JFQ Sewer Samples

	430 gal MSD Dirty Road	1400 gal C.A.	50	CW above M	CE below M	555	
Sept	49	9	—	—	—	—	
Oct	14	12	—	—	—	—	
Nov	1195	117	—	—	—	—	Trace failure
Dec	40	29	—	—	—	—	
Jan grab	3	—	—	11	44	—	
Jan 1/20-1/31	—	—	15	21	—	—	
Jan	720	4	—	—	—	—	
Feb	913	45	17	27	—	—	
Mar 3/10-3/16	642	—	2	3	47	—	
Mar 3/17-3/23	44	—	3	max 486	—		Flood
Mar 3/24-3/30	34	—	497	161	<3		"
Mar	137	11	—	—	—	—	"

MONS 084760

JFQ Sewer Samples

by phone
Reported to
Peterson 3-18-72

MSD Mar Comp	137	
Clean Acid Mar Comp	11	
Clean Acid 3/24 - 3/30	34	Total Plant ?
SSS 3/26 - 3/30	<3	
Geyer East 3/24 - 3/30	161	x5
Geyer West 3/24 - 3/30	497	

Total Plant

$$\frac{\overset{123300}{900 \times 137} + \overset{15400}{1400 \times 11}}{2300} = 60 \text{ ppb vs } 34$$

Calc. vs Actual

SSS side stream? No?

GE & GW main line

MONS 084761

J.FQ Sewer Samples

Blk

$\frac{2.3\ mg}{7\ \mu l} \times 1\ ml = 0.328\ \mu g$

Detection limit

$\frac{2 \times 0.328}{400} = 2\ ppb$

$\frac{2 \times 0.328}{225} = 3\ ppb$

MSD Mar Comp

$\frac{\left(\frac{3.32}{3\ \mu l} \times 5\ ml \times \frac{10}{1}\right) - 0.328}{401.95} = 137\ ppb$

Clean Acid Mar Comp

$\frac{\left(\frac{4.95}{3\ \mu l} \times 4\ ml\right) - 0.328}{433.65} = 11\ ppb$

Clean Acid 3/24 - 3/30

$\frac{\left(\frac{1.48}{3\ \mu l} \times 4\ ml \times \frac{10}{1}\right) - 0.328}{421.1} = 34$

MONS 084762

Geyer West 3/24 – 3/30

$$\frac{\left(\frac{1.18}{3\mu l} \times 5ml \times \frac{10}{1}\,\frac{10}{1}\right) - 0.328}{395.2} = 497$$

Geyer East 3/24 – 3/30

$$\frac{\left(\frac{1.20}{5\mu l} \times 5ml\,\frac{10}{1}\,\frac{10}{2}\right) - 0.328}{370.6} = 161$$

SSS 3/26 – 3/30

$$\frac{\left(\frac{2.30}{7\mu l} \times 1ml\right) - 0.328}{236.0} = 0$$ None detected < 3ppb

JFQ Sewer Samp

March Comp MSD

636.25
234.30
401.95

March Comp Clean Acid

667.55
233.90
433.65

Clean Acid 3/24 - 3/30

655.0
233.9
421.1

Keyer West 3/24 - 3/30

627.1
231.9
395.2

Keyer East 3/24 - 3/30

603.2
232.6
370.6

555 3/26 - 3/30

396.5
160.5
236.0

MONS 084764

J.H.Q. Sewer Samples

3-10 → 3-16

Dept 50 Trunk	2
Geyer West	3
Geyer East	47
Dirty Acid	642 (Reported)

3-17 → 3-23

Geyer West	3
Geyer East	486
Total Plant	44

MONS 084765

JTA Sewer Samples

Blk

$$\frac{0.65\mu g}{7\mu l} \times 1ml = 0.093\,\mu g$$

Beyer West 3/16

$$\left(\frac{0.80}{5\mu l} \times 5ml\right) - 0.093\mu g = \frac{0.707\,\mu g}{207.6} = 3\ ppb$$

Beyer East 3/16

$$\left(\frac{1.53}{7} \times 5 \times \frac{10}{1}\right) - 0.093\,\mu g = \frac{10.928}{230.95} = 47\ ppb$$

50 Trunk 3/16

$$\left(\frac{0.50}{5} \times 5\right) - 0.093\mu g = \frac{0.407}{232.4} = 2\ ppb$$

Beyer West 3/23

$$\left(\frac{0.70}{5} \times 5\right) - 0.093\mu g = \frac{0.607}{204.5} = 3\ ppb$$

Beyer East 3/23

$$\left(\frac{6.50}{3\mu l} \times 5 \times \frac{10}{1}\right) - 0.093 = \frac{108.240}{222.9} = 486$$

Detection Limit

$$\frac{0.093 \times 2}{200} = 1ppb$$

MONS 084766

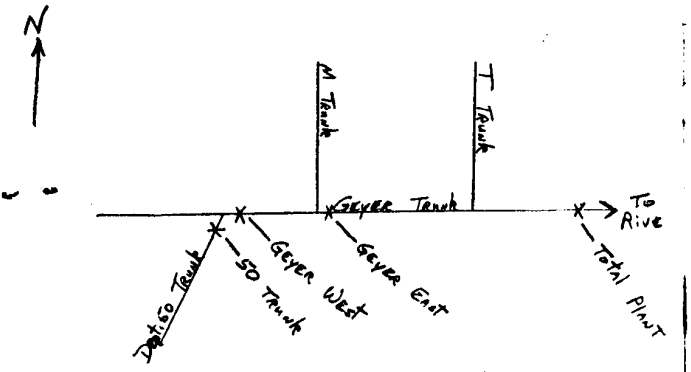
Total Plant 3/23

$$\left(\frac{2.53}{7} \times 5 \times \frac{10}{2}\right) - \frac{9.036}{0.093} = \frac{8.943}{8.943} = \frac{8.943}{201.6} = 44 \text{ ppb}$$

MONS 084767

2	1.51	9019	(42)	
3	2.26	16292	(58)	
4	3.02	19593	(75)	
5	3.78	23349	(83)	
6	4.53	29630	(103)	
7	5.28	—		
8	6.04	37885	(123)	

Blk		7µl	1:nil	12195	(17)		0.65
Geyer West	3/16	5	5:nil	12729	(20)		0.80
Geyer East	3/16	7	5:nil	1:10	26156	(48)	1.53
50	3/16	5	5:nil		4236	(13)	0.50
Total Plant MSD	3/23	7µl	5:nil	2:10	16243	2.53mg (53)	2.05mg
Geyer West	3/23	5	5:nil		9206	(18)	0.70
Geyer East	3/23	3µl	5:nil	1:10	84481	(134)	6.50


N
M Trunk
T Trunk
Geyer Trunk
To River
Dept. 60 Trunk
50 Trunk
Geyer West
Geyer East
Total Plant

MONS 084769

JHQ Sewer Samples

Geyer East 3/10 – 3/16

394.15
168.2
230.95

Geyer West 3/10 – 3/16

371.1
163.3
207.8

Dept 50 3/10 – 3/16

381.1
148.7
232.4

NSD Total Plant 3/17 – 3/23

362.2
160.6
201.6

Geyer East 3/17 – 3/23

386.1
163.2
222.9

Geyer West 3/17 – 3/23

365.6
161.1
204.5

MONS 084770

Reported to
Peterson by phone
3-26-73

JFQ Sewer Samples

Blk

$\frac{2.18\,ng}{7\,\mu l} \times 1\,ml$ — 0.311 µg

Det Limit (2 × Blkg)

$\frac{2 \times 0.311}{150} = 4\,ppb$

Dirty Acid 3/10 - 3/16

$$\frac{\left(\frac{5.75}{3} \times \overset{95.83}{5} \times \frac{10}{1}\right) - (0.168)}{149.02} = 0.642\,ppm$$

or 642 ppb

MONS 084771

Dirty Acid 3/10 - 3/16 297.65

148.63

149.02

MONS 084772

Reported to Peterman by phone 3-22-13

JJQ Sewer Samples Feb

Blk

$\frac{3.29\ ng}{1\mu l} \times 1\ ml = 0.47\ \mu g$

Det Limit (2x Blk)

$\frac{2 \times 0.47}{100\ g} = 2.34\ ppb$

Dept 50 Feb

$\frac{\left(\frac{7.85}{5\mu l} \times 5\ ml\right) - (0.47\ \mu g)}{433.57}$ 17 ppb

Boyer West Feb

$\frac{\left(\frac{9.75}{4} \times 5\ ml\right) - (0.47)}{429.35}$ 27.3 ppb

Sewer Samples -

Yeyer West Sub.	660.60
	231.25
	429.35
50 Trunk Sub.	663.86
	230.29
	433.57

MONS 084774

Reported to
by phone
Peterson 3-13-75

JFA Sewer Samples

MSD Feb	913	ppb
CA Feb	45	ppb
Keyser West 1/20 - 1/31	21	ppb
Dept 50 1/20 - 1/31	15	ppb
Det Limit	2	ppb

JFQ Sewer Samples

MSD Feb

$$\frac{7.79\ \mu g}{5\ \mu l} \quad \frac{5\ ml}{1} \quad \frac{50}{1} \quad \frac{1}{426.8} = 0.913\ ppm$$

CA Feb

$$\frac{5.45}{7} \times 5 \times \frac{5}{5} \times \frac{1}{434.65} = 0.045\ ppm$$

Dayer West 1/20 - 1/31

$$\frac{8.80}{5} \times 5 \times \frac{1}{412.25} = 0.021$$

Dept 50

$$\frac{8.85}{7} \times 5 \times \frac{1}{417.65} = 0.015$$

Det Limit

$$\frac{1}{7} \times 5 \times \frac{1}{\frac{400}{80}} = \frac{1}{560} = 0.002$$

JFQ Sewer Samples

MSD Feb Comps

659.15
282.35
426.80

CA Feb Comps

667.7
233.05
434.65

Keyes West 1/20 - 1/31

642.9
230.65
412.25

50 Trunk 1/20 - 1/31

644.05
230.40
417 65

MONS 084777

Reported to Victoria by phone 3-1-23

1242 January Sewer Samples 1.051 x 10^{-6} g/ml

Standards

ml	area
3	518
4	619
5	885
6	870
7	972 - 987 - 1145
8	

Sewer Samples

BLK	7 ml	1.0 ml		182	(1.12)
MSD	6 ml	6.0 ml	1:50	960	(6.85)
CA	3 ml	1.0 ml		836	(5.80)

Calculations

BLK $\frac{1.12 \times 1.051 \times 1.0}{7 ml} = .168$ ng

MSD $\frac{6.85 \times 1.051 \times 50 \times 50}{6 ml \times 1} = 299.975$ ng

$\frac{299.975 - .168}{416.46} = .720$ ppm

CA $\frac{5.80 \times 1.051 \times 1}{3} = 2.032$ ng

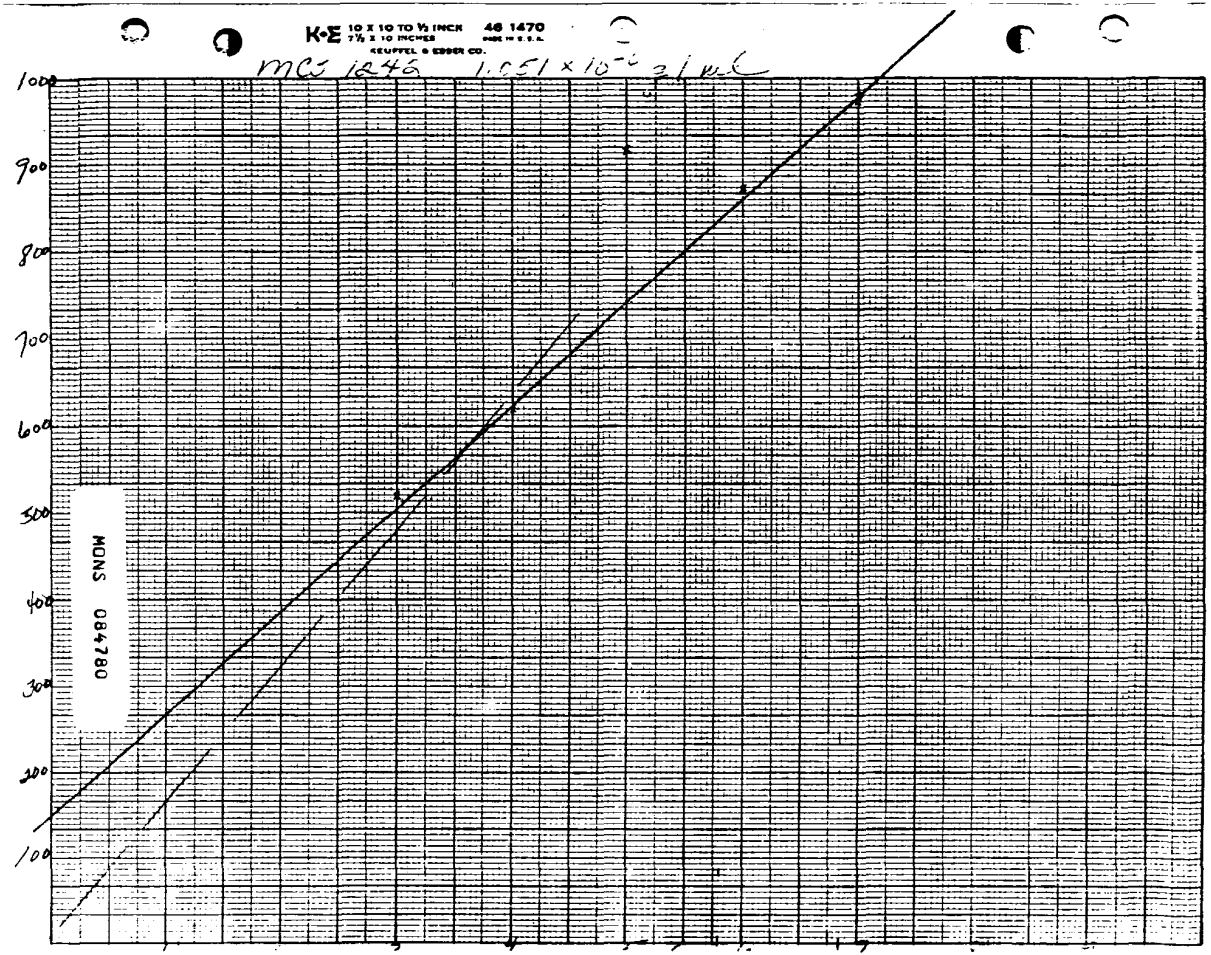
$\frac{2.032 - .168}{426.70} = .004$ ppm

Detection Limit $\frac{e336}{420} = .001$ ppm

MONS 084778

Sewer Samples January

MSD	663.52	C17	670.86
	247.06		244.16
	416.46		426.70


K+E 10 X 10 TO ½ INCH 46 1470
7½ X 10 INCHES MADE IN U.S.A.
KEUFFEL & ESSER CO.
MCS 1246 1.051 x 10⁻⁶ g/ml
1000
900
800
700
600
500
400
300
200
100
MONS 084780

Reported to
Peterson 1-10-73

JFQ "grab" sewer samples

purpose: pinpoint sources of contamination

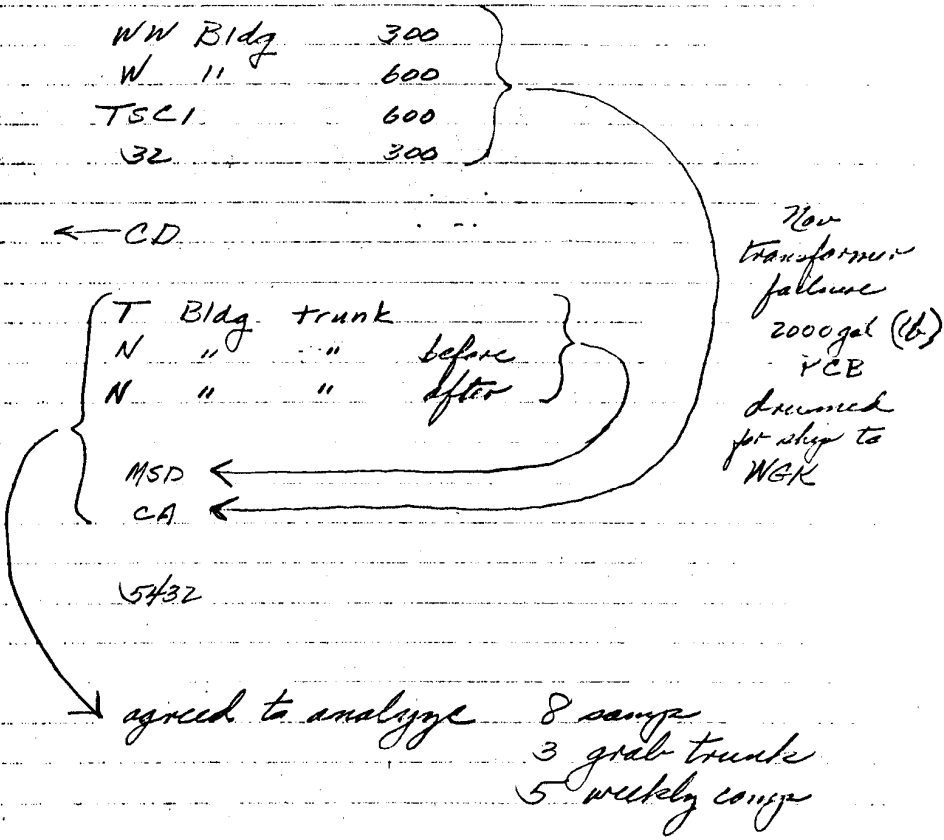
#1 above M bldg trunk 11 ppb

#2 below M bldg trunk 44 "

#3 MSD gatewell 3 "

MONS 084781

Al Peterson. 811-618



MONS 084782

mcb 1212 Sewer Samples .2102 x 10^{-6} g/ml

Standards

ml	area
2	1439
3	2297
4	3119
5	3210
6	3705
7	
8	4523

Samples

MSD Blank	7ml @	1.0 ml	4007	(4.70)
MSD 1	2ml @	5.0 ml	4206	(8.35)
MSD 2	3ml @	5.0 ml	1:10 3527	(5.67)
MSD 3	2ml @	5.0 ml	2262	(2.95)

Calculations:

MSD Blank $\frac{6.7 \times .2102 \times 1}{7} = .201$ mg

MSD 1 $\frac{8.35 \times .2102 \times 5}{2} = 4.388$ mg

$\frac{4.388 - .201}{373.96} = .011$ ppm

MSD 2 $\frac{5.67 \times .2102 \times 5 \times 10}{3 \times 1} = 19.863$ mg

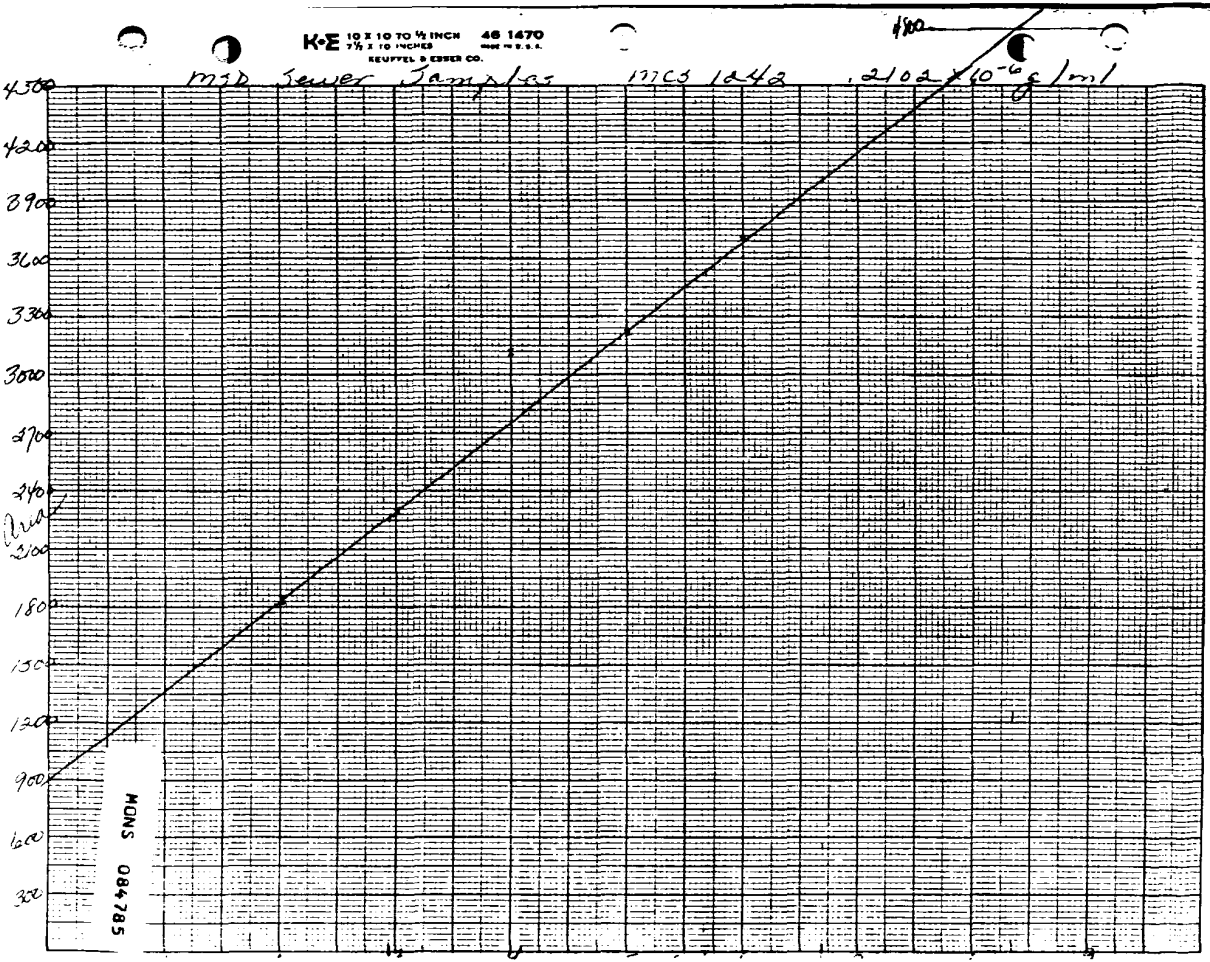
$\frac{19.863 - .201}{444.91} = .044$ ppm

MONS 084783

mod 3

$\frac{2.95 \times .2102 \times 5}{2} = 1.550$ mg

$\frac{1.550 - .201}{400.43} = .003$ ppm


K•E 10 X 10 TO ½ INCH 46 1470
7½ X 10 INCHES MADE IN U.S.A.
KEUFFEL & ESSER CO.
MSD Sewer Samples MCS 1242 .2102 x 10^-6 g/ml
4800
4500
4200
3900
3600
3300
3000
2700
2400
Area
2100
1800
1500
1200
900
600
300
MONS 084785

MSD #1 624.96
250.94
373.96

MSD #2 697.54
252.63
444.91

MSD #3 652.02
211.59
440.43

Reported to Petersen [illegible] 72

Sewer Samples December .2102 × 10⁻⁶ g/m

Standards

ul	area
2	2044
3	2792
4	3232
5	3704
6	4213
7	
8	4983

Samples

Blk	7 ul of 1 ml		2510	(2.85)
MSD	7 ul of 5 ml	1:10 2:10	2209	(2.30)
CA	5 ul of 5 ml	1:10	4264	(6.00)

Blk

$$\frac{2.85 \times .2102 \times 1}{7} = .086 \text{ ug}$$

MSD $$\frac{2.30 \times .2102 \times 5 \times 10 \times 10}{7 \times 2 \times 1} = 17.264 \text{ ug}$$

$$\frac{17.264 - .086}{430.31} = .040 \text{ ppm}$$

CA $$\frac{6.00 \times .2102 \times 5 \times 10}{5 \times 1} = 12.612 \text{ ug}$$

$$\frac{12.612 - .086}{437.00} = .029 \text{ ppm}$$

MONS 084787

December Sewer Samples

Clear Acid

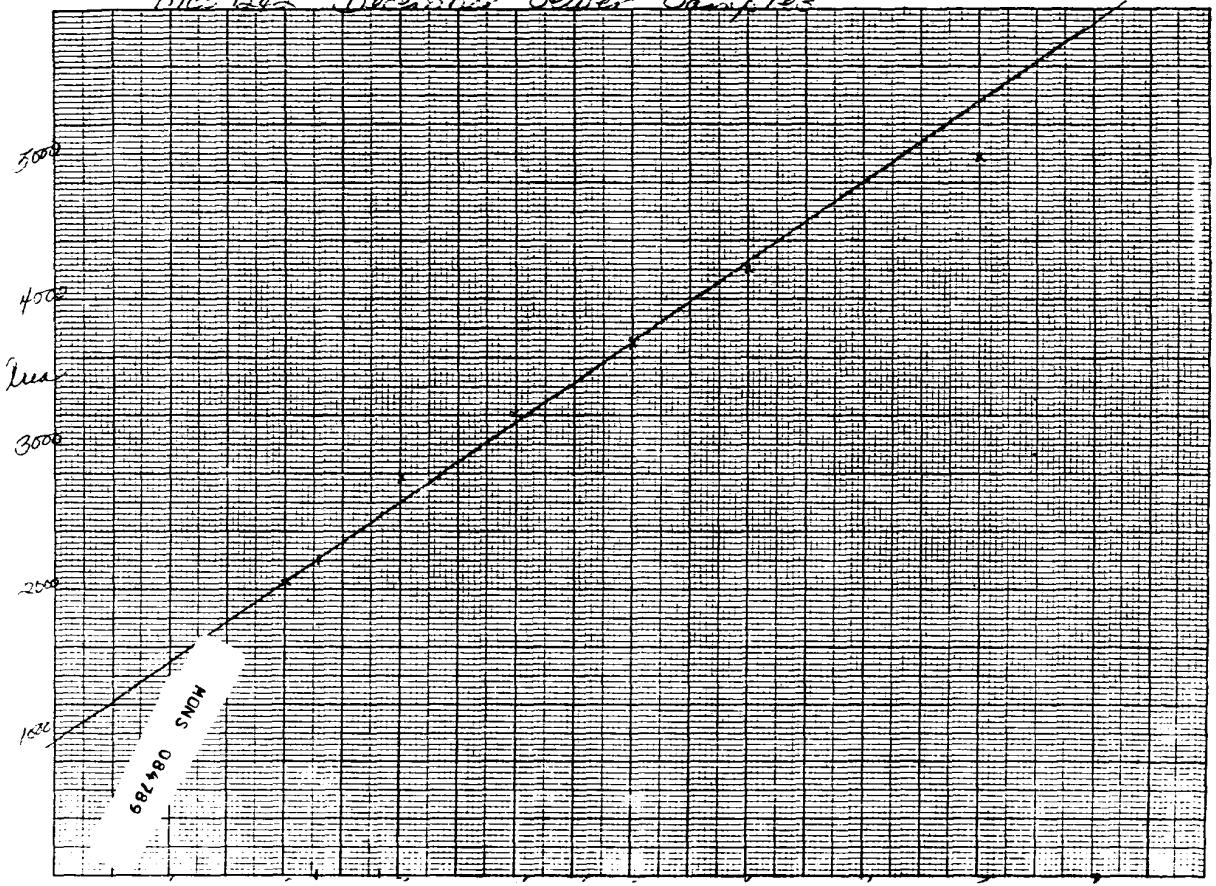
687.60
- 250.60
437.00 g

MSD

678.60
- 248.29
430.31 g

K+E 10 X 10 TO ½ INCH 46 1470
7½ X 10 INCHES MADE IN U.S.A.
KEUFFEL & ESSER CO.

MCS 1242 December Sewer Samples



Reported to Peterson 12-22-72

November

Sewer Samples (mcs 1242) .2102 x 10^{-6} g/ml

Standards

ml	area
2	2509
3	3059
4	3922
5	4581
6	6046
7	6198

Samples November

Blank	7ml of 1 ml	3697	(3.60)
mSD	3ml of 5ml 1:50 2:10	5646	(5.95)
CA	3ml of 5ml 1:50	2980	(2.75)

Calculations:

Blank $\frac{3.60 \times .2102 \times 1}{7} = .108$ ug

mSD $\frac{5.95 \times .2102 \times 5 \times 50 \times 10}{3 \times 1 \times 1} = 521.083$ ug

$\frac{521.083 - .108}{436.03} = 1.195$ ppm

CA $\frac{2.75 \times .2102 \times 5 \times 50}{3 \times 1} = 48.164$ ug

$\frac{48.166 - .108}{410.47} = .117$ ppm

MONS 084790

November

CA. 662.49
252.02
410.47

410.47g

MSD 672.14
236.11
406.03

406.03g

WW Bldg	300 gal	1 %	24 lb
W "	600 gal	1 %	48 lb
TSC1	600 gal	3-10% (7%)	336 lb
32	300 gal	3-10% *	168 lb
			576 lb

MSD 1000 gal/min

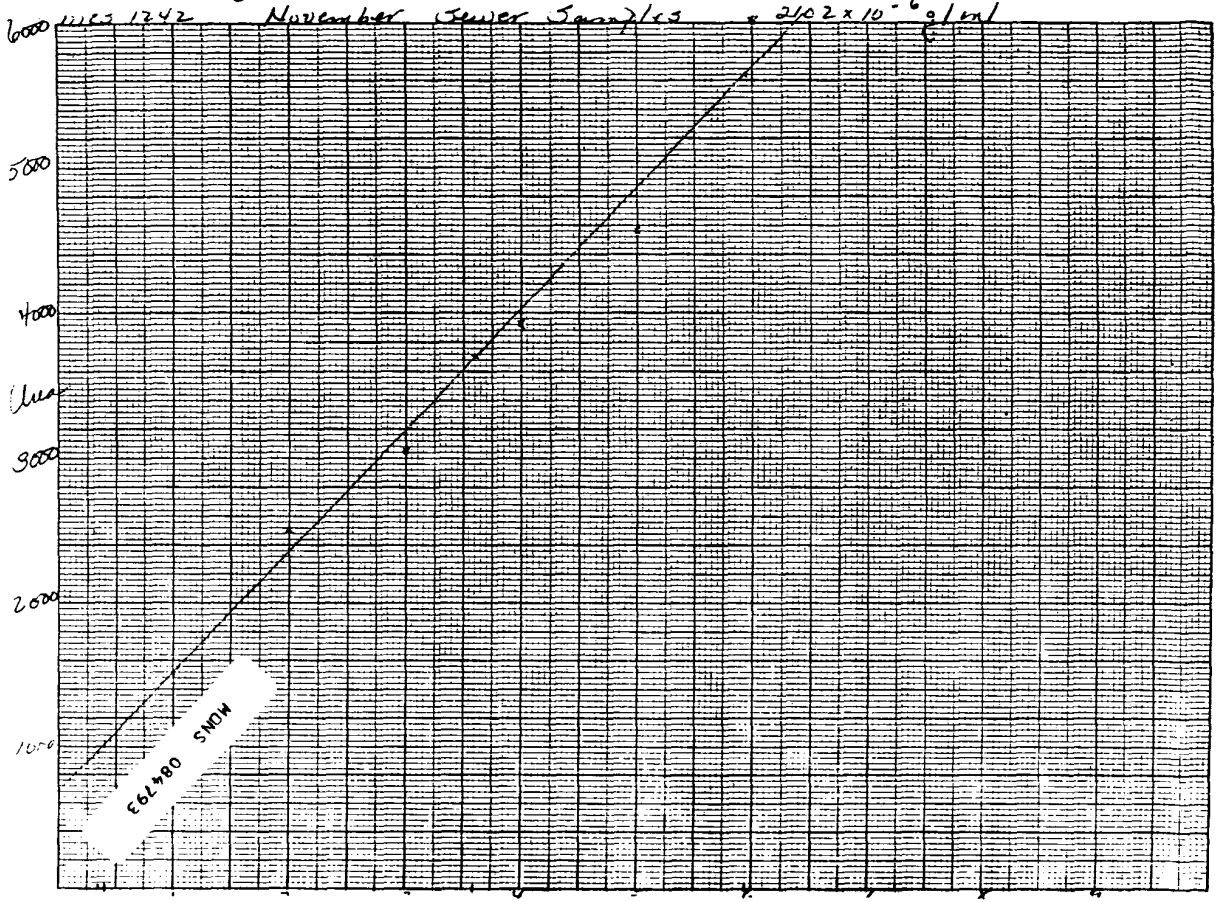
CA 1400 gal/min

1000 gal/min
8 lb/gal
8000 lb/min
60 min/hr
480000 lb/hr
24 hr/day
1920000
960000
11520000 lb/day
30 day/month
345,600,000 lb/month

$\frac{5.76 \times 10^2}{3.46 \times 10^8}$ 1.67×10^{-6}

$\frac{\mu g}{g} = 10^{-6} g/g$

1.67 ppm possible


K&E 10 X 10 TO ½ INCH 46 1470
7½ X 10 INCHES
KEUFFEL & ESSER CO.
6000
5000
4000
3000
2000
1000
E62480 SNOW
084793

Reported to Ostrowski by phone 12-13-72

JFQ Sewer Samples

	MSD	CA	Det Limit
Sept	49 ppb	9 ppb	1 ppb
Oct	14 ppb	12 ppb	1 ppb

MONS 084794

Calibration curve with photolyzed pyridine

Sewer Samples .2102 ug/ml

Standards

ul	area
2	1258
3	1691
4	2256
5	2511
6	3670
7	3654
8	3921

Samples

Blank		7 ul	1 ml	2755		(5.27)
MSD	Sept	3 ul	5 ml	1:10	3099	(5.99)
CA	Sept	5 ul	5 ml	2:10	2153	(3.95)
MSD	Oct	5 ul	5 ml	2:10	3257	(6.35)
CA	Oct	5 ul	5 ml	2:10	2644	(5.00)

Calculations

Blank $\frac{5.27 \times .2102 \times 1}{7} = .1582$ ug

MSD Sept. $\frac{5.99 \times .2102 \times 5 \times 10}{3 \times 1} = 20.985$ ug

$\frac{20.985 - .158}{424.76} = .049$ ppm

CA Sept.

$$\frac{3.95 \times .2102 \times 5 \times 10}{5 \times 2} = 4.151 \text{ ug}$$

$$\frac{4.151 - .158}{434.19} = .009 \text{ ppm}$$

MSD Oct.

$$\frac{6.35 \times .2102 \times 5 \times 10}{5 \times 2} = 6.674 \text{ ug}$$

$$\frac{6.674 - .158}{460.78} = .014 \text{ ppm}$$

CA Oct.

$$\frac{5.00 \times .2102 \times 5 \times 10}{5 \times 2} = 5.255 \text{ ug}$$

$$\frac{5.255 - .158}{422.80} = .012 \text{ ppm}$$

Det Limit

$$\frac{0.158 \times 2}{425} = 1 \text{ ppb}$$

Sept. MSD 467.10
242.34
424.76

CA 682.80
248.61
434.19

October MSD 693.39
242.61
450.78

CA 665.30
242.50
422.80

Q

MONS 084797