2004 Annual Reports and Summary
Point Loma Wastewater Treatment Plant & Point Loma Ocean Outfall

Monitoring and Reporting
Program No. R-2002-0025
NPDES No. CA 0107409

ISO 14001

THE CITY OF SAN DIEGO

June 29, 2005

Mr. John Robertus, Executive Officer
California Regional Water Quality Control Board
9174 Sky Park Court, Suite 100
San Diego, CA 92123

Attn: POTW Compliance Unit

Dear Mr. Robertus:

Enclosed are the 2004, Annual Reports and Summary, Pt. Loma Wastewater Treatment Plant Ocean Outfall as specified in discharge permit Order No. R9-2002-0025, NPDES No. CA0107409 (Point Loma).

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, I certify that the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sincerely,

ALAN C. LANGWORTHY
Deputy Director
Environmental Monitoring & Technical Services Division

WFK/swm

cc: EPA Region 9
San Diego County Department of Environmental Health
Distribution
File

Environmental Monitoring and Technical Services Division • Metropolitan Wastewater
2392 Kincaid Road • San Diego, CA 92101-0811
Tel (619) 758-2300 Fax (619) 758-2309

City of San Diego
Metropolitan Wastewater Department

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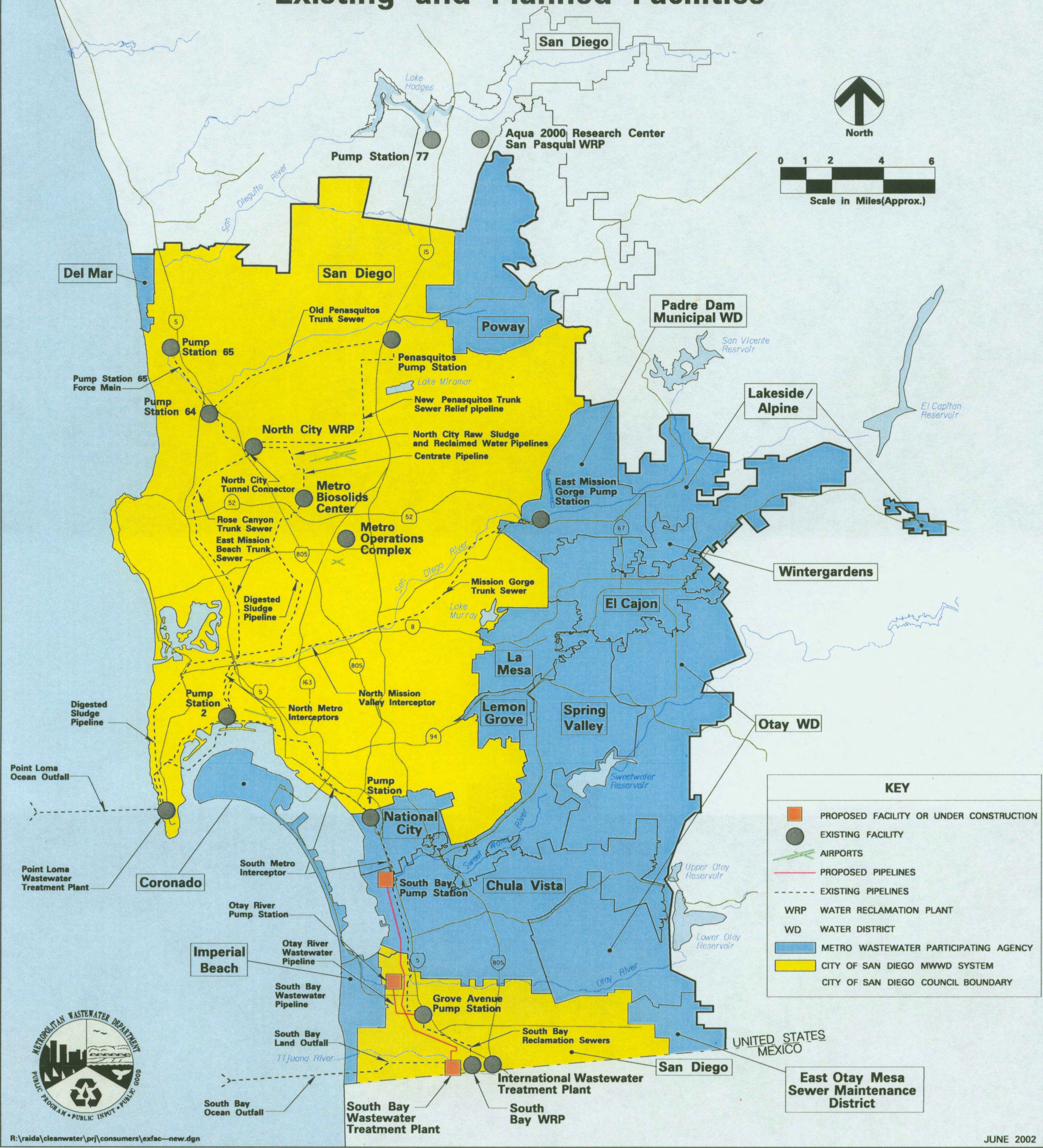
The City of San Diego
Metropolitan Wastewater System
Existing and Planned Facilities



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 1999 through 2004 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

	MDL	Units	PLE 10-MAR-1998 0311980006	PLE 27-APR-1998 0428980006	PLE 10-SEP-1998 9809107494	PLR 10-MAR-1998 0311980007	PLR 27-APR-1998 0428980007	PLR 10-SEP-1998 9809107515
Demeton O	1.69	UG/L	ND	ND	ND	ND	ND	ND
Demeton S	1.82	UG/L	ND	ND	ND	ND	ND	ND
Diazinon	2.41	UG/L	<2.4	ND	ND	<2.4	ND	ND
Guthion	7.1	UG/L	ND	ND	ND	ND	ND	ND
Malathion	2.98	UG/L	ND	ND	ND	ND	ND	ND
Parathion	2.83	UG/L	ND	ND	ND	ND	ND	ND
Thiophosphorus Pesticides			<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
Total Organophosphorus Pesticides			<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, that is they normally don't go to zero concentrations but show, in magnified scale, 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 2001 Avg	SD-17 2001 Avg	SD-18 2001 Avg	SD-19 2001 Avg	SD-20 2001 Avg	SD-21 2001 Avg	RF-1 2001 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)

There was a change in instrumentation this year, from the old sequential radial Inductively Coupled Plasma emission spectrometer (ICP) to a new simultaneous axial (Iris model) ICP. This resulted in detection limits orders of magnitude lower than before. All of the ocean sediments and fish tissues were run with the new methods/ instrumentation/ lower detection limits this year. The new method instrumentation/ lower detection limits were applied to sewage and sludge samples starting with the June samples. Following is a table comparing the sewage and sludge detection limits for January through May with those from June through December.

Sewage
ug/L

	Jan - May	Jun - Dec
	MDL	MDL
Al	50	6.6
Sb	23	1.015
Ba	10	0.02015
Be	0.39	0.0395
B	15	1.101
Cd	1	0.1945
Cr	5	0.1885
Co	4	0.162
Cu	4	0.3925
Fe	30	0.785
Pb	18	1.384
Mn	4	0.0494
Mo	3	0.122
Ni	14	0.2675
Ag	6.6	0.156
Te	40	1.806
V	7	0.4755
Zn	4	0.5435

Sludge
ug/kg

	Jan - May	Jun - Dec
	MDL	MDL
Al	11	1.32
Sb	50	0.451
Ba	0.5	0.0063
Be	0.2	0.0039
B	1.5	0.273
Cd	5	0.0175
Cr	7	0.0831
Co	2.8	0.083
Cu	4	0.0546
Fe	6	1.98
Pb	29	0.604
Mn	0.4	0.0118
Mo	2.8	0.143
Ni	4	0.0628
Ag	3	0.06
Te	23	0.771
V	1.5	0.0637
Zn	50	0.115

One consequence of the radically lowered detection limits is that method blank analyte concentrations that previously went undetected are now measurable. Although all reagents used are of the highest available purity for trace metals, and we have experimented with different brands to find the lowest levels, they still contain small amounts of target metals. The consumption of large amounts of acids and oxidizers during sample digestion concentrates metals in the samples and blanks. Therefore, there are instances where the criteria for an acceptable blank is not met. These data are noted.
A second simultaneous axid (IRIS mold) ICP was put in service in the fall. A parallel study of the two

instruments was run using extracts from the full range of matrices connected with liquid treatment plant sampling, and the results showed excellent correlation, so the instruments can be used interchangeably without biasing the results.

3. Copper

In dealing with samples where copper had to be accurately measured at very low levels it was discovered that bottle contamination was a major factor.

Studies conducted in the spring of 2004 showed that the existing stock of 2L sewage and sludge sampling bottles were randomly and enduringly contaminated with copper. The bottles that were tested leached anywhere from nothing to 40 ug/L copper even after acid soaking. By the summer of 2004, the entire stock of 2L sampling bottles was retired from service and replaced with single use acid soaked bottles. Abnormally high PLE results (sometimes in the hundreds of ug/L) ceased to occur once single use bottles became available.

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
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
pc/L or pCi/L ..... pico curies per liter (a measure of radioactivity)
TU ..... toxicity units
ntu ..... nephelometric turbidity units
^{o}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_2S ..... 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 - 2004

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
Process Control				
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	
Metals				
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	
Ions				
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
Organic Priority Pollutants				
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	
Miscellaneous				
Radiation	M R	M R	C	Performed by a contract lab.
Toxicity (Acute & Chronic)	M R	M B	C	Reported monthly in the *Toxicity Testing Report* 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	(h) 2320 B
Ammonia Nitrogen	Distillation and Titration	Buchi Distillation Unit K-314	(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 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 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	Hach DR-2000 UV/Vis	(h) 4500-NH3 B,C
Oil and Grease	Freon Extraction / Gravimetric	Mettler AX-105 Balance	(h) 5520 B
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 AB204 & AX-105	(h) 2540 D
Solids, Suspended-Volatile	Gravimetric @ 500°C	Mettler AB204 & AX-105	(h) 2540 E
Solids, Total	Gravimetric @ 103-105°C	Mettler AB204 & AX-105	(a) 160.3
Solids, Total-Volatile	Gravimetric @ 500°C	Mettler AB204 & AX-105	(a) 160.4
Temperature	Direct Reading	Fisher Digital Thermometer	(h) 2550 B
Turbidity	Nephelometer Turbidimeter	Hach 2100-A & 2100-A Meter	(h) 2130 B

INFLUENT and EFFLUENT (Anions)

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

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

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 B
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 B
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 P2AS/3100C HP-5890GC / 5972MSD Capillary HP-624	(c) 8260 B
Base/Neutral Extractables	Basic / CH_2Cl_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-100/ED-40 C-18 Luna 5um	(a) 605
Chlorinated Compounds	CH_2Cl_2 extraction, GC-ECD	Varian 3800 GC-ECD Varian 3800 GC-ECD RTX-5/60m : RTX-1701/60m	(a) 608
Dioxin	CH_2Cl_2 extraction, GC/MS/MS	Varian Saturn GC-MS-MS	(a) 8280A
Organophosphorus Pesticides	CH_2Cl_2 extraction, hexane exchange, GC-PFPD	Varian 3800 GC-PFPD DB-1/30m DB-608/30m	(a) 622
Phenolic Compounds	Acidic / CH_2Cl_2 continuous extraction, GC-MSD	HP-6890GC / 5973MSD HP-5890GC / 5972MSD Capillary HP-5ms	(a) 625 (aa)
Purgeables (VOCs)	Purge & Trap, GC-MSD	Tekmar/Dohrman 2016 HP-5890GC / 5972MSD Capillary HP-624	(a) 8260B (aa)
Tri, Di, and Monobutyl Tin	CH_2Cl_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.

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

Analyte	Description	Instrumentation	Reference[1]
Alkalinity	Selected Endpoint Titration	Mettler DL-25 Titrator	(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 Balance	(h) 2540 B
Solids, Total-Volatile	Gravimetric @ 500°C	Mettler PM 4600 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 HP-5890GC / 5972MSD Capillary HP-624	(c) 8260 B (aa)
Base/Neutral Extractables	Basic / CH_2Cl_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_2Cl_2 extraction, GC-ECD	Varian 3800 GC-ECD RTX-5/60m : RTX-1701/60m	(c) 8081 A
PCBs	CH_2Cl_2 extraction, GC-ECD	Varian 3800 GC-ECD RTX-5/60m : RTX-1701/60m	8082
Dioxin	CH_2Cl_2 extraction	Varian GC-MS/MS	(a) 1613
Herbicides	HPLC-UV/Vis Diode Array	Dionex DX-500 / PDA-100 C-18 Hypersil 5um	(c) 8280 A
Organophosphorus Pesticides	CH_2Cl_2 extraction, hexane exchange, GC-PFPD	Varian 3800 GC-PFPD DB-1/30m : DB-608/30m	(a) 622
Phenolic Compounds	Acidic / CH_2Cl_2 continuous extraction, GC-MSD	HP-6890GC / 5973MSD HP-5890GC / 5972MSD Capillary HP-5MS	(a) 625 (aa)
Purgeables (VOCs)	Purge & Trap, GC-MSD	Tekmar/Dohrman 2016 HP-5890GC / 5972MSD Capillary HP-624	(c) 8260 B (aa)
Tri, Di, and Monobutyl Tin	CH_2Cl_2 extraction, derivatization, hexane exchange, GC-FPD	Varian 3400 GC-FPD DB-1/30m : DB-608/30m	(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	(r) Section 66261.100

[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_2Cl_2 /Acetone sonication extraction, GC-MSD	HP-6890GC / 5973MSD HP-5890GC / 5972MSD Capillary HP-5MS	(c) 8270 C (c) 3550 A (aa)
Benzidines	Basic / CH2Cl2 Sonication extraction	HP-6890GC / 5976MSD Capillary HP-5MS	(c) 8270C (c) 3550 A
Chlorinated Compounds	CH_2Cl_2 extraction, GC-ECD	Varian 3400 GC-ECD RTX-5/60m : RTX-1701/60m	(c) 8081 A
PCBs	CH_2Cl_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_2Cl_2 extraction, hexane exchange, GC-PFPD	Varian 3800 GC-PFPD DB-1/30m DB-608/30m	(c) 8141 A
Phenolic Compounds	CH_2Cl_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	Tekmar/Dohrman 2016 HP-5890GC / 5972MSD Capillary HP-624	(c) 8260 B
Tri, Di, and Monobutyl Tin	CH_2Cl_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-900	(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_2Cl_2 / Acetone ASE GC-MSD	HP-6890GC / 5973MSD HP-5890GC / 5972MSD Capillary HP-5MS	(c) 8270 C (aa)
Chlorinated Compounds	CH_2Cl_2 extraction, GC-ECD/MS/MS	Varian Saturn GC-ECD/MS/MS DBXLB/60m	(c) 8081 A
PCBs as Congeners	CH_2Cl_2 extraction, GC-ECD/MS/MS	Varian Saturn GC-ECD/MS/MS DBXLB/60m	(c) 8082
Organophosphorus Pesticides	CH_2Cl_2 extraction, hexane exchange, GC-PFPD	Varian 3600 GC-PFPD DB-5/30m DB-608/30m	(c) 8141 A
Tri, Di, and Monobutyl Tin	CH_2Cl_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.

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 **Solaar M6**	(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_2Cl_2 ASE extraction, GC-MSD	Dionex ASE-200 HP-5890GC / 5971MSD Capillary DB-XLB/30m	(c) 3545 / 8270 C
Chlorinated Compounds	CH_2Cl_2 extraction, GC-ECD/MS/MS	Varian 3800 GC Saturn 2000 MS-Ion Trap DB-XLB/60m	(c) 3545 / 8081 A
PCBs	CH_2Cl_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.

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

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			
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

[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.

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
Endrin	ng/L	400			800	1,000
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

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

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

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 three 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

CITY of SAN DIEGO ENVIRONMENTAL MONITORING SERVICE

METROPOLITAN WASTEWATER CHEMISTRY LABORATORY

5530 KIOWA DRIVE

LA MESA, CA 91942-1331

Scope of certification is limited to the
"List of Approved Fields of Testing and Analytes"
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: **08/31/2005**
Effective Date: **08/01/2003**

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 **Lab Phone** (619) 668-3222
METROPOLITAN WASTEWATER CHEMISTRY LABORATORY
5530 KIOWA DRIVE
LA MESA, CA 91942-1331

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.

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

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.

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
"List of Approved Fields of Testing and Analytes"
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: **07/31/2005**
Effective Date: **07/01/2003**

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

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: 07/31/2005**

Field of Testing: 108 - Inorganic Chemistry of Wastewater

108.080	001	Residue, Total	EPA 160.3
108.090	001	Residue, Volatile	EPA 160.4
108.380	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
108.530	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 03/09/2004 , 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

Scope of certification is limited to the
"List of Approved Fields of Testing and Analytes"
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: **2477**
Expiration Date: **07/31/2005**
Effective Date: **07/01/2003**

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

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: 07/31/2005**

Field of Testing: 108 - Inorganic Chemistry of Wastewater

108.080	001	Residue, Total	EPA 160.3
108.090	001	Residue, Volatile	EPA 160.4
108.370	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 02/03/2004 , 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: **01/31/2005**
Effective Date: **01/31/2003**

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

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

Lab Phone (619) 668-3212

Certificate No: 2539 **Renew Date: 01/31/2005**

Field of Testing: 108 - Inorganic Chemistry of Wastewater

108.070	001	Residue, Non-filterable	EPA 160.2
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
108.443	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 01/31/2003 , this list supersedes all previous lists for this certificate number.
Customers: Please verify the current accreditation standing with the State.

Page 1 of 1

California Department of Health Services

STATE OF CALIFORNIA
DEPARTMENT OF HEALTH SERVICES
ENVIRONMENTAL LABORATORY ACCREDITATION PROGRAM

ENVIRONMENTAL LABORATORY CERTIFICATION

Is hereby granted to

CITY of SAN DIEGO ENVIRONMENTAL / TECHNICAL SERVICES

METRO BIOSOLIDS CENTER WASTEWATER CHEMISTRY

5240 CONVOY STREET

SAN DIEGO, CA 92111

Scope of certification is limited to the
"List of Approved Fields of Testing and Analytes"
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: **2478**
Expiration Date: **07/31/2005**
Effective Date: **07/01/2003**

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 / TECHNICAL SERVICES
METRO BIOSOLIDS CENTER WASTEWATER CHEMISTRY
5240 CONVOY STREET
SAN DIEGO, CA 92111

Lab Phone (858) 614-5834

Certificate No: 2478 **Renew Date: 7/31/2005**

Field of Testing: 108 - Inorganic Chemistry of Wastewater

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

As of 2/25/2004 , 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	BOA	Ben	Andoh	
TB	TSB	Tan	Bao	
VB	VFB	Virginia	Basilan	
EB	EMB	Eric	Becker	
EB	BTX	Enrique	Blanco	
BGB	N8B	Brent	Bowman	
TB	TMB	Tom	Burger	
DC	DVC	Doug	Campbell	
LC	UEC	Laura	Carr	
LC	G3C	Jose	Castro	
JCM	U8C	Jacqueline	Cazares-Medina	
CC	I5C	CC	Chou	
NC	NLC	Nancy	Coglan	
MC	M5C	Maricela	Coronel	
JCM	G8C	Jerry	Czajkowski	
KD	KOD	Ken	Dang	
HHD	HZD	Heather	Duckett	
ACD	AD4	Angelica	Duran	
SE	SZE	Steve	Evans	
JF	JRF	Jeff	Findley	
KG	KG3	Kenneth	Genz	
RJ	RCJ	Ron	Jardine	
LK	LNK	Lee	King	
WK	WXK	Walter	Konopka	
EL	EVL	Estela	Lanez	
AM	M5U	Armando	Martinez	
FM	YBM	Fernando	Martinez	
ConnieMata	M4M	Connie	Mata	
SWM	SWM	Steve	Meyer	
FM	IZM	Francisco	Meza	
JM	G7M	Jeff	McAnally	
JN	IEN	Jesus	Nieto	
LP	LJP	Lorena	Pantoja	
LP	LXP	Leonard	Przybylo	
CAQ	CQ5	Corinna	Quinala	
RS	RDS	Robert	Sandoval	
DWS	DXS	David	Schlickman	
GS	GTS	Greg	Schlimme	
GR	HIR	Gloria	Siqueiros	
MS	D8U	Miles	Slattery	
MRS	MWS	Michael	Stewart	
MIS	S49	Margot	Szeterlak	
SV	SCV	Sandra	Valenzuela	
GV	JRV	Gabriel	Velarde	
JW	AIW	Julie	Webb	
CW	C2W	Crystal	Winkler	
KW	KLW	Kristof	Witczak	
MZ	MZ	Maria	Zapata	

Figure 1. Chemistry Laboratory Organization Chart. (2004)

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

Deputy Director
Alan Langworthy

Asst. Deputy Director
Stan Griffith

Senior Chemist *1.00*
Walter F. Konopka, Jr

Pesticides/ Wet Chemistry Group *Associate Chemist 1.00* JEFF MCANALLY	***QA/DM Group*** *Associate Chemist 1.00* STEVE MEYER	***Metals Group*** *Associate Chemist 1.00* DAVID SCHLICKMAN	***Point Loma Process Control Group*** *Associate Chemist 1.00* BRENT BOWMAN	***North Process Control Group*** *Associate Chemist 1.00* NANCY COGLAN	***GC/MS & So. Bay Process Control Group*** *Associate Chemist 1.00* ROBERT SANDOVAL
Assistant Chemists: 9.00 TAN BAO CC CHOU KEN DANG CRYSTAL WINKLER MARIA ZAPATA SANDRA VALENZUELA JAQUELINE CAZARES-MEDINA HEATHER DUCKETT MICHAEL STEWART RONALD JARDINE	*Assistant Chemists: 4.00* LEE KING TOM BURGER MILES SLATTERY Vacant	*Assistant Chemists: 5.00* BEN ANDOH JERRY CZAJKOWSKI JEFF FINDLEY JESUS NIETO LEONARD PRZYBYLO	*Assistant Chemists: 3.00* JULIE WEBB GREG SCHLIMME ENRIQUE BLANCO	*Assistant Chemists: 4.00* VIRGINIA BASILAN KRIS WITCZAK LAURA CARR LORENA PANTOJA	*Assistant Chemists: 6.00* FRANCISCO MEZA STEVE EVANS ESTELA LANEZ *-SB* FERNANDO MARTINEZ DOUG CAMPBELL Vacant
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	Word Processing Operator: 1.00 CORINNA QUINATA				

J. Acknowledgements

Point Loma Wastewater Treatment Plant and Ocean Outfall Annual Monitoring Report 2004

City of San Diego
Metropolitan Wastewater Department
Environmental Monitoring & Technical Services Division
Wastewater Chemistry Laboratory
5530 Kiowa Drive
La Mesa, CA 91942
Phone: (619) 668-3212/3205 FAX: (619) 668-3250

Supervising Editors & Science Staff:
Walter F. Konopka, Jr.
Steve Meyer

Editorial Production & Support
Data Management, Report Generation, Data Tables & Graphics
Tom Burger
Lee King
Armando Martinez
Corinna Quinata
Miles Slattery

Operations & Maintenance Division
1902 Gatchell Road
San Diego, CA
Phone: (619) 221-8770 FAX: (619) 221-8305

Point Loma Wastewater Treatment Superintendent
Joe A. Cordova

Senior WW Operations Supervisor
Vacant (through July 10, 2004)
Kip Cooper

Senior WW Operations Supervisor- Process Control
James C. Lindsay

Senior Civil Engineer
Jerry D. Williams

Senior Plant Technician Supervisor
Theodore Taylor

Senior Power Plant Supervisor
Jerry L. Fabula