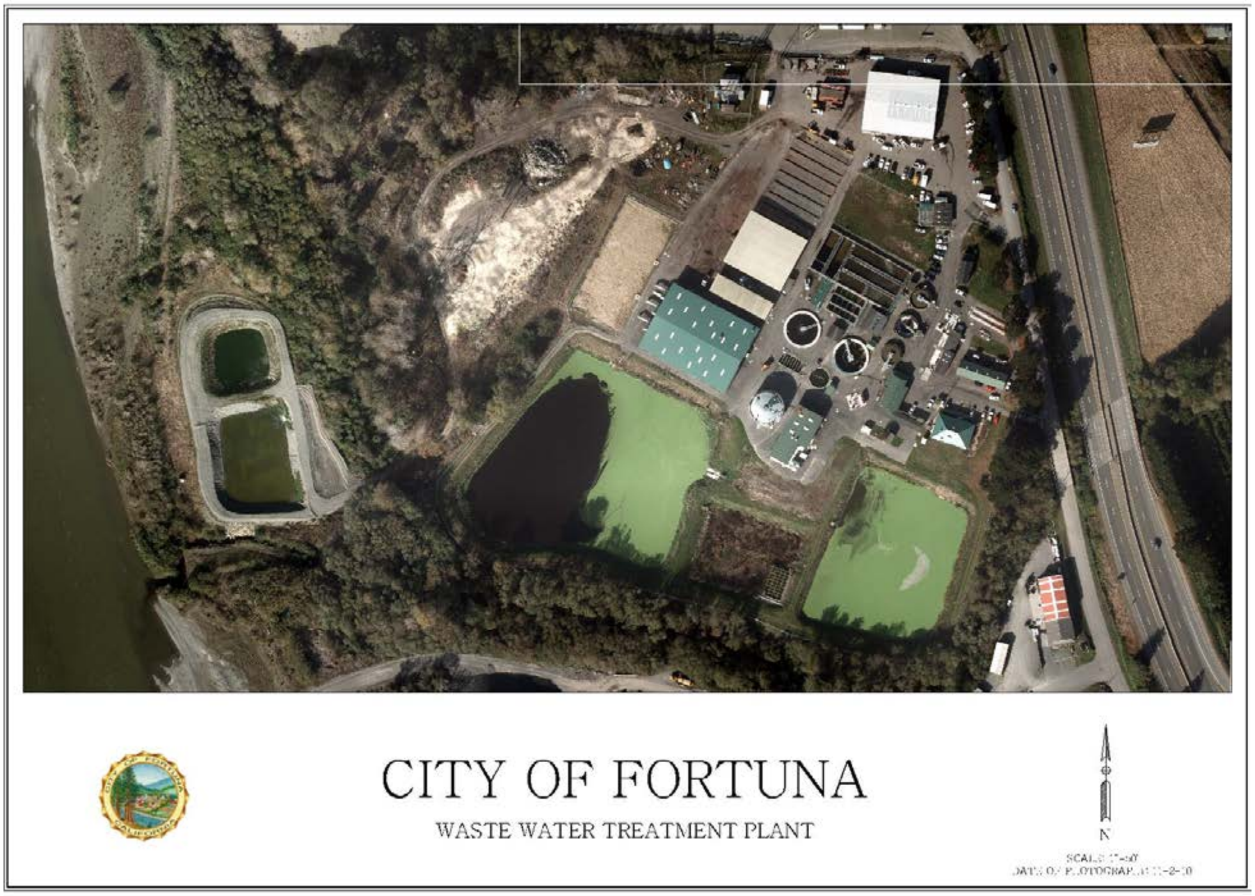
CITY OF FORTUNA

TOM COOKE MEMORIAL WASTEWATER TREATMENT PLANT

2013 ANNUAL REPORT

January 10, 2014



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. The City prepared an RFP for biosolids disposal and compost sale commercially and in 2013 we were able to dispose of the excess left from 2012. 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) classified the Tom Cooke Memorial Wastewater Treatment Plant as a Class III Secondary Treatment wastewater treatment facility. 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 2013. In addition to a discussion of effluent quality and the plant's success in meeting treatment objectives, the report contains summaries of 2013 plant operations, maintenance, chemicals, utilities, and human resources.

2. Summary

The plant generally operated well throughout the entire year. As in 2012, 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 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.

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. Staff is looking at the possibility of preparing the surge basin to take excess flows and pump back automatically during the low flow events to equalize the flows. Currently pumping is done manually with portable trash pumps on a "need to" basis.

Following is a list of effluent violations and Order Condition infractions from 2013:

- No violations in January
- On February 2, Chlorine residual fell below minimum of 1.5. The chlorine dose was increased.
- On March 4, Chlorine Residual below minimum. We feel that this was due to a clogged ammonia ejector which we check on a weekly basis, removing and cleaning. We use ammonia to mitigate for our disinfection bi-products, mixing it with chlorine to produce chloramines. This allows us to dose at a lower level of chlorine. When the injector gets plugged this leaves chlorine at a low dose which is the explanation for the low residual. On March 7 the Dichlorobromomethane Daily Maximum reported value was 1.6 ug/L. We feel that this was due to a clogged ammonia ejector which we check on a weekly basis, removing and cleaning. We use ammonia to mitigate for our disinfection bi-products, mixing it with chlorine to produce chloramines. On March 23, the Chlorine residual was below minimum. We feel that this was also due to a clogged ammonia ejector. 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.

- On April 30, the Chlorine level in the effluent was 0.06 mg/L and on April 9, limit was exceeded with a reported value of 1.8 mg/L. We increased the dose on sulfur dioxide.
- On May 5th the Chlorine residual in the M-CCC was below the minimum of 1.5 mg/L at 1.4 mg/L and on May 21, the chlorine residual was measured at 1.2 mg/L. We continue to have periodic issues with the ammonia ejectors getting clogged which decreases the chloramine dose to the chlorine contact chamber. Simple cleaning of the ejector mitigates the problem. We have started routine maintenance on the ejectors on a regular schedule regardless of the need but occasionally they get clogged between cleaning events.
- On June 6, the Chlorine residual in the M-CCC was below the minimum of 1.5 mg/L. The residual was measured at 0.3 mg/L. Again we continue to have periodic issues with the ammonia ejectors getting clogged which decreases the chloramine dose to the chlorine contact chamber. Simple cleaning of the ejector mitigates the problem. We continue routine maintenance on the ejectors on a regular schedule regardless of the need but occasionally they get clogged between cleaning events.
- There were no violations in July
- On August 7, 8, and 24 the CL2 Residual was below the minimum due to higher than normal demand. In all instances we increased the dose.
- On September 9 and 26 we had a 1.0 mg/L Chlorine residual below the minimum of 1.5 mg/L due to the Ammonia ejectors being plugged. The ejectors were cleaned and the residual was back up above 1.5 mg/L on subsequent test.
- On October 1 and 3 the CL2 Residual was below the minimum due to a plugged Ammonia ejector. The ejector was cleaned and a subsequent residual was taken and above the 1.5 mg/L minimum.
- No violations in November
- On December 10 the CL2 residual was 0.0 mg/L and the Coli Bacteria was 1600 MPN/100 mL

3. OPERATIONS

a. Pretreatment

In 2013 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

	2011	2012	2013
Mean Influent Flow, MGD	**1.083**	**1.115**	**0.869**
Total Annual Flow, MG	**395.2**	**400.2**	**316.5**
Mean Influent SS, mg/L	**330**	**302**	**303**
Mean Influent BOD_5, mg/L	**346**	**277**	**337**

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

	2011	2012	2013
Mean Primary Effluent TSS, mg/L	**283**	**86**	**75**
Mean Primary Effluent BOD_5, mg/L	**346**	**195**	**206.8**

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

	2011	*2012*	*2013*
Mean Mixed Liquor Suspended Solids, mg/L	**2250**	**2861**	**2860**
Mean F:M Ratio	**0.20**	**0.17**	**0.17**
Mean Cell Residence Time, days	**23**	**30**	**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 2013, the plant continued to produce a high quality effluent. A summary of key final effluent parameters for 2013 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 2013 is shown in Table 5.

Table 4: Treated Wastewater Parameters 2013

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Ammonia Nitrogen (mg/L)	0.78	1.2	0.61	1.2	0.13	0.68	13	2.7	Not Sampled	1	3	3.1
Unionized Ammonia Nitrogen (mg/L)	0.00091	0.0018	0.00053	0.0034	0.00037	0.0013	0.057	0.0091		0.003	0.0082	0.0092
Nitrate as nitrogen (mg/L)	24	26	14	9.4	22	17	1.8	9.1		10	9.1	10
Total Phosphate Phosphorous (mg/L)	3.3	3	1.5	4.1	4.3	4.1	4.1	4.2		4	3.6	3.7
Copper (ug/L)	16	14	8.9	9.1	11	7.7	9.8	9.8		8.1	7.4	12
Bromodichloromethane (ug/L)	ND	ND	1.6	ND	3.7	0.85	ND	ND		ND	ND	ND
Dibromochloromethane (ug/L)	ND	ND	ND	ND	0.53	ND	ND	ND		ND	ND	ND
Nitrate, lbs/day average	318	285	174	103	202	151	15.7	78		88	83	92

Table 5: Key Treatment Parameters 2013

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
EFFLUENT BOD, mg/L												
Max	6.2	4.2	8.4	8.4	5.6	5.6	6.8	6	6	4.9	6.2	5.9
Mean	4.9	3.6	7.6	5	4.2	4	5.4	5.1	4.8	4.6	5	5.4
Average lbs/day	65	39.5	94.7	62.3	38.6	35.6	47	43.7	44.7	40.4	45.7	60
INFLUENT BOD, mg/L												
Max	298	370	348	335	393	439	447	415	388	380	323	410
Mean	239	287	271	304	356	409	407	392	364	363.6	318.5	359.5
Average lbs/day	2404	2401	2440	2322	2332	2603	2522	2413	2423	2296	2053	2320
INFLUENT TSS, mg/L												
Max	323	363	273	361	367	367	475	342	395	317	306	365
Mean	271	279	229	295	308.3	331	354	319	367	285.8	296.7	352.3
Average lbs/day	2726	2334	2063	2256	2018	2106	2194	1963	2443	1804	1913	2274
EFFLUENT TSS, mg/L												
Max	6.5	3.9	15.5	15.5	3.7	2.5	3.3	4.5	7.7	7.7	3.5	6.3
Mean	4.5	3.5	11.4	4.7	2.8	1.8	2	3.2	5.2	4.1	2.8	3.5
Average lbs/day	59.7	38.4	137	51.6	25.8	16	17.4	31.9	48.4	36	26	32.1
INFLUENT FLOW, MGD												

Max	1.6	1.3	2.4	1.4	1.0	0.906	0.849	0.876	1.2	0.887	0.942	0.911
Mean	1.2	1.0	1.1	0.917	0.785	0.763	0.743	0.738	0.798	0.757	0.773	0.774
TOTAL	37.9	28.1	35.2	27.5	24.3	22.9	23.0	22.9	23.9	23.5	23.2	24.0

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
EFFLUENT FLOW, MGD												
Max	1.59	1.316	1.494	1.316	1.103	1.067	1.043	1.028	1.116	1.054	1.095	1.100
Mean	2.753	1.684	2.846	2.55	1.357	1.487	1.183	1.194	2.187	1.181	1.254	1.333
TOTAL	49.296	36.845	46.521	39.477	34.199	32.007	32.341	31.88	33.486	32.667	32.856	34.091
SETTLEABLE SOLIDS, ml/L												
Max		0.3	0.1	0.1	N/A	N/A	N/A	N/A	N/A	0.1	0.1	0.01
Mean		0.2	0.1	0.1	N/A	N/A	N/A	N/A	N/A	0.1	0.1	0.01
COLIFORM, MPN												
Median	1.2	3.5	4.8	1.8	3.2	1.8	2	1.8	2.9	2.8	1.8	2
Max	4	8	11	2	4.5	1.8	23	1.8	6.8	6.8	1.8	1600
PH												
Max pH	6.8	6.9	6.8	6.9	6.9	7	7.1	6.9	6.9	7	7	7
Min pH	6.4	6.7	6.7	6.7	6.8	6.8	6.8	6.8	6.8	6.9	6.9	6.9
BASIN CHLORINE RESIDUAL, mg/L												
Mean	4.3	4.4	4.2	4.3	4.2	5	2.9	2.9	3.2	3.7	4.1	3.3
Max	6.6	6	6.6	6.8	7	7.1	5.4	5.1	4.3	4.8	5.3	5.4
Mixed Liquor Concentration, mg/L												
Mean	2644	2526	1954	1734	1827	1978	1599	1689	1366	1654	1416	1947
Max	2882	2867	2767	1950	2094	2454	1795	1827	1512	1856	1601	2317
Sludge Wasted, LBS												
Max	32000	25000	31,000	31000	33000	39000	39000	31000	31000	29000	28000	28520
Mean	15848	18300	23,000	25080	23839	28040	28000	26200	23700	22300	22600	22159
TOTAL(1000 lbs)	21.2	19.8	36.2	28.8	26.1	28.4	23.4	24.7	20.9	24	23.6	28.4
Primary Sludge Digested, LBS	36229	29816	34044	29824	26238	31750	32109	32109	37730	30524	31267	26304
Digester % solid	2.4	2.5	2.6	2.4	2.2	2.7	2.2	2.2	2.6	2	2.3	1.9
Cogeneration, kwh	0	0	0	0	6	63	56.5	61	67.5	15.5	36	3
Mean Primary Effluent BOD, mg/L	135	168	160	169	212	239	247	228	217	243	228	236
Mean Primary Effluent TSS, mg/L	66	71	69	68	73	73	77	79	77	79	85	84.9

g. *Solids Handling*

The anaerobic digestion process reduces sludge volume and stabilizes the solids to form biosolids. In 2013, an average of 1053 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 2.4% and total volatile solids content was 72.4% 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 2013, approximately 817 lb/day of WAS was thickened and sent to the digester. In 2013, approximately 154 dry metric tons of biosolids were produced. Since we had volume left from 2012 due to the political issues related to giving it away we were only able to compost approximately 600 cubic yards of Class A Exceptional Quality compost. 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 2013 are presented in Table 6. Fecal coliform results were exceptionally high due to reduced drying time as we were attempting to expedite our process. We did meet the 40-503 standards for salmonella which is what is required for Class A compost. We only tested two lots of compost which was during the 2nd and 3rd quarters of 2013.

Table 6: Biosolids Quality Monitoring 2013

Compost monitoring in 2013, mg/kg

	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
Chromium (Cr)	NA	56	55	NA
Nickel (Ni)	NA	38	32	NA
Copper (Cu)	NA	280	240	NA
Zinc (Zn)	NA	570	480	NA
Arsenic (As)	NA	15	10	NA
Selenium (Se)	NA	ND	ND	NA
Molybdenum (Mo)	NA	3.6	3.7	NA
Cadmium (Cd)	NA	1.6	ND	NA
Mercury (Hg)	NA	.48	.41	NA
Lead (Pb)	NA	57	37	NA

Compost monitoring in 2013

	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
Salmonella, MPN/ 1 g TS	NA	<0.3	<0.4	NA
Fecal Coliform, MPN/ 1 g TS	NA	1200	2200	NA

(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 2013:

- Cleaned tubes on boiler
- Replaced filter on Aeration blowers #1 & #3
- Installed new primary motor and pump
- Replaced wear plates on Grit screw
- Replaced the moly shoes and ¼" water line on Grit system
- Replaced shear pin on Clarifier #3
- Replaced gear joint on Primary sludge pump
- Repaired ½" truss rod on Clarifier #4

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 2013 was approximately 41 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. We were fortunate to be able to get more than 4000 gallons of free Sodium Hydroxide from a local pulp mill that was being cleaned up and needed to dispose of their inventory.

ii. Chlorine for Disinfection

Chlorine is used for disinfection of the final effluent. In 2013, approximately 10.6 tons were consumed for this purpose.

iii. Sulfur Dioxide for Dechlorination

Sulfur Dioxide is used for dechlorination of the final effluent prior to discharge to Strong's Creek. In 2013, approximately 11.5 tons was consumed for this purpose.

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 35,827 gallons per day for an estimated reclaimed water usage of 13 million gallons in 2013.

ii. Cogeneration

During the year, we operated the cogeneration unit for 308.5 hours at 86 kilowatts (kw). The City has signed on to programs with PG&E to reduce power consumption on the grid during high peak times so we run the cogeneration unit more often in the summer high-peak months then in the winter.

6. HUMAN RESOURCES

a. Staffing

In 2013, the treatment plant was able to increase its personnel to 9 employees with the addition of one full time OIT position. This increase in personnel has allowed the City of Fortuna to partner with College of the Redwoods, which is located about ten miles north of the city, to provide certified operation services for their WWTP while they search for a Grade III operator. City staff oversees their facilities as well as provides operators on a daily basis to monitor and operate the College's WWTP. Plant staffing for 2013 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	2
OIT Part Time	1

b. Staff Training & Development

In addition to weekly safety meetings, the WWTP has developed an 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. The responsibility of operating the College of the Redwoods WWTP also gives our senior staff opportunity to train the less experienced OITs in operation of a smaller facility.

WWTP operating staff conducted and/or attended the following trainings:

- CPR
- Chlorine Safety
- First Aid
- Chemical Hygiene
- Ethics in Water and Wastewater Sampling
- Lab Safety& Water Quality Laboratory
- Ladder Safety
- Electrical Controls
- Heat Illness Prevention

c. Operator Certification

The WWTP continues to have two full time Shift Supervisor positions in 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 2013.

Table 8: Wastewater Treatment Certifications

Grade III	5
Grade II	1
O.I.T.	2

Additional certifications held by WWTP staff include Laboratory Analyst, Water Treatment, & Maintenance Technologist certifications. Two 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.

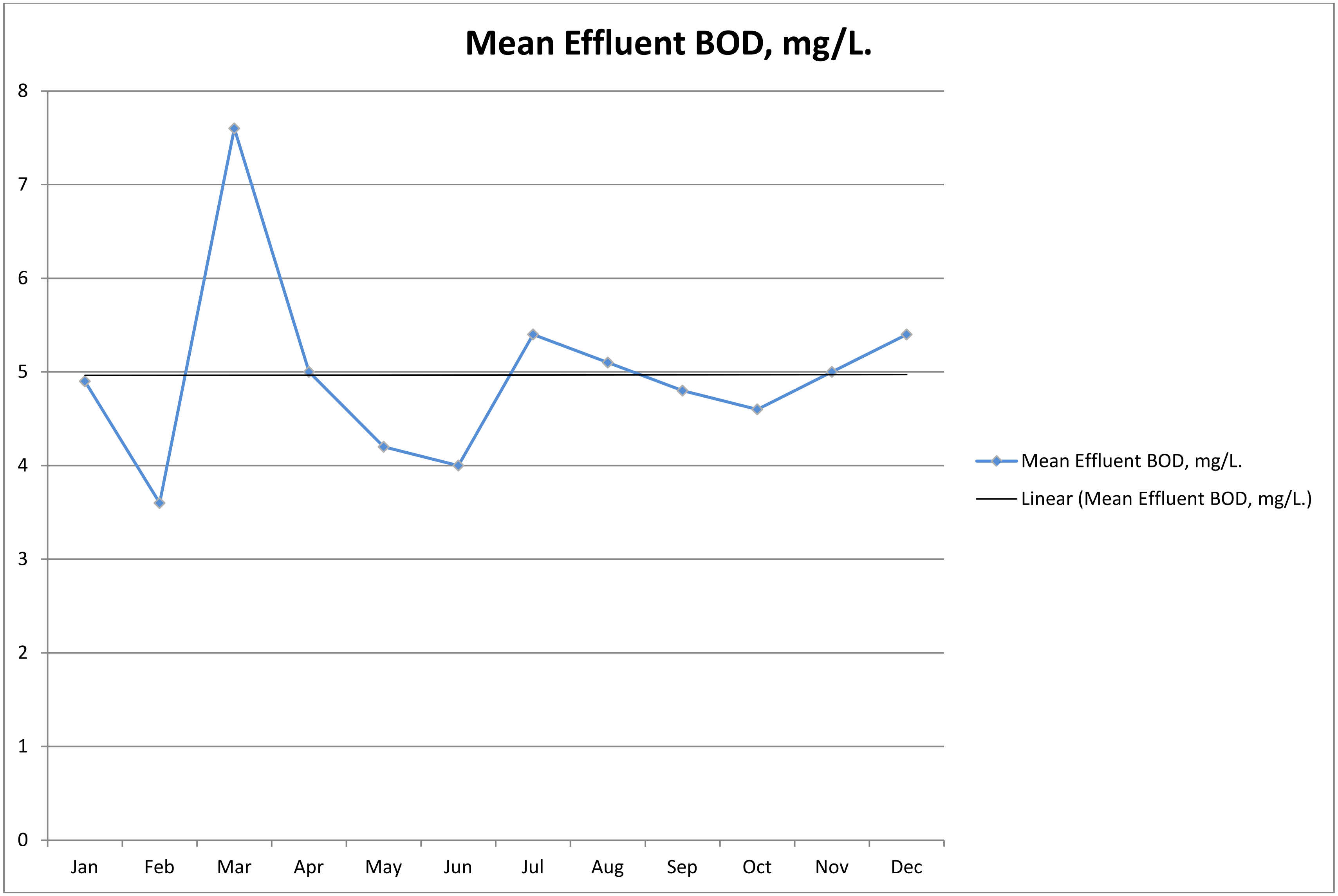
If you have any questions or need additional information, please feel free to contact me at dculbert@ci.fortuna.ca.us or (707)725-1476.

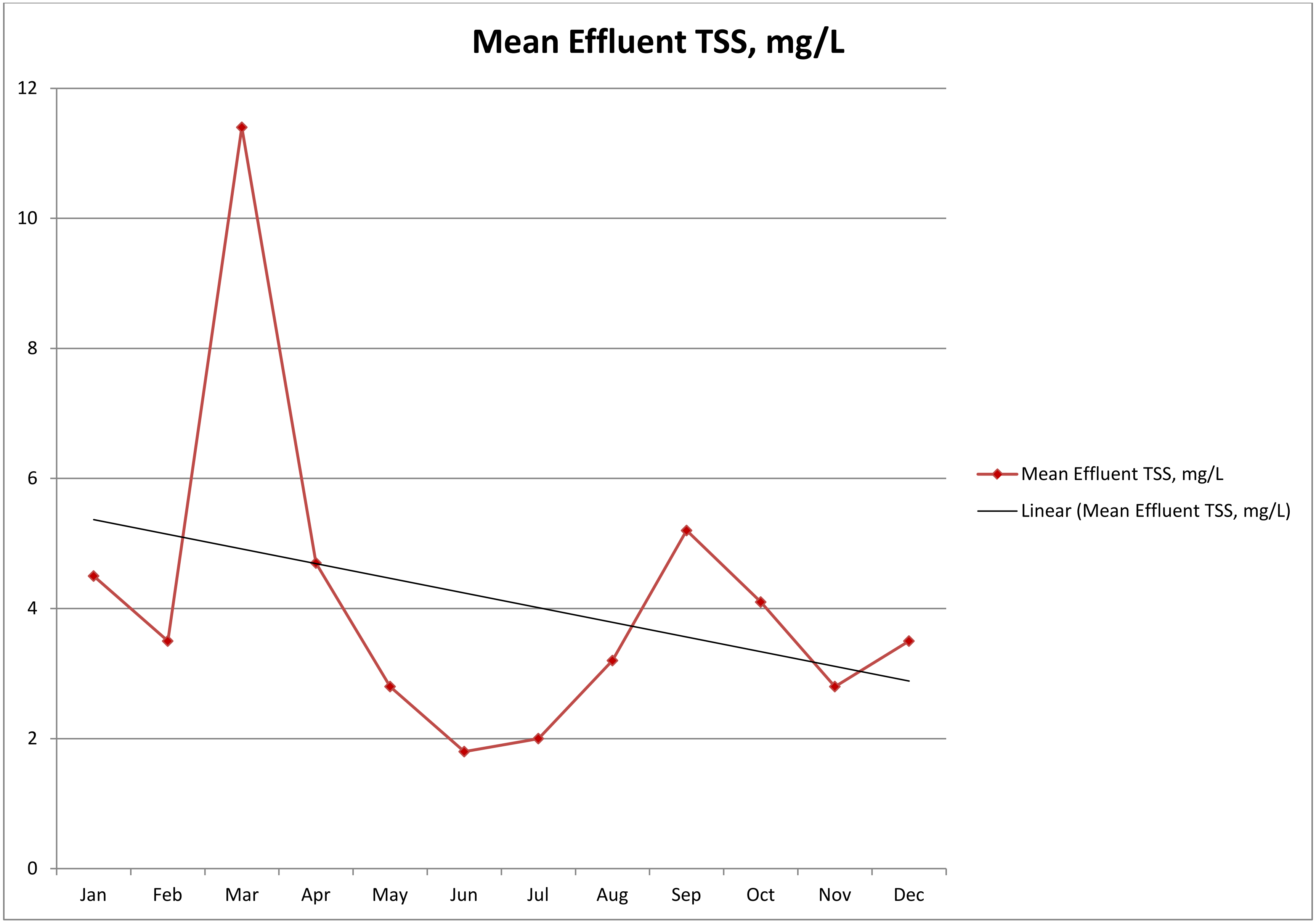
Sincerely,

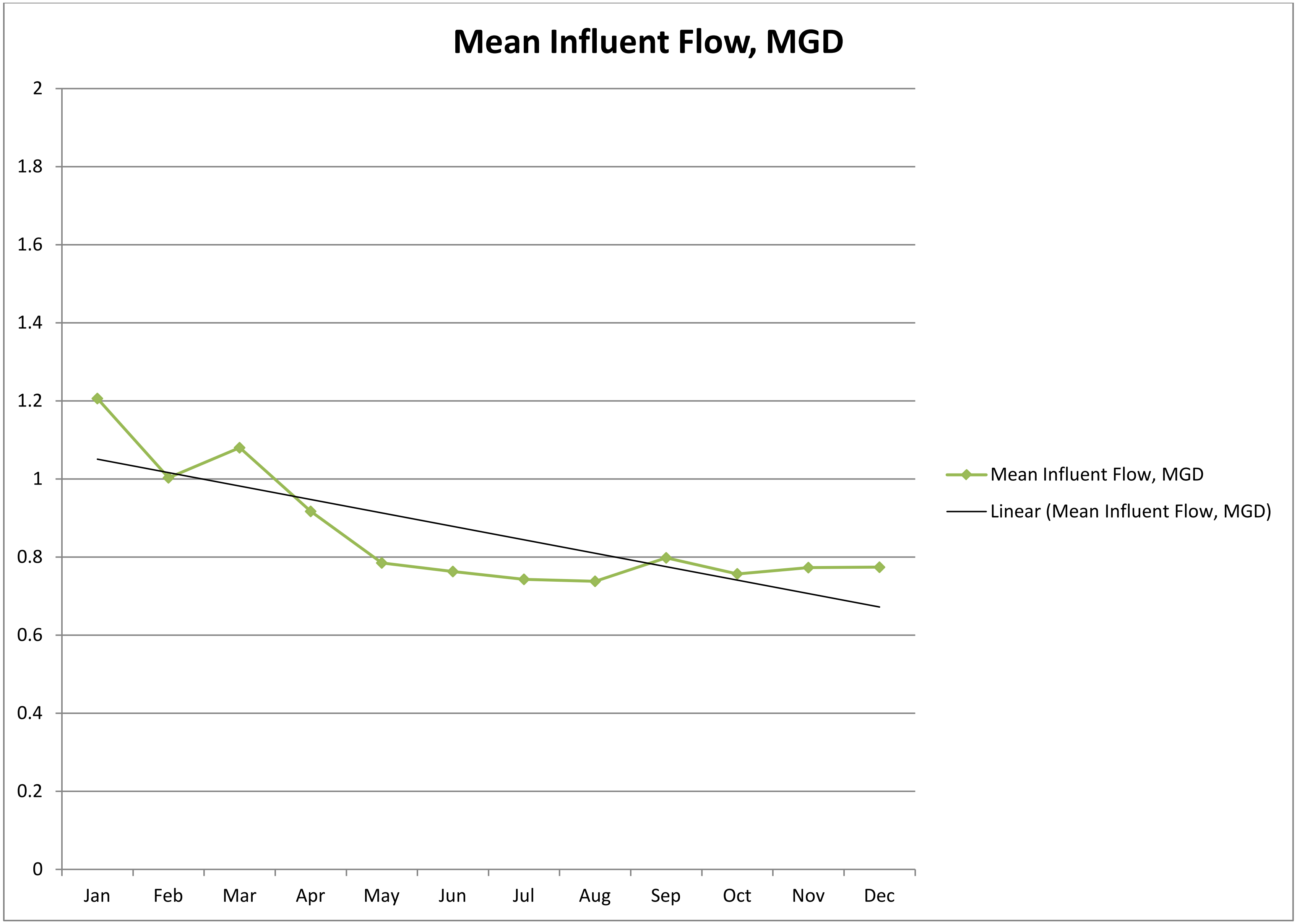
Doug Culbert, WWTPO III-9678
Chief Plant Operator
City of Fortuna, Tom Cooke Memorial WWTP

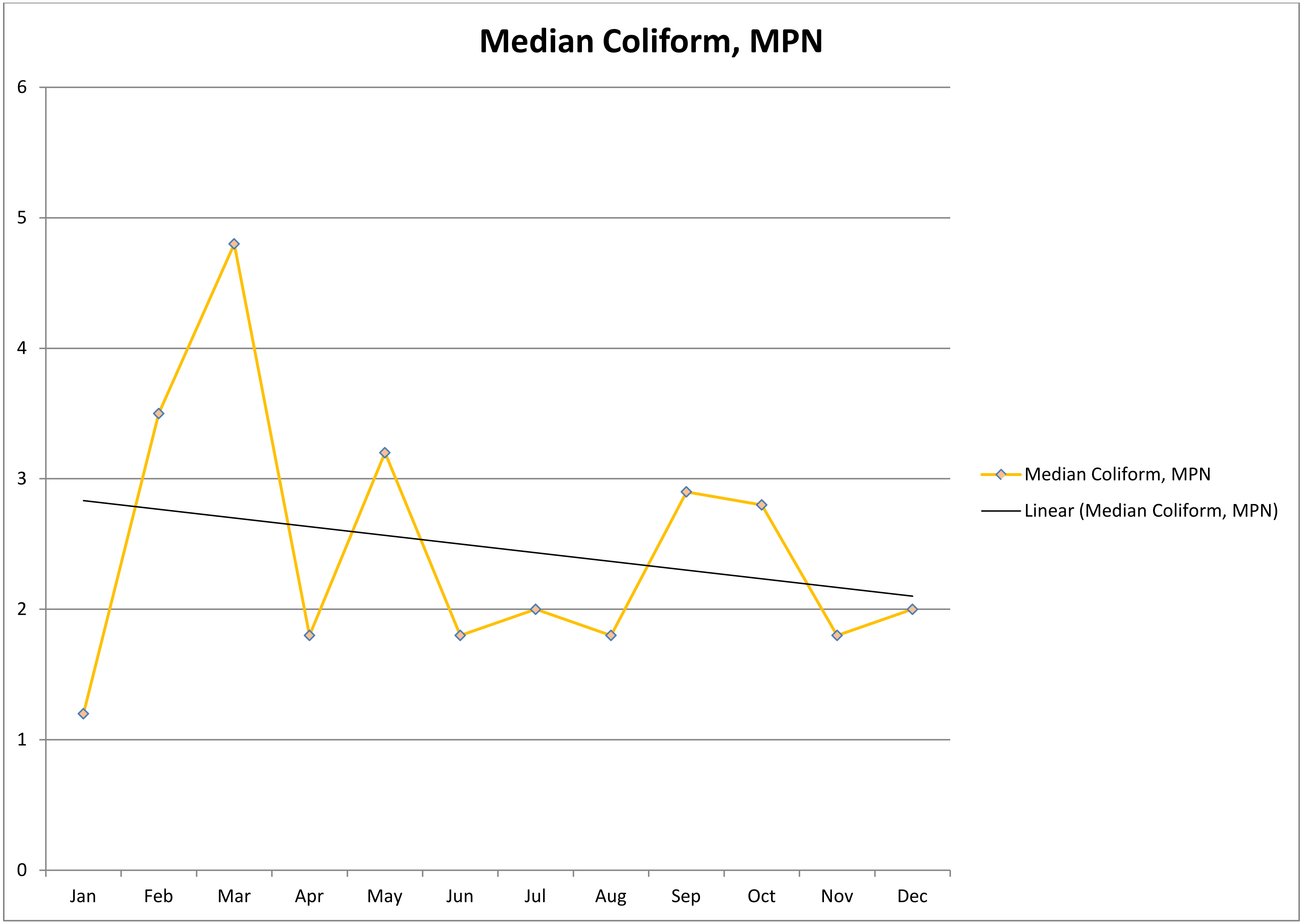
Appendix A

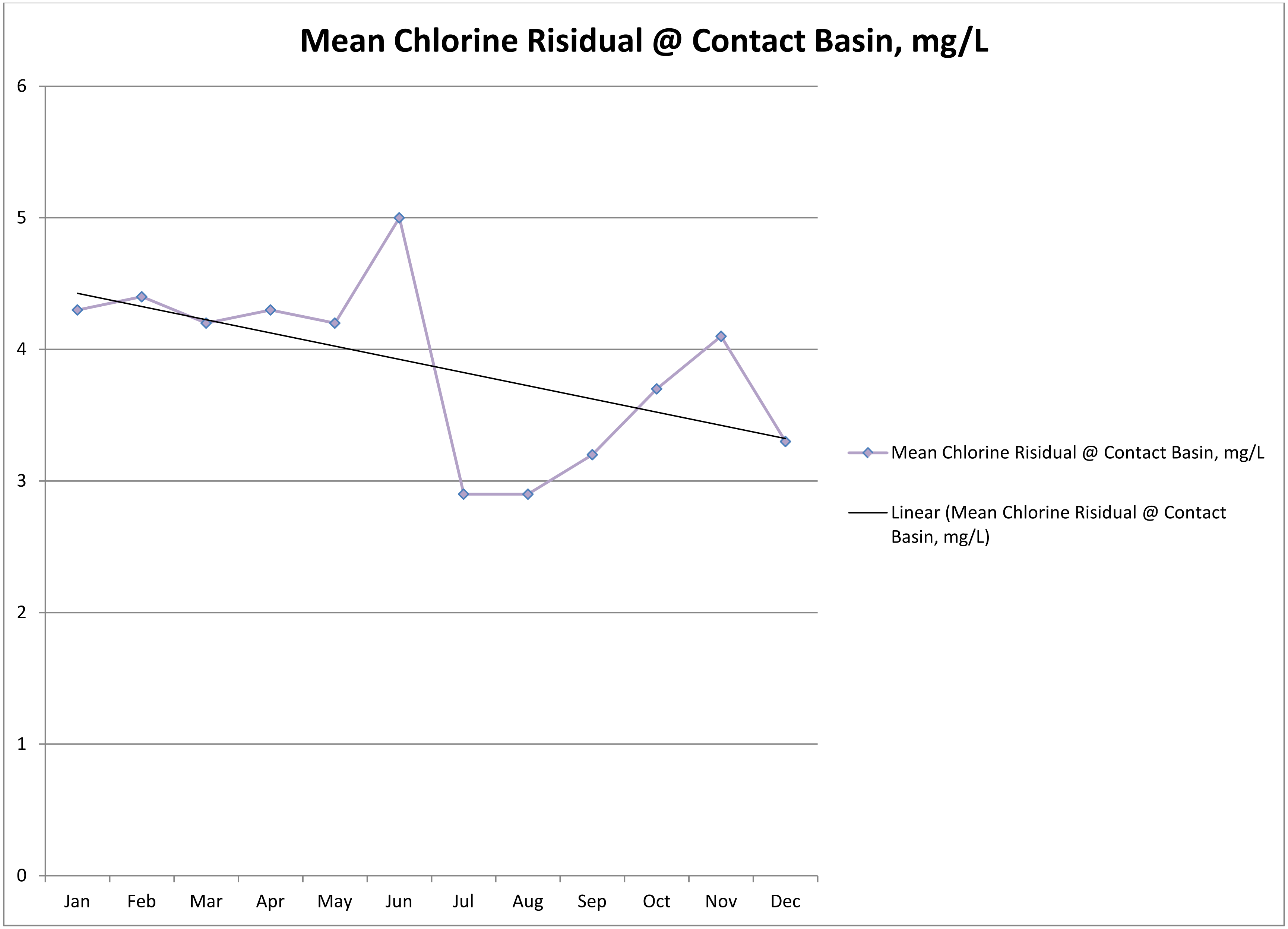
Performance Charts

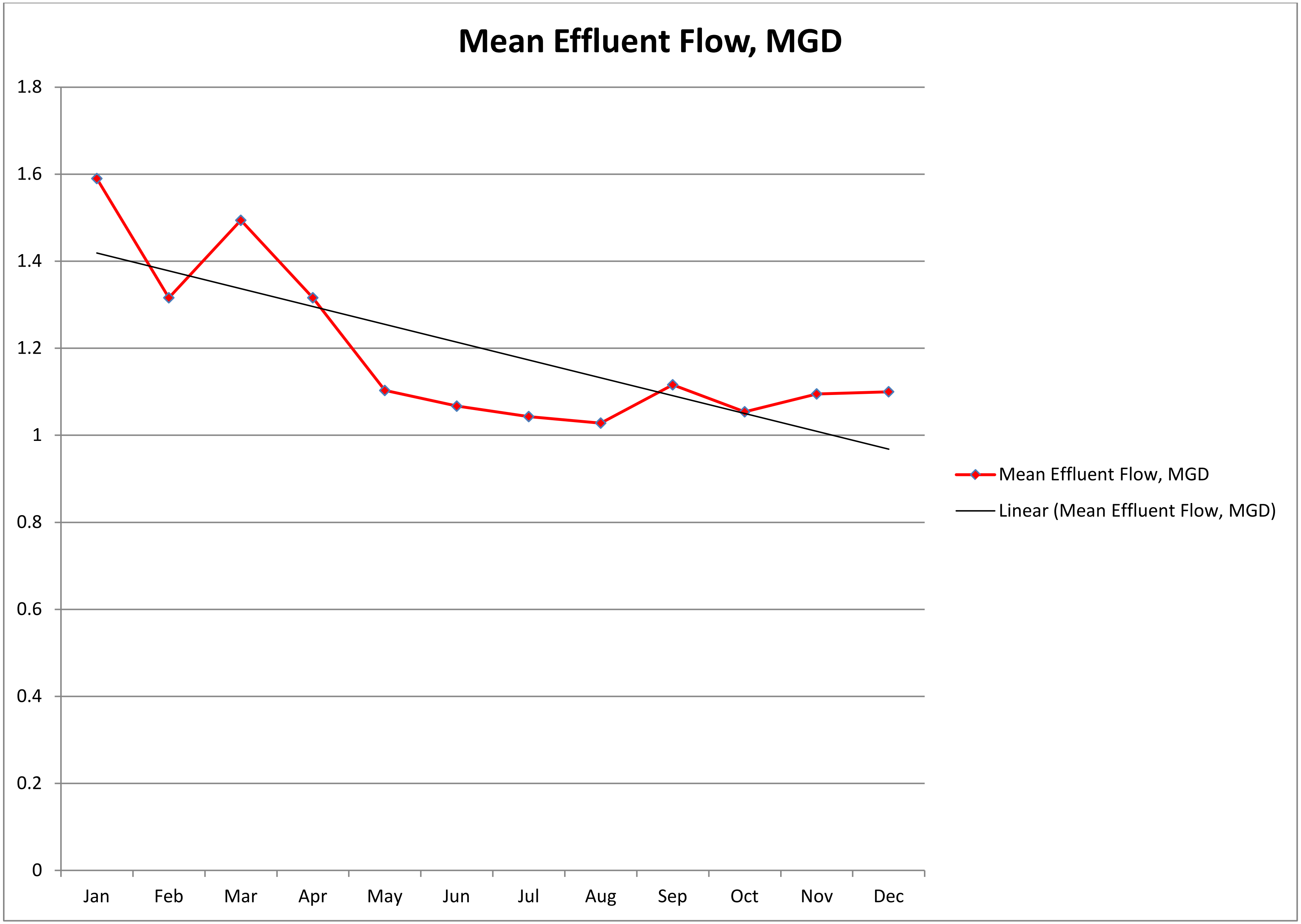

Mean Effluent BOD, mg/L.
8
7
6
5
4
3
2
1
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Mean Effluent BOD, mg/L.
Linear (Mean Effluent BOD, mg/L.)


Mean Effluent TSS, mg/L
0
2
4
6
8
10
12
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Mean Effluent TSS, mg/L
Linear (Mean Effluent TSS, mg/L)

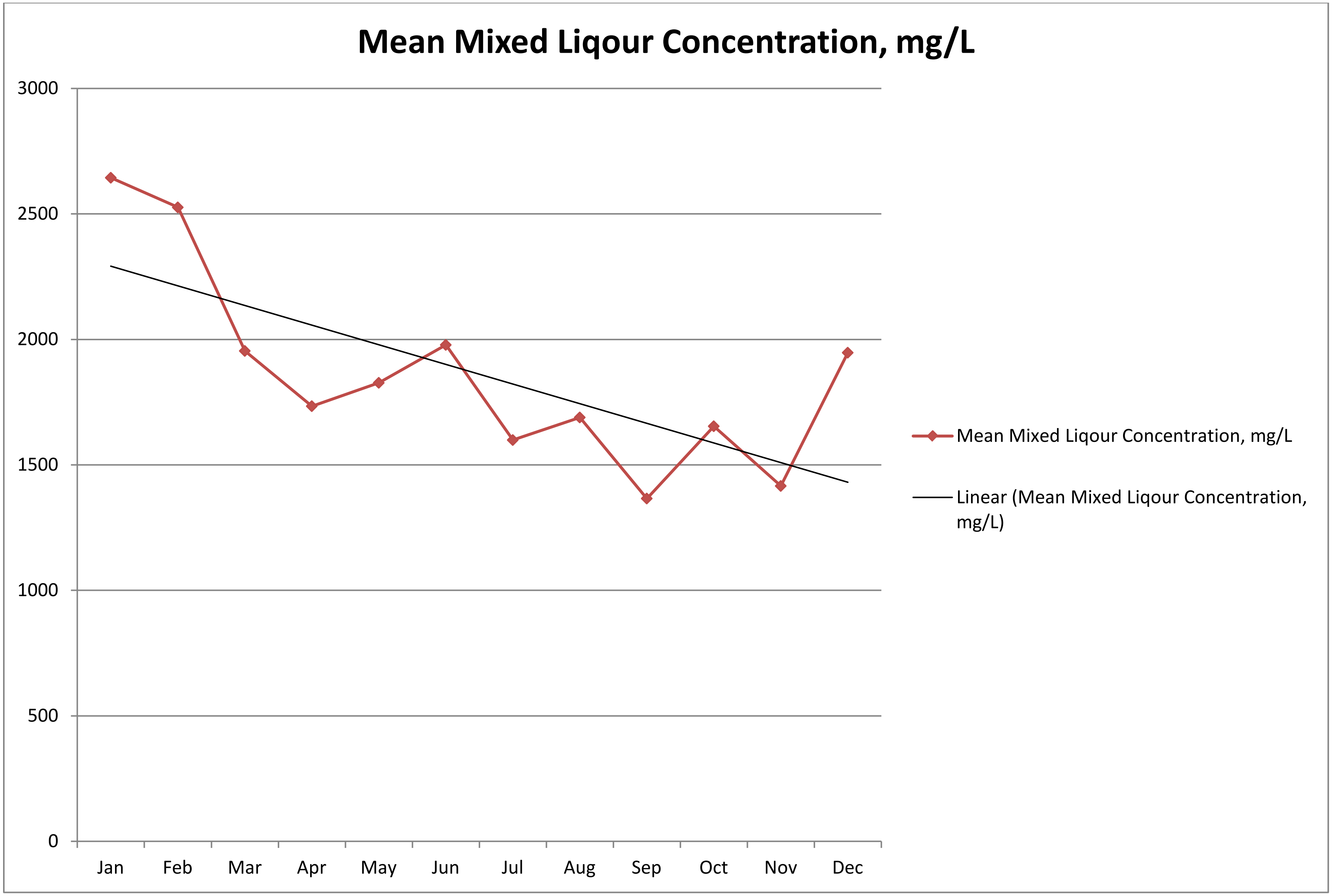

Mean Influent Flow, MGD
2
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Mean Influent Flow, MGD
Linear (Mean Influent Flow, MGD)

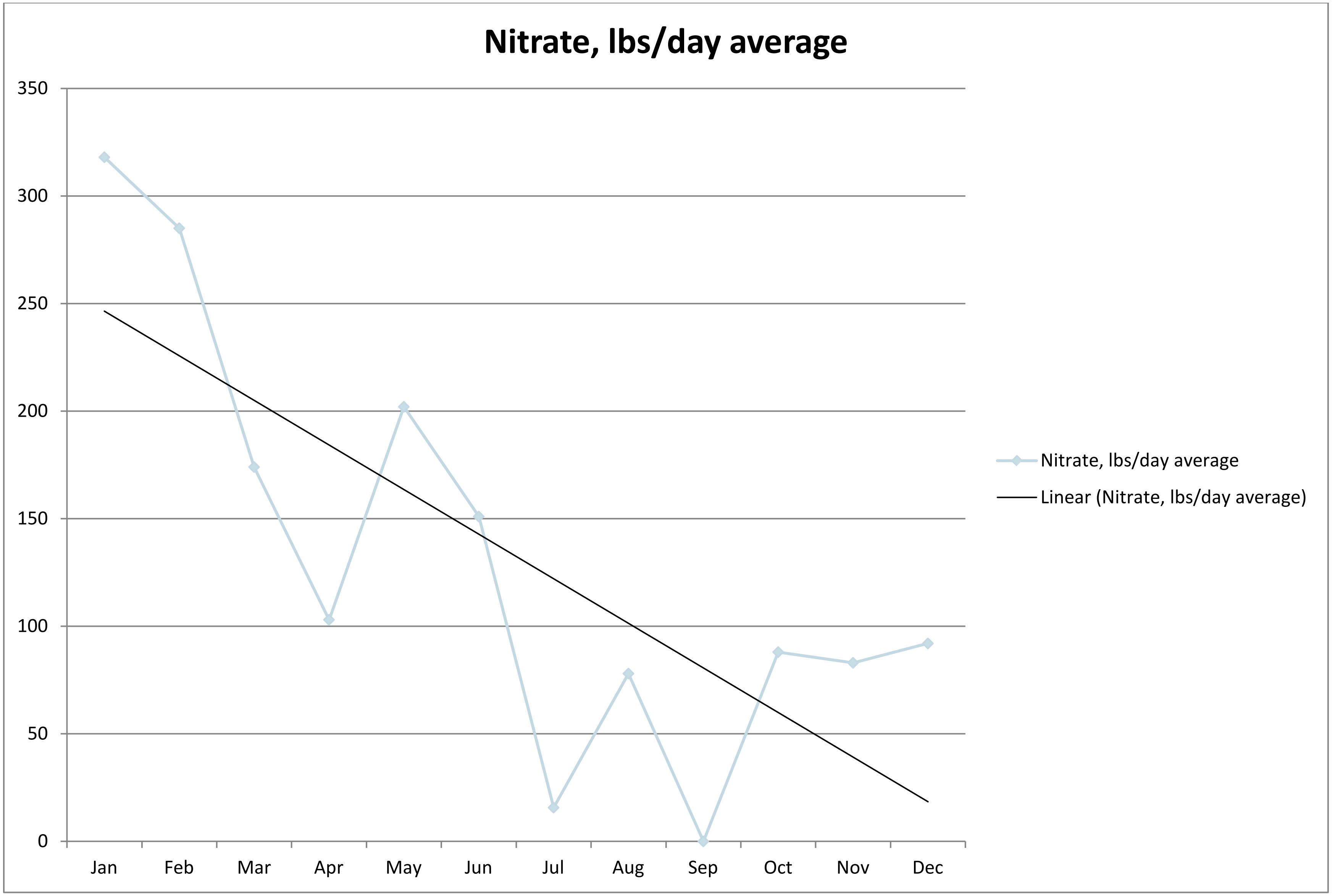

Median Coliform, MPN
6
5
4
3
2
1
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Median Coliform, MPN
Linear (Median Coliform, MPN)


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)

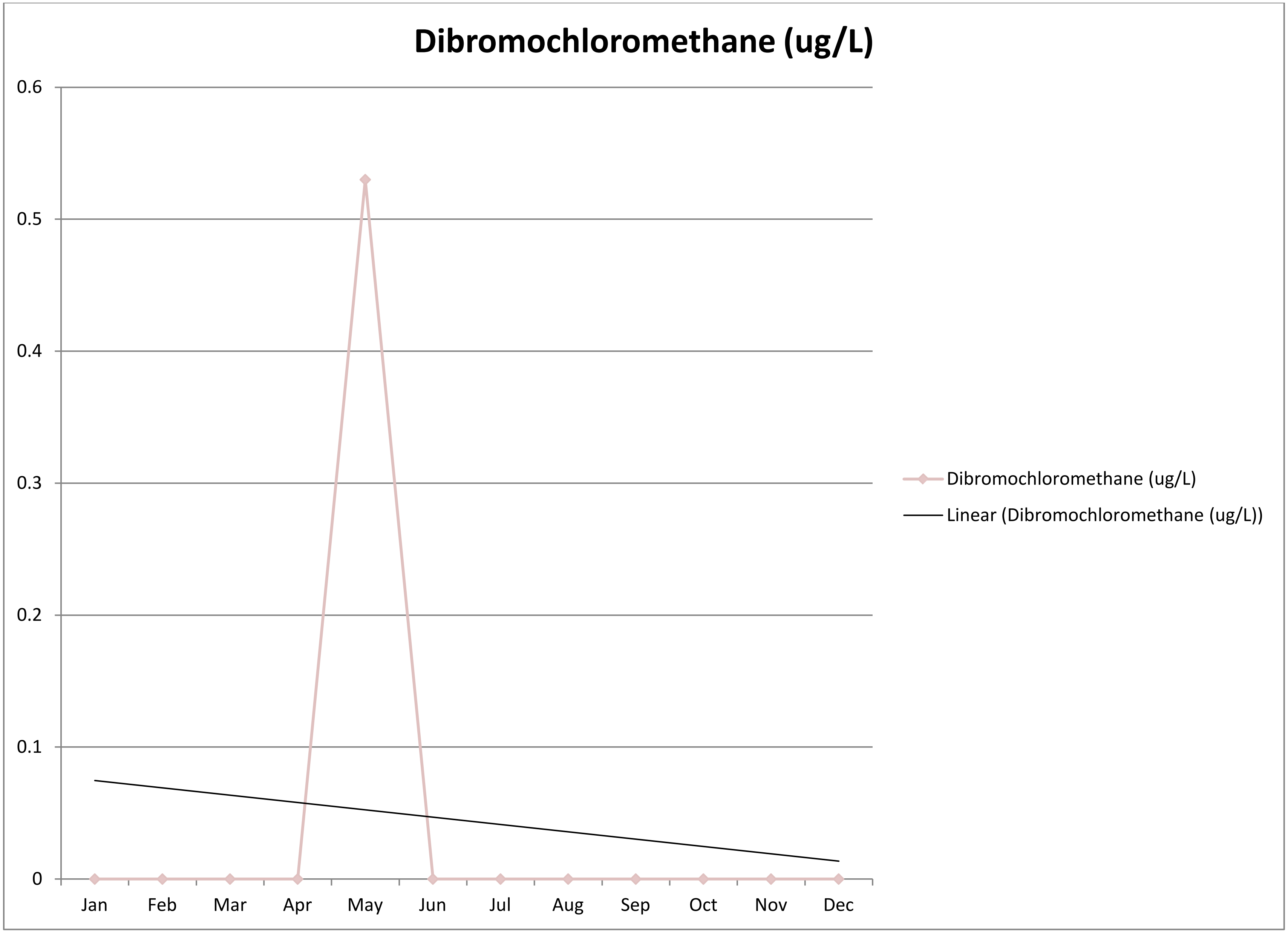

Mean Effluent Flow, MGD
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Mean Effluent Flow, MGD
Linear (Mean Effluent Flow, MGD)

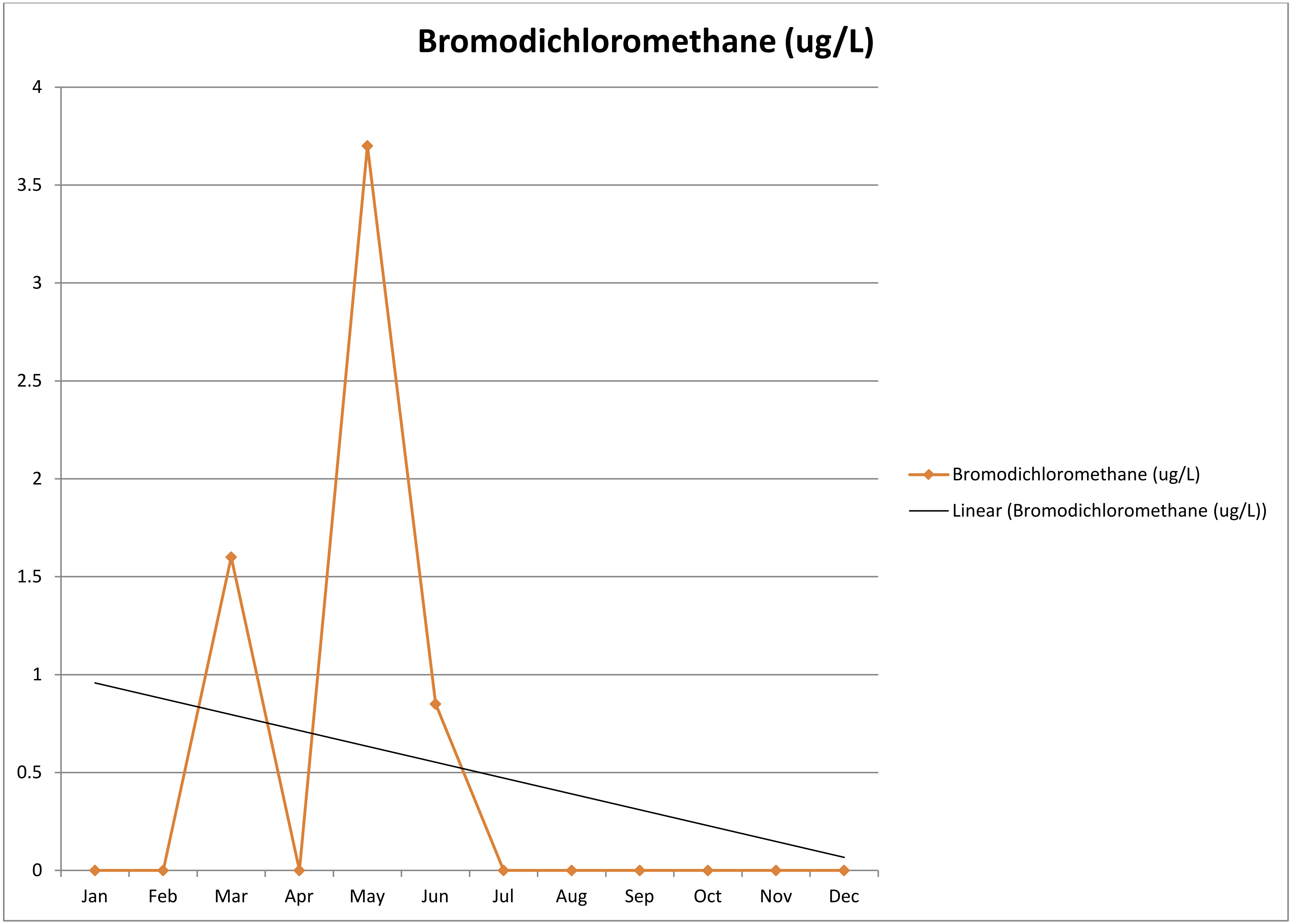
Sludge Wasted, LBS
40000
35000
30000
25000
20000
15000
10000
5000
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Sludge Wasted, LBS
Linear (Sludge Wasted, LBS)

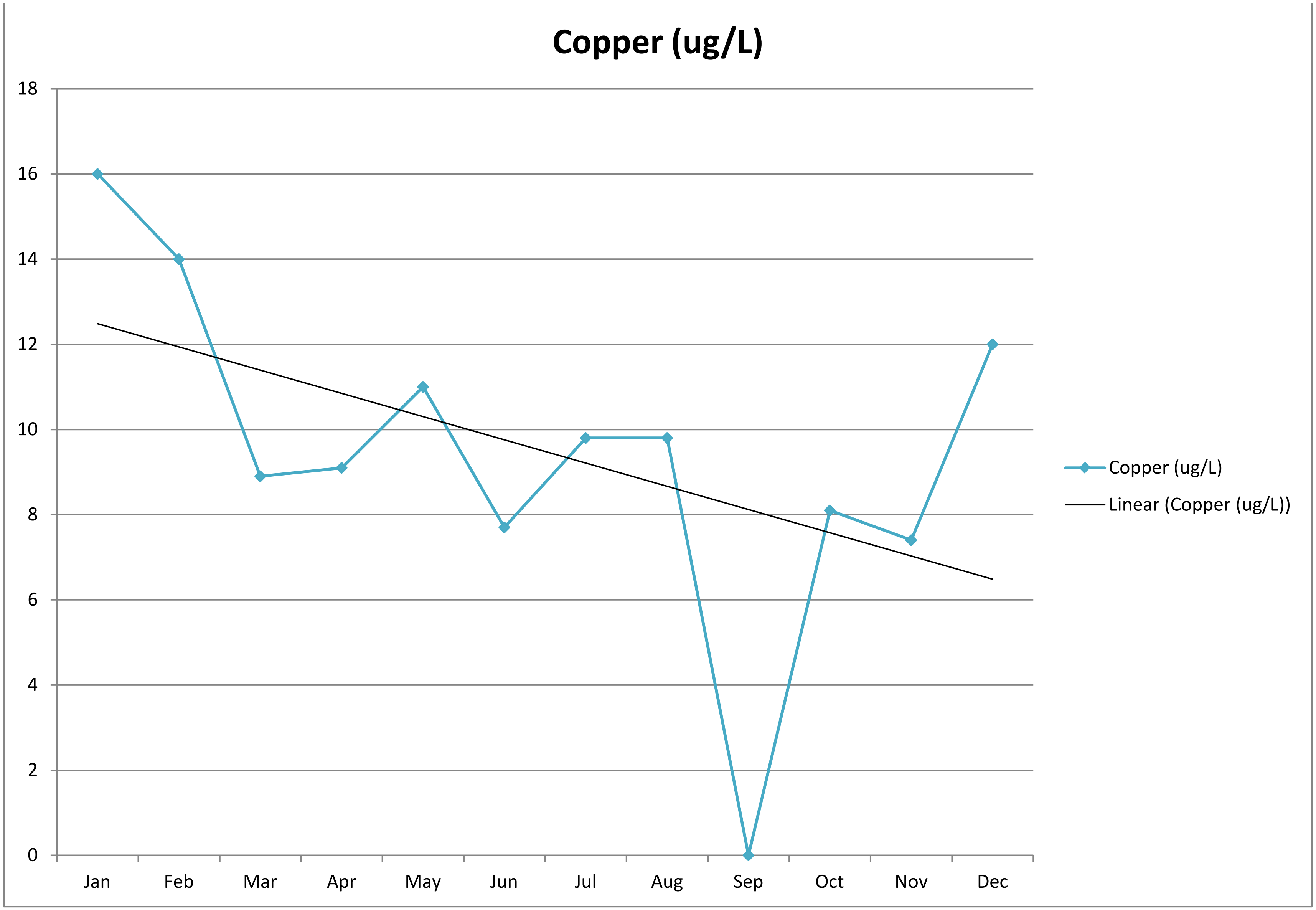

Mean Mixed Liqour Concentration, mg/L
3000
2500
2000
1500
1000
500
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Mean Mixed Liqour Concentration, mg/L
Linear (Mean Mixed Liqour Concentration, mg/L)

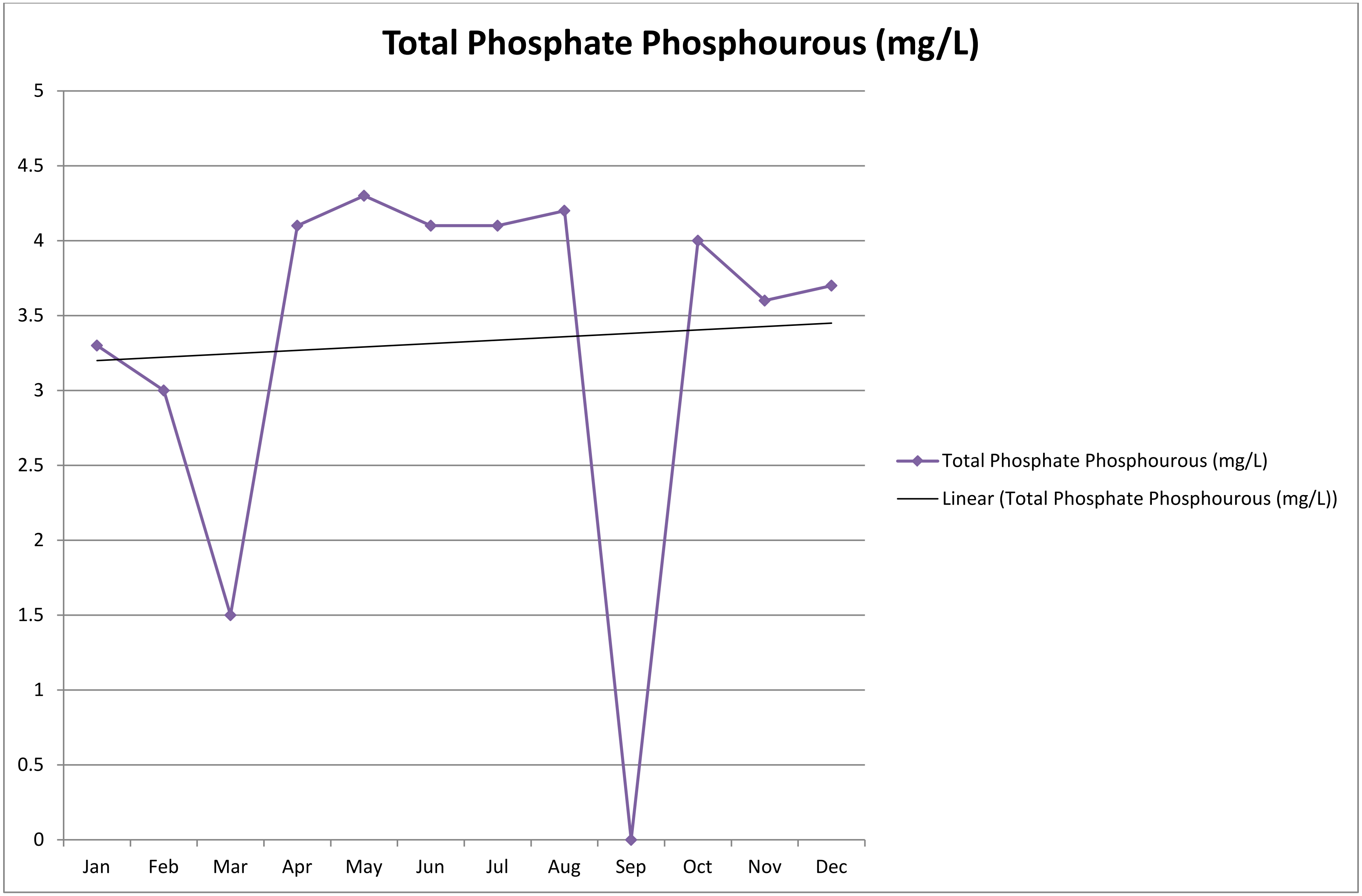


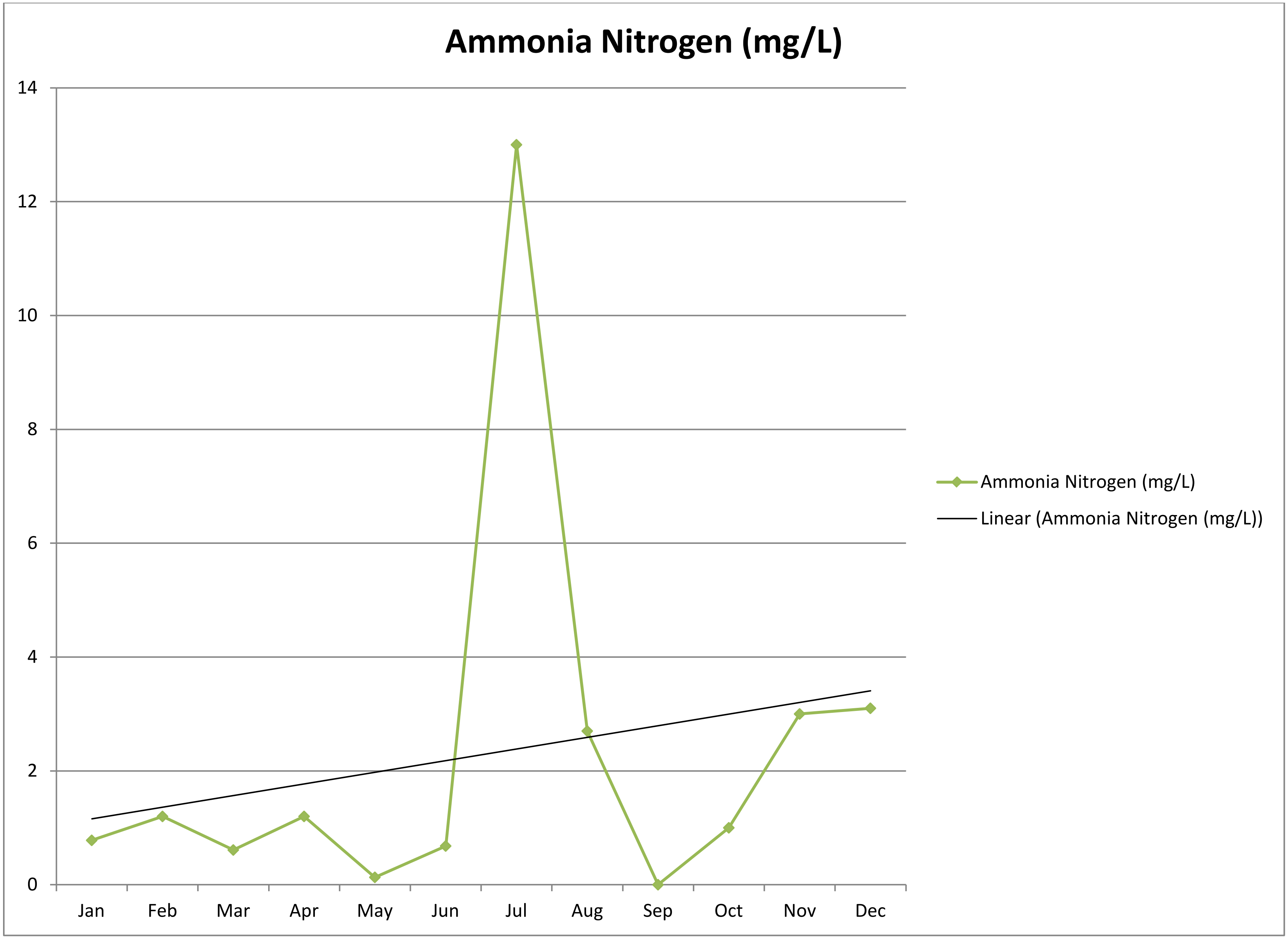
Nitrate, lbs/day average
350
300
250
200
150
100
50
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Nitrate, lbs/day average
Linear (Nitrate, lbs/day average)


Dibromochloromethane (ug/L)
0.6
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)
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
Bromodichloromethane (ug/L)
Linear (Bromodichloromethane (ug/L))


Copper (ug/L)
18
16
14
12
10
8
6
4
2
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)
5
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
Total Phosphate Phosphourous (mg/L)
Linear (Total Phosphate Phosphourous (mg/L))


Ammonia Nitrogen (mg/L)
14
12
10
8
6
4
2
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Ammonia Nitrogen (mg/L)
Linear (Ammonia Nitrogen (mg/L))