammonia Nitrogen	ND	mg/L	0.05	1
				EPA 8141A - Organophosphorous Pesticides (Sub)					
11/09/16	11/10/16 17:46			(EPA 8141A)	Azinphos methyl	ND	ug/L	1.1	1
11/09/16	11/10/16 17:46			(EPA 8141A)	Bolstar	ND	ug/L	1.1	1
11/09/16	11/10/16 17:46			(EPA 8141A)	Chlorpyrifos	ND	ug/L	1.1	1
11/09/16	11/10/16 17:46			(EPA 8141A)	Coumaphos	ND	ug/L	1.1	1
11/09/16	11/10/16 17:46			(EPA 8141A)	Demeton	ND	ug/L	1.1	1
11/09/16	11/10/16 17:46			(EPA 8141A)	Diazinon	ND	ug/L	1.1	1
11/09/16	11/10/16 17:46			(EPA 8141A)	Dichlorvos	ND	ug/L	1.1	1
11/09/16	11/10/16 17:46			(EPA 8141A)	Disulfoton	ND	ug/L	1.1	1
11/09/16	11/10/16 17:46			(EPA 8141A)	Ethoprop	ND	ug/L	1.1	1
11/09/16	11/10/16 17:46			(EPA 8141A)	Fensulfothion	ND	ug/L	1.1	1
11/09/16	11/10/16 17:46			(EPA 8141A)	Fenthion	ND	ug/L	1.1	1
11/09/16	11/10/16 17:46			(EPA 8141A)	Methyl Parathion	ND	ug/L	1.1	1
11/09/16	11/10/16 17:46			(EPA 8141A)	Mevinphos	ND	ug/L	1.1	1
11/09/16	11/10/16 17:46			(EPA 8141A)	Naled	ND	ug/L	1.1	1
11/09/16	11/10/16 17:46			(EPA 8141A)	Phorate	ND	ug/L	1.1	1

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

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Laboratory Data
Report: 620884

MWH Americas - Pasadena
Sarah Garber
300 N. Lake Avenue
Suite 400
Pasadena, CA 91101

Samples Received on:
11/07/2016 1457

Prepped	Analyzed	Prep Batch	Analytical Batch	Method	Analyte	Result	Units	MRL	Dilution
11/09/16	11/10/16 17:46			(EPA 8141A)	Ronnel	ND	ug/L	1.1	1
11/09/16	11/10/16 17:46			(EPA 8141A)	Stirophos	ND	ug/L	1.1	1
11/09/16	11/10/16 17:46			(EPA 8141A)	Tokuthion	ND	ug/L	1.1	1
11/09/16	11/10/16 17:46			(EPA 8141A)	Trichloronate	ND	ug/L	1.1	1
11/09/16	11/10/16 17:46			(EPA 8141A)	Tributylphosphate	99	%		1
11/09/16	11/10/16 17:46			(EPA 8141A)	Triphenyl Phosphate	96	%		1
		EPA 608 - Organochlorine Pesticides							
11/14/16	11/21/16 00:00			(EPA 608)	4,4-DDD	ND	ug/L	0.05	1
11/14/16	11/21/16 00:00			(EPA 608)	4,4-DDE	ND	ug/L	0.05	1
11/14/16	11/21/16 00:00			(EPA 608)	4,4-DDT	ND	ug/L	0.05	1
11/14/16	11/21/16 00:00			(EPA 608)	Aldrin	ND	ug/L	0.05	1
11/14/16	11/21/16 00:00			(EPA 608)	alpha-BHC	ND	ug/L	0.05	1
11/14/16	11/21/16 00:00			(EPA 608)	alpha-Chlordane	ND	ug/L	0.05	1
11/14/16	11/21/16 00:00			(EPA 608)	beta-BHC	ND	ug/L	0.05	1
11/14/16	11/21/16 00:00			(EPA 608)	delta-BHC	ND	ug/L	0.05	1
11/14/16	11/21/16 00:00			(EPA 608)	Dieldrin	ND	ug/L	0.05	1
11/14/16	11/21/16 00:00			(EPA 608)	Endosulfan I (Alpha)	ND	ug/L	0.05	1
11/14/16	11/21/16 00:00			(EPA 608)	Endosulfan II (Beta)	ND	ug/L	0.05	1
11/14/16	11/21/16 00:00			(EPA 608)	Endosulfan Sulfate	ND	ug/L	0.05	1
11/14/16	11/21/16 00:00			(EPA 608)	Endrin	ND	ug/L	0.05	1
11/14/16	11/21/16 00:00			(EPA 608)	Endrin Aldehyde	ND	ug/L	0.05	1
11/14/16	11/21/16 00:00			(EPA 608)	Endrin Ketone	ND	ug/L	0.05	1
11/14/16	11/21/16 00:00			(EPA 608)	Gamma-BHC	ND	ug/L	0.05	1
11/14/16	11/21/16 00:00			(EPA 608)	gamma-Chlordane	ND	ug/L	0.05	1
11/14/16	11/21/16 00:00			(EPA 608)	Heptachlor	ND	ug/L	0.05	1
11/14/16	11/21/16 00:00			(EPA 608)	Heptachlor Epoxide	ND	ug/L	0.05	1
11/14/16	11/21/16 00:00			(EPA 608)	Methoxychlor	ND	ug/L	0.05	1
11/14/16	11/21/16 00:00			(EPA 608)	Toxaphene	ND	ug/L	1	1
11/14/16	11/21/16 00:00			(EPA 608)	Decachlorobiphenyl	102	%		1
11/14/16	11/21/16 00:00			(EPA 608)	Tetrachlorometaxylene	61	%		1
		EPA 608 - Organochlorine PCBs							
11/14/16	11/21/16 00:00			(EPA 608)	PCB 1016 Aroclor	ND	ug/L	1	1
11/14/16	11/21/16 00:00			(EPA 608)	PCB 1221 Aroclor	ND	ug/L	1	1
11/14/16	11/21/16 00:00			(EPA 608)	PCB 1232 Aroclor	ND	ug/L	1	1
11/14/16	11/21/16 00:00			(EPA 608)	PCB 1242 Aroclor	ND	ug/L	1	1
11/14/16	11/21/16 00:00			(EPA 608)	PCB 1248 Aroclor	ND	ug/L	1	1
11/14/16	11/21/16 00:00			(EPA 608)	PCB 1254 Aroclor	ND	ug/L	1	1
11/14/16	11/21/16 00:00			(EPA 608)	PCB 1260 Aroclor	ND	ug/L	1	1

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

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Laboratory Data
Report: 620884

MWH Americas - Pasadena
Sarah Garber
300 N. Lake Avenue
Suite 400
Pasadena, CA 91101

Samples Received on:
11/07/2016 1457

Prepped	Analyzed	Prep Batch	Analytical Batch	Method	Analyte	Result	Units	MRL	Dilution
11/14/16	11/21/16 00:00			(EPA 608)	Decachlorobiphenyl	102	%		1
11/14/16	11/21/16 00:00			(EPA 608)	Tetrachlorometaxylene	61	%		1
		EPA 180.1 - Turbidity							
	11/09/16 09:43		947903	(EPA 180.1)	Turbidity	0.29	NTU	0.1	1
		4500P-E/365.1 - Orthophosphate as P (OPO4)							
	11/08/16 17:43		947503	(4500P-E/365.1)	Orthophosphate as P	0.019	mg/L	0.01	1
		SM 4500-CL G - Total Chlorine Residual (H3=past HT not compliant)							
	11/08/16 20:00		948895	(SM 4500-CL G)	Total Chlorine Residual (H3=past HT not compliant)	ND	mg/L	0.1	1
PONDSOUT110716 (201611070466)						**Sampled on 11/07/2016 1215**			
		SM 9221C - Fecal Coliform Bacteria							
	11/10/16 15:10		948923	(SM 9221C)	Fecal Coliform Bacteria	79	MPN/100 mL	1.8	1
		SM 9221B - Total Coliform Bacteria							
	11/11/16 14:05		948921	(SM 9221B)	Total Coliform Bacteria	170	MPN/100 mL	1.8	1
		S4500PE/ 365.1 - Total phosphorus as PO4- Calc.							
	11/16/16 19:59			(S4500PE/ 365.1)	Total phosphorus as PO4- Calc.	0.46	mg/L	0.031	1
		4500P-E/365.1 - Orthophosphate as PO4 (CALC)							
	11/09/16 15:01			(4500P-E/365.1)	Orthophosphate as PO4	ND	mg/L	0.031	1
		EPA 547 - Glyphosate							
	11/10/16 17:44		949137	(EPA 547)	Glyphosate	ND	ug/L	6	1
		EPA 300.0 - Nitrate, Nitrite by EPA 300.0							
	11/07/16 21:41		947732	(EPA 300.0)	Nitrate as Nitrogen by IC	6.0	mg/L	0.2	2
	11/07/16 21:41		947732	(EPA 300.0)	Nitrate as NO3 (calc)	26	mg/L	0.88	2
	11/07/16 21:41		947732	(EPA 300.0)	Nitrite Nitrogen by IC	ND	mg/L	0.1	2
		SM4500-PE/EPA 365.1 - Total phosphorus as P (T-P)							
	11/15/16 22:25		949661	(SM4500-PE/EPA 365.1)	Total phosphorus as P	0.15	mg/L	0.02	1
		EPA 351.2 - Total Kjeldahl Nitrogen							
	11/17/16 15:00		949534	(EPA 351.2)	Kjeldahl Nitrogen	ND (M2)	mg/L	0.2	1
		EPA 350.1 - Ammonia Nitrogen							
	11/14/16 13:09		949504	(EPA 350.1)	Ammonia Nitrogen	ND	mg/L	0.05	1
		EPA 8141A - Organophosphorous Pesticides (Sub)							
11/09/16	11/10/16 18:25			(EPA 8141A)	Azinphos methyl	ND	ug/L	1.2	1
11/09/16	11/10/16 18:25			(EPA 8141A)	Bolstar	ND	ug/L	1.2	1
11/09/16	11/10/16 18:25			(EPA 8141A)	Chlorpyrifos	ND	ug/L	1.2	1
11/09/16	11/10/16 18:25			(EPA 8141A)	Coumaphos	ND	ug/L	1.2	1
11/09/16	11/10/16 18:25			(EPA 8141A)	Demeton	ND	ug/L	1.2	1
11/09/16	11/10/16 18:25			(EPA 8141A)	Diazinon	ND	ug/L	1.2	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: 620884

MWH Americas - Pasadena
Sarah Garber
300 N. Lake Avenue
Suite 400
Pasadena, CA 91101

Samples Received on:
11/07/2016 1457

Prepped	Analyzed	Prep Batch	Analytical Batch	Method	Analyte	Result	Units	MRL	Dilution
11/09/16	11/10/16 18:25			(EPA 8141A)	Dichlorvos	ND	ug/L	1.2	1
11/09/16	11/10/16 18:25			(EPA 8141A)	Disulfoton	ND	ug/L	1.2	1
11/09/16	11/10/16 18:25			(EPA 8141A)	Ethoprop	ND	ug/L	1.2	1
11/09/16	11/10/16 18:25			(EPA 8141A)	Fensulfothion	ND	ug/L	1.2	1
11/09/16	11/10/16 18:25			(EPA 8141A)	Fenthion	ND	ug/L	1.2	1
11/09/16	11/10/16 18:25			(EPA 8141A)	Methyl Parathion	ND	ug/L	1.2	1
11/09/16	11/10/16 18:25			(EPA 8141A)	Mevinphos	ND	ug/L	1.2	1
11/09/16	11/10/16 18:25			(EPA 8141A)	Naled	ND	ug/L	1.2	1
11/09/16	11/10/16 18:25			(EPA 8141A)	Phorate	ND	ug/L	1.2	1
11/09/16	11/10/16 18:25			(EPA 8141A)	Ronnel	ND	ug/L	1.2	1
11/09/16	11/10/16 18:25			(EPA 8141A)	Stirophos	ND	ug/L	1.2	1
11/09/16	11/10/16 18:25			(EPA 8141A)	Tokuthion	ND	ug/L	1.2	1
11/09/16	11/10/16 18:25			(EPA 8141A)	Trichloronate	ND	ug/L	1.2	1
11/09/16	11/10/16 18:25			(EPA 8141A)	Tributylphosphate	95	%		1
11/09/16	11/10/16 18:25			(EPA 8141A)	Triphenyl Phosphate	91	%		1
		EPA 608 - Organochlorine Pesticides							
11/14/16	11/21/16 00:00			(EPA 608)	4,4-DDD	ND	ug/L	0.05	1
11/14/16	11/21/16 00:00			(EPA 608)	4,4-DDE	ND	ug/L	0.05	1
11/14/16	11/21/16 00:00			(EPA 608)	4,4-DDT	ND	ug/L	0.05	1
11/14/16	11/21/16 00:00			(EPA 608)	Aldrin	ND	ug/L	0.05	1
11/14/16	11/21/16 00:00			(EPA 608)	alpha-BHC	ND	ug/L	0.05	1
11/14/16	11/21/16 00:00			(EPA 608)	alpha-Chlordane	ND	ug/L	0.05	1
11/14/16	11/21/16 00:00			(EPA 608)	beta-BHC	ND	ug/L	0.05	1
11/14/16	11/21/16 00:00			(EPA 608)	delta-BHC	ND	ug/L	0.05	1
11/14/16	11/21/16 00:00			(EPA 608)	Dieldrin	ND	ug/L	0.05	1
11/14/16	11/21/16 00:00			(EPA 608)	Endosulfan I (Alpha)	ND	ug/L	0.05	1
11/14/16	11/21/16 00:00			(EPA 608)	Endosulfan II (Beta)	ND	ug/L	0.05	1
11/14/16	11/21/16 00:00			(EPA 608)	Endosulfan Sulfate	ND	ug/L	0.05	1
11/14/16	11/21/16 00:00			(EPA 608)	Endrin	ND	ug/L	0.05	1
11/14/16	11/21/16 00:00			(EPA 608)	Endrin Aldehyde	ND	ug/L	0.05	1
11/14/16	11/21/16 00:00			(EPA 608)	Endrin Ketone	ND	ug/L	0.05	1
11/14/16	11/21/16 00:00			(EPA 608)	Gamma-BHC	ND	ug/L	0.05	1
11/14/16	11/21/16 00:00			(EPA 608)	gamma-Chlordane	ND	ug/L	0.05	1
11/14/16	11/21/16 00:00			(EPA 608)	Heptachlor	ND	ug/L	0.05	1
11/14/16	11/21/16 00:00			(EPA 608)	Heptachlor Epoxide	ND	ug/L	0.05	1
11/14/16	11/21/16 00:00			(EPA 608)	Methoxychlor	ND	ug/L	0.05	1
11/14/16	11/21/16 00:00			(EPA 608)	Toxaphene	ND	ug/L	1	1
11/14/16	11/21/16 00:00			(EPA 608)	Decachlorobiphenyl	108	%		1

Rounding on totals after summation.
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Laboratory Data
Report: 620884

MWH Americas - Pasadena
Sarah Garber
300 N. Lake Avenue
Suite 400
Pasadena, CA 91101

Samples Received on:
11/07/2016 1457

Prepped	Analyzed	Prep Batch	Analytical Batch	Method	Analyte	Result	Units	MRL	Dilution
11/14/16	11/21/16 00:00			(EPA 608)	Tetrachlorometaxylene	74	%		1
		EPA 608 - Organochlorine PCBs							
11/14/16	11/21/16 00:00			(EPA 608)	PCB 1016 Aroclor	ND	ug/L	1	1
11/14/16	11/21/16 00:00			(EPA 608)	PCB 1221 Aroclor	ND	ug/L	1	1
11/14/16	11/21/16 00:00			(EPA 608)	PCB 1232 Aroclor	ND	ug/L	1	1
11/14/16	11/21/16 00:00			(EPA 608)	PCB 1242 Aroclor	ND	ug/L	1	1
11/14/16	11/21/16 00:00			(EPA 608)	PCB 1248 Aroclor	ND	ug/L	1	1
11/14/16	11/21/16 00:00			(EPA 608)	PCB 1254 Aroclor	ND	ug/L	1	1
11/14/16	11/21/16 00:00			(EPA 608)	PCB 1260 Aroclor	ND	ug/L	1	1
11/14/16	11/21/16 00:00			(EPA 608)	Decachlorobiphenyl	108	%		1
11/14/16	11/21/16 00:00			(EPA 608)	Tetrachlorometaxylene	74	%		1
		EPA 180.1 - Turbidity							
	11/09/16 09:52		947903	(EPA 180.1)	Turbidity	0.36	NTU	0.1	1
		4500P-E/365.1 - Orthophosphate as P (OPO4)							
	11/08/16 17:44		947503	(4500P-E/365.1)	Orthophosphate as P	ND	mg/L	0.01	1
		SM 4500-CL G - Total Chlorine Residual (H3=past HT not compliant)							
	11/08/16 20:00		948895	(SM 4500-CL G)	Total Chlorine Residual (H3=past HT not compliant)	ND	mg/L	0.1	1
HCC110716 (201611070467)						**Sampled on 11/07/2016 1330**			
		SM 9221C - Fecal Coliform Bacteria							
	11/10/16 15:10		948923	(SM 9221C)	Fecal Coliform Bacteria	920	MPN/100 mL	1.8	1
		SM 9221B - Total Coliform Bacteria							
	11/11/16 14:05		948921	(SM 9221B)	Total Coliform Bacteria	1600	MPN/100 mL	1.8	1
		S4500PE/ 365.1 - Total phosphorus as PO4- Calc.							
	11/16/16 19:59			(S4500PE/ 365.1)	Total phosphorus as PO4- Calc.	ND	mg/L	0.031	1
		4500P-E/365.1 - Orthophosphate as PO4 (CALC)							
	11/09/16 15:01			(4500P-E/365.1)	Orthophosphate as PO4	0.064	mg/L	0.031	1
		EPA 547 - Glyphosate							
	11/14/16 18:19		949390	(EPA 547)	Glyphosate	ND	ug/L	6	1
		EPA 300.0 - Nitrate, Nitrite by EPA 300.0							
	11/07/16 21:54		947732	(EPA 300.0)	Nitrate as Nitrogen by IC	4.7	mg/L	0.2	2
	11/07/16 21:54		947732	(EPA 300.0)	Nitrate as NO3 (calc)	21	mg/L	0.88	2
	11/07/16 21:54		947732	(EPA 300.0)	Nitrite Nitrogen by IC	ND	mg/L	0.1	2
		SM4500-PE/EPA 365.1 - Total phosphorus as P (T-P)							
	11/15/16 22:26		949661	(SM4500-PE/EPA 365.1)	Total phosphorus as P	ND	mg/L	0.02	1
		EPA 351.2 - Total Kjeldahl Nitrogen							
	11/17/16 15:04		949534	(EPA 351.2)	Kjeldahl Nitrogen	0.27	mg/L	0.2	1

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Laboratory Data
Report: 620884

MWH Americas - Pasadena
Sarah Garber
300 N. Lake Avenue
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Samples Received on:
11/07/2016 1457

Prepped	Analyzed	Prep Batch	Analytical Batch	Method	Analyte	Result	Units	MRL	Dilution
		EPA 350.1 - Ammonia Nitrogen							
	11/14/16 13:25		949508	(EPA 350.1)	Ammonia Nitrogen	ND	mg/L	0.05	1
		EPA 8141A - Organophosphorous Pesticides (Sub)							
11/09/16	11/10/16 19:04			(EPA 8141A)	Azinphos methyl	ND	ug/L	1.1	1
11/09/16	11/10/16 19:04			(EPA 8141A)	Bolstar	ND	ug/L	1.1	1
11/09/16	11/10/16 19:04			(EPA 8141A)	Chlorpyrifos	ND	ug/L	1.1	1
11/09/16	11/10/16 19:04			(EPA 8141A)	Coumaphos	ND	ug/L	1.1	1
11/09/16	11/10/16 19:04			(EPA 8141A)	Demeton	ND	ug/L	1.1	1
11/09/16	11/10/16 19:04			(EPA 8141A)	Diazinon	ND	ug/L	1.1	1
11/09/16	11/10/16 19:04			(EPA 8141A)	Dichlorvos	ND	ug/L	1.1	1
11/09/16	11/10/16 19:04			(EPA 8141A)	Disulfoton	ND	ug/L	1.1	1
11/09/16	11/10/16 19:04			(EPA 8141A)	Ethoprop	ND	ug/L	1.1	1
11/09/16	11/10/16 19:04			(EPA 8141A)	Fensulfothion	ND	ug/L	1.1	1
11/09/16	11/10/16 19:04			(EPA 8141A)	Fenthion	ND	ug/L	1.1	1
11/09/16	11/10/16 19:04			(EPA 8141A)	Methyl Parathion	ND	ug/L	1.1	1
11/09/16	11/10/16 19:04			(EPA 8141A)	Mevinphos	ND	ug/L	1.1	1
11/09/16	11/10/16 19:04			(EPA 8141A)	Naled	ND	ug/L	1.1	1
11/09/16	11/10/16 19:04			(EPA 8141A)	Phorate	ND	ug/L	1.1	1
11/09/16	11/10/16 19:04			(EPA 8141A)	Ronnel	ND	ug/L	1.1	1
11/09/16	11/10/16 19:04			(EPA 8141A)	Stirophos	ND	ug/L	1.1	1
11/09/16	11/10/16 19:04			(EPA 8141A)	Tokuthion	ND	ug/L	1.1	1
11/09/16	11/10/16 19:04			(EPA 8141A)	Trichloronate	ND	ug/L	1.1	1
11/09/16	11/10/16 19:04			(EPA 8141A)	Tributylphosphate	0	%		1
11/09/16	11/10/16 19:04			(EPA 8141A)	Triphenyl Phosphate	0	%		1
		EPA 608 - Organochlorine Pesticides							
11/14/16	11/21/16 00:00			(EPA 608)	4,4-DDD	ND	ug/L	0.05	1
11/14/16	11/21/16 00:00			(EPA 608)	4,4-DDE	ND	ug/L	0.05	1
11/14/16	11/21/16 00:00			(EPA 608)	4,4-DDT	ND	ug/L	0.05	1
11/14/16	11/21/16 00:00			(EPA 608)	Aldrin	ND	ug/L	0.05	1
11/14/16	11/21/16 00:00			(EPA 608)	alpha-BHC	ND	ug/L	0.05	1
11/14/16	11/21/16 00:00			(EPA 608)	alpha-Chlordane	ND	ug/L	0.05	1
11/14/16	11/21/16 00:00			(EPA 608)	beta-BHC	ND	ug/L	0.05	1
11/14/16	11/21/16 00:00			(EPA 608)	delta-BHC	ND	ug/L	0.05	1
11/14/16	11/21/16 00:00			(EPA 608)	Dieldrin	ND	ug/L	0.05	1
11/14/16	11/21/16 00:00			(EPA 608)	Endosulfan I (Alpha)	ND	ug/L	0.05	1
11/14/16	11/21/16 00:00			(EPA 608)	Endosulfan II (Beta)	ND	ug/L	0.05	1
11/14/16	11/21/16 00:00			(EPA 608)	Endosulfan Sulfate	ND	ug/L	0.05	1
11/14/16	11/21/16 00:00			(EPA 608)	Endrin	ND	ug/L	0.05	1

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Samples Received on:
11/07/2016 1457

Prepped	Analyzed	Prep Batch	Analytical Batch	Method	Analyte	Result	Units	MRL	Dilution
11/14/16	11/21/16 00:00			(EPA 608)	Endrin Aldehyde	ND	ug/L	0.05	1
11/14/16	11/21/16 00:00			(EPA 608)	Endrin Ketone	ND	ug/L	0.05	1
11/14/16	11/21/16 00:00			(EPA 608)	Gamma-BHC	ND	ug/L	0.05	1
11/14/16	11/21/16 00:00			(EPA 608)	gamma-Chlordane	ND	ug/L	0.05	1
11/14/16	11/21/16 00:00			(EPA 608)	Heptachlor	ND	ug/L	0.05	1
11/14/16	11/21/16 00:00			(EPA 608)	Heptachlor Epoxide	ND	ug/L	0.05	1
11/14/16	11/21/16 00:00			(EPA 608)	Methoxychlor	ND	ug/L	0.05	1
11/14/16	11/21/16 00:00			(EPA 608)	Toxaphene	ND	ug/L	1	1
11/14/16	11/21/16 00:00			(EPA 608)	Decachlorobiphenyl	97	%		1
11/14/16	11/21/16 00:00			(EPA 608)	Tetrachlorometaxylene	44	%		1
	EPA 608 - Organochlorine PCBs								
11/14/16	11/21/16 00:00			(EPA 608)	PCB 1016 Aroclor	ND	ug/L	1	1
11/14/16	11/21/16 00:00			(EPA 608)	PCB 1221 Aroclor	ND	ug/L	1	1
11/14/16	11/21/16 00:00			(EPA 608)	PCB 1232 Aroclor	ND	ug/L	1	1
11/14/16	11/21/16 00:00			(EPA 608)	PCB 1242 Aroclor	ND	ug/L	1	1
11/14/16	11/21/16 00:00			(EPA 608)	PCB 1248 Aroclor	ND	ug/L	1	1
11/14/16	11/21/16 00:00			(EPA 608)	PCB 1254 Aroclor	ND	ug/L	1	1
11/14/16	11/21/16 00:00			(EPA 608)	PCB 1260 Aroclor	ND	ug/L	1	1
11/14/16	11/21/16 00:00			(EPA 608)	Decachlorobiphenyl	97	%		1
11/14/16	11/21/16 00:00			(EPA 608)	Tetrachlorometaxylene	44	%		1
	EPA 180.1 - Turbidity								
	11/09/16 09:56		947903	(EPA 180.1)	Turbidity	0.24	NTU	0.1	1
	4500P-E/365.1 - Orthophosphate as P (OPO4)								
	11/08/16 17:42		947503	(4500P-E/365.1)	Orthophosphate as P	0.021	mg/L	0.01	1
	SM 4500-CL G - Total Chlorine Residual (H3=past HT not compliant)								
	11/08/16 20:00		948895	(SM 4500-CL G)	Total Chlorine Residual (H3=past HT not compliant)	ND	mg/L	0.1	1

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Orthophosphate as P (OPO4)

Analytical Batch: 947503 — **Analysis Date: 11/08/2016**

201611070465	PONDSIN110716	Analyzed by: W8E1
201611070466	PONDSOUT110716	Analyzed by: W8E1
201611070467	HCC110716	Analyzed by: W8E1

Nitrate, Nitrite by EPA 300.0

Analytical Batch: 947732 — **Analysis Date: 11/07/2016**

201611070465	PONDSIN110716	Analyzed by: 6Q4
201611070466	PONDSOUT110716	Analyzed by: 6Q4
201611070467	HCC110716	Analyzed by: 6Q4

Turbidity

Analytical Batch: 947903 — **Analysis Date: 11/09/2016**

201611070465	PONDSIN110716	Analyzed by: OM5Q
201611070466	PONDSOUT110716	Analyzed by: OM5Q
201611070467	HCC110716	Analyzed by: OM5Q

Total Chlorine Residual (H3=past HT not compli

Analytical Batch: 948895 — **Analysis Date: 11/08/2016**

201611070465	PONDSIN110716	Analyzed by: V3VN
201611070466	PONDSOUT110716	Analyzed by: V3VN
201611070467	HCC110716	Analyzed by: V3VN

Total Coliform Bacteria

Analytical Batch: 948921 — **Analysis Date: 11/11/2016**

201611070465	PONDSIN110716	Analyzed by: KRF
201611070466	PONDSOUT110716	Analyzed by: KRF
201611070467	HCC110716	Analyzed by: KRF

Fecal Coliform Bacteria

Analytical Batch: 948923 — **Analysis Date: 11/10/2016**

201611070465	PONDSIN110716	Analyzed by: E77P
201611070466	PONDSOUT110716	Analyzed by: E77P
201611070467	HCC110716	Analyzed by: E77P

Glyphosate

Analytical Batch: 949137 — **Analysis Date: 11/10/2016**

201611070465	PONDSIN110716	Analyzed by: DYM
201611070466	PONDSOUT110716	Analyzed by: DYM

Glyphosate

Analytical Batch: 949390 — **Analysis Date: 11/14/2016**

201611070467	HCC110716	Analyzed by: DYM

Ammonia Nitrogen

Analytical Batch: 949504 — **Analysis Date: 11/14/2016**

201611070465	PONDSIN110716	Analyzed by: LUPE
201611070466	PONDSOUT110716	Analyzed by: LUPE

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Ammonia Nitrogen

Analytical Batch: 949508 — **Analysis Date: 11/14/2016**

201611070467	HCC110716	Analyzed by: LUPE

Total Kjeldahl Nitrogen

Analytical Batch: 949534 — **Analysis Date: 11/17/2016**

201611070465	PONDSIN110716	Analyzed by: MIA8
201611070466	PONDSOUT110716	Analyzed by: MIA8
201611070467	HCC110716	Analyzed by: MIA8

Total phosphorus as P (T-P)

Analytical Batch: 949661 — **Analysis Date: 11/15/2016**

201611070465	PONDSIN110716	Analyzed by: AZS
201611070466	PONDSOUT110716	Analyzed by: AZS
201611070467	HCC110716	Analyzed by: AZS

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Laboratory QC
Report: 620884

MWH Americas - Pasadena

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield (%)	Limits (%)	RPDLimit (%)	RPD%
Orthophosphate as P (OPO4) by 4500P-E/365.1									
Analytical Batch: 947503							**Analysis Date: 11/08/2016**		
LCS1	Orthophosphate as P		0.25	0.257	mg/L	103	(90-110)		
LCS2	Orthophosphate as P		0.25	0.263	mg/L	105	(90-110)	20	2.3
MBLK	Orthophosphate as P			<0.01	mg/L				
MRL_CHK	Orthophosphate as P		0.01	0.0120	mg/L	120	(50-150)		
MS_201611080217	Orthophosphate as P	ND	0.5	0.514	mg/L	102	(90-110)		
MSD_201611080217	Orthophosphate as P	ND	0.5	0.519	mg/L	103	(90-110)	20	0.97
Nitrate, Nitrite by EPA 300.0 by EPA 300.0									
Analytical Batch: 947732							**Analysis Date: 11/07/2016**		
LCS1	Nitrate as Nitrogen by IC		2.5	2.51	mg/L	100	(90-110)		
LCS2	Nitrate as Nitrogen by IC		2.5	2.55	mg/L	102	(90-110)	20	1.6
MBLK	Nitrate as Nitrogen by IC			<0.10	mg/L				
MRL_CHK	Nitrate as Nitrogen by IC		0.05	0.0508	mg/L	102	(50-150)		
MS_201611070208	Nitrate as Nitrogen by IC	ND	2.6	2.52	mg/L	101	(80-120)		
MS_201611070253	Nitrate as Nitrogen by IC	12	2.6	14.5	mg/L	98	(80-120)		
MSD_201611070253	Nitrate as Nitrogen by IC	12	2.6	14.6	mg/L	100	(80-120)	20	0.69
MSD_201611070208	Nitrate as Nitrogen by IC	ND	2.6	2.51	mg/L	100	(80-120)	20	0.40
LCS1	Nitrite Nitrogen by IC		1	0.934	mg/L	93	(90-110)		
LCS2	Nitrite Nitrogen by IC		1	0.937	mg/L	94	(90-110)	20	0.32
MBLK	Nitrite Nitrogen by IC			<0.10	mg/L				
MRL_CHK	Nitrite Nitrogen by IC		0.05	0.0443	mg/L	89	(50-150)		
MS_201611070208	Nitrite Nitrogen by IC	ND	1	0.792	mg/L	**79**	(80-120)		
MS_201611070253	Nitrite Nitrogen by IC	0.72	1	1.67	mg/L	95	(80-120)		
MSD_201611070208	Nitrite Nitrogen by IC	ND	1	0.795	mg/L	80	(80-120)	20	0.38
MSD_201611070253	Nitrite Nitrogen by IC	0.72	1	1.67	mg/L	95	(80-120)	20	0.0
Turbidity by EPA 180.1									
Analytical Batch: 947903							**Analysis Date: 11/09/2016**		
DUP1_201611080252	Turbidity	ND	0.1	0.0970	NTU		(0-20)	20	5.3
DUP2_201611080217	Turbidity	ND	0.1	0.0750	NTU		(0-20)	20	1.3
LCS1	Turbidity		20	21.7	NTU	109	(90-110)		
LCS2	Turbidity		20	21.8	NTU	109	(90-110)	20	0.46
MBLK	Turbidity			<0.10	NTU				
MRLHI	Turbidity		0.1	0.143	NTU	143	(50-150)		

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.
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).
(S) - Indicates surrogate compound.
(I) - Indicates internal standard compound.

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Laboratory QC
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MWH Americas - Pasadena

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield (%)	Limits (%)	RPDLimit (%)	RPD%
Total Chlorine Residual (H3=past HT not compliant) by SM 4500-CL G									
Analytical Batch: 948895							**Analysis Date: 11/08/2016**		
LCS1	Total Chlorine Residual		1	1.02	mg/L	102	(85-115)		
LCS2	Total Chlorine Residual			1.04	mg/L				
MBLK	Total Chlorine Residual			<0.1	mg/L				
MRL_CHK	Total Chlorine Residual		0.1	0.130	mg/L	130	(50-150)		
Glyphosate by EPA 547									
Analytical Batch: 949137							**Analysis Date: 11/10/2016**		
CCCH	Glyphosate		25	21.3	ug/L	85	(80-120)		
CCCM	Glyphosate		10	9.72	ug/L	97	(80-120)		
LCS1	Glyphosate		10	8.92	ug/L	89	(70-130)		
MBLK	Glyphosate			<6	ug/L				
MRL_CHK	Glyphosate		6	5.22	ug/L	87	(50-150)		
MS_201611030173	Glyphosate	ND	10	9.01	ug/L	90	(70-130)		
MS2_201611030062	Glyphosate	ND	10	9.71	ug/L	97	(70-130)		
MSD_201611030173	Glyphosate	ND	10	10.3	ug/L	103	(70-130)	20	13
Glyphosate by EPA 547									
Analytical Batch: 949390							**Analysis Date: 11/14/2016**		
CCCH	Glyphosate		25	24.9	ug/L	100	(80-120)		
CCCM	Glyphosate		10	9.54	ug/L	95	(80-120)		
LCS1	Glyphosate		10	11.1	ug/L	111	(70-130)		
MBLK	Glyphosate			<6	ug/L				
MRL_CHK	Glyphosate		6	6.49	ug/L	108	(50-150)		
MS_201611070074	Glyphosate	ND	10	9.44	ug/L	94	(70-130)		
MS2_201611080217	Glyphosate	ND	10	8.70	ug/L	87	(70-130)		
MSD_201611070074	Glyphosate	ND	10	9.13	ug/L	91	(70-130)	20	3.3
Ammonia Nitrogen by EPA 350.1									
Analytical Batch: 949504							**Analysis Date: 11/14/2016**		
LCS3	Ammonia Nitrogen		1	0.993	mg/L	99	(90-110)		
LCS4	Ammonia Nitrogen		1	1.00	mg/L	100	(90-110)	20	0.70
MBLK	Ammonia Nitrogen			<0.025	mg/L				
MRL_CHK	Ammonia Nitrogen		0.05	0.0530	mg/L	106	(79-126)		
MS1_201611100424	Ammonia Nitrogen	0.38	1	1.39	mg/L	101	(90-110)		
MS1_201611040551	Ammonia Nitrogen	0.061	1	1.11	mg/L	105	(90-110)		
MSD1_201611100424	Ammonia Nitrogen	0.38	1	1.33	mg/L	95	(90-110)	20	4.4

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.
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).
(S) - Indicates surrogate compound.
(I) - Indicates internal standard compound.

eurofins | Eaton Analytical

Tel: (626) 386-1100
Fax: (626) 386-1101
1 800 566 LABS (1 800 566 5227)

Laboratory QC
Report: 620884

MWH Americas - Pasadena

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield (%)	Limits (%)	RPDLimit (%)	RPD%
MSD1_201611040551	Ammonia Nitrogen	0.061	1	1.12	mg/L	105	(90-110)	20	0.90
Ammonia Nitrogen by EPA 350.1									
Analytical Batch: 949508							**Analysis Date: 11/14/2016**		
LCS3	Ammonia Nitrogen		1	1.01	mg/L	101	(90-110)		
LCS4	Ammonia Nitrogen		1	1.03	mg/L	103	(90-110)	20	2.0
MBLK	Ammonia Nitrogen			<0.025	mg/L				
MRL_CHK	Ammonia Nitrogen		0.05	0.0540	mg/L	108	(79-126)		
MS1_201611080616	Ammonia Nitrogen	ND	1	1.08	mg/L	107	(90-110)		
MS1_201611070467	Ammonia Nitrogen	ND	1	1.01	mg/L	99	(90-110)		
MSD1_201611080616	Ammonia Nitrogen	ND	1	1.05	mg/L	104	(90-110)	20	2.8
MSD1_201611070467	Ammonia Nitrogen	ND	1	1.04	mg/L	102	(90-110)	20	2.9
Total Kjeldahl Nitrogen by EPA 351.2									
Analytical Batch: 949534							**Analysis Date: 11/17/2016**		
LCS1	Kjeldahl Nitrogen		4	3.92	mg/L	98	(90-110)		
LCS2	Kjeldahl Nitrogen		4	4.00	mg/L	100	(90-110)	20	2.0
MBLK	Kjeldahl Nitrogen			<0.1	mg/L				
MRL_CHK	Kjeldahl Nitrogen		0.2	0.188	mg/L	94	(50-150)		
MS_201611030369	Kjeldahl Nitrogen	ND	4	3.53	mg/L	**88**	(90-110)		
MS_201611070466	Kjeldahl Nitrogen	ND	4	3.74	mg/L	91	(90-110)		
MSD_201611030369	Kjeldahl Nitrogen	ND	4	3.76	mg/L	94	(90-110)	10	6.3
MSD_201611070466	Kjeldahl Nitrogen	ND	4	3.66	mg/L	**89**	(90-110)	10	2.2
Total phosphorus as P (T-P) by SM4500-PE/EPA 365.1									
Analytical Batch: 949661							**Analysis Date: 11/15/2016**		
LCS1	Total phosphorus as P		0.4	0.432	mg/L	108	(90-110)		
LCS2	Total phosphorus as P		0.4	0.417	mg/L	104	(90-110)	20	3.5
MBLK	Total phosphorus as P			<0.01	mg/L				
MRL_CHK	Total phosphorus as P		0.02	0.0213	mg/L	107	(50-150)		
MS_201611070244	Total phosphorus as P	0.021	0.4	0.441	mg/L	105	(90-110)		
MS2_201611080452	Total phosphorus as P	ND	0.4	0.396	mg/L	99	(90-110)		
MSD_201611070244	Total phosphorus as P	0.021	0.4	0.407	mg/L	96	(90-110)	20	8.0
MSD2_201611080452	Total phosphorus as P	ND	0.4	0.394	mg/L	98	(90-110)	20	0.51

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.
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).
(S) - Indicates surrogate compound.
(I) - Indicates internal standard compound.

908 North Temperance Ave. ∇ Clovis, CA 93611 ∇ Phone 559-275-2175 ∇ Fax 559-275-4422

State Certification Number: CA1312 (WW & DW)
NELAP Certification number: CA00046 (HW)

December 6, 2016

Eurofins Eaton Analytical
750 Royal Oaks Drive, Suite 100
Monrovia, California 91016

Attn: Jackie Contreras

Subject: Report of Data: Case 81439

Results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Dear Ms. Contreras,

Three water sample for project "620884" were received on November 9, 2016, in good condition. The analytical method was changed as requested on November 10, 2016. Written results are being provided on this December 6, 2016, for the requested analyses. All holding times were met.

For the EPA 608 analysis, the samples were extracted according to EPA method 3510C.

No unusual problem or complication was encountered with this sample set.

If you have any questions or require further information, please contact us at your convenience. Thank you for choosing APPL, Inc.

I certify that this data package complies with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. These test results meet all requirements of NELAC. Release of the hard copy has been authorized by the Laboratory Manager or her designee, as verified by the following signature.

Paula McCartney, Laboratory Director
APPL, Inc.

PM/rp
Enclosure
cc: File

Number of pages in this report: ____

EPA 608 CHLORINATED PESTICIDES

Eurofins Eaton Analytical
750 Royal Oaks Dr., Ste 100
Monrovia, CA 91016

Attn: Jackie Contreras
Project: 620884
Sample ID: 201611070465
Sample Collection Date: 11/07/16

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

ARF: 81439
APPL ID: AZ45616
QCG: #608-161114A-214190

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 608	4,4'-DDE	Not detected	0.05	0.004	ug/L	11/14/16	11/21/16
EPA 608	4,4'-DDT	Not detected	0.05	0.007	ug/L	11/14/16	11/21/16
EPA 608	4,4'-TDE/DDD	Not detected	0.05	0.003	ug/L	11/14/16	11/21/16
EPA 608	A-BHC	Not detected	0.05	0.005	ug/L	11/14/16	11/21/16
EPA 608	A-CHLORDANE	Not detected	0.05	0.007	ug/L	11/14/16	11/21/16
EPA 608	ALDRIN	Not detected	0.05	0.009	ug/L	11/14/16	11/21/16
EPA 608	B-BHC	Not detected	0.05	0.008	ug/L	11/14/16	11/21/16
EPA 608	CHLORDANE, TECH	Not detected	1.0	0.01	ug/L	11/14/16	11/21/16
EPA 608	D-BHC	Not detected	0.05	0.005	ug/L	11/14/16	11/21/16
EPA 608	DIELDRIN	Not detected	0.05	0.005	ug/L	11/14/16	11/21/16
EPA 608	ENDOSULFAN I	Not detected	0.05	0.005	ug/L	11/14/16	11/21/16
EPA 608	ENDOSULFAN II	Not detected	0.05	0.004	ug/L	11/14/16	11/21/16
EPA 608	ENDOSULFAN SULFATE	Not detected	0.05	0.005	ug/L	11/14/16	11/21/16
EPA 608	ENDRIN	Not detected	0.05	0.007	ug/L	11/14/16	11/21/16
EPA 608	ENDRIN ALDEHYDE	Not detected	0.05	0.009	ug/L	11/14/16	11/21/16
EPA 608	ENDRIN KETONE	Not detected	0.05	0.006	ug/L	11/14/16	11/21/16
EPA 608	G-BHC (LINDANE)	Not detected	0.05	0.005	ug/L	11/14/16	11/21/16
EPA 608	G-CHLORDANE	Not detected	0.05	0.006	ug/L	11/14/16	11/21/16
EPA 608	HEPTACHLOR	Not detected	0.05	0.008	ug/L	11/14/16	11/21/16
EPA 608	HEPTACHLOR EPOXIDE	Not detected	0.05	0.007	ug/L	11/14/16	11/21/16
EPA 608	METHOXYCHLOR	Not detected	0.05	0.008	ug/L	11/14/16	11/21/16
EPA 608	PCB-1016	Not detected	1.0	0.12	ug/L	11/14/16	11/21/16
EPA 608	PCB-1221	Not detected	1.0	0.08	ug/L	11/14/16	11/21/16
EPA 608	PCB-1232	Not detected	1.0	0.12	ug/L	11/14/16	11/21/16
EPA 608	PCB-1242	Not detected	1.0	0.12	ug/L	11/14/16	11/21/16
EPA 608	PCB-1248	Not detected	1.0	0.09	ug/L	11/14/16	11/21/16
EPA 608	PCB-1254	Not detected	1.0	0.20	ug/L	11/14/16	11/21/16
EPA 608	PCB-1260	Not detected	1.0	0.09	ug/L	11/14/16	11/21/16
EPA 608	TOXAPHENE	Not detected	1.0	0.38	ug/L	11/14/16	11/21/16
EPA 608	SURROGATE: DECACHLOROBIPHEN	102	27-110		%	11/14/16	11/21/16
EPA 608	SURROGATE: TCMX (S)	61.2	24-114		%	11/14/16	11/21/16

Quant Method: OCL1024.M
Run #: 1121020
Instrument: Ethel
Sequence: 161121
Dilution Factor: 1
Initials: DPO

Printed: 12/06/16 12:32:21 PM
APPL-F1-SC-NoMC-REG MDLs

EPA 608 CHLORINATED PESTICIDES

Eurofins Eaton Analytical
750 Royal Oaks Dr., Ste 100
Monrovia, CA 91016

Attn: Jackie Contreras
Project: 620884
Sample ID: 201611070466
Sample Collection Date: 11/07/16

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

ARF: 81439
APPL ID: AZ45617
QCG: #608-161114A-214190

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 608	4,4'-DDE	Not detected	0.05	0.004	ug/L	11/14/16	11/21/16
EPA 608	4,4'-DDT	Not detected	0.05	0.007	ug/L	11/14/16	11/21/16
EPA 608	4,4'-TDE/DDD	Not detected	0.05	0.003	ug/L	11/14/16	11/21/16
EPA 608	A-BHC	Not detected	0.05	0.005	ug/L	11/14/16	11/21/16
EPA 608	A-CHLORDANE	Not detected	0.05	0.007	ug/L	11/14/16	11/21/16
EPA 608	ALDRIN	Not detected	0.05	0.009	ug/L	11/14/16	11/21/16
EPA 608	B-BHC	Not detected	0.05	0.008	ug/L	11/14/16	11/21/16
EPA 608	CHLORDANE, TECH	Not detected	1.0	0.01	ug/L	11/14/16	11/21/16
EPA 608	D-BHC	Not detected	0.05	0.005	ug/L	11/14/16	11/21/16
EPA 608	DIELDRIN	Not detected	0.05	0.005	ug/L	11/14/16	11/21/16
EPA 608	ENDOSULFAN I	Not detected	0.05	0.005	ug/L	11/14/16	11/21/16
EPA 608	ENDOSULFAN II	Not detected	0.05	0.004	ug/L	11/14/16	11/21/16
EPA 608	ENDOSULFAN SULFATE	Not detected	0.05	0.005	ug/L	11/14/16	11/21/16
EPA 608	ENDRIN	Not detected	0.05	0.007	ug/L	11/14/16	11/21/16
EPA 608	ENDRIN ALDEHYDE	Not detected	0.05	0.009	ug/L	11/14/16	11/21/16
EPA 608	ENDRIN KETONE	Not detected	0.05	0.006	ug/L	11/14/16	11/21/16
EPA 608	G-BHC (LINDANE)	Not detected	0.05	0.005	ug/L	11/14/16	11/21/16
EPA 608	G-CHLORDANE	Not detected	0.05	0.006	ug/L	11/14/16	11/21/16
EPA 608	HEPTACHLOR	Not detected	0.05	0.008	ug/L	11/14/16	11/21/16
EPA 608	HEPTACHLOR EPOXIDE	Not detected	0.05	0.007	ug/L	11/14/16	11/21/16
EPA 608	METHOXYCHLOR	Not detected	0.05	0.008	ug/L	11/14/16	11/21/16
EPA 608	PCB-1016	Not detected	1.0	0.12	ug/L	11/14/16	11/21/16
EPA 608	PCB-1221	Not detected	1.0	0.08	ug/L	11/14/16	11/21/16
EPA 608	PCB-1232	Not detected	1.0	0.12	ug/L	11/14/16	11/21/16
EPA 608	PCB-1242	Not detected	1.0	0.12	ug/L	11/14/16	11/21/16
EPA 608	PCB-1248	Not detected	1.0	0.09	ug/L	11/14/16	11/21/16
EPA 608	PCB-1254	Not detected	1.0	0.20	ug/L	11/14/16	11/21/16
EPA 608	PCB-1260	Not detected	1.0	0.09	ug/L	11/14/16	11/21/16
EPA 608	TOXAPHENE	Not detected	1.0	0.38	ug/L	11/14/16	11/21/16
EPA 608	SURROGATE: DECACHLOROBIPHEN	108	27-110		%	11/14/16	11/21/16
EPA 608	SURROGATE: TCMX (S)	73.5	24-114		%	11/14/16	11/21/16

Quant Method: OCL1024.M
Run #: 1121021
Instrument: Ethel
Sequence: 161121
Dilution Factor: 1
Initials: DPO

Printed: 12/06/16 12:32:21 PM
APPL-F1-SC-NoMC-REG MDLs

EPA 608 CHLORINATED PESTICIDES

Eurofins Eaton Analytical
750 Royal Oaks Dr., Ste 100
Monrovia, CA 91016

Attn: Jackie Contreras
Project: 620884
Sample ID: 201611070467
Sample Collection Date: 11/07/16

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

ARF: 81439
APPL ID: AZ45618
QCG: #608-161114A-214190

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 608	4,4'-DDE	Not detected	0.05	0.004	ug/L	11/14/16	11/21/16
EPA 608	4,4'-DDT	Not detected	0.05	0.007	ug/L	11/14/16	11/21/16
EPA 608	4,4'-TDE/DDD	Not detected	0.05	0.003	ug/L	11/14/16	11/21/16
EPA 608	A-BHC	Not detected	0.05	0.005	ug/L	11/14/16	11/21/16
EPA 608	A-CHLORDANE	Not detected	0.05	0.007	ug/L	11/14/16	11/21/16
EPA 608	ALDRIN	Not detected	0.05	0.009	ug/L	11/14/16	11/21/16
EPA 608	B-BHC	Not detected	0.05	0.008	ug/L	11/14/16	11/21/16
EPA 608	CHLORDANE, TECH	Not detected	1.0	0.01	ug/L	11/14/16	11/21/16
EPA 608	D-BHC	Not detected	0.05	0.005	ug/L	11/14/16	11/21/16
EPA 608	DIELDRIN	Not detected	0.05	0.005	ug/L	11/14/16	11/21/16
EPA 608	ENDOSULFAN I	Not detected	0.05	0.005	ug/L	11/14/16	11/21/16
EPA 608	ENDOSULFAN II	Not detected	0.05	0.004	ug/L	11/14/16	11/21/16
EPA 608	ENDOSULFAN SULFATE	Not detected	0.05	0.005	ug/L	11/14/16	11/21/16
EPA 608	ENDRIN	Not detected	0.05	0.007	ug/L	11/14/16	11/21/16
EPA 608	ENDRIN ALDEHYDE	Not detected	0.05	0.009	ug/L	11/14/16	11/21/16
EPA 608	ENDRIN KETONE	Not detected	0.05	0.006	ug/L	11/14/16	11/21/16
EPA 608	G-BHC (LINDANE)	Not detected	0.05	0.005	ug/L	11/14/16	11/21/16
EPA 608	G-CHLORDANE	Not detected	0.05	0.006	ug/L	11/14/16	11/21/16
EPA 608	HEPTACHLOR	Not detected	0.05	0.008	ug/L	11/14/16	11/21/16
EPA 608	HEPTACHLOR EPOXIDE	Not detected	0.05	0.007	ug/L	11/14/16	11/21/16
EPA 608	METHOXYCHLOR	Not detected	0.05	0.008	ug/L	11/14/16	11/21/16
EPA 608	PCB-1016	Not detected	1.0	0.12	ug/L	11/14/16	11/21/16
EPA 608	PCB-1221	Not detected	1.0	0.08	ug/L	11/14/16	11/21/16
EPA 608	PCB-1232	Not detected	1.0	0.12	ug/L	11/14/16	11/21/16
EPA 608	PCB-1242	Not detected	1.0	0.12	ug/L	11/14/16	11/21/16
EPA 608	PCB-1248	Not detected	1.0	0.09	ug/L	11/14/16	11/21/16
EPA 608	PCB-1254	Not detected	1.0	0.20	ug/L	11/14/16	11/21/16
EPA 608	PCB-1260	Not detected	1.0	0.09	ug/L	11/14/16	11/21/16
EPA 608	TOXAPHENE	Not detected	1.0	0.38	ug/L	11/14/16	11/21/16
EPA 608	SURROGATE: DECACHLOROBIPHEN	97.2	27-110		%	11/14/16	11/21/16
EPA 608	SURROGATE: TCMX (S)	43.6	24-114		%	11/14/16	11/21/16

Quant Method: OCL1024.M
Run #: 1121022
Instrument: Ethel
Sequence: 161121
Dilution Factor: 1
Initials: DPO

Printed: 12/06/16 12:32:21 PM
APPL-F1-SC-NoMC-REG MDLs

Method Blank
EPA 608 CHLORINATED PESTICIDES

Blank Name/QCG: **161114W-45616 - 214190**
Batch ID: #608-161114A

APPL Inc.
908 North Temperance Avenu
Clovis, CA 93611

Sample Type	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
BLANK	4,4'-DDE	Not detected	0.05	0.004	ug/L	11/14/16	11/21/16
BLANK	4,4'-DDT	Not detected	0.05	0.007	ug/L	11/14/16	11/21/16
BLANK	4,4'-TDE/DDD	Not detected	0.05	0.003	ug/L	11/14/16	11/21/16
BLANK	A-BHC	Not detected	0.05	0.005	ug/L	11/14/16	11/21/16
BLANK	A-CHLORDANE	Not detected	0.05	0.007	ug/L	11/14/16	11/21/16
BLANK	ALDRIN	Not detected	0.05	0.009	ug/L	11/14/16	11/21/16
BLANK	B-BHC	Not detected	0.05	0.008	ug/L	11/14/16	11/21/16
BLANK	CHLORDANE, TECH	Not detected	1.0	0.01	ug/L	11/14/16	11/21/16
BLANK	D-BHC	Not detected	0.05	0.005	ug/L	11/14/16	11/21/16
BLANK	DIELDRIN	Not detected	0.05	0.005	ug/L	11/14/16	11/21/16
BLANK	ENDOSULFAN I	Not detected	0.05	0.005	ug/L	11/14/16	11/21/16
BLANK	ENDOSULFAN II	Not detected	0.05	0.004	ug/L	11/14/16	11/21/16
BLANK	ENDOSULFAN SULFATE	Not detected	0.05	0.005	ug/L	11/14/16	11/21/16
BLANK	ENDRIN	Not detected	0.05	0.007	ug/L	11/14/16	11/21/16
BLANK	ENDRIN ALDEHYDE	Not detected	0.05	0.009	ug/L	11/14/16	11/21/16
BLANK	ENDRIN KETONE	Not detected	0.05	0.006	ug/L	11/14/16	11/21/16
BLANK	G-BHC (LINDANE)	Not detected	0.05	0.005	ug/L	11/14/16	11/21/16
BLANK	G-CHLORDANE	Not detected	0.05	0.006	ug/L	11/14/16	11/21/16
BLANK	HEPTACHLOR	Not detected	0.05	0.008	ug/L	11/14/16	11/21/16
BLANK	HEPTACHLOR EPOXIDE	Not detected	0.05	0.007	ug/L	11/14/16	11/21/16
BLANK	METHOXYCHLOR	Not detected	0.05	0.008	ug/L	11/14/16	11/21/16
BLANK	PCB-1016	Not detected	1.0	0.12	ug/L	11/14/16	11/21/16
BLANK	PCB-1221	Not detected	1.0	0.08	ug/L	11/14/16	11/21/16
BLANK	PCB-1232	Not detected	1.0	0.12	ug/L	11/14/16	11/21/16
BLANK	PCB-1242	Not detected	1.0	0.12	ug/L	11/14/16	11/21/16
BLANK	PCB-1248	Not detected	1.0	0.09	ug/L	11/14/16	11/21/16
BLANK	PCB-1254	Not detected	1.0	0.20	ug/L	11/14/16	11/21/16
BLANK	PCB-1260	Not detected	1.0	0.09	ug/L	11/14/16	11/21/16
BLANK	TOXAPHENE	Not detected	1.0	0.38	ug/L	11/14/16	11/21/16
BLANK	SURROGATE: DECACHLOROBIPHEN	85.7	27-110		%	11/14/16	11/21/16
BLANK	SURROGATE: TCMX (S)	54.0	24-114		%	11/14/16	11/21/16

Quant Method:OCL1024.M
Run #:1121013
Instrument:Ethel
Sequence:161121
Initials:DPO

GC SC-Blank-REG MDLs
Printed: 12/06/16 12:32:20 PM

Laboratory Control Spike Recovery
EPA 608 CHLORINATED PESTICIDES

APPL ID: **161114W-45616 LCS - 214190**
Batch ID: #608-161114A

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Compound Name	Spike Level ug/L	SPK Result ug/L	SPK % Recovery	Recovery Limits
4,4'-DDE	0.300	0.229	76.3	30-145
4,4'-DDT	0.300	0.243	81.0	25-160
4,4'-TDE/DDD	0.300	0.241	80.3	31-141
A-BHC	0.300	0.215	71.7	37-134
A-CHLORDANE	0.300	0.237	79.0	63-112
ALDRIN	0.300	0.135	45.0	42-122
B-BHC	0.300	0.249	83.0	17-147
CHLORDANE, TECH	2.00	1.91	95.5	45-119
D-BHC	0.300	0.242	80.7	19-140
DIELDRIN	0.300	0.246	82.0	36-146
ENDOSULFAN I	0.300	0.248	82.7	45-153
ENDOSULFAN II	0.300	0.229	76.3	1-202
ENDOSULFAN SULFATE	0.300	0.255	85.0	26-144
ENDRIN	0.300	0.243	81.0	30-147
ENDRIN ALDEHYDE	0.300	0.270	90.0	56-114
ENDRIN KETONE	0.300	0.251	83.7	53-119
G-BHC (LINDANE)	0.300	0.234	78.0	32-127
G-CHLORDANE	0.300	0.237	79.0	61-115
HEPTACHLOR	0.300	0.199	66.3	34-111
HEPTACHLOR EPOXIDE	0.300	0.247	82.3	37-142
METHOXYCHLOR	0.300	0.286	95.3	62-121
PCB-1016	1.0	0.852	85.2	50-114
PCB-1260	1.0	0.944	94.4	8-127
TOXAPHENE	2.00	1.38	69.0	41-126
SURROGATE: DECACHLOROBIPHENYL	0.300	0.220	73.3	27-110
SURROGATE: TCMX (S)	0.300	0.195	65.0	24-114

Comments: _____

Primary	SPK
Quant Method :	OCL1024.M
Extraction Date :	11/14/16
Analysis Date :	11/21/16
Instrument :	Ethel
Run :	1121014
Initials :	DPO

Printed: 12/06/16 12:32:21 PM
APPL Standard LCS

eurofins | Eaton Analytical

Ship To:
Appl, Inc.
908 N. Temperance

Clovis, CA 93611

Phone: 559-275-2175 Fax: 559-275-4422

Submittal Form & Purchase Order 99-43760

81439

Date: 11/8/2016

2.4

*REPORTING REQUIRMENTS: *Do Not Combine Reports with any other samples submitted under different Folder Numbers!*
Report & Invoice must have the Folder # **620884** Sub PO# **99-43760** 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: us20_subcontract@eurofinsus.com
Eurofins Eaton Analytical 750 Royal Oaks Drive, Suite 100, Monrovia, CA 91016
Phone (626) 386-1165 Fax (626) 386-1122
Invoices to: Eurofins Eaton Analytical
Accounts Payable 2425 New Holland Pike, Lancaster, PA 17605

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

Samples from: CALIFORNIA

Folder #:	Report Due:	Sub PO #:
620884	11/23/2016	99-43760

JLS	Use Lab Order # for ID	Client Sample ID for reference only	Analysis Requested	Sample Date & Time	Matrix	PWS Systemcode	PWSID
EPA 8081A	201611070465 @8081A	PONDSIN110716	Organochlorine Pesticides	11/07/16 1120	DW		
EPA 8081A	201611070466 @8081A	PONDSOUT110716	Organochlorine Pesticides	11/07/16 1215	DW		
EPA 8081A	201611070467 @8081A	HCC110716	Organochlorine Pesticides	11/07/16 1330	DW		

Relinquished by: Sample Control MAV Date 11-8-16 Time 1603

Received by: Jang Zon Date 11/9/16 Time 10:05

Relinquished by: Sample Control Date _____ Time _____

Received by: _____ Date _____ Time _____

NOTIFICATION REQUIRED IF RECEIVED OUTSIDE OF 0-6 CELSIUS

An Acknowledgement of Receipt is requested to attn: Jackie Contreras

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

Date: 11-17-2016
EMAX Batch No.: 16K065

Attn: Jackie Contreras

Eurofins Eaton Analytical
750 Royal Oaks Dr., Suite 100
Monrovia, CA 91016-3629

Subject: Laboratory Report
Project: 620884

Enclosed is the Laboratory report for samples received on 11/08/16.
The data reported relate only to samples listed below :

Sample ID	Control #	Col Date	Matrix	Analysis
201611070465	K065-01	11/07/16	WATER	PESTICIDES ORGANOPHOSPHORUS
201611070466	K065-02	11/07/16	WATER	PESTICIDES ORGANOPHOSPHORUS
201611070467	K065-03	11/07/16	WATER	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.

NELAP Accredited Certificate Number CA002912016-11
L-A-B Accredited DoD ELAP and ISO/IEC 17025 Certificate Number L2278 Testing
California ELAP Accredited Certificate Number 2672

eurofins | Eaton Analytical

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

Torrance, CA 90501

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

Submittal Form & Purchase Order 99-43758

Date: 11/8/2016

REPORTING REQUIRMENTS:** ***Do Not Combine Reports with any other samples submitted under different Folder Numbers!
Report & Invoice must have the Folder # **620884** Sub PO# **99-43758** 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: us20_subcontract@eurofinsus.com
Eurofins Eaton Analytical 750 Royal Oaks Drive, Suite 100, Monrovia, CA 91016
Phone (626) 386-1165 Fax (626) 386-1122
Invoices to: Eurofins Eaton Analytical
Accounts Payable 2425 New Holland Pike, Lancaster, PA 17605

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

Samples from: **CALIFORNIA**

16K065

Folder #:	Report Due:	Sub PO #:
620884	11/23/2016	99-43758

JLS		Use Lab Order # for ID	Client Sample ID for reference only	Analysis Requested	Sample Date & Time	Matrix	PWS Systemcode	PWSID
EPA 8141A	(1)	201611070465 @8141EDD	PONDSIN110716	Organophosphorous Pesticides (Sub)	11/07/16 1120	DW		
EPA 8141A	(2)	201611070466 @8141EDD	PONDSOUT110716	Organophosphorous Pesticides (Sub)	11/07/16 1215	DW		
EPA 8141A	(3)	201611070467 @8141EDD	HCC110716	Organophosphorous Pesticides (Sub)	11/07/16 1330	DW		

Relinquished by: _____ Sample Control Theodore Ng Date 11/8/16 Time 1352

Received by: _____ Date _____ Time _____

Relinquished by: _____ Sample Control _____ Date _____ Time _____

Received by: _____ Date 11/8/16 Time 13:52

NOTIFICATION REQUIRED IF RECEIVED OUTSIDE OF 0-6 CELSIUS

An Acknowledgement of Receipt is requested to attn: Jackie Contreras

T-1.6°C

SAMPLE RECEIPT FORM 1

Reference: EMAX-SM02 Rev.8
Form: SM02F1

Type of Delivery	Airbill / Tracking Number	ECN 16K065
☐ Fedex ☐ UPS ☐ GSO ☐ Others		Recipient Cecilia
☐ EMAX Courier ☑ Client Delivery		Date 11/08/16 Time 13:52

COC INSPECTION

☑ Client Name	☑ Client PM/FC	☐ Sampler Name	☑ Sampling Date/Time	☑ Sample ID	☑ Matrix
☑ Address	☑ Tel # / Fax #	☑ Courier Signature	☑ Analysis Required	☑ Preservative (if any)	☐ TAT
Safety Issues (if any)	☐ High concentrations expected	☐ From Superfund Site	☐ Rad screening required		

Note: _____

PACKAGING INSPECTION

Container	☑ Cooler	☐ Box	☐ Other		
Condition	☐ Custody Seal	☑ Intact	☐ Damaged		
Packaging	☑ Bubble Pack	☐ Styrofoam	☐ Popcorn	☑ Sufficient	☐ _____
Temperatures (Cool, ≤6 °C but not frozen)	☑ Cooler 1 1.6 °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* 230528505	*B - S/N*_____	*C - S/N* 140252067	*D - S/N* 150555630	FW 11/7/16

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

Note: _____

DISCREPANCIES

LabSampleID	LabSampleContainerID	Code	ClientSample Label ID / Information	Corrective Action

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

NOTES/OBSERVATIONS:

LEGEND:

☐ **Continue to next page.**

Code	Description- Sample Management
D1	Analysis is not indicated in _____
D2	Analysis mismatch COC vs label
D3	Sample ID mismatch COC vs label
D4	Sample ID is not indicated in _____
D5	Container -[improper] [leaking] [broken]
D6	Date/Time is not indicated in _____
D7	Date/Time mismatch COC vs label
D8	Sample listed in COC is not received
D9	Sample received is not listed in COC
D10	No initial/date on corrections in COC/label
D11	Container count mismatch COC vs received
D12	Container size mismatch COC vs received

Code	Description-Sample Management
D13	Out of Holding Time
D14	Bubble is >6mm
D15	No trip blank in cooler
D16	Preservation not indicated in _____
D17	Preservation mismatch COC vs label
D18	Insufficient chemical preservative
D19	Insufficient Sample
D20	No filtration info for dissolved analysis
D21	No sample for moisture determination
D22	_____
D23	_____
D24	_____

Code	Description-Sample Management
R1	Proceed as indicated in ☐ COC ☐ Label
R2	Refer to attached instruction
R3	Cancel the analysis
R4	Use vial with smallest bubble first
R5	Log-in with latest sampling date and time+1 min
R6	Adjust pH as necessary
R7	Filter and preserved as necessary
R8	_____
R9	_____
R10	_____
R11	_____
R12	_____

REVIEWS:

Sample Labeling _____ **SRF** _____ **PM** AB
Date 11/08/16 11/8/16 **Date** 11/8/16 **Date** 11/8/16

EMAX **Laboratories, Inc. 1835 W. 205th St., Torrance, Ca 90501**

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 or estimated value.
*	*	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

EUROFINS EATON ANALYTICAL

620884

METHOD 3520C/8141A
ORGANOPHOSPHOROUS COMPOUNDS BY GC

SDG#: 16K065

CASE NARRATIVE

Client : EUROFINS EATON ANALYTICAL

Project: 620884

SDG : 16K065

METHOD 3520C/8141A
ORGANOPHOSPHOROUS COMPOUNDS BY GC

A total of three (3) water samples were received on 11/08/16 to be analyzed for Organophosphorous Compounds by GC in accordance with Method 3520C/8141A and project specific requirements.

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 out on a frequency specified by the project. All calibration requirements were within acceptance criteria except Naled was bias high in both columns of closing CCV - ZK10012. However, the analyte was not detected in the sample J065-01. Refer to calibration summary forms of ICAL, ICV and CCV for details.

Method Blank
Method blank was prepared and analyzed at the frequency required by the project. For this SDG, one (1) method blank was analyzed. NPK003WB - result was compliant to project requirement. Refer to sample result summary form for details.

Lab Control Sample
Lab control sample was prepared and analyzed at a frequency required by the project. For this SDG, one (1) set of LCS/LCD was analyzed. NPK003WL/NPK003WC were within LCS limits. Refer to LCS summary form for details.

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

Surrogate
Surrogates were added on QC and field samples. All surrogate recoveries were within QC limits. Refer to sample result summary forms for details.

Sample Analysis
Samples were analyzed according to prescribed analytical procedures. Results were evaluated in accordance to project requirements. For this SDG, all quality control requirements were met.

LAB CHRONICLE
ORGANOPHOSPHOROUS COMPOUNDS BY GC

Client : EUROFINS EATON ANALYTICAL
Project : 620884

SDG NO. : 16K065
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	NPK003WB	1	NA	11/10/1615:48	11/09/1614:15	ZK10003A	ZK10002A	NPK003W	Method Blank
LCS1W	NPK003WL	1	NA	11/10/1616:27	11/09/1614:15	ZK10004A	ZK10002A	NPK003W	Lab Control Sample (LCS)
LCD1W	NPK003WC	1	NA	11/10/1617:06	11/09/1614:15	ZK10005A	ZK10002A	NPK003W	LCS Duplicate
201611070465	K065-01	1.08	NA	11/10/1617:46	11/09/1614:15	ZK10006A	ZK10002A	NPK003W	Field Sample
201611070466	K065-02	1.2	NA	11/10/1618:25	11/09/1614:15	ZK10007A	ZK10002A	NPK003W	Field Sample
201611070467	K065-03	1.08	NA	11/10/1619:04	11/09/1614:15	ZK10008A	ZK10002A	NPK003W	Field Sample

FN - Filename
% Moist - Percent Moisture

SAMPLE RESULTS

METHOD 3520C/8141A
ORGANOPHOSPHOROUS COMPOUNDS BY GC

Client : EUROFINS EATON ANALYTICAL	Date Collected: 11/07/16
Project : 620884	Date Received: 11/08/16
Batch No. : 16K065	Date Extracted: 11/09/16 14:15
Sample ID: 201611070465	Date Analyzed: 11/10/16 17:46
Lab Samp ID: K065-01	Dilution Factor: 1.08
Lab File ID: ZK10006A	Matrix : WATER
Ext Btch ID: NPK003W	% Moisture : NA
Calib. Ref.: ZK10002A	Instrument ID : GCT012

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
DICHLORVOS	(ND) | ND	1.1	0.54 | 0.54
MEVINPHOS	(ND) | ND	1.1	0.54 | 0.54
DEMETON	(ND) | ND	1.1	0.54 | 0.54
ETHOPROP	(ND) | ND	1.1	0.54 | 0.54
PHORATE	(ND) | ND	1.1	0.54 | 0.54
NALED	(ND) | ND	1.1	0.54 | 0.54
DIAZINON	(ND) | ND	1.1	0.54 | 0.54
DISULFOTON	(ND) | ND	1.1	0.54 | 0.54
RONNEL	(ND) | ND	1.1	0.54 | 0.54
CHLORPYRIFOS	(ND) | ND	1.1	0.54 | 0.54
FENTHION	(ND) | ND	1.1	0.54 | 0.54
TRICHLORONATE	(ND) | ND	1.1	0.54 | 0.54
METHYL PARATHION	(ND) | ND	1.1	0.54 | 0.54
TOKUTHION	(ND) | ND	1.1	0.54 | 0.54
STIROPHOS	(ND) | ND	1.1	0.54 | 0.54
BOLSTAR	(ND) | ND	1.1	0.54 | 0.54
FENSULFOTHION	(ND) | ND	1.1	0.54 | 0.54
AZINPHOS-METHYL	(ND) | ND	1.1	0.54 | 0.54
COUMAPHOS	(ND) | ND	1.1	0.54 | 0.54

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
TRIBUTYL PHOSPHATE	(1.603) | 1.574	1.620	(98.9) | 97.1	30-130
TRIPHENYL PHOSPHATE	(1.560) | 1.512	1.620	(96.3) | 93.3	50-130

METHOD 3520C/8141A
ORGANOPHOSPHOROUS COMPOUNDS BY GC

Client : EUROFINS EATON ANALYTICAL	Date Collected: 11/07/16
Project : 620884	Date Received: 11/08/16
Batch No. : 16K065	Date Extracted: 11/09/16 14:15
Sample ID: 201611070466	Date Analyzed: 11/10/16 18:25
Lab Samp ID: K065-02	Dilution Factor: 1.2
Lab File ID: ZK10007A	Matrix : WATER
Ext Btch ID: NPK003W	% Moisture : NA
Calib. Ref.: ZK10002A	Instrument ID : GCT012

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
DICHLORVOS	(ND) | ND	1.2	0.60 | 0.60
MEVINPHOS	(ND) | ND	1.2	0.60 | 0.60
DEMETON	(ND) | ND	1.2	0.60 | 0.60
ETHOPROP	(ND) | ND	1.2	0.60 | 0.60
PHORATE	(ND) | ND	1.2	0.60 | 0.60
NALED	(ND) | ND	1.2	0.60 | 0.60
DIAZINON	(ND) | ND	1.2	0.60 | 0.60
DISULFOTON	(ND) | ND	1.2	0.60 | 0.60
RONNEL	(ND) | ND	1.2	0.60 | 0.60
CHLORPYRIFOS	(ND) | ND	1.2	0.60 | 0.60
FENTHION	(ND) | ND	1.2	0.60 | 0.60
TRICHLORONATE	(ND) | ND	1.2	0.60 | 0.60
METHYL PARATHION	(ND) | ND	1.2	0.60 | 0.60
TOKUTHION	(ND) | ND	1.2	0.60 | 0.60
STIROPHOS	(ND) | ND	1.2	0.60 | 0.60
BOLSTAR	(ND) | ND	1.2	0.60 | 0.60
FENSULFOTHION	(ND) | ND	1.2	0.60 | 0.60
AZINPHOS-METHYL	(ND) | ND	1.2	0.60 | 0.60
COUMAPHOS	(ND) | ND	1.2	0.60 | 0.60

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
TRIBUTYL PHOSPHATE	(1.706) | 1.684	1.800	(94.8) | 93.5	30-130
TRIPHENYL PHOSPHATE	(1.642) | 1.608	1.800	(91.2) | 89.3	50-130

METHOD 3520C/8141A
ORGANOPHOSPHOROUS COMPOUNDS BY GC

Client : EUROFINS EATON ANALYTICAL	Date Collected: 11/07/16
Project : 620884	Date Received: 11/08/16
Batch No. : 16K065	Date Extracted: 11/09/16 14:15
Sample ID: 201611070467	Date Analyzed: 11/10/16 19:04
Lab Samp ID: K065-03	Dilution Factor: 1.08
Lab File ID: ZK10008A	Matrix : WATER
Ext Btch ID: NPK003W	% Moisture : NA
Calib. Ref.: ZK10002A	Instrument ID : GCT012

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
DICHLORVOS	(ND) | ND	1.1	0.54 | 0.54
MEVINPHOS	(ND) | ND	1.1	0.54 | 0.54
DEMETON	(ND) | ND	1.1	0.54 | 0.54
ETHOPROP	(ND) | ND	1.1	0.54 | 0.54
PHORATE	(ND) | ND	1.1	0.54 | 0.54
NALED	(ND) | ND	1.1	0.54 | 0.54
DIAZINON	(ND) | ND	1.1	0.54 | 0.54
DISULFOTON	(ND) | ND	1.1	0.54 | 0.54
RONNEL	(ND) | ND	1.1	0.54 | 0.54
CHLORPYRIFOS	(ND) | ND	1.1	0.54 | 0.54
FENTHION	(ND) | ND	1.1	0.54 | 0.54
TRICHLORONATE	(ND) | ND	1.1	0.54 | 0.54
METHYL PARATHION	(ND) | ND	1.1	0.54 | 0.54
TOKUTHION	(ND) | ND	1.1	0.54 | 0.54
STIROPHOS	(ND) | ND	1.1	0.54 | 0.54
BOLSTAR	(ND) | ND	1.1	0.54 | 0.54
FENSULFOTHION	(ND) | ND	1.1	0.54 | 0.54
AZINPHOS-METHYL	(ND) | ND	1.1	0.54 | 0.54
COUMAPHOS	(ND) | ND	1.1	0.54 | 0.54

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
TRIBUTYL PHOSPHATE	(1.483) | 1.568	1.620	(91.5) | 96.8	30-130
TRIPHENYL PHOSPHATE	(1.503) | 1.499	1.620	(92.8) | 92.5	50-130

QC SUMMARIES

METHOD 3520C/8141A
ORGANOPHOSPHOROUS COMPOUNDS BY GC

Client : EUROFINS EATON ANALYTICAL	Date Collected: NA
Project : 620884	Date Received: 11/09/16
Batch No. : 16K065	Date Extracted: 11/09/16 14:15
Sample ID: MBLK1W	Date Analyzed: 11/10/16 15:48
Lab Samp ID: NPK003WB	Dilution Factor: 1
Lab File ID: ZK10003A	Matrix : WATER
Ext Btch ID: NPK003W	% Moisture : NA
Calib. Ref.: ZK10002A	Instrument ID : GCT012

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

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
TRIBUTYL PHOSPHATE	(1.364) | 1.372	1.500	(90.9) | 91.5	30-130
TRIPHENYL PHOSPHATE	(1.360) | 1.359	1.500	(90.7) | 90.6	50-130

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: EUROFINS EATON ANALYTICAL
PROJECT: 620884
BATCH NO.: 16K065
METHOD: METHOD 3520C/8141A

MATRIX: WATER % MOISTURE: NA
DILUTION FACTOR: 1 1 1
SAMPLE ID: MBLK1W
LAB SAMP ID: NPK003WB NPK003WL NPK003WC
LAB FILE ID: ZK10003A ZK10004A ZK10005A
DATE EXTRACTED: 11/09/1614:15 11/09/1614:15 11/09/1614:15 DATE COLLECTED: NA
DATE ANALYZED: 11/10/1615:48 11/10/1616:27 11/10/1617:06 DATE RECEIVED: 11/09/16
PREP. BATCH: NPK003W NPK003W NPK003W
CALIB. REF: ZK10002A ZK10002A ZK10002A

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) | ND	1.50	(1.18) | 1.13	(79) | 75	1.50	(1.22) | 1.22	(81) | 81	(3) | 8	10-130	30
Ronnel	(ND) | ND	1.50	(1.22) | 1.30	(81) | 87	1.50	(1.27) | 1.32	(85) | 88	(4) | 2	30-140	30
Chlorpyrifos	(ND) | ND	1.50	(1.19) | 1.36	(79) | 91	1.50	(1.27) | 1.38	(85) | 92	(7) | 1	40-140	30
Tokuthion	(ND) | ND	1.50	(1.21) | 1.23	(81) | 82	1.50	(1.28) | 1.22	(85) | 81	(6) | 1	40-130	30
Bolstar	(ND) | ND	1.50	(1.25) | 1.20	(83) | 80	1.50	(1.34) | 1.14	(89) | 76	(7) | 5	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	1.500	(1.322) | 1.648	(88.1) | 110	1.500	(1.187) | 1.425	(79.1) | 95.0	30-130
Triphenyl Phosphate	1.500	(1.507) | 1.387	(100) | 92.5	1.500	(1.360) | 1.314	(90.7) | 87.6	50-130