

IV. Metro Biosolids Center (MBC) Data

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- B. Daily Digester and Digested Sludge Data Summary
- C. Gas Production
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A. Return Stream Data Summary

This section presents the results of analyses of the Metro Biosolids Center (MBC) return stream (MBC_COMBCN) for 2001. This return stream is continuously sampled by a flow proportioned, autosampler connected to the return stream lines at MBC. Each 24-hour¹ composite is collected and analyzed for pH, BOD, TSS, TVSS, TS, and TVS daily. An aliquot is preserved and added to a monthly (calendar month) composite for analysis of trace metals.

During 2001, the return stream was also analyzed for the entire suite of analyses including the priority pollutants. This data is reported in section VI. A. Annual Pretreatment Program (or Semi-Annual Sludge Project), which precedes this section in this report.

The data is presented in tables of monthly averages and select parameters' monthly averages are graphed. Tables of daily values for select parameters (such as TSS, Flow, etc.) along with graphs are also provided.

¹ approximately midnight to midnight each day.

City of San Diego
Metropolitan Wastewater Department

Metro Biosolids Center

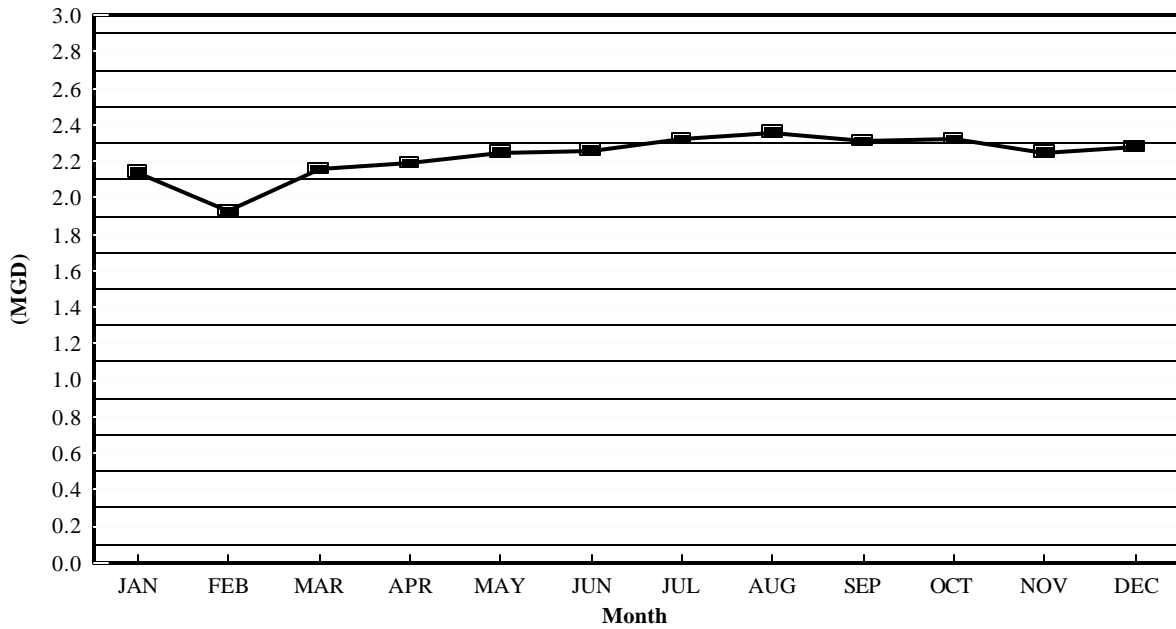
Monthly Averages of Daily Analyses

From 01-JAN-2001 To 31-DEC-2001

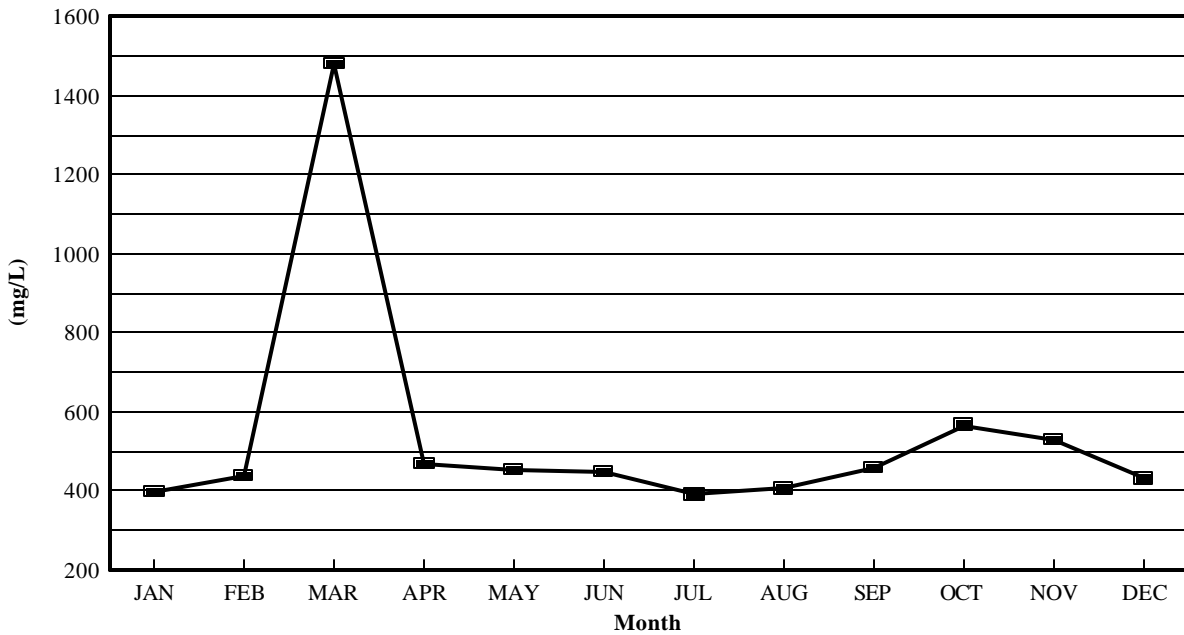
	FLOW	PH	BOD	TSS	VSS	TS	TVS	TSS Mass Emmissions (lbs/Day)
	MGD	pH Units	mg/L	mg/L	mg/L	Wt%	Wt%	
JANUARY -2001	2.14	7.61	<273	529	399	0.27	38	9441
FEBRUARY -2001	1.93	7.79	331	556	438	0.27	38	8949
MARCH -2001	2.16	7.74	>823	1940	1480	0.46	47	34948
APRIL -2001	2.19	7.95	256	601	468	0.27	42	10977
MAY -2001	2.25	7.70	<258	604	454	0.32	45	11334
JUNE -2001	2.26	7.73	<290	615	450	0.33	47	11592
JULY -2001	2.32	7.70	<310	567	390	0.34	47	10971
AUGUST -2001	2.36	7.74	309	562	405	0.34	47	11062
SEPTEMBER-2001	2.31	7.92	280	619	459	0.28	45	11925
OCTOBER -2001	2.32	7.97	332	740	567	0.30	46	14318
NOVEMBER -2001	2.25	8.01	306	684	531	0.28	44	12835
DECEMBER -2001	2.28	8.03	<277	526	430	0.24	40	10002
Average	2.23	7.82	337	712	539	0.31	44	13196

ND=not detected; NS=not sampled; NA=not analyzed.

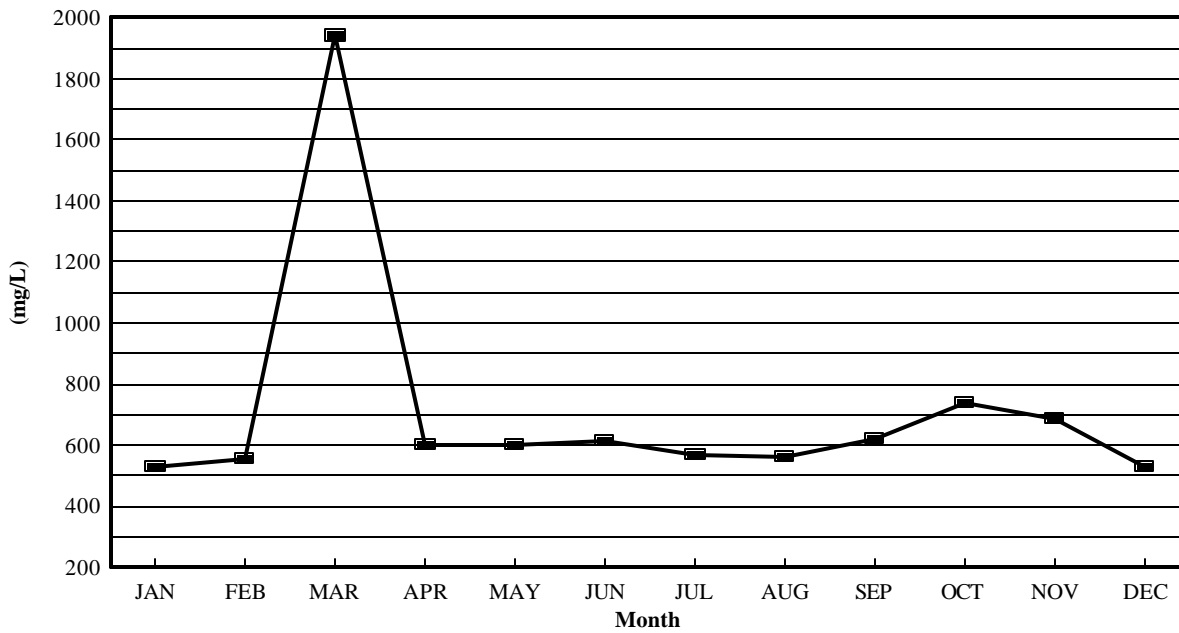
**MBC Combined Centrate
2001 Monthly Averages - Flows(MGD)**



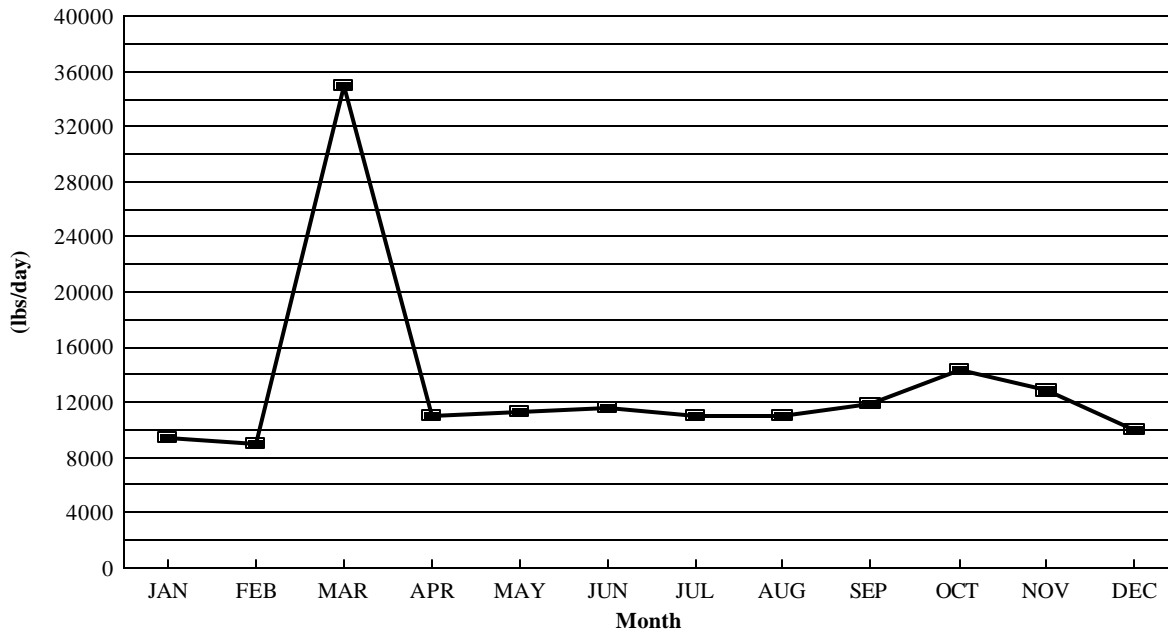
**MBC Combined Centrate
2001 Monthly Averages - VSS(mg/L)**



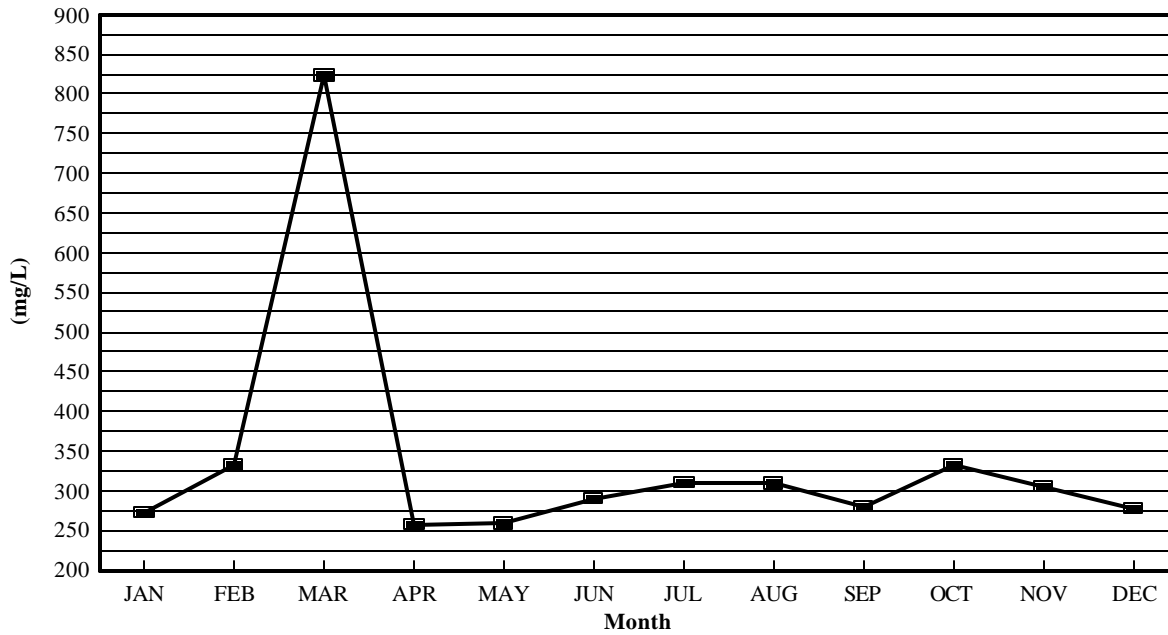
MBC Combined Centrate
2001 Monthly Averages - TSS(mg/L)



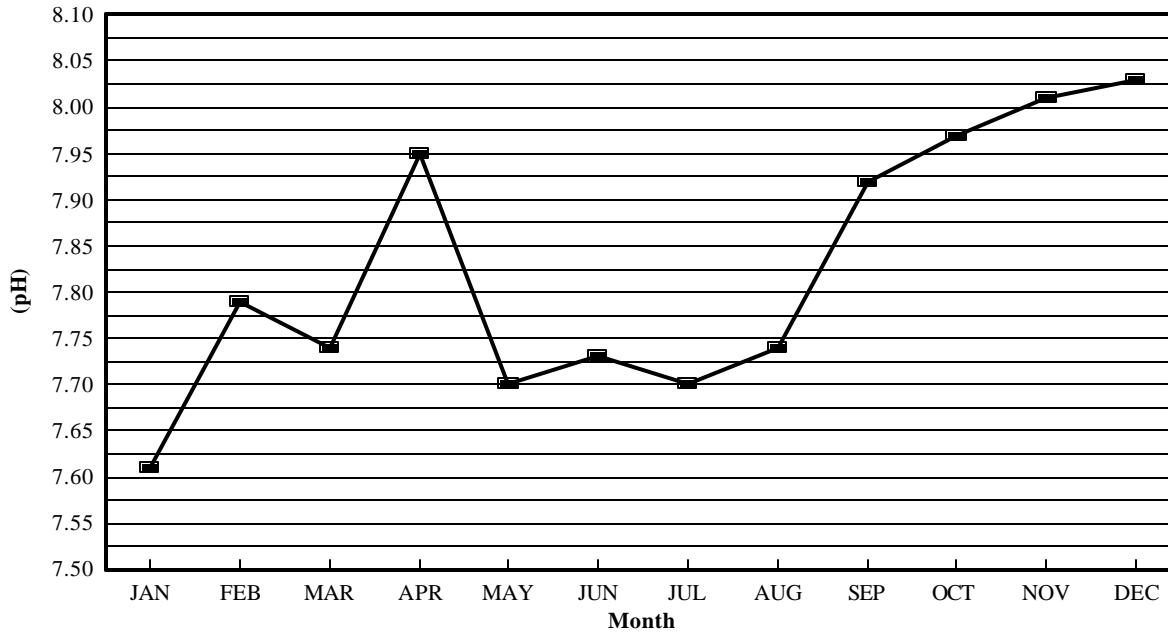
MBC Combined Centrate
2001 Monthly Avg.-TSS Mass Emmissions



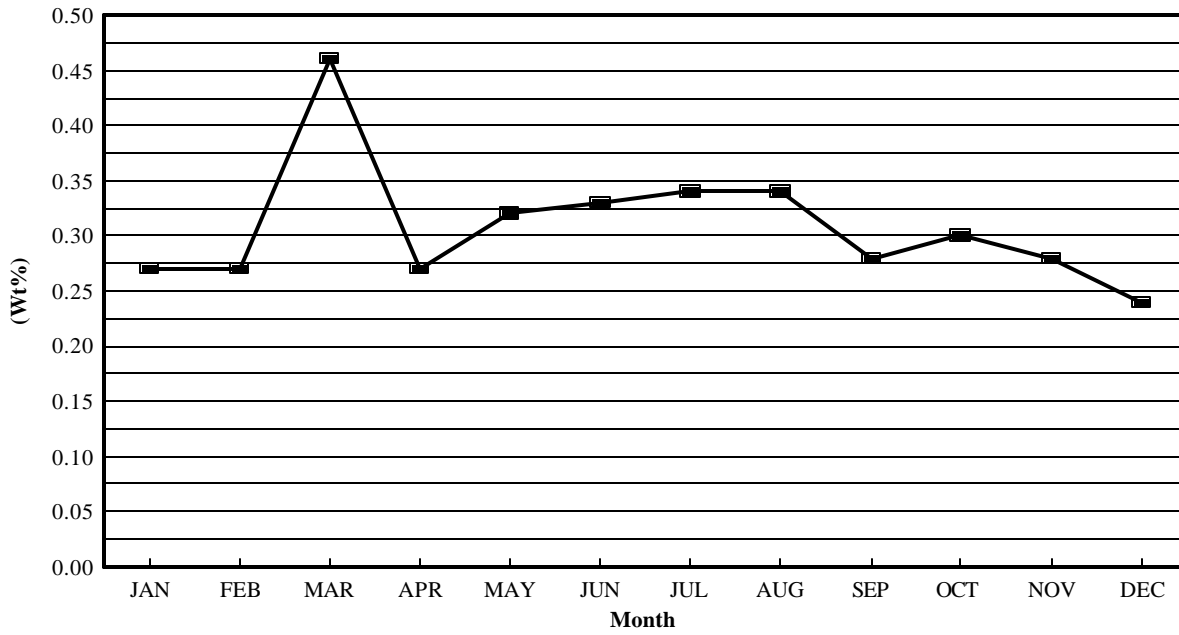
**MBC Combined Centrate
2001 Monthly Averages - BOD(mg/L)**



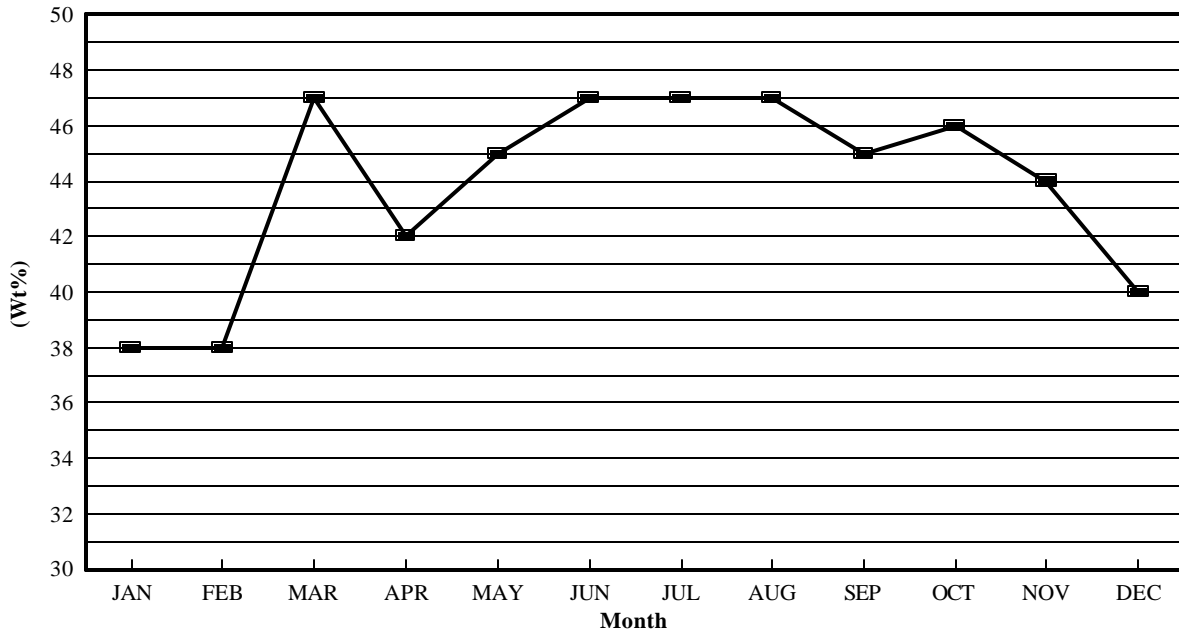
**MBC Combined Centrate
2001 Monthly Averages - pH**



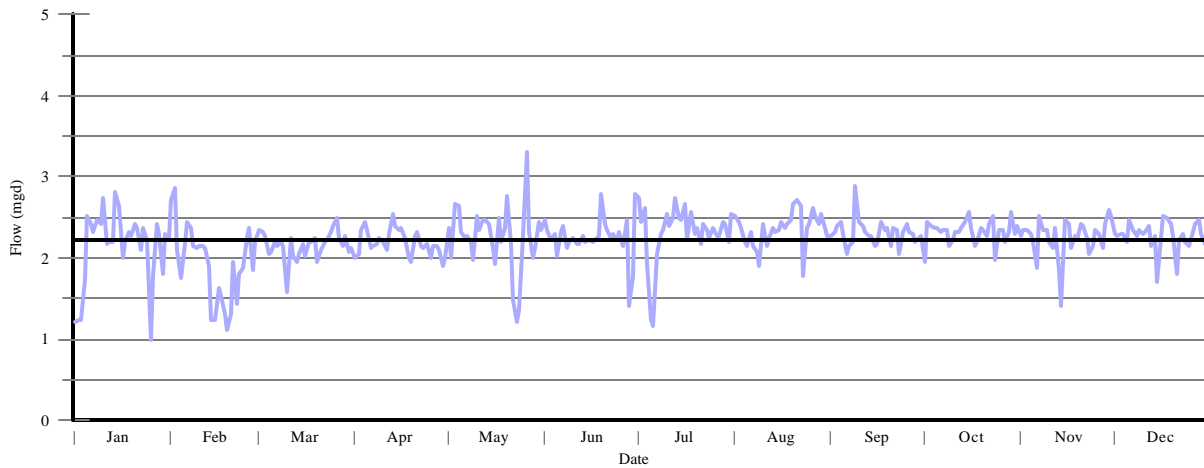
**MBC Combined Centrate
2001 Monthly Averages - Percent TS**



**MBC Combined Centrate
2001 Monthly Averages - Percent VS**



2001 MBC Return Stream Flow (mgd)



Metro Biosolids Center
2001 MBC Return Stream Daily Flows (mgd)

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	1.220	2.710	2.340	2.000	2.374	2.462	2.730	2.531	2.262	1.950	2.267	2.308
2	1.230	2.870	2.320	2.050	1.998	2.358	2.445	2.443	2.312	2.456	2.335	2.270
3	1.240	2.100	2.270	2.350	2.669	2.230	2.620	2.370	2.405	2.407	2.355	2.299
4	1.720	1.750	2.050	2.440	2.646	2.310	1.917	2.204	2.454	2.373	2.294	2.304
5	2.510	2.180	2.080	2.350	2.326	2.016	1.228	2.152	2.302	2.372	2.201	2.195
6	2.430	2.440	2.210	2.130	2.244	2.331	1.175	2.326	2.044	2.319	1.874	2.477
7	2.320	2.370	2.150	2.140	2.265	2.390	2.053	2.155	2.160	2.359	2.514	2.345
8	2.470	2.160	2.210	2.170	2.208	2.132	2.299	2.065	2.194	2.335	2.341	2.269
9	2.420	2.110	2.150	2.250	1.973	2.207	2.342	1.912	2.890	2.140	2.344	2.344
10	2.730	2.140	1.590	2.190	2.510	2.251	2.556	2.409	2.441	2.218	2.205	2.296
11	2.180	2.160	2.240	2.100	2.344	2.172	2.386	2.139	2.401	2.312	2.125	2.319
12	2.190	2.130	2.030	2.300	2.474	2.175	2.495	2.243	2.323	2.331	2.378	2.394
13	2.190	1.910	1.960	2.540	2.465	2.276	2.734	2.383	2.262	2.375	1.851	2.140
14	2.820	1.240	2.060	2.390	2.427	2.210	2.488	2.324	2.263	2.450	1.397	2.279
15	2.650	1.230	2.180	2.340	2.114	2.235	2.475	2.348	2.160	2.569	2.482	1.702
16	1.990	1.620	2.020	2.360	1.924	2.194	2.670	2.438	2.173	2.374	2.421	2.260
17	2.200	1.540	2.210	2.240	2.491	2.215	2.234	2.364	2.435	2.143	2.112	2.531
18	2.320	1.310	2.200	2.010	2.199	2.270	2.558	2.423	2.350	2.192	2.280	2.490
19	2.270	1.110	2.250	1.950	2.366	2.795	2.306	2.459	2.373	2.376	2.227	2.432
20	2.430	1.310	1.950	2.280	2.772	2.418	2.362	2.659	2.148	2.343	2.421	2.266
21	2.360	1.940	2.100	2.320	2.180	2.347	2.172	2.710	2.383	2.282	2.394	1.793
22	2.100	1.430	2.200	2.140	1.480	2.247	2.412	2.643	2.355	2.416	2.253	2.231
23	2.360	1.800	2.230	2.110	1.223	2.302	2.357	1.785	2.046	2.508	2.056	2.302
24	2.220	1.880	2.320	2.170	1.372	2.219	2.255	2.364	2.325	1.975	2.162	2.189
25	0.980	2.240	2.390	2.010	2.271	2.332	2.378	2.425	2.412	2.354	2.344	2.147
26	1.780	2.360	2.500	2.150	3.318	2.158	2.281	2.612	2.312	2.351	2.290	2.327
27	2.430	1.860	2.260	2.140	2.319	2.475	2.272	2.519	2.306	2.198	2.117	2.430
28	2.310	2.190	2.150	2.090	2.000	1.397	2.442	2.430	2.205	2.320	2.414	2.464
29	1.800		2.280	1.900	2.114	1.773	2.428	2.539	2.242	2.558	2.586	2.292
30	2.300		2.080	2.000	2.446	2.797	2.201	2.375	2.275	2.297	2.514	2.177
31	2.260		2.130		2.339		2.540	2.275		2.399		2.255
Avg	2.143	1.932	2.165	2.187	2.253	2.256	2.316	2.356	2.307	2.324	2.252	2.275
Min	0.980	1.110	1.590	1.900	1.223	1.397	1.175	1.785	2.044	1.950	1.397	1.702
Max	2.820	2.870	2.500	2.540	3.318	2.797	2.734	2.710	2.890	2.569	2.586	2.531

POINT LOMA WASTEWATER TREATMENT PLANT
 METRO BIOSOLIDS CENTER
 ANNUAL SLUDGE CENTRATE COMPOSITES
 Trace Metals

From: 01-JAN-2001 To: 31-DEC-2001

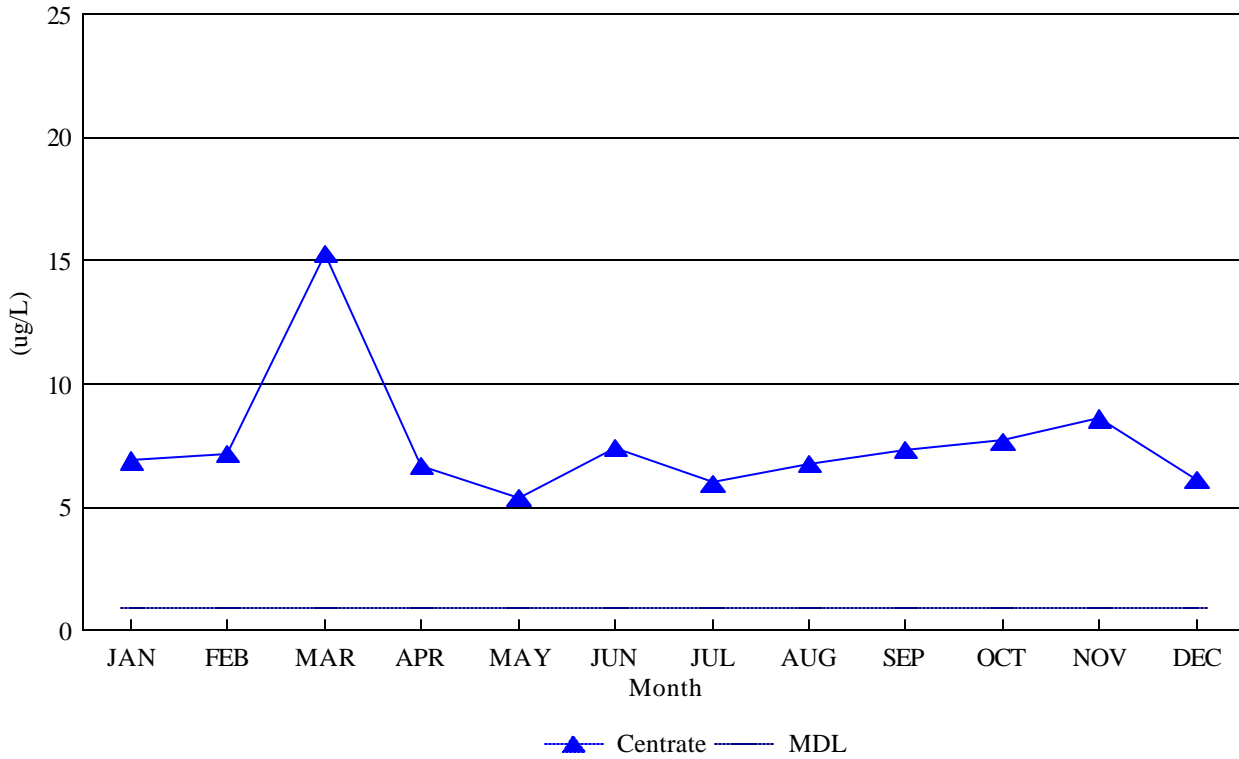
SAMPLED BY: MBC Personnel
 SAMPLED BY: BOA,G8C,JRF,IEN,LXP,DXS,JRV,SCV,JZI

Source:		MBC_COMBCN	MBC_COMBCN	MBC_COMBCN	MBC_COMBCN	MBC_COMBCN	MBC_COMBCN
Date:		31-JAN-2001	28-FEB-2001	31-MAR-2001	30-APR-2001	31-MAY-2001	30-JUN-2001
Sample ID:		MP97473ts	P99298	P101719	P106894	P109268	P111560
Aluminum	50 UG/L	1150	2240	17100	2810	3140	3190
Antimony	23 UG/L	ND	32.0	79.5	48.0	ND	60.0
Arsenic	.9 UG/L	6.9	7.2	15.3	6.7	5.4	7.4
Barium	10 UG/L	118	152	686	184	185	195
Beryllium	.39 UG/L	ND	ND	ND	ND	ND	ND
Cadmium	1 UG/L	1.3	ND	3.2	ND	ND	2.8
Chromium	5 UG/L	8	14	69	18	16	25
Cobalt	4 UG/L	<4.0	ND	10.2	ND	ND	<4.0
Copper	4 UG/L	192	211	799	221	212	284
Iron	30 UG/L	43400	35200	119000	48100	75400	69400
Lead	18 UG/L	<18	ND	36	28	ND	ND
Manganese	4 UG/L	1020	609	1300	753	1210	1360
Mercury	.54 UG/L	0.41	<0.27	1.61	<0.27	0.62	0.66
Molybdenum	3 UG/L	6.1	4.6	22.3	17.9	7.9	9.9
Nickel	14 UG/L	26	39	77	36	40	35
Selenium	2 UG/L	3.64	3.60	8.13	3.25	2.03	2.67
Silver	6.6 UG/L	ND	ND	40	ND	<7	ND
Thallium	40 UG/L	ND	ND	ND	ND	ND	ND
Vanadium	7 UG/L	ND	ND	22.2	ND	ND	11.3
Zinc	4 UG/L	89	162	852	206	247	234

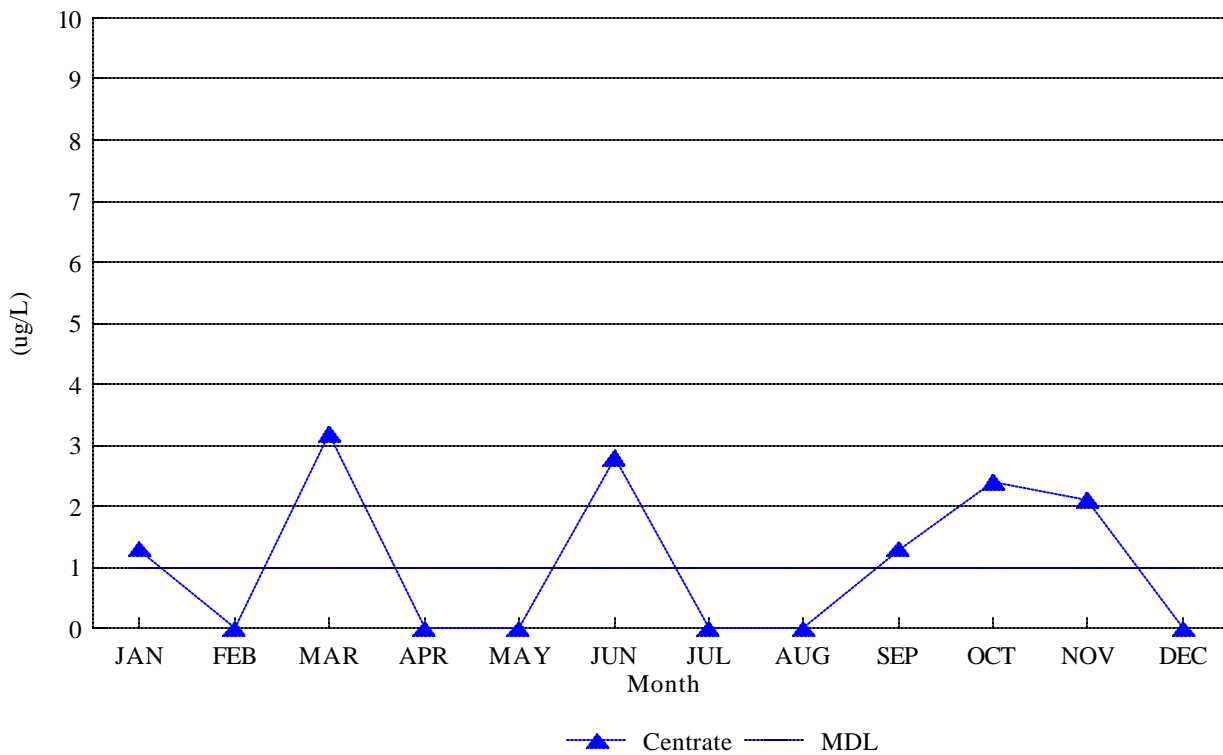
Source:		MBC_COMBCN	MBC_COMBCN	MBC_COMBCN	MBC_COMBCN	MBC_COMBCN	MBC_COMBCN
Date:		31-JUL-2001	31-AUG-2001	30-SEP-2001	31-OCT-2001	30-NOV-2001	31-DEC-2001
Sample ID:		P115366ts	P117962	P120144	P123045	P125292	P127737
Aluminum	50 UG/L	2890	2480	4220	5050	5090	2860
Antimony	23 UG/L	52.5	36.5	<23.0	52.5	ND	63.5
Arsenic	.9 UG/L	6.0	6.8	7.3	7.7	8.6	6.1
Barium	10 UG/L	182	173	221	257	266	180
Beryllium	.39 UG/L	ND	ND	ND	ND	ND	ND
Cadmium	1 UG/L	ND	ND	1.3	2.4	2.1	ND
Chromium	5 UG/L	18	14	25	25	336	10
Cobalt	4 UG/L	7.5	6.9	<4.0	ND	<4.0	ND
Copper	4 UG/L	355	329	293	337	290	166
Iron	30 UG/L	71400	70600	48900	49200	46400	28400
Lead	18 UG/L	25	ND	ND	ND	ND	41
Manganese	4 UG/L	1480	1650	1460	1510	1200	1130
Mercury	.54 UG/L	0.50	0.41	0.46	0.41	0.31	0.34
Molybdenum	3 UG/L	11.2	13.9	9.5	8.3	15.9	11.9
Nickel	14 UG/L	32	23	22	31	152	38
Selenium	2 UG/L	2.54	2.42	2.28	3.20	4.41	3.56
Silver	6.6 UG/L	24	ND	12	ND	ND	8
Thallium	40 UG/L	ND	ND	ND	ND	ND	ND
Vanadium	7 UG/L	ND	<7.0	<7.0	20.2	12.4	ND
Zinc	4 UG/L	218	186	293	330	408	195

ND= Not Detected
 NA= Not Analyzed
 NS= Not Sampled
 NR= Not Required
 MBC_COMBCN= Metro Biosolids Center Combined Sludge Centrate.

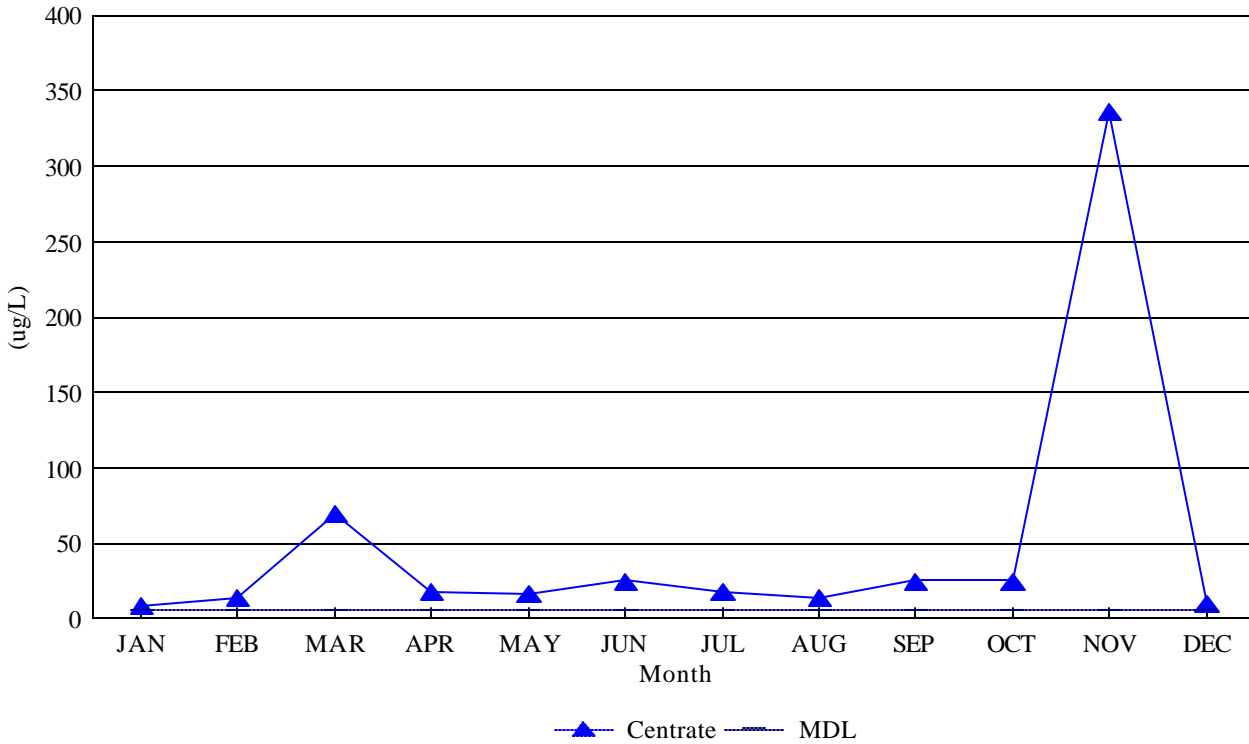
Metro Bio-Solids Center
2001 MONTHLY AVERAGES - Arsenic



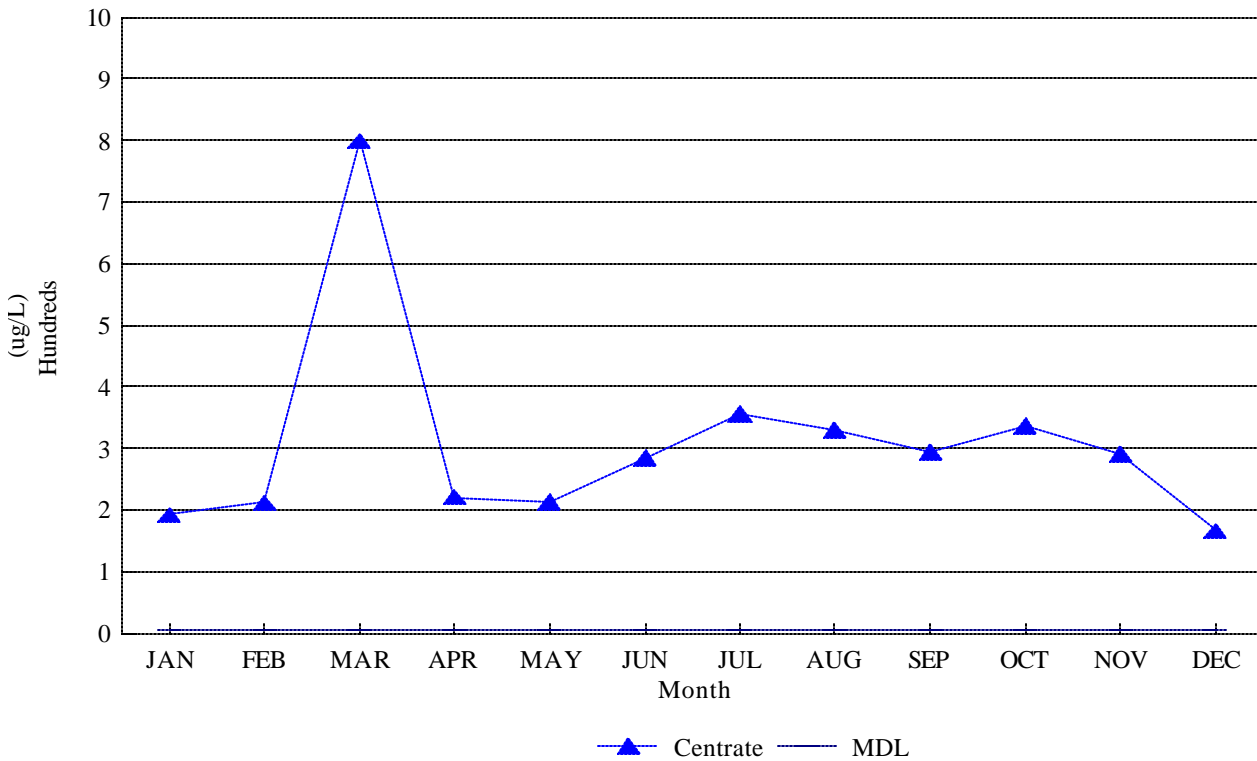
Metro Bio-Solids Center
2001 MONTHLY AVERAGES - Cadmium



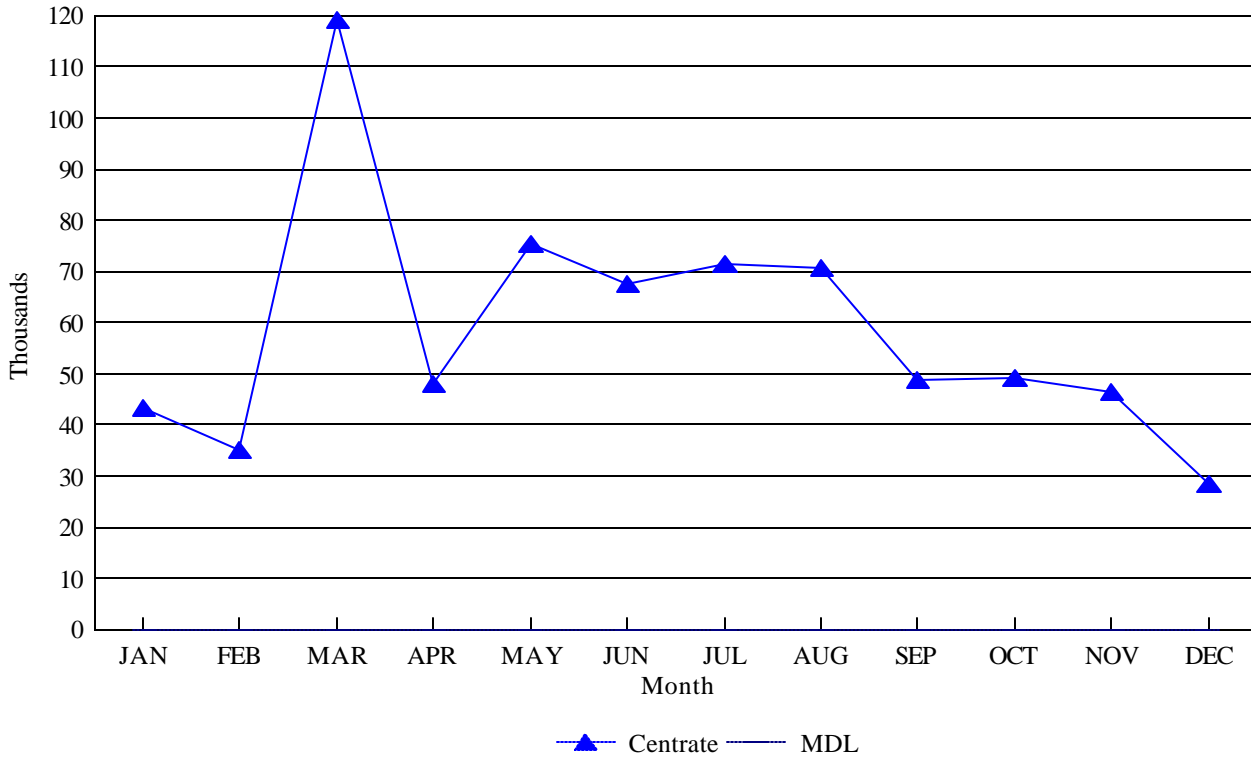
Metro Bio-Solids Center
2001 MONTHLY AVERAGES - Chromium



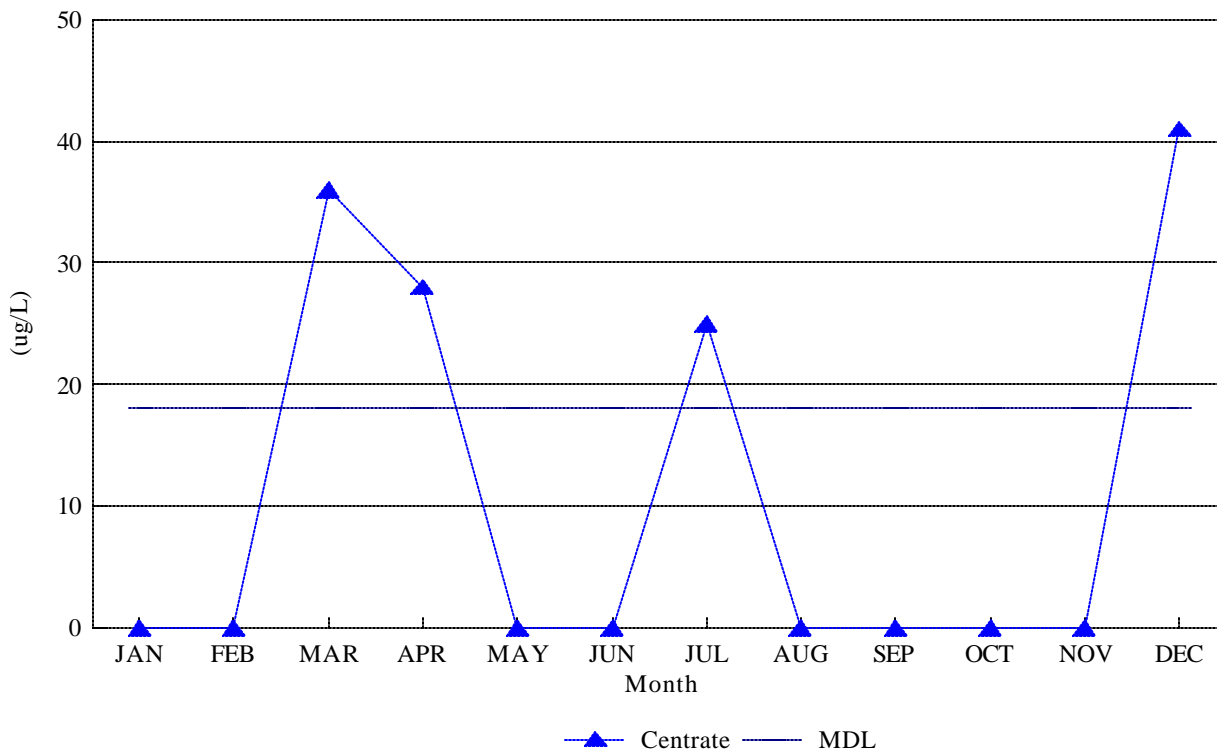
Metro Bio-Solids Center
2001 MONTHLY AVERAGES - Copper



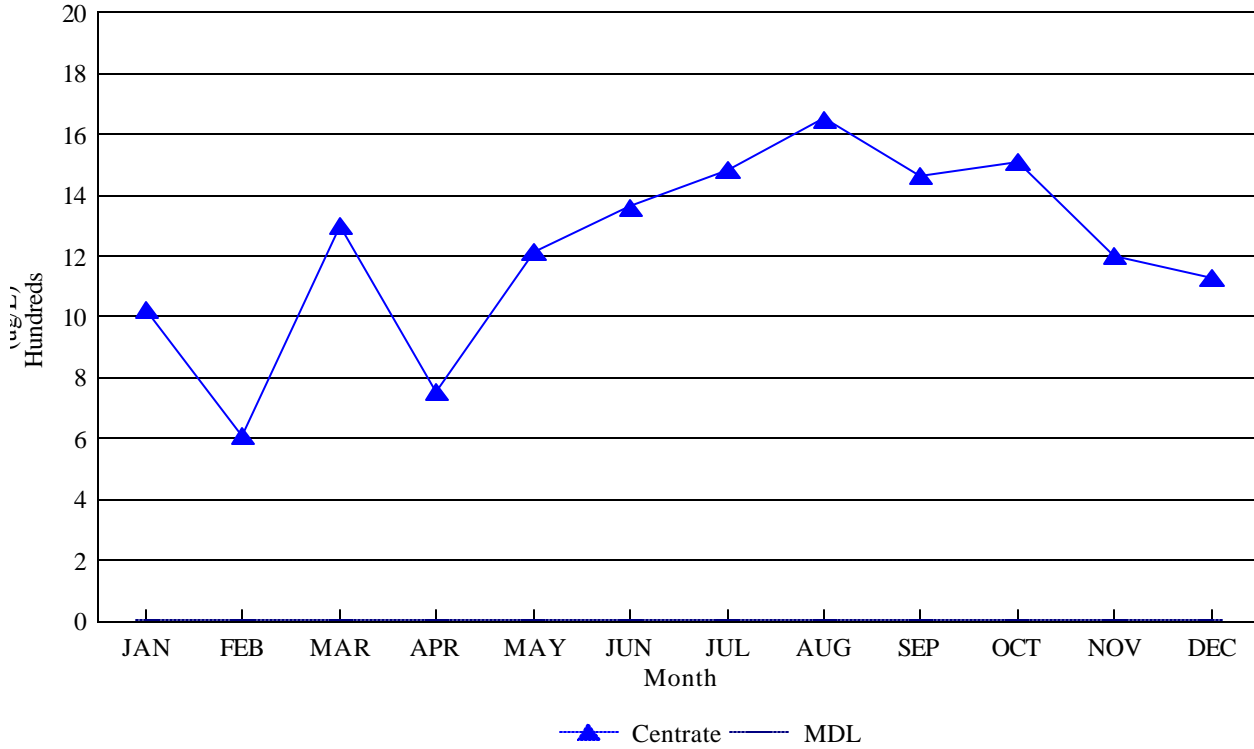
Metro Bio-Solids Center
2001 MONTHLY AVERAGES - Iron



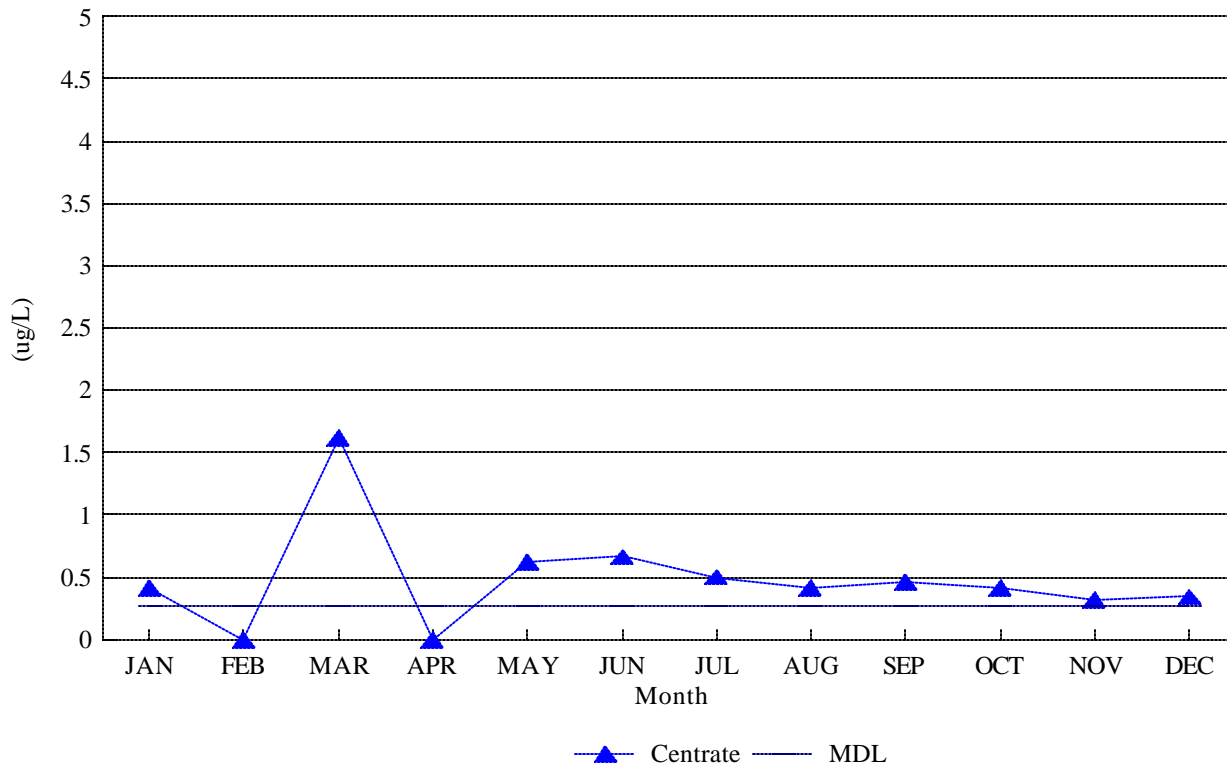
Metro Bio-Solids Center
2001 MONTHLY AVERAGES - Lead



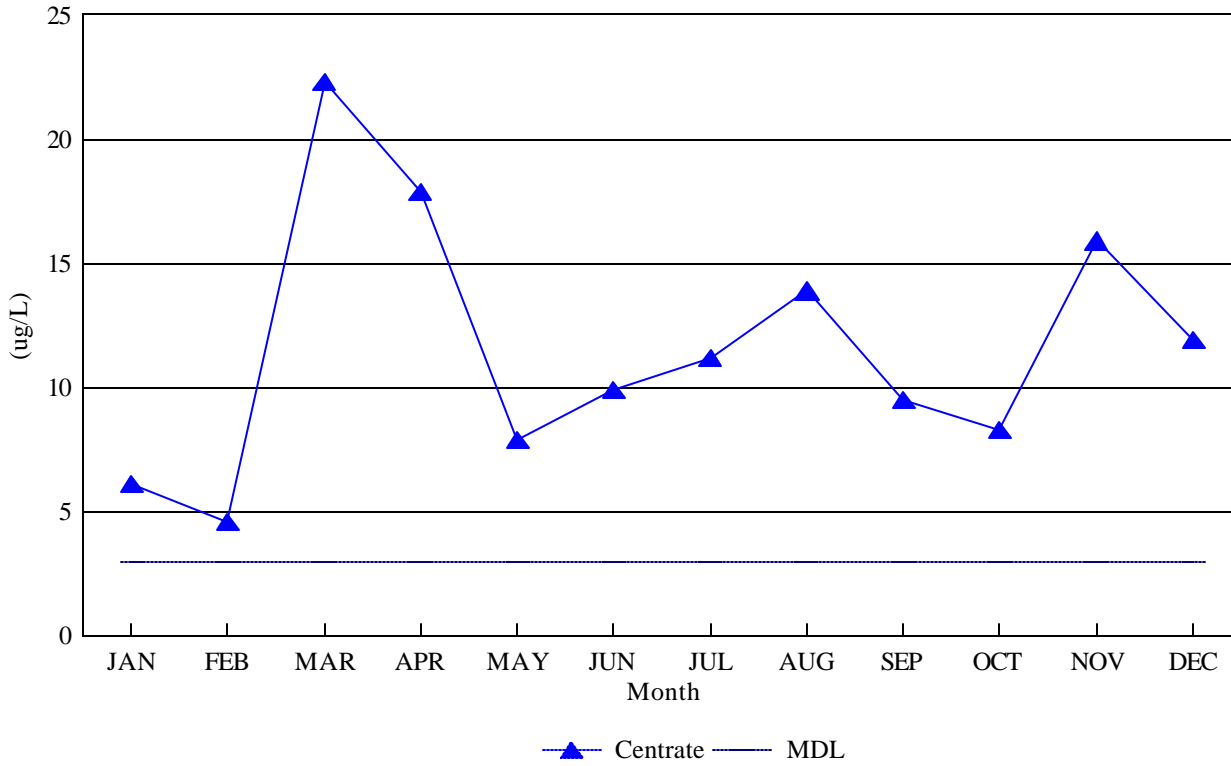
Metro Bio-Solids Center
2001 MONTHLY AVERAGES - Manganese



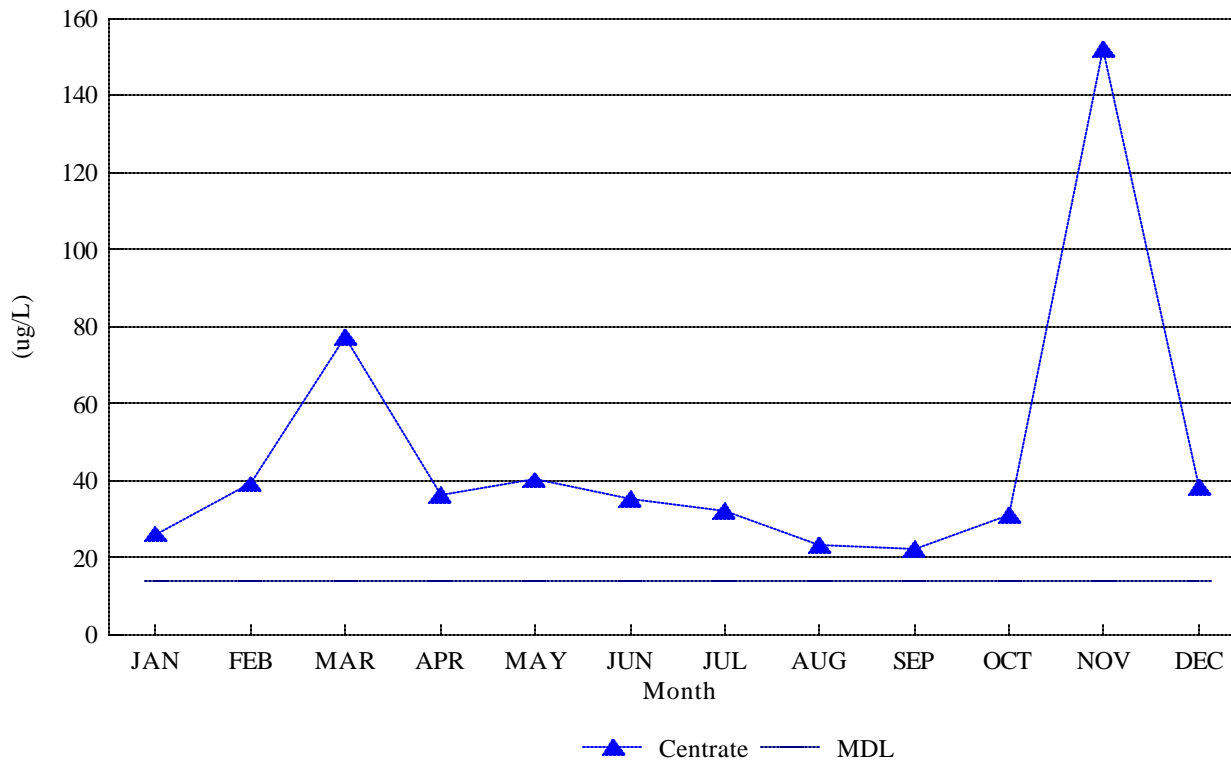
Metro Bio-Solids Center
2001 MONTHLY AVERAGES - Mercury



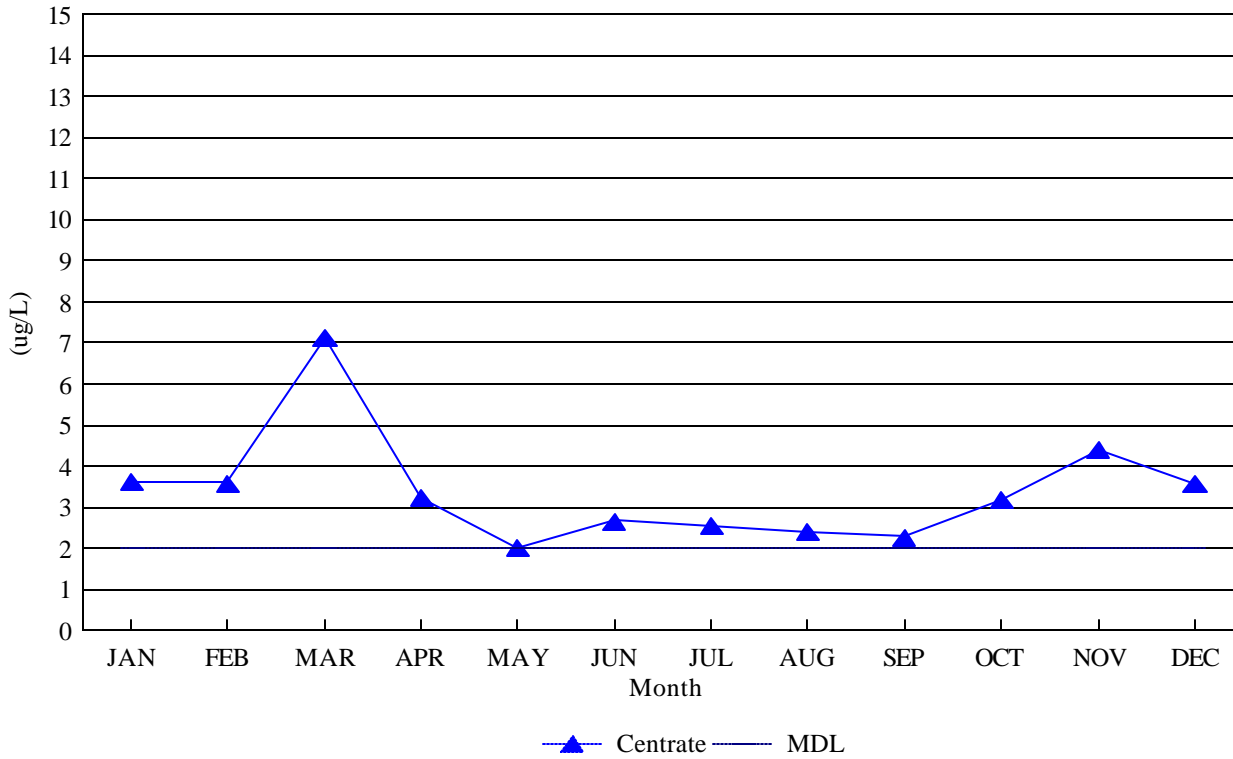
Metro Bio-Solids Center
2001 MONTHLY AVERAGES - Molybdenum



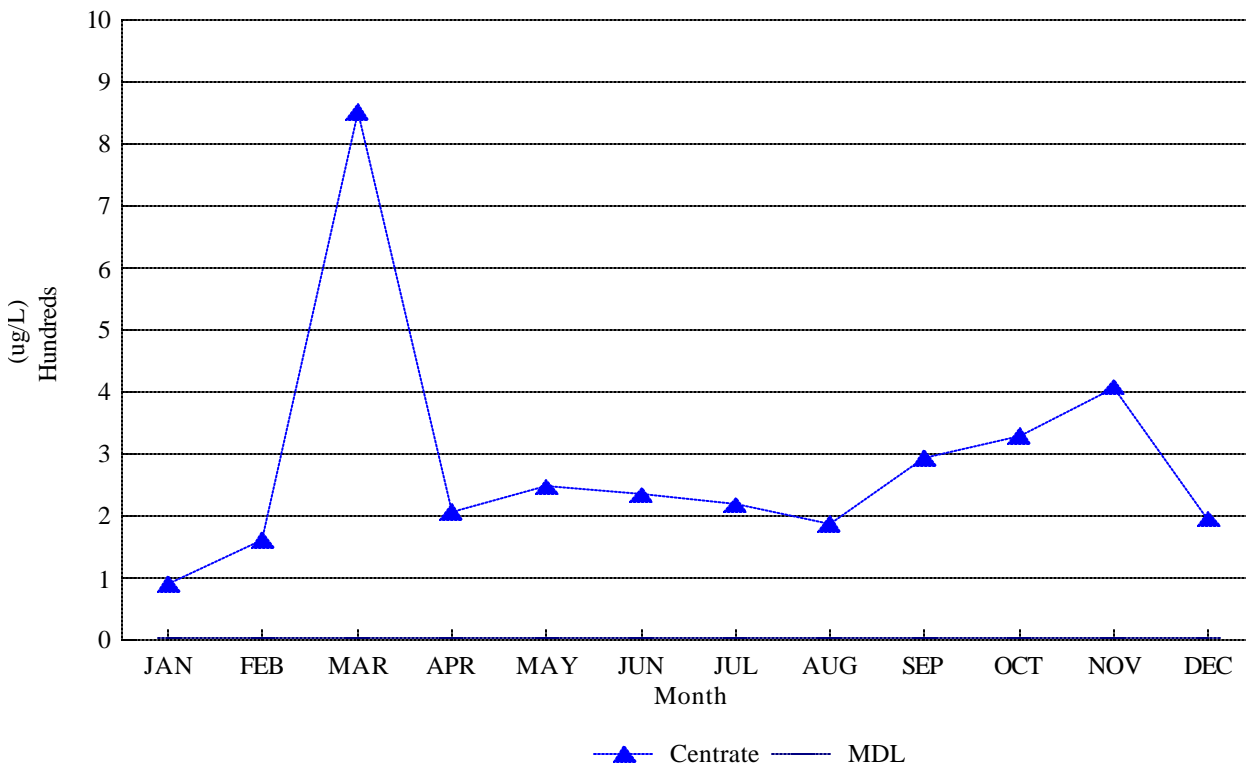
Metro Bio-Solids Center
2001 MONTHLY AVERAGES - Nickel



Metro Bio-Solids Center
2001 MONTHLY AVERAGES - Selenium



Metro Bio-Solids Center
2001 MONTHLY AVERAGES - Zinc



B. MBC Digester and Digested Sludge Data Summary

Metro Biosolids Center Annual Report
2001 Digesters

Digester 1

		Total Solids (%)	Volatile Solids (%)	Alkalinity (mg/L)	Volatile Acids (mg/L)	Methane (%)	Carbon Dioxide (%)	H2S ppm
JAN -2001	*	*	*	*	*	*	*	*
FEB -2001	*	*	*	*	*	*	*	*
MAR -2001	*	*	*	*	*	*	*	*
APR -2001	*	*	*	*	*	*	*	*
MAY -2001	7.01	2.5	67.4	1700	92	59.1	41.0	21
JUNE -2001	7.01	2.2	68.1	1850	75	60.0	40.1	21
JULY -2001	7.12	4.1	65.0	2170	79	59.5	40.5	24
AUGUST -2001	7.15	2.5	68.0	2190	83	59.6	40.4	18
SEPTEMBER-2001	7.14	2.5	67.7	2120	89	60.0	40.0	16
OCTOBER -2001	7.18	2.7	68.3	2110	84	59.7	40.3	18
NOVEMBER -2001	7.16	2.6	67.5	2230	85	59.8	40.2	17
DECEMBER -2001	7.23	2.6	66.7	2480	92	60.0	40.1	18
Average:	7.13	2.7	67.3	2106	85	59.7	40.3	19

Digester 2

		Total Solids (%)	Volatile Solids (%)	Alkalinity (mg/L)	Volatile Acids (mg/L)	Methane (%)	Carbon Dioxide (%)	H2S ppm
JANUARY -2001	OUT OF SERVICE							
FEBRUARY -2001								
MARCH -2001								
APRIL -2001								
MAY -2001								
JUNE -2001								
JULY -2001								
AUGUST -2001								
SEPTEMBER-2001								
OCTOBER -2001								
NOVEMBER -2001								
DECEMBER -2001								
	*	*	*	*	*	*	*	*

Digester 3

		Total Solids (%)	Volatile Solids (%)	Alkalinity (mg/L)	Volatile Acids (mg/L)	Methane (%)	Carbon Dioxide (%)	H2S ppm
JANUARY -2001	6.89	2.3	62.9	1570	82	60.5	39.5	20
FEBRUARY -2001	6.94	1.9	65.2	1890	77	58.8	41.2	19
MARCH -2001	6.95	2.4	65.4	1730	70	59.6	40.6	18
APRIL -2001	7.02	2.3	67.5	1830	71	59.8	40.3	19
MAY -2001	7.07	1.9	67.0	1820	78	59.1	40.9	18
JUNE -2001	OUT OF SERVICE							
JULY -2001								
AUGUST -2001								
SEPTEMBER-2001								
OCTOBER -2001								
NOVEMBER -2001								
DECEMBER -2001								
	6.97	2.2	65.6	1768	76	59.6	40.5	19

C. Gas Production

Metro Biosolids Center
Gas Report - 2001

Daily Monthly Averages

Month	GAS PRODUCTION (x1000 Cu. Ft.)			GAS CONSUMPTION (x1000 Cu. Ft.)		
	DIG 1	DIG 2	Total Gas DIG 3 Production	GAS FLARES	GAS COGENERATION	Total Gas Consumption
01			261,720.1	4,709	328,727	333,436
02			220,301.9	3,703	267,663	271,366
03			221,132.1	6,640	313,928	320,567
04			235,104.6	4,002	321,516	325,517
05	141,674.3		180,193.2	1,956	304,356	306,313
06	194,658.3			4,799	335,530	340,329
07	157,312.5			3,167	330,838	334,005
08	158,695.9			1,187	365,172	366,359
09	147,043.0			2,678	361,733	364,411
10	134,830.0			1,090	364,098	365,188
11	121,981.7			2,134	340,513	342,647
12	131,892.6			1,662	371,996	373,658
avg	148,511.0		223,690.4	3,144	333,839	336,983

Monthly Totals

Month	GAS PRODUCTION (x1000 Cu. Ft.)			GAS CONSUMPTION (x1000 Cu. Ft.)		
	DIG 1	DIG 2	Total Gas DIG 3 Production	Gas Flares	Gas Cogeneration	Total Gas Consumption
01			7,851,602.0	7,851,602.0	141,274	9,861,815
02			6,168,452.0	6,168,452.0	103,682	7,494,575
03			6,855,095.0	6,855,095.0	205,827	9,731,757
04			7,053,137.0	7,053,137.0	120,046	9,645,470
05	2,408,463.0		3,784,057.0	6,192,520.0	60,651	9,435,038
06	5,839,750.0			5,839,750.0	148,764	10,401,431
07	4,876,687.0			4,876,687.0	98,180	10,255,977
08	4,919,572.0			4,919,572.0	36,792	11,320,334
09	4,411,289.0			4,411,289.0	80,339	10,851,987
10	4,179,731.0			4,179,731.0	33,795	11,287,029
11	3,659,450.0			3,659,450.0	64,019	10,215,380
12	4,088,672.0			4,088,672.0	51,524	11,531,877
avg	4,297,951.8		6,342,468.6	5,507,996.4	95,408	10,169,389
sum	34,383,614.0		31,712,343.0	66,095,957.0	1,144,893	122,032,670

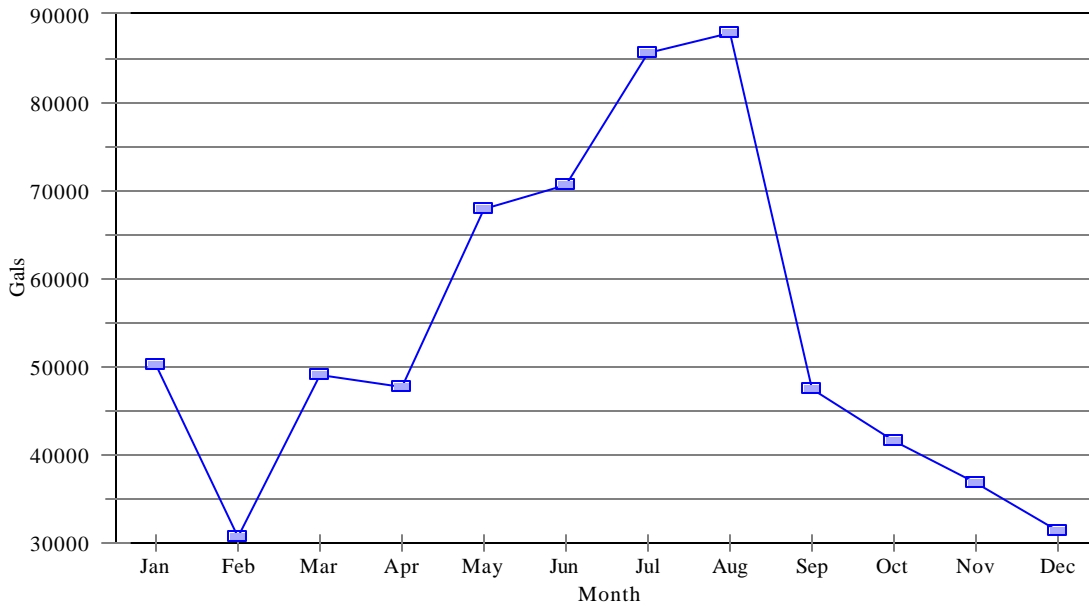
D. Chemical Usage

Metro Biosolids Center - Monthly Chemical Usage Report - 2001

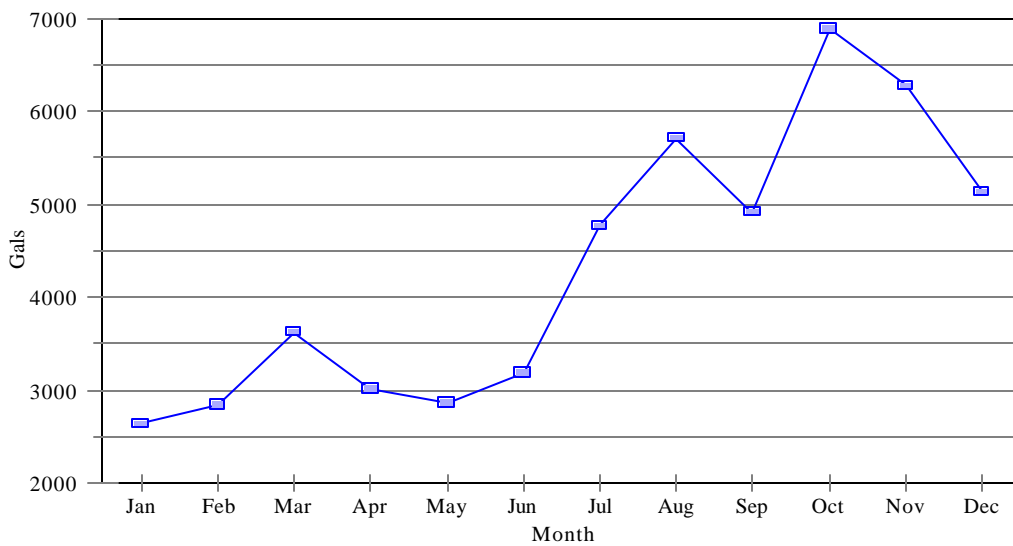
MON	Polymer Gallons	Ferric Chloride Gallons	Ferrous Chloride Gallons	Sodium Hydroxide Gallons	Hypochlorite Gallons	Sulfuric Acid Gallons
01	143,405	50,282		2,635	1,600	420
02	113,409	30,664		2,837	1,885	602
03	126,370	49,009		3,622	3,697	979
04	134,646	47,797		3,010	1,880	748
05	150,891	67,996		2,863	1,792	272
06	136,428	70,702		3,185	1,668	302
07	154,764	85,480		4,764	3,008	307
08	162,333	87,787		5,704	2,491	361
09	156,792	47,442		4,912	2,922	421
10	163,617	41,691		6,885	6,171	325
11	151,684	36,860		6,273	6,170	370
12	142,703	31,390		5,134	4,333	386
avg	144,753	53,925		4,319	3,135	458
sum	1,737,041	647,099		51,824	37,616	5,491

E. Graphs of Monthly Chemical Usage

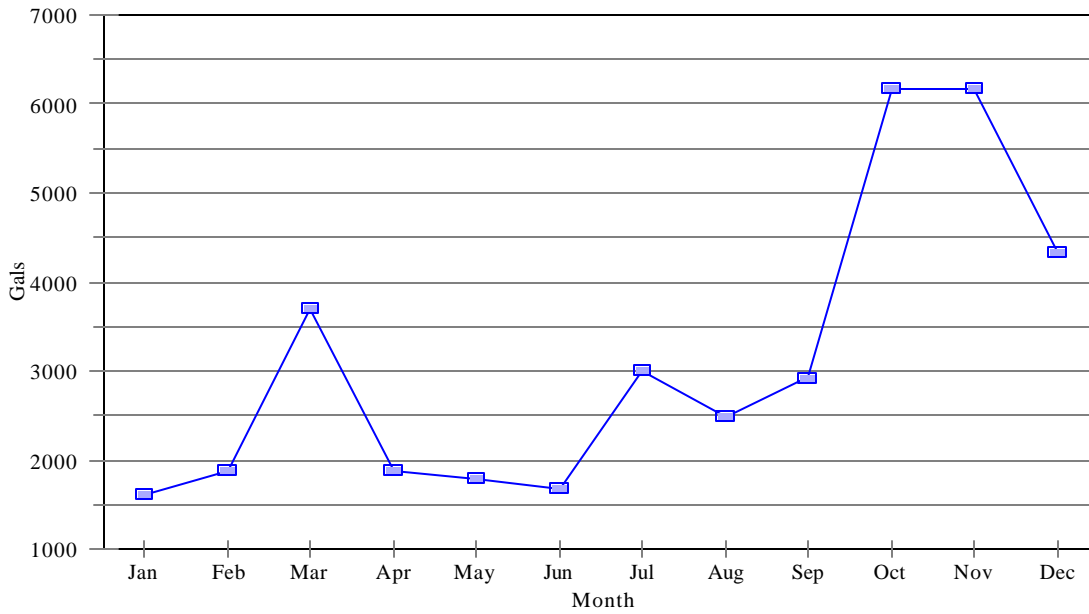
MBC - 2001 Monthly Chemical Usage
Ferric chloride



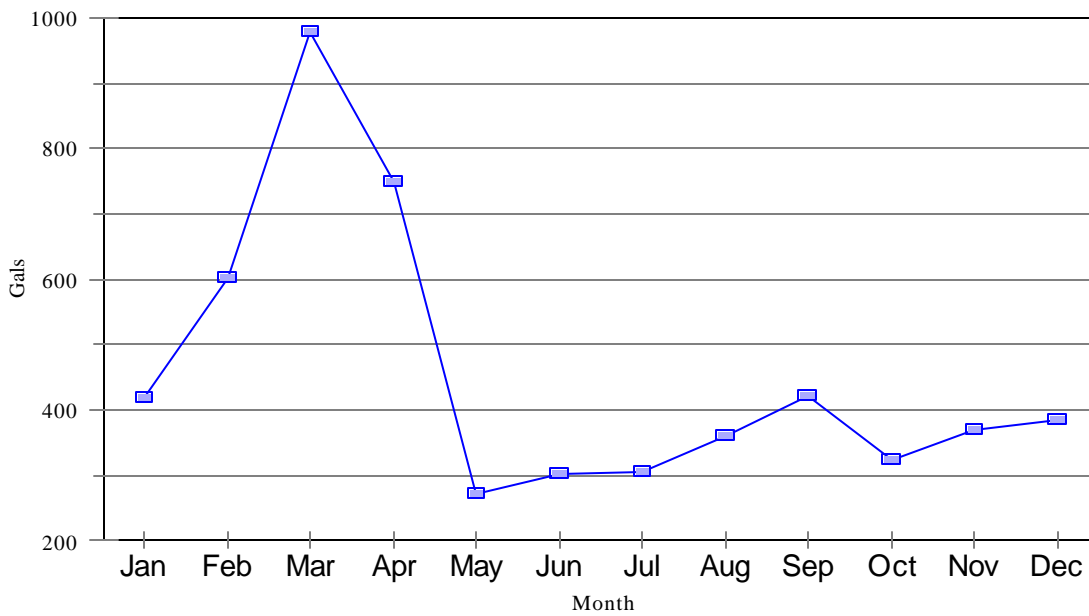
MBC - 2001 Monthly Chemical Usage
Caustic



MBC - 2001 Monthly Chemical Usage
Sodium hypochlorite



MBC - 2001 Monthly Chemical Usage
sulfuric acid



F. Facilities Out-of-service Report (2001)

FACILITIES THAT WERE OUT OF SERVICE IN 2001
FACILITY: DATES OUT OF SERVICE

Dewatering Centrifuges

Dewatering Centrifuge #1	02/01/01-02/07/01, 02/26/01-03/08/01, 05/10/01-05/15/01, 05/22/01-05/25/01, 05/29/01-06/08/01, 08/27/01-09/06/01, 09/06/01-09/17/01, 11/13/01-11/19/01, 12/12/01-12/19/01
Dewatering Centrifuge #2	01/04/01-01/16/01, 02/28/01-03/05/01, 03/21/01-03/26/01, 05/10/01-05/14/01, 05/14/01-06/08/01, 06/07/01-06/18/01, 06/19/01-06/22/01, 07/12/01-07/24/01, 07/24/01-07/27/01, 07/30/01-08/06/01, 08/17/01-08/23/01, 10/02/01, 10/04/01, 10/04/01-10/29/01, 11/15/01-11/28/01
Dewatering Centrifuge #3	02/22/01-02/26/01, 03/06/01-03/26/01
Dewatering Centrifuge #4	01/10/01-01/25/01, 02/28/01-03/05/01, 05/15/01-05/25/01, 05/16/01-05/21/01, 08/17/01-08/24/01, 10/24/01-11/09/01, 12/05/01-12/17/01, 12/19/01-12/21/01
Dewatering Centrifuge #5	07/26/01-08/09/01, 07/31/01-08/06/01, 11/28/01-12/11/01, 12/13/01-12/17/01
Dewatering Centrifuge #6	06/07/01-06/12/01, 07/03/01-07/11/01, 07/11/01-07/18/01, 07/30/01-08/06/01, 10/11/01-10/18/01, 10/18/01-10/24/01
Dewatering Centrifuge #7	02/01/01-02/05/01, 02/05/01-02/13/01, 05/08/01-05/11/01, 05/16/01-05/22/01, 08/27/01-09/04/01, 10/12/01-10/16/01, 10/17/01-10/22/01
Dewatering Centrifuge #8	02/27/01-03/09/01, 05/10/01-05/14/01, 05/14/01-05/22/01, 05/22/01-06/08/01, 07/30/01-08/06/01, 07/31/01-08/06/01, 08/28/01-08/31/01, 09/12/01-09/17/01, 10/11/01-10/17/01, 10/17/01-11/13/01, 11/13/01-11/28/01

Thickening Centrifuges

Thickening Centrifuge #2	06/04/01-06/13/01, 10/24/01-11/19/01
Thickening Centrifuge #3	01/12/01-01/16/01, 07/31/01-08/06/01, 10/24/01-11/19/01
Thickening Centrifuge #4	02/06/01-02/13/01, 02/22/01-02/26/01, 06/11/01-06/13/01, 06/13/01-06/22/01
Thickening Centrifuge #5	04/02/01-04/12/01

Degritting System

Grit Separator #1	01/30/01-02/07/01, 10/25/01-11/09/01, 10/29/01-11/19/01, 10/29/01-11/14/01
Grit Separator #2	01/30/01-02/07/01, 07/26/01-08/06/01
Grit Separator #3	01/30/01-02/07/01

Centrate Pumps

Centrate Pump #2	03/01/01-03/09/01, 03/15/01-03/20/01
Centrate Pump #3	03/13/01-03/20/01, 03/13/01-03/20/01

Biogas Flares

Biogas Flare #2	06/19/01-08/07/01, 07/11/01-08/08/01, 08/13/01-08/17/01, 12/03/01-12/11/01, 12/05/01-12/17/01
Biogas Flare #1	08/02/01-08/06/01, 08/06/01-08/16/01, 08/06/01-08/07/01, 08/13/01-08/20/01, 09/20/01-10/03/01

Digesters

Digester #1	01/01/01-01/30/01
Digester #2	01/01/01-12/31/01
Digester #3	01/31/01-12/31/01

Facilities Out-of-Service Report (2001)
 FACILITIES THAT WERE OUT OF SERVICE IN 2000 BY DATE

FACILITIES OOS	FROM	TO	REASON
Dewatering Centrifuge 1	02/01/01	02/07/01	Backdrive motor cooling fan is not turning.
Dewatering Centrifuge 1	02/26/01	03/08/01	Emergency stop button is not locking in.
Dewatering Centrifuge 1	05/10/01	05/15/01	Grease DC1 and CIP'd due to an unexpected shutdown of the centrifuge under a full load.
Dewatering Centrifuge 1	05/22/01	05/25/01	Lift bowl from main frame and clean struvite buildup.
Dewatering Centrifuge 1	05/29/01	06/08/01	Please clean centrte chute with Hotsy pressure washer.
Dewatering Centrifuge 1	08/27/01	09/06/01	Inspection and removal of scale build-up.
Dewatering Centrifuge 1	09/06/01	09/17/01	Remove and replace heat exchanger on DC#1.
Dewatering Centrifuge 1	11/13/01	11/19/01	Repaired feed tube.
Dewatering Centrifuge 1	12/12/01	12/19/01	Replaced carbide saddles.
Dewatering Centrifuge 2	01/04/01	01/16/01	Centrate is backing up into the odor control duct from DC #2.
Dewatering Centrifuge 2	02/28/01	03/05/01	Provide CIP and grease bearing to return unit to service.
Dewatering Centrifuge 2	03/21/01	03/26/01	DC # 2 has sludge feed blowing out of the front of the unit. Also , the unit trips off on drive motor overload soon after coming up to speed.
Dewatering Centrifuge 2	05/10/01	05/14/01	The Automatic Backdrive Controller fluctuates in the load mode. It will not maintain the load @ 60%.
Dewatering Centrifuge 2	05/14/01	06/08/01	Assisted Afla Laval with 12 month PM on DC #2
Dewatering Centrifuge 2	06/07/01	06/18/01	Remove scroll from damage Bowl shell and prepare bowl from shipment .
Dewatering Centrifuge 2	06/19/01	06/22/01	Assist Alfa Laval with 12 month PM as per contract.
Dewatering Centrifuge 2	07/12/01	07/24/01	Install new conveyor into DC#2 bowl, accelerator was found missing from PM
Dewatering Centrifuge 2	07/24/01	07/27/01	WELD TILES ON CENTRIFUGE CONVEYOR.
Dewatering Centrifuge 2	07/30/01	08/06/01	Remove and install centrifuge cover and grease unit after CIP. test unit and return to service after contractor has completed cleaning of chute.
Dewatering Centrifuge 2	08/17/01	08/23/01	Inspection and removal of scale build-up.
Dewatering Centrifuge 2	10/02/01	10/04/01	Secured the equipment inspect the backdrive gearbox and determine the cause of vibration and objectionable noise, repaired as found necessary.
Dewatering Centrifuge 2	10/04/01	10/29/01	Assisted Alfa Laval Technician.
Dewatering Centrifuge 2	11/15/01	11/28/01	Remove Baniron controller from DC3 to DC#2
Dewatering Centrifuge 3	02/22/01	02/26/01	Replace Accelerator on unit, disassembly unit to check for additional damage.
Dewatering Centrifuge 3	03/06/01	03/26/01	Replace Rebuilt motor on to DC#3 diverter gate.
Dewatering Centrifuge 4	01/10/01	01/25/01	DC # 4 BACKDRIVE MOTOR FAN NOT WORKING.
Dewatering Centrifuge 4	02/28/01	03/05/01	Provide CIP and grease bearing to return unit to service.
Dewatering Centrifuge 4	05/15/01	05/25/01	Remove bowl and replace with bowl from DC#3.
Dewatering Centrifuge 4	05/16/01	05/21/01	Weld missing/detached tiles (See J. Medina)
Dewatering Centrifuge 4	08/17/01	08/24/01	Inspection and removal of scale build-up.
Dewatering Centrifuge 4	10/24/01	11/09/01	Replace damage grease seal , Clean feed zone, test and return to service.
Dewatering Centrifuge 4	12/05/01	12/17/01	Replaced Cover gasket
Dewatering Centrifuge 4	12/19/01	12/21/01	Remove Feed tube and check conveyor for packed sludge.
Dewatering Centrifuge 5	07/26/01	08/09/01	Weld new tiles on conveyor to replace broken

FACILITIES OOS	FROM	TO	REASON
			ones.
Dewatering Centrifuge 5	07/31/01	08/06/01	Assist welder with turning conveyor for tile work.
Dewatering Centrifuge 5	11/28/01	12/11/01	DC#5 backdrive failure alarm.
Dewatering Centrifuge 5	12/13/01	12/17/01	76MV0205 is not closing. It supplies the UWLP to DC #5..
Dewatering Centrifuge 6	06/07/01	06/12/01	Assist Alfa Laval with Yearly PM
Dewatering Centrifuge 6	07/03/01	07/11/01	Backdrive belts need replacing.
Dewatering Centrifuge 6	07/11/01	07/18/01	High than normal Amp reading 293 Amp. After securing the feed and poly, ops flushed the DC for 15min but the Amps were still high 212.
Dewatering Centrifuge 6	07/30/01	08/06/01	Remove and install centrifuge cover and grease unit after CIP. test unit and return to service after contractor has completed cleaning of chute.
Dewatering Centrifuge 6	10/11/01	10/18/01	Emergency Shut-off switch to the main motor drive was found broken. Need tech to investigate and repair before starting the DC.
Dewatering Centrifuge 6	10/18/01	10/24/01	Replace 25 tiles on conveyor.
Dewatering Centrifuge 7	02/01/01	02/05/01	Unable to start DC #7 due to excessive volume of sludge coming out of the cake sample port. 76-MV-1618 and drain line maybe plugged.
Dewatering Centrifuge 7	02/05/01	02/13/01	high vibration alarm, will not run.
Dewatering Centrifuge 7	05/08/01	05/11/01	Need welder to attach new nut to adjustment screw threads, size is 1-1/2" Hex head Nut. Unit is currently out of Service for PM.
Dewatering Centrifuge 7	05/16/01	05/22/01	DC # 7 failed and tripped off on high motor temp.
Dewatering Centrifuge 7	08/27/01	09/04/01	Inspection and removal of scale build-up.
Dewatering Centrifuge 7	10/12/01	10/16/01	Leaks at flanges, 90* feed line
Dewatering Centrifuge 7	10/17/01	10/22/01	Hydraulic fluid is leaking from pin hole.
Dewatering Centrifuge 8	02/27/01	03/09/01	Replaced fisher/porter meter for polymer feed to DC, and all other electrical equipment for Startup of unit.
Dewatering Centrifuge 8	05/10/01	05/14/01	The Automatic Backdrive Controller is stuck @ 67.84 % load.
Dewatering Centrifuge 8	05/14/01	05/22/01	Not only load stuck @ 2650 but now PLUGGED, will not CIP.
Dewatering Centrifuge 8	05/22/01	06/08/01	Assist Alfa Laval tech to relocate electrical controls from DC#8 to DC#3
Dewatering Centrifuge 8	07/30/01	08/06/01	Remove and install centrifuge cover return to service after contractor has completed cleaning of chute.
Dewatering Centrifuge 8	07/31/01	08/06/01	Assist welder with turning conveyor for tile work.
Dewatering Centrifuge 8	08/28/01	08/31/01	Get DC 8 ready to be ran as soon as the rotating assembly is installed.
Dewatering Centrifuge 8	09/12/01	09/17/01	Switch ABC controller from DC#6 to DC#8 to verify operation and Notify Alfa Laval tech.
Dewatering Centrifuge 8	10/11/01	10/17/01	Provide ABB any mechanical assistance with determining DC 8 operational problem.
Dewatering Centrifuge 8	10/17/01	11/13/01	Remove tiles that were damaged when welded and weld on new ones.
Dewatering Centrifuge 8	11/13/01	11/28/01	Assist ABB tech with troubleshooting of DC#8
Thickening Centrifuge 2	06/04/01	06/13/01	Replace 4" globe valve.
Thickening Centrifuge 2	10/24/01	11/19/01	Assist Alfa Laval with 6 Month PM
Thickening Centrifuge 3	01/12/01	01/16/01	Replace oil on thickening unit.
Thickening Centrifuge 3	07/31/01	08/06/01	TC # 3 motor has a loud whirring sound.
Thickening Centrifuge 3	10/24/01	11/19/01	Assist Alfa Laval with 6 Month PM
Thickening Centrifuge 4	02/06/01	02/13/01	Weld steel tiles to scroll. (8)
Thickening Centrifuge 4	02/22/01	02/26/01	Greasef, oiled and assisted Alfa Laval to return equipment to service.

FACILITIES OOS	FROM	TO	REASON
Thickening Centrifuge 4	06/11/01	06/13/01	Alfa Laval tech with replacing gearbox for unit
Thickening Centrifuge 4	06/13/01	06/22/01	I&C troubleshot DCS feed pump speed output controller.
Thickening Centrifuge 5	04/02/01	04/12/01	Provide assistance to Alfa Laval to return unit TC#5 back to service.
Centrate Pump 2	03/01/01	03/09/01	Assist VFD vendor to reload memory chip for EPROM
Centrate Pump 2	03/15/01	03/20/01	Replaced flex hose between flow switch and seal water inlet.
Centrate Pump 3	03/13/01	03/20/01	Centrate pump starts but only runs for 30 sec.
Centrate Pump 3	03/13/01	03/20/01	Please try to turn pump impeller by hand
Grit Separator 1	01/30/01	02/07/01	GRIT SEPARATORS PARTIALLY PLUGGED CAUSING HIGH INLET PRESSURE.
Grit Separator 1	10/25/01	11/09/01	Center tube and the bypass line plugged, no material is going into the clarifier.
Grit Separator 1	10/29/01	11/19/01	76-GS-02 Grit dewatering unit #2 high torque alarm will not reset.
Grit Separator 1	10/29/01	11/14/01	76-GS-01 Grit dewatering unit #1 zero speed alarm will not reset.
Grit Separator 2	01/30/01	02/07/01	Grit separator is plugged.
Grit Separator 2	07/26/01	08/06/01	Valve 1107 failed to open from the dcs and locally.
Grit Separator 3	01/30/01	02/07/01	Grit separator plugged.
Flare 1	08/02/01	08/06/01	Damper motor tripped.
Flare 1	08/06/01	08/16/01	Trouble shoot burner controls , fan bearing tripping unit.
Flare 1	08/06/01	08/07/01	fan bearing tripping unit.
Flare 1	08/13/01	08/20/01	GAS FLARE 1 FLAME ANALYZER FAILED
Flare 1	09/20/01	10/03/01	Trouble shoot startup procedure on Flare #1
Flare 2	06/19/01	08/07/01	reset power to flare and check why #1 flare won't go into lead, also check dampers on #1
Flare 2	07/11/01	08/08/01	Flare has failed to ignite.
Flare 2	08/13/01	08/17/01	DCS is shows the following alarms for flare #2 indicating that the flare has failed.
Flare 2	12/03/01	12/11/01	Unable to get unit into DCS auto. The panel switch is in computer. Unit needs to be tested every thursday. Unable to test either flare.
Flare 2	12/05/01	12/17/01	Gas Flare #2 (80 GFL 02) is flaring off at low pressure in either manual or auto even when it has not been selected as the lead flare.
Digester #1	01/01/01	01/30/01	Cleaning and mothballing
Digester 2	01/01/01	12/31/01	Cleaning and mothballing
Digester 3	01/31/01	12/31/01	Cleaning and mothballing

2001 Annual Sludge Disposal Report

Facilities:

Sources of biosolids:

Point Loma Wastewater Treatment Plant (PLWWTP)
1902 Gatchell Rd., San Diego, CA

Biosolids treatment and processing:

Metro Biosolids Center (MBC)
5240 Convoy Street, San Diego, CA 92111

North City Water Reclamation Plant (NCWRP)
4949 Eastgate Mall, San Diego, CA 92121

Point Loma Wastewater Treatment Plant
1902 Gatchell Rd., San Diego, CA

The Point Loma Wastewater Treatment Plant and the North City Water Reclamation Plant produced and disposed of 124,786 wet tons/37,436 dry tons /33,984 dry metric tons (based on 30.0% average solids) of digested sludge in 2001.

Essentially all biosolids produced at the Pt. Loma WWTP were pumped to the Metro Biosolids Center (MBC) for further dewatering by centrifuges. The biosolids were then hauled to a disposal site (Local Landfill) or beneficial use site. During this reporting period all of the raw sludge produced at the North City Water Reclamation Plant (NCWRP) was diverted to the Metro Biosolids Center for screening, thickening, dewatering, digestion and blended with the digested solids from the PLWWTP prior to dewatering. The MBC Monthly Biosolids Processing reports includes the biosolids processed from the PLWWTP and the NCWRP. Copies of the MBC Monthly Biosolids Processing reports and the MBC Biosolids Reuse and Disposal Monthly Summary reports detailing daily biosolids processing and disposal are included as Enclosures 4. and 5. respectively.

During 2001, 118,950 wet tons of the sludge/biosolids produced by the City of San Diego, Pt. Loma Wastewater Treatment Plant and North City Water Reclamation Plant were dewatered at the Metro Biosolids Center, and were disposed of in sanitary landfills. 5,836 wet tons of sludge/biosolids were beneficially used at land application sites in San Diego County. 1,447 wet tons of biosolids/grit were captured from the digester cleaning process conducted by Trimax Residuals Management, Inc. (6536 Hillside Crescent, Delta, B. C., Canada, V4E 1P9) and disposed of in sanitary landfills.

Land Applier: Synagro⁴

Address: 10490 Dawson Canyon Road, Corona, CA 91719 phone 1-800-242-2222

Period: January 1, 2001 - December 31, 2001

Reuse method: Direct land application. Digested dewatered sludge from centrifuges were land applied directly to fields in San Diego County. The sludge was certified by the City of San Diego as meeting Class B pathogen and vector attraction reduction requirements of 40 CFR 503. Copies of City of San Diego's certifications (which also serve as notification of nitrogen content) are included as Enclosures 2 and 3.

The MBC provides two essential treatment processes, thickening and digestion of the raw solids from the NCWRP and dewatering of biosolids generated at the NCWRP and the PLWWTP. The digested biosolids from the PLWWTP are pumped to MBC in a 17 mile pipeline into one of the two storage tanks where it is blended with the digested biosolids from the NCWRP. Before these biosolids are sent to the dewatering process polymer and ferric chloride are added to condition the biosolids, which enhances the dewaterability of the biosolids and minimizes the potential of scale formation.

⁴ Synagro was formed by a merger of WM RPI/Bio Gro and Pima Gro in 2000.

Eight dewatering centrifuges are used to separate the liquid and solids fractions of the conditioned biosolids. The liquid fraction, (centrate) is returned to the PLWWTP via the Rose Canyon Interceptor and the solids recovered, (cake), is pumped to one of the eight storage silos before it is loaded into trucks for disposal at one of the landfill sites or land applied as listed in Table 1A and Table 1A.1 respectively.

The digested biosolids, centrate and dewatered cake are sampled on a daily bases to ensure regulatory compliance and to track plant process performance. Grab samples are collected daily on the incoming biosolids from the PLWWTP and the blended biosolids, which includes the digested biosolids from the NCWRP. The operations staff also collects a twenty-four hour composite sample from the centrate return stream from the dewatering process and from the blended centrate return stream that includes the centrate flow from the thickening and dewatering processes.

Daily grab samples of dewatered cake are collected from each individual dewatering centrifuge in operation and a portion of each of these grab samples are combined to provide a daily composite of dewatered cake produced. All sampling at MBC is preformed by Wastewater Plant Operators who are certified by the State of California and in conformance with established sampling techniques listed in Standards Methods.

Additional analyses, including the rest of the "priority pollutant list"⁵, were performed during 2001 and the reports of analysis are included in Enclosure 9.

Landfill locations used during 2001

Table 1A.

Miramar Landfill 5180 Convoy Street San Diego, CA 92111	1,321 wet tons (360 dry metric tons) disposed of from January to December 2001 at this landfill.
Otay Landfill 1700 Maxwell Rd. Chula Vista, CA. 91911	74,332 wet tons (20,244 dry metric tons based on 30.0% average solids) disposed of from January to December 2001 at this landfill.
Sycamore Canyon Landfill 8514 Mast Blvd. Santee CA. 92071	27,410 wet tons (7,465 dry metric tons based on 00.0% average solids) disposed of from January to December 2001 at this landfill.

5,836 wet tons of biosolids were certified as class B by the City of San Diego and all were shipped to or disposed of at the land application site in Table 1A.1.

Table 1A.1.

Otay Ranch San Diego County California	5,836 wet tons (1,589 dry metric tons based on 30.0% average solids) disposed of from January to December 2001 at this land application site.
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There was no biosolids stored at any site other than as indicated above.

There were no biosolids disposed of or beneficially used by any other method than those listed above.

⁵ Includes volatile organic compounds, phenols, base/neutral organic compounds, organophosphorus pesticides, chlorinated pesticides and PCBs.

Enclosure 1

Solids Production Table 1B.

Point Loma Annual Monitoring Report
Solids Report

From 01-JAN-2001 To 31-DEC-2001

From 01-JAN-2001 To 31-DEC-2001

Date	Pt. Loma RAW SLUDGE		Pt. Loma DIGESTED SLUDGE		Metro Biosolids Center COMBINED CENTRATE		DEWATERED SLUDGE	
	Gallons	Tons	Gallons	Tons	Gallons	Tons	Wet Tons	Dry Tons
01	31,784,208	2,786	31,784,593	2,391	66,430,000	727	9,837	2,790
02	28,095,000	2,178	27,630,000	1,859	54,090,000	590	8,830	2,370
03	30,302,134	2,269	31,241,134	2,216	67,110,000	1,288	10,420	3,136
04	30,871,100	2,330	30,991,000	2,194	65,610,000	723	10,404	3,060
05	35,296,547	2,387	35,244,573	2,433	69,851,000	913	11,369	3,420
06	37,890,621	2,265	30,223,648	2,271	67,694,000	856	9,771	2,960
07	32,271,295	2,463	32,588,593	2,302	71,811,000	1,007	11,417	3,264
08	35,492,738	2,538	35,043,000	2,508	73,024,000	1,020	11,432	3,427
09	31,418,503	2,286	30,265,213	1,880	69,213,000	818	9,019	2,764
10	32,782,812	2,529	31,606,000	2,378	72,052,000	891	11,229	3,272
11	32,357,823	2,342	31,186,000	2,090	67,554,000	787	10,391	2,966
12	31,552,375	2,367	30,646,000	2,023	70,527,000	717	10,101	2,823
Avg:	32,509,596	2,395	31,537,480	2,212	67,913,833	861	10,352	3,021
Sum:	390,115,156	28,741	378,449,754	26,545	814,966,000	10,332	124,220	36,252

Solids Report - Monthly Daily Averages
From 01-JAN-2001 to 31-DEC-2001

Date	Pt. Loma RAW SLUDGE			Pt. Loma DIGESTED SLUDGE			Metro Biosolids Cnt. COMBINED CENTRATE			Metro Biosolids Cnt. DEWATERED SLUDGE			
	Gallons	%TS	Tons	Gallons	%TS	Tons	Gallons	%TS	Tons	Wet Tons	%TS	Dry Tons	
01	1,025,297	4.7	199	1,025,309	2.4	104	2,142,903	0.27	23	410	30.6	121	
02	1,003,393	4.8	198	986,786	2.4	98	1,931,786	0.26	21	420	30.7	125	
03	977,488	4.7	189	1,007,779	2.5	106	2,164,839	0.46	42	453	30.0	136	
04	1,029,037	4.2	179	1,033,033	2.4	104	2,187,000	0.26	24	416	29.4	122	
05	1,138,598	3.9	184	1,136,922	2.3	111	2,253,258	0.32	29	421	31.5	132	
06	1,263,021	4.6	189	1,007,455	2.6	108	2,256,467	0.33	31	444	30.3	135	
07	1,041,010	4.4	189	1,051,245	2.5	110	2,316,484	0.34	32	519	30.1	155	
08	1,144,927	4.1	195	1,130,419	2.3	109	2,355,613	0.33	33	476	30.1	143	
09	1,047,283	4.4	191	1,008,840	2.4	99	2,307,100	0.28	27	451	30.6	138	
00	1,057,510	4.5	195	1,019,548	2.4	103	2,324,258	0.30	29	468	29.0	136	
11	1,078,594	4.4	195	1,039,533	2.4	104	2,251,800	0.28	26	433	28.7	124	
12	1,017,819	4.2	182	988,581	2.5	101	2,275,065	0.24	23	421	29.4	123	
Avg:	1,068,665	4.4	190	1,036,288	2.4	105	2,230,548	0.31	28	444	30.0	132	
Sum:	12,823,976		2,285	12,435,451		1,256	26,766,572		341	5,333		1,590	

Note: A ton is a "short ton" or 2000 lbs of dry solids.

* Values for Wet Tons of dewatered sludge are based on calculated volumes from eight positive displacement cake pumps and are subject to inaccuracies. The mechanical condition of the cake pumps and the variability of sludge concentrations can effect the overall accuracies of these reported values.

Table 2A. Annual Biosolids Landfill & Reuse Solids Disposal Summary

2001 Month:	Sycamore Canyon			Total Landfill Biosolids Disposal (dry metric tons)*	SYNAGRO OTAY RANCH MBC		Reuse Total Est. dry metric tons*
	Otay Landfill Biosolids (wet Tons)	Landfill MBC Biosolids (wet Tons)	Landfill Total (wet Tons)		Beneficial Reuse (Tons)	Reuse Total	
January	6,738	3,100	9,836	5,376		0	0
February	4,329	4,501	8,829	4,825		0	0
March	7,221	3,200	10,421	5,695		0	0
April	8,164	2,239	10,403	5,685		0	0
May	11,372		11,372	6,215		0	0
June	8,599	1,604	10,203	5,576		0	0
July	9,411	2,007	11,418	6,240		0	0
August	9,693	1,740	11,433	6,248		0	0
September	9,019		9,109	4,953		0	0
October				0	4,367	4,367	1,193
November		142	142	78	1,468	1,468	401
December				0		0	0
Total:	74,546	18,533	93,166	50,891	5,835	5,835	1,594
Average:	8,283	2,317	9,317	4,241	2,918	486	133

*(est. based on annual avg. TS% of 30.1% for MBC dewatered sludge)

Table 2B. Other Solids Disposal

Month:	Butterfield Station Landfill Scum (Gals)	Miramar Landfill Grit (Tons)	Miramar Landfill Rags & Screenings (Tons)	Miramar Landfill Grit Dig. #2 Cleanings (Ton)	Miramar Landfill MBC Grit (Tons)	Otay Landfill MBC Biosolids (Tons)	Miramar Landfill MBC Biosolids Grit Digester #3 Cleanings (Tons)	Total other solids disposal at landfills (Tons)
	January	8,000	185	135		3	6,738	
February	8,000	186	126		10	4,329		4,651
March	8,000	196	142		6	7,221		7,565
April	8,000	151	154		18	8,164		8,487
May	8,000	175	162		14	11,372		11,723
June	8,000	186	139		12	8,599		8,936
July	8,000	194	148	709	6	9,411	38	10,506
August	8,000	163	173		13	9,693	612	10,654
September	8,000	163	215		7	9,019		9,404
October	8,000	171	196		15	6,863		7,245
November	8,000	172	174		14	8,779		9,139
December	8,000	182	177		10	10,102		10,471
Total:	96,000	2,124	1,941	709	128	100,290	650	105,842
Average:	8,000	177	162	709	11	8,358	325	8,820

POINT LOMA WASTEWATER TREATMENT PLANT
METRO BIOSOLIDS CENTER
ANNUAL DEWATERED SLUDGE COMPOSITES
Trace Metals

From: 01-JAN-2001 To: 31-DEC-2001

Source:		MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN
Date:		31-JAN-2001	28-FEB-2001	31-MAR-2001	30-APR-2001	31-MAY-2001	30-JUN-2001
Sample ID:	MDL Units	P97474	P99299	P101747	P106895	P109269	P111561
pH	PH	7.67	8.20	7.86	7.55	7.87	7.76
Total Solids	WT%	28.6	28.7	28.7	27.5	28.9	28.5
Total Volatile Solids	WT%	44.2	47.2	44.4	44.6	44.9	44.9
Total Kjeldahl Nitrogen	.04 WT%	4.44	4.41	4.32	4.50	4.14	4.29
Sulfides-Total	50 MG/KG	14400	19500	16200	18600	25200	18800
Sulfides-Reactive	215 MG/KG	283	282	<213	527	632	<211
Cyanides,Total	.1 MG/KG	NR	1.82	NR	NR	1.88	2.62
Aluminum	11 MG/KG	14200	15400	15900	14000	11700	12400
Antimony	50 MG/KG	ND	ND	ND	ND	ND	ND
Arsenic	.64 MG/KG	7.86	8.58	7.14	8.21	5.64	3.14
Barium	.5 MG/KG	489	606	611	566	500	417
Beryllium	.2 MG/KG	ND	ND	ND	ND	ND	ND
Cadmium	5 MG/KG	ND	ND	ND	ND	ND	ND
Chromium	7 MG/KG	73	76	87	95	78	83
Cobalt	2.8 MG/KG	6.5	ND	ND	4.8	ND	ND
Copper	4 MG/KG	602	588	576	601	602	626
Iron	6 MG/KG	81100	76200	77500	80500	87700	87800
Lead	29 MG/KG	<29	ND	<29	36	ND	44
Manganese	.8 MG/KG	363	325	332	407	329	398
Mercury	.76 MG/KG	1.62	0.76	0.87	0.87	1.01	1.40
Molybdenum	2.8 MG/KG	15	9	12	17	7	17
Nickel	4 MG/KG	46	45	51	54	46	47
Selenium	1.52 MG/KG	5.11	4.55	4.54	4.30	3.43	3.56
Silver	3 MG/KG	33	33	32	30	29	26
Thallium	23 MG/KG	ND	ND	ND	ND	ND	ND
Vanadium	1.5 MG/KG	30	32	34	35	26	30
Zinc	50 MG/KG	841	864	832	838	805	784

Source:		MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN
Date:		31-JUL-2001	31-AUG-2001	30-SEP-2001	31-OCT-2001	30-NOV-2001	31-DEC-2001
Sample ID:	MDL Units	P115367	P117963	P120145	P123046	P125293	P127738
pH	PH	7.65	7.82	7.61	7.96	7.78	8.00
Total Solids	WT%	28.3	28.6	28.5	27.0	27.9	28.2
Total Volatile Solids	WT%	44.3	45.6	44.8	45.7	47.2	54.5
Total Kjeldahl Nitrogen	.04 WT%	4.28	4.21	NR	4.25	NR	NR
Sulfides-Total	50 MG/KG	8300	25400	21300	(20200)*	13700	15700
Sulfides-Reactive	215 MG/KG	244	966	<211	(346)*	<215	<213
Cyanides,Total	.1 MG/KG	1.79	2.09	1.49	3.49	NR	NR
Aluminum	11 MG/KG	13500	11900	12300	12900	13400	13200
Antimony	50 MG/KG	ND	ND	ND	ND	ND	ND
Arsenic	.64 MG/KG	6.34	6.41	6.59	7.47	7.51	7.12
Barium	.5 MG/KG	560	401	401	531	433	467
Beryllium	.2 MG/KG	ND	ND	ND	ND	ND	ND
Cadmium	5 MG/KG	ND	ND	ND	ND	ND	ND
Chromium	7 MG/KG	81	64	64	65	62	63
Cobalt	2.8 MG/KG	<2.8	ND	ND	ND	13.3	ND
Copper	4 MG/KG	648	579	593	652	655	642
Iron	6 MG/KG	92800	85100	84100	88100	82600	79700
Lead	29 MG/KG	46	<29	36	ND	ND	33
Manganese	.8 MG/KG	420	366	384	415	384	377
Mercury	.76 MG/KG	1.43	1.15	1.08	1.05	1.62	1.02
Molybdenum	2.8 MG/KG	19	11	21	20	15	17
Nickel	4 MG/KG	49	36	39	39	39	40
Selenium	1.52 MG/KG	4.23	3.83	4.44	4.83	4.57	4.24
Silver	3 MG/KG	35	28	34	30	33	35
Thallium	23 MG/KG	ND	ND	ND	ND	ND	ND
Vanadium	1.5 MG/KG	32	27	31	37	32	30
Zinc	50 MG/KG	842	806	841	874	885	878

ND= Not Detected
NA= Not Analyzed
NS= Not Sampled
NR= Not Required

MBCDEWCN= Metro Biosolids Center Dewatered Centrifuged Sludge.

POINT LOMA WASTEWATER TREATMENT PLANT

QUARTERLY SLUDGE PROJECT - Chlorinated Pesticide Analysis, EPA Method 608 (with additions)

From 01-JAN-2001 To 31-DEC-2001

Sampling: LC,MC,JN,VB,MV,SKB,HHD,NC Analysis: CW,TB,KD

Analyte	MDL	Units	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN
			31-MAY-2001 P109269	31-AUG-2001 P117963	31-OCT-2001 P123046	28-FEB-2001 P99299
Aldrin	71000	UG/KG	ND	ND	ND	ND
BHC, Alpha isomer	22000	UG/KG	ND	ND	ND	ND
BHC, Beta isomer	37000	UG/KG	ND	ND	ND	ND
BHC, Delta isomer	14000	UG/KG	ND	ND	ND	ND
BHC, Gamma isomer	32000	UG/KG	23.5	ND	ND	ND
Alpha (cis) Chlordane	25000	UG/KG	ND	ND	ND	ND
Gamma (trans) Chlordane	68000	UG/KG	ND	ND	ND	ND
Alpha Chlordene		UG/KG	NA	NA	NA	NA
Gamma Chlordene		UG/KG	NA	NA	NA	NA
Cis Nonachlor	69000	UG/KG	ND	ND	ND	ND
Dieldrin	50000	UG/KG	ND	ND	ND	ND
Endosulfan Sulfate	51000	UG/KG	ND	ND	ND	ND
Alpha Endosulfan	13000	UG/KG	ND	ND	ND	ND
Beta Endosulfan	19000	UG/KG	ND	ND	ND	ND
Endrin	32000	UG/KG	ND	ND	ND	ND
Endrin aldehyde	20000	UG/KG	ND	ND	ND	ND
Heptachlor	22000	UG/KG	ND	ND	ND	ND
Heptachlor epoxide	46000	UG/KG	ND	ND	ND	ND
Methoxychlor	71000	UG/KG	ND	ND	ND	ND
Mirex	18000	UG/KG	ND	ND	ND	ND
o,p-DDD	10000	UG/KG	ND	ND	ND	ND
o,p-DDE	21000	UG/KG	ND	ND	ND	ND
o,p-DDT	71000	UG/KG	ND	ND	ND	ND
Oxychlordane	46000	UG/KG	ND	ND	ND	ND
PCB 1016	600	UG/KG	ND	ND	ND	ND
PCB 1221		UG/KG	ND	ND	ND	ND
PCB 1232		UG/KG	ND	ND	ND	ND
PCB 1242	70	UG/KG	ND	ND	ND	ND
PCB 1248		UG/KG	ND	ND	ND	ND
PCB 1254		UG/KG	ND	ND	ND	ND
PCB 1260	300	UG/KG	ND	ND	ND	ND
PCB 1262		UG/KG	ND	ND	ND	ND
p,p-DDD	18000	UG/KG	ND	ND	ND	ND
p,p-DDE	28000	UG/KG	ND	ND	<28000.0	ND
p,p-DDT	50000	UG/KG	ND	ND	ND	ND
Toxaphene	240	UG/KG	ND	ND	ND	ND
Trans Nonachlor	23000	UG/KG	ND	ND	ND	ND
Heptachlors	46000	UG/KG	0.0	0.0	0.0	0.0
Endosulfans	51000	UG/KG	0.0	0.0	0.0	0.0
Polychlorinated biphenyls	600	UG/KG	0.0	0.0	0.0	0.0
Chlordane + related cmpds.	69000	UG/KG	0.0	0.0	0.0	0.0
DDT and derivatives	71000	UG/KG	0.0	0.0	<0.0	0.0
Hexachlorocyclohexanes	37000	UG/KG	23.5	0.0	0.0	0.0
Aldrin + Dieldrin	71000	UG/KG	0.0	0.0	0.0	0.0
Chlorinated Hydrocarbons	71000	UG/KG	23.5	0.0	<0.0	0.0

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

"Standards for alpha and gamma chlordene are no longer available in the U.S. for the analysis of these compounds."

POINT LOMA WASTEWATER TREATMENT PLANT
ANNUAL SLUDGE
Phenolics

From 01-JAN-2001 To 31-DEC-2001

Analyte	MDL	Units	MBCDEWCN	MBCDEWCN
			31-MAY-2001 P109269	28-FEB-2001 P99299
2,4,6-trichlorophenol	330	UG/KG	ND	<1650
2,4-dichlorophenol	330	UG/KG	ND	<1650
2,4-dimethylphenol	330	UG/KG	ND	<1650
2,4-dinitrophenol	330	UG/KG	ND	<1650
2-methyl-4,6-dinitrophenol	800	UG/KG	ND	<4000
2-chlorophenol	330	UG/KG	ND	<1650
2-nitrophenol	330	UG/KG	ND	<1650
4-chloro-3-methylphenol	330	UG/KG	ND	<1650
4-nitrophenol	800	UG/KG	ND	<4000
Pentachlorophenol	800	UG/KG	ND	<4000
Phenol	330	UG/KG	173000	125000
Total Non-Chlorinated Phenols	800	UG/KG	343000	154400
Total Chlorinated Phenols	800	UG/KG	0	0
Phenols	800	UG/KG	343000	154400

Additional analytes determined:

2-methylphenol	330	UG/KG	ND	<1650
3-methylphenol(4-MP is unresolved)	330	UG/KG	ND	<1650
4-methylphenol(3-MP is unresolved)	330	UG/KG	170000	29400
2,4,5-trichlorophenol	800	UG/KG	ND	<4000

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

POINT LOMA WASTEWATER TREATMENT PLANT
ANNUAL SLUDGE
Base/Neutrals
From 01-JAN-2001 To 31-DEC-2001

Analyte	MDL	Units	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN
			31-MAY-2001 P109269	31-OCT-2001 P123046	31-DEC-2001 P127738	28-FEB-2001 P99299
bis(2-chloroethyl) ether	330	UG/KG	ND	ND	<1650	<1650
1,3-dichlorobenzene	330	UG/KG	ND	ND	<1650	<1650
1,4-dichlorobenzene	330	UG/KG	707	ND	<1650	<1650
1,2-dichlorobenzene	330	UG/KG	ND	ND	<1650	<1650
Bis-(2-chloroisopropyl) ether	330	UG/KG	ND	ND	<1650	<1650
N-nitrosodi-n-propylamine	330	UG/KG	ND	ND	<1650	<1650
Nitrobenzene	330	UG/KG	ND	ND	<1650	<1650
Hexachloroethane	330	UG/KG	ND	ND	<1650	<1650
Isophorone	330	UG/KG	ND	ND	<1650	<1650
bis(2-chloroethoxy)methane	330	UG/KG	ND	ND	<1650	<1650
1,2,4-trichlorobenzene	330	UG/KG	ND	ND	<1650	<1650
Naphthalene	330	UG/KG	1300	ND	<1650	<1650
Hexachlorobutadiene	330	UG/KG	ND	ND	<1650	<1650
Hexachlorocyclopentadiene	330	UG/KG	ND	ND	<1650	<1650
2-chloronaphthalene		UG/KG	ND	ND	<1650	<1650
Acenaphthylene	330	UG/KG	ND	ND	<1650	<1650
Dimethyl phthalate	330	UG/KG	ND	ND	<1650	<1650
2,6-dinitrotoluene	330	UG/KG	ND	ND	<1650	<1650
Acenaphthene	330	UG/KG	ND	ND	<1650	<1650
2,4-dinitrotoluene	330	UG/KG	ND	ND	<1650	<1650
Fluorene	330	UG/KG	ND	ND	<1650	<1650
4-chlorophenyl phenyl ether	330	UG/KG	ND	ND	<1650	<1650
Diethyl phthalate	330	UG/KG	ND	ND	<1650	<1650
N-nitrosodiphenylamine	330	UG/KG	ND	ND	<1650	<1650
4-bromophenyl phenyl ether	330	UG/KG	ND	ND	<1650	<1650
Hexachlorobenzene	330	UG/KG	ND	ND	<1650	<1650
Phenanthrene	330	UG/KG	1220	ND	<1650	<1650
Anthracene	330	UG/KG	ND	ND	<1650	<1650
Di-n-butyl phthalate	330	UG/KG	ND	ND	<1650	<1650
N-nitrosodimethylamine	330	UG/KG	ND	ND	<1650	<1650
Fluoranthene	330	UG/KG	ND	ND	<1650	<1650
Pyrene	330	UG/KG	ND	ND	<1650	<1650
Butyl benzyl phthalate	330	UG/KG	5960	ND	6510	<1650
Chrysene	330	UG/KG	ND	ND	<1650	<1650
Benzo[A]anthracene	330	UG/KG	ND	ND	<1650	<1650
Bis-(2-ethylhexyl) phthalate	330	UG/KG	169000	136000	181000	141000
Di-n-octyl phthalate	330	UG/KG	28200	10200	11600	10200
Benzo[K]fluoranthene	330	UG/KG	ND	ND	<1650	<1650
3,4-benzo(B)fluoranthene	330	UG/KG	ND	ND	<1650	<1650
Benzo[A]pyrene	330	UG/KG	ND	ND	<1650	<1650
Indeno(1,2,3-CD)pyrene	330	UG/KG	ND	ND	<1650	<1650
Dibenzo(A,H)anthracene	330	UG/KG	ND	ND	<1650	<1650
Benzo[G,H,I]perylene	330	UG/KG	ND	ND	<1650	<1650
1,2-diphenylhydrazine		UG/KG	ND	ND	<1650	<1650
PolyNuc. Aromatic Hydrocarbons	330	UG/KG	1220	0	0	0
Dichlorobenzenes	330	UG/KG	707	0	0	0
Base/Neutral Compounds	330	UG/KG	206387	146200	199110	151200

Additional analytes determined:

1-methylnaphthalene		UG/KG	1690	ND	<1650	<1650
2-methylnaphthalene		UG/KG	2100	845	<910	<1650
2,6-dimethylnaphthalene		UG/KG	3240	2650	<1490	<1650
2,3,5-trimethylnaphthalene		UG/KG	ND	ND	<1650	<1650
1-methylphenanthrene		UG/KG	ND	ND	<1650	<1650
Benzo[e]pyrene		UG/KG	ND	ND	<1650	<1650
Perylene	330	UG/KG	ND	ND	<1650	<1650
Biphenyl		UG/KG	616	ND	<1650	<1650
Pyridine		UG/KG	ND	ND	<1650	<1650

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

POINT LOMA WASTEWATER TREATMENT PLANT
ANNUAL SLUDGE Purgeables

From 01-JAN-2001 To 31-DEC-2001

Analyte	MDL	Units	DIG COMP	DIG COMP	DIG COMP	DIG COMP	RAW COMP	RAW COMP
			08-MAY-2001 P106729	07-AUG-2001 P115700	09-OCT-2001 P120801	06-FEB-2001 P96993	08-MAY-2001 P106715	07-AUG-2001 P115686
Chloromethane	25.8	UG/KG	ND	ND	ND	1030	ND	ND
Vinyl chloride	26.2	UG/KG	ND	ND	ND	ND	ND	ND
Bromomethane	29.2	UG/KG	ND	ND	ND	ND	ND	ND
Chloroethane	61	UG/KG	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	28	UG/KG	ND	ND	ND	ND	ND	ND
1,1-dichloroethene	25.1	UG/KG	ND	ND	ND	ND	ND	ND
Carbon disulfide	56.8	UG/KG	ND	ND	ND	250	ND	123
Acetone	185	UG/KG	ND	ND	9440	652	ND	44000
Methylene chloride	62.5	UG/KG	2170	ND	1270	1140000	253	169
trans-1,2-dichloroethene	25	UG/KG	ND	ND	ND	ND	ND	ND
1,1-dichloroethane	25.7	UG/KG	ND	ND	ND	ND	ND	ND
2-butanone		UG/KG	ND	ND	ND	ND	ND	ND
Chloroform	25.6	UG/KG	ND	ND	ND	ND	ND	ND
1,1,1-trichloroethane	27.4	UG/KG	ND	ND	ND	ND	ND	ND
Carbon tetrachloride	17	UG/KG	ND	ND	ND	ND	ND	ND
Benzene	26.5	UG/KG	ND	ND	ND	ND	ND	166
1,2-dichloroethane	20.5	UG/KG	ND	ND	ND	ND	ND	ND
Trichloroethene	25.3	UG/KG	ND	ND	ND	ND	ND	173
1,2-dichloropropane	25.5	UG/KG	ND	ND	ND	ND	ND	ND
Bromodichloromethane	21.9	UG/KG	ND	ND	ND	ND	ND	ND
2-chloroethylvinyl ether	53.6	UG/KG	ND	ND	ND	ND	ND	ND
cis-1,3-dichloropropene	21.5	UG/KG	ND	ND	ND	ND	ND	ND
Toluene	48	UG/KG	ND	ND	ND	ND	314	212
trans-1,3-dichloropropene	17	UG/KG	ND	ND	ND	ND	ND	ND
1,1,2-trichloroethane	35.1	UG/KG	ND	ND	ND	ND	ND	ND
Tetrachloroethene	21.5	UG/KG	ND	ND	ND	ND	121	271
Dibromochloromethane	24.2	UG/KG	ND	ND	ND	ND	ND	ND
Chlorobenzene	31.1	UG/KG	ND	ND	ND	ND	ND	ND
Ethylbenzene	90.5	UG/KG	ND	ND	ND	ND	ND	ND
Bromoform	26.1	UG/KG	ND	ND	ND	ND	ND	ND
1,1,2,2-tetrachloroethane	64	UG/KG	ND	ND	ND	ND	ND	ND
1,3-dichlorobenzene	330	UG/KG	ND	ND	ND	ND	ND	ND
1,4-dichlorobenzene	330	UG/KG	ND	ND	2340	551	ND	280
1,2-dichlorobenzene	330	UG/KG	ND	ND	ND	ND	ND	ND
Purgeable Compounds	275	UG/KG	2170	0	10710	1141932	688	45114

Additional analytes determined:

Acrolein	70.9	UG/KG	ND	ND	ND	ND	ND	ND
Methyl Iodide	19	UG/KG	ND	ND	ND	ND	ND	ND
Allyl chloride	25	UG/KG	ND	ND	ND	ND	ND	ND
Methyl tert-butyl ether	34	UG/KG	ND	ND	ND	ND	277	190
Acrylonitrile	275	UG/KG	ND	ND	ND	ND	ND	ND
Chloroprene	17	UG/KG	ND	ND	ND	ND	ND	ND
Dibromofluoromethane		UG/KG	13100	14300	12600	105000	7020	6270
Methyl methacrylate	36	UG/KG	ND	ND	ND	ND	ND	ND
2-nitropropane		UG/KG	ND	ND	ND	ND	ND	ND
4-methyl-2-pentanone	24	UG/KG	ND	ND	ND	ND	ND	ND
1,2-dibromoethane	17	UG/KG	ND	ND	ND	ND	ND	ND
meta,para xylenes	35	UG/KG	ND	ND	ND	ND	155	187
ortho-xylene	23	UG/KG	ND	ND	ND	ND	ND	ND
Isopropylbenzene	17	UG/KG	ND	ND	ND	ND	ND	ND
Styrene	19	UG/KG	ND	ND	ND	ND	ND	ND
Benzyl chloride	38	UG/KG	ND	ND	ND	ND	ND	ND
1,2,4-trichlorobenzene	330	UG/KG	ND	ND	ND	ND	ND	ND

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

POINT LOMA WASTEWATER TREATMENT PLANT
ANNUAL SLUDGE Purgeables

From 01-JAN-2001 To 31-DEC-2001

Analyte	MDL	Units	RAW COMP	RAW COMP
			09-OCT-2001	06-FEB-2001
			P120787	P96979
=====	=====	=====	=====	=====
Chloromethane	25.8	UG/KG	ND	36
Vinyl chloride	26.2	UG/KG	ND	ND
Bromomethane	29.2	UG/KG	ND	ND
Chloroethane	61	UG/KG	ND	ND
Trichlorofluoromethane	28	UG/KG	ND	ND
1,1-dichloroethene	25.1	UG/KG	ND	ND
Carbon disulfide	56.8	UG/KG	157	210
Acetone	185	UG/KG	50600	28500
Methylene chloride	62.5	UG/KG	1360	599000
trans-1,2-dichloroethene	25	UG/KG	ND	ND
1,1-dichloroethane	25.7	UG/KG	ND	ND
2-butanone		UG/KG	ND	ND
Chloroform	25.6	UG/KG	199	145
1,1,1-trichloroethane	27.4	UG/KG	ND	ND
Carbon tetrachloride	17	UG/KG	ND	ND
Benzene	26.5	UG/KG	ND	ND
1,2-dichloroethane	20.5	UG/KG	ND	ND
Trichloroethene	25.3	UG/KG	157	ND
1,2-dichloropropane	25.5	UG/KG	ND	ND
Bromodichloromethane	21.9	UG/KG	ND	ND
2-chloroethylvinyl ether	53.6	UG/KG	ND	ND
cis-1,3-dichloropropene	21.5	UG/KG	ND	ND
Toluene	48	UG/KG	612	338
trans-1,3-dichloropropene	17	UG/KG	ND	ND
1,1,2-trichloroethane	35.1	UG/KG	ND	ND
Tetrachloroethene	21.5	UG/KG	1770	258
Dibromochloromethane	24.2	UG/KG	ND	ND
Chlorobenzene	31.1	UG/KG	ND	ND
Ethylbenzene	90.5	UG/KG	ND	134
Bromoform	26.1	UG/KG	ND	ND
1,1,2,2-tetrachloroethane	64	UG/KG	ND	ND
1,3-dichlorobenzene	330	UG/KG	ND	ND
1,4-dichlorobenzene	330	UG/KG	1530	948
1,2-dichlorobenzene	330	UG/KG	ND	ND
=====	=====	=====	=====	=====
Purgeable Compounds	275	UG/KG	54855	628621

Additional analytes determined;

=====	=====	=====	=====	=====
Acrolein	70.9	UG/KG	ND	ND
Methyl Iodide	19	UG/KG	ND	ND
Allyl chloride	25	UG/KG	ND	ND
Methyl tert-butyl ether	34	UG/KG	ND	ND
Acrylonitrile	275	UG/KG	ND	ND
Chloroprene	17	UG/KG	ND	ND
Dibromofluoromethane		UG/KG	5380	76500
Methyl methacrylate	36	UG/KG	ND	ND
2-nitropropane		UG/KG	ND	ND
4-methyl-2-pentanone	24	UG/KG	ND	ND
1,2-dibromoethane	17	UG/KG	ND	ND
meta,para xylenes	35	UG/KG	429	587
ortho-xylene	23	UG/KG	183	288
Isopropylbenzene	17	UG/KG	ND	ND
Styrene	19	UG/KG	435	186
Benzyl chloride	38	UG/KG	ND	ND
1,2,4-trichlorobenzene	330	UG/KG	ND	ND

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

POINT LOMA WASTEWATER TREATMENT PLANT
ANNUAL SLUDGE Purgeables

From 01-JAN-2001 To 31-DEC-2001

Analyte	MDL	Units	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN
			31-MAR-2001 P101747	30-APR-2001 P106895	31-MAY-2001 P109269	31-JUL-2001 P115367	30-SEP-2001 P120145	31-OCT-2001 P123046
Chloromethane	25.8	UG/KG	<26	ND	ND	ND	ND	ND
Vinyl chloride	26.2	UG/KG	<26	ND	ND	ND	ND	ND
Bromomethane	29.2	UG/KG	<29	ND	ND	ND	ND	ND
Chloroethane	61	UG/KG	<61	ND	ND	ND	ND	ND
Trichlorofluoromethane	28	UG/KG	<28	ND	ND	ND	ND	ND
1,1-dichloroethene	25.1	UG/KG	45	ND	ND	ND	ND	ND
Carbon disulfide	56.8	UG/KG	77	46	<57	44	84	80
Acetone	185	UG/KG	5510	5560	6460	8570	7350	6820
Methylene chloride	62.5	UG/KG	65	ND	ND	ND	ND	ND
trans-1,2-dichloroethene	25	UG/KG	44	ND	ND	ND	ND	ND
1,1-dichloroethane	25.7	UG/KG	45	ND	ND	ND	ND	ND
2-butanone		UG/KG	5870	5930	3180	6070	6430	2360
Chloroform	25.6	UG/KG	44	ND	ND	ND	ND	ND
1,1,1-trichloroethane	27.4	UG/KG	35	ND	ND	ND	ND	ND
Carbon tetrachloride	17	UG/KG	26	ND	ND	ND	ND	ND
Benzene	26.5	UG/KG	47	ND	ND	ND	ND	ND
1,2-dichloroethane	20.5	UG/KG	44	ND	ND	ND	ND	ND
Trichloroethene	25.3	UG/KG	33	ND	ND	ND	ND	ND
1,2-dichloropropane	25.5	UG/KG	41	ND	ND	ND	ND	ND
Bromodichloromethane	21.9	UG/KG	27	ND	ND	ND	ND	ND
2-chloroethylvinyl ether	53.6	UG/KG	<54	ND	ND	ND	ND	ND
cis-1,3-dichloropropene	21.5	UG/KG	22	ND	ND	ND	ND	ND
Toluene	48	UG/KG	52	39	<48	25	73	66
trans-1,3-dichloropropene	17	UG/KG	26	ND	ND	ND	ND	ND
1,1,2-trichloroethane	35.1	UG/KG	55	ND	ND	ND	ND	<17
Tetrachloroethene	21.5	UG/KG	25	ND	ND	ND	ND	ND
Dibromochloromethane	24.2	UG/KG	<24	ND	ND	ND	ND	ND
Chlorobenzene	31.1	UG/KG	44	ND	ND	ND	ND	<17
Ethylbenzene	90.5	UG/KG	<91	44	<91	ND	147	47
Bromoform	26.1	UG/KG	<26	ND	ND	ND	ND	ND
1,1,2,2-tetrachloroethane	64	UG/KG	70	ND	ND	ND	ND	ND
1,3-dichlorobenzene	330	UG/KG	23	ND	ND	ND	ND	ND
1,4-dichlorobenzene	330	UG/KG	421	525	484	438	1100	<330
1,2-dichlorobenzene	330	UG/KG	53	ND	ND	ND	ND	ND
Purgeable Compounds	275	UG/KG	12247	11619	9640	14709	14084	9373

Additional analytes determined:

Acrolein	70.9	UG/KG	ND	ND	ND	ND	ND	ND
Methyl Iodide	19	UG/KG	45	28	27	ND	66	503
Allyl chloride	25	UG/KG	37	ND	ND	ND	ND	ND
Methyl tert-butyl ether	34	UG/KG	58	ND	ND	ND	ND	ND
Acrylonitrile	275	UG/KG	<275	ND	ND	ND	ND	ND
Chloroprene	17	UG/KG	9	ND	ND	ND	ND	ND
Dibromofluoromethane		UG/KG	900	1000	990	960	745	822
Methyl methacrylate	36	UG/KG	44	ND	ND	ND	ND	ND
2-nitropropane		UG/KG	ND	ND	ND	ND	ND	ND
4-methyl-2-pentanone	24	UG/KG	51	ND	ND	ND	ND	ND
1,2-dibromoethane	17	UG/KG	36	ND	ND	ND	ND	ND
meta,para xylenes	35	UG/KG	142	79	35	58	183	62
ortho-xylene	23	UG/KG	77	44	19	32	84	31
Isopropylbenzene	17	UG/KG	45	25	ND	ND	73	24
Styrene	19	UG/KG	71	30	13	ND	76	24
Benzyl chloride	38	UG/KG	53	ND	ND	ND	ND	ND
1,2,4-trichlorobenzene	330	UG/KG	25	ND	ND	ND	ND	ND

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

POINT LOMA WASTEWATER TREATMENT PLANT
ANNUAL SLUDGE Purgeables

From 01-JAN-2001 To 31-DEC-2001

Analyte	MDL	Units	MBCDEWCN	MBCDEWCN	MBCDEWCN
			30-NOV-2001	31-DEC-2001	28-FEB-2001
			P125293	P127738	P99299
Chloromethane	25.8	UG/KG	ND	*	ND
Vinyl chloride	26.2	UG/KG	ND	*	ND
Bromomethane	29.2	UG/KG	ND	*	ND
Chloroethane	61	UG/KG	ND	*	ND
Trichlorofluoromethane	28	UG/KG	ND	*	ND
1,1-dichloroethene	25.1	UG/KG	ND	*	ND
Carbon disulfide	56.8	UG/KG	<34	*	<57
Acetone	185	UG/KG	6400	*	3850
Methylene chloride	62.5	UG/KG	ND	*	ND
trans-1,2-dichloroethene	25	UG/KG	ND	*	ND
1,1-dichloroethane	25.7	UG/KG	ND	*	ND
2-butanone		UG/KG	3060	*	2550
Chloroform	25.6	UG/KG	ND	*	ND
1,1,1-trichloroethane	27.4	UG/KG	ND	*	ND
Carbon tetrachloride	17	UG/KG	ND	*	ND
Benzene	26.5	UG/KG	ND	*	ND
1,2-dichloroethane	20.5	UG/KG	ND	*	ND
Trichloroethene	25.3	UG/KG	ND	*	ND
1,2-dichloropropane	25.5	UG/KG	ND	*	ND
Bromodichloromethane	21.9	UG/KG	ND	*	ND
2-chloroethylvinyl ether	53.6	UG/KG	ND	*	ND
cis-1,3-dichloropropene	21.5	UG/KG	ND	*	ND
Toluene	48	UG/KG	36	*	<48
trans-1,3-dichloropropene	17	UG/KG	ND	*	ND
1,1,2-trichloroethane	35.1	UG/KG	ND	*	ND
Tetrachloroethene	21.5	UG/KG	ND	*	ND
Dibromochloromethane	24.2	UG/KG	ND	*	ND
Chlorobenzene	31.1	UG/KG	ND	*	ND
Ethylbenzene	90.5	UG/KG	<26	*	<91
Bromoform	26.1	UG/KG	ND	*	ND
1,1,2,2-tetrachloroethane	64	UG/KG	ND	*	ND
1,3-dichlorobenzene	330	UG/KG	ND	<1650	<330
1,4-dichlorobenzene	330	UG/KG	191	<1650	<330
1,2-dichlorobenzene	330	UG/KG	ND	<1650	<330
Purgeable Compounds	275	UG/KG	9496	*	<6400

Additional analytes determined:

Analyte	MDL	Units	MBCDEWCN	MBCDEWCN	MBCDEWCN
			30-NOV-2001	31-DEC-2001	28-FEB-2001
			P125293	P127738	P99299
Acrolein	70.9	UG/KG	ND	*	ND
Methyl Iodide	19	UG/KG	ND	*	ND
Allyl chloride	25	UG/KG	ND	*	ND
Methyl tert-butyl ether	34	UG/KG	ND	*	ND
Acrylonitrile	275	UG/KG	ND	*	ND
Chloroprene	17	UG/KG	ND	*	ND
Dibromofluoromethane		UG/KG	878	*	1080
Methyl methacrylate	36	UG/KG	ND	*	ND
2-nitropropane		UG/KG	ND	*	ND
4-methyl-2-pentanone	24	UG/KG	ND	*	ND
1,2-dibromoethane	17	UG/KG	ND	*	ND
meta,para xylenes	35	UG/KG	<35	*	107
ortho-xylene	23	UG/KG	<23	*	59
Isopropylbenzene	17	UG/KG	ND	*	26
Styrene	19	UG/KG	<19	*	ND
Benzyl chloride	38	UG/KG	ND	*	ND
1,2,4-trichlorobenzene	330	UG/KG	ND	<1650	<330

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

POINT LOMA WASTEWATER TREATMENT PLANT
ANNUAL SLUDGE - Dioxins analysis

From 01-JAN-2001 To 31-DEC-2001

Analyte	MDL	Units	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN
			31-MAY-2001	31-AUG-2001	31-OCT-2001	28-FEB-2001
			P109269	P117963	P123046	P99299
2,3,7,8-tetra CDD	10	NG/KG	ND	ND	ND	ND
1,2,3,7,8-penta CDD	50	NG/KG	ND	ND	ND	ND
1,2,3,4,7,8_hexa_CDD	50	NG/KG	ND	ND	ND	ND
1,2,3,6,7,8-hexa CDD	50	NG/KG	ND	ND	78.000	ND
1,2,3,7,8,9-hexa CDD	50	NG/KG	ND	ND	ND	ND
1,2,3,4,6,7,8-hepta CDD	50	NG/KG	46.000	22.000	1900.000	ND
octa CDD	120	NG/KG	530.000	250.000	6600.000	ND
2,3,7,8-tetra CDF	10	NG/KG	2.500	ND	3.000	ND
1,2,3,7,8-penta CDF	50	NG/KG	ND	ND	ND	ND
2,3,4,7,8-penta CDF	50	NG/KG	ND	ND	ND	ND
1,2,3,4,7,8-hexa CDF	50	NG/KG	ND	ND	ND	ND
1,2,3,6,7,8-hexa CDF	50	NG/KG	ND	ND	ND	ND
1,2,3,7,8,9-hexa CDF	50	NG/KG	ND	ND	ND	ND
2,3,4,6,7,8-hexa CDF	50	NG/KG	ND	ND	ND	ND
1,2,3,4,6,7,8-hepta CDF	50	NG/KG	28.000	13.000	350.000	220.000
1,2,3,4,7,8,9-hepta CDF	50	NG/KG	ND	ND	ND	ND
octa CDF	100	NG/KG	120.000	43.000	1700.000	930.000

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

POINT LOMA WASTEWATER TREATMENT PLANT

Quarterly Sludge Project

Herbicide Analysis

From 01-JAN-2001 To 31-DEC-2001

Sampling: LC,MC,JN,VB,MV,SKB,HHD,NC Analysis: CW,TB,KD

Date:		MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN
Sample:	MDL Units	31-MAR-2001	30-APR-2001	30-JUN-2001	31-JUL-2001	30-SEP-2001	30-NOV-2001
		P101747	P106895	P111561	P115367	P120145	P125293
2,4-dichlorophenoxyacetic acid	6.84 MG/KG	ND	ND	ND	ND	ND	ND
2,4,5-TP (Silvex)	6.33 MG/KG	ND	ND	ND	ND	ND	ND

Date:		MBCDEWCN	MBCDEWCN
Sample:	MDL Units	31-DEC-2001	31-JAN-2001
		P127738	P97474
2,4-dichlorophenoxyacetic acid	6.84 MG/KG	ND	ND
2,4,5-TP (Silvex)	6.33 MG/KG	ND	ND

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

POINT LOMA WASTEWATER TREATMENT PLANT
 QUARTERLY SLUDGE PROJECT - ANNUAL SUMMARY
 Radioactivity

From: 01-JAN-2001 To: 31-DEC-2001

MBCDEWCN = MBC Dewatered Sludge Composite

Sampled by: NDL,A4A,UFH
 Analyzed by: Truesdail Labs Inc.
 Analyzed by: Truesdail Labs Inc.

Source	Sample Date	Sample ID	Gross Alpha Radiation	Gross Beta Radiation
MBCDEWCN	28-FEB-2001	P99299	3790 ± 1605	4110 ± 1140
MBCDEWCN	31-MAY-2001	P109269	3830 ± 1535	3180 ± 1095
MBCDEWCN	31-AUG-2001	P117963	4410 ± 1280	2620 ± 1115
MBCDEWCN	31-OCT-2001	P123046	4560 ± 1330	4320 ± 1160
MBCDEWCN	ANNUAL	AVERAGE	4148 ± 1438	3558 ± 1128

Units in picocuries per Kilogram (pCi/Kg)

ND= Not Detected
 NA= Not Analyzed
 NS= Not Sampled
 NR= Not Required

H. Results of "Title 22" Sludge Hazardous Waste Tests

Title 22 CCR Summary Tables

Concentrations of Title 22 analytes (metals and organics) both on a wet weight and dry weight concentration basis for monthly composite of daily samples of sludge being hauled from the Metro Biosolids Center.

The tables list the TTLC (Total Threshold Limit Concentration) or STLC (Soluble Threshold Limit Concentration) limits in the left column for each analyte.

Definitions:

MBCDEWCN= Metro Biosolids Center dewatered sludge.

2001 POINT LOMA WASTEWATER TREATMENT PLANT ANNUAL REPORT
 CALIFORNIA HAZARDOUS WASTE IDENTIFICATION TEST (TITLE 22)
 METRO BIOSOLIDS CENTER

METALS

WET WEIGHT	TTLIC	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN
ANALYTE	Wet wt mg/Kg	JAN 2001 P97474	FEB 2001 P99299	MAR 2001 P101747	APR 2001 P106895	MAY 2001 P109269	JUN 2001 P111561	JUL 2001 P115367	AUG 2001 P117963	SEP 2001 P120145	OCT 2001 P123046	NOV 2001 P125293	DEC 2001 P127738
ANTIMONY	500	< 14	< 14	< 14	< 14	< 14	< 14	< 14	< 14	< 14	< 14	< 14	< 14
ARSENIC	500	2.3	2.5	2.0	2.3	1.6	0.9	1.8	1.8	1.9	2.0	2.1	2.0
BARIUM	10000	140	174	175	156	145	119	158	115	114	143	121	132
BERYLLIUM	75	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
CADMIUM	100	< 1.4	< 1.4	< 1.4	< 1.4	< 1.4	< 1.4	< 1.4	< 1.4	< 1.4	< 1.4	< 1.4	< 1.4
CHROMIUM(VI)	500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHROMIUM(total)	2500	21	22	25	26	23	24	23	18	18	18	17	18
COBALT	8000	1.9	< 0.8	< 0.8	1.3	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	3.7	< 0.8
COPPER	2500	172	169	165	165	174	178	183	166	169	176	183	181
LEAD	1000	< 8	< 8	< 8	10	< 8	13	13	< 8	10	< 8	< 8	9
MERCURY	20	0.5	0.2	0.3	0.2	0.3	0.4	0.4	0.3	0.3	0.3	0.4	0.3
MOLYBDENUM	3500	4.3	2.6	3.4	4.7	2.0	4.8	5.4	3.1	6.0	5.4	4.2	4.8
NICKEL	2000	13	13	15	15	13	13	14	10	11	11	11	11
SELENIUM	100	1.5	1.3	1.3	1.2	1.0	1.0	1.2	1.1	1.3	1.3	1.3	1.2
SILVER	500	9	9	9	8	8	7	10	8	10	8	9	10
THALLIUM	700	< 7	< 7	< 7	< 6	< 7	< 7	< 7	< 7	< 7	< 6	< 6	< 6
VANADIUM	2400	9	9	10	10	8	9	9	8	9	10	9	8
ZINC	5000	241	248	239	230	233	223	238	231	240	236	247	248
FLUORIDE	18000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SULFIDES-REACTIVE	NA	81	81	< 61	145	183	< 60	69	276	< 60	94	< 60	< 60
SULFIDES-TOTAL	NA	4118	5596	4649	5115	7283	5358	2349	7264	6070	# 5454	3822	4427
TOTAL SOLIDS (%)		28.6	28.7	28.7	27.5	28.9	28.5	28.3	28.6	28.5	# 27.0	27.9	28.2

DRY WEIGHT	TTLIC	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN
ANALYTE	Wet wt mg/Kg	JAN 2001 P97474	FEB 2001 P99299	MAR 2001 P101747	APR 2001 P106895	MAY 2001 P109269	JUN 2001 P111561	JUL 2001 P115367	AUG 2001 P117963	SEP 2001 P120145	OCT 2001 P123046	NOV 2001 P125293	DEC 2001 P127738
ANTIMONY	500	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50
ARSENIC	500	7.9	8.6	7.1	8.2	5.6	3.1	6.3	6.4	6.6	7.5	7.5	7.1
BARIUM	10000	489	606	611	566	500	417	560	401	401	531	433	467
BERYLLIUM	75	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
CADMIUM	100	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
CHROMIUM(VI)	500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHROMIUM(total)	2500	73	76	87	95	78	83	81	64	64	65	62	63
COBALT	8000	6.5	< 2.8	< 2.8	4.8	< 2.8	< 2.8	< 2.8	< 2.8	< 2.8	< 2.8	13.3	< 2.8
COPPER	2500	602	588	576	601	602	626	648	579	593	652	655	642
LEAD	1000	< 29	< 29	< 29	36	< 29	44	46	< 29	36	< 29	< 29	33
MERCURY	20	1.6	0.8	0.9	0.9	1.0	1.4	1.4	1.2	1.1	1.1	1.6	1.0
MOLYBDENUM	3500	15	9	12	17	7	17	19	11	21	20	15	17
NICKEL	2000	46	45	51	54	46	47	49	36	39	39	39	40
SELENIUM	100	5.1	4.6	4.5	4.3	3.4	3.6	4.2	3.8	4.4	4.8	4.6	4.2
SILVER	500	33	33	32	30	29	26	35	28	34	30	33	35
THALLIUM	700	< 23	< 23	< 23	< 23	< 23	< 23	< 23	< 23	< 23	< 23	< 23	< 23
VANADIUM	2400	30	32	34	35	26	30	32	27	31	37	32	30
ZINC	5000	841	864	832	838	805	784	842	806	841	874	885	878
FLUORIDE	18000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SULFIDES-REACTIVE	NA	283	282	< 213	527	632	< 211	244	966	< 211	# 347	< 215	< 213
SULFIDES-TOTAL	NA	14400	19500	16200	18600	25200	18800	8300	25400	21300	# 20200	13700	15700

TTLIC = Total Threshold Limit Concentration
 STLC = Soluble Threshold Limit Concentration
 NA = Not Analyzed
 NS = Not Sampled

* = The total concentration is less than 10 times the STLC, therefore by definition this substance is below hazardous concentrations.

NOTE: Sample analyzed outside of its holding time, result is unreliable and provided for informational purposes only

2001 POINT LOMA WASTEWATER TREATMENT PLANT ANNUAL REPORT
 CALIFORNIA HAZARDOUS WASTE IDENTIFICATION TEST (TITLE 22)
 METRO BIOSOLIDS CENTER

PESTICIDES

WET WEIGHT	TTLc	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN
	Wet wt	JAN 2001	FEB 2001	MAR 2001	APR 2001	MAY 2001	JUN 2001	JUL 2001	AUG 2001	SEP 2001	OCT 2001	NOV 2001	DEC 2001	
ANALYTE	mg/Kg	P97474	P99299	P101747	P106895	P109269	P111561	P115367	P117963	P120145	P123046	P125293	P127738	
ALDRIN	1.4	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
CHLORDANE	2.5	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
DDT,DDE,DDD	1.0	0.017	nd	nd	nd	nd	0.012	nd	nd	0.010	0.009	0.009	nd	nd
2,4-DCPAA	100	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
DIELDRIN	8.0	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
ENDRIN	0.20	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
HEPTACHLOR	4.7	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
KEPONE	21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
LINDANE	4	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
METHOXYCHLOR	100	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
MIREX	21	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
PENTACHLOROPHENOL	17	NA	nd	NA	NA	nd	NA	NA	NA	NA	NA	NA	nd	nd
PCBs (TOTAL)	50	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
TOXAPHENE	5	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
TRICHLOROETHENE	2040	NA	nd	nd	nd	nd	NA	nd	nd	nd	nd	nd	nd	nd
2,4,5-TCPA	10	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
TOTAL SOLIDS (%)		28.6	28.7	28.7	27.5	28.9	28.5	28.3	28.6	28.5	27.0	27.9	28.2	
pH	>6-<9	7.67	8.2	7.86	7.55	7.87	7.76	7.65	7.82	7.61	7.96	7.78	8.00	

DRY WEIGHT	TTLc	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MDL
	Wet wt	JAN 2001	FEB 2001	MAR 2001	APR 2001	MAY 2001	JUN 2001	JUL 2001	AUG 2001	SEP 2001	OCT 2001	NOV 2001	DEC 2001	
ANALYTE	mg/Kg	P97474	P99299	P101747	P106895	P109269	P111561	P115367	P117963	P120145	P123046	P125293	P127738	mg/Kg
ALDRIN	1.4	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	0.000020
CHLORDANE	2.5	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	0.000014
DDT,DDE,DDD	1.0	0.058	nd	nd	nd	nd	0.040	nd	nd	0.036	0.034	0.032	nd	0.000040
2,4-DCPAA	100	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	3.400000
DIELDRIN	8.0	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	0.000040
ENDRIN	0.20	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	0.000030
HEPTACHLOR	4.7	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	0.000003
KEPONE	21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
LINDANE	4	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	0.000010
METHOXYCHLOR	100	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	NA
MIREX	21	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	0.000020
PENTACHLOROPHENOL	17	NA	nd	NA	NA	nd	NA	NA	NA	NA	NA	NA	nd	0.800000
PCBs (TOTAL)	50	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	NA
TOXAPHENE	5	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	0.000240
TRICHLOROETHENE	2040	NA	nd	nd	nd	nd	NA	nd	nd	nd	nd	nd	nd	0.025300
2,4,5-TCPA	10	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	4.400000

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2001 POINT LOMA WASTEWATER TREATMENT PLANT ANNUAL REPORT
 CALIFORNIA HAZARDOUS WASTE IDENTIFICATION TEST (TITLE 22)
 METRO BIOSOLIDS CENTER

WASTE EXTRACTION TEST

METALS	STLC	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN
	Wet wt	JAN 2001	FEB 2001	MAR 2001	APR 2001	MAY 2001	JUN 2001	JUL 2001	AUG 2001	SEP 2001	OCT 2001	NOV 2001	DEC 2001
ANALYTE	mg/L	P97474	P99299	P101747	P106895	P109269	P111561	P115367	P117963	P120145	P123046	P125293	P127738
ANTIMONY	15	*	*	*	*	*	*	*	*	*	*	*	*
ARSENIC	5.0	*	*	*	*	*	*	*	*	*	*	*	*
BARIUM	100	*	*	*	*	*	*	*	*	*	*	*	*
BERYLLIUM	0.75	*	*	*	*	*	*	*	*	*	*	*	*
CADMIUM	1.0	*	*	*	*	*	*	*	*	*	*	*	*
CHROMIUM(VI)	5.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHROMIUM(total)	560	*	*	*	*	*	*	*	*	*	*	*	*
COBALT	80	*	*	*	*	*	*	*	*	*	*	*	*
COPPER	25	*	*	*	*	*	*	*	*	*	*	*	*
LEAD	5.0	*	*	*	*	*	*	*	*	*	*	*	*
MERCURY	0.2	*	*	*	*	*	*	*	*	*	*	*	*
MOLYBDENUM	350	*	*	*	*	*	*	*	*	*	*	*	*
NICKEL	20	*	*	*	*	*	*	*	*	*	*	*	*
SELENIUM	1.0	*	*	*	*	*	*	*	*	*	*	*	*
SILVER	5.0	*	*	*	*	*	*	*	*	*	*	*	*
THALLIUM	7.0	*	*	*	*	*	*	*	*	*	*	*	*
VANADIUM	24	*	*	*	*	*	*	*	*	*	*	*	*
ZINC	250	*	*	*	*	*	*	*	*	*	*	*	*
FLUORIDE	180	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL SOLIDS (%)		28.6	28.7	28.7	27.5	28.9	28.5	28.3	28.6	28.5	27.0	27.9	28.2

WASTE EXTRACTION TEST

PESTICIDES	STLC	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN
	Wet wt	JAN 2001	FEB 2001	MAR 2001	APR 2001	MAY 2001	JUN 2001	JUL 2001	AUG 2001	SEP 2001	OCT 2001	NOV 2001	DEC 2001
ANALYTE	mg/L	P97474	P99299	P101747	P106895	P109269	P111561	P115367	P117963	P120145	P123046	P125293	P127738
ALDRIN	0.14	*	*	*	*	*	*	*	*	*	*	*	*
CHLORDANE	0.25	*	*	*	*	*	*	*	*	*	*	*	*
DDT,DDE,DDD	0.1	*	*	*	*	*	*	*	*	*	*	*	*
2,4-DCPAA	10	*	*	*	*	*	*	*	*	*	*	*	*
DIELDRIN	0.8	*	*	*	*	*	*	*	*	*	*	*	*
ENDRIN	0.02	*	*	*	*	*	*	*	*	*	*	*	*
HEPTACHLOR	0.47	*	*	*	*	*	*	*	*	*	*	*	*
KEPONE	2.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
LINDANE	0.4	*	*	*	*	*	*	*	*	*	*	*	*
METHOXYCHLOR	10	*	*	*	*	*	*	*	*	*	*	*	*
MIREX	2.1	*	*	*	*	*	*	*	*	*	*	*	*
PENTACHLOROPHENOL	1.7	NA	*	NA	NA	*	NA	NA	NA	NA	NA	NA	*
PCBs (TOTAL)	5	*	*	*	*	*	*	*	*	*	*	*	*
TOXAPHENE	0.5	*	*	*	*	*	*	*	*	*	*	*	*
TRICHLOROETHENE	204	NA	*	*	*	*	NA	*	*	*	*	*	*
2,4,5-TCPPA	1	*	*	*	*	*	*	*	*	*	*	*	*

TTLIC = Total Threshold Limit Concentration

STLC = Soluble Threshold Limit Concentration

NA = Not Analyzed

NS = Not Sampled

* = The total concentration is less than 10 times the STLC, therefore by definition this substance is below hazardous concentrations.

I. Special Study Results of Dioxin and Coplanar PCBs in Biosolids.

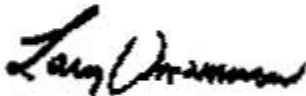
CITY OF SAN DIEGO
MEMORANDUM

DATE: August 9, 2001
TO: Jack Swerlein, MBC Superintendent
✓Walter Konopka, Senior Chemist
FROM: Larry Wasserman, Permits & Compliance Section Head
SUBJECT: AMSA's 2000 Dioxin/Poly-Chloro Biphenyls' Concentrations in Biosolids Survey

Attached, please find results of the latest AMSA 2000 Dioxin/PCB in Biosolids Survey, performed by Midwest Research Institute, for your review. This analysis was performed on the City of San Diego's biosolids, sampled from the Metro Biosolids Center.

The results demonstrate that the dioxin total equivalents of our biosolids is between 10.4 and 16.0 pg/g, therefore, we are on the low end of the concentration concerns and analyses will need to be performed infrequently for land application.

If you have any questions, please call me at (619) 758-2370.



Larry Wasserman
Permits & Compliance Section Head

Attachment: MRI's Dioxin/PCB Analysis of City of San Diego Biosolids

cc: Bill Lopez, Deputy MWW Director, O&M Division
Alan Langworthy, Deputy MWW Director, EM&TS Division

{h:\wp6-1\docs\rr\emo000901.wpd}



MIDWEST RESEARCH INSTITUTE
425 Volker Boulevard
Kansas City, Missouri 64110
Telephone (816) 753-7600
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August 6, 2001

Larry Wasserman
San Diego
4918 N Harbor Dr #201
San Diego, CA 92106

Subject: PCDD, PCDF, and PCB Analysis of Biosolids for the AMSA Biosolids Survey
MRI Project 310085
Sample ID Number: 10901200a

Dear Mr. Wasserman:

Midwest Research Institute (MRI) has completed the PCDD, PCDF, and PCB analysis of your organization's biosolids sample. The analysis was conducted in response to the U.S. Environmental Protection Agency's proposed rule revising the standards for use and disposal of biosolids. EPA is proposing to set a limit of 300 parts-per-trillion-toxic equivalents (TEQ) for dioxin and dioxin like equivalents (2,3,7,8-substituted isomers of PCDDs and PCDFs and specific PCB isomers.) If greater than 300 ppt TEQ dioxins on a dry weight basis are detected in biosolids used for land application, then corrective action is required. If the concentration is between 30 and 300 ppt TEQ dioxins, then biosolids used for land application must be monitoring annually. If the concentration is less than 30 ppt, analysis frequency will be less. For purposes of the proposed regulation, dioxins are defined as 29 specific isomers of PCDD, PCDF, and PCBs.

MRI analyzed your biosolids sample for the 29 target analytes using laboratory procedures based upon EPA Methods 1613B and 1663 (Draft, March 1997). EPA and AMSA have identified these high resolution mass spectrometry methods as applicable methods for determination of the specific PCDD/PCDF and PCB isomers. MRI's sample preparation and analysis approach was tested and approved for use through methods

development and testing on a reference biosolid matrix supplied by AMSA. This report briefly describes the methods used to prepare and analyze the samples for this unique matrix and presents the results of the dioxins, furans, and PCBs from analysis of the sample provided by your facility.

Sample Preparation

Percent Solids – EPA methods require analysis of a sample size equivalent to 10 g on a dry weight basis, the first step for sample preparation was to determine the percent solids of the submitted sample. The sample was homogenized by mixing thoroughly and a 5 g subsample was placed in a vial and dried in an oven at 110 °C overnight. The percent solids was determined gravimetrically and is presented on the certificate of analysis (attached).

Extraction and Solvent Exchange – A subsample of the homogenized "wet" sample equivalent to 10 g on a dry weight basis was weighed to the nearest 0.0001 g and placed in a Soxhlet extractor. The sample was mixed with 75 ± 5 g of pre-cleaned quartz sand, fortified with ¹³C₁₂-labeled dioxin, furan, and PCB internal quantitation standards (IQS), and extracted with toluene in a Soxhlet extractor equipped with a Dean-Stark adapter.

Following extraction, the sample extract was concentrated and solvent exchanged into hexane. The sample was then fortified with ³⁷Cl₄-labeled dioxin and ¹³C₁₂-labeled PCB cleanup standards and put through a series of clean up procedures described in EPA Methods 1613B and 1668.

Extract Clean-up and Concentration – The extract was partitioned against concentrated sulfuric acid in a separatory funnel to remove co-extracted interference. The acid partition procedure was repeated for a maximum of four times as recommended in the EPA methods. Because the acid was typically darkly colored, indicating excess organic matrix, the extract was subjected to an acidified silica gel column designed for samples with a high organic content. After this cleanup, the extract was filtered through a 0.45-micron filter and concentrated to approximately 12-mL in hexane.

The extract was processed using an automated system (Fluid Management Systems Inc. Power-PrepTM), for the remainder of cleanup. The system processed the extract through three disposable columns including a multi-layer (acid/base/neutral) silica column, a multi-layer (acid/base/neutral) alumina column, and an AX-21 carbon column. Two elution fractions were collected. The first fraction contained PCBs and the second contained the dioxins and furans.

Following elution, the fractions were concentrated and fortified with appropriate recovery standards. The PCB extract was fortified with 20 µL of a solution containing four ¹³C₁₂-labeled PCB congeners in tridecane and then concentrated to a final volume of 20 µL. The dioxin/furan extract was fortified with 10 µL of a solution containing two ¹³C₁₂-labeled dioxin isomers in tridecane and then concentrated to a final volume of 10 µL. Once the extracts had concentrated to the final volume, they were transferred to autosampler vials for analysis.

HRGC/HRMS Analysis

Analysis for dioxins/furans was performed on an Autospec Ultima high-resolution mass spectrometer. Analysis for PCBs was performed on a VG70-250S high-resolution mass spectrometer. Both instruments operated at a resolution of >10,000. Samples were analyzed using a 60-meter DB-5ms fused silica column under conditions that were specific for separating 2,3,7,8-TCDF and 2,3,7,8-TCDD from all other TCDF/TCDD isomers. All Method 1613B and Method 1668 (modified) criteria were met for initial and daily calibration and for isomer resolution. PCB daily calibration analyses met acceptance windows of 70 to 130 percent recovery.

Data reduction procedures were conducted using the Opusquan HRMS data system. Concentrations of native dioxin, furans, and PCBs were calculated using the isotope dilution methodology described in the EPA Methods. $^{13}\text{C}_{12}$ -labeled analogs of the target analytes are added to the samples prior to extraction. Each of the target analytes with the exception of 1,2,3,7,8,9-HxCDD and OCDF have a corresponding labeled analog. 1,2,3,7,8,9-HxCDD and OCDF use alternate labeled analogs. The recoveries of the labeled analogs are used in the isotope dilution calculation of the native analyte concentrations. Therefore, the results presented are recovery corrected for the labeled analog performance.

Summary Results

Results for your sample are presented in the attached certificate. Concentrations for qualitatively identified target analytes, presented in picograms per gram (pg/g) or nanograms per kilogram (ng/kg) dry weight were calculated based on the dry weight of the sample (i.e., 10-g). As described in the EPA methods, minimum level detection limits were determined based on the lowest calibration standard, the final volume of the extract, and the initial sample weight. Target analytes with concentrations greater than the minimum levels are reported as detected. Target analytes with concentrations less than the minimum level are reported as less than (LT) the minimum level.

Levels of some target analytes (typically PCBs) determined to be present at concentrations above that of the highest calibration standard are flagged "C" (above curve) or "S" (saturated). The sample extracts were not diluted because dilution would have also diluted the corresponding $^{13}\text{C}_{12}$ -labeled analog and impaired the ability to quantify the native analyte. Values flagged "C" and "S" are considered estimates.

In some cases, interference compounds were observed at the expected retention time of a target analyte (e.g., polychlorinated diphenyl ethers with furans) that can cause false positive detections. Likewise, the presence of other large (non-target) peaks can elevate the noise baseline causing elevated detection limits. In these situations the minimum level was replaced with an elevated detection limit based on either the detected interference or 2.5 times the instrumental noise detected within the acquisition channel and the result is flagged with an "E".

Toxic Equivalency Quotient

Each of the target analytes has a toxic equivalency factor (TEF). The toxic equivalency quotient (TEQ) is the sum of the concentration or detection limit for each target analyte multiplied by the corresponding World Health Organization (WHO) TEF (Van den Berg et. al., 1998). TEQs are presented as a range. The minimum TEQ assumes a concentration value of zero (0) for non-detected analytes and is reflective only for dioxins/furans/PCBs that are definitively found in the sample. The maximum TEQ was defined by AMSA and assumes a concentration of one-half the reported detection limit for non detected analytes. The maximum TEQ is reflective of both the definitively identified dioxins/furans/PCBs and the potential background for non-detected analytes. The AMSA survey uses the maximum TEQ value presented. Please note that the attached certificate is presented in picograms per gram (pg/g) on a dry weight basis. This is equivalent to nanograms per kilogram on a dry-weight basis.

Quality Control

The PCB cleanup standard (¹³C PCB-111) was spiked at a level too low to quantitate. This does not affect the reported data. The recovery of the dioxin cleanup standard (³⁷Cl-2,3,7,8-TCDD) indicates that the cleanups were effective.

Each sample is spiked with labeled analogs (IQS and cleanup) during the preparation. The percent recoveries for the sample are presented on the certificate of analysis. The percent recovery objective is 25% to 150% for all labeled analogs. The labeled and affected native values that did not meet this objective are flagged "J" on the certificate.

The results for the QC samples are summarized in tables. The QC samples met all quality control objectives. The following quality control samples are prepared with each batch of samples.

- **Method Blank:** 50 to 100 g of pre-extracted quartz sand, fortified with ¹³C₁₂-labeled dioxin/furan and PCB IQS solutions, cleanup standards, and recovery standards. The blank is used to establish the background levels of the target analytes arising from laboratory operations. The method blank is processed through all steps in the procedure along with the samples. Ideally, the method blank should not contain target analytes above the minimum level. The method blank for this batch (see QC table) showed three analytes: PCB-123, PCB-118, and PCB-105 above the minimum level. The levels of these analytes found in the blank are considered insignificant when compared with the concentration levels found in the samples and the total calculated TEQ. Therefore, the method blank analysis is considered acceptable.
- **On-going Precision and Recovery (OPR):** Same as the method blank but also fortified with native dioxin/furan and PCB analytes at known levels. The OPR is used

to demonstrate accuracy of individual analytes in individual batches and also ongoing precision data for batches run over time. The OPR is processed through all steps in the procedure along with the samples. The OPR analysis (see QC Tables) is compared against limits presented in Methods 1613B and 1668. All analyses provided acceptable results.

- **Reference Matrix:** A reference biosolid material was supplied by AMSA. The reference material has been characterized through initial analyses to contain measurable levels of most target analytes, therefore, no native spiking is performed. A 10-g dry weight sample of the reference matrix is processed through all steps in the procedure along with the samples. The Total TEQ for the reference matrix is compared against limits of ± 3 standard deviations from the initial analyses performed to verify reproducibility of analysis.

We appreciate your participation in the AMSA Biosolids Survey. If you have any questions regarding the data presented, please do not hesitate to contact me at (816)-753-7600, Extension 1626 or via e-mail at jpalausky@mrriresearch.org.

Sincerely,

MIDWEST RESEARCH INSTITUTE



Joseph A. Palausky
Principal Chemist



Biosolids Certificate Of Analysis Dry Weight Basis

Minimum TEQ 10.4 pg/g

Maximum TEQ 16.0 pg/g

Field ID: 10901200a
Lab Sample No.: 01000041

Date Sampled: 01/08/2001
Percent Solids: 27.9

DF MS Filename: H01D12-2-17
PCB MS Filename: V01E07-1-11

Analyte	Sample Results				IQS Recoveries				
	Result (pg/g)	ML (pg/g)	TEF	Min TEQ (pg/g)	Max TEQ (pg/g)	Flag	Labeled Analog	Recovery (%)	Flag
Dioxin/Furans									
2,3,7,8-TCDF	2.44		0.1	0.244	0.244		13C-2378-TCDF	99.9	
2,3,7,8-TCDD	LT	0.923	1		0.462		13C-2378-TCDD	87.9	
1,2,3,7,8-PeCDF	LT	4.62	0.05		0.115		13C-12378-PeCDF	98.6	
2,3,4,7,8-PeCDF	LT	4.62	0.5		1.15		13C-23478-PeCDF	119	
1,2,3,7,8-PeCDD	6.37		1.0	6.37	6.37		13C-12378-PeCDD	84.0	
1,2,3,4,7,8-HxCDF	LT	4.62	0.1		0.231		13C-123478-HxCDF	91.9	
1,2,3,6,7,8-HxCDF	LT	4.62	0.1		0.231		13C-123678-HxCDF	105	
2,3,4,6,7,8-HxCDF	LT	4.62	0.1		0.231		13C-234678-HxCDF	91.6	
1,2,3,7,8,9-HxCDF	LT	4.62	0.1		0.231		13C-123789-HxCDF	94.1	
1,2,3,4,7,8-HxCDD	LT	4.62	0.1		0.231		13C-123478-HxCDD	78.5	
1,2,3,6,7,8-HxCDD	6.66		0.1	0.666	0.666		13C-123678-HxCDD	101	
1,2,3,7,8,9-HxCDD	LT	4.62	0.1		0.231		13C-1234678-HpCDF	105	
1,2,3,4,6,7,8-HpCDF	52.0		0.01	0.520	0.520		13C-1234789-HpCDF	80.7	
1,2,3,4,7,8,9-HpCDF	LT	4.62	0.01		0.0231		13C-1234678-HpCDD	87.1	
1,2,3,4,6,7,8-HpCDD	146		0.01	1.46	1.46		13C-OCDD	83.5	
OCDF	221		0.0001	0.0221	0.0221		37Cl-2378-TCDD (cleanup)	87.8	
OCDD	1670		0.0001	0.167	0.167				
			Total DF TEQ	9.45	12.6				
Polychlorinated biphenyls									
PCB-81	LT	210	0.0001		0.0105	E	13C-PCB-81	65.5	
PCB-77	266		0.0001	0.0266	0.0266		13C-PCB-77	65.8	
PCB-123	34.8		0.0001	0.00348	0.00348		13C-PCB-123	54.3	
PCB-118	3910		0.0001	0.391	0.391	C	13C-PCB-118	55.4	
PCB-114	173		0.0005	0.0865	0.0865		13C-PCB-114	48.1	
PCB-105	1690		0.0001	0.169	0.169	C	13C-PCB-105	50.8	
PCB-126	LT	46.6	0.1		2.33	E	13C-PCB-126	27.8	
PCB-167	LT	229	0.00001		0.00115	E	13C-PCB-167	59.1	
PCB-156	585		0.0005	0.293	0.293		13C-PCB-156	54.2	
PCB-157	LT	149	0.0005		0.0373	E	13C-PCB-157	57.9	
PCB-169	LT	13.1	0.01		0.0655	E	13C-PCB-169	33.2	
PCB-189	44.2		0.0001	0.00442	0.00442		13C-PCB-189	38.7	
			Total PCB TEQ	0.974	3.42		13C-PCB-111 (cleanup)	Not spiked	

ML - Minimum level based on the lowest calibration standard, final volume, sample splits, and initial weight extracted.

TEF - Toxic Equivalency Factor

TEQ - Toxic Equivalency Quotient. The sum of the reported detection (or one-half the ML) times the corresponding TEF.

LT - Less than the minimum level (non-detect).

E - Detection limit is elevated due to matrix or interfering non-target peak.

J - 13C-labeled analog outside of acceptance windows.

C - analyte detected above calibration. S - Analyte saturated detector. Both C and S considered estimated values.