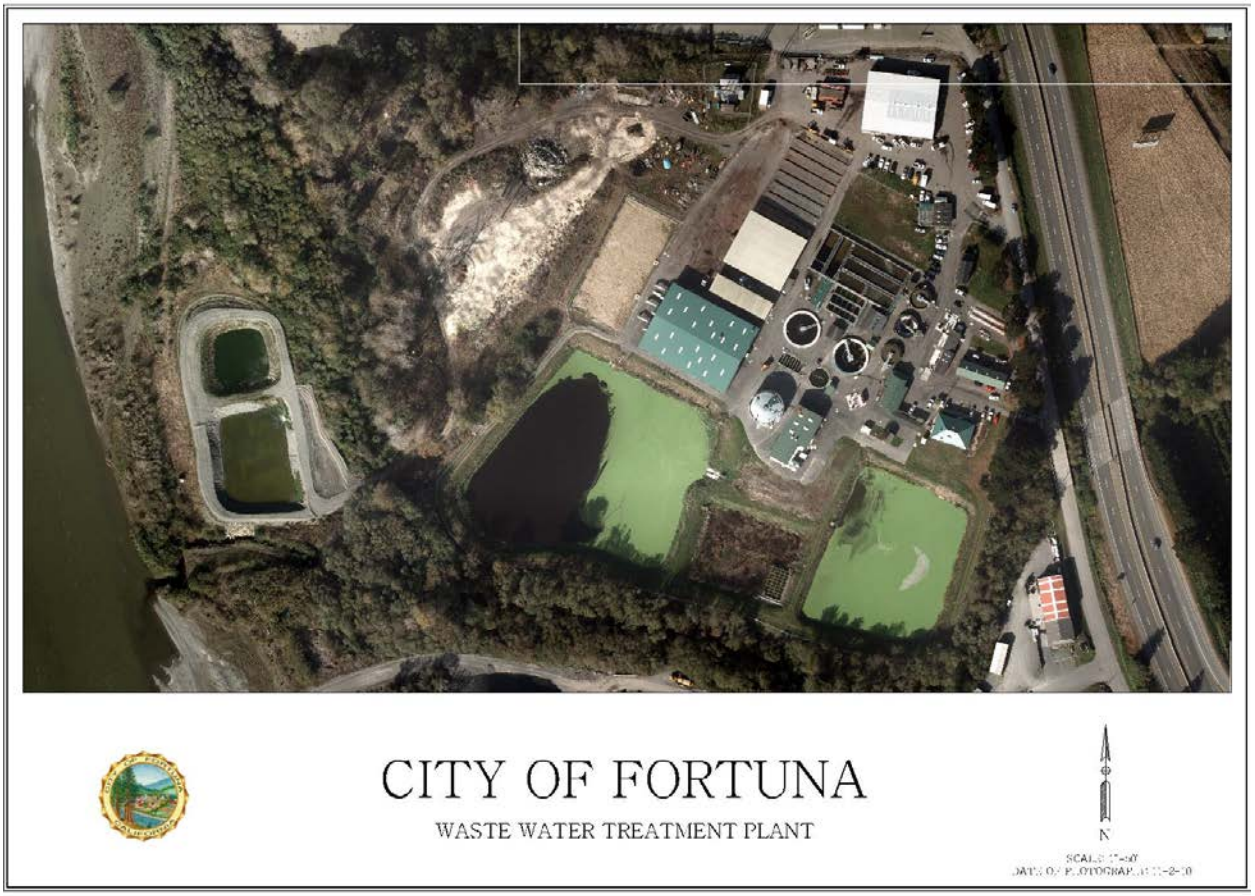
CITY OF FORTUNA

TOM COOKE MEMORIAL WASTEWATER TREATMENT PLANT

2012 ANNUAL REPORT

January 31, 2013



1. Introduction

The Tom Cooke Memorial Wastewater Treatment Plant (WWTP) is operated by the City of Fortuna. The plant is located at 180 Dinsmore Drive, in Fortuna, Humboldt County, California and serves a population of approximately 10,000. Major treatment processes include screening and grit removal, primary treatment, secondary treatment, mixed liquor recycle for biological nutrient removal (BNR), sludge thickening, anaerobic digestion, electrical cogeneration, solids dewatering and composting, side stream equalization, and effluent disinfection. Treated effluent is currently discharged to the percolation ponds during dry weather, and to Strong's Creek, a tributary of the Eel River, during the wet weather season. The facility is permitted to compost biosolids to Class A Exceptional Quality standards. While the City was permitted to produce and sell the Class A EQ compost there was some question from City personnel as to whether the permit actually allowed this and to be safe the City postponed all composting operation until this issue was clarified. Meanwhile the biosolids were stock piled and stored within City facilities until this could be worked out. Presently the City is preparing an RFP for biosolids disposal and compost sale commercially. Numerous auxiliary systems are required for proper operation of many plant processes including: potable water, process water, HVAC, electrical power distribution, gas, chemicals, instrument air, and others.

The State Water Resources Control Board (SWRCB) reclassified the Tom Cooke Memorial Wastewater Treatment Plant as a Class IV Secondary Treatment wastewater treatment facility but was recently brought back into Grade III status. The facility currently operates under the SWRCB Order Number R1-2011-0004 issued on January 27, 2011.

This report is a summary of plant operation and performance during 2012. In addition to a discussion of effluent quality and the plant's success in meeting treatment objectives, the report contains summaries of 2012 plant operations, maintenance, chemicals, utilities, and human resources.

2. Summary

The plant generally operated well throughout the entire year. This year's primary efforts have been directed toward meeting compliance with California Toxics Rule limits for Disinfection Byproducts (DBP) and achieving the consistent biological nutrient removal necessary to maintain that compliance and obtain an amended discharge rate to Strongs Creek. Together with careful control of operational processes, addition of ammonia prior to chlorination to form chloramines and aeration of the plant effluent has successfully allowed the facility to temporarily meet Disinfection Byproduct limits for discharge to Strongs Creek.

Historically, the WWTP was allowed to bypass storm flows into the oxidation ponds. Until November of 2007, the facility was permitted to discharge directly from the ponds into Strongs Creek. As such, the WWTP secondary treatment system did not have to treat the volumes that it currently treats during winter flows. Typically, peak flows through the plant prior to 2007 were 1.8 MGD. Currently, peak flows through the plant are in excess of 4 MGD.

Additionally, prior to the issuance of the current permit in January of 2011, the WWTP effluent quality was tested on an 8 hour composite sample collected by hand during the normal work day. Under the current permit, effluent samples are collected automatically over a 24 hour period. As such, variations in flow and fluctuations in the disinfection and dechlorination feed rates as well as solids settling characteristics are evident in the final sample and represent a potential financial impact to the ratepayers. For that reason, staff continues to pursue a Regulatory Compliance capital improvement project which will moderate flows throughout the day and utilize stored influent to maintain flow rates throughout the night. The project will allow the facility to operate at a near steady state and reduce fluctuations which pose the risk of permit violations during unstaffed hours.

Following is a list of effluent violations and Order Condition infractions from 2012:

- On January 1, 12, 17-18, 23 the Chlorine residual fell below the minimum requirement of 1.5 mg/L. Occurred due to cleaning of the contact chamber and putting back in service. The correction was increasing the feed rate during the cleaning. These were all Order Conditions that were not met.
- On February 28th the Chlorine residual fell below 1.5 mg/L. The feed rate was adjusted to compensate.
- On March 22nd the Chlorine residual fell below 1.5 mg/L. This was due to a backup cylinder not switching over automatically. The cylinder was switched manually.
- On April 22-23 the Chlorine residual fell below 1.5 mg/L due to corrective maintenance on the NH3 system. Repairs were completed.

- On May 9th, 11th and 22nd the Chlorine residual fell below 1.5 mg/L. The NH3 system was cleaned and an eductor was replaced.
- On June 19th & 28th the Chlorine residual fell below 1.5 mg/L. Maintenance was done on the NH3 system; on the 28th we were unable to quantify the Effluent BOD and the reagent water was changed.
- On July 19th the Chlorine residual fell below 1.5 mg/L. Maintenance was performed on the NH3 system.
- On August 6th the Chlorine residual fell below 1.5 mg/L. Maintenance was performed on the NH3 system; On the 28th we had a coliform sample greater than 1600 MPN. The sample tubing was cleaned.
- On September 10th and 25th the Chlorine residual fell below 1.5 mg/L. Maintenance was performed on the CL2 system.
- On October 20th and 22nd the Chlorine residual fell below 1.5 mg/L due to mechanical problems with the chlorinator. We switched to standby chlorinator and performed maintenance on the chlorinator.
- There were no violations in November
- We exceeded the maximum level for Dichlorobromomethane. The limit is .6 ppb and we measured a 1 ppb. This was caused by a clogged ejector in the ammonia application. This was addressed and no further issues were seen.

As indicated by the multiple drops in chlorine residual throughout the year, the greatest difficulty with DBP compliance has been maintaining an effluent free of organic material. Cleaning operations routinely cause a spike in chlorine demand and result in periods with minimal residual. Staff has proposed the addition of a filtration system and UV or Ozone disinfection, and studies are ongoing on the feasibility and fundability of producing a Title 22 compliant effluent.

Further complicating the issue, maintaining a sufficient biomass to affect consistent nutrient removal during colder weather or higher flows drastically impacts the level of organic material due to the formation of pin floc, and failing to adequately control the ammonia and nitrite levels of the secondary effluent drastically affect both the maintenance of a chlorine residual and DBP formation.

The remarkable performance this year in regard to DBP formation has been a major challenge, especially with a majority of the staff being Operators in Training and new to the facility. The plant has performed beyond expectations, and staff has gone to adding NH_4OH in the chlorine contact basin to lower free chlorine residuals and disinfect with a lesser concentration of Chlorine and greater concentration of Ammonia Hydroxide thus reducing the potential for DBP. This has been working quite well.

3. OPERATIONS

a. Pretreatment

In 2012 the City of Fortuna, with the assistance of Freshwater Environmental Services, continued implementing the Fats, Oils and Grease (FOG) Control Program (Element 7 of the City's draft SSMP) by conducting regular inspections of pretreatment devices at food service establishments within the City. This work was conducted under the authority of the current Fortuna Municipal Code which requires interceptors, when necessary, at food service establishments and also requires that they be regularly maintained. Inspection procedure includes an informal interview of the food service establishment's Owner or Manager regarding their existing infrastructure and kitchen practices, and an educational discussion of FOG source control. Violations are documented and proof of corrective actions is required.

The City of Fortuna is continuing to develop a FOG source control policy which would look to amend the City's Sewer Use Ordinance to include a FOG Ordinance as well as a Grease Hauler Permit Ordinance. A FOG enforcement response plan will be included to provide additional enforcement authority, and to outline a permitting process for FOG dischargers as well as for licensed grease haulers.

City of Fortuna utilities crews continued to inspect sanitary sewer manholes and other infrastructure for inflow and infiltration that may contribute to unnecessary volumes of waste water to be treated.

b. Influent Treatment and Quality

The plant operates at an average dry weather flow of 1.0 Million Gallons per Day (MGD), and during wet weather can experience flows above 6.5 MGD. During high flow periods, plant influent is partially diverted to flow equalization ponds to allow the plant flow to remain at a controlled uniform rate below the plant’s current wet weather operational capacity of 3.0 MGD.

A summary of annual flow and influent parameter concentrations for the past three years is shown in Table 1.

Table 1: Influent Parameters

	2010	2011	2012
Mean Influent Flow, MGD	**1.216**	**1.083**	**1.115**
Total Annual Flow, MG	**443.7**	**395.2**	**400.2**
Mean Influent SS, mg/L	**396**	**330**	**302**
Mean Influent BOD_5, mg/L	**307**	**346**	**277**

c. Preliminary Treatment

The preliminary treatment process includes screening and grit removal as well as influent flow monitoring.

Wastewater enters the treatment facility at the head works structure, which provides a grit and screenings removal operation. There is one automatic stair-stepper type bar screen. This screening machine removes rags and large pieces of debris from the wastewater. Grit channels located downstream of the screen remove sand, gravel and similar heavy inorganic material by gravity separation. The grit channel operates at a lower velocity than standard because organics allowed to fall out of the waste stream are separated by a cyclone grit classifier and returned to the plan influent wet well. The grit and screenings are collected and hauled to a sanitary landfill site.

d. Primary Treatment

After the grit channels, the next wastewater treatment process is primary sedimentation where the velocity of flow entering the clarifier tanks is reduced, allowing the heavier solids in the wastewater to settle to the bottom by gravity. Sludge collectors in the tanks sweep the settled sludge (primary sludge) into a sludge hopper located on the bottom of the tank, from where the sludge is pumped either to the anaerobic digester or the Gravity Belt sludge thickener. There are three circular primary clarifiers. By varying the number of units online, staff implemented a control strategy to optimize secondary treatment and provide additional carbon material to effect nutrient removal. The viability of utilizing primary sludge elutriation, rinsing carbon rich volatile acids out and back into the secondary system via the gravity belt thickener, hinges on the ability to perform this process without undue odor formation.

Table 2 contains a summary of key primary treatment effluent parameter concentrations over the previous three years.

Table 2: Primary Treatment Effluent Parameters

	2010	2011	2012
Mean Primary Effluent TSS, mg/L	**94.4**	**283**	**86**
Mean Primary Effluent BOD_5, mg/L	**266**	**346**	**195**

e. Secondary Treatment

The secondary treatment process includes biological treatment of the waste stream as well as solids separation processes.

In the activated sludge process, effluent from the primary clarifiers is mixed with Return Activated Sludge (RAS) from final clarifiers and is aerated in aeration basins. The activated sludge is primarily comprised of micro-organisms and bacteria, which are a natural part of wastewater and are used to break down the organic solids in the wastewater. Micro-organism are monitored microscopically weekly by operations and laboratory staff to confirm number, type, and general health of the process.

A mixed liquor recycle system allows denitrification for removal of Nitrate Nitrogen from the waste stream. This process improves the secondary treatment process by returning a portion of the alkalinity removed during the nitrification process and reducing the need for caustic soda addition. At present, the process continues to require some caustic addition due to the inadequate supply of carbon which is necessary for anoxic conversion of Nitrate into Nitrogen gas. The facility has begun a pilot project to determine the viability of utilizing whey, a cheese production waste product, as a supplemental source of carbon in lieu of purchasing methanol, which is the industry standard.

The mixed liquor from the aeration basins flows to large quiescent final clarifiers where the activated sludge is allowed to settle. A controlled quantity of this sludge is "returned" to the aeration basins as Return Activated Sludge (RAS) to repeat the treatment process, and excess quantities are removed as Waste Activated Sludge (WAS) to the WAS holding tank. There are five final clarifiers, and the number in operation is adjusted to optimize performance during varying flow conditions.

A summary of key aeration basin parameters for the previous two years is shown in Table 3.

Table 3: Secondary Treatment Process Parameters

	2010	*2011*	*2012*
Mean Mixed Liquor Suspended Solids, mg/L	**2180**	**2250**	**2861**
Mean F:M Ratio	**0.25**	**0.20**	**0.17**
Mean Cell Residence Time, days	**16**	**23**	**30**

f. Final Effluent Treatment and Quality

Chlorine gas is combined with ammonia to form chloramines which are used to disinfect the final effluent before it is discharged. Ammonia is fed into the chlorine feed water at a carefully controlled dosage to limit the formation of Disinfection Byproducts. Aeration has been added immediately prior to discharge to further reduce Disinfection Byproducts and raise effluent pH and Dissolved Oxygen. In 2012, the plant continued to produce a high quality effluent. A summary of key final effluent parameters for 2012 is shown in Table 4. Details of the final effluent qualities are presented in graphical form in Appendix A. A summary of other key treatment parameters for 2012 is shown in Table 5.

Table 4: Treated Wastewater Parameters 2012

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Ammonia Nitrogen (mg/L)	4.2	1.8	0	1.7	0.96	1.2	0.14	0.66	3.6	0.63	NA	0.73
Unionized Ammonia Nitrogen (mg/L)	0.021	0.0031	0	0.0045	0.0013	0.0029	0.0006	0.0056	0.014	0.0019	NA	0.00071
Nitrate as nitrogen (mg/L)	20	8.4	23	15	22	17	14	16	19	25	NA	15
Total Phosphate Phosphorous (mg/L)	3.4	3.3	3.7	3.7	4.1	4.5	5.1	4.6	4.9	4.7	NA	1.8
Copper (ug/L)	12	9.7	10	11	11	9.8	9.8	15	12	28	NA	na
Bromodichloromethane (ug/L)	ND	ND	ND	ND	ND	ND	4.8	0.57	0.57	3.4	NA	1
Dibromochloromethane (ug/L)	ND	ND	ND	ND	ND	ND	0.79	ND	ND	0.83	NA	ND
Nitrate, lbs/day average	267	105	441	263	257	170	128	124	170	198	NA	362

Table 5: Key Treatment Parameters 2012

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
EFFLUENT BOD, mg/L												
Max	3.8	5.7	4.8	4.4	5.7	5.3	5.7	7.8	9.5	4.4	7.6	4.9
Mean	3.1	3.8	3.5	4.1	4.2	4.2	4.9	6.5	7.3	4.9	6.3	4.7
Average lbs/day	41	48	67	72	49	42	45	51	65	39	79	113

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
INFLUENT BOD, mg/L												
Max	340	300	250	280	3559	403	399	478	441	381	388	217

Mean	276	249	177	199	336	360	414	355	143	361	300	155
Average lbs/day	2532	2284	2510	2656	2357	2516	2731	2209	2542	2315	2627	2675

INFLUENT TSS, mg/L

Max	374	239	270	287	431	332	539	554	482	374	397	227
Mean	316	203	171	211	344	287	402	419	435	338	320	183
Average lbs/day	2898	1862	2424	2816	2413	2006	2651	2607	2677	2167	2802	3159

EFFLUENT TSS, mg/L

Max	4.8	5.4	6.9	6.1	2.6	4.4	4.4	7.5	12.4	5.3	5.4	5.4
Mean	2.7	3.7	4.4	4.7	2	3.3	2.8	6	8.7	3.5	4.4	4.5
Average lbs/day	36	46	84	82	23	33	25.7	4.46.6	77.6	27.7	67.5	109
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

INFLUENT FLOW, MGD

Max	2.5	1.8	2.7	2.8	1	1.3	1.5	0.875	0.855	1.1	3.2	4.1
Mean	1.1	1.1	1.7	1.6	0.841	0.838	0.791	0.745	0.738	0.769	1.1	2.06
TOTAL	33.5	23	54.4	49	26	25.2	24.5	23.1	22.2	23.8	31.5	64

EFFLUENT FLOW, MGD

Max	3.6	2.2	7.5	3.3	2.5	1.6	2.7	2	2.1	2	3.6	3.9
Mean	1.6	1.5	2.3	2.1	1.4	1.2	1.1	0.931	1.1	0.95	1.5	2.9
TOTAL	49	42.5	77.3	58.1	42.1	35.7	34.8	28.9	32.3	29.5	45.8	55.1
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

SETTLEABLE SOLIDS, ml/L

Max	<0.1	<0.1	<0.1	<0.1	<0.1	NA	NA	NA	NA	NA	NA	<0.1
Mean	<0.1	<0.1	<0.1	<0.1	<0.1	NA	NA	NA	NA	NA	NA	<.01

COLIFORM, MPN

Max	80	7	6	50	80	50	4	900	23	17	11	4
Median	7	2	4	2	2	21	2	97	2	2	2	4
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

PH

Max pH	7.1	6.9	6.9	7.1	7.2	7.2	7.2	7.3	7.2	7.1	7	7
Min pH	6.7	6.8	6.3	6.7	6.8	6.8	7.1	7.1	6.7	6.9	6.7	6.5

BASIN CHLORINE RESIDUAL, mg/L

Max	14.9	5.7	5.9	7.7	6.4	6.3	10.9	16.5	11.2	22	6.8	5.4
Mean	3.7	3.9	4.2	4.6	4.1	3.8	4.1	5.4	5.1	4.6	3.9	2.6

Mixed Liquor Concentration, mg/L

Max	3560	3617	3923	4231	3635	4334	5070	3309	2737	2742	2975	2664
Mean	2677	3306	3329	3311	2746	3447	3822	2815	1845	2340	2544	2146
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Sludge Wasted, LBS												
Max	1971	1436	907	1118	1410	1193	927	795	516	610	553	400
Mean	582	789	649	632	729	759	713	514	253	432	285	229
TOTAL(1000 lbs)	17.5	23.7	19.5	18.9	21.8	22.7	4.2	15.4	7.6	14.4	8.5	7.1
Primary Sludge Digested, LBS	37113	27622	19190	35237	37630	35028	45036	32576	33427	29190	33952	33760
Digester % solid	2.5	2.3	1.3	2.5	2.4	2.4	2.4	1.8	2.4	2	2.3	2.3
Cogeneration, kwh	26	22	0	14	0	0	0	0	0	0	0	0
Mean Primary Effluent BOD, mg/L	247	166	115	123	232	235	225	260	251	223	184	75

g. *Solids Handling*

The anaerobic digestion process reduces sludge volume and stabilizes the solids to form biosolids. In 2012, an average of 1093 lb/day of raw sludge from primary treatment was pumped to the anaerobic digester for treatment. Average total solids (TS) concentration of raw sludge was 2.2% and total volatile solids content was 85% of TS. Waste activated sludge (WAS) was diverted from the mixed liquor recycling line to eliminate fluctuations in digester feed rates due to variations in RAS concentrations and pumped to the anaerobic digester after processing through the gravity belt thickener. In 2012, approximately 496 lb/day of WAS was thickened and sent to the digester.

In 2012, approximately 153 dry metric tons of biosolids were produced and composted to approximately 1177 cubic yards of Class A Exceptional Quality compost. In 2011 this compost was given away to the community but in 2012 this changed and the City went in a different direction. We spent the year trying to develop and RFP for the reuse of all our biosolids but it never got off the ground so no biosolids were disposed of but stored on the premises until an RFP could be sent out. In 2013 we finally got the RFP designed and it went out to the public on January 25th.

Biosolids are composted for 15 days at temperatures in excess of 140 degrees to destroy pathogens and are tested quarterly for metals content to ensure Exceptional Quality status and safety of the finished material. Results of tests performed in 2011 are presented in Table 6.

Table 6: Biosolids Quality Monitoring 2012

Compost monitoring in 2012, mg/kg

	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
Chromium (Cr)	33	34	35	37
Nickel (Ni)	35	33	33	32
Copper (Cu)	250	290	320	310
Zinc (Zn)	480	520	580	560
Arsenic (As)	ND	ND	ND	ND
Selenium (Se)	ND	ND	ND	ND
Molybdenum (Mo)	ND	ND	ND	ND

Cadmium (Cd)	ND	ND	ND	ND
Mercury (Hg)	ND	.4	.43	.44
Lead (Pb)	58	60	66	64

Compost monitoring in 2012

	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
Salmonella, MPN/ 1 g TS	<0.5	<0.4	<0.5	<0.4
Fecal Coliform, MPN/ 1 g TS	57	<0.3	<0.3	0.3

(Manure Typically has >2,400 MPN/g TS Fecal Coliforms)

4. MAINTENANCE

a. Maintenance Summary

The WWTP performed a variety of scheduled, preventative, predictive and breakdown maintenance on a wide variety of equipment. The main goal of maintenance activities is to ensure equipment availability to meet plant process operation requirements.

The WWTP work area includes all major and auxiliary processes. Maintenance minimizes callouts, reduces overtime costs, limits potential for discharge violations due to mechanical failure, and costs associated with repairs are significantly lower than replacement costs.
In addition to routine lubrication and preventative maintenance activities, the following emergency and predictive maintenance was completed in 2012:

- Replaced filters on Aeration Blower 1,2,&3
- Greased bearings on Belt Filter Press and Gravity Belt Thickener
- New belts on the Grit pump 1 & 2
- Replaced wear plates on Grit screw
- Pull influent pumps 1-3. Checked oil
- Drained oil and install new O-rings on mixer
- Added new packing and new studs in Primary sludge pumps. Also added new contact block for pilot switch
- Install new belts on RAS pumps 1-4; New mechanical seal, sheave and inside oil seal on #3
- New contacts on Stair screen
- New contacts on Wash Press
- New copper line on mixing pumps for seal water
- New bearing for 40 hp motor on N. Blower
- Cleaned tubes on Boiler

b. Flow Meter Calibration Record

Flow to the plant is measured at the head works and chlorine contact basin effluent weir. Meters are checked monthly for accuracy and functionality.

5. CHEMICALS AND UTILITIES

a. Chemicals

Several chemicals are used for a variety of treatment processes at the plant. Major process chemicals are discussed below and include:

- Sodium Hydroxide (Nutrient Removal, pH adjustment)
- Chlorine gas (Disinfection)
- Sulfur Dioxide gas (Dechlorination)
- Ammonia Hydroxide

i. Sodium Hydroxide for Nutrient Removal and pH Adjustment

Sodium Hydroxide consumption to provide for the increased demand for alkalinity associated with nitrification for nutrient removal (i.e. ammonia) during 2011 was approximately 38 tons, dry weight. Sodium Hydroxide was applied to the mixing box upstream of the aeration basins and, if necessary, prior to discharge to Strongs Creek.

ii. Chlorine for Disinfection

Chlorine is used for disinfection of the final effluent. In 2011, approximately 16 tons were consumed for this purpose. The decrease of nearly 7 tons from last year is due to the improved chloramination process and decreased demand for chlorine due to reduction in effluent ammonia and solids concentrations.

iii. Sulfur Dioxide for Dechlorination

Sulfur Dioxide is used for dechlorination of the final effluent prior to discharge to Strong's Creek. In 2011, approximately 11 tons was consumed for this purpose. The increase in usage is due to the necessity to treat all plant effluent as if it were discharged to surface water, in consideration of the locale of the facility's percolation ponds.

iv. Ammonia Hydroxide

Ammonia Hydroxide is used to eliminate free, uncombined chlorine and limit Disinfection Byproduct formation.

b. Utilities

i. Reclaimed Water

The total amount of water reclaimed from the treated effluent for use in the treatment plant averaged 30,000 gallons per day for an estimated reclaimed water usage of 11 million gallons in 2012.

ii. Cogeneration

During the year, we operated the cogeneration unit for 62 hours at 86 kilowatts (kw). Operation only occurred during the months of January, February and April.

6. HUMAN RESOURCES

a. Staffing

In 2012, the treatment plant had 9 employees. The Chief Plant Operator resigned in October and a new CPO was hired in December. Plant staffing for 2012 is shown in Table 7.

Table 7: Plant Staffing

Chief Plant Operator	1
Shift Supervisor	2
WWTP Operator	2
Plant Maintenance Mechanic	1
Lab Director	1
OIT Full Time	1
OIT Part Time	1

b. Staff Training & Development

In addition to weekly safety meetings, the WWTP has developed a comprehensive Operator Training Program that expands the abilities of the operational staff, resulting in better service to the public, and better, more efficient operation of the facility. Under the previous CPO, accreditation was received to conduct in-house trainings meeting Continuing Education requirements, and these training opportunities were offered to other municipalities and agencies, free of charge, to assist other local treatment facilities in improving their operational knowledge and to provide local training and staff development opportunities to help minimize the cost of training on facility budgets strained by the current economic landscape. WWTP operating staff conducted and/or attended the following trainings:

- CPR
- Chlorine Safety
- First Aid
- Chemical Hygiene
- Bloodborne Pathogens
- Confined Space
- Trench Safety
- Electrical Controls
- Asbestos Training
- Heat Illness Prevention
- Water Quality Laboratory
- Lifting and Carrying

c. Operator Certification

The WWTP has incorporated two full time Shift Supervisor positions into the organizational structure of the water and wastewater treatment facilities. This allows for operational and process changes to be made when needed, including during weekends, in accordance with SWRCB Office of Operator Certification guidelines, and provides the required two operators on duty at all times. While this demonstrates compliance with the regulations of the Office of Operator Certification, it also provides sufficient levels of staffing and improves staff safety during Holidays and weekend shifts.

Table 8 summarizes the status of operator certification held by WWTP operators at the facility during 2012.

Table 8: Wastewater Treatment Certifications

Grade IV	1
Grade III	3
Grade II	2
O.I.T.	2

In addition, senior City staff members hold additional two Grade III wastewater certifications. Additional certifications held by WWTP staff include Laboratory Analyst, Water Treatment, Maintenance Technologist, and Biosolids Management certifications. Five staff members are qualified to perform Energized Electrical Work, as well.

7. Certification of Report

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

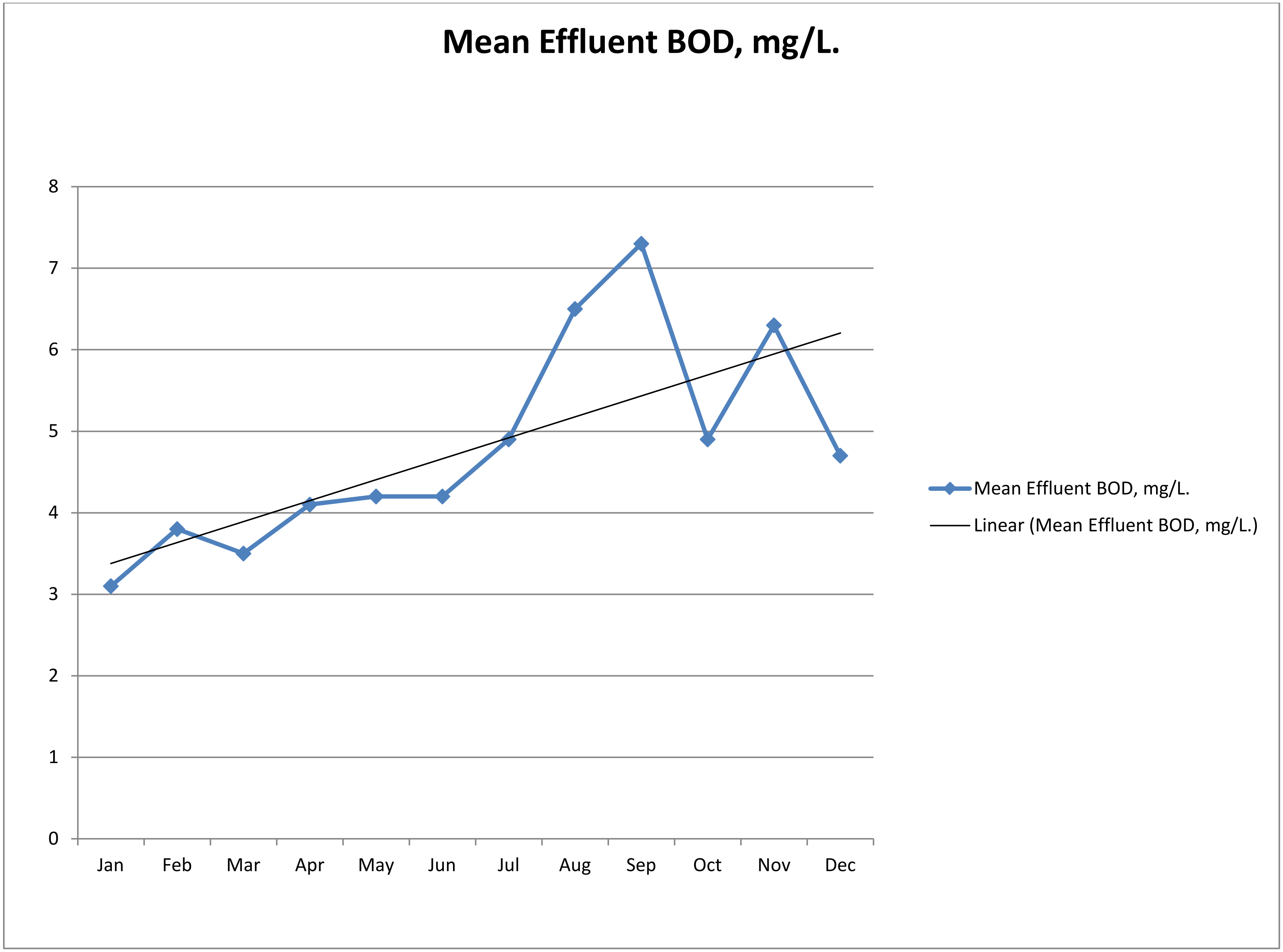
If you have any questions or need additional information, please feel free to contact me at dculbert@ci.fortuna.ca.us or (707)725-1476.

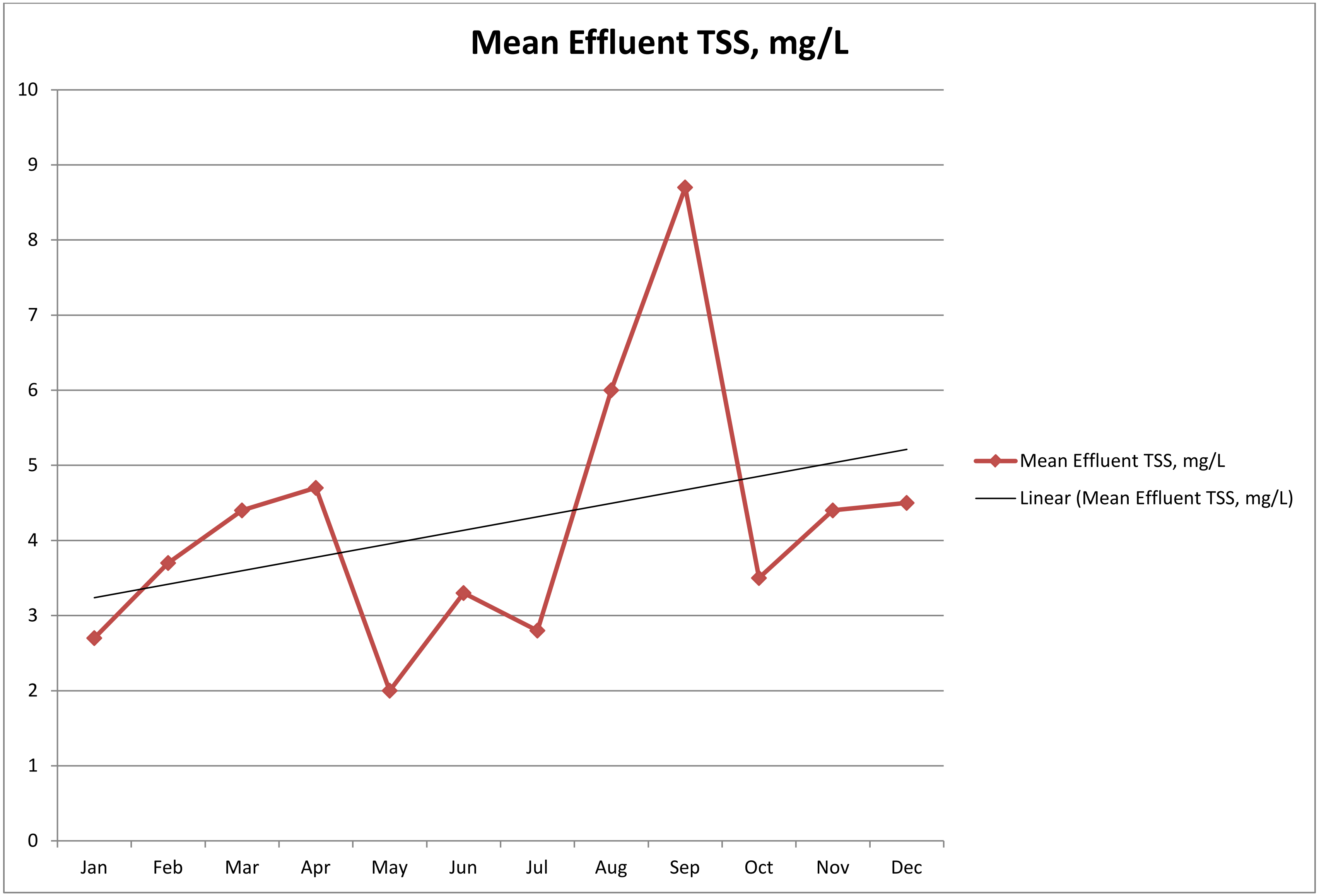
Sincerely,

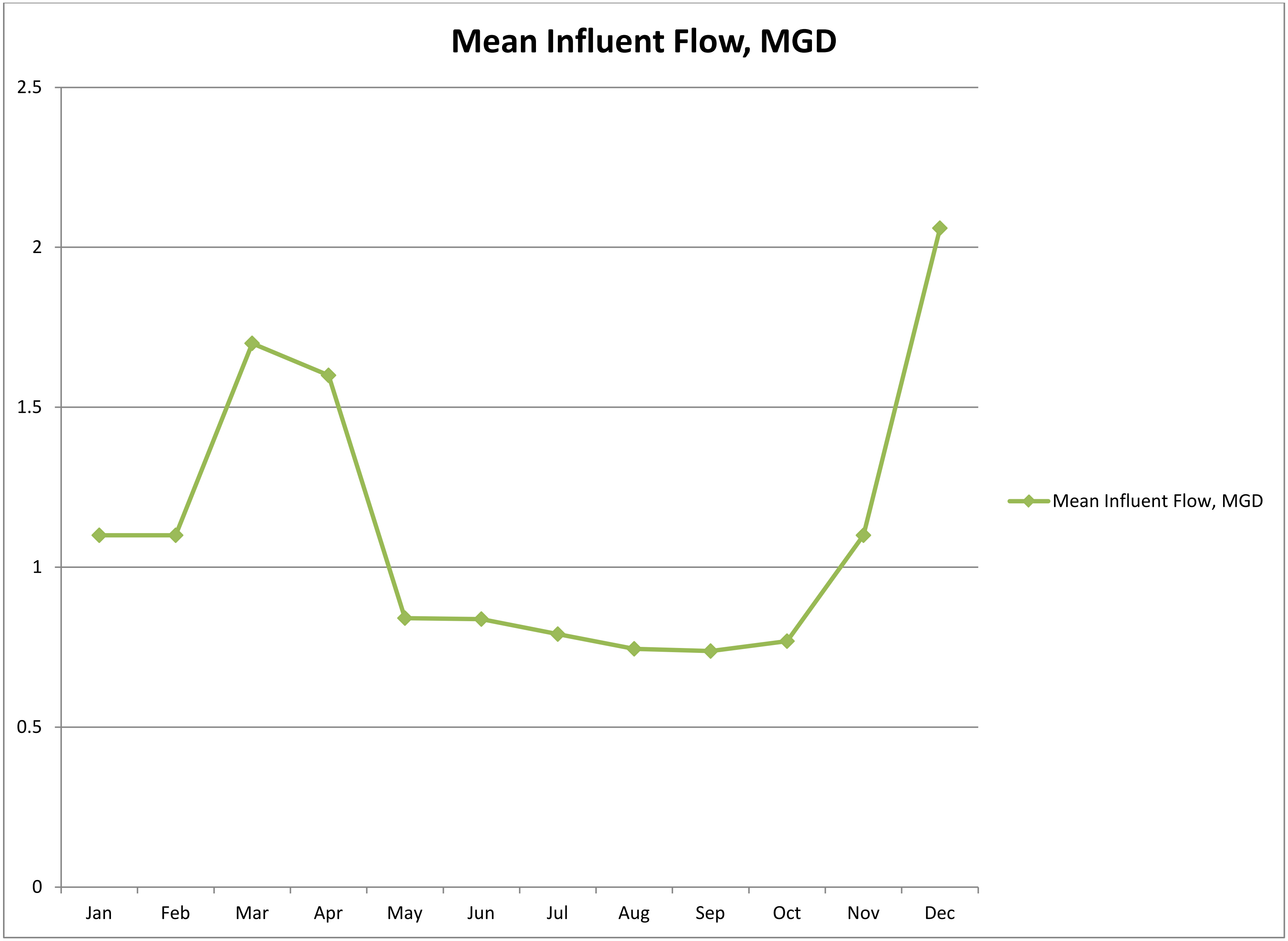
Doug Culbert, WWTPO III-9678
Chief Plant Operator
Tom Cooke Memorial WWTP
City of Fortuna

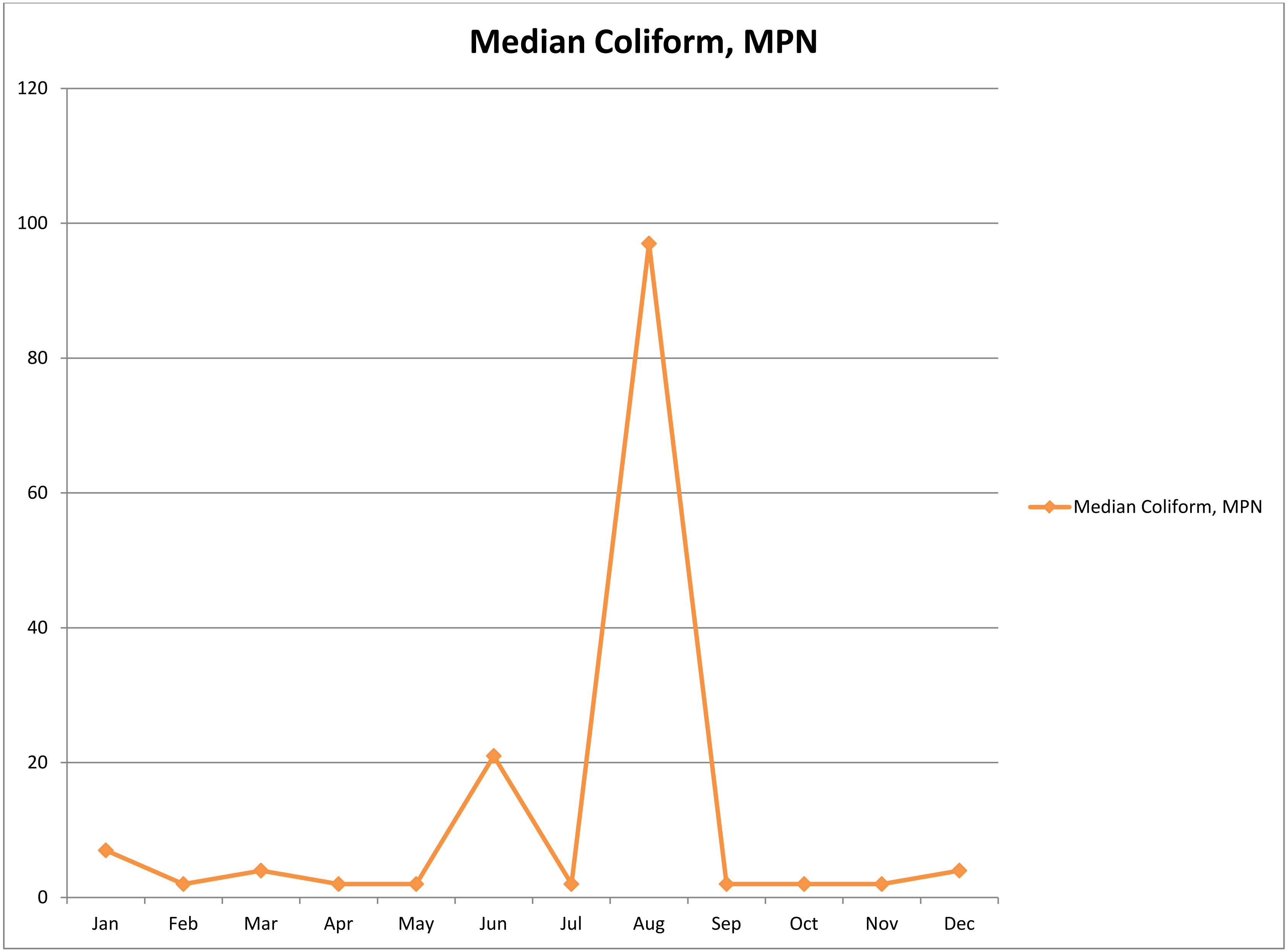
Appendix A

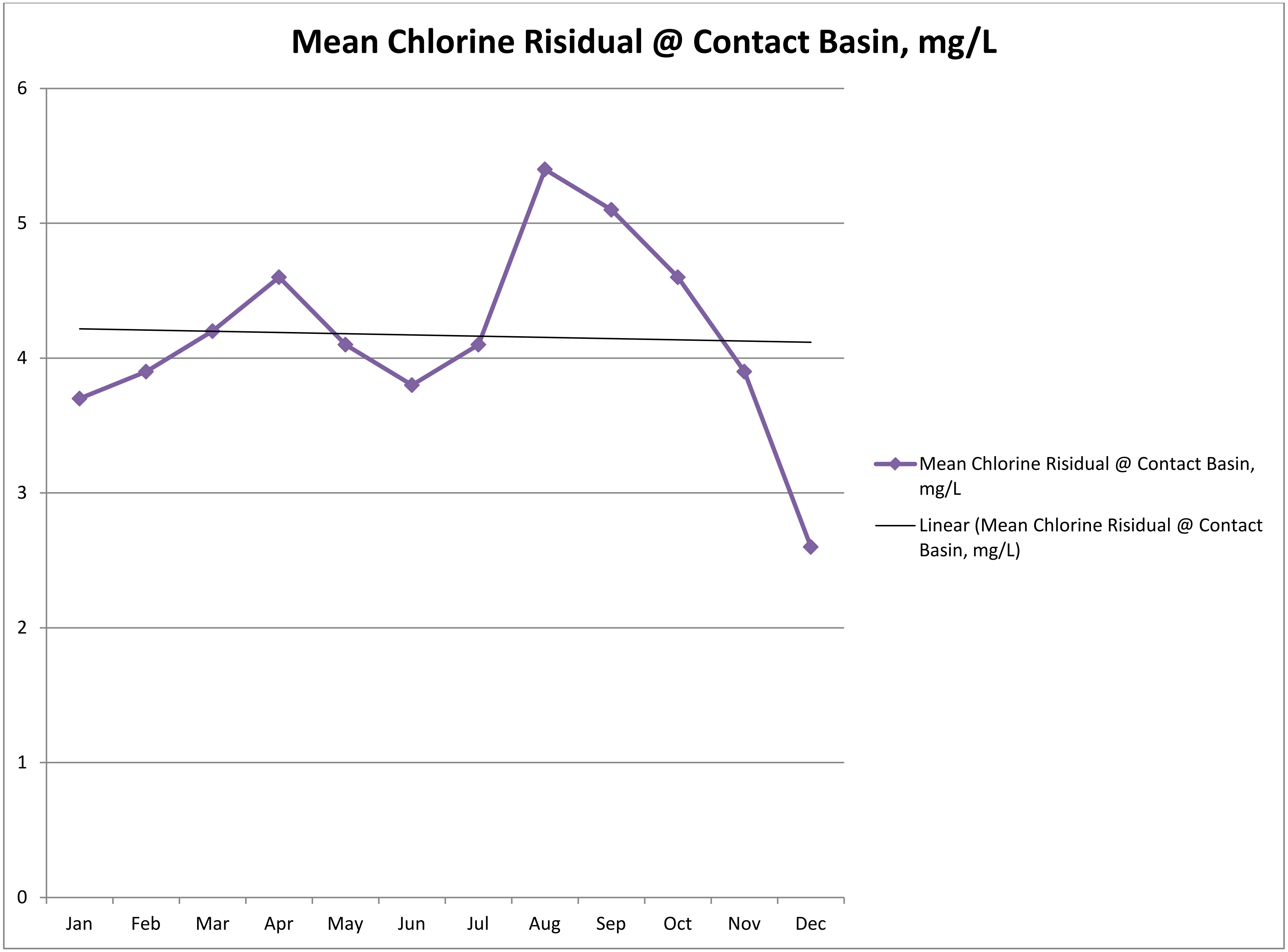
Performance Charts


Mean Effluent BOD, mg/L.
8
7
6
5
4
3
2
1
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Mean Effluent BOD, mg/L.
Linear (Mean Effluent BOD, mg/L.)

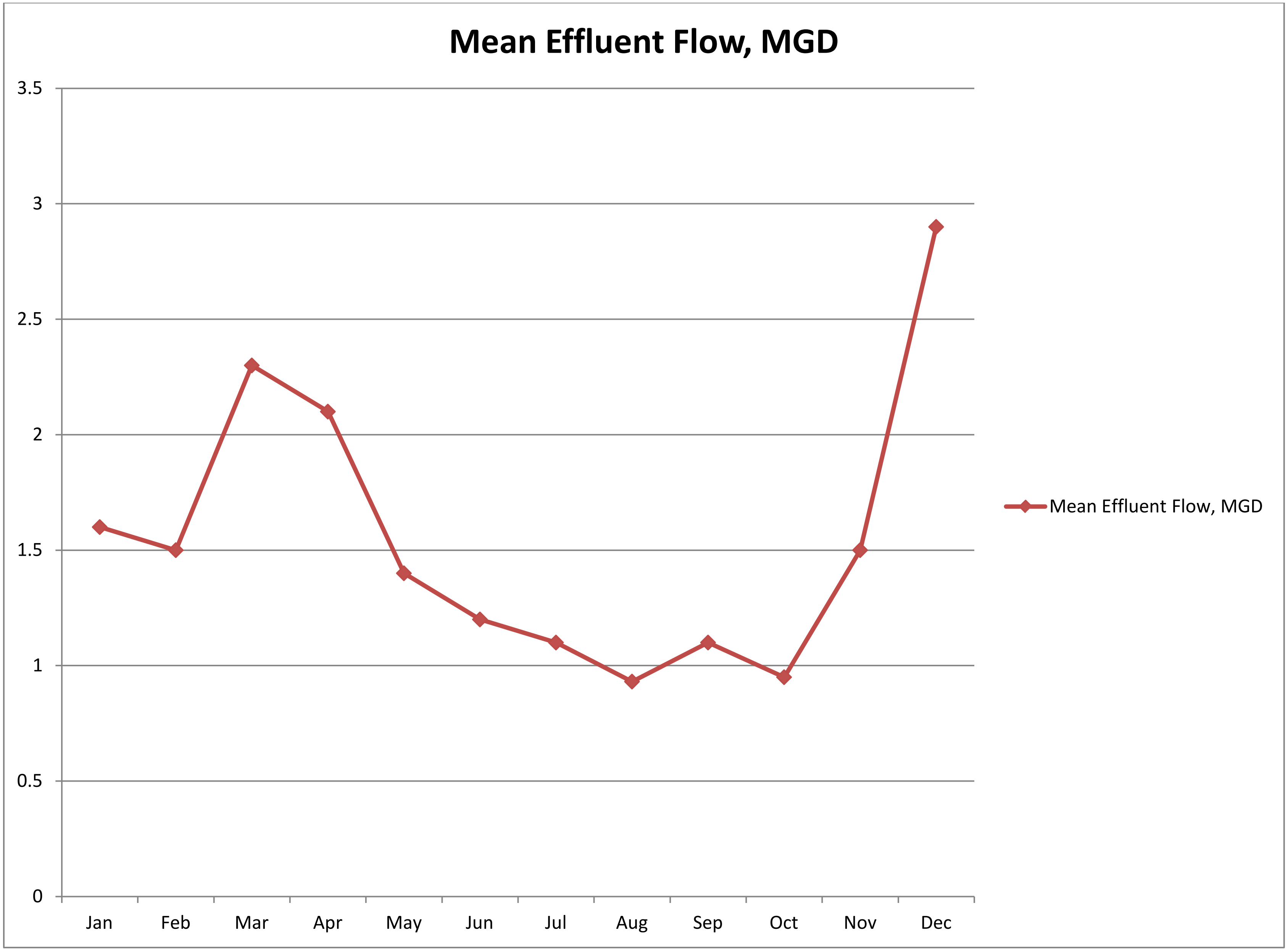

Mean Effluent TSS, mg/L
10
9
8
7
6
5
4
3
2
1
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Mean Effluent TSS, mg/L
Linear (Mean Effluent TSS, mg/L)


Mean Influent Flow, MGD
2.5
2
1.5
1
0.5
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Mean Influent Flow, MGD


Median Coliform, MPN
120
100
80
60
40
20
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Median Coliform, MPN

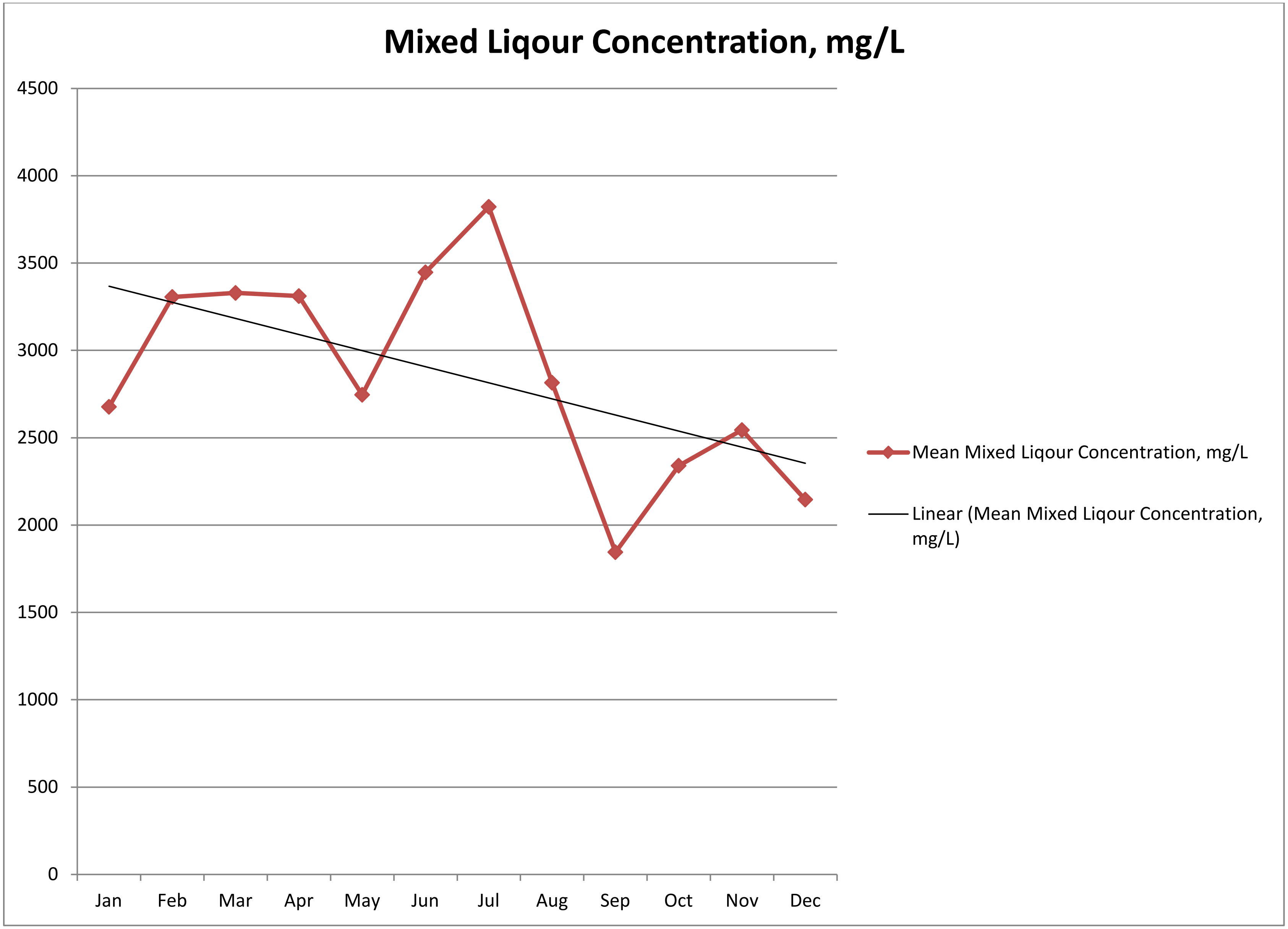


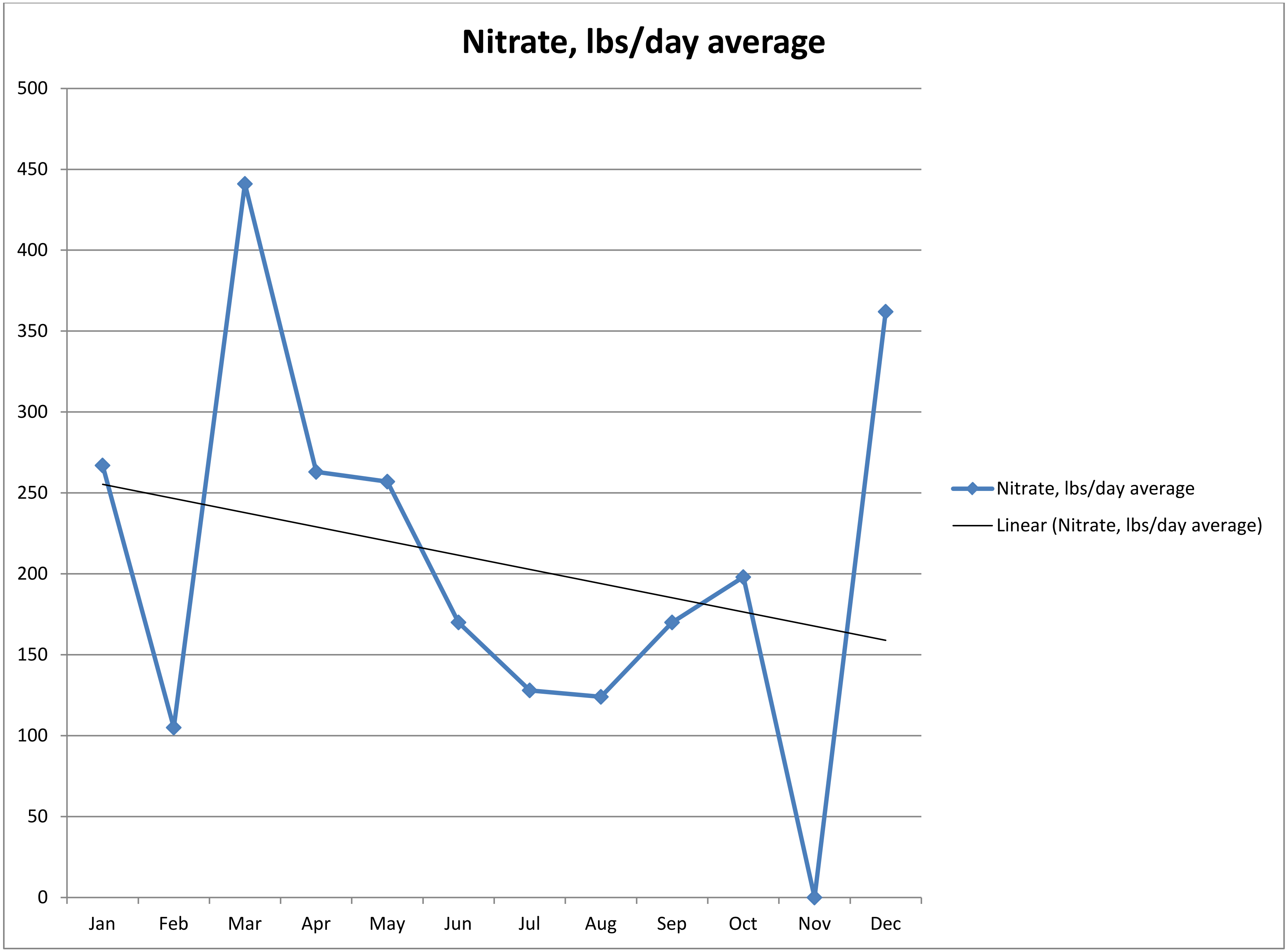
Mean Chlorine Risidual @ Contact Basin, mg/L
6
5
4
3
2
1
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Mean Chlorine Risidual @ Contact Basin, mg/L
Linear (Mean Chlorine Risidual @ Contact Basin, mg/L)



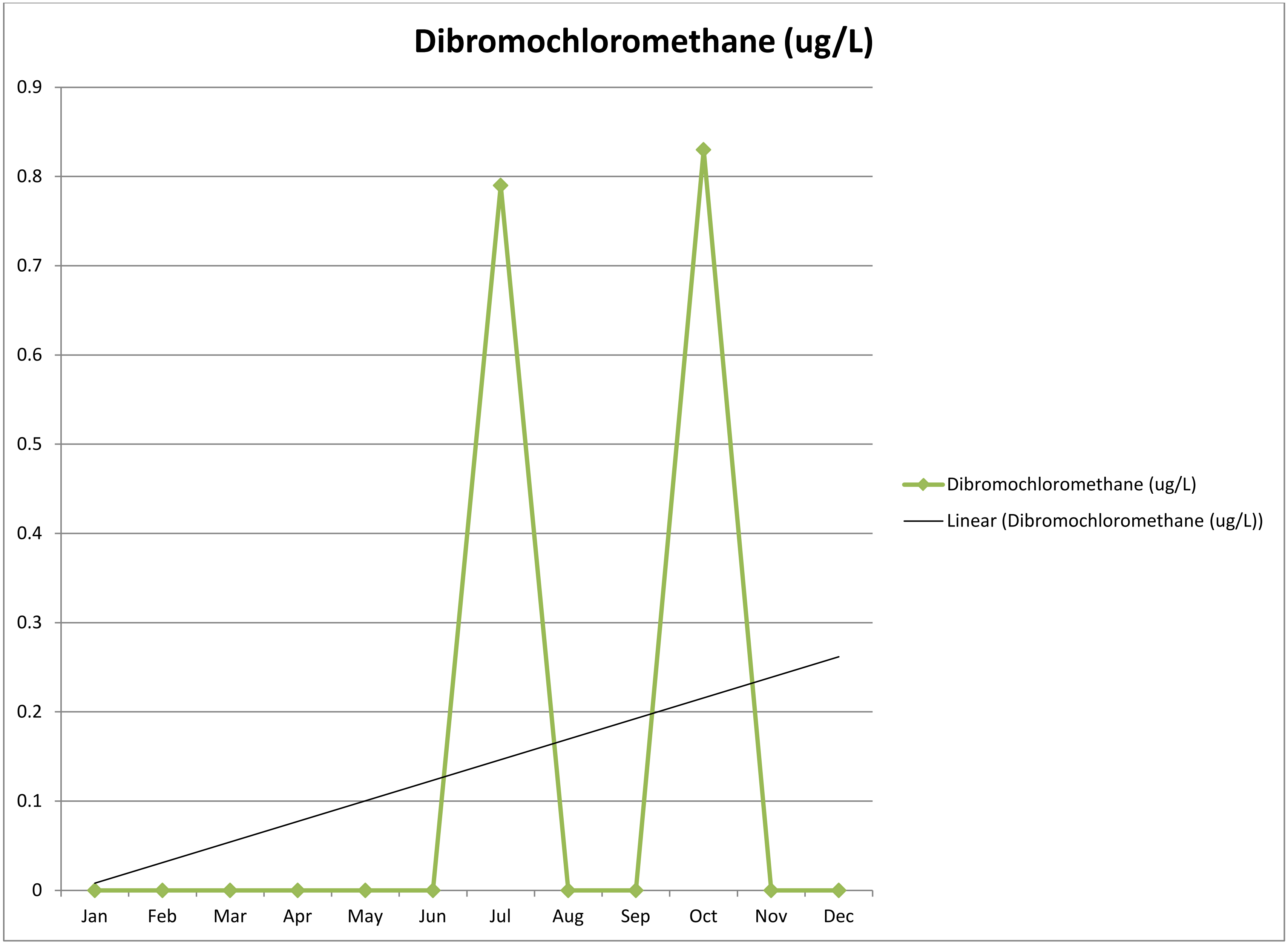
Mean Effluent Flow, MGD
3.5
3
2.5
2
1.5
1
0.5
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Mean Effluent Flow, MGD


Sludge Wasted, LBS
25000
20000
15000
10000
5000
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Sludge Wasted, LBS
Linear (Sludge Wasted, LBS)

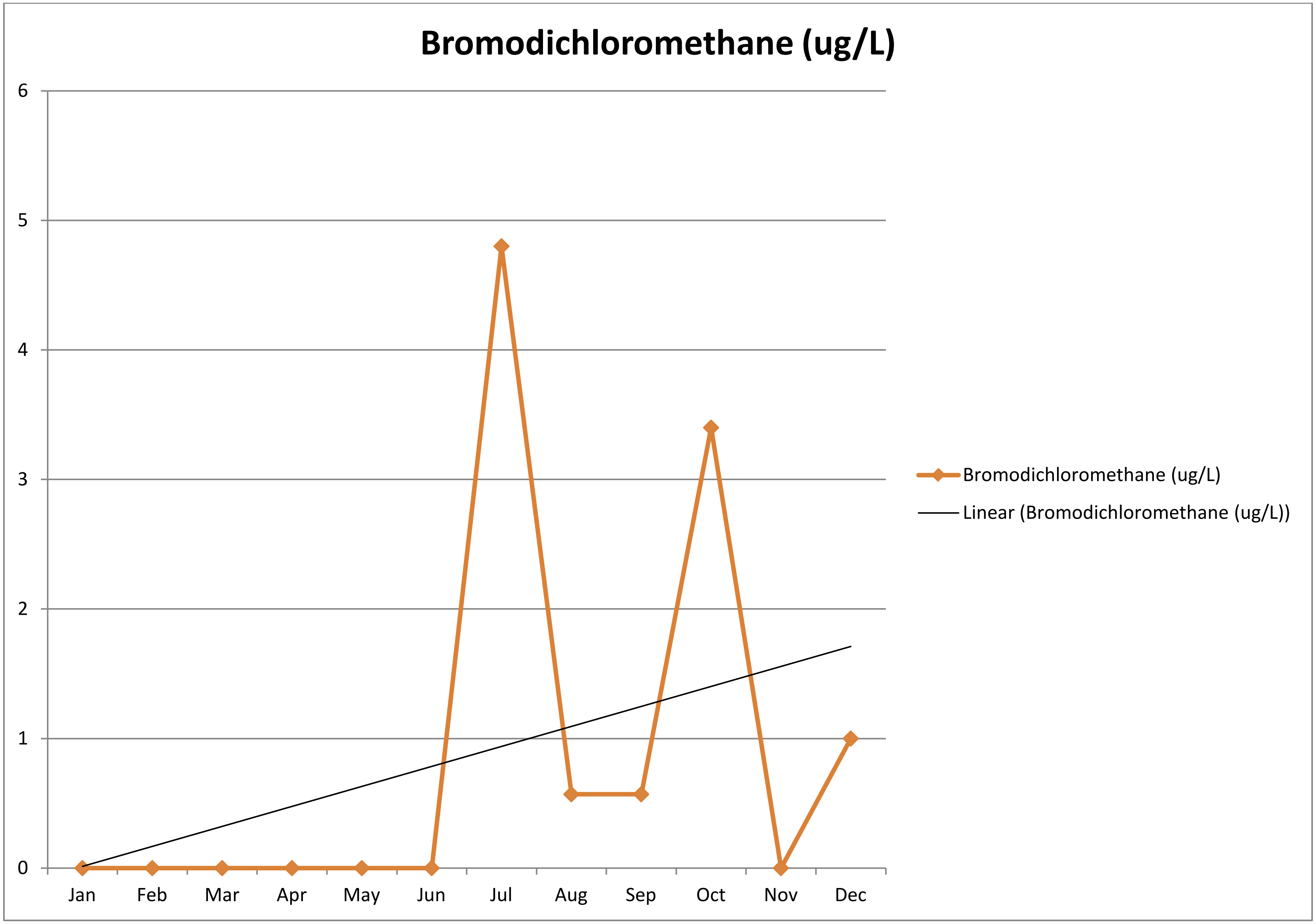

Mixed Liqour Concentration, mg/L
4500
4000
3500
3000
2500
2000
1500
1000
500
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Mean Mixed Liqour Concentration, mg/L
Linear (Mean Mixed Liqour Concentration, mg/L)



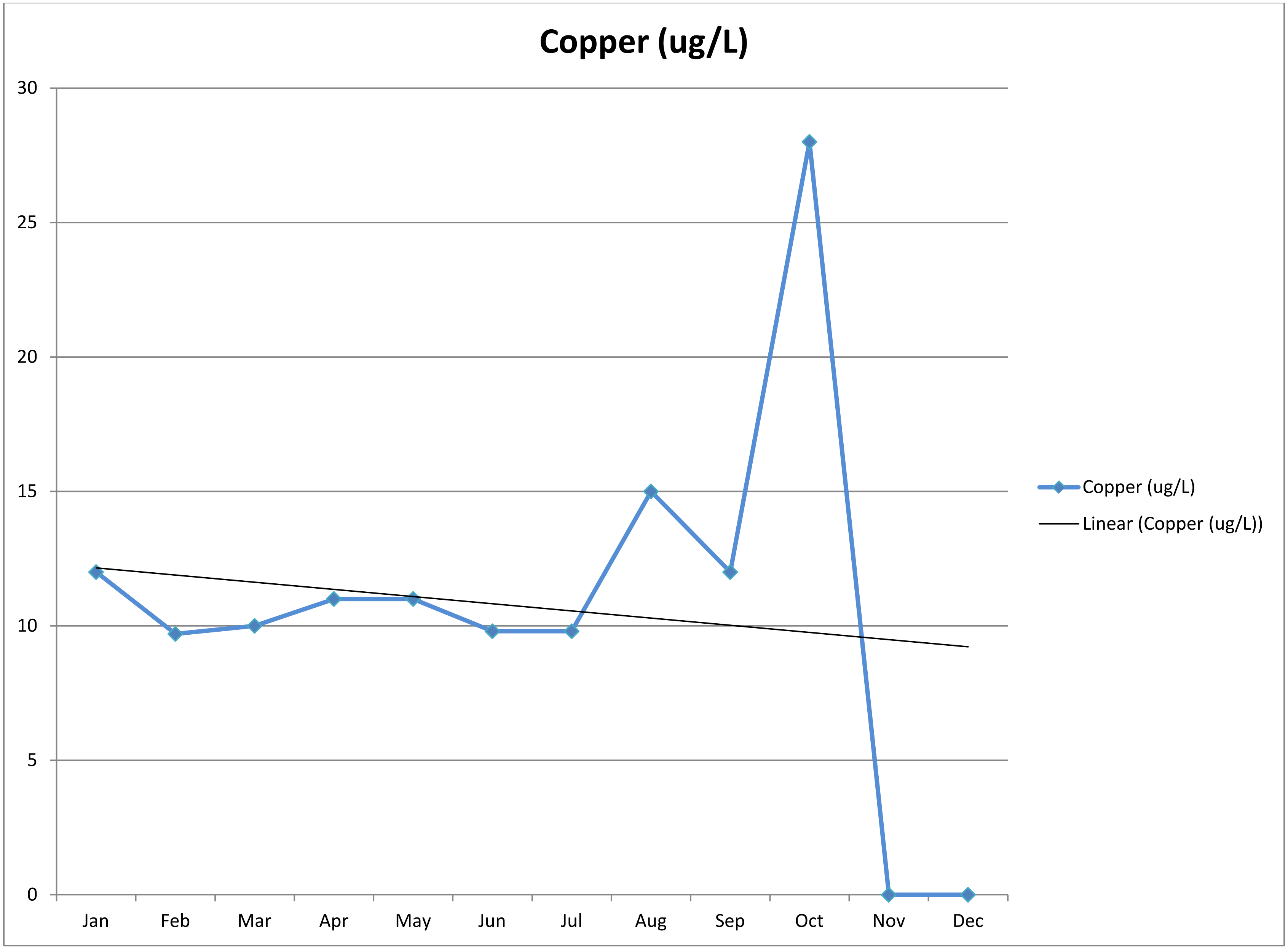
Nitrate, lbs/day average
500
450
400
350
300
250
200
150
100
50
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Nitrate, lbs/day average
Linear (Nitrate, lbs/day average)

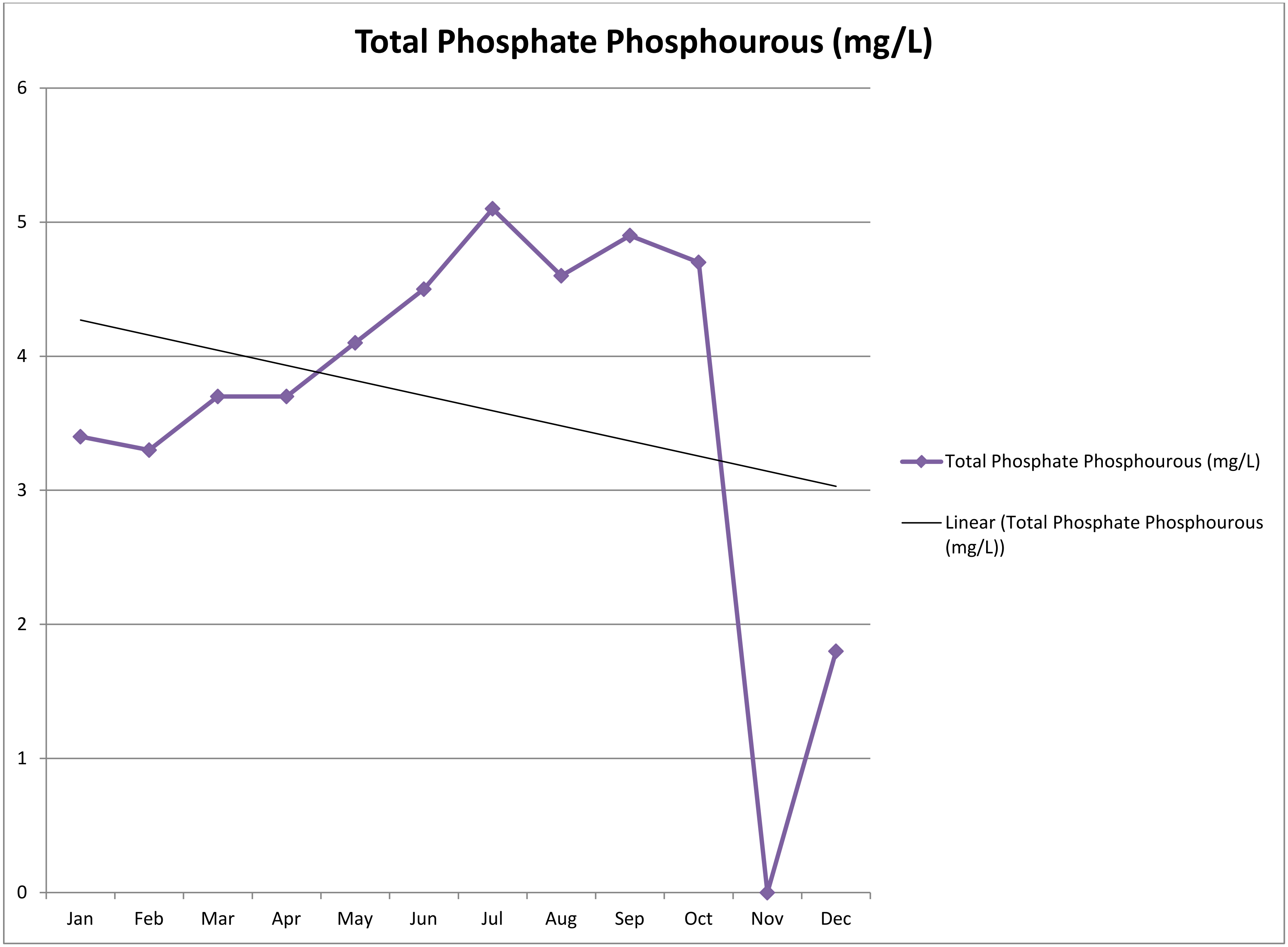


Dibromochloromethane (ug/L)
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Dibromochloromethane (ug/L)
Linear (Dibromochloromethane (ug/L))

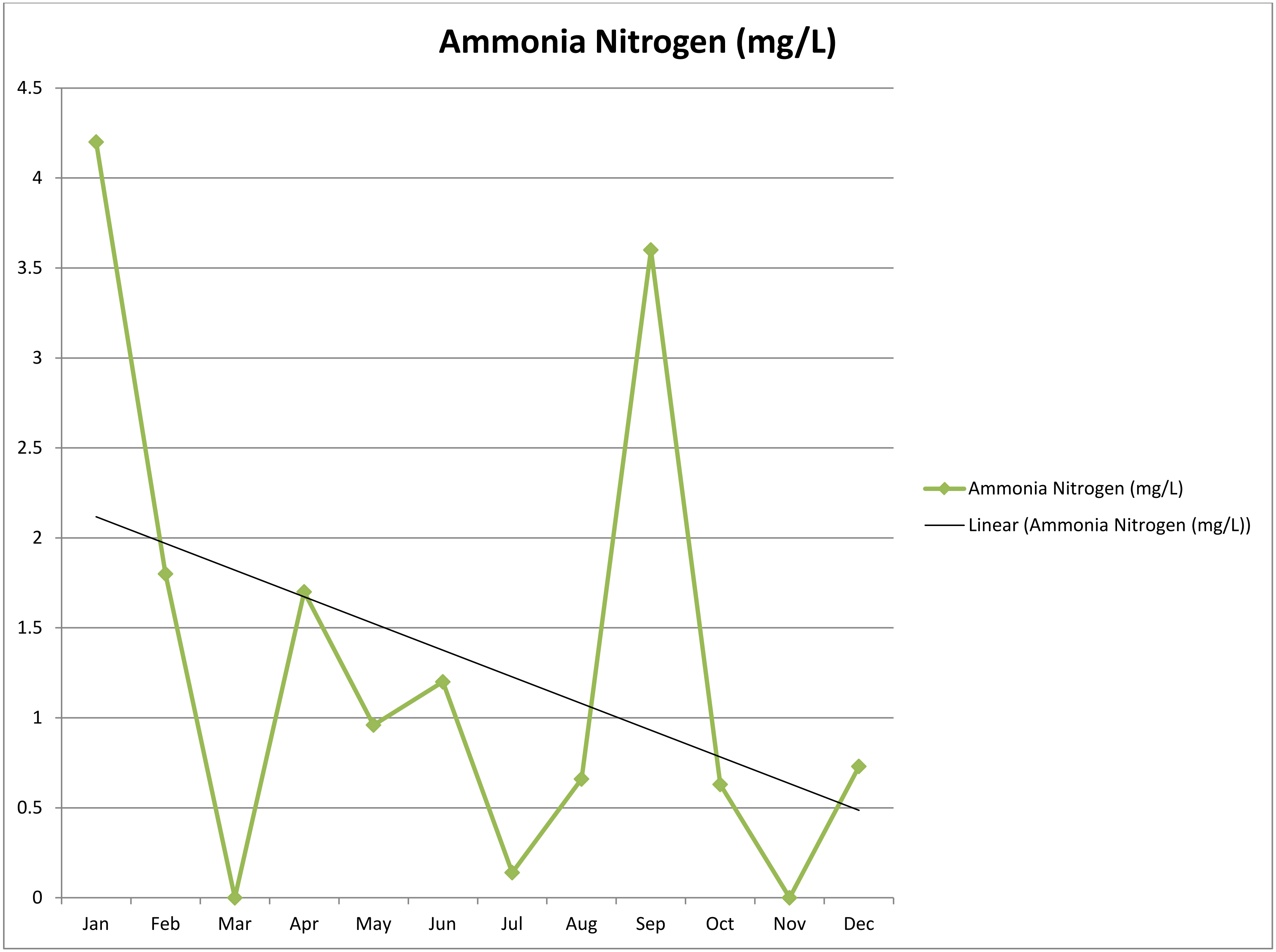


Bromodichloromethane (ug/L)
6
5
4
3
2
1
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Bromodichloromethane (ug/L)
Linear (Bromodichloromethane (ug/L))


Copper (ug/L)
30
25
20
15
10
5
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Copper (ug/L)
Linear (Copper (ug/L))



Total Phosphate Phosphourous (mg/L)
6
5
4
3
2
1
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Total Phosphate Phosphourous (mg/L)
Linear (Total Phosphate Phosphourous (mg/L))


Ammonia Nitrogen (mg/L)
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Ammonia Nitrogen (mg/L)
Linear (Ammonia Nitrogen (mg/L))