
I. Introduction

A. Explanatory Notes

The purpose of this document is to both meet the requirements of Monitoring and Reporting Program (MRP) No. R-2002-0025, NPDES Permit No. CA0107409, and to provide a reference source and resource tools for both regulatory agencies and City staff and their consultants. To this end the past year's data is presented in tabular and graphical form. Monitoring results only reported annually are presented, as well as the special items and discussions itemized in Order No. R-2002-0025. To make this document more useful we have included information on the method, frequency and changes in analyses, longer term tables, operational data, background analyses and process control information. Wherever the permit sets limits or requests the analysis of various groups of compounds (such as chlorinated and non-chlorinated phenols, PCBs, hexachlorocyclohexanes, etc.) we have provided summaries and averages of these groups and also of the individual compounds.

The 6-year tables have been updated to include 2001 through 2006 data.

It should be noted that for averaging purposes "less than" and "not detected" (nd) values were treated as zeros. In many parts of the report zero values are found. Our computer system reads "less than" values as zero for summaries, as well as in computing averages. In those areas where zeros are found the reader can find appropriate method detection limits(MDL) in the table of data. Because "less than" values are averaged as zero a number of the summary table values are lower than the detection limits.

The data tables may also contain values expressed as a <X (less than) with some number X. For example, the Diazinon value for PLE on March 10, 1998 (in the table below) is reported as <2.4 ug/L (see the below table); this indicates that one or more, of two or more, determinations was above the MDL, while the average was below the MDL. This value is still treated as a zero for averaging and other summary calculations. Note also, that sub-totals and totals consisting of multiple analytes (see below) are also reported as "<X", where the "X" value is the highest MDL for the particular group of analytes. This has the same significance as a "ND" or not detected.

		Organophosphorus Pesticides						
			PLE	PLE	PLE	PLR	PLR	PLR
		MDL Units	10-MAR-1998	27-APR-1998	10-SEP-1998	10-MAR-1998	27-APR-1998	10-SEP-1998
=====		=====	0311980006	0428980006	9809107494	0311980007	0428980007	9809107515
=====		=====	=====	=====	=====	=====	=====	=====
Demeton O	1.69 UG/L	ND	ND	ND	ND	ND	ND	ND
Demeton S	1.82 UG/L	ND	ND	ND	ND	ND	ND	ND
Diazinon	2.41 UG/L	<2.4	ND	ND	<2.4	ND	ND	ND
Guthion	7.1 UG/L	ND	ND	ND	ND	ND	ND	ND
Malathion	2.98 UG/L	ND	ND	ND	ND	ND	ND	ND
Parathion	2.83 UG/L	ND	ND	ND	ND	ND	ND	ND
=====		=====	=====	=====	=====	=====	=====	=====
Thiophosphorus Pesticides		<7.1	<7.1	<7.1	<7.1	<7.1	<7.1	<7.1
Demeton -O, -S		<1.8	<0.2	<0.2	<1.8	<0.2	<0.2	<0.2
=====		=====	=====	=====	=====	=====	=====	=====
Total Organophosphorus Pesticides		<7.1	<7.1	<7.1	<7.1	<7.1	<7.1	<7.1

A further limitation, that the user of this data should note, is that confidence in the results of an analysis is heavily dependent upon the concentration relative to the Method Detection Limit (MDL). For the most part our detection limits have been established using the procedure in 40 CFR, part 136. This statistical basis for the MDL results in a defined statistical confidence (at the 99% Confidence Interval) of essentially 100% of the result at or near the MDL. Only at concentrations approximately 5 times the MDL is the confidence interval at 20% relative. While the precision of our methods generally ranges from 2-3 significant figures, the above limitations of confidence should always be considered.

Where possible, the influent and effluent values of a given parameter have been included on the same graph so that removals and other relationships are readily apparent. Please note that many of the graphs are on expanded scales magnifying that range of concentrations where variation takes place. This makes differences and some trends obvious that might normally not be noticed, however, it also provides the temptation to interpret minor changes or trends as being of more significance than they are. Frequent reference to the scales and the actual differences in concentrations is therefore necessary.

“E” Qualifier, estimated concentrations:

Ocean data for chlorinated pesticides and PCB congeners contains data that is qualified with a prefixed **”E”** (see example below). This indicates **Estimated** concentrations. Analytical technique is sufficiently specific and sensitive enough (GC-MS-MS) so that qualitative identification has high confidence while the quantitative data is below 40CFR136 confidence intervals for MDL concentrations. The concentrations reported indicate that one or more tests identified the compound but was below detection limits for quantitation. When reported as part of annual averages, the **”E”** qualifier may accompany average concentration values either below or above MDLs.

Analyte	MDL	Units	SD-14	SD-17	SD-18	SD-19	SD-20	SD-21	RF-1
			2001	2001	2001	2001	2001	2001	2001
			Avg	Avg	Avg	Avg	Avg	Avg	Avg
Hexachlorobenzene	13.3	UG/KG	<13.3	<13.3	<13.3	<13.3	E3.7	<13.3	E2.8
BHC, Gamma isomer	100	UG/KG	ND	ND	ND	ND	ND	ND	ND
Heptachlor	20	UG/KG	ND	ND	ND	ND	ND	ND	ND
Aldrin	133	UG/KG	ND	ND	ND	ND	ND	ND	ND
Heptachlor epoxide	20	UG/KG	ND	ND	ND	ND	ND	ND	ND
o,p-DDE	13.3	UG/KG	<13.3	E43.5	<13.3	E107.0	<13.3	<13.3	E22.0
Alpha Endosulfan	133	UG/KG	ND	ND	ND	ND	ND	ND	ND
Alpha (cis) Chlordane	13.3	UG/KG	<13.3	<13.3	ND	<13.3	<13.3	ND	<13.3
Trans Nonachlor	20	UG/KG	E11.3	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
p,p-DDE	13.3	UG/KG	713.0	1460.0	459.0	2030.0	618.0	693.0	712.0
Dieldrin	20	UG/KG	ND	ND	ND	ND	ND	ND	ND
o,p-DDD	13.3	UG/KG	ND	ND	ND	<13.3	<13.3	<13.3	<13.3
Endrin	20	UG/KG	ND	ND	ND	ND	ND	ND	ND
o,p-DDT	13.3	UG/KG	<13.3	ND	ND	<13.3	<13.3	ND	<13.3
p,p-DDD	13.3	UG/KG	E7.5	E5.5	<13.3	<13.3	E7.8	<13.3	E18.2
p,p-DDT	13.3	UG/KG	E5.9	<13.3	<13.3	<13.3	E5.4	<13.3	<13.3
Mirex	13.3	UG/KG	<13.3	ND	ND	ND	ND	ND	ND

nd= not detected
 NA= not analyzed
 NS= not sampled

E=estimated value, value is less than the Method Detection Limit but confirmed by GC/MS-MS

B. Notes on Specific Analyses:

1. It should be noted that some of the reference methods are equivalent. The organic priority pollutant analyses listed in E.P.A.'s Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846 (ref. c) are equivalent to the methods E.P.A. prescribes for water in Methods for Chemical Analysis for Water and Wastes, (ref.a). Specifically wastewater methods 3510 and 8270 (ref.d) together are the same as the water method 625 (ref.a), and Method 8240 (ref. c) is equivalent to Method 624 (ref.a). Methods 3550 and 8270 together are equivalent to the E.P.A. Contract Laboratory Program's (ref. aa) method for ultrasonication and gas chromatograph-mass spectrographic analysis. The E.P.A.'s metals analyses for water (ref.a) generally just refers to the procedure in Standard Methods (ref. b, bb).

2. Metals (detection limits)

Metals MDLs were updated in December of 2006. The MDLs referenced in this report are the maximum MDL for the calendar year. Following is a table comparing the wastewater detection limits for January through November with those from December.

Sewage
ug/L

	Jan - Nov	Dec -
	MDL	MDL
Al	6.6	47
Sb	1.015	2.9
Ba	0.02015	0.039
Be	0.0395	0.022
B	1.101	1.7
Cd	0.1945	0.53
Cr	0.1885	1.2
Co	0.162	0.85
Cu	0.3925	0.63
Fe	0.785	37
Pb	1.384	2
Mn	0.0494	0.24
Mo	0.122	0.89
Ni	0.2675	0.53
Ag	0.156	0.4
Te	1.806	3.9
V	0.4755	0.64
Zn	0.5435	0.41

- C. Terms and Abbreviations used in this Report
 Along with standard abbreviations the following is a list of local/uncommon abbreviations and terms for the readers' reference.

PLANT TERMS

- U.S.EPA - United States Environmental Protection Agency.
 NPDES - National Pollutant Discharge Elimination System.
 WWTP - Wastewater Treatment Plant.
 WRP - Water Reclamation Plant.
 PLWWTP - Pt. Loma Wastewater Treatment Plant
 PLR - Point Loma Raw (influent to the plant).
 PLE - Point Loma Effluent (effluent from the plant).
 N-1-P - North Digester Number 1, Primary, Pt. Loma
 N-2-P - North Digester Number 2, Primary, Pt. Loma
 C-1-P - Central Digester Number 1, Primary, Pt. Loma
 C-2-P - Central Digester Number 2, Primary, Pt. Loma
 S-1-P - South Digester Number 1, Primary, Pt. Loma
 S-2-P - South Digester Number 2, Primary, Pt. Loma
 Dig 7 - Digester Number 7, Primary, Pt. Loma
 Dig 8 - Digester Number 8, Primary, Pt. Loma
 DIG COMP - Digested Biosolids Composite; a composite of grabs taken from each of the in-service digesters.
 RAW COMP - A Composite of Raw Sludge taken over the preceding 24 hrs.
 NCWRP - North City Water Reclamation Plant
 N01-PS_INF - The plant primary Influent from Pump Station 64
 N01-PEN - The plant primary Influent from the Penasquitos pump station.
 N30-DFE - Disinfected Final Effluent
 N34-REC WATER - Reclaimed Water.
 N10-PSP COMB - raw sludge
 N15-WAS LCP - Waste Activated Sludge – low capacity pumps
 MBC - Metro Biosolids Center
 MBCDEWCN - Metro Biosolids Center Dewatering Centrifuges; typically the dewatered biosolids from these.
 MBC_COMBCN - MBC Combined Centrate; the centrate from all the dewatering centrifuges.
 (The return stream from MBC to the sewer system.)
 MBC_NC_DSL - North City to Metropolitan Biosolids Center (MBC) Digested Sludge Line.
 Dig 1 - MBC Digester number 1.
 Dig 2 - MBC Digester number 2.
 Dig 3 - MBC Digester number 3.
 Biosolids - In most cases Biosolids and digested (a processed) Sludge is synonymous.

UNITS

mg/L	milligrams per liter
ug/L	micrograms per liter = 0.001 milligrams per liter
ng/L	nanograms per liter = 0.001 micrograms per liter
mg/Kg	milligrams per kilogram
ug/Kg	micrograms per kilogram
ng/Kg	nanograms per kilogram
pg/L	picograms per liter
pg/Kg	picograms per kilogram
pCi/L or pCi/L	pico curies per liter (a measure of radioactivity)
TU	toxicity units
ntu	nephelometric turbidity units
°C	degrees Celsius = degrees centigrade
MGD	million gallons per day
umhos/cm.	micromhos per centimeter (conductivity)
uS	microsiemens = umhos (conductivity)
mils/100 mL	millions per 100 milliliters
nd	not detected
NA	not analyzed (when in a data column)
NR	not required
NS	not sampled

CHEMICAL TERMS & ABBREVIATIONS:

AA	Atomic Absorption Spectroscopy
Ag	Silver
Al	Aluminum
As	Arsenic
B	Boron
Ba	Barium
Be	Beryllium
BOD	Biochemical Oxygen Demand
Br	Bromide
C	Carbon
Ca	Calcium
Cd	Cadmium
Cl	Chlorine
CN ⁻	Cyanide
Co	Cobalt
COD	Chemical Oxygen Demand
Cr	Chromium
Cr ⁶⁺	Hexavalent Chromium
Cu	Copper
D.O.	Dissolved Oxygen
DDD	Dichlorodiphenyldichloroethane (a.k.a. TDE-tetrachlorodiphenylethane)
DDE	Dichlorodiphenyldichloroethylene
DDT	Dichlorodiphenyltrichloroethane

F	Fluorine
Fe	Iron
FeCl ₃	Ferric Chloride
G&O	Grease and Oil
GC	Gas chromatography.
GC-ECD	-Electron Capture Detector.
GC-FID	-Flame Ionization Detector.
GC-FPD	-Flame Photometric Detector.
GC-MS	-Mass Spectroscopy.
H	Hydrogen
H ₂ S	Hydrogen Sulfide
Hg	Mercury
I	Iodine
IC	Ion Chromatography
ICP-AES	Inductively Coupled Plasma-Atomic Emission Spectroscopy
K	Potassium
Li	Lithium
MDL	Method Detection Limit
Mg	Magnesium
Mn	Manganese
Mo	Molybdenum
MSD	Mass Spectroscopy Detector
N	Nitrogen
Na	Sodium
NH ₃	Ammonia
NH ₃ -N	Ammonia Nitrogen
NH ₄ ⁺	Ammonium ion
Ni	Nickel
NO ₃ ⁻	Nitrate
O	Oxygen
PAD	Pulsed Amperometric Detector
Pb	Lead
PCB	Polychlorinated Biphenyls
PO ₄ ³⁻	Phosphate
S	Sulfur
Sb	Antimony
Se	Selenium
Sn	Tin
SO ₄ ²⁻	Sulfate
SS	Suspended Solids
TBT	Tributyl tin
TCH	Total Chlorinated Hydrocarbons (i.e. chlorinated pesticides & PCB's)
TCLP	Toxicity Characteristic Leaching Procedure
TDS	Total Dissolved Solids
Tl	Thallium
TS	Total Solids
TVS	Total Volatile Solids
V	Vanadium
VSS	Volatile Suspended Solids
Zn	Zinc

D. Frequency of Analysis and Type of Sample - 2006

1. Definitions.

D = Daily	R = Required test	C = Composite-24 hour flow proportioned
W = Weekly	B = Background information	G = Grab samples
F = Fortnightly	RB = Test is performed more frequently than required	() = Number of compounds
M = Monthly		
Q = Quarterly		
S = Semi-annually		
A = Annually		

2. Schedule.

CONSTITUENT	PLR	PLE	C/G Comments
<u>Process Control</u>			
Biochemical Oxygen Demand -Total (5-day)	D R	D R	C
Biochemical Oxygen Demand -Soluble	D B	D B	C M-F
Chemical Oxygen Demand	W B	W B	C
Conductivity	W B	W B	C
Floating Particulates	D R	D R	C
Flow	D R	D R	Same meter used
Oil and Grease	D R	D R	G
pH	D R	D R	G
Settleable Solids	D R	D R	G
Temperature	D R	D R	G
Total Dissolved Solids	D R	D R	C
Total Solids	W B	W B	C
Total Suspended Solids	D R	D R	C
Total Volatile Solids	W B	W B	C
Turbidity	D R	D R	C
Volatile Suspended Solids	D R	D R	C
<u>Metals</u>			
As,Cd,Cr,Cu,Pb,Hg,Ni,Se,Ag,Zn	W R	W R	C
Sb, Be, Tl	W RB	W RB	C Required monthly, analyzed weekly
Fe	W B	W B	C
<u>Ions</u>			
Alkalinity	W B	W B	C
Ammonia-Nitrogen	W R	W R	C
Anions (F ⁻ ,Cl ⁻ ,Br ⁻ ,SO ₄ ²⁻ ,NO ₃ ⁻ ,PO ₄ ³⁻)	W B	W B	C
Cations (Ca ²⁺ , Mg ²⁺ , Li ⁺ ,Na ⁺ ,K ⁺)	W B	W B	C
Cyanide	W R	W R	C
Hardness (Total, Ca, Mg)	W B	W B	C By calculation

CONSTITUENT	PLR	PLE	C/G	Comments
<u>Organic Priority Pollutants</u>				
Acrolein and Acrylonitrile	M R	M R	G	Method 8260.
Base/Neutral Compounds	M R	M R	C	Method 625
Benzidines	M R	M R	C	
Dioxin	M R	M R	C	Method 8280A
Pesticides, chlorinated	W R	W R	C	
Pesticides, organophosphorus	B	B	C	For background use only. Discontinued as a monthly analysis after Sept. 1997.
Phenols, non-chlorinated	W R	W R	C	Method 625 * for background use only.
Phenols, chlorinated	W R	W R	C	Method 625
Polychlorinated Biphenyls	W R	W R	C	
Purgeable (Volatile) Compounds	M R	M R	G	Method 8260
Tri, Di, & monobutyl tins	M R	M R	C	
<u>Miscellaneous</u>				
Radiation	M R	M R	C	Performed by a contract lab.
Toxicity (Acute & Chronic)	M R	M B	C	Reported monthly in the <u>Toxicity Testing Report</u> by the Biology Section.

E. Methods of Analysis

WASTEWATER INFLUENT and EFFLUENT (General)

Analyte	Description	Instrumentation	Reference ¹
Alkalinity	Selected Endpoint Titration	Mettler DL-21 & 25 Titrator Orion 950	(h) 2320 B
Ammonia Nitrogen	Distillation and Titration	Buchi Distillation Unit K-314 Orion 950	(h) 4500-NH3 B & E
Biochemical Oxygen Demand (BOD-5 Day)	Dissolved Oxygen Probe	YSI-5000 DO Meter	(h) 5210 B
Biochemical Oxygen Demand (BOD-Soluble)	Dissolved Oxygen Probe	YSI-5000 DO Meter	(h) 5210 B
Chemical Oxygen Demand (COD)	Closed Reflux / Colorimetric	Hach DR-2010 UV/Vis spectrophotometer	(h) 5220 D
Conductivity	Wheatstone Bridge	YSI-3100 & 3200 Orion 115A Orion 250 Conductivity Meter	(h) 2510 B
Cyanide	Acid Digest-Distil / Colorimetric	Hach DR-4000/Vis	(h) 4500-CN E
Floating Particulates	Flotation Funnel	Mettler AX-105 Mettler AG 204 Balance	(h) 2530 B
Flow	Continuous Meter	Gould (pressure sensor), ADS (sonic sensor), or Venturi (velocity sensor)	
Hardness; Ca, Mg, Total	ICP-AES / Calculation	TJA IRIS	(a) 200.7 (h) 2340 B
Kjeldahl Nitrogen (TKN)	Micro-Digestion / Titration	Buchii & Mettler DL25	(h) 4500-NH3 B,C
Oil and Grease	Hexane Extraction / Gravimetric	Mettler AX-105 Balance	1664A
Organic Carbon (TOC)	Catalytic Oxidation / IR Water Production Laboratory)	Shimadzu ASI-5000	(bb) 5310 B
pH	Hydrogen+Reference Electrode	Various models of pH meters.	(h) 4500-H+ B
Radiation (alpha & beta)	Gross proportional counter (Truesdail Labs Inc.)	Protean IPC-9025 (alpha) Tennelec LB-50100 (beta)	(h) 7110 B
Solids, Dissolved-Total	Gravimetric @ 180°C	Mettler AX-105 & AB204 Balance	(h) 2540 C
Solids, Settleable	Volumetric	Imhoff Cone	(h) 2540 F
Solids, Suspended-Total	Gravimetric @ 103-105°C	Mettler AG204 & AX-105	(h) 2540 D
Solids, Suspended-Volatile	Gravimetric @ 500°C	Mettler AG204 & AX-105	(h) 2540 E
Solids, Total	Gravimetric @ 103-105°C	Mettler AG204 & AX-105	(a) 160.3
Solids, Total-Volatile	Gravimetric @ 500°C	Mettler AG204 & AX-105	(a) 160.4
Temperature	Direct Reading	Fisher Digital Thermometer	(h) 2550 B
Turbidity	Nephelometer Turbidimeter	Hach 2100-N Meter Hach 2100-AN Meter	(h) 2130 B

¹ Reference listing is found following this listing of analytical methods.

INFLUENT and EFFLUENT (Anions)

Analyte	Description	Instrumentation	Reference ¹
Bromide, Chloride, Fluoride, Nitrate, Phosphate, Sulfate	Ion Chromatography	Dionex DX-500	(a) 300.0

WASTEWATER INFLUENT and EFFLUENT (Metals)

Analyte	Description	Instrumentation	Reference ¹
Aluminum	Acid Digestion / ICP-AES	TJA IRIS	(a) 200.7
Antimony	Acid Digestion / ICP-AES	TJA IRIS	(a) 200.7
Arsenic	Hydride Generation / AA	TJA Solaar M6	(h) 3114 C
Barium	Acid Digestion / ICP-AES	TJA IRIS	(a) 200.7
Beryllium	Acid Digestion / ICP-AES	TJA IRIS	(a) 200.7
Boron	Acid Digestion / ICP-AES	TJA IRIS	(a) 200.7
Cadmium	Acid Digestion / ICP-AES	TJA IRIS	(a) 200.7
Calcium	Acid Digestion / ICP-AES	TJA IRIS	(a) 200.7
Chromium	Acid Digestion / ICP-AES	TJA IRIS	(a) 200.7
Cobalt	Acid Digestion / ICP-AES	TJA IRIS	(a) 200.7
Copper	Acid Digestion / ICP-AES	TJA IRIS	(a) 200.7
Iron	Acid Digestion / ICP-AES	TJA IRIS	(a) 200.7
Lead	Acid Digestion / ICP-AES	TJA IRIS	(a) 200.7
Lithium	Acid Digestion / ICP-AES	TJA IRIS	(a) 200.7
Magnesium	Acid Digestion / ICP-AES	TJA IRIS	(a) 200.7
Manganese	Acid Digestion / ICP-AES	TJA IRIS	(a) 200.7
Mercury	Cold Vapor Generation / AA	Leeman PS 200II	(h) 3112 B
Molybdenum	Acid Digestion / ICP-AES	TJA IRIS	(a) 200.7
Nickel	Acid Digestion / ICP-AES	TJA IRIS	(a) 200.7
Potassium	Acid Digestion / ICP-AES	TJA IRIS	(a) 200.7
Selenium	Hydride Generation / AA	TJA Solaar M6	(h) 3114 C
Silver	Acid Digestion / ICP-AES	TJA IRIS	(a) 200.7
Sodium	Acid Digestion / ICP-AES	TJA IRIS	(a) 200.7
Thallium	Acid Digestion / ICP-AES	TJA IRIS	(a) 200.7
Vanadium	Acid Digestion / ICP-AES	TJA IRIS	(a) 200.7
Zinc	Acid Digestion / ICP-AES	TJA IRIS	(a) 200.7

¹ Reference listing is found following this listing of analytical methods.

WASTEWATER INFLUENT and EFFLUENT (Organics)

Analyte	Description	Instrumentation	Reference ¹
Acrolein and Acrylonitrile	Purge & Trap, GC-MSD	Tekmar/Dohrman 2016/3100C HP-5890GC / 5972MSD Capillary HP-624	(c) 8260 B
Base/Neutral Extractables	Basic / CH ₂ Cl ₂ continuous extraction, GC-MSD	HP-6890GC / 5973MSD HP-5890GC / 5972MSD Capillary DB-5.625	(a) 625 (aa)
Benzidines	HPLC- ED / UV/Vis Diode Array	Dionex DX-500 / PDA-100/ED-40 C-18 Luna 5um	(a) 605
Chlorinated Compounds	CH ₂ Cl ₂ extraction, GC-ECD	Varian 3800 GC-ECD Varian 3800 GC-ECD RTX-5/60m : RTX-1701/60m	(a) 608
Dioxin	CH ₂ Cl ₂ extraction, GC/MS/MS	Varian Saturn -MS-MS Varian 3800 GC	(a) 8280A
Organophosphorus Pesticides	CH ₂ Cl ₂ extraction, hexane exchange, GC-PFPD	Varian 3800 GC-PFPD RTX-1 : RTX-50	(a) 622
Phenolic Compounds	Acidic / CH ₂ Cl ₂ continuous extraction, GC-MSD	HP-6890GC / 5973MSD HP-5890GC / 5972MSD Capillary HP-5.625	(a) 625 (aa)
Purgeables (VOCs)	Purge & Trap, GC-MSD	O-I Analytical Eclipse 4660/4552 HP-6890N GC / 5973N MSD Capillary J&W DB-624	(a) 8260B (aa)
Tri, Di, and Monobutyl Tin	CH ₂ Cl ₂ extraction, derivatization, hexane exchange, GC-FPD	Varian 3400 GC-FPD DB-1/30m : RTX-50	(z)

¹ Reference listing is found following this listing of analytical methods.

LIQUID SLUDGE: Raw, Digested, and Filtrate (General)

Analyte	Description	Instrumentation	Reference ¹
Alkalinity	Selected Endpoint Titration	Mettler DL-25 Titrator Orion 950	(h) 2320 B
Cyanide	Acid Digest-Distil / Colorimetric	Hach DR/4000V	(h) 4500-CN E
pH	Hydrogen+Reference Electrode	Various models of pH meters.	(c) 9010 B
Radiation (alpha & beta)	Gross proportional counter (Truesdail Labs Inc.)	Protean IPC-9025 (alpha) Tennelec LB-50100 (beta)	(h) 7110 B
Sulfides	Acid Digest-Distil / Titration	Class A Manual Buret	(c) 9030 B
Sulfides, reactive	Distillation / Titration	Class A Manual Buret	7.3.4.2
Solids, Total	Gravimetric @ 103-105°C	Mettler PM 4600 Mettler PG 5002-S Balance	(h) 2540 B
Solids, Total-Volatile	Gravimetric @ 500°C	Mettler PM 4600 Mettler PG 5002-S Balance	(h) 2540 E

LIQUID SLUDGE: Raw, Digested, and Filtrate (Metals)

Analyte	Description	Instrumentation	Reference ¹
Aluminum	Acid Digestion / ICP-AES	TJA IRIS	(c) 6010 B
Antimony	Acid Digestion / ICP-AES	TJA IRIS	(c) 6010 B
Arsenic	Hydride Generation / AA	TJA Solaar M6	(c) 7062
Beryllium	Acid Digestion / ICP-AES	TJA IRIS	(c) 6010 B
Barium	Acid Digestion / ICP-AES	TJA IRIS	(c) 6010 B
Boron	Acid Digestion / ICP-AES	TJA IRIS	(c) 6010 B
Cadmium	Acid Digestion / ICP-AES	TJA IRIS	(c) 6010 B
Chromium	Acid Digestion / ICP-AES	TJA IRIS	(c) 6010 B
Cobalt	Acid Digestion / ICP-AES	TJA IRIS	(c) 6010 B
Copper	Acid Digestion / ICP-AES	TJA IRIS	(c) 6010 B
Iron	Acid Digestion / ICP-AES	TJA IRIS	(c) 6010 B
Lead	Acid Digestion / ICP-AES	TJA IRIS	(c) 6010 B
Manganese	Acid Digestion / ICP-AES	TJA IRIS	(c) 6010 B
Mercury	Cold Vapor Generation / AA	Leeman PS 200II	(c) 7471 A
Molybdenum	Acid Digestion / ICP-AES	TJA IRIS	(c) 6010 B
Nickel	Acid Digestion / ICP-AES	TJA IRIS	(c) 6010 B
Selenium	Hydride Generation / AA	TJA Solaar M6	(c) 7742
Silver	Acid Digestion / ICP-AES	TJA IRIS	(c) 6010 B
Thallium	Acid Digestion / ICP-AES	TJA IRIS	(c) 6010 B
Vanadium	Acid Digestion / ICP-AES	TJA IRIS	(c) 6010 B
Zinc	Acid Digestion / ICP-AES	TJA IRIS	(c) 6010 B

¹ Reference listing is found following this listing of analytical methods.

LIQUID SLUDGE: Raw, Digested, and Decant (Organics)

Analyte	Description	Instrumentation	Reference ¹
Acrolein and Acrylonitrile	Purge & Trap, GC-MSD	Tekmar/Dohrman 2016//3100C HP-5890GC / 5972MSD Capillary HP-624	(c) 8260 B (aa)
Base/Neutral Extractables	Basic / CH ₂ Cl ₂ continuous extraction, GC-MSD	HP-6890GC / 5973MSD HP-5890GC / 5972MSD Capillary HP-5MS	(a) 625 (aa)
Benzidines	HPLC-ED / UV/Vis Diode Array	Dionex DX-500 / PDA-40/ED-40 C-18 Luna 5um	(a) 605
Chlorinated Compounds	CH ₂ Cl ₂ extraction, GC-ECD	Varian 3800 GC-ECD RTX-5/60m : RTX-1701/60m	(c) 8081 A
PCBs	CH ₂ Cl ₂ extraction, GC-ECD	Varian 3800 GC-ECD RTX-5/60m : RTX-1701/60m	8082
Dioxin	CH ₂ Cl ₂ extraction	Varian GC-MS/MS	(a) 8280A
Herbicides	HPLC-UV/Vis Diode Array	Dionex DX-500 / PDA-100 C-18 Hypersil 5um	(c) 8321
Organophosphorus Pesticides	CH ₂ Cl ₂ extraction, hexane exchange, GC-PFPD	Varian 3800 GC-PFPD RTX-1 : RTX-50	(a) 622
Phenolic Compounds	Acidic / CH ₂ Cl ₂ continuous extraction, GC-MSD	HP-6890GC / 5973MSD HP-5890GC / 5972MSD Capillary HP-5MS	(a) 625 (aa)
Purgeables (VOCs)	Purge & Trap, GC-MSD	O-I Analytical Eclipse 4660/4552 HP-6890N GC / 5973N MSD Capillary J&W DB-624	(c) 8260 B (aa)
Tri, Di, and Monobutyl Tin	CH ₂ Cl ₂ extraction, derivatization, hexane exchange, GC-FPD	Varian 3400 GC-FPD DB-1/30m : RTX-50	(z)

LIQUID SLUDGE: Raw, Digested, and Decant (Digester Gases)

Analyte	Description	Instrumentation	Reference ¹
Methane	Gas Chromatography	SRI 8610C GC	(h) 2720 C
Carbon Dioxide	Gas Chromatography	SRI 8610C GC	(h) 2720 C
Hydrogen Sulfide	Colorimetric	Draeger H2S 2/a	

¹ Reference listing is found following this listing of analytical methods.

DRIED SLUDGE: Metro Biosolids Center (General)

Analyte	Description	Instrumentation	Reference ¹
Cyanide	Acid Digest-Distillation Colorimetric	Hach DR/4000V UV/Vis	(c) 9010 A
Cyanide Reactive	Distillation / Colorimetric	Hach DR/4000V UV/Vis	7.3.3.2
pH	Hydrogen+Reference Electrode	Various models of pH meters.	(c) 9045 C
Radiation (alpha & beta)	Gross proportional counter (Truesdail Labs Inc.)	Protean IPC-9025 (alpha) Tennelec LB-50100 (beta)	(h) 7110 B
Sulfides	Acid Digest-Distil / Titration	Class A Manual Buret	(c) 9030 B
Sulfides, reactive	Distillation / Titration	Class A Manual Buret	7.3.4.2
Solids, Total	Gravimetric @ 103-105°C	Denver PI-314 Balance	(h) 2540 B
Solids, Total-Volatile	Gravimetric @ 500°C	Denver PI-314 Balance	(h) 2540 E

DRIED SLUDGE: Metro Biosolids Center (Metals)

Analyte	Description	Instrumentation	Reference ¹
Aluminum	Acid Digestion / ICP-AES	TJA IRIS	(c) 6010 B
Antimony	Acid Digestion / ICP-AES	TJA IRIS	(c) 6010 B
Arsenic	Hydride Generation / AA	TJA Solaar M6	(c) 7062
Barium	Acid Digestion / ICP-AES	TJA IRIS	(c) 6010 B
Beryllium	Acid Digestion / ICP-AES	TJA IRIS	(c) 6010 B
Boron	Acid Digestion / ICP-AES	TJA IRIS	(c) 6010 B
Cadmium	Acid Digestion / ICP-AES	TJA IRIS	(c) 6010 B
Chromium	Acid Digestion / ICP-AES	TJA IRIS	(c) 6010 B
Cobalt	Acid Digestion / ICP-AES	TJA IRIS	(c) 6010 B
Copper	Acid Digestion / ICP-AES	TJA IRIS	(c) 6010 B
Iron	Acid Digestion / ICP-AES	TJA IRIS	(c) 6010 B
Lead	Acid Digestion / ICP-AES	TJA IRIS	(c) 6010 B
Manganese	Acid Digestion / ICP-AES	TJA IRIS	(c) 6010 B
Mercury	Cold Vapor Generation / AA	Leeman PS 200II	(c) 7471 A
Molybdenum	Acid Digestion / ICP-AES	TJA IRIS	(c) 6010 B
Nickel	Acid Digestion / ICP-AES	TJA IRIS	(c) 6010 B
Selenium	Hydride Generation / AA	TJA Solaar M6	(c) 7742
Silver	Acid Digestion / ICP-AES	TJA IRIS	(c) 6010 B
Thallium	Acid Digestion / ICP-AES	TJA IRIS	(c) 6010 B
Vanadium	Acid Digestion / ICP-AES	TJA IRIS	(c) 6010 B
Zinc	Acid Digestion / ICP-AES	TJA IRIS	(c) 6010 B

Waste Extraction Test (WET)	Extraction with Sodium Citrate ICP-AES	Burrel wrist action shaker TJA IRIS	(r) Section 66261.100
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¹ Reference listing is found following this listing of analytical methods.

DRIED SLUDGE: Metro Biosolids Center (Organics)

Analyte	Description	Instrumentation	Reference ¹
Acrolein and Acrylonitrile	Purge & Trap, GC-MSD	Tekmar/Dohrman P2AS/3100C HP-5890GC / 5972MSD Capillary HP-624	(c) 8260 B (aa)
Base/Neutral Extractables	CH ₂ Cl ₂ /Acetone sonication extraction, GC-MSD	HP-6890GC / 5973MSD HP-5890GC / 5972MSD Capillary HP-5MS	(c) 8270 C (c) 3550 A (aa)
Benzidines	Basic / CH ₂ Cl ₂ Sonication extraction	HP-6890GC / 5976MSD Capillary HP-5MS	(c) 8270C (c) 3550 A
Chlorinated Compounds	CH ₂ Cl ₂ extraction, GC-ECD	Varian 3400 GC-ECD RTX-5/60m : RTX-1701/60m	(c) 8081 A
PCBs	CH ₂ Cl ₂ extraction, GC-ECD	Varian 3400 GC-ECD RTX-5/60m : RTX-1701/60m	(c) 8082
Dioxin	Outside Contact (Severn Trent Labs)	GC-MS	(a) 8290
Herbicides	HPLC-UV/Vis Diode Array	Dionex DX-500 / PDA-40 C-18 Hypersil 5um	(c) 8321/3545
Organophosphorus Pesticides	CH ₂ Cl ₂ extraction, hexane exchange, GC-PFPD	Varian 3800 GC-PFPD DB-1/30m DB-608/30m	(c) 8141 A
Phenolic Compounds	CH ₂ Cl ₂ / Acetone sonication extraction, GC-MSD	HP-6890GC / 5973MSD HP-5890GC / 5972MSD Capillary HP-5MS	(c) 8270 C (c) 3550 A (aa)
Purgeables (VOCs)	Purge & Trap, GC-MSD	O-I Analytical Eclipse 4660/4552 HP-6890N GC / 5973N MSD Capillary J&W DB-624	(c) 8260 B
Tri, Di, and Monobutyl Tin	CH ₂ Cl ₂ extraction, derivatization, hexane exchange, GC-FPD	Varian 3400 GC-FPD DB-1/30m DB-608/30m	(z)

¹ Reference listing is found following this listing of analytical methods.

OCEAN SEDIMENT (General)

Analyte	Description	Instrumentation	Reference ¹
Biochemical Oxygen Demand (BOD-5 Day)	Dissolved Oxygen Probe	YSI-5000 DO Meter	(h) 5210 B
Particle Size	Coarse fraction by sieve; fine fraction by laser scatter	Horiba LA-920	(v) 3-380
Sulfides	Acid Digest-Distil / IC-PAD	Dionex IC-PAD(Ag)	(x)
Solids, Total	Gravimetric @ 103-105°C	AND HM-120	(h) 2540 B
Solids, Total-Volatile	Gravimetric @ 500°C	AND HM-120	(h) 2540 E
Total Organic Carbon (TOC) and Total Nitrogen (TN)	Combustion / GC-TCD	Carlo-Erba NC-2500 Porapak QS	(#)

OCEAN SEDIMENT (Metals)

Analyte	Description	Instrumentation	Reference ¹
Aluminum	Acid Digestion / ICP-AES	TJA IRIS	(c) 6010 B
Antimony	Acid Digestion / ICP-AES	TJA IRIS	(c) 6010 B
Arsenic	Hydride Generation / AA	TJA Solaar M6	(c) 7062
Beryllium	Acid Digestion / ICP-AES	TJA IRIS	(c) 6010 B
Cadmium	Acid Digestion / ICP-AES	TJA IRIS	(c) 6010 B
Chromium	Acid Digestion / ICP-AES	TJA IRIS	(c) 6010 B
Copper	Acid Digestion / ICP-AES	TJA IRIS	(c) 6010 B
Iron	Acid Digestion / ICP-AES	TJA IRIS	(c) 6010 B
Lead	Acid Digestion / ICP-AES	TJA IRIS	(c) 6010 B
Manganese	Acid Digestion / ICP-AES	TJA IRIS	(c) 6010 B
Mercury	Cold Vapor Generation / AA	Leeman PS 200II	(c) 7471 A
Nickel	Acid Digestion / ICP-AES	TJA IRIS	(c) 6010 B
Selenium	Hydride Generation / AA	TJA Solaar M6	(c) 7742
Silver	Acid Digestion / ICP-AES	TJA IRIS	(c) 6010 B
Thallium	Acid Digestion / ICP-AES	TJA IRIS	(c) 6010 B
Tin	Acid Digestion / ICP-AES	TJA IRIS	(c) 6010 B
Zinc	Acid Digestion / ICP-AES	TJA IRIS	(c) 6010 B

¹ Reference listing is found following this listing of analytical methods.

OCEAN SEDIMENT (Organics)

Analyte	Description	Instrumentation	Reference ¹
Base/Neutral Extractables	CH ₂ Cl ₂ / Acetone ASE GC-MSD	HP-6890GC / 5973MSD HP-5890GC / 5972MSD Capillary HP-5MS	(c) 8270 C (aa)
Chlorinated Compounds	CH ₂ Cl ₂ extraction, GC-ECD/MS/MS	Varian Saturn GC-ECD/MS/MS DBXLB/60m	(c) 8081 A
PCBs as Congeners	CH ₂ Cl ₂ extraction, GC-ECD/MS/MS	Varian Saturn GC-ECD/MS/MS DBXLB/60m	(c) 8082
Organophosphorus Pesticides	CH ₂ Cl ₂ extraction, hexane exchange, GC-PFPD	Varian 3800 GC-PFPD RTX-1 : RTX-50	(c) 8141 A
Tri, Di, and Monobutyl Tin	CH ₂ Cl ₂ extraction, derivatization, hexane exchange, GC-FPD	Varian 3400 GC-FPD DB-1/30m : RTX_50	(z)

¹ Reference listing is found following this listing of analytical methods.

FISH TISSUE: Liver, Muscle, and Whole (General)

Analyte	Description	Instrumentation	Reference ¹
Solids, Total	Freeze Drying Gravimetric	Labconco Freezone 6 Mettler AG-104 Balance	(%)
Lipids	Hexane/Acetone Extraction Gravimetric	Dionex ASE-200 Mettler AG-104 Balance	(*)

FISH TISSUE: Liver, Muscle, and Whole (Metals)

Analyte	Description	Instrumentation	Reference ¹
Aluminum	Acid Digestion / ICP-AES	TJA IRIS	(a) 200.3 / 200.7
Antimony	Acid Digestion / ICP-AES	TJA IRIS	(a) 200.3 / 200.7
Arsenic	Acid Digestion / ICP-AES	TJA IRIS	(a) 200.3 / 200.7
Beryllium	Acid Digestion / ICP-AES	TJA IRIS	(a) 200.3 / 200.7
Cadmium	Acid Digestion / ICP-AES	TJA IRIS	(a) 200.3 / 200.7
Chromium	Acid Digestion / ICP-AES	TJA IRIS	(a) 200.3 / 200.7
Copper	Acid Digestion / ICP-AES	TJA IRIS	(a) 200.3 / 200.7
Iron	Acid Digestion / ICP-AES	TJA IRIS	(a) 200.3 / 200.7
Lead	Acid Digestion / ICP-AES	TJA IRIS	(a) 200.3 / 200.7
Manganese	Acid Digestion / ICP-AES	TJA IRIS	(a) 200.3 / 200.7
Mercury	Cold Vapor Generation / AA	Leeman PS 200II	(a) 245.6
Nickel	Acid Digestion / ICP-AES	TJA IRIS	(a) 200.3 / 200.7
Selenium	Hydride Generation / AA	TJA Solaar M6	(c) 7742
Silver	Acid Digestion / ICP-AES	TJA IRIS	(a) 200.3 / 200.7
Thallium	Acid Digestion / ICP-AES	TJA IRIS	(a) 200.3 / 200.7
Tin	Acid Digestion / ICP-AES	TJA IRIS	(a) 200.3 / 200.7
Zinc	Acid Digestion / ICP-AES	TJA IRIS	(a) 200.3 / 200.7

FISH TISSUE: Liver, Muscle, and Whole (Organics)

Analyte	Description	Instrumentation	Reference ¹
Base/Neutral Extractables	Basic / CH ₂ Cl ₂ ASE extraction, GC-MSD	Dionex ASE-200 HP-5890GC / 5971MSD Capillary DB-XLB/30m	(c) 3545 / 8270 C
Chlorinated Compounds	CH ₂ Cl ₂ extraction, GC-ECD/MS/MS	Varian 3800 GC Saturn 2000 MS-Ion Trap DB-XLB/60m	(c) 3545 / 8081 A
PCBs	CH ₂ Cl ₂ extraction, hexane exchange, GC-ECD/MS/MS	Varian 3800 GC Saturn 2000 MS-Ion Trap DB-XLB/60m	(c) 3545 / 8082

¹ Reference listing is found following this listing of analytical methods.

Method References: Methods of Analysis Used to Produce the Data Presented in this Report.

- a) Methods for Chemical Analysis of Water and Wastes, EPA, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio, March 1979 (EPA-600/4-79-020), 1983 Revision, and March 1984 (EPA-600/4-84-017).
- aa) U.S. EPA Contract Laboratory Program, Statement of Work for Organic Analysis, Multi-Media, Multi-Concentration, 7/85 revision and 1/91 revision.
- b) Standard Methods for the Examination of Water and Wastewater, APHA, AWWA, WPCF, 16th Edition, 1985
- bb) Standard Methods for the Examination of Water and Wastewater, APHA, AWWA, WPCF, 17th Edition, 1989
- c) Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, U.S. EPA Office of Solid Waste and emergency Response, Washington, D.C. 20460, November 1986, SW-846, Third Edition.
- g) Laboratory Procedures for the Examination of Seawater and Shellfish, 5th Edition, 1984, American Public Health Association.
- h) Standard Methods for the Examination of Water and Wastewater, APHA, AWWA, WPCF, 18th Edition, 1992.
- j) Methods for Organic Analysis of Municipal and Industrial Wastewater, EPA-600/4-82-057, July 1982.
- o) Official Methods of Analysis, 15th Edition, Association of Official Analytical Chemists (AOAC), 1990.
- q) Federal Register, Vol. 56, No. 5, pp 636-643, January 8, 1991.
- r) Criteria for Identification of Hazardous and Extremely Hazardous Wastes, California Code of Regulations (CCR), Title 22.
- t) Direct Current Plasma (DCP) Optical Emission Spectrometric Method for Trace Elemental Analysis of Water and Wastes, Method AES0029", 1986, revised 1991, Applied Research Laboratories (ARL) Inc., 24911 Avenue Standford, Valencia, CA 91355.
- u) Radiochemical Procedures Manual, EPA-520/5-84-006, August 1984 (EPA 1984a) Eastern Environmental Radiation Facility, Montgomery, AL 36109.
- v) Procedures for Handling and Chemical Analysis of Sediment and Water Samples, Russel H. Plumb, Jr., May 1981, EPA/Corp of Engineers Technical Committee on Criteria for Dredged and Fill Material, EPA Contract 4805572010.
- w) California Administrative Code, Title 22, Division 4, Chapter 30, Section 66700.
- x) DIONEX AU 107, R.D.Rocklin and E.L.Johnson, ANAL. CHEM., 1983, 55, 4

- y) Manual of Analytical Methods For the Analysis of Pesticides In Humans and Environmental Samples, EPA-600/8-80-038, June 1980.
- z) Adaptation of method by the Naval Ocean Systems Center, San Diego, Marine Environment Branch, San Diego, CA 92152-5000
- #) "TOC/TN in Marine Sediments...", SCCWRP Annual Report, 1990-1991, and 1991-1992.
- %) "A Guide to Freeze Drying for the Laboratory...", LABCONCO, 3-53-5/94-Rosse-5M-R3, 1994.
- *) "Lipids Content in Fish Tissues via Accelerated Solvent Extraction...", WWChem, EMTS/MWWD, 1998

F. Laboratories Contributing Results used in this report.

1. Metropolitan Wastewater Chemistry Laboratory
(EPA Lab Code: CA00380,
ELAP Certificate: 1609)
5530 Kiowa Drive
La Mesa, CA 91942
(619)668-3205
All results except those listed below.
2. Point Loma Wastewater Chemistry Laboratory
(EPA Lab Code: CA01435,
ELAP Certificate: 2474)
1902 Gatchell Road
San Diego, CA 92106
(619)221-8765
Process control analyses and wet methods for the plant.
3. North City Wastewater Chemistry Laboratory
(EPA Lab Code: CA01436,
ELAP Certificate: 2477)
4949 Eastgate Mall
San Diego, CA 92121
(858)824-6009
Process control analyses and wet methods for the plant.
4. Metro Biosolids Center Chemistry Laboratory
(EPA Lab Code: CA01437,
ELAP Certificate: 2478)
5240 Convoy Street
San Diego, CA 92111
(858)614-5834
Process control analyses and wet methods for the plant.
5. South Bay Water Reclamation Plant
(EPA Lab Code: CA01460,
ELAP Certificate: 2539)
2411 Dairy Mart Road
San Diego, CA 92173
619.428.7349
Process control analyses and wet methods for the plant.
6. City of San Diego - Water Quality Laboratory
(EPA Lab Code: CA00080,
ELAP Certificate: 1058)
5530 Kiowa Drive
La Mesa, CA 91942
(619)668-3237
Total Organic Carbon in Wastewater
7. City of San Diego - Marine Microbiology and Vector Management (EPA LabCode: CA01393, ELAP Certificate: 2185)
5530 Kiowa Drive
La Mesa, CA 91942
(619)668-3226
Microbiology

8. City of San Diego - Toxicity Bioassay Laboratory
(EPA Lab Code: CA01302,
ELAP Certificate: 1989)
4918 Harbor Drive, Suite 101
San Diego, CA 92106
(619) 758-2347
Bioassays

9. Truesdail Laboratories, Inc.
(EPA Lab Code: CA09469,
ELAP Certificate: 1237)
14201 Franklin Ave.
Tustin, CA 92780-7008
(714)730-6239
Gross Alpha/Beta Radioactivity and some mercury, arsenic and selenium values.

10. Severn Trent Labs
880 Riverside Parkway
Sacramento, CA 95605
NELAP Certification: 01119CA
Telephone# (916) 373-5600
Dioxins/Furans for Biosolids

11. CRG Marine Laboratories, Inc.
2020 Del Amo Blvd., Suite 200
Torrance, CA 90501-1206
CA ELAP Certification: 2261
Telephone# (310) 533-5190
Total Trace Metals in Seawater, by EPA 1640M

G. Discharge Limits

NPDES Permit No. CA0107409/RWQCB Order No. R-2002-0025

DISCHARGE SPECIFICATIONS from NPDES Permit No. CA0107409/RWQCB Order No. R-2002-0025 effective on September 13, 2002 with limits on pollutant discharges.

The discharge of waste through the Point Loma Ocean Outfall containing pollutants in excess of the following effluent limitations are prohibited:

NPDES Permit No. CA0107409/RWQCB Order No. R-2002-0025						
Constituent	Units	6-month Median	30-day Average	7-Day Average	Daily Maximum	Instantaneous Maximum
Biochemical Oxygen Demand BOD ₅ @ 20EC	mg/L	The "Mean Annual Percent Removal" limit for BOD is 58%. There is no mass emission limit.				
Total Suspended Solids ¹	mg/L lb/day		75 13,599			
pH	pH units	Within the limits of 6.0 - 9.0 at all times.				
Grease & Oil	mg/L lb/day		25 34,000	40 68,000		75 130,000
Settleable Solids	mL/L		1.0	1.5		3.0
Turbidity	NTU		75	100		225
Acute Toxicity	TUa				6.5	
Arsenic	ug/L	1,000			5,900	16,000
Cadmium	ug/L	200			800	2,100
Chromium ² (Hexavalent)	ug/L	400			2,000	4,100
Copper	ug/L	200			2,100	5,700
Lead	ug/L	400			2,000	4,100
Mercury	ug/L	8.1			33	80
Nickel	ug/L	1,000			4,100	10,000
Selenium	ug/L	3,100			12,000	30,800
Silver	ug/L	100			540	1,000
Zinc	ug/L	2,500			15,000	39,400
Cyanide	mg/L	0.2			0.8	2.1
Total Residual Chlorine(TRC)	mg/L	0.400			2.0	12
Ammonia (expressed as Nitrogen)	mg/L	123			492	1,230
Chronic Toxicity	TUc				205	
Phenolic Compounds (non- chlorinated)	ug/L	6,200			24,600	61,500
Chlorinated Phenolics	ug/L	200			800	2,100
Endosulfan	ng/L	2,000			3,700	5,500
Endrin	ng/L	400			800	1,000

¹ Total Suspended Solids (TSS)- The discharger shall achieve a mass emission of TSS of no greater than 15,000 mt/yr; this requirement shall be effective through December 31, 2005. Effective January 1, 2006, the discharger shall achieve a mass emission of TSS of no greater than 13,599 mt/yr. These mass emission requirements shall only apply to TSS discharged from POTWs which are owned and operated by the discharger, and the discharger's wastewater generated in the Metro System service area. These mass emission requirements do not apply to wastewater (and the resulting TSS) generated in Mexico as a result of upset or shutdown and treated at and discharged from the PLMWTP.

² Hexavalent Chromium limit met as Total Chromium.

Constituent	Units	6-month Median	30-day Average	7-Day Average	Daily Maximum	Instantaneous Maximum
HCH (hexachlorocyclohexanes)	ng/L lb/day	800			2,000	2,500

Radioactivity - Not to exceed limits specified in Title 17, Division 1, Chapter 5, Subchapter 4, Group 3, Article 3, Section 30269 of the California Code of Regulations.

Note: mg/L= milligrams per liter
 ug/L = micrograms per liter
 ng/L = nanograms per liter
 lb/day= pounds per day
 NTU= Nephelometric turbidity units
 TUa = Acute toxicity units
 TUC = Chronic toxicity units

Constituent	Units	Monthly Average (30-Day)
LIMITATIONS FOR PROTECTION OF HUMAN HEALTH--NONCARCINOGENS		
Acrolein	ug/L	45,000
Antimony	ug/L	250,000
Bis(2-chloroethoxy) methane	ug/L	900
Bis(2-chloroisopropyl) ether	ug/L	250,000
Chlorobenzene	ug/L	120,000
Chromium (III) ³	ug/L	39,000,000
di-n-butyl phthalate	ug/L	720,000
dichlorobenzenes	ug/L	1,000,000
Diethyl phthalate	ug/L	6,800,000
Dimethyl phthalate	ug/L	170,000,000
4,6-dinitro-2-methylphenol	ug/L	45,000
2,4-dinitrophenol	ug/L	820
Ethylbenzene	ug/L	840,000
Fluoranthene	ug/L	3,100
Hexachlorocyclopentadiene	ug/L	12,000
Nitrobenzene	ug/L	1,000
Thallium	ug/L	400
Toluene	ug/L	17,000,000
Tributyltin	ug/L	0.29
1,1,1-trichloroethane	ug/L	110,000,000

LIMITATIONS FOR PROTECTION OF HUMAN HEALTH—CARCINOGENS

Acrylonitrile	ug/L	21
Aldrin	ng/L	4.5
Benzene	ug/L	1,200
Benzidine	ug/L	0.014
Beryllium	ug/L	6.8
Bis(2-chloroethyl)ether	ug/L	9.2
Bis(2-ethylhexyl)phthalate	ug/L	720
Carbon Tetrachloride	ug/L	180
Chlordane	ng/L	4.7

³ Chromium (III) limit is met by Total Chromium.

Constituent	Units	Monthly Average (30-Day)
Chloroform	ug/L	27,000
DDT	ng/L	35
1,1,2,2-tetrachloroethane	ug/L	470
1,1-dichloroethylene	ug/L	200
1,1,2-trichloroethane	ug/L	1,900
1,4-dichlorobenzene	ug/L	3,700
3,3-dichlorobenzidine	ug/L	1.7
1,2-dichloroethane	ug/L	5,700
Dichloromethane	ug/L	92,000
1,3-dichloropropene	ug/L	1,800
Dieldrin	ng/L	8.20
2,4-dinitrotoluene	ug/L	530
1,2-diphenylhydrazine	ug/L	33
Halomethanes	ug/L	27,000
Heptachlor	ng/L	10
Hexachlorobenzene	ug/L	0.043
Hexachlorobutadiene	ug/L	2,900
Hexachloroethane	ug/L	510
Isophorone	ug/L	150,000
N-nitrosodimethylamine	ug/L	1,500
N-nitrosodiphenylamine	ug/L	510
PAHs	ug/L	1.80
PCBs	ng/L	3.90
TCDD equivalents	pg/L	0.8
Tetrachloroethylene	ug/L	410
Toxaphene	ng/L	430
Trichloroethylene	ug/L	5,500
Vinyl Chloride	ug/L	7,400

H. Laboratory Accreditation Certificate

Our wastewater laboratory consists of a main laboratory with four satellite laboratories, one at each wastewater treatment plant; Point Loma Wastewater Treatment Plant, North City Water Reclamation Plant, South Bay Water Reclamation Plant, and the Metro Biosolids Center. The main laboratory performs analyses for permit regulated parameters. The Point Loma, North City, South Bay, and Metro Biosolids Center laboratories perform some of our permit regulated analyses, as well as process control analyses. All of our laboratories are California Environmental Laboratory Accreditation Program (ELAP) Certified Laboratories. A copy of all the Laboratory Certifications from the California Department of Health Services (DOHS), Environmental Laboratory Accreditation Program (ELAP) follows.



STATE OF CALIFORNIA
DEPARTMENT OF HEALTH SERVICES
ENVIRONMENTAL LABORATORY ACCREDITATION PROGRAM

ENVIRONMENTAL LABORATORY CERTIFICATION

Is hereby granted to

ALVARADO WASTEWATER CHEMISTRY LAB.
CITY OF SAN DIEGO ENVIRONMENTAL MONITORING & TECHNICAL SERVICES DIV.

5530 KIOWA DRIVE
LA MESA, CA 91942-1331

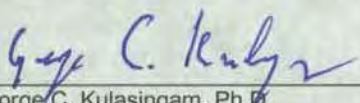
Scope of certification is limited to the
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which accompanies this Certificate.

Continued certification status depends on successful completion of site visit,
proficiency testing studies, and payment of applicable fees.

This Certificate is granted in accordance with provisions of
Section 100825, et seq. of the Health and Safety Code.

Certificate No.: **1609**
Expiration Date: **08/31/2007**
Effective Date: **08/01/2005**

Berkeley, California
subject to forfeiture or revocation



George C. Kulasingam, Ph.D.
Program Chief
Environmental Laboratory Accreditation Program

**CALIFORNIA DEPARTMENT OF HEALTH SERVICES
ENVIRONMENTAL LABORATORY ACCREDITATION PROGRAM
Accredited Fields of Testing**

CITY of SAN DIEGO ENVIRONMENTAL MONITORING SERVICE
METROPOLITAN WASTEWATER CHEMISTRY LABORATORY
5530 KIOWA DRIVE
LA MESA, CA 91942-1331

Lab Phone (619) 668-3222

Certificate No: 1609 Renew Date: 8/31/2005

Field of Testing: 108 - Inorganic Chemistry of Wastewater

108.080	001	Residue, Total	EPA 160.3
108.090	001	Residue, Volatile	EPA 160.4
108.112	001	Boron	EPA 200.7
108.112	002	Calcium	EPA 200.7
108.112	003	Hardness (calc.)	EPA 200.7
108.112	004	Magnesium	EPA 200.7
108.112	005	Potassium	EPA 200.7
108.112	007	Sodium	EPA 200.7
108.120	001	Bromide	EPA 300.0
108.120	002	Chloride	EPA 300.0
108.120	003	Fluoride	EPA 300.0
108.120	004	Nitrate	EPA 300.0
108.120	007	Phosphate, Ortho	EPA 300.0
108.120	008	Sulfate	EPA 300.0
108.263	001	Phosphorus, Total	EPA 365.2
108.390	001	Turbidity	SM2130B
108.410	001	Alkalinity	SM2320B
108.430	001	Conductivity	SM2510B
108.441	001	Residue, Filterable	SM2540C
108.442	001	Residue, Non-filterable	SM2540D
108.443	001	Residue, Settleable	SM2540F
108.470	001	Cyanide, Manual Distillation	SM4500-CN C
108.472	001	Cyanide, Total	SM4500-CN E
108.490	001	pH	SM4500-H+ B
108.530	001	Dissolved Oxygen	SM4500-O C
108.590	001	Biochemical Oxygen Demand	SM5210B
108.591	001	Carbonaceous BOD	SM5210B
108.602	001	Chemical Oxygen Demand	SM5220D

Field of Testing: 109 - Toxic Chemical Elements of Wastewater

109.010	001	Aluminum	EPA 200.7
109.010	002	Antimony	EPA 200.7
109.010	004	Barium	EPA 200.7
109.010	005	Beryllium	EPA 200.7
109.010	007	Cadmium	EPA 200.7
109.010	009	Chromium	EPA 200.7
109.010	010	Cobalt	EPA 200.7
109.010	011	Copper	EPA 200.7
109.010	012	Iron	EPA 200.7
109.010	013	Lead	EPA 200.7
109.010	015	Manganese	EPA 200.7
109.010	016	Molybdenum	EPA 200.7
109.010	017	Nickel	EPA 200.7
109.010	021	Silver	EPA 200.7
109.010	023	Thallium	EPA 200.7

As of 10/14/2004, this list supersedes all previous lists for this certificate number.
Customers: Please verify the current accreditation standing with the State.

CITY of SAN DIEGO ENVIRONMENTAL MONITORING SERVICE

Certificate No: 1609
 Renew Date: 8/31/2005

109.010 024	Tin	EPA 200.7
109.010 026	Vanadium	EPA 200.7
109.010 027	Zinc	EPA 200.7
109.400 001	Mercury	SM3112B
109.420 001	Arsenic	SM3114B
109.420 002	Selenium	SM3114B

Field of Testing: 110 - Volatile Organic Chemistry of Wastewater

110.040 040	Halogenated Hydrocarbons	EPA 624
110.040 041	Aromatic Compounds	EPA 624
110.040 042	Oxygenates	EPA 624
110.040 043	Other Volatile Organics	EPA 624

Field of Testing: 111 - Semi-volatile Organic Chemistry of Wastewater

111.020 000	Benzidines	EPA 605
111.101 032	Polynuclear Aromatic Hydrocarbons	EPA 625
111.101 034	Phthalates	EPA 625
111.101 036	Other Extractables	EPA 625
111.170 030	Organochlorine Pesticides	EPA 608
111.170 031	PCBs	EPA 608

Field of Testing: 114 - Inorganic Chemistry of Hazardous Waste

114.010 001	Antimony	EPA 6010B
114.010 003	Barium	EPA 6010B
114.010 004	Beryllium	EPA 6010B
114.010 005	Cadmium	EPA 6010B
114.010 006	Chromium	EPA 6010B
114.010 007	Cobalt	EPA 6010B
114.010 008	Copper	EPA 6010B
114.010 009	Lead	EPA 6010B
114.010 010	Molybdenum	EPA 6010B
114.010 011	Nickel	EPA 6010B
114.010 013	Silver	EPA 6010B
114.010 014	Thallium	EPA 6010B
114.010 015	Vanadium	EPA 6010B
114.010 016	Zinc	EPA 6010B
114.051 001	Arsenic	EPA 7062
114.140 001	Mercury	EPA 7470A
114.141 001	Mercury	EPA 7471A
114.172 001	Selenium	EPA 7742
114.222 001	Cyanide	EPA 9014
114.230 001	Sulfides, Total	EPA 9034

Field of Testing: 115 - Extraction Test of Hazardous Waste

115.030 001	Waste Extraction Test (WET)	CCR Chapter11, Article 5, Appendix II
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Field of Testing: 116 - Volatile Organic Chemistry of Hazardous Waste

116.080 000	Volatile Organic Compounds	EPA 8260B
116.080 120	Oxygenates	EPA 8260B
116.100 001	Total Petroleum Hydrocarbons - Gasoline	LUFT GC/MS

Field of Testing: 117 - Semi-volatile Organic Chemistry of Hazardous Waste

117.015 001	Diesel-range Total Petroleum Hydrocarbons	LUFT GC/MS
117.110 000	Extractable Organics	EPA 8270C
117.210 000	Organochlorine Pesticides	EPA 8081A
117.220 000	PCBs	EPA 8082

Field of Testing: 120 - Physical Properties of Hazardous Waste

As of 10/14/2004, this list supersedes all previous lists for this certificate number.
 Customers: Please verify the current accreditation standing with the State.

CITY of SAN DIEGO ENVIRONMENTAL MONITORING SERVICE

Certificate No: 1609
Renew Date: 8/31/2005

120.040 001	Reactive Cyanide	Section 7.3 SW-846
120.050 001	Reactive Sulfide	Section 7.3 SW-846
120.080 001	Corrosivity - pH Determination	EPA 9045C

As of 10/14/2004, this list supersedes all previous lists for this certificate number.
Customers: Please verify the current accreditation standing with the State.

Page 3 of 3



STATE OF CALIFORNIA
DEPARTMENT OF HEALTH SERVICES
ENVIRONMENTAL LABORATORY ACCREDITATION PROGRAM

ENVIRONMENTAL LABORATORY CERTIFICATION

Is hereby granted to

**PT. LOMA WASTEWATER CHEMISTRY LAB
CITY OF SAN DIEGO ENVIRONMENTAL MONITORING**

1902 GATCHELL ROAD
SAN DIEGO, CA 92106

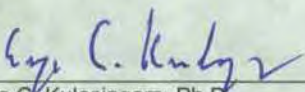
Scope of certification is limited to the
"Accredited Fields of Testing"
which accompanies this Certificate.

Continued certification status depends on successful completion of site visit,
proficiency testing studies, and payment of applicable fees.

This Certificate is granted in accordance with provisions of
Section 100825, et seq. of the Health and Safety Code.

Certificate No.: **2474**
Expiration Date: **07/31/2007**
Effective Date: **07/01/2005**

Berkeley, California
subject to forfeiture or revocation


George C. Kulasingam, Ph.D.
Program Chief
Environmental Laboratory Accreditation Progra

**CALIFORNIA DEPARTMENT OF HEALTH SERVICES
ENVIRONMENTAL LABORATORY ACCREDITATION PROGRAM
Accredited Fields of Testing**

PT. LOMA WASTEWATER CHEMISTRY LAB
CITY OF SAN DIEGO ENVIRONMENTAL MONITORING
1902 GATCHELL ROAD
SAN DIEGO, CA 92106

Lab Phone (619) 668-3222

Certificate No: 2474 Renew Date: 07/31/2007

Field of Testing: 108 - Inorganic Chemistry of Wastewater

108.080	001	Residue, Total	EPA 160.3
108.090	001	Residue, Volatile	EPA 160.4
108.380	001	Oil and Grease	EPA 1664
108.390	001	Turbidity	SM2130B
108.410	001	Alkalinity	SM2320B
108.421	001	Hardness	SM2340C
108.430	001	Conductivity	SM2510B
108.441	001	Residue, Filterable	SM2540C
108.442	001	Residue, Non-filterable	SM2540D
108.443	001	Residue, Settleable	SM2540F
108.490	001	pH	SM4500-H+B
108.500	001	Ammonia	SM4500-NH3 C
108.502	001	Ammonia	SM4500-NH3 E
108.530	001	Dissolved Oxygen	SM4500-O C
108.590	001	Biochemical Oxygen Demand	SM5210B
108.591	001	Carbonaceous BOD	SM5210B
108.601	001	Chemical Oxygen Demand	SM5220C
108.630	001	Oil and Grease	SM5520B
108.670	001	Nitrite	HACH8507
108.672	001	Phosphate, Ortho	HACH8048

As of 02/14/2006, this list supersedes all previous lists for this certificate number.
Customers: Please verify the current accreditation standing with the State.

Page 1 of 1



STATE OF CALIFORNIA
DEPARTMENT OF HEALTH SERVICES
ENVIRONMENTAL LABORATORY ACCREDITATION PROGRAM

ENVIRONMENTAL LABORATORY CERTIFICATION

Is hereby granted to

**NORTH CITY WASTEWATER CHEMISTRY LAB
CITY OF SAN DIEGO ENVIRONMENTAL MONITORING**

4949 EASTGATE MALL
SAN DIEGO, CA 92121

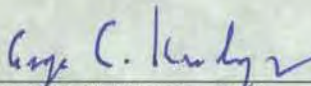
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which accompanies this Certificate.

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proficiency testing studies, and payment of applicable fees.

This Certificate is granted in accordance with provisions of
Section 100825, et seq. of the Health and Safety Code.

Certificate No.: **2477**
Expiration Date: **07/31/2007**
Effective Date: **07/01/2005**

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George C. Kulasingam, Ph.D.
Program Chief
Environmental Laboratory Accreditation Progra

CALIFORNIA DEPARTMENT OF HEALTH SERVICES
ENVIRONMENTAL LABORATORY ACCREDITATION PROGRAM
Accredited Fields of Testing

NORTH CITY WASTEWATER CHEMISTRY LAB
CITY OF SAN DIEGO ENVIRONMENTAL MONITORING
4949 EASTGATE MALL
SAN DIEGO, CA 92121

Lab Phone (619) 668-3286

Certificate No: 2477 Renew Date: 7/31/2007

Field of Testing: 108 - Inorganic Chemistry of Wastewater

108.080	001	Residue, Total	EPA 160.3
108.090	001	Residue, Volatile	EPA 160.4
108.370	001	Surfactants	EPA 425.1
108.390	001	Turbidity	SM2130B
108.410	001	Alkalinity	SM2320B
108.430	001	Conductivity	SM2510B
108.441	001	Residue, Filterable	SM2540C
108.442	001	Residue, Non-filterable	SM2540D
108.465	001	Chlorine	SM4500-Cl G
108.490	001	pH	SM4500-H+ B
108.501	001	Kjeldahl Nitrogen	SM4500-NH3 C
108.502	001	Ammonia	SM4500-NH3 E
108.503	001	Kjeldahl Nitrogen	SM4500-NH3 E
108.530	001	Dissolved Oxygen	SM4500-O C
108.590	001	Biochemical Oxygen Demand	SM5210B
108.591	001	Carbonaceous BOD	SM5210B
108.602	001	Chemical Oxygen Demand	SM5220D

As of 2/15/2006, this list supersedes all previous lists for this certificate number.
Customers: Please verify the current accreditation standing with the State.

Page 1 of 1



STATE OF CALIFORNIA
DEPARTMENT OF HEALTH SERVICES
ENVIRONMENTAL LABORATORY ACCREDITATION PROGRAM

ENVIRONMENTAL LABORATORY CERTIFICATION

Is hereby granted to

SOUTH BAY WASTEWATER CHEMISTRY LABORATORY
CITY of SAN DIEGO - ENVIRONMENTAL MONITORING & TECH
2411 DAIRY MART ROAD
SAN DIEGO, CA 92173

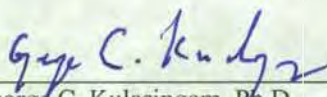
Scope of certification is limited to the
"Accredited Fields of Testing"
which accompanies this Certificate.

Continued certification status depends on successful completion of site visit,
proficiency testing studies, and payment of applicable fees.

This Certificate is granted in accordance with provisions of
Section 100825, et seq. of the Health and Safety Code.

Certificate No: **2539**
Expiration Date: **01/31/2007**
Effective Date: **01/01/2005**

Berkeley, California
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George C. Kulasingam, Ph.D.
Program Chief
Environmental Laboratory Accreditation Program

CALIFORNIA DEPARTMENT OF HEALTH SERVICES
ENVIRONMENTAL LABORATORY ACCREDITATION PROGRAM
Accredited Fields of Testing

SOUTH BAY WASTEWATER CHEMISTRY LABORATORY
CITY of SAN DIEGO - ENVIRONMENTAL MONITORING & TECH
2411 DAIRY MART ROAD
SAN DIEGO, CA 92173

Lab Phone (619) 668-3212

Certificate No: 2539 Renew Date: 01/31/2007

Field of Testing: 108 - Inorganic Chemistry of Wastewater

108.080	001	Residue, Total	EPA 160.3
108.090	001	Residue, Volatile	EPA 160.4
108.390	001	Turbidity	SM2130B
108.410	001	Alkalinity	SM2320B
108.430	001	Conductivity	SM2510B
108.441	001	Residue, Filterable	SM2540C
108.442	001	Residue, Non-filterable	SM2540D
108.443	001	Residue, Settleable	SM2540F
108.465	001	Chlorine	SM4500-Cl G
108.490	001	pH	SM4500-H+ B
108.502	001	Ammonia	SM4500-NH3 E
108.530	001	Dissolved Oxygen	SM4500-O C
108.590	001	Biochemical Oxygen Demand	SM5210B
108.591	001	Carbonaceous BOD	SM5210B
108.602	001	Chemical Oxygen Demand	SM5220D
108.640	001	Surfactants	SM5540C

As of 06/03/2005, this list supersedes all previous lists for this certificate number.
Customers: Please verify the current accreditation standing with the State.

Page 1 of 1



STATE OF CALIFORNIA
DEPARTMENT OF HEALTH SERVICES
ENVIRONMENTAL LABORATORY ACCREDITATION PROGRAM

ENVIRONMENTAL LABORATORY CERTIFICATION

Is hereby granted to

**METRO BIOSOLIDS CENTER WASTEWATER CHEMISTRY
CITY OF SAN DIEGO ENVIRONMENTAL MONITORING**

5240 CONVOY STREET
SAN DIEGO, CA 92111

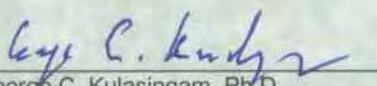
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which accompanies this Certificate.

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proficiency testing studies, and payment of applicable fees.

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Certificate No.: **2478**
Expiration Date: **07/31/2007**
Effective Date: **07/01/2005**

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George C. Kulasingam, Ph.D.
Program Chief
Environmental Laboratory Accreditation Progra

CALIFORNIA DEPARTMENT OF HEALTH SERVICES
ENVIRONMENTAL LABORATORY ACCREDITATION PROGRAM
Accredited Fields of Testing

METRO BIOSOLIDS CENTER WASTEWATER CHEMISTRY
CITY OF SAN DIEGO ENVIRONMENTAL MONITORING
5240 CONVOY STREET
SAN DIEGO, CA 92111

Lab Phone (858) 614-5834

Certificate No: 2478 Renew Date: 07/31/2007

Field of Testing: 108 - Inorganic Chemistry of Wastewater

108.080	001	Residue, Total	EPA 160.3
108.090	001	Residue, Volatile	EPA 160.4
108.410	001	Alkalinity	SM2320B
108.442	001	Residue, Non-filterable	SM2540D
108.490	001	pH	SM4500-H+ B

As of 02/15/2006, this list supersedes all previous lists for this certificate number.
Customers: Please verify the current accreditation standing with the State.

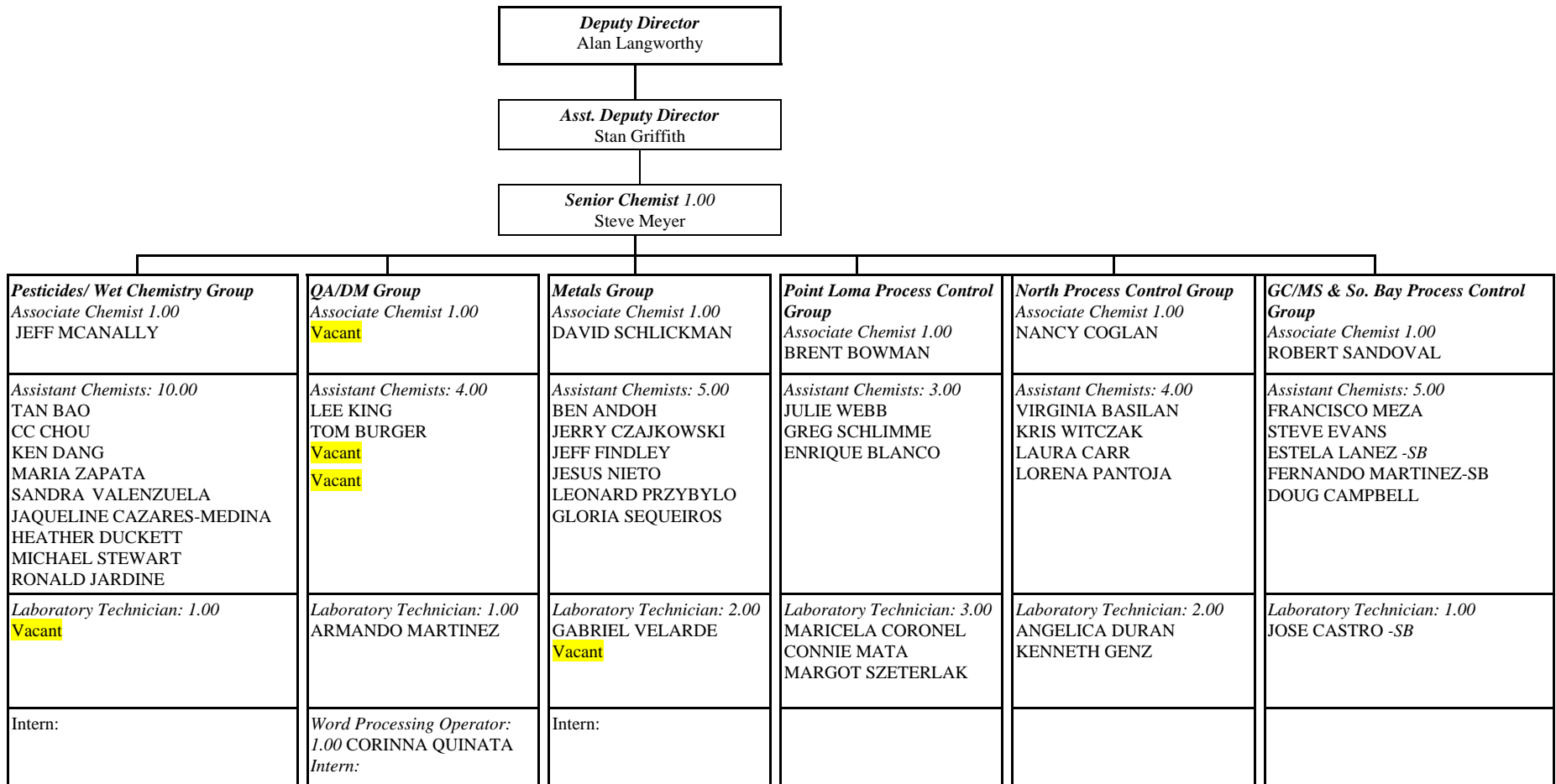
Page 1 of 1

I. Staff Contributing to this Report

Initials	ID	First Name	Last Name	Signature
BOA <i>BIA</i>	BOA	Ben	Andoh	<i>Benjamin Andoh</i>
TB <i>TB</i>	TSB	Tan	Bao	<i>Tan Bao</i>
VB <i>VB</i>	VFB	Virginia	Basilan	<i>Virginia Basilan</i>
EB <i>EB</i>	BTX	Enrique	Blanco	<i>Enrique Blanco</i>
BGB <i>BGB</i>	N8B	Brent	Bowman	<i>Brent Bowman</i>
TB <i>TB</i>	TMB	Tom	Burger	<i>Tom B. Burger</i>
DC	DVC	Doug	Campbell	<i>Doug Campbell</i>
LC <i>UEC/LC</i>	UEC	Laura	Carr	<i>Laura E. Carr</i>
LC <i>JC</i>	G3C	Jose	Castro	<i>Jose Castro</i>
JCM <i>JCM</i>	U8C	Jacqueline	Cazares-Medina	<i>M. Jacqueline Cazares Medina</i>
CC <i>CC</i>	I5C	CC	Chou	<i>CC Chou</i>
NC <i>NC</i>	NLC	Nancy	Coglan	<i>Nancy Coglan</i>
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JCM <i>JCM</i>	G8C	Jerry	Czajkowski	<i>Jerry Czajkowski</i>
KD <i>KD</i>	KOD	Ken	Dang	<i>Ken Dang</i>
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JF <i>JF</i>	JRF	Jeff	Findley	<i>Jeff Findley</i>
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FM <i>FM</i>	YBM	Fernando	Martinez	<i>Fernando Martinez</i>
ConnieM <i>ConnieM</i>	M4M	Connie	Mata	<i>Connie Mata</i>
SWM <i>SWM</i>	SWM	Steve	Meyer	<i>Steve Meyer</i>
FM <i>FM</i>	I2M	Francisco	Meza	<i>Francisco Meza</i>
JM <i>JM</i>	G7M	Jeff	McAnally	<i>Jeff McAnally</i>
JN <i>JN</i>	IEN	Jesus	Nieto	<i>Jesus Nieto</i>
LP <i>LP</i>	LJP	Lorena	Pantoja	<i>Lorena Pantoja</i>
LP <i>LP</i>	LXP	Leonard	Przybylo	<i>Leonard Przybylo</i>
CAQ <i>CAQ</i>	CQ5	Corinna	Quinata	<i>Corinna Quintana</i>
RS <i>RS</i>	NDS	Robert	Sandoval	<i>Robert Sandoval</i>
DWS <i>DWS</i>	DXS	David	Schlickman	<i>David Schlickman</i>
GS <i>GS</i>	GTS	Greg	Schlimme	<i>Greg Schlimme</i>
GRS <i>GRS</i>	HIR	Gloria	Siqueiros	<i>Gloria Siqueiros</i>
MS <i>MS</i>	D8U	Miles	Slattery	<i>Miles Slattery</i>
MRS <i>MRS</i>	MWS	Michael	Stewart	<i>Michael Stewart</i>
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GV <i>GV</i>	JRV	Gabriel	Velarde	<i>Gabriel Velarde</i>
JW <i>JW</i>	AIW	Julie	Webb	<i>Julie Webb</i>
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MZ <i>MZ</i>	MZ	Maria	Zapata	<i>Maria G. Zapata</i>

Figure 1. Chemistry Laboratory Organization Chart. (2006)

Metropolitan Wastewater Department
 Environmental Monitoring and Technical Services Division
Wastewater Chemistry Laboratory



J. Acknowledgements

**Point Loma Wastewater Treatment Plant and Ocean Outfall Annual
Monitoring Report
2006**

City of San Diego
Metropolitan Wastewater Department
Environmental Monitoring & Technical Services Division
Wastewater Chemistry Laboratory
5530 Kiowa Drive
La Mesa, CA 91942
Phone: (619) 668-3212/3215 FAX: (619) 668-3250

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Point Loma Wastewater Treatment Superintendent

K.C. Shankles

Senior WW Operations Supervisor

Kip Cooper

Senior Plant Technician Supervisor

Theodore Taylor

**WW Operations Supervisor- Process
Control**

Dennis Jewell

Senior Power Plant Supervisor

Jerry L. Fabula

Senior Civil Engineer

Jerry D. Williams