BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF:	)	
	)	
Petition of Emerald Polymer	)	
	)	AS 19-002
Additives, LLC for an Adjusted	)	
	)	(Adjusted Standard)
Standard from 35 Ill. Adm. Code	)	
	)	
304.122(b)	)	

WRITTEN TESTIMONY OF GALEN HATHCOCK

I. INTRODUCTION

1. This Written Testimony is submitted to the Illinois Pollution Control Board ("Board") in the matter captioned as *In the Matter of: Petition of Emerald Polymer Additives, LLC for an Adjusted Standard from 35 Ill. Adm. Code 304.122(b)*, AS 19-002, and in accordance with the Hearing Officer's order dated November 25, 2019.

II. EXPERIENCE

2. My name is Galen Hathcock. I am currently employed as Site Director of the Henry Plant of Emerald Polymer Additives (Emerald) and have held that position since May 2017.

3. I began my career with a bachelor's degree in Chemical Engineering from Iowa State University. I went on to a number of engineering and operations management positions in a number of companies which include specialty chemicals and food ingredients.

4. For 13 years I worked for Nalco Chemical Company, now Ecolab, where I began as a Process Engineer and progressed through several positions to become the Plant Manager of the largest facility in Garyville, LA. After Nalco Chemical, I switched to the food industry

where I was the Plant Manager at Sensient Flavors, then Vice President of Operations at Indiana Sugars.

5. I then moved on to be Operations Manager at Quality Oil, and then prior to Emerald, I was the Director of North American Operations at the Beckers Group making coil coatings. In these positions, I have had the roles of engineer, supply chain specialist, and operations manager where I have been responsible for improvements, safety, and overall business performance.

III. COMPLIANCE WITH BOARD ORDER IN AS 13-2

6. On April 16, 2015, as modified on December 1, 2016, the Board entered orders setting certain conditions on the adjusted standard relief granted to the Henry Plant in the prior adjusted standard proceeding, AS 13-2. As Site Director, I have ultimate responsibility for managing and ensuring compliance with those conditions.

7. One condition in AS 13-2 sets emission limits for total ammonia nitrogen at the Henry Plant of daily maximums of 140 mg/L and 1,633 pounds/day (lbs/day) and 30-day averages of 110 mg/L and 841 lbs/day. Emerald has complied with those limits since issuance of the adjusted standard on April 15, 2015. Petitioner's Hearing Exhibit 2 are annual summaries of the daily monitoring results that Emerald used to file monthly DMR reports with the Illinois Environmental Protection Agency for 2013 through June 2019, including the following parameters: ammonia nitrogen as N (in both mg/L and lbs/day), biological oxygen demand (BOD), pH and temperature, among others. According to the definitions in the standard conditions in Attachment H to the Henry Plant's 2016 NPDES permit, a 30-day average value is calculated as the sum of all measured daily discharges during a calendar month divided by the

number of measured values during that month. We interpret the 30-day average limits specified by the Board in AS 13-2 in a similar manner.

8. Petitioner's Hearing Exhibit 3 is a summary of the ammonia sampling data reflected on Petitioner's Hearing Exhibit 2. According to that exhibit, from April 16, 2015 through June 2019, the highest daily maximum ammonia nitrogen concentration for each year ranged from 96.0 to 130.0 mg/L, but never exceeded the daily maximum limit of 140.0 mg/L established in AS 13-2. Over the same period, the highest daily maximum ammonia load in each year ranged from 454.3 to 553.4 lbs/day, but never exceeded the daily maximum limit of 1,633 lbs/day established in AS 13-2. From April 16, 2015 through June 2019, the highest 30-day average ammonia concentration in each year ranged from 74 to 102 mg/L, and the highest 30-day average ammonia load in each year ranged from 368.0 to 430.0 lbs/day. These highest 30-day average figures also complied with the limits set in AS 13-2.

9. Emerald continues to operate and discharge its wastewater to the Illinois River through the high-rate, multi-port diffuser and also operates the fluid bed dust collector that replaced the BBTS Wet Scrubber and the acetonitrile recovery column instrumentation upgrades.

10. Prior to my becoming Site Director, the Henry Plant conducted several evaluations of possible process changes and other changes to decrease the presence of Total Kjeldahl Nitrogen (TKN) and/or nitrification inhibitors into the wastewater stream. Many of those efforts are described in detail in the Written Testimony of David Giffin submitted to the Board in 2004. We have reviewed his written testimony in connection with our more recent efforts in this area and agree with his overall observation that source reduction efforts are preferable to end-of-pipe solutions.

11. After the granting of the first adjusted standard, the Henry Plant established a continuous project improvement team to evaluate potential process modifications and product formulations to recover mercaptobenzothiazole (MBT) as well as a few of the key organic compounds that serve as building blocks for most of Emerald's products, which would thus reduce their presence in the wastewater stream. Over the next several years, the Henry Plant completed a number of projects believed to achieve source reduction of either TKN or nitrification inhibitors and reported on those projects to IEPA. These included replacement of the BBTS scrubber with a dust collector (2007), treatment plant optimization training (2008), improvements to the tertiary butyl amine column that lowered loss of amines to the sewers (2009), instrumentation upgrades for the acetonitrile recovery column to better control absolute pressure that impacts recovery efficiency (2011-2012), and efforts to reduce t-butylamine loss from a product manufactured in Building 725 (2013-2015). Between 2016 and 2018, the project team did not identify specific process modifications that would further reduce TKN or nitrication inhibitor losses to the treatment system influent. Copies of Emerald's letter reports to the IEPA pursuant to AS 02-5 and AS 13-2 that include summaries of these source control efforts are in Petitioner's Hearing Exhibit 4.

12. Today, the primary members of our continuous project improvement team are myself, Chris Wrobel, our corporate Environmental Health, Safety & Sustainability Director, and Mark Winters, our wastewater treatment plant operator. Occasionally, we also consult technical staff working in support roles, which includes process and project engineers and our quality control laboratory staff. Highly qualified experts have attempted to identify end-of-pipe solutions to the level of ammonia in the Hentry Plant effluent. Their evaluations have consistently shown that those solutions either will not reliably achieve compliance, will have

other negative environmental side-effects or will be much more expensive than the costs typically incurred by facilities to achieve ammonia reduction. Our team, many of whom are new to the Henry Plant in the last 1-3 years, have brought fresh eyes to the problems and re-focused our efforts.

13. We are now trying to identify and quantify sources of ammonia, TKN and nitrification inhibitors, principally MBT from within various production areas of the plant. This is being done through a survey to sample levels of TKN, nitrate/nitrite, ammonia and MBT from various feed sources within the plant and at key locations in the wastewater treatment system. Once identified, our project team attempts to find solutions to achieve more complete process reactions so that ammonia, TKN and MBT loss to wastewater are reduced or to find approaches to destroy or convert these compounds at the process source or at a combined point prior to the wastewater treatment system.

14. An example of our current efforts began in the late summer of 2019, when we unexpectedly measured low levels of ammonia in our treatment plant effluent. We immediately launched a new project to identify the combination of factors that led to this result. A sampling plan was implemented to measure the flow and concentration of MBT from each process. Initial data indicated that there were two primary sources of MBT and we began optimizing the key processes to reduce MBT in the process effluent. The production of n-tert-butylbenzothiazole-2-sulphenamide (BBTS) was the largest identified source of MBT. BBTS is a large volume product that has undergone several continuous improvement steps which have substantially reduced the process effluent MBT levels. The process improvement team intends to apply this same approach to other manufacturing processes at the Henry Plant.

15. We believe that our process improvement efforts, particularly reductions of MBT into influent to the wastewater system, will have a positive effect on the levels of ammonia discharged from the Henry Plant. But, evaluating the effectiveness of the 2018 and 2019 continuous project improvement team efforts is difficult for a number of reasons. First, production at the Henry Plant during 2019 has been much lower than in 2017 and 2018. In particular, production involving MBT and other products that contribute to inhibition of nitrification has been substantially lower than in prior years. Second, drawing precise cause and effect conclusions from any short-term, experimental process changes is simply difficult with a complex chemical plant such as ours with some inherent variability that depends on product mix and a wide range of other factors. Third, as our consultants have advised us, MBT may inhibit nitrification at concentrations as low as 3 mg/L. Thus, it is difficult to evaluate whether process changes that reduce the loss of TKN or MBT into the wastewater stream have any significant impact on the concentration of ammonia discharged.

16. Emerald evaluated the technical feasibility and economic reasonableness of the specific alternative treatment technologies or approaches required by AS 13-2, Condition 2(e) and submitted reports on those evaluations to IEPA in April 2018. A copy of those reports is included in Petitioner's Hearing Exhibit 4. The alternatives evaluated were the treatment of the polymer chemicals equalization tank wastewater with granulated activated carbon to remove MBT, the dilution of MBT in the primary clarifier effluent with water from the Illinois River and spray irrigation of the Henry Plant treated effluent on land owned by Emerald near the plant. As explained in greater detail in those reports, Emerald did not consider any of those alternatives both technically feasible and economically reasonable.

17. Upon reviewing the reports in Petitioner's Hearing Exhibit 4, IEPA did not request a modification of the adjusted standard issued in AS 13-2. So, Emerald is in compliance with AS 13-2, Condition 2(g).

18. In addition, Emerald has operated the wastewater treatment plant in substantial compliance with the Clean Water Act, the Board's regulations and the NPDES permit issued to the Henry Plant. Since April 2015 when the Board granted the adjusted standard in AS 13-2, Emerald has received two violation notices from IEPA related to wastewater discharge issues. None of those notices have alleged violation of the ammonia standards set in AS 13-2.

19. Violation Notice W-2015-50227 alleged violations of numeric limits for total cyanide, total phenolics, chlorobenzene, TSS and carbonaceous BOD in 2015. Emerald explained the reasons for the exceedances to IEPA and proposed a compliance commitment agreement, which it approved. Emerald subsequently submitted a compliance statement to IEPA. Copies of the notice, the compliance commitment agreement and the compliance statement are in Petitioner's Hearing Exhibit 5.

20. Violation Notice W-2019-50007 alleged violations of numeric limits for TSS and fecal coliform during 2018 and the failure to submit the stormwater pollution prevention plan annual facility inspection report for 2018. Emerald again explained the reasons for the exceedances to IEPA, prepared and submitted the annual facility inspection report and proposed a compliance commitment agreement, which it approved. Emerald subsequently submitted a compliance statement to IEPA. Copies of the notice, the compliance commitment agreement and the compliance statement are in Petitioner's Hearing Exhibit 6.

21. Based on the above, I believe that Emerald has complied with the conditions established by the Board in AS 13-2.

IV. THE HENRY PLANT

22. The Henry Plant is located on 1550 County Road 1450 in Henry, Illinois in northwestern Marshall County. The facility was originally constructed and owned by the B.F. Goodrich Company and has long consisted of two operations: a polyvinyl chloride (PVC) resin facility and a specialty chemical facility. Today, the PVC resin facility is owned and operated by Mexichem Specialty Chemicals. Its products are sold to a variety of customers including those in the construction, household furnishings, consumer goods, electrical, packaging and transportation industries. The specialty chemical plant has been owned and operated by Emerald, or its corporate parent, Emerald Performance Materials, LLC, since 2006. Our plant produces accelerators used by the rubber industry and anti-oxidants used to inhibit the oxidation process in materials such as rubber, jet fuel, greases, oils and polypropylene.

23. The Mexichem and Emerald operations share utility operations consisting primarily of a boiler and a combined wastewater treatment system. That latter system is owned and operated by Emerald pursuant to a service agreement. During 2016 through 2018, the system treated approximately 500,000 gallons per day of combined effluent from Mexichem's operation, Emerald's operations and combined utility and potential contact storm water.

24. The vast majority of Emerald's production has historically been accelerators. Almost all of the accelerator production at Henry utilizes MBT as the key intermediate (73% of total plant production). MBT-based accelerators have been used in the rubber industry for well over 50 years and are the most common type of accelerator. MBT-based accelerators, which are relatively inexpensive and very efficient, are essential to the economic production of tires and industrial rubber products. Given the low cost and high value MBT-based accelerators provide customers, it is highly unlikely they will be replaced in the foreseeable future.

25. Emerald is the sole remaining manufacturer of MBT in the United States. As such, the Henry plant is now one of only two providers of MBT-based accelerators in the U.S. Lanxess is the other provider; they import MBT from their facility in Antwerp (Belgium) and produce accelerators at their Bushy Park, South Carolina plant. The Emerald Henry plant is the sole U.S. producer of the following accelerator chemicals: Cure-Rite 18®, OBTS, and MBDS.

26. Along with MBT, these accelerators are used by Emerald's customers as a critical component when they produce rubber, which is a national strategic product. In the production of accelerators there are several key raw materials: sulfur, aniline, carbon disulfide and amines. The manufacture of accelerators is a multi-step process including the manufacture of an intermediate (sodium mercaptobenzothiazole). This intermediate is then reacted with an amine and other raw materials to form an accelerator product. The product is then isolated through filtration and drying.

27. There are various types of antioxidants manufactured by Emerald at the Henry Plant which utilize either diphenylamine or one of several phenols as a starting material. The processes consist of both batch and continuous reactors, filtration operations and solidification.

28. Emerald has continued to produce most of the same products that were produced by Noveon (a prior owner in the early 2000's). There are a few exceptions. Emerald no longer produces X70 and GELTOL which contributed only a small portion of the total Noveon production. In addition, we currently produce much less of the products OBTS and Cure-Rite 18® in response to market conditions. Emerald does not produce any of the health care or personal care products that Noveon started to produce. Emerald completed the installation and began operation of the sodium hydrosulfide (NaSH) system in 2006 to significantly reduce hydrogen sulfide emissions, which previously were sent to an onsite flare. The NaSH system

does not produce any appreciable process wastewater and what is produced has no ammonia or ammonia precursors.

29. Ammonia is not a major raw material in any of the processes at either Mexichem or the Henry Plant. As an ingredient in the Henry Plant production processes, ammonia is only used in minor amounts in one low volume product. Mexichem uses ammonia as an ingredient to produce an emulsifier for use in one of the PVC processes and some ammonia is present in the PVC tank effluent to Emerald's treatment system. But, as explained in Houston Flippin's 2019 expert report, testing has shown that the source of the ammonia nitrogen in the effluent is not primarily related to the level of ammonia in the treatment system influent. Rather, the amines in the treatment system influent are converted to ammonia nitrogen in the wastewater treatment process and, because nitrification does not occur as the result of inhibition, the ammonia nitrogen is subsequently discharged from the wastewater treatment plant.

V. WASTEWATER TREATMENT SYSTEM DESCRIPTION

30. The wastewater treatment system at the Henry Plant is a multi-process system that treats process wastewater from both Emerald and Mexichem operations and also non-process discharges including potential contact stormwater and non-contact cooling water. Petitioner's Hearing Exhibit 7 is a block flow diagram of the current wastewater treatment system. The Henry wastewater treatment system has historically provided greater than 95% BOD reduction. In addition, from 2015 to mid-2019, the highest daily maximum ammonia nitrogen value in any month has ranged from 17 to 130 mg/L while the 30-day average ammonia nitrogen value has ranged from 8 to 102 mg/L. *See* Petitioner's Hearing Ex. 3. This broad range probably reflects routine variability in plant operations and changes in production volume and product mix. Average daily maximum concentrations for those years have ranged from 56 to 79 mg/L. *Id.*

31. All process wastewater is collected in equalization tanks prior to transfer to the primary treatment system. Wastewater from the Henry Plant's production of accelerators and antioxidants discharge to either the polymer chemicals equalization tank or to the Cure-Rite 18® (also known as the C-18) equalization tank. Waste activated sludge and solids from the Mexichem wastewater pretreatment system that are not captured by the solids filter press discharge to the PVC equalization tank. From time to time depending on plant conditions, the PVC equalization tank may also receive recycle streams from various wastewater treatment processes such as the overflow from the filter press feed tank in the press building, backwash from the traveling bridge sand filters and returning pond water. In the primary treatment system, wastewaters are mixed, pH is adjusted, coagulant and flocculent are added, and then wastewater is sent to the primary clarifier where suspended solids are separated. The solids are dewatered and sent to a landfill as a non-hazardous special waste.

32. After primary clarification, the wastewater is sent to activated sludge treatment for biological treatment in what we call "biotreaters." The biotreaters are tanks that range in size from about 270,000 gallons to roughly 1.4 million gallons and contain biomass to degrade the organic matter in the wastewater. The facility has four biotreater tanks. Only one is currently in service, but its capacity is sufficient to treat the current treatment system flow. The Henry Plant currently is conducting design engineering to begin modifications to put some of those biotreaters back in service to provide redundant capacity for the treatment system. Simply restoring this capacity is not expected to improve ammonia reduction in the treatment system. The addition of air into the biotreaters ensures that the biomass has sufficient oxygen to complete the degradation of organic materials and also ensures through agitation that the biomass comes into adequate contact with the organic matter contained in the wastewater.

33. After biological treatment in the biotreaters, the wastewater flows into the secondary clarifier where more coagulant and flocculant are added. The solids removed during secondary clarification are primarily biomass and are returned to the biotreaters.

34. The wastewater from the secondary clarifier is then sent to a traveling bridge sand filter. As the wastewater passes through the sand bed, additional solids removal occurs and the effluent flows into a concrete sump leading to the outfall. Backwash from the sand filter is recycled back into the primary treatment system.

35. Non-process wastewater, including non-contact cooling water, potential contact stormwater, water from the boilerhouse demineralizer and water treatment works, is discharged to two holding ponds. Water from the ponds is then pumped into the primary treatment system.

36. The City of Henry operates a municipal POTW adjacent to the Henry Plant. The City of Henry municipal treatment system consists of an aerated lagoon followed by a sedimentation basin and effluent disinfection. The treated discharge from the City of Henry municipal wastewater treatment system combines with the treated Henry Plant effluent and is discharged together through the Henry Plant's outfall via the high-rate, multiport diffuser into the Illinois River. Compliance sampling of the Henry Plant and City of Henry waste streams is performed before the waste streams are combined.

VI. ENVIRONMENTAL IMPACT OF RENEWING THE ADJUSTED STANDARD

37. Both prior to my becoming Site Director and during my tenure, Emerald has conducted tests that demonstrate the ammonia in the Henry Plant wastewater is not having any significant negative effect on the Illinois River or the environment or human health.

38. Emerald conducted whole effluent toxicity (WET) testing in 2011, 2012, 2017 and twice in 2019 pursuant to conditions in its then-effective NPDES permits. All of the test

results were reported to IEPA. Petitioner's Hearing Exhibit 8 are Emerald's cover letters to IEPA along with the laboratory reports of the WET test results. Special Condition 14 of Emerald's current NPDES permit only requires further toxicity evaluation if the acute LC_{50} is found at less than 2.1% effluent. Looked at another way, an LC_{50} greater than 2.1% effluent is deemed acceptable given Emerald's approved ZID and mixing zone and indicates that the effluent is not toxic due to ammonia. Overall, the test results estimated LC_{50} values for the test organisms (*pimephales promelas*, fathead minnow, and *ceriodaphnia dubia*, water flea) at an effluent dilution ranging from 2.6% to 31.86% over the course of seven tests. So, the results showed that the effluent would not be toxic at the dilution factor achieved at the edge of Emerald's zone of initial dilution (about 39.7:1) by the multi-port diffuser installed and operated pursuant to the Board's adjusted standards. To my knowledge, IEPA has never communicated to Emerald that the WET test results were unacceptable or required further toxicity evaluation.

39. Emerald also conducted quarterly water quality testing in the Illinois River from 2007 to 2015 pursuant to conditions in its prior NPDES permit and reported those results to IEPA. Over the course of 9 years and 35 samples, ammonia was only detected on 6 occasions with the highest test result being 1.1 mg/L. Copies of the letter reports to IEPA that include the test results are in Petitioner's Hearing Exhibit 4. To my knowledge, IEPA has never advised Emerald that the water quality testing results were unacceptable or suggested a violation of the ammonia water quality standards.

40. Based on these test results, Emerald does not believe the ammonia in its wastewater discharge is causing any significant environmental harm or impact to the Illinois River or human health.

41. In addition, over the last several years, the combined plants have significantly reduced the volume of water discharged. The combined wastewater treatment plant has a design maximum flow of 1.4 million gallons per day (MGD) and a design average flow of 0.917 MGD. In 2002 and 2013, the plant reportedly discharged approximately 0.8 MGD. From 2016 through June 2019, the combined plants have reduced the wastewater flow discharged. Over those 3.5 years, the daily maximum flow has ranged from 0.486 to 0.764 MGD with an average of 0.598 MGD. Over the same period, the 30-day average flow has ranged from 0.398 to 0.678 MGD with an average of 0.500 MGD. We have not specifically studied the reasons for this decline in discharge flow, however, we generally attribute it to lower production volumes across all products and some general improvements in manufacturing processes that have reduced water usage.

VII. COMMUNITY AND OTHER ENVIRONMENTAL CONTRIBUTIONS

42. During 2019, the Mexichem facility employed approximately 70 individuals.

43. During 2019, Emerald employed approximately 66 individuals, most of whom live within a 30-45 minute drive of the City of Henry. Emerald annual payroll is about $7.3 million. Emerald's annual local real estate taxes are presently about $158,000. Emerald also spends about $2.5 million with local contractors on maintenance and improvements.

44. As noted above, in 2006, Emerald installed the NaSH system to reduce air emissions of hydrogen sulfide by using the exhaust gas stream from MBT production rather than sending that stream to a flare. That addition was installed at a cost of more than $10 million.

VIII. APPROPRIATE DISCHARGE LIMITS

45. IEPA's Recommendation suggested that if a new adjusted standard is issued the daily maximum limit should be set at 110 mg/L and the 30-day average should be set at 89.6

mg/L. Its justification for this was their belief that improvements to the MBDS process had been made since the fall of 2018 and their analysis of the maximum daily and 30-day average values for the Henry Plant from September 2018 to May 2019. Recommendation of Illinois EPA, 25-26. This analysis has several flaws.

46. The Henry Plant did not make any changes to the MBDS process in the fall of 2018 or early 2019. That statement in the Recommendation is wrong. The Henry Plant did make changes to the BBTS process between September 2018 and early 2019 that significantly reduced the loss of BBTS into wastewater. The BBTS process uses MBT, which inhibits nitrication, as a key intermediate. While this might improve the plant's ammonia discharge, we are unable to reliably reach that conclusion at this point in time for the reasons discussed below.

47. Since the early 2000's and before, our experts have told us that MBT inhibits nitrification if it is present at more than 3 mg/L in the wastewater system. As I understand it, the Board relied upon this testimony in issuing the adjusted standards for the Henry Plant in 2004 and 2015. Our data indicates that MBT has always been present in the primary clarifier effluent at levels far greater than 3 mg/L. Thus, regardless of any process changes reducing BBTS and/or MBT in the wastewater system, the reductions have not been sufficient to justify disregarding data prior to September 2018.

48. Also, we know that production levels at the Henry Plant have been significantly reduced in 2019 due to market conditions. So, the 2019 data is not representative of effluent ammonia concentrations that the plant could discharge when it is operating at much higher production volumes. While ammonia discharge data for the first half of 2019 is somewhat lower than in 2018 and prior years, we are unable to determine if that decrease is due to lower

production volumes or the BBTS process improvements or changes in product mix or other factors.

49. If we look at all the data since April 2015, the highest daily maximum reported in any month is 130 mg/L (July 2015). The plant also twice reported a daily maximum of 120 mg/L (July 2016 and April 2018), reported a daily maximum of 110 mg/L in 8 months and there were another 6 months in which the plant reported a daily maximum of 100 mg/L. Petitioner's Hearing Exhibit 3 provides monthly summaries of the discharge data. These data show that the plant would not be able to reliably achieve a daily maximum discharge limit of 110 mg/L. A discharge limit in a permit should be set so that a facility has sufficient leeway for variations in production capacity and product mix. The data continue to justify the daily maximum discharge concentration of 140 mg/L established by the Board in 2015.

50. IEPA's analysis for the 30-day average is flawed, too. Since April 2015, the plant has reported 30-day averages in excess of the 89.6 mg/L suggested by IEPA in 6 months with highs of 101 and 102 mg/L in May and July 2016 and a 30-day average of 99 mg/L as recently as March 2018. These data justify the Board in keeping the 30-day average concentration limit at 110 mg/L.

51. In contrast, over the last four years, despite the variability in the discharge, the Henry Plant's ammonia discharge measured as load has never been more than 34% of the daily maximum load limit (1,633 lbs/day) and has never been more than 51% of the 30-day average load limit (841 lbs/day). These calculations are reflected on Petitioner's Hearing Exhibit 3, EP003099. While we cannot identify any precise cause and effect for these results, we generally attribute the load reductions to a number of source control projects (see paragraphs 10-11 above) that allowed the plant to reduce flow and reduce the loss of nitrogen-containing compounds or

nitrification inhibitors into the treatment system influent. This data has convinced us that Emerald can reliably meet load limits reduced by 25% from the limits set in AS 13-2 even considering routine variability in plant operations and product mix and possibly increased production. These reduced load limits that we believe can be reliably achieved are a daily maximum load of 1,225 lbs/day and a 30-day average load of 631 lbs/day.

DMR Support Data - Plant Effluent

Start Date: 1/1/2013 - **End Date:** 12/31/2013

Date	MeCL2 (ug/l)	Chloroform (ug/l)	Toluene (ug/l)	Vinyl Chloride (ug/L)	Fecal Coliform (N/100 mL)	Ammonia (mg/L)	Phenol (mg/L)	Residual Chlorine (parts/MM)	Total Nitrogen (mg/l)	tBOD (mg/l)	TSS (mg/l)	Plant Effluent Flow (gpm)	Ammonia Load (lb/day)	Total Nitrogen (lb/day)	tBOD Load (lb/day)	TSS Load (lb/day)	pH	Temp. (°F)	Diffuser Ammonia (mg/l)	IEPA TSS (mg/l)	IEPA Ammonia (mg/l)	IEPA BOD (mg/l)
1/1/2013						70.00				4.00	4.00	611.21	513.42		29.34	29.34	7.20	73.00				
1/2/2013						80.00				4.00	4.00	598.67	574.72		28.74	28.74	7.32	73.00				
1/3/2013						80.00				4.70	4.00	544.83	619.04		36.37	30.95	7.52	75.00				
1/4/2013												606.79					7.46	70.00				
1/5/2013												589.64					7.40	71.00				
1/6/2013	1.00				160.00	96.00				4.00	4.00	606.60	698.80		29.12	29.12	7.37	71.00				
1/7/2013						92.00				4.00	4.80	622.41	687.14		29.88	35.85	7.46	72.00				
1/8/2013						88.00				4.00	4.00	587.00	619.87		28.18	28.18	7.39	74.00				
1/9/2013						84.00				4.00	4.00	591.23	595.96		28.38	28.38	7.34	75.00				
1/10/2013						77.00				4.00	4.00	641.59	592.83		30.80	30.80	7.25	72.00				
1/11/2013												626.74					7.20	75.00				
1/12/2013												712.05					7.13	73.00				
1/13/2013						73.00				4.00	4.00	712.39	624.05		34.19	34.19	7.23	71.00				
1/14/2013						74.00				4.00	6.40	714.60	634.56		34.30	54.88	6.90	71.00				
1/15/2013						88.00				4.00	4.00	738.31	779.66		35.44	35.44	7.12	68.00				
1/16/2013						99.00				4.00	8.00	734.67	872.79		35.26	70.53	7.21	70.00				
1/17/2013						90.00				4.00	5.60	714.71	771.89		34.31	48.03	7.14	70.00				
1/18/2013												685.73					7.09	75.00				
1/19/2013												665.42					6.91	77.00				
1/20/2013						100.00				4.20	21.00	647.23	776.68		32.62	163.10	7.04	77.00				
1/21/2013						110.00				4.00	8.80	667.30	880.84		32.03	70.47						
1/22/2013						100.00				4.00	9.20	444.27	533.12		21.32	49.05	7.06	64.00				
1/23/2013						160.00				4.00	12.00	547.03	1,050.30		26.26	78.77	7.08	71.00				
1/24/2013						92.00				4.60	24.00	523.45	577.89		28.89	150.75	7.05	71.00				
1/25/2013												575.95					7.03	74.00				
1/26/2013												642.08					7.01	72.00				

PETITIONER'S HEARING EXHIBIT
AS 19-002
2

EP002706

1/27/2013			76.00	4.10	9.60	735.27	670.57	36.18	84.70	6.93	72.00
1/28/2013			67.00	4.00	4.80	727.18	584.65	34.90	41.89	7.06	77.00
1/29/2013			65.00	4.00	4.00	703.82	548.98	33.78	33.78	7.11	79.00
1/30/2013			70.00	4.00	5.60	708.61	595.23	34.01	47.62	7.18	79.00
1/31/2013			69.00	4.00	8.40	656.19	544.98	31.59	66.35	7.18	72.00
2/1/2013						387.21				7.64	61.00
2/2/2013						597.19				7.18	68.00
2/3/2013			70.00	5.00	6.40	666.11	559.53	39.97	51.16	7.35	71.00
2/4/2013	1.00	910.00	76.00	7.60	15.00	650.96	593.68	59.37	117.17	7.36	74.00
2/5/2013			85.00	9.00	6.80	658.04	671.20	71.07	53.70	7.35	75.00
2/6/2013			84.00	13.00	7.60	633.59	638.66	98.84	57.78	7.35	76.00
2/7/2013			96.00	19.00	12.00	653.85	753.24	149.08	94.15	7.40	76.00
2/8/2013						673.29				7.42	72.00
2/9/2013						594.46				7.04	73.00
2/10/2013		5,800.00	90.00	12.00	12.00	555.64	600.09	80.01	80.01	7.11	72.00
2/11/2013			82.00	26.00	14.00	614.05	604.23	191.58	103.16	7.31	70.00
2/12/2013			80.00	37.00	8.00	602.70	578.59	267.60	57.86	7.20	71.00
2/13/2013			80.00	43.00	11.00	542.86	521.15	280.12	71.66	7.23	73.00
2/14/2013			88.00	40.00	22.00	569.16	601.03	273.20	150.26	7.24	75.00
2/15/2013						556.50				7.25	75.00
2/16/2013						651.72				7.05	73.00
2/17/2013		1,300.00	74.00	16.00	11.00	619.65	550.43	119.01	81.82	7.14	70.00
2/18/2013			74.00	27.00	10.00	573.71	509.45	185.88	68.85	7.22	73.00
2/19/2013			75.00	27.00	10.00	557.18	501.46	180.53	66.86	7.16	70.00
2/20/2013			70.00	26.00	14.00	426.94	358.63	133.21	71.73	7.22	66.00
2/21/2013		300.00	72.00	25.00	7.60	425.21	367.38	127.56	38.78	7.22	71.00
2/22/2013						464.58				7.16	74.00
2/23/2013						464.02				7.18	74.00
2/24/2013			65.00	19.00	5.60	460.79	375.02	109.62	32.31	7.10	74.00
2/25/2013			60.00	35.00	4.00	521.41	375.42	218.99	25.03	7.08	73.00

2/26/2013						80.00	52.00	14.00	528.16	507.03	329.57	88.73	7.17	77.00
2/27/2013						64.00	50.00	11.00	505.74	388.41	303.44	66.76	7.33	75.00
2/28/2013						54.00	35.00	7.20	440.82	285.65	185.14	38.09	7.30	75.00
3/1/2013									483.23				7.35	73.00
3/2/2013									452.39				7.30	73.00
3/3/2013						38.00	40.00	9.20	484.24	220.81	232.44	53.46	7.26	73.00
3/4/2013	15.00				300.00	33.00	44.00	10.00	483.27	191.37	255.17	57.99	7.31	72.00
3/5/2013						32.00	26.00	10.00	478.08	183.58	149.16	57.37	7.25	72.00
3/6/2013						35.00	120.00	4.00	427.27	179.45	615.27	20.51	7.22	74.00
3/7/2013						39.00	110.00	12.00	429.00	200.77	566.28	61.78	7.41	76.00
3/8/2013									443.42				7.25	73.00
3/9/2013									484.79				7.33	75.00
3/10/2013						42.00	110.00	15.00	437.25	220.37	577.17	78.71	7.28	77.00
3/11/2013						44.00	57.00	14.00	427.44	225.69	292.37	71.81	7.20	73.00
3/12/2013						42.00	56.00	33.00	442.99	223.27	297.69	175.42	7.54	70.00
3/13/2013						42.00	56.00	37.00	405.91	204.58	272.77	180.22	7.61	68.00
3/14/2013						39.00	66.00	260.00	411.43	192.55	325.85	1,283.66	7.56	70.00
3/15/2013									386.61				7.57	75.00
3/16/2013									348.00				7.63	77.00
3/17/2013						42.00	37.00	18.00	485.37	244.63	215.50	104.84	7.94	76.00
3/18/2013						48.00	26.00	9.60	566.12	326.09	176.63	65.22	7.69	75.00
3/19/2013						64.00	24.00	22.00	573.20	440.22	165.08	151.32	7.48	71.00
3/20/2013						66.00	23.00	34.00	511.59	405.18	141.20	208.73	7.43	70.00
3/21/2013	10.00	5.00	5.00	5.00	540.00	72.00	14.00	22.00	444.30	383.88	74.64	117.30	7.65	71.00
3/22/2013									400.41				7.11	70.00
3/23/2013									521.85				7.79	74.00
3/24/2013						100.00	9.90	16.00	542.77	651.32	64.48	104.21	7.43	74.00
3/25/2013						90.00	7.10	27.00	483.01	521.65	41.15	156.50	7.79	73.00
3/26/2013						87.00	8.90	6.40	435.30	454.45	46.49	33.43	7.75	77.00
3/27/2013						77.00	6.60	6.80	475.56	439.42	37.66	38.81	7.72	79.00

3/28/2013			71.00		6.80	14.00	451.13	384.36	36.81	75.79	7.77	79.00	0.10
3/29/2013							479.38				7.69	79.00	
3/30/2013							509.19				7.61	80.00	
3/31/2013			61.00		4.00	7.60	494.23	361.78	23.72	45.07	7.59	77.00	
4/1/2013			70.00		5.00	6.00	504.65	423.91	30.28	36.33	7.58	74.00	
4/2/2013			74.00		5.20	4.00	494.27	438.91	30.84	23.72	7.55	74.00	
4/3/2013			78.00		4.00	4.00	510.73	478.04	24.52	24.52	7.52	74.00	
4/4/2013			83.00		5.20	5.60	499.67	497.67	31.18	33.58	7.62	74.00	
4/5/2013							454.29				7.69	77.00	
4/6/2013							535.61				7.45	77.00	
4/7/2013			76.00		7.40	10.00	539.82	492.32	47.94	64.78	7.50	77.00	
4/8/2013	45.00	20,000.00	60.00		17.00	4.40	576.81	415.30	117.67	30.46	7.28	77.00	
4/9/2013			54.00		19.00	7.60	579.81	375.72	132.20	52.88	7.49	77.00	
4/10/2013			51.00		18.00	4.00	587.75	359.70	126.95	28.21	7.36	75.00	
4/11/2013			48.00		18.00	6.60	496.84	286.18	107.32	40.54	7.39	72.00	
4/12/2013							566.17				7.38	75.00	
4/13/2013							434.14				7.16	77.00	
4/14/2013			54.00		28.00	4.60	482.57	312.71	162.14	27.80	6.95	79.00	
4/15/2013			62.00		19.00	7.60	566.17	421.23	129.09	51.63	7.28	80.00	
4/16/2013			70.00		18.00	4.80	345.06	289.85	74.53	19.88	7.32	80.00	
4/17/2013			78.00		36.00	16.00	429.39	401.91	185.50	82.44	7.57	82.00	
4/18/2013			47.00		35.00	12.00	778.68	439.18	327.05	112.13	8.09	79.00	
4/19/2013							787.34				7.37	74.00	
4/20/2013							726.55				7.64	74.00	
4/21/2013			61.00		53.00	4.00	758.15	554.97	482.18	35.39	7.33	72.00	
4/22/2013			60.00		51.00	6.00	726.55	523.12	444.65	52.31	7.35	81.00	
4/23/2013	5.00	14,000.00	59.00	0.009	40.00	6.00	549.56	389.09	263.79	39.57	7.44	79.00	
4/24/2013			67.00		39.00	15.00	477.62	384.01	223.53	85.97	7.49	77.00	
4/25/2013			68.00		52.00	15.00	574.18	468.53	358.29	103.35	7.60	77.00	
4/26/2013							579.71				6.43	73.00	

4/27/2013							723.39				7.58	75.00
4/28/2013				90.00	35.00	5.60	649.90	701.89	272.96	43.67	7.54	77.00
4/29/2013				88.00	21.00	6.00	626.57	661.66	157.90	45.11	7.59	78.00
4/30/2013				93.00	9.10	14.00	569.00	635.00	62.13	95.59	7.62	78.00
5/1/2013				96.00	12.00	9.60	554.91	639.26	79.91	63.93	7.62	74.00
5/2/2013				100.00	30.00	12.00	553.76	664.51	199.35	79.74	7.75	78.00
5/3/2013							650.01				7.61	79.00
5/4/2013							470.34				7.59	79.00
5/5/2013				100.00	44.00	24.00	514.18	617.02	271.49	148.08	7.48	77.00
5/6/2013				120.00	49.00	15.00	519.09	747.49	305.22	93.44	7.65	79.00
5/7/2013				130.00	43.00	13.00	596.94	931.23	308.02	93.12	7.60	79.00
5/8/2013				130.00	45.00	16.00	559.71	873.15	302.24	107.46	7.69	80.00
5/9/2013				139.00	37.00	8.00	458.63	715.46	203.63	44.03	7.67	82.00
5/10/2013							456.82				7.65	79.00
5/11/2013							522.11				7.63	79.00
5/12/2013				120.00	37.00	26.00	556.28	801.04	246.99	173.56	7.54	77.00
5/13/2013	1.00	1.00	27.00	120.00	57.00	48.00	471.73	679.29	379.27	271.72	7.54	77.00
5/14/2013				120.00	53.00	18.00	495.49	713.51	374.59	107.03	7.54	77.00
5/15/2013				120.00	65.00	39.00	603.26	868.69	470.54	282.33	7.60	79.00
5/16/2013				120.00	52.00	23.00	457.61	659.25	285.67	126.36	7.57	78.00
5/17/2013							517.23				7.56	79.00
5/18/2013							400.19				7.55	80.00
5/19/2013				110.00	50.00	12.00	376.51	496.99	225.91	54.22	7.54	78.00
5/20/2013				110.00	64.00	10.00	560.85	740.32	430.73	67.30	7.57	80.00
5/21/2013				110.00	56.00	4.00	642.63	848.27	431.85	30.85	7.70	80.00
5/22/2013				99.00	43.00	7.20	506.78	602.05	261.50	43.79	7.55	80.00
5/23/2013				96.00	34.00	5.60	487.54	561.65	198.92	32.76	7.56	79.00
5/24/2013							537.85				7.10	82.00
5/25/2013							559.29				7.57	77.00
5/26/2013				92.00	50.00	4.00	572.54	632.08	343.52	27.48	7.47	75.00

5/27/2013				98.00	54.00	42.00	511.21	601.18	331.26	257.65	7.50	78.00	
5/28/2013				88.00	58.00	12.00	606.86	642.96	423.77	87.68	7.49	78.00	
5/29/2013				86.00	47.00	20.00	635.10	655.42	358.20	152.42	7.49	78.00	
5/30/2013				84.00	37.00	12.00	506.66	510.71	224.96	72.96	7.46	79.00	
5/31/2013							568.60				7.52	78.00	
6/1/2013							861.31				7.43	77.00	
6/2/2013				74.00	29.00	4.00	627.71	557.41	218.44	30.13	7.40	77.00	
6/3/2013	1.80	1.00	180.00	67.00	30.00	7.20	590.42	474.70	212.55	51.01	7.46	75.00	
6/4/2013				69.00	26.00	4.00	575.75	476.72	179.63	27.64	7.50	75.00	
6/5/2013				78.00	16.00	18.00	615.06	575.70	110.71	132.85	7.50	77.00	
6/6/2013				85.00	5.60	5.20	607.03	626.45	48.08	37.88	7.55	78.00	
6/7/2013							590.77				7.56	81.00	
6/8/2013							615.75				7.59	81.00	
6/9/2013				73.00	10.00	4.80	658.52	576.86	79.02	37.93	7.59	81.00	
6/10/2013				81.00	23.00	9.20	613.88	596.69	169.43	67.77	7.49	81.00	
6/11/2013				74.00	34.00	4.40	597.91	530.94	243.95	31.57	7.48	78.00	
6/12/2013				70.00	36.00	5.60	681.96	572.85	294.61	45.83	7.55	80.00	
6/13/2013				66.00	27.00	6.40	637.71	505.07	206.62	48.98	7.52	79.00	
6/14/2013							630.11				7.27	80.00	
6/15/2013							603.50				7.65	78.00	
6/16/2013				63.00	9.80	4.00	534.40	404.01	62.85	25.65	7.66	80.00	
6/17/2013				61.00	6.60	4.00	558.56	408.87	44.24	26.81	7.58	82.00	
6/18/2013				68.00	6.30	4.00	587.08	479.06	44.38	28.18	7.62	82.00	
6/19/2013				69.00	4.60	4.00	587.42	486.38	32.43	28.20	7.64	82.00	0.10
6/20/2013				70.00	6.00	4.00	603.95	507.32	43.48	28.99	7.63	80.00	
6/21/2013							701.23				7.61	82.00	0.10
6/22/2013							635.21				7.59	82.00	
6/23/2013				76.00	6.30	33.00	626.84	571.58	47.39	248.23	7.59	80.00	
6/24/2013				67.00	8.30	33.00	547.52	440.21	54.53	216.82	7.60	80.00	
6/25/2013				66.00	11.00	24.00	476.26	377.20	62.87	137.16	7.58	80.00	

6/26/2013				61.00		7.00	11.00	559.63	409.65	47.01	73.87	7.57	80.00
6/27/2013				60.00		7.30	50.00	574.73	413.81	50.35	344.84	7.62	81.00
6/28/2013								586.94				7.75	84.00
6/29/2013								365.80				7.58	75.00
6/30/2013				63.00	0.000	21.00	12.00	483.20	365.30	121.77	69.58	7.75	80.00
7/1/2013				64.00		23.00	6.40	492.15	377.97	135.83	37.80	7.83	79.00
7/2/2013				62.00		32.00	4.00	570.34	424.33	219.01	27.38	7.66	79.00
7/3/2013				66.00		27.00	4.00	576.57	456.64	186.81	27.68	7.71	82.00
7/4/2013				64.00		31.00	58.00	520.16	399.48	193.50	362.03	7.72	80.00
7/5/2013								461.39				7.59	80.00
7/6/2013								559.20				7.75	82.00
7/7/2013				73.00		29.00	44.00	598.49	524.28	205.27	316.00	7.74	82.00
7/8/2013	3.40	1.00		2,900.00	70.00		25.00	25.00	610.23	512.59	190.39	183.07	7.75	82.00
7/9/2013					74.00		28.00	9.20	569.62	505.82	191.39	62.89	7.74	82.00
7/10/2013					80.00		21.00	11.00	572.11	549.23	144.17	75.52	7.73	84.00
7/11/2013					85.00		23.00	12.00	579.41	591.00	159.92	83.44	7.76	84.00
7/12/2013									593.03				7.74	81.00
7/13/2013									591.12				7.82	80.00
7/14/2013					56.00		4.00	4.00	544.14	365.66	26.12	26.12	7.83	82.00
7/15/2013					54.00		4.00	6.40	567.47	367.72	27.24	43.58	7.61	81.00
7/16/2013					52.00		4.90	4.00	567.47	354.10	33.37	27.24	7.41	86.00
7/17/2013					50.00		7.10	4.00	512.60	307.56	43.67	24.60	7.41	86.00
7/18/2013					49.00		5.00	8.00	536.83	315.66	32.21	51.54	7.59	88.00
7/19/2013									546.86				7.52	86.00
7/20/2013									539.58				7.56	86.00
7/21/2013				60,000.00	56.00		9.20	8.00	499.91	335.94	55.19	47.99	7.55	86.00
7/22/2013					80.00		12.00	4.40	530.22	381.76	76.35	28.00	7.68	80.00
7/23/2013					65.00		12.00	4.40	611.47	476.95	88.05	32.29	7.64	80.00
7/24/2013					68.00		7.20	4.00	512.39	418.11	44.27	24.59	7.67	82.00
7/25/2013					71.00		5.40	4.00	531.21	452.59	34.42	25.50	7.60	82.00

7/26/2013								560.22				7.66	80.00
7/27/2013								537.89				8.40	82.00
7/28/2013			3,500.00	70.00		4.00	4.00	645.08	541.87	30.96	30.96	7.63	80.00
7/29/2013				67.00		4.60	4.00	655.05	526.66	36.16	31.44	7.50	80.00
7/30/2013				72.00		4.00	4.00	665.05	574.60	31.92	31.92	7.55	80.00
7/31/2013				70.00		4.90	4.00	608.47	511.11	35.78	29.21	7.34	80.00
8/1/2013				78.00		4.80	4.00	615.70	577.23	35.52	29.60	7.52	80.00
8/2/2013								670.04				7.45	80.00
8/3/2013								686.28				7.33	80.00
8/4/2013				75.00		7.10	4.00	683.56	615.20	58.24	32.81	7.47	79.00
8/5/2013				75.00		4.00	10.00	723.22	650.90	34.71	86.79	7.42	80.00
8/6/2013				78.00		4.00	12.00	640.51	599.52	30.74	92.23	7.33	80.00
8/7/2013				72.00		4.00	9.60	725.11	626.50	34.81	83.53	7.41	80.00
8/8/2013				64.00		4.00	16.00	728.98	559.86	34.99	139.96	7.11	82.00
8/9/2013								745.79				7.27	80.00
8/10/2013								781.52				7.30	80.00
8/11/2013	1.00	1.00	60,000.00	63.00		10.00	7.60	684.49	517.47	82.14	62.43	7.18	80.00
8/12/2013				70.00		4.00	7.20	704.38	591.68	33.81	60.86	7.28	85.00
8/13/2013				72.00		4.40	5.20	546.75	472.39	28.87	34.12	7.23	82.00
8/14/2013				72.00		4.00	11.00	608.67	525.89	29.22	80.34	7.19	82.00
8/15/2013			60,000.00	75.00		6.40	11.00	646.31	581.68	49.64	85.31	6.90	84.00
8/16/2013								669.53				7.22	82.00
8/17/2013								683.45				7.31	82.00
8/18/2013				94.00		11.00	14.00	706.69	797.15	93.28	118.72	7.15	80.00
8/19/2013				92.00		5.00	14.00	710.79	784.71	42.65	119.41	7.19	82.00
8/20/2013				86.00		5.60	9.20	689.37	711.43	46.33	76.11	6.96	80.00
8/21/2013				82.00		25.00	13.00	726.63	715.00	217.99	113.35	6.99	80.00
8/22/2013				82.00		28.00	12.00	675.97	665.15	227.13	97.34	7.13	80.00
8/23/2013								569.09				7.02	80.00
8/24/2013								634.22				6.68	82.00

8/25/2013				80.00	22.00	34.00	657.28	630.99	173.52	268.17	6.83	82.00		
8/26/2013				82.00	20.00	34.00	618.14	608.25	148.35	252.20	6.76	86.00		
8/27/2013				78.00	26.00	33.00	637.50	596.70	196.90	252.45	6.83	86.00		
8/28/2013				70.00	8.30	22.00	612.79	514.74	51.03	161.76	7.11	84.00		
8/29/2013				60.00	28.00	96.00	603.26	434.35	202.70	694.96	7.43	84.00		
8/30/2013							591.50				8.01	82.00		
8/31/2013							532.11				7.72	84.00		
9/1/2013				30.00	39.00	10.00	819.59	295.05	383.57	98.35	7.41	81.00		
9/2/2013				27.00	47.00	12.00	736.37	238.58	415.31	108.04	7.30	77.00		
9/3/2013				25.00	62.00	9.60	692.02	207.61	680.95	79.72	7.34	75.00		
9/4/2013				26.00	64.00	13.00	627.42	195.76	632.44	97.88	7.33	75.00		
9/5/2013				26.00	34.00	23.00	667.50	208.26	272.34	184.23	7.40	76.00		
9/6/2013							720.21				6.69	82.00		
9/7/2013							712.39				6.53	84.00		
9/8/2013	3.20	1.00		60,000.00 26.00	56.00	120.00	729.92	227.74	490.51	1,051.08	6.64	84.00		
9/9/2013				31.00	68.00	37.00	701.54	260.97	572.46	311.48	7.40	84.00		
9/10/2013				28.00	74.00	18.00	685.93	230.47	609.11	148.16	7.03	86.00		
9/11/2013				23.00	110.00	23.00	725.82	200.33	958.08	200.33	7.07	86.00		
9/12/2013				19.00	110.00	21.00	748.33	170.62	987.80	188.58				
9/13/2013							667.22				7.05	79.00		
9/14/2013							684.03				6.80	86.00		
9/15/2013				15.00	55.00	35.00	729.93	131.39	481.75	306.57	7.10	75.00		
9/16/2013			500.00	12.00	69.00	34.00	687.10	98.94	568.92	280.34	7.19	74.00	0.10	
9/17/2013				14.00	120.00	37.00	671.94	112.89	967.59	298.34	7.21	74.00		
9/18/2013				15.00	50.00	18.00	663.15	119.37	397.89	143.24	7.20	72.00		
9/19/2013				16.00	56.00	19.00	734.66	141.05	493.69	167.50	7.10	77.00		
9/20/2013							743.00				7.38	75.00		
9/21/2013							610.39				7.37	71.00		
9/22/2013				14.00	32.00	4.80	636.39	106.91	244.37	36.66	7.27	70.00		
9/23/2013				14.00	57.00	110.00	681.30	114.46	466.01	899.32	7.32	71.00		

9/24/2013		13.00	21.00	28.00	696.87	108.71	175.61	234.15	7.49	75.00
9/25/2013		12.00	51.00	49.00	689.85	99.34	422.19	405.63	7.59	75.00
9/26/2013		12.00	33.00	52.00	723.85	104.23	286.64	451.68	7.49	75.00
9/27/2013					687.10				7.48	73.00
9/28/2013					683.39				7.36	75.00
9/29/2013		13.00	17.00	50.00	677.13	105.63	138.13	406.28	7.26	77.00
9/30/2013		16.00	16.00	67.00	613.77	117.84	117.84	493.47	7.46	77.00
10/1/2013		20.00	12.00	84.00	672.66	161.44	96.86	678.04	7.56	80.00
10/2/2013		23.00	10.00	87.00	700.84	193.43	84.10	731.68	7.57	80.00
10/3/2013		24.00	16.00	73.00	729.49	210.09	140.06	639.03	7.60	80.00
10/4/2013					680.42				7.45	82.00
10/5/2013					727.05				7.70	82.00
10/6/2013		26.00	10.00	67.00	713.55	222.63	85.63	573.69	7.66	79.00
10/7/2013		29.00	28.00	34.00	718.16	249.92	241.30	293.01	7.65	77.00
10/8/2013		26.00	25.00	31.00	694.60	216.72	208.38	258.39	7.54	79.00
10/9/2013		27.00	4.00	54.00	714.97	231.65	34.32	463.30	7.61	81.00
10/10/2013		32.00	9.00	51.00	752.61	289.00	81.28	460.60	7.64	79.00
10/11/2013					666.19				7.57	79.00
10/12/2013					743.18				7.31	80.00
10/13/2013	60,000.00	23.00	16.00	14.00	761.23	210.10	146.16	127.89	7.45	75.00
10/14/2013		23.00	8.00	4.00	672.98	185.74	64.61	32.30	7.49	64.00
10/15/2013		23.00	13.00	4.00	680.13	187.72	106.10	32.65	7.55	68.00
10/16/2013		26.00	12.00	4.00	659.70	205.83	95.00	31.67	7.43	73.00
10/17/2013		26.00	14.00	4.00	642.26	200.39	107.90	30.83	7.50	72.00
10/18/2013					616.39				7.34	72.00
10/19/2013					516.94				7.51	75.00
10/20/2013		26.00	11.00	4.00	491.34	153.30	64.86	23.58	7.50	82.00
10/21/2013	81.00	25.00	50.00	4.00	561.71	168.51	337.03	26.96	7.24	80.00
10/22/2013		20.00	29.00	4.00	635.03	152.41	220.99	30.48	7.25	79.00
10/23/2013		16.00	15.00	4.00	633.60	121.65	114.05	30.41	7.31	75.00

10/24/2013				12.00	12.00	4.00	578.58	83.32	83.32	27.77	6.52	80.00
10/25/2013							538.03				6.90	79.00
10/26/2013							597.02				6.89	79.00
10/27/2013				16.00	11.00	4.00	626.05	120.20	82.64	30.05	6.95	75.00
10/28/2013				16.00	16.00	4.00	624.59	119.92	119.92	29.98	6.79	78.00
10/29/2013				25.00	16.00	4.00	617.94	185.38	118.64	29.66	6.87	76.00
10/30/2013				35.00	23.00	4.00	596.75	250.64	164.70	28.64	6.92	79.00
10/31/2013				34.00	15.00	4.00	630.05	257.06	113.41	30.24	6.93	82.00
11/1/2013							650.64				6.97	80.00
11/2/2013							650.28				6.88	77.00
11/3/2013			36.00	37.00	15.00	6.40	637.72	283.15	114.79	48.98	7.00	80.00
11/4/2013				34.00	19.00	4.00	638.37	260.45	145.55	30.64	6.88	77.00
11/5/2013	21.00	1.00		31.00	11.00	4.00	634.03	235.86	83.69	30.43	6.90	80.00
11/6/2013				29.00	4.40	4.00	644.67	224.35	34.04	30.94	6.91	80.00
11/7/2013				32.00	7.10	4.00	647.87	248.78	55.20	31.10	6.84	77.00
11/8/2013							640.91				6.99	71.00
11/9/2013							627.92				7.04	77.00
11/10/2013				46.00	4.00	4.00	594.36	328.09	28.53	28.53	7.11	77.00
11/11/2013				45.00	4.00	4.00	594.36	320.95	28.53	28.53	7.00	77.00
11/12/2013				47.00	5.50	4.00	551.41	311.00	36.39	26.47	7.13	72.00
11/13/2013				49.00	5.60	4.00	563.13	331.12	37.84	27.03	6.80	75.00
11/14/2013				56.00	8.30	4.00	594.42	399.45	59.20	28.53	6.87	72.00
11/15/2013							618.24				6.77	72.00
11/16/2013							641.57				6.91	72.00
11/17/2013				61.00	4.00	4.00	642.48	470.30	30.84	30.84	7.08	72.00
11/18/2013				68.00	12.00	4.00	555.43	453.23	79.98	26.66	7.08	72.00
11/19/2013				64.00	10.00	4.00	622.61	478.16	74.71	29.89	6.61	72.00
11/20/2013				55.00	7.20	4.00	621.86	410.43	53.73	29.85	6.67	72.00
11/21/2013				50.00	9.80	4.00	631.22	378.73	74.23	30.30	7.16	72.00
11/22/2013							649.18				7.00	70.00

11/23/2013								568.87				7.09	70.00
11/24/2013				46.00	6.00	4.00	408.43	225.45	29.41	19.60	7.00	70.00	
11/25/2013				52.00	12.00	15.00	565.44	352.83	81.42	101.78	6.98	70.00	
11/26/2013				54.00	13.00	4.00	561.81	364.05	87.64	26.97	6.97	70.00	
11/27/2013				59.00	5.10	8.80	471.95	334.14	28.88	49.84	6.51	70.00	
11/28/2013				57.00	4.00	8.80	517.16	353.74	24.82	54.61	7.20	68.00	
11/29/2013							605.61				7.30	68.00	
11/30/2013							581.02				7.15	70.00	
12/1/2013	1.00	1.80		45.00	5.50	4.00	589.08	318.10	38.88	28.28	7.21	72.00	
12/2/2013			27.00	41.00	4.00	4.00	591.06	290.80	28.37	28.37	7.23	77.00	
12/3/2013				44.00	4.00	4.00	601.61	317.65	28.88	28.88	7.33	77.00	
12/4/2013				48.00	4.00	4.00	601.43	346.42	28.87	28.87	7.31	79.00	
12/5/2013				49.00	4.00	4.00	611.58	359.61	29.36	29.36	7.36	72.00	
12/6/2013							649.39				7.14	72.00	
12/7/2013							427.78				6.42	70.00	
12/8/2013				48.00	8.20	4.00	505.51	291.17	49.74	24.26	6.77	70.00	
12/9/2013				48.00	4.00	4.00	677.66	390.33	32.53	32.53	6.27	71.00	
12/10/2013				47.00	4.60	4.00	602.02	339.54	33.23	28.90	6.91	64.00	
12/11/2013							598.81				6.95	70.00	
12/12/2013				52.00	4.00	4.00	477.35	297.87	22.91	22.91	6.64	70.00	
12/13/2013							677.70				6.67	70.00	
12/14/2013							756.27				6.59	70.00	
12/15/2013				65.00	4.00	4.00	762.54	594.78	36.60	36.60	6.56	70.00	
12/16/2013				67.00	4.00	7.60	695.88	559.49	33.40	63.46	6.59	68.00	
12/17/2013				70.00	4.00	4.00	751.49	631.25	36.07	36.07	6.68	78.00	
12/18/2013				74.00	4.00	6.40	682.39	605.96	32.75	52.41	6.84	78.00	
12/19/2013				78.00	4.00	6.00	665.58	622.98	31.95	47.92	6.71	80.00	
12/20/2013							640.45				6.67	73.00	
12/21/2013							626.91				6.76	75.00	
12/22/2013				72.00	5.40	5.20	651.30	562.72	42.20	40.64	6.42	79.00	

12/23/2013					70.00				4.20	5.60	686.16	576.37	34.58	46.11	6.33	70.00		
12/24/2013					65.00				4.30	5.20	438.13	341.74	22.61	27.34	6.54	68.00		
12/25/2013					58.00				4.00	4.00	549.95	382.77	26.40	26.40	6.40	68.00		
12/26/2013					50.00				4.00	4.40	666.37	399.82	31.99	35.18	6.47	68.00		
12/27/2013											651.00				6.33	70.00		
12/28/2013											602.89				6.52	70.00		
12/29/2013					36.00				4.00	4.00	554.14	239.39	26.60	26.60	6.74	70.00		
12/30/2013					26.00				4.00	9.20	467.09	145.73	22.42	51.57	6.38	68.00		
12/31/2013					28.00				4.00	4.00	209.83	70.50	10.07	10.07	6.76	70.00		
Avg	*8.415*	*1.600*	*5.000*	*5.000*	##########	*62.485*	*0.009*	*0.000*	*22.520*	*15.138*	*594.357*	*439.707*	*158.445*	*109.173*	*7.302*	*76.507*	*0.100*	
Min	*1.000*	*1.000*	*5.000*	*5.000*	*27.000*	*12.000*	*0.009*	*0.000*	*4.000*	*4.000*	*209.830*	*70.503*	*10.072*	*10.072*	*6.270*	*61.000*	*0.100*	
Max	*45.000*	*5.000*	*5.000*	*5.000*	##########	*160.000*	*0.009*	*0.000*	*120.000*	*260.000*	*819.590*	*1,050.298*	*987.795*	*1,263.652*	*8.400*	*88.000*	*0.100*	
Sum												##########						
30-Day AVG/ Daily MAX	*40/ 89*	*21/ 46*			*400*	*155*			*20/ 40*	*25/ 58*	*636.81*	*1848.6*	*183.5/ 477*	*229.3/ 596.3*	*6/ 9*			

DMR Support Data - Plant Effluent

Start Date: 1/1/2014 - **End Date:** 12/31/2014

Date	MeCL2 (ug/l)	Chloroform (ug/l)	Toluene (ug/l)	Vinyl Chloride (ug/L)	Fecal Coliform (#/100 mL)	Ammonia (mg/L)	Phenol (mg/L)	Residual Chlorine (parts/MM)	Total Nitrogen (mg/l)	tBOD (mg/l)	TSS (mg/l)	Plant Effluent Flow (gpm)	Amonnia Load (lb/day)	Total Nitrogen (lb/day)	tBOD Load (lb/day)	TSS Load (lb/day)	pH	Temp. (°F)	Diffuser Ammonia (mg/l)	IEPA TSS (mg/l)	IEPA Ammonia (mg/l)	IEPA BOD (mg/l)
1/1/2014						29.00				4.00	4.00	132.12	45.98		6.34	6.34	6.53	72.00				
1/2/2014						30.00				4.00	4.00	122.18	43.98		5.86	5.86	6.51	70.00				
1/3/2014												54.24					7.00	68.00				
1/4/2014												478.24					6.70	74.00				
1/5/2014						38.00				4.00	4.00	643.03	293.22		30.87	30.87	6.87	70.00				
1/6/2014						46.00				4.00	4.00	83.45	46.06		4.01	4.01	6.98	66.00				
1/7/2014						46.00				4.00	4.00	47.60	26.28		2.28	2.28	6.38	68.00				
1/8/2014	1.00	1.00			160.00	46.00				4.00	4.00	261.44	144.31		12.55	12.55	6.17	72.00				
1/9/2014						46.00				4.00	4.00	347.78	191.97		16.69	16.69	6.25	81.00				
1/10/2014												516.68					6.40	80.00				
1/11/2014												578.77					6.45	79.00				
1/12/2014						45.00				4.00	4.00	539.32	291.23		25.89	25.89	6.80	75.00				
1/13/2014						50.00				4.00	5.60	450.87	270.52		21.64	30.30	6.90	77.00				
1/14/2014						52.00				4.00	7.60	574.84	358.70		27.59	52.43	6.96	75.00				
1/15/2014						51.00				4.00	4.40	614.11	375.84		29.48	32.43	6.95	75.00				
1/16/2014						49.00				28.00	4.00	550.60	323.75		185.00	26.43	7.02	75.00				
1/17/2014												621.41					6.55	73.00				
1/18/2014												668.73					6.88	77.00				
1/19/2014						42.00				4.00	4.00	612.54	308.72		29.40	29.40	6.49	73.00				
1/20/2014						50.00				4.00	4.00	554.44	332.66		26.61	26.61	6.66	77.00				
1/21/2014						49.00				4.00	4.00	542.41	318.94		26.04	26.04	6.35	75.00				
1/22/2014						53.00				4.00	4.00	360.77	229.45		17.32	17.32	6.87	79.00				
1/23/2014						54.00				4.00	4.00	399.40	258.81		19.17	19.17	6.81	73.00				
1/24/2014												430.50					6.69	70.00				
1/25/2014												457.85					6.62	70.00				
1/26/2014						62.00				5.30	4.00	472.11	351.25		30.03	22.66	6.77	70.00				

1/27/2014				58.00		4.00	4.80	436.80	305.40	21.06	25.27	6.94	70.00
1/28/2014				62.00		4.00	4.00	455.73	339.06	21.88	21.88	6.79	70.00
1/29/2014				66.00		4.00	4.00	493.47	390.83	23.69	23.69	7.04	70.00
1/30/2014				60.00		4.00	5.60	487.80	351.22	23.41	32.78	6.63	70.00
1/31/2014								485.16				6.77	70.00
2/1/2014								463.26				6.90	70.00
2/2/2014				60.00		4.00	4.00	466.50	335.88	22.39	22.39	7.04	70.00
2/3/2014				68.00		4.00	4.00	472.58	385.63	22.68	22.68	7.16	69.00
2/4/2014	1.00	1.10		66.00	0.404	4.00	4.00	495.67	392.57	23.79	23.79	7.03	68.00
2/5/2014				64.00		4.00	4.00	499.02	383.25	23.95	23.95	7.09	68.00
2/6/2014				61.00		4.00	4.00	498.30	364.76	23.92	23.92	7.01	68.00
2/7/2014			540.00					501.69				6.99	70.00
2/8/2014								504.62				6.74	70.00
2/9/2014				57.00		4.00	4.00	514.53	351.94	24.70	24.70	6.74	78.00
2/10/2014				60.00		4.00	4.00	503.28	301.97	24.16	24.16	7.23	76.00
2/11/2014				49.00		4.00	4.00	414.95	243.99	19.92	19.92	7.23	74.00
2/12/2014				50.00		4.00	6.00	344.96	206.98	16.56	24.84	7.21	70.00
2/13/2014				52.00		4.00	4.00	488.10	304.57	23.43	23.43	7.56	70.00
2/14/2014			270.00					479.34				7.31	75.00
2/15/2014								424.15				6.99	70.00
2/16/2014				66.00		4.00	7.60	432.73	342.72	20.77	39.46	6.65	77.00
2/17/2014				71.00		4.00	6.00	404.32	344.48	19.41	29.11	7.32	70.00
2/18/2014				66.00		4.00	11.00	466.54	369.50	22.39	61.58	7.50	70.00
2/19/2014				58.00		4.00	11.00	522.97	363.99	25.10	69.03	7.40	70.00
2/20/2014				54.00		4.00	6.00	510.01	330.49	24.48	36.72	7.27	70.00
2/21/2014								493.97				7.20	67.00
2/22/2014								486.75				7.34	70.00
2/23/2014				68.00		4.00	4.00	456.88	372.81	21.93	21.93	6.98	77.00
2/24/2014				80.00		4.00	4.00	433.48	416.14	20.81	20.81	7.57	79.00
2/25/2014				86.00		4.50	4.40	454.65	469.20	24.55	24.01	7.61	75.00

2/26/2014						95.00			4.00	4.00	440.57	502.25	21.15	21.15	7.30	68.00		
2/27/2014						100.00			4.00	4.00	393.94	472.73	18.91	18.91	7.10	73.00		
2/28/2014											212.35				7.20	74.00		
3/1/2014											398.65				7.40	70.00		
3/2/2014						87.00		0.396	4.00	5.60	329.45	343.95	15.81	22.14	7.12	70.00		
3/3/2014	5.00	5.00	5.00	5.00	10.00	69.00	0.010		4.00	4.40	150.11	124.29	7.21	7.93	7.22	70.00		
3/4/2014						64.00			4.00	4.00	406.89	312.49	19.53	19.53	7.18	77.00		
3/5/2014						64.00			4.10	4.40	346.58	266.17	17.05	18.30	7.03	79.00		
3/6/2014						64.00			8.00	4.00	449.02	344.85	43.11	21.55	7.12	79.00		
3/7/2014											401.83				7.63	70.00		
3/8/2014											438.41				7.17	70.00		
3/9/2014						68.00			5.60	4.00	433.34	353.61	29.12	20.80	7.47	70.00		
3/10/2014						70.00			4.00	7.60	442.54	371.73	21.24	40.36	7.42	73.00		
3/11/2014						72.00			4.20	16.00	458.49	396.14	23.11	88.03	7.52	73.00		
3/12/2014						68.00			4.50	15.00	405.85	331.17	21.92	73.05	7.60	70.00		
3/13/2014						70.00			4.80	16.00	401.32	337.11	23.12	77.05	7.40	68.00		
3/14/2014											450.37				7.37	77.00		
3/15/2014											502.71				7.62	79.00		
3/16/2014						110.00			7.50	23.00	434.06	572.96	39.07	119.80	7.84	73.00		
3/17/2014						88.00			8.40	20.00	399.94	422.34	40.31	95.99	7.69	70.00		
3/18/2014						84.00			8.00	28.00	469.29	473.04	45.05	157.68	7.71	69.00		
3/19/2014						80.00			9.10	39.00	473.18	454.25	51.67	221.45	7.63	70.00		
3/20/2014						75.00			8.20	38.00	448.32	403.49	44.11	204.43	7.63	70.00		
3/21/2014											442.91				7.57	77.00		
3/22/2014											457.98				7.20	77.00		
3/23/2014						76.00			6.30	30.00	452.74	412.90	34.23	162.99	7.67	77.00		
3/24/2014						80.00			4.20	14.00	456.73	438.46	23.02	76.73	7.40	77.00		
3/25/2014						80.00			5.70	17.00	440.57	422.95	35.42	89.88	7.73	77.00		
3/26/2014						84.00			4.50	10.00	435.86	439.35	23.54	52.30	7.67	75.00	0.20	
3/27/2014						84.00			5.50	12.00	425.52	428.92	28.08	61.27	7.71	77.00		

3/28/2014						420.16				7.73	76.00
3/29/2014						431.59				7.77	69.00
3/30/2014			91.00	4.00	4.00	441.14	481.72	21.17	21.17	7.74	76.00
3/31/2014			91.00	4.00	4.40	468.76	511.89	22.50	24.75	7.71	76.00
4/1/2014			91.00	4.00	8.40	565.33	617.34	27.14	56.99	7.66	74.00
4/2/2014			86.00	4.00	4.30	541.34	558.66	25.98	27.93	7.81	76.00
4/3/2014			80.00	4.00	4.40	423.69	406.74	20.34	22.37	7.76	76.00
4/4/2014						441.46				7.69	70.00
4/5/2014						457.17				7.49	75.00
4/6/2014	1.00		74.00	4.00	4.00	470.87	418.13	22.60	22.60	7.58	75.00
4/7/2014			74.00	4.00	5.60	473.56	420.52	22.73	31.82	7.53	76.00
4/8/2014			78.00	4.40	6.40	447.39	418.76	23.62	34.36	7.61	70.00
4/9/2014			86.00	4.00	9.20	590.93	609.84	28.36	65.24	7.50	70.00
4/10/2014			86.00	4.00	4.00	734.26	757.76	35.24	35.24	7.67	78.00
4/11/2014		10.00				667.56				7.32	81.00
4/12/2014						663.49				7.55	81.00
4/13/2014			85.00	4.00	4.00	715.23	729.53	34.33	34.33	7.78	81.00
4/14/2014			84.00	4.00	4.00	700.00	705.60	33.60	33.60	7.75	70.00
4/15/2014			72.00	4.40	4.00	538.57	465.32	28.44	25.85	7.52	70.00
4/16/2014			65.00	4.00	4.00	697.48	544.03	33.48	33.48	7.08	70.00
4/17/2014			62.00	4.00	4.00	822.05	611.61	39.46	39.46	7.48	72.00
4/18/2014						858.90				7.56	70.00
4/19/2014						733.88				7.67	80.00
4/20/2014			62.00	4.00	4.00	723.32	538.15	34.72	34.72	7.13	73.00
4/21/2014			70.00	4.00	4.00	731.48	614.44	35.11	35.11	7.32	79.00
4/22/2014			74.00	4.00	4.00	205.94	182.87	9.89	9.89	7.48	79.00
4/23/2014			72.00	4.00	4.00	640.89	553.73	30.76	30.76	7.53	79.00
4/24/2014			66.00	4.70	4.00	410.41	325.04	23.15	19.70	7.45	77.00
4/25/2014						402.16				7.50	74.00
4/26/2014						411.54				7.70	80.00

4/27/2014			68.00	4.00	4.00	421.77	344.16	20.24	20.24	7.60	80.00
4/28/2014			69.00	4.00	4.00	426.20	352.89	20.46	20.46	7.84	68.00
4/29/2014			68.00	4.00	4.00	432.94	353.28	20.78	20.78	7.69	78.00
4/30/2014			66.00	4.00	4.00	439.71	348.25	21.11	21.11	7.33	76.00
5/1/2014			64.00	4.00	4.00	448.60	344.52	21.53	21.53	7.29	76.00
5/2/2014						446.61				7.27	76.00
5/3/2014						446.15				7.40	77.00
5/4/2014	2.90		74.00	4.00	4.00	442.85	393.25	21.26	21.26	7.38	79.00
5/5/2014		91.00	64.00	4.60	4.40	419.13	321.89	23.14	22.13	7.37	78.00
5/6/2014			60.00	4.00	4.00	419.36	301.94	20.13	20.13	7.44	77.00
5/7/2014			62.00	4.00	4.00	421.01	313.23	20.21	20.21	7.44	78.00
5/8/2014			77.00	5.40	4.00	410.69	379.48	26.61	19.71	7.58	80.00
5/9/2014						411.60				7.52	86.00
5/10/2014						420.45				7.48	84.00
5/11/2014			86.00	4.00	4.00	403.44	416.35	19.37	19.37	7.36	86.00
5/12/2014			90.00	4.00	5.60	396.51	428.23	19.03	26.65	7.51	78.00
5/13/2014			90.00	4.00	4.00	407.85	440.48	19.58	19.58	7.45	75.00
5/14/2014			71.00	15.00	4.00	432.43	368.43	77.84	20.76	7.33	75.00
5/15/2014			75.00	5.30	4.00	452.74	407.47	28.79	21.73	7.05	73.00
5/16/2014						435.23				7.29	77.00
5/17/2014						421.40				7.25	75.00
5/18/2014			74.00	4.00	8.80	430.21	382.03	20.65	45.43	7.35	80.00
5/19/2014			74.00	4.80	10.00	436.66	387.75	25.15	52.40	7.54	81.00
5/20/2014			73.00	11.00	16.00	447.76	392.24	59.10	85.97	7.38	84.00
5/21/2014			81.00	7.20	4.40	452.61	439.94	39.11	23.90	7.17	84.00
5/22/2014			90.00	4.20	14.00	397.70	429.52	20.04	66.81	7.37	84.00
5/23/2014						375.71				7.26	80.00
5/24/2014						405.73				7.43	79.00
5/25/2014			80.00	4.00	21.00	471.72	452.85	22.64	118.87	7.27	80.00
5/26/2014			78.00	4.00	19.00	486.45	455.32	23.35	110.91	7.15	80.00

5/27/2014				72.00	4.90	17.00	496.29	428.79	29.18	101.24	7.33	80.00
5/28/2014				60.00	6.60	36.00	526.33	380.40	41.84	228.24	6.89	80.00
5/29/2014				56.00	6.00	44.00	516.68	347.21	37.20	272.81	7.31	79.00
5/30/2014							503.36				7.24	80.00
5/31/2014							476.69				6.88	82.00
6/1/2014	1.00	1.00		72.00	7.80	64.00	461.92	399.10	43.24	354.75	6.77	80.00
6/2/2014			1,500.00	68.00	5.90	23.00	442.25	360.88	31.31	122.06	6.68	79.00
6/3/2014				70.00	7.10	30.00	442.11	371.37	37.67	159.16	6.77	79.00
6/4/2014				76.00	8.70	18.00	400.57	365.32	41.82	86.52	6.99	80.00
6/5/2014				70.00	6.20	16.00	427.00	358.68	31.77	81.98	7.04	80.00
6/6/2014			370.00				453.78				6.96	84.00
6/7/2014							450.68				6.91	84.00
6/8/2014				63.00	6.10	4.40	442.89	334.82	32.42	23.38	6.90	81.00
6/9/2014				60.00	4.00	11.00	460.86	346.22	23.08	63.47	6.97	75.00
6/10/2014				60.00	4.80	4.00	503.66	362.64	29.01	24.16	7.43	76.00
6/11/2014				54.00	5.00	4.00	499.34	323.57	29.96	23.97	6.88	73.00
6/12/2014				54.00	7.60	4.00	485.01	314.29	44.23	23.28	6.97	79.00
6/13/2014							480.93				7.12	76.00
6/14/2014							434.49				6.83	78.00
6/15/2014				66.00	6.20	8.40	431.46	341.72	32.10	43.49	6.98	77.00
6/16/2014				60.00	4.10	6.40	483.54	333.75	22.81	35.60	6.93	81.00
6/17/2014				61.00	5.90	4.00	480.78	351.93	34.04	23.08	6.87	81.00
6/18/2014				59.00	7.00	4.00	458.40	324.55	38.51	22.00	6.97	84.00
6/19/2014				68.00	5.50	5.20	468.82	382.56	36.57	29.25	7.21	82.00
6/20/2014							465.97				7.27	80.00
6/21/2014							491.22				7.21	80.00
6/22/2014				68.00	4.00	4.00	518.84	423.37	24.90	24.90	7.28	80.00
6/23/2014				76.00	4.00	4.00	425.48	388.04	20.42	20.42	7.34	82.00
6/24/2014				84.00	6.90	4.00	454.39	458.03	37.62	21.81	7.39	81.00
6/25/2014				78.00	6.40	4.00	423.97	396.84	32.56	20.35	7.29	82.00

6/26/2014			78.00	4.00	4.80	376.79	352.68	18.09	21.70	7.12	81.00
6/27/2014						360.16				7.10	80.00
6/28/2014						358.14				6.99	82.00
6/29/2014			70.00	4.00	4.00	315.96	265.41	15.17	15.17	7.03	78.00
6/30/2014			52.00	4.20	6.40	541.88	338.13	27.31	41.62	7.33	82.00
7/1/2014			49.00	4.00	4.00	509.19	299.40	24.44	24.44	7.73	80.00
7/2/2014			41.00	4.00	4.00	552.92	272.04	26.54	26.54	7.35	79.00
7/3/2014			40.00	4.00	4.00	463.01	231.84	23.18	23.18	7.01	75.00
7/4/2014						391.19				7.08	82.00
7/5/2014						403.50				6.78	81.00
7/6/2014	1.30		55.00	4.00	4.00	408.15	269.38	19.59	19.59	6.68	82.00
7/7/2014		500.00	60.00	4.00	5.20	418.81	301.54	20.10	26.13	6.74	79.00
7/8/2014			65.00	4.00	4.40	427.26	333.26	20.51	22.56	7.61	80.00
7/9/2014			65.00	4.00	4.40	420.70	328.15	20.19	22.21	6.67	80.00
7/10/2014			74.00	7.90	4.40	414.21	367.82	39.27	21.87	5.90	79.00
7/11/2014		180.00				411.52				5.97	84.00
7/12/2014						406.51				6.51	82.00
7/13/2014			62.00	4.00	4.00	407.25	302.99	19.55	19.55	6.64	84.00
7/14/2014			81.00	4.00	4.00	434.16	422.02	20.84	20.84	7.03	86.00
7/15/2014			99.00	4.00	4.00	398.50	473.42	19.13	19.13	7.13	82.00
7/16/2014			84.00	4.00	5.60	352.30	355.12	16.91	23.67	6.90	82.00
7/17/2014			73.00	4.00	4.00	350.14	306.72	16.81	16.81	6.88	84.00
7/18/2014						399.00				6.87	82.00
7/19/2014						412.75				6.77	80.00
7/20/2014			91.00	4.00	4.00	409.65	447.34	19.66	19.66	6.77	84.00
7/21/2014			110.00	7.70	4.00	390.12	514.96	36.05	18.73	6.73	84.00
7/22/2014			94.00	11.00	4.00	388.41	438.13	51.27	18.64	6.96	86.00
7/23/2014			99.00	16.00	6.40	343.46	406.03	65.94	26.38	6.70	88.00
7/24/2014			99.00	14.00	5.20	348.89	414.48	58.61	21.77	6.78	88.00
7/25/2014						404.28				6.70	84.00

7/26/2014							390.94				6.50	62.00
7/27/2014			80.00	7.90	14.00	358.30	343.97	33.97	60.19	6.40	84.00	
7/28/2014			68.00	8.40	4.00	372.66	304.11	37.57	17.89	6.54	79.00	
7/29/2014			64.00	7.00	4.00	381.08	292.67	32.01	18.29	6.50	82.00	
7/30/2014			60.00	6.40	4.00	398.60	286.99	30.61	19.13	6.29	80.00	
7/31/2014			56.00	6.50	4.00	389.92	262.03	39.77	16.72	7.78	80.00	
8/1/2014						386.53				6.43	84.00	
8/2/2014						380.95				6.62	85.00	
8/3/2014	2.10	16,000.00	60.00	13.00	4.00	373.85	269.17	58.32	17.94	6.85	84.00	
8/4/2014		17,000.00	62.00	11.00	4.00	304.75	226.73	40.23	14.63	6.93	86.00	
8/5/2014			64.00	9.60	4.00	380.19	291.99	43.80	18.25	6.95	84.00	
8/6/2014			63.00	13.00	4.00	357.03	269.91	55.70	17.14	7.17	82.00	
8/7/2014		280.00	66.00	10.00	4.00	394.39	312.36	47.33	18.93	7.02	84.00	
8/8/2014		200.00				406.25				7.27	84.00	
8/9/2014						388.50				7.06	82.00	
8/10/2014		110.00	70.00	11.00	4.00	375.75	315.63	49.60	18.04	7.07	84.00	
8/11/2014		72.00	72.00	8.90	4.00	370.02	319.70	39.52	17.76	7.77	81.00	
8/12/2014			76.00	4.00	4.00	382.61	348.94	18.37	16.37	7.80	76.00	
8/13/2014			66.00	6.30	4.00	368.92	292.18	27.89	17.71	7.33	80.00	
8/14/2014			63.00	6.30	4.00	391.95	296.31	29.63	18.81	7.42	80.00	
8/15/2014		110.00				357.37				7.35	80.00	
8/16/2014						316.38				7.25	80.00	
8/17/2014		27.00	62.00	9.90	15.00	347.95	258.87	41.34	62.63	7.38	80.00	
8/18/2014		10.00	67.00	6.20	19.00	382.53	307.55	28.46	87.22	7.59	84.00	
8/19/2014			70.00	4.90	4.00	375.71	315.60	22.09	18.03	7.23	82.00	
8/20/2014			70.00	4.80	10.00	314.91	264.52	18.14	37.79	7.61	82.00	
8/21/2014			63.00	4.00	5.20	315.84	238.78	15.15	19.71	7.43	82.00	
8/22/2014						374.64				7.54	80.00	
8/23/2014						370.48				7.35	80.00	
8/24/2014			74.00	9.20	81.00	318.56	282.88	35.17	309.64	7.25	82.00	

8/25/2014					74.00			5.10	7.20	370.64	329.13	22.68	32.02	7.50	84.00
8/26/2014					76.00			4.00	4.00	340.38	310.43	16.34	16.34	7.43	86.00
8/27/2014					70.00			4.00	4.00	357.27	300.11	17.15	17.15	7.75	86.00
8/28/2014					71.00			4.80	10.00	361.22	307.76	20.81	43.35	7.27	86.00
8/29/2014										368.61				7.28	81.00
8/30/2014										358.02				7.46	80.00
8/31/2014					65.00			14.00	4.00	369.81	288.45	62.13	17.75	7.45	77.00
9/1/2014					69.00			5.10	4.40	329.18	272.56	20.15	17.38	7.37	82.00
9/2/2014					68.00			5.80	4.00	346.35	282.62	24.11	16.62	7.38	82.00
9/3/2014					67.00			5.80	4.00	361.00	290.24	25.13	17.33	7.49	82.00
9/4/2014					63.00			5.70	5.60	413.63	312.70	28.29	27.80	7.41	84.00
9/5/2014										478.88				7.19	84.00
9/6/2014										454.56				7.40	83.00
9/7/2014	2.30	1.00			66.00			4.00	4.40	440.45	348.84	21.14	23.26	7.40	81.00
9/8/2014				10.00	68.00		0.173	4.00	4.00	478.92	390.80	22.99	22.99	7.52	80.00
9/9/2014					64.00			4.00	4.00	455.94	350.16	21.89	21.89	7.36	80.00
9/10/2014					62.00			4.00	7.60	467.01	347.46	22.42	42.59	7.11	82.00
9/11/2014					64.00			4.00	8.00	440.23	338.10	21.13	42.26	7.07	77.00
9/12/2014										449.00				7.30	77.00
9/13/2014										500.56				7.59	77.00
9/14/2014					77.00			4.40	9.20	464.04	428.77	24.50	51.23	7.48	77.00
9/15/2014					76.00			4.20	8.80	480.75	438.44	24.23	50.77	7.65	80.00
9/16/2014					74.00			4.40	4.00	469.89	417.26	24.81	22.55	7.57	76.00
9/17/2014					72.00			4.00	17.00	459.51	397.02	22.06	93.74	7.22	77.00
9/18/2014					74.00			4.60	9.60	445.25	395.38	24.58	51.29	7.28	75.00
9/19/2014										429.44				7.19	79.00
9/20/2014										441.26				7.14	81.00
9/21/2014					72.00			4.00	17.00	433.82	374.82	20.82	88.50	7.10	81.00
9/22/2014					70.00			4.00	13.00	439.63	369.29	21.10	68.58	7.33	77.00
9/23/2014					70.00			6.00	18.00	417.30	350.53	30.05	90.14	6.70	77.00

9/24/2014			70.00	4.00	21.00	435.09	365.48	20.88	109.64	7.37	77.00
9/25/2014			72.00	5.00	7.20	442.34	382.18	26.54	38.22	7.46	77.00
9/26/2014						403.01				7.33	78.00
9/27/2014						395.31				7.27	79.00
9/28/2014			62.00	4.00	4.00	424.64	315.93	20.38	20.38	7.11	78.00
9/29/2014			61.00	4.00	4.00	415.95	304.48	19.97	19.97	7.03	79.00
9/30/2014			55.00	4.00	4.00	404.31	256.84	19.41	19.41	7.35	77.00
10/1/2014			56.00	4.00	5.20	408.35	274.43	19.60	25.48	7.00	77.00
10/2/2014			56.00	4.00	4.40	398.23	267.61	19.12	21.03	7.75	79.00
10/3/2014						405.52				7.85	79.00
10/4/2014						413.22				7.50	75.00
10/5/2014		640.00	72.00	7.70	15.00	417.36	360.60	38.56	75.12	7.01	75.00
10/6/2014			76.00	14.00	29.00	404.22	368.65	67.91	140.67	7.17	75.00
10/7/2014			86.00	11.00	30.00	402.56	415.44	53.14	144.92	7.19	81.00
10/8/2014			92.00	8.60	25.00	358.53	395.82	37.00	107.56	7.35	77.00
10/9/2014			94.00	5.40	16.00	406.82	458.89	31.24	78.11	7.45	77.00
10/10/2014	1.20	640.00				395.81				7.42	78.00
10/11/2014						326.58				7.06	77.00
10/12/2014			80.00	4.80	4.00	337.80	324.29	19.46	16.21	7.29	77.00
10/13/2014			79.00	4.30	6.40	340.61	322.90	17.58	26.16	7.00	78.00
10/14/2014			74.00	4.40	4.80	383.00	340.10	20.22	22.06	7.25	78.00
10/15/2014			71.00	4.00	5.60	396.00	337.39	19.01	26.61	7.49	74.00
10/16/2014			72.00	4.00	4.00	409.67	353.95	19.66	19.66	7.54	78.00
10/17/2014						401.87				7.27	78.00
10/18/2014						382.30				7.63	79.00
10/19/2014			94.00	4.00	4.00	406.15	458.14	19.50	19.50	7.59	79.00
10/20/2014			81.00	4.00	4.00	406.97	395.57	19.53	19.53	7.71	80.00
10/21/2014			73.00	4.00	4.00	406.18	355.81	19.50	19.50	7.93	72.00
10/22/2014			64.00	4.40	4.00	420.52	322.96	22.20	20.18	7.45	73.00
10/23/2014			67.00	4.00	4.00	522.56	420.14	25.08	25.08	7.42	75.00

10/24/2014						436.74				7.30	75.00
10/25/2014										7.17	75.00
10/26/2014			54.00	4.00	4.00	448.70	290.76	21.54	21.54	7.20	79.00
10/27/2014			54.00	4.00	7.60	386.87	250.69	18.57	35.28	7.15	84.00
10/28/2014			49.00	4.00	4.00	372.26	218.89	17.87	17.87	7.26	82.00
10/29/2014			43.00	4.00	4.00	392.23	202.39	18.83	18.83	7.72	78.00
10/30/2014			43.00	4.00	7.60	405.84	209.41	19.48	37.01	7.39	77.00
10/31/2014						490.55				7.35	78.00
11/1/2014						418.56				7.35	74.00
11/2/2014			60.00	4.00	4.00	374.33	269.52	17.97	17.97	7.36	78.00
11/3/2014			56.00	4.00	4.00	455.88	306.35	21.88	21.88	8.10	70.00
11/4/2014											
11/5/2014											
11/6/2014			62.00	4.00	8.00	316.39	235.39	15.19	30.37	7.32	70.00
11/7/2014						365.86				7.05	70.00
11/8/2014						421.19				7.17	70.00
11/9/2014			41.00	4.00	4.00	416.43	204.88	19.99	19.99	7.12	70.00
11/10/2014			43.00	4.00	7.60	404.19	208.56	19.40	36.86	7.31	77.00
11/11/2014			45.00	4.00	7.20	404.83	218.61	19.43	34.98	7.58	75.00
11/12/2014			41.00	4.00	8.00	396.93	195.29	19.05	38.11	7.78	72.00
11/13/2014			42.00	4.00	18.00	387.71	195.41	18.61	83.75	7.75	73.00
11/14/2014						381.25				7.84	74.00
11/15/2014						371.32				7.38	68.00
11/16/2014			52.00	13.00	26.00	357.89	223.32	55.83	111.66	7.24	68.00
11/17/2014	1.00	10.00	53.00	5.10	7.60	365.49	232.45	26.75	33.33	7.24	68.00
11/18/2014			47.00	4.00	4.00	374.18	211.04	17.96	17.96	7.25	68.00
11/19/2014			46.00	4.00	4.80	361.03	207.95	17.33	20.80	7.33	77.00
11/20/2014			45.00	4.00	7.20	362.95	195.99	17.42	31.36	7.22	68.00
11/21/2014						383.88				7.27	77.00
11/22/2014						416.93				7.33	81.00

11/23/2014				64.00	4.00	10.00	398.98	306.42	19.15	47.88	7.57	79.00
11/24/2014				66.00	4.00	11.00	446.17	353.37	21.42	58.89	7.53	76.00
11/25/2014				66.00	4.00	12.00	505.17	400.09	24.25	72.74	7.94	70.00
11/26/2014				61.00	4.00	11.00	448.05	327.97	21.51	59.14	7.30	70.00
11/27/2014				59.00	5.90	8.40	438.43	310.41	31.04	44.19	7.32	70.00
11/28/2014							439.76				7.55	73.00
11/29/2014							436.00				7.03	73.00
11/30/2014				38.00	4.00	4.00	445.30	203.06	21.37	21.37	7.14	77.00
12/1/2014				39.00	4.00	4.00	457.39	214.06	21.95	21.95	7.82	73.00
12/2/2014				42.00	4.00	4.00	450.10	226.85	21.60	21.60	7.74	77.00
12/3/2014				54.00	4.00	4.40	446.77	289.51	21.44	23.59	7.97	77.00
12/4/2014				57.00	4.00	6.40	455.35	311.46	21.86	34.97	7.29	76.00
12/5/2014							460.98				7.20	74.00
12/6/2014							452.33				7.59	73.00
12/7/2014				84.00	6.50	17.00	469.20	472.95	36.60	95.72	7.50	77.00
12/8/2014	1.00	1.00	10.00	76.00	4.00	27.00	459.81	386.24	22.07	148.98	7.36	79.00
12/9/2014				65.00	5.60	49.00	446.12	347.97	29.98	262.32	7.45	79.00
12/10/2014				58.00	6.10	25.00	424.01	295.11	31.04	127.20	7.24	79.00
12/11/2014				58.00	11.00	52.00	427.31	297.41	56.40	266.64	7.33	79.00
12/12/2014							465.00				7.35	79.00
12/13/2014							407.82				7.88	75.00
12/14/2014				56.00	14.00	77.00	371.31	249.52	62.38	343.09	7.69	75.00
12/15/2014				46.00	13.00	43.00	399.02	220.25	62.25	205.89	7.81	77.00
12/16/2014				42.00	9.90	32.00	432.77	218.12	51.41	166.18	7.45	77.00
12/17/2014				37.00	16.00	22.00	445.55	197.82	85.55	117.53	7.34	72.00
12/18/2014				33.00	26.00	28.00	445.19	176.30	138.90	149.58	7.32	75.00
12/19/2014							429.91				7.56	68.00
12/20/2014							428.79				7.16	75.00
12/21/2014				32.00	84.00	7.20	424.04	162.83	427.43	36.64	7.32	77.00
12/22/2014				33.00	130.00	6.40	420.35	166.46	655.75	32.28	7.13	76.00

12/23/2014					30.00				130.00	7.20	422.41	152.07	658.96	36.50	7.08	74.00		
12/24/2014					27.00				78.00	55.00	403.81	130.83	377.97	266.51	7.09	78.00		
12/25/2014					20.00				16.00	11.00	396.69	95.69	76.55	52.63	7.51	72.00		
12/26/2014											401.32				6.96	72.00		
12/27/2014											392.86				7.17	75.00		
12/28/2014					7.10				53.00	9.60	420.02	35.79	267.13	48.39	6.42	76.00		
12/29/2014					2.30				25.00	22.00	421.26	11.63	126.38	111.21	6.92	72.00		
12/30/2014					1.20				23.00	18.00	382.36	5.51	105.53	82.59	6.69	72.00		
12/31/2014					1.00				21.00	15.00	397.93	4.78	100.28	71.63	6.71	67.00		
Avg	*1.733*	*1.683*	*5.000*	*5.000*	*1,614.583*	*64.798*	*0.010*	*0.324*	*7.540*	*9.644*	*433.070*	*336.537*	*38.346*	*49.533*	*7.238*	*76.865*	*0.200*	
Min	*1.000*	*1.000*	*5.000*	*5.000*	*10.000*	*1.000*	*0.010*	*0.173*	*4.000*	*4.000*	*47.600*	*4.775*	*2.285*	*2.285*	*6.170*	*66.000*	*0.200*	
Max	*5.000*	*5.000*	*5.000*	*5.000*	##########	*110.000*	*0.010*	*0.404*	*130.000*	*81.000*	*858.900*	*757.756*	*658.960*	*354.755*	*8.100*	*88.000*	*0.200*	
Sum												##########						
30-Day AVG/	***40/***	***21/***							***20/***	***25/***	***636.81***		***183.5/***	***229.3/***	***6/***			
Daily MAX	***89***	***46***			***400***	***155***			***40***	***50***		***1848.6***	***477***	***596.3***	***9***			

DMR Support Data - Plant Effluent

Start Date: 1/1/2015 - **End Date:** 12/31/2015

Date	MeCL2 (ug/l)	Chloroform (ug/l)	Toluene (ug/l)	Vinyl Chloride (ug/L)	Fecal Coliform (#/100 mL)	Ammonia (mg/L)	Phenol (mg/L)	Residual Chlorine (parts/MM)	Total Nitrogen (mg/l)	tBOD (mg/l)	TSS (mg/l)	Plant Effluent Flow (gpm)	Amonnia Load (ll/day)	Total Nitrogen (ll/day)	tBOD Load (ll/day)	TSS Load (ll/day)	pH	Temp. (°F)	Diffuser Ammonia (mg/l)	IEPA TSS (mg/l)	IEPA Ammonia (mg/l)	IEPA BOD (mg/l)
1/1/2015						1.00				19.00	15.00	416.61	5.00		94.99	74.99	6.51	68.00				
1/2/2015												443.15					6.58	77.00				
1/3/2015												427.26					6.45	79.00				
1/4/2015						13.00				22.00	4.40	446.83	69.71		117.96	23.59	6.60	82.00				
1/5/2015						19.00				24.00	14.00	438.09	99.88		126.17	73.60	7.35	82.00				
1/6/2015						24.00				23.00	7.20	424.19	122.17		117.08	36.65	7.52	72.00				
1/7/2015						30.00				20.00	7.50	404.09	145.47		96.98	36.85	7.21	73.00				
1/8/2015						30.00				20.00	15.00	343.80	123.77		82.51	61.88	7.55	70.00				
1/9/2015												341.82					7.60	76.00				
1/10/2015												354.32					7.11	74.00				
1/11/2015						29.00				22.00	4.00	376.81	131.13		99.48	18.09	7.44	74.00				
1/12/2015	96.00				10.00	27.00				16.00	14.00	373.37	120.97		71.69	62.73	6.94	78.00				
1/13/2015						35.00				19.00	10.00	375.08	157.53		85.52	45.01	7.19	75.00				
1/14/2015						47.00				17.00	4.00	380.64	214.68		77.65	18.27	7.76	75.00				
1/15/2015						54.00				17.00	11.00	373.53	242.05		76.20	49.31	7.47	77.00				
1/16/2015												383.59					7.59	73.00				
1/17/2015												413.11					7.18	73.00				
1/18/2015						48.00				4.00	12.00	458.45	264.07		22.01	66.02	7.21	70.00				
1/19/2015						50.00				10.00	6.80	444.17	266.50		53.30	36.24	7.13	75.00				
1/20/2015						44.00				12.00	4.40	445.77	235.37		64.19	23.54	7.57	73.00				
1/21/2015						39.00				7.40	6.40	452.38	211.71		40.17	34.74	7.04	72.00				
1/22/2015	4.60					37.00				7.20	4.00	454.73	201.90		39.29	21.83						
1/23/2015	3.40											424.32					7.25	77.00				
1/24/2015												412.19					7.03	73.00				
1/25/2015						35.00				5.80	28.00	405.92	170.49		28.25	136.39	6.73	75.00				
1/26/2015						37.00				7.00	4.00	427.81	189.95		35.94	20.53	6.70	78.00				

1/27/2015			35.00	14.00	5.60	424.03	176.09	71.24	28.49	6.69	74.00
1/28/2015			27.00	12.00	4.00	429.55	139.17	61.66	20.62	6.87	76.00
1/29/2015			26.00	14.00	7.20	451.02	140.72	75.77	38.97	6.79	76.00
1/30/2015						482.51				6.96	77.00
1/31/2015						432.31				7.57	79.00
2/1/2015			21.00	13.00	8.40	451.85	113.87	70.49	45.55	7.44	77.00
2/2/2015			24.00	16.00	20.00	465.57	134.08	89.39	111.74	7.05	66.00
2/3/2015			25.00	19.00	10.00	467.79	140.34	106.66	56.13	7.06	68.00
2/4/2015			33.00	14.00	7.60	463.89	183.70	77.93	42.31	6.80	70.00
2/5/2015			35.00	19.00	15.00	464.22	194.97	105.84	83.56	6.90	70.00
2/6/2015						471.52				7.00	75.00
2/7/2015						468.48				6.61	75.00
2/8/2015			37.00	10.00	26.00	431.69	191.67	51.80	134.69	6.91	75.00
2/9/2015	13.00	10.00	34.00	8.40	21.00	419.60	171.20	42.30	105.74	7.06	73.00
2/10/2015			34.00	9.90	12.00	401.46	163.80	47.69	57.81	7.58	76.00
2/11/2015			46.00	13.00	12.00	408.63	225.56	63.75	58.84	7.53	73.00
2/12/2015			54.00	19.00	16.00	453.07	293.59	103.30	86.99	7.64	76.00
2/13/2015						445.61				7.85	76.00
2/14/2015						449.66				7.27	76.00
2/15/2015			56.00	9.50	4.00	447.33	300.61	51.53	21.47	7.29	76.00
2/16/2015			40.00	14.00	5.60	422.22	202.67	70.93	28.37	7.08	77.00
2/17/2015			33.00	23.00	11.00	419.54	166.14	115.79	55.38	6.95	79.00
2/18/2015			34.00	26.00	32.00	409.46	167.06	127.75	157.23	7.49	75.00
2/19/2015			30.00	31.00	4.00	401.26	144.45	149.27	19.26	7.53	72.00
2/20/2015						418.77				7.57	70.00
2/21/2015						438.65				6.91	72.00
2/22/2015			21.00	12.00	4.00	443.35	111.72	63.84	21.28	7.19	72.00
2/23/2015			17.00	38.00	4.00	444.33	90.64	202.61	21.33	7.62	73.00
2/24/2015			20.00	48.00	4.00	441.86	106.05	254.51	21.21	7.46	75.00
2/25/2015			22.00	27.00	4.00	427.29	112.80	138.44	20.51	7.34	77.00

2/26/2015						22.00		22.00	4.00	424.89	112.17	112.17	20.39	7.30	73.00
2/27/2015										419.57				7.27	79.00
2/28/2015										416.76				6.90	77.00
3/1/2015						28.00		15.00	13.00	413.28	138.86	74.39	64.47	7.00	70.00
3/2/2015	2.90	7.50	10.00	6.90	10.00	41.00	0.031	30.00	11.00	403.60	198.57	145.30	53.28	7.21	78.00
3/3/2015						29.00		20.00	10.00	365.06	127.04	87.61	43.81	7.51	78.00
3/4/2015						41.00		22.00	30.00	407.61	200.54	107.61	146.74	7.73	76.00
3/5/2015						32.00		9.20	11.00	418.52	160.71	46.20	55.24	6.90	76.00
3/6/2015										415.23				6.94	75.00
3/7/2015										409.47				7.80	75.00
3/8/2015						39.00		5.40	6.80	402.19	188.22	26.06	32.82	7.77	81.00
3/9/2015						37.00		6.20	10.00	388.29	172.40	28.89	46.59	7.70	80.00
3/10/2015						7.20		23.00	6.80	274.33	23.70	75.72	26.97	7.59	74.00
3/11/2015						51.00		16.00	11.00	274.45	167.96	52.69	36.23	7.25	74.00
3/12/2015						56.00		25.00	6.00	374.62	260.74	112.39	26.97	7.12	72.00
3/13/2015										377.15				7.65	77.00
3/14/2015										372.88				7.25	77.00
3/15/2015						51.00		11.00	6.00	375.09	229.56	49.51	27.01	7.00	75.00
3/16/2015						56.00		7.00	6.00	365.99	245.95	30.74	26.35	7.73	75.00
3/17/2015						57.00		7.50	4.40	376.17	257.30	33.86	19.86	7.83	75.00
3/18/2015						54.00		4.10	4.00	381.00	246.89	18.75	18.29	7.82	75.00
3/19/2015						52.00	0.005	5.90	4.00	367.63	229.40	26.03	17.65	7.83	77.00
3/20/2015							0.005			355.25				7.93	76.00
3/21/2015										353.74				7.47	77.00
3/22/2015						54.00		4.00	4.00	345.03	224.23	16.61	16.61	7.41	78.00
3/23/2015						61.00		4.00	4.00	345.23	252.71	16.57	16.57	7.52	75.00
3/24/2015						57.00		6.20	4.00	331.46	226.72	24.66	15.91	7.42	79.00
3/25/2015						53.00		14.00	4.00	324.70	206.51	54.55	15.59	7.80	77.00
3/26/2015						50.00		7.30	4.00	279.22	167.53	24.46	13.40	7.83	75.00
3/27/2015										359.04				7.81	73.00

3/28/2015						379.31				7.03	70.00
3/29/2015			76.00	8.50	4.00	369.05	336.57	37.64	17.71	7.02	72.00
3/30/2015			58.00	5.90	5.20	374.94	260.95	26.55	23.40	7.30	75.00
3/31/2015			48.00	8.00	9.20	358.23	206.34	34.39	39.55	6.90	75.00
4/1/2015			52.00	10.00	6.80	361.80	225.76	43.42	29.52	7.28	80.00
4/2/2015			52.00	11.00	5.20	408.03	254.61	53.86	25.46	7.27	81.00
4/3/2015						405.39				7.13	81.00
4/4/2015						378.45				7.02	77.00
4/5/2015	1.30		63.00	7.90	4.00	352.09	266.18	33.38	16.90	7.01	79.00
4/6/2015		140.00	72.00	11.00	67.00	344.85	297.95	45.52	277.26	7.03	78.00
4/7/2015			91.00	15.00	110.00	368.10	401.97	66.26	485.89	7.12	74.00
4/8/2015			89.00	9.20	7.60	370.57	395.77	40.91	33.80	7.01	76.00
4/9/2015			85.00	10.00	4.80	401.49	409.52	48.18	23.13	7.05	76.00
4/10/2015						442.82				6.91	77.00
4/11/2015						412.16				6.94	79.00
4/12/2015			85.00	10.00	8.40	423.79	432.27	50.85	42.72	8.00	79.00
4/13/2015			75.00	19.00	5.60	404.91	364.42	92.32	27.21	7.69	79.00
4/14/2015			76.00	18.00	8.00	402.16	366.77	86.87	38.61	7.85	77.00
4/15/2015			69.00	46.00	5.60	398.59	330.03	220.02	26.79	7.10	77.00
4/16/2015			66.00	22.00	6.00	397.46	314.79	104.93	28.62	7.12	75.00
4/17/2015						396.76				7.16	79.00
4/18/2015						399.25				6.93	77.00
4/19/2015			53.00	8.90	11.00	426.45	271.22	45.54	56.29	6.89	75.00
4/20/2015			57.00	9.80	27.00	424.76	290.54	49.95	137.62	7.52	73.00
4/21/2015			39.00	25.00	6.80	423.40	198.15	127.02	34.55	7.45	73.00
4/22/2015			40.00	14.00	5.60	427.57	205.23	71.83	28.73	7.57	78.00
4/23/2015			45.00	20.00	4.00	422.50	228.15	101.40	20.28	7.68	73.00
4/24/2015						393.05				7.81	74.00
4/25/2015						402.20				7.10	74.00
4/26/2015			39.00	120.00	40.00	407.14	190.54	586.28	195.43	7.19	74.00

4/27/2015			41.00	130.00	20.00	380.77	187.34	594.00	91.38	7.21	77.00
4/28/2015			46.00	99.00	10.00	370.92	204.75	440.65	44.51	7.27	77.00
4/29/2015			40.00	64.00	9.60	377.59	181.24	289.99	43.50	7.79	77.00
4/30/2015			35.00	73.00	7.20	374.45	157.27	328.02	32.35	7.70	79.00
5/1/2015						396.08				6.95	77.00
5/2/2015						466.69				6.94	70.00
5/3/2015			24.00	52.00	14.00	456.82	131.56	285.06	76.75	7.01	72.00
5/4/2015			28.00	27.00	4.80	425.30	142.90	137.80	24.50	6.91	79.00
5/5/2015			29.00	33.00	10.00	426.83	148.54	169.02	51.22	7.02	77.00
5/6/2015			28.00	45.00	11.00	429.24	144.22	231.79	56.66	7.17	78.00
5/7/2015			30.00	41.00	11.00	415.17	149.46	204.26	54.80	6.98	79.00
5/8/2015						408.36				7.08	80.00
5/9/2015						379.97				6.96	80.00
5/10/2015			29.00	19.00	7.20	376.50	131.02	85.84	32.53	6.83	77.00
5/11/2015	39.00	10.00	30.00	31.00	9.20	355.68	128.04	132.31	39.27	6.93	76.00
5/12/2015			35.00	37.00	10.00	385.63	161.96	171.22	46.28	6.96	76.00
5/13/2015			40.00	65.00	7.60	377.40	181.15	294.37	34.42	6.95	76.00
5/14/2015			47.00	95.00	12.00	346.13	195.22	394.59	49.84	6.78	74.00
5/15/2015						368.90				7.08	81.00
5/16/2015						388.23				6.97	81.00
5/17/2015			54.00	64.00	5.60	382.20	247.67	293.53	25.68	7.09	79.00
5/18/2015			55.00	66.00	4.00	384.81	253.97	304.77	18.47	7.98	75.00
5/19/2015			53.00	100.00	11.00	396.39	252.10	475.67	52.32	7.49	77.00
5/20/2015			50.00	62.00	4.80	351.84	211.10	261.77	20.27	7.30	72.00
5/21/2015			50.00	110.00	7.20	235.35	141.21	310.66	20.33	7.38	68.00
5/22/2015						324.47				7.44	77.00
5/23/2015						351.45				7.24	79.00
5/24/2015			48.00	51.00	8.00	338.01	194.69	206.86	32.45	7.24	81.00
5/25/2015			44.00	53.00	13.00	329.93	174.20	209.84	51.47	7.19	74.00
5/26/2015			40.00	36.00	16.00	376.69	180.81	162.73	72.32	8.06	81.00

5/27/2015				38.00	20.00	12.00	386.67	176.32	92.80	55.68	7.10	77.00
5/28/2015				39.00	19.00	13.00	369.94	173.13	84.35	57.71	7.04	74.00
5/29/2015							341.77				6.99	79.00
5/30/2015							274.22				7.47	80.00
5/31/2015				39.00	15.00	4.40	288.88	135.20	52.00	15.25	7.44	78.00
6/1/2015				39.00	26.00	6.80	308.21	144.24	96.16	25.15	7.42	79.00
6/2/2015				46.00	17.00	12.00	313.76	173.20	64.01	45.18	7.37	77.00
6/3/2015				57.00	25.00	7.20	300.93	205.84	90.28	26.00	8.16	77.00
6/4/2015				64.00	37.00	5.60	298.33	229.12	132.48	20.05	8.18	79.00
6/5/2015							287.18				7.37	74.00
6/6/2015							287.92				7.24	77.00
6/7/2015				65.00	29.00	7.60	322.59	251.62	112.26	29.42	7.25	81.00
6/8/2015	3.90	17.00	510.00	59.00	30.00	9.60	355.53	251.72	127.99	40.96	7.29	81.00
6/9/2015				59.00	33.00	4.00	347.90	246.31	137.77	16.70	7.19	81.00
6/10/2015				68.00	30.00	8.80	314.82	256.89	113.34	33.24	7.43	81.00
6/11/2015				71.00	28.00	13.00	373.90	318.56	125.63	58.33	7.56	77.00
6/12/2015			360.00				375.41				7.58	82.00
6/13/2015							538.97				7.32	81.00
6/14/2015				65.00	10.00	4.00	381.49	297.56	45.78	18.31	7.45	77.00
6/15/2015				70.00	4.80	8.40	384.77	323.21	22.18	38.78	7.47	80.00
6/16/2015				70.00	4.00	5.60	391.61	328.95	18.80	26.32	7.45	80.00
6/17/2015				69.00	4.00	4.00	402.35	333.15	19.31	19.31	7.20	7.20
6/18/2015				65.00	12.00	38.00	391.33	305.24	56.35	178.45	7.16	80.00
6/19/2015							361.31				7.21	82.00
6/20/2015							357.02				7.21	81.00
6/21/2015				52.00	4.40	4.40	356.13	222.23	18.80	18.80	7.20	81.00
6/22/2015				52.00	5.70	6.00	339.41	211.79	23.22	24.44	7.13	78.00
6/23/2015				48.00	12.00	4.00	371.95	214.24	53.56	17.85	7.24	79.00
6/24/2015				52.00	12.00	4.80	372.21	232.26	53.60	21.44	7.28	79.00
6/25/2015				52.00	7.80	4.00	370.75	231.35	34.70	17.80	7.28	81.00

6/26/2015							364.23				7.50	82.00
6/27/2015							366.82				7.58	79.00
6/28/2015				57.00	6.80	4.00	365.68	250.13	29.84	17.55	7.50	81.00
6/29/2015				62.00	8.50	4.00	364.71	271.34	37.20	17.51	7.97	88.00
6/30/2015				69.00	6.90	4.00	361.68	299.47	29.95	17.36	7.89	80.00
7/1/2015				65.00	8.50	4.00	355.73	277.47	36.28	17.08	7.38	82.00
7/2/2015				69.00	4.00	4.00	354.39	293.43	17.01	17.01	7.27	81.00
7/3/2015							335.06				7.24	82.00
7/4/2015							329.96				7.34	81.00
7/5/2015				81.00	4.00	6.00	332.30	323.00	15.95	23.93	7.74	83.00
7/6/2015	1.00		45.00	76.00	4.90	6.80	327.40	298.59	19.25	26.72	7.59	81.00
7/7/2015				74.00	14.00	4.00	345.08	306.43	57.97	16.56	7.71	82.00
7/8/2015				71.00	14.00	4.00	347.95	296.45	58.46	16.70	7.17	82.00
7/9/2015				75.00	4.00	5.60	342.88	308.59	16.46	23.04	7.20	81.00
7/10/2015							337.66				7.30	79.00
7/11/2015							346.75				7.28	82.00
7/12/2015				96.00	4.00	6.00	349.24	402.32	16.76	25.15	7.37	77.00
7/13/2015				110.00	4.00	8.80	354.47	467.90	17.01	37.43	7.39	84.00
7/14/2015				120.00	7.10	8.00	376.85	542.66	32.11	36.18	7.45	86.00
7/15/2015				120.00	4.00	8.40	363.14	522.92	17.43	36.60	7.76	84.00
7/16/2015				120.00	4.70	16.00	352.22	507.20	19.87	67.63	7.74	86.00
7/17/2015							351.37				7.78	86.00
7/18/2015							349.00				7.55	88.00
7/19/2015				130.00	6.80	24.00	338.86	528.62	27.65	97.59	7.50	90.00
7/20/2015				120.00	4.00	14.00	337.05	485.35	16.18	56.62	7.53	84.00
7/21/2015				120.00	4.00	19.00	347.92	501.00	16.70	79.33	7.66	90.00
7/22/2015				120.00	4.00	14.00	347.18	499.94	16.66	58.33	7.56	86.00
7/23/2015				110.00	5.30	16.00	341.53	450.82	21.72	65.57	7.59	80.00
7/24/2015							339.23				7.56	91.00
7/25/2015							332.30				7.39	90.00

7/26/2015			97.00	4.00	6.80	334.23	389.04	16.04	27.27	7.36	90.00
7/27/2015			95.00	8.70	4.40	341.66	389.49	35.67	18.04	7.39	79.00
7/28/2015			95.00	5.70	8.00	380.01	433.21	25.99	36.48	7.64	86.00
7/29/2015			92.00	4.00	4.80	395.00	436.08	18.96	22.75	7.63	82.00
7/30/2015			90.00	4.00	5.60	398.54	430.42	19.13	26.78	7.57	86.00
7/31/2015						376.39				7.54	86.00
8/1/2015						375.93					90.00
8/2/2015			94.00	4.30	4.40	380.74	429.47	19.65	20.10		90.00
8/3/2015	1.00	270.00	93.00	4.00	9.60	376.92	420.64	18.09	43.42	8.03	81.00
8/4/2015			98.00	4.00	16.00	357.70	420.66	17.17	68.68	7.61	88.00
8/5/2015			97.00	4.00	5.20	360.55	419.68	17.31	22.50	7.53	90.00
8/6/2015			99.00	4.00	6.40	364.68	433.24	17.50	28.01	7.42	84.00
8/7/2015						350.81				7.38	86.00
8/8/2015						366.22				7.42	86.00
8/9/2015			110.00	4.30	18.00	364.30	480.88	18.80	78.69	7.52	86.00
8/10/2015			110.00	5.00	5.60	362.95	479.09	21.78	24.39		82.00
8/11/2015			110.00	5.80	12.00	363.04	479.21	25.27	52.28	8.07	82.00
8/12/2015			110.00	5.60	6.00	362.17	478.06	24.34	26.08	8.02	81.00
8/13/2015			110.00	11.00	5.60	341.17	450.34	45.03	22.93	8.03	84.00
8/14/2015						381.76				8.06	84.00
8/15/2015						332.57				7.54	86.00
8/16/2015			100.00	4.00	6.40	313.57	376.28	15.05	24.08	7.50	84.00
8/17/2015			110.00	4.00	4.00	312.02	411.87	14.98	14.98	7.50	86.00
8/18/2015			110.00	4.00	4.00	324.23	427.98	15.56	15.56	7.50	84.00
8/19/2015			100.00	4.00	7.20	329.79	395.75	15.83	28.49	7.90	82.00
8/20/2015			100.00	4.00	4.80	323.99	388.79	15.55	18.66	7.70	81.00
8/21/2015						310.71				7.68	77.00
8/22/2015						291.18				7.34	81.00
8/23/2015			91.00	4.00	4.00	283.82	309.93	13.62	13.62	7.28	80.00
8/24/2015			76.00	6.00	4.00	284.62	259.57	20.49	13.66	7.20	76.00

8/25/2015			69.00	15.00	4.40	284.76	235.78	51.26	15.04	7.20	78.00
8/26/2015			65.00	4.70	4.00	294.94	230.05	16.63	14.16	7.09	78.00
8/27/2015			64.00	4.00	4.80	311.59	239.30	14.96	17.95	7.12	75.00
8/28/2015						326.48				7.28	81.00
8/29/2015						316.74				7.26	82.00
8/30/2015			76.00	4.00	4.00	298.13	271.89	14.31	14.31	7.19	81.00
8/31/2015			83.00	6.60	5.60	297.50	296.31	23.56	19.99	7.16	79.00
9/1/2015			88.00	5.20	4.40	295.92	312.49	18.47	15.62	7.24	80.00
9/2/2015			94.00	4.00	4.00	357.91	403.72	17.18	17.18	7.40	80.00
9/3/2015			97.00	4.00	4.00	335.02	389.96	16.08	16.08	7.48	84.00
9/4/2015	1.10	5.50	10.00			334.95				7.54	84.00
9/5/2015						331.20				7.27	88.00
9/6/2015			97.00	4.00	4.00	332.17	386.65	15.94	15.94	7.28	86.00
9/7/2015			91.00	4.00	4.00	332.68	363.29	15.97	15.97	7.96	80.00
9/8/2015			88.00	4.00	4.00	336.71	355.57	16.16	16.16	7.97	84.00
9/9/2015			81.00	4.00	4.00	334.90	325.52	16.08	16.08	7.29	86.00
9/10/2015			79.00	4.00	4.00	336.82	319.31	16.17	16.17	7.27	83.00
9/11/2015						365.65				7.11	84.00
9/12/2015						399.99				7.29	78.00
9/13/2015			42.00	13.00	4.00	391.32	197.23	61.05	18.78	7.37	76.00
9/14/2015			39.00	4.00	4.00	317.84	148.75	15.26	15.26	7.40	77.00
9/15/2015			36.00	4.00	4.00	300.28	129.72	14.41	14.41	7.44	77.00
9/16/2015			34.00	7.70	4.00	312.32	127.43	28.86	14.99	7.33	77.00
9/17/2015			33.00	9.90	4.00	294.31	116.55	34.96	14.13	7.44	77.00
9/18/2015						293.17				7.89	75.00
9/19/2015						331.54				7.42	77.00
9/20/2015			41.00	4.00	4.00	339.62	167.09	16.30	16.30	7.26	77.00
9/21/2015			50.00	4.00	4.00	339.15	203.49	16.28	16.28	7.31	77.00
9/22/2015			62.00	4.00	4.00	332.07	247.06	15.94	15.94	7.32	79.00
9/23/2015			72.00	4.00	4.00	324.44	280.32	15.57	15.57	7.95	79.00

9/24/2015			76.00			4.10	5.60	347.65	317.06	17.10	23.36	7.90	80.00
9/25/2015								346.84				7.62	80.00
9/26/2015								342.17				7.41	78.00
9/27/2015			87.00			4.40	4.00	337.58	352.43	17.82	16.20	7.22	82.00
9/28/2015			85.00			5.90	4.00	331.91	338.55	23.50	15.93	7.49	80.00
9/29/2015			90.00	0.010		4.00	4.00	302.73	326.95	14.53	14.53	7.36	78.00
9/30/2015			82.00			7.70	4.00	295.53	290.80	27.31	14.19	7.26	75.00
10/1/2015			84.00			4.10	4.40	299.55	301.95	14.74	15.82	7.41	74.00
10/2/2015								301.39				7.39	79.00
10/3/2015								305.42				7.27	77.00
10/4/2015			82.00			4.00	4.00	288.89	284.27	13.87	13.87	7.34	79.00
10/5/2015			95.00			4.00	5.20	315.33	363.26	15.14	19.68	7.44	74.00
10/6/2015			100.00			4.40	5.20	306.74	368.09	16.20	19.14	7.44	73.00
10/7/2015			110.00			4.90	4.00	317.53	419.14	18.67	15.24	7.63	75.00
10/8/2015			100.00			4.00	6.80	322.49	386.99	15.48	26.32	7.75	74.00
10/9/2015	1.00	1,100.00						318.27				7.75	81.00
10/10/2015								318.25				7.35	79.00
10/11/2015			100.00			4.00	9.80	320.50	384.60	15.38	37.69	7.31	81.00
10/12/2015			91.00			4.00	15.00	349.98	382.18	15.80	63.00	7.36	79.00
10/13/2015			80.00			6.80	16.00	336.57	323.11	35.54	64.62	7.53	79.00
10/14/2015			76.00			6.90	16.00	345.71	315.29	28.62	74.67	7.44	79.00
10/15/2015			79.00			9.70	16.00	356.49	337.95	41.50	77.00	7.56	77.00
10/16/2015		91.00						374.47				7.21	73.00
10/17/2015								357.86				7.34	78.00
10/18/2015													
10/19/2015													
10/20/2015								378.31					
10/21/2015								356.54					
10/22/2015			68.00			25.00	30.00	388.91	317.35	116.67	140.01	7.30	75.00
10/23/2015								322.64				7.95	72.00

10/24/2015						320.97				7.29	72.00
10/25/2015		57.00	4.60	14.00	363.12	248.37	20.04	61.00	7.27	72.00
10/26/2015		61.00	4.30	9.60	364.58	266.87	18.81	42.00	7.43	73.00
10/27/2015		68.00	4.00	6.80	340.21	277.61	16.33	27.76	7.43	73.00
10/28/2015		69.00	4.00	14.00	333.45	276.10	16.01	56.02	7.61	78.00
10/29/2015		70.00	6.40	19.00	339.66	285.31	26.09	77.44	7.52	70.00
10/30/2015					351.24				7.44	68.00
10/31/2015					343.44				7.25	70.00
11/1/2015		69.00	6.10	23.00	348.88	288.87	25.54	96.29	7.26	71.00
11/2/2015		71.00	6.30	22.00	348.27	296.73	26.33	91.94	7.29	73.00
11/3/2015		66.00	5.10	26.00	340.76	269.88	20.85	106.32	7.42	74.00
11/4/2015		63.00	6.30	26.00	355.05	268.42	26.84	110.78	7.22	74.00
11/5/2015		69.00	4.00	20.00	357.99	296.42	17.18	85.92	7.31	76.00
11/6/2015					369.60				7.58	77.00
11/7/2015					367.83				7.21	77.00
11/8/2015		80.00	7.10	38.00	360.06	345.66	30.68	164.19	7.21	75.00
11/9/2015	1.00	72.00	6.60	40.00	362.62	313.30	28.72	174.06	7.25	69.00
11/10/2015		78.00	6.90	48.00	361.77	338.62	38.64	208.38	7.25	70.00
11/11/2015		75.00	7.50	32.00	326.79	294.11	29.41	125.49	7.27	70.00
11/12/2015		78.00	6.80	33.00	315.48	295.29	25.74	124.93	7.29	68.00
11/13/2015	3,700.00				315.29				7.36	72.00
11/14/2015					315.93				7.61	77.00
11/15/2015		80.00	5.50	22.00	316.39	303.73	20.88	83.53	7.75	79.00
11/16/2015		78.00	5.00	26.00	305.34	286.73	18.38	95.58	7.77	79.00
11/17/2015		76.00	5.40	26.00	359.53	327.89	23.30	120.80	7.87	79.00
11/18/2015		76.00	5.20	17.00	352.74	321.70	22.01	71.96	7.34	79.00
11/19/2015		78.00	4.00	11.00	354.68	331.98	17.02	46.82	7.16	73.00
11/20/2015	10.00				348.38				7.18	70.00
11/21/2015					344.86				7.62	75.00
11/22/2015		68.00	5.80	7.20	371.63	303.25	25.87	32.11	7.39	77.00

11/23/2015				63.00	4.00	13.00	361.18	273.05	17.34	56.34	7.77	77.00
11/24/2015				61.00	4.20	6.80	346.79	253.85	17.48	28.30	7.42	77.00
11/25/2015				58.00	4.10	8.80	294.50	204.97	14.49	31.10	7.41	77.00
11/26/2015				53.00	4.50	8.40	286.60	182.40	15.49	26.91	7.96	77.00
11/27/2015							324.34				7.09	72.00
11/28/2015							348.56				7.44	70.00
11/29/2015				45.00	10.00	5.60	339.96	183.58	40.80	22.85	7.46	70.00
11/30/2015				43.00	4.00	8.00	341.33	176.13	16.38	32.77	7.39	79.00
12/1/2015				42.00	4.00	11.00	344.80	173.78	16.55	45.51	7.49	81.00
12/2/2015				43.00	4.10	8.40	346.04	178.56	17.03	34.88	7.76	79.00
12/3/2015				44.00	6.10	9.20	357.72	188.88	26.19	39.49	7.79	79.00
12/4/2015							369.33				7.58	77.00
12/5/2015							379.97				7.67	76.00
12/6/2015				67.00	4.10	8.80	380.23	305.70	18.71	40.15	7.61	77.00
12/7/2015	1.00	1.00	99.00	73.00	4.00	10.00	380.49	333.31	18.26	45.66	7.37	70.00
12/8/2015				80.00	4.00	12.00	368.08	353.36	17.67	53.00	7.51	79.00
12/9/2015				77.00	6.40	14.00	376.20	347.61	28.89	63.20	7.65	75.00
12/10/2015				80.00	4.20	17.00	382.81	367.50	19.29	78.09	7.67	74.00
12/11/2015							391.77				7.37	74.00
12/12/2015							382.56				7.44	76.00
12/13/2015				85.00	4.00	24.00	378.51	386.08	18.17	109.01	7.40	80.00
12/14/2015				80.00	6.20	17.00	382.35	367.06	28.45	78.00	7.34	79.00
12/15/2015				70.00	4.20	10.00	382.29	321.12	19.27	45.87	7.29	72.00
12/16/2015				65.00	7.50	17.00	384.80	300.14	34.63	78.50	7.13	75.00
12/17/2015				64.00	6.60	26.00	388.55	298.41	30.77	121.23	7.40	70.00
12/18/2015							388.35				7.56	77.00
12/19/2015							380.49				7.37	77.00
12/20/2015				60.00	7.10	27.00	388.15	279.47	33.07	125.76	7.51	77.00
12/21/2015				64.00	4.30	21.00	393.99	302.58	20.33	99.29	7.53	80.00
12/22/2015				77.00	4.00	16.00	403.53	372.86	19.37	77.48	7.75	79.00

12/23/2015						78.00		4.00	13.00	401.91	376.19	19.29	62.70	7.67	82.00
12/24/2015						74.00		4.00	8.00	347.28	308.38	16.67	33.34	7.51	79.00
12/25/2015										323.39				7.43	72.00
12/26/2015										297.78				7.34	74.00
12/27/2015						61.00		4.00	4.00	293.62	214.93	14.09	14.09	7.57	70.00
12/28/2015						51.00		4.00	9.60	300.39	183.84	14.42	34.60	7.51	73.00
12/29/2015						48.00		4.00	4.40	307.74	177.26	14.77	16.25	7.73	72.00
12/30/2015						48.00		4.00	4.00	301.96	173.93	14.49	14.49	7.83	73.00
12/31/2015						43.00		4.00	4.00	303.45	156.58	14.57	14.57	7.99	73.00
Avg	*12.157*	*7.750*	*10.000*	*6.900*	*425.000*	*62.242*	*0.013*	*14.854*	*10.656*	*366.318*	*266.935*	*66.724*	*47.238*	*7.380*	*77.414*
Min	*1.000*	*1.000*	*10.000*	*6.900*	*10.000*	*1.000*	*0.005*	*4.000*	*4.000*	*235.350*	*4.999*	*13.623*	*13.403*	*6.450*	*7.200*
Max	*96.000*	*17.000*	*10.000*	*6.900*	*3,700.000*	*130.000*	*0.031*	*130.000*	*110.000*	*538.970*	*542.664*	*594.001*	*485.892*	*8.180*	*91.000*
Sum											##########				
30-Day AVG/	*40/*	*21/*						*20/*	*25/*	*636.81*		*183.5/*	*229.3/*	*6/*	
Daily MAX	*89*	*46*			*400*	*155*		*40*	*50*		*1848.6*	*477*	*596.3*	*9*	

DMR Support Data - Plant Effluent

Start Date: 1/1/2016 - **End Date:** 12/31/2016

Date	MeCL2 (ug/l)	Chloroform (ug/l)	Toluene (ug/l)	Vinyl Chloride (ug/L)	Fecal Coliform (N/100 mL)	Ammonia (mg/L)	Phenol (mg/L)	Residual Chlorine (parts/MM)	Total Nitrogen (mg/l)	tBOD (mg/l)	TSS (mg/l)	Plant Effluent Flow (gpm)	Amonnia Load (N/day)	Total Nitrogen (N/day)	tBOD Load (#/day)	TSS Load (#/day)	pH	Temp. (°F)	Diffuser Ammonia (mg/l)	IEPA TSS (mg/l)	IEPA Ammonia (mg/l)	IEPA BOD (mg/l)
1/1/2016						44.00				4.00	4.00	361.03	190.62		17.33	17.33	7.65	70.00				
1/2/2016												371.09					7.57	70.00				
1/3/2016						43.00				4.00	8.00	382.96	197.61		18.38	36.76	7.54	70.00				
1/4/2016	1.00				36.00	45.00				4.90	15.00	399.88	215.94		23.51	71.96	7.62	73.00				
1/5/2016						53.00				4.00	16.00	402.83	256.20		19.34	77.34	7.55	78.00				
1/6/2016						61.00				4.00	20.00	387.31	283.51		18.59	92.95	7.92	81.00				
1/7/2016						69.00				6.80	26.00	393.93	326.17		32.14	122.91	7.88	79.00				
1/8/2016												397.50					7.88	74.00				
1/9/2016												388.03					7.41	72.00				
1/10/2016						78.00				20.00	48.00	372.97	349.10		89.51	214.83	7.50	72.00				
1/11/2016						86.00				47.00	32.00	396.67	409.36		223.72	152.32	7.48	70.00				
1/12/2016						82.00				42.00	28.00	370.86	364.93		186.91	124.61	7.58	68.00				
1/13/2016						79.00				47.00	34.00	354.02	335.61		199.67	144.44	7.39	70.00				
1/14/2016						86.00				56.00	29.00	369.44	381.25		248.26	128.57	7.40	70.00				
1/15/2016												352.60					7.44	79.00				
1/16/2016												353.17					7.47	77.00				
1/17/2016						88.00				56.00	43.00	366.21	386.72		246.09	188.96	7.59	73.00				
1/18/2016						87.00				43.00	21.00	347.77	363.07		179.45	87.64	7.43	70.00				
1/19/2016						86.00				42.00	24.00	345.63	356.69		174.20	99.54	7.54	70.00				
1/20/2016						85.00				21.00	13.00	340.35	347.16		85.77	53.09	7.19	70.00				
1/21/2016						83.00				28.00	34.00	329.72	328.40		110.79	134.53	7.21	70.00				
1/22/2016												337.73					7.21	68.00				
1/23/2016												338.03					7.18	75.00				
1/24/2016						76.00				37.00	21.00	336.82	307.18		149.55	84.88	7.36	75.00				
1/25/2016						75.00				28.00	10.00	330.20	297.18		110.95	39.62	7.43	73.00				
1/26/2016						81.00				11.00	14.00	328.95	319.74		43.42	55.26	7.50	74.00				

1/27/2016				83.00	16.00	13.00	323.72	322.43	62.15	50.50	7.40	75.00
1/28/2016				83.00	15.00	12.00	322.11	320.82	57.98	46.38	7.46	75.00
1/29/2016							335.43				7.53	74.00
1/30/2016							334.80				7.79	74.00
1/31/2016				82.00	4.50	7.60	292.28	287.60	15.78	26.66	7.78	78.00
2/1/2016				87.00	4.00	20.00	285.64	298.21	13.71	68.55	7.79	77.00
2/2/2016				87.00	5.50	9.60	314.17	327.99	20.74	36.19	7.73	77.00
2/3/2016				90.00	9.50	14.00	314.63	339.80	35.87	52.86	7.59	77.00
2/4/2016				89.00	7.20	14.00	321.35	343.20	27.76	53.99	7.59	77.00
2/5/2016							360.66				7.57	72.00
2/6/2016							365.56				7.43	72.00
2/7/2016	1.00	2.10		90.00	7.40	14.00	357.17	385.74	31.72	60.00	7.38	77.00
2/8/2016			520.00	91.00	7.60	6.00	331.07	361.53	30.19	23.84	7.55	77.00
2/9/2016				92.00	6.90	10.00	343.84	379.60	28.47	41.26	7.19	79.00
2/10/2016				96.00	7.70	16.00	339.14	390.69	31.34	65.11	7.72	77.00
2/11/2016				93.00	5.40	5.60	321.48	358.77	20.83	21.60	7.67	79.00
2/12/2016							298.06				7.63	79.00
2/13/2016							303.20				7.63	74.00
2/14/2016				96.00	6.30	9.60	258.11	297.34	19.51	29.73	7.65	74.00
2/15/2016			54.00	88.00	4.20	6.00	267.13	282.09	13.46	19.23	7.48	73.00
2/16/2016				87.00	9.50	6.00	278.46	290.71	31.74	20.05	7.56	73.00
2/17/2016				88.00	14.00	7.60	283.12	298.97	47.56	25.82	7.48	74.00
2/18/2016				87.00	13.00	4.80	266.20	277.91	41.53	15.33	7.61	74.00
2/19/2016							283.31				7.56	77.00
2/20/2016							331.55				7.47	77.00
2/21/2016				97.00	30.00	12.00	353.76	411.78	127.35	50.94	7.59	79.00
2/22/2016				95.00	9.60	4.00	355.78	405.59	40.99	17.08	7.64	78.00
2/23/2016				86.00	4.00	4.80	358.02	369.48	17.18	20.62	7.59	79.00
2/24/2016				81.00	4.00	4.00	336.19	326.78	16.14	16.14	7.49	73.00
2/25/2016				78.00	10.00	6.40	355.79	333.02	42.69	27.32	7.49	72.00

2/25/2016									356.49				7.38	79.00
2/27/2016									367.37				7.57	79.00
2/28/2016						66.00		6.90	6.00	359.08	284.39	29.73	25.85	7.56	79.00
2/29/2016						70.00		4.00	4.00	361.39	303.57	17.35	17.35	7.69	75.00
3/1/2016						77.00		4.00	6.80	355.85	325.81	17.08	29.04	7.67	75.00
3/2/2016						83.00		4.00	4.40	354.51	353.09	17.02	18.72	7.48	74.00
3/3/2016						87.00		4.00	4.40	350.78	366.21	16.84	18.52	7.51	74.00
3/4/2016										363.71				7.42	73.00
3/5/2016										380.25				7.89	72.00
3/6/2016						94.00		4.30	6.40	396.70	447.46	20.47	30.47	7.79	72.00
3/7/2016						84.00		7.70	7.20	383.77	386.84	35.46	33.16	7.57	81.00
3/8/2016						83.00		5.10	4.80	362.60	361.15	22.19	20.89	7.69	81.00
3/9/2016						79.00		12.00	8.80	384.03	364.06	55.30	40.55	7.68	79.00
3/10/2016						84.00		5.60	12.00	386.05	389.14	25.94	55.59	7.64	79.00
3/11/2016										382.48				7.72	81.00
3/12/2016										369.90				7.41	80.00
3/13/2016						73.00		7.60	5.20	352.57	308.85	32.15	22.00	7.37	79.00
3/14/2016	1.00	1.00	5.00	5.00	10.00	74.00	0.010	10.00	4.00	356.56	316.63	42.79	17.11	7.26	81.00
3/15/2016						84.00		7.40	11.00	349.28	352.07	31.02	46.10	7.45	81.00
3/16/2016						88.00		4.80	7.20	353.14	372.92	20.34	30.51	7.44	76.00
3/17/2016						87.00		5.90	12.00	352.34	367.84	24.95	50.74	7.43	77.00
3/18/2016										329.25				7.58	77.00
3/19/2016										283.98				7.41	79.00
3/20/2016						88.00		5.50	6.80	275.69	291.13	18.20	22.50	7.50	77.00
3/21/2016						92.00		4.20	7.60	266.46	316.25	14.44	26.13	7.46	73.00
3/22/2016						95.00		4.40	10.00	313.98	357.94	16.58	37.68	7.46	74.00
3/23/2016						95.00		5.90	7.60	313.69	357.61	22.21	28.61	7.34	74.00
3/24/2016						90.00		4.00	5.20	312.56	337.56	15.00	19.50	7.35	72.00
3/25/2016										315.03				7.41	75.00
3/26/2016										326.83				7.44	77.00

3/27/2016			82.00	4.00	4.40	332.53	327.21	15.96	17.56	7.26	79.00
3/28/2016			77.00	4.00	8.40	320.69	296.32	15.39	32.33	7.33	73.00
3/29/2016			71.00	5.20	4.00	300.73	256.22	18.77	14.44	7.33	74.00
3/30/2016			68.00	4.00	4.00	298.19	243.32	14.31	14.31	7.54	75.00
3/31/2016			67.00	4.00	4.00	317.82	255.53	15.26	15.26	7.58	79.00
4/1/2016						321.98				7.60	80.00
4/2/2016						323.68				7.63	79.00
4/3/2016			76.00	4.00	4.00	327.46	298.64	15.72	15.72	7.55	79.00
4/4/2016			76.00	14.00	4.00	333.64	304.28	56.05	16.01	7.54	76.00
4/5/2016			74.00	5.10	4.00	331.34	294.23	20.28	15.90	7.62	76.00
4/6/2016			83.00	4.10	5.60	327.40	326.09	16.11	22.00	7.50	74.00
4/7/2016			84.00	4.00	12.00	322.29	324.87	15.47	46.41	7.33	76.00
4/8/2016						319.61				7.37	76.00
4/9/2016						322.98				7.64	73.00
4/10/2016			80.00	6.70	5.20	316.69	304.02	25.46	19.76	7.75	72.00
4/11/2016	1.00	10.00	83.00	4.00	5.60	312.48	311.23	15.00	21.00	7.65	79.00
4/12/2016			82.00	6.00	4.00	305.33	300.44	21.98	14.66	7.77	79.00
4/13/2016			82.00	4.00	4.00	303.73	298.87	14.58	14.58	7.56	79.00
4/14/2016			79.00	8.20	9.60	293.90	278.62	28.92	33.86	7.65	79.00
4/15/2016						297.61				7.62	77.00
4/16/2016						299.12				7.49	74.00
4/17/2016			90.00	4.00	11.00	293.90	317.41	14.11	38.79	7.36	76.00
4/18/2016			94.00	12.00	11.00	310.93	350.73	44.77	41.04	7.50	81.00
4/19/2016			96.00	5.60	11.00	304.64	350.95	20.47	40.21	7.37	81.00
4/20/2016			93.00	12.00	9.60	313.19	349.52	45.10	36.08	7.75	82.00
4/21/2016			92.00	7.00	7.20	318.07	351.15	26.72	27.46	7.62	81.00
4/22/2016						318.10				7.59	75.00
4/23/2016						309.37				7.36	74.00
4/24/2016			87.00	11.00	19.00	305.18	318.61	40.28	69.58	7.33	76.00
4/25/2016			89.00	8.90	34.00	302.23	322.78	32.28	123.31	7.47	81.00

4/26/2016			92.00	7.70	50.00	318.10	351.18	29.39	190.86	7.54	77.00
4/27/2016			96.00	12.00	51.00	334.22	385.02	48.13	204.54	7.34	74.00
4/28/2016			100.00	15.00	58.00	337.57	405.08	60.76	234.95	7.42	77.00
4/29/2016						327.85				7.39	75.00
4/30/2016						319.50				7.28	75.00
5/1/2016			98.00	9.70	67.00	318.19	374.19	37.04	255.82	7.35	77.00
5/2/2016			100.00	8.00	50.00	321.71	386.05	30.88	193.03	7.36	75.00
5/3/2016			95.00	7.20	42.00	331.70	378.14	28.66	167.18	7.39	76.00
5/4/2016			93.00	6.60	41.00	317.59	354.43	25.15	156.25	7.44	72.00
5/5/2016			95.00	6.50	21.00	304.70	347.36	23.77	76.76	7.37	75.00
5/6/2016						298.78				7.42	79.00
5/7/2016						311.25				7.40	81.00
5/8/2016	1.00		99.00	7.20	28.00	315.45	374.75	27.25	105.99	7.37	80.00
5/9/2016		1,300.00	100.00	5.90	16.00	322.45	386.94	26.70	61.91	7.46	75.00
5/10/2016			110.00	5.10	4.00	315.82	416.85	23.12	15.16	7.53	75.00
5/11/2016			110.00	11.00	13.00	308.49	407.21	40.72	48.12	7.28	79.00
5/12/2016			110.00	6.30	13.00	322.26	425.38	24.36	50.27	7.33	80.00
5/13/2016		1,200.00				361.47				7.25	76.00
5/14/2016						340.17				7.68	74.00
5/15/2016			97.00	4.30	14.00	327.35	381.04	16.89	54.99	7.58	7.50
5/16/2016			95.00	4.00	16.00	327.22	373.03	15.71	62.83	7.56	77.00
5/17/2016		8,000.00	100.00	8.50	15.00	330.88	396.82	33.73	59.52	7.54	77.00
5/18/2016			100.00	4.00	20.00	325.54	390.65	15.63	78.13	7.70	75.00
5/19/2016			100.00	7.90	27.00	324.99	389.99	30.81	105.30	7.49	77.00
5/20/2016		14,000.00				325.14				7.42	72.00
5/21/2016						326.12				7.42	81.00
5/22/2016			100.00	6.40	45.00	324.94	389.93	24.96	175.47	7.22	81.00
5/23/2016			110.00	7.60	60.00	335.16	442.41	30.57	241.32	7.31	84.00
5/24/2016			110.00	9.80	67.00	326.45	430.91	38.39	262.47	7.38	84.00
5/25/2016			110.00	5.50	56.00	320.89	423.57	21.16	215.64	7.56	84.00

5/26/2016				98.00	13.00	55.00	316.92	372.70	49.44	209.17	7.60	88.00
5/27/2016							321.80				7.71	86.00
5/28/2016							341.86				7.17	86.00
5/29/2016				98.00	6.20	20.00	341.73	401.87	25.42	82.02	7.49	86.00
5/30/2016				99.00	5.80	51.00	325.27	386.42	22.64	199.07	7.37	80.00
5/31/2016				100.00	7.90	6.40	319.21	383.05	30.26	24.52	7.38	80.00
6/1/2016				89.00	6.80	11.00	310.95	332.09	25.37	41.05	7.23	80.00
6/2/2016				83.00	8.00	10.00	292.32	291.15	28.06	35.08	7.28	80.00
6/3/2016							266.75				7.40	84.00
6/4/2016							277.83				7.38	86.00
6/5/2016				85.00	6.00	22.00	282.92	288.58	20.37	74.69	7.45	86.00
6/6/2016				92.00	6.50	13.00	284.67	314.28	22.20	44.41	7.43	86.00
6/7/2016				100.00	6.80	18.00	282.94	339.53	23.09	61.12	7.40	84.00
6/8/2016				94.00	9.50	17.00	284.08	320.44	32.39	57.95	7.57	80.00
6/9/2016				95.00	10.00	14.00	295.49	336.86	35.46	49.64	7.37	80.00
6/10/2016							298.14				7.43	86.00
6/11/2016							300.11				7.67	86.00
6/12/2016				96.00	6.70	11.00	302.89	348.93	24.35	39.98	7.79	86.00
6/13/2016	1.00	3.00	640.00	93.00	6.30	12.00	294.32	328.46	22.25	42.38	7.80	86.00
6/14/2016				95.00	11.00	15.00	298.82	340.65	39.44	53.79	7.58	86.00
6/15/2016				94.00	6.60	8.80	349.75	394.52	27.70	36.93	7.48	86.00
6/16/2016				92.00	7.10	9.20	344.74	380.59	29.37	38.06	7.36	86.00
6/17/2016							339.84				7.48	84.00
6/18/2016							334.16				7.61	80.00
6/19/2016				87.00	4.00	10.00	339.82	354.77	16.31	40.78	7.77	80.00
6/20/2016			60,000.00	87.00	4.00	11.00	346.54	361.79	16.63	45.74	7.81	86.00
6/21/2016				84.00	7.40	10.00	357.48	360.34	31.74	42.90	7.82	84.00
6/22/2016				80.00	17.00	8.80	359.22	344.85	73.28	37.93	7.68	84.00
6/23/2016				82.00	4.80	6.00	356.59	350.88	20.54	25.67	7.66	84.00
6/24/2016							349.51				7.57	80.00

6/25/2016				332.90				7.52	86.00
6/26/2016	73.00	4.00	4.00	331.76	290.62	15.92	15.92	7.59	88.00
6/27/2016	67.00	4.00	4.00	353.03	283.84	16.95	16.95	7.68	86.00
6/28/2016	69.00	4.00	4.00	326.34	270.21	15.66	15.66	7.70	88.00
6/29/2016	72.00	4.30	4.00	303.82	262.50	15.68	14.58	7.71	82.00
6/30/2016	76.00	4.00	4.00	311.61	284.19	14.96	14.96	7.72	86.00
7/1/2016				336.31				7.60	82.00
7/2/2016				276.30				7.46	79.00
7/3/2016	84.00	4.00	4.00	262.86	264.96	12.62	12.62	7.56	77.00
7/4/2016	85.00	4.00	4.00	266.32	271.65	12.78	12.78	7.47	84.00
7/5/2016	91.00	4.00	4.00	270.00	294.84	12.96	12.96	7.40	82.00
7/6/2016	96.00	4.00	4.00	337.93	389.30	16.22	16.22	7.58	82.00
7/7/2016	97.00	4.00	4.00	356.70	415.20	17.12	17.12	7.54	84.00
7/8/2016				360.28				7.53	84.00
7/9/2016				349.67				7.97	84.00
7/10/2016	110.00	5.30	4.00	349.15	460.88	22.21	16.76	8.10	84.00
7/11/2016	110.00	4.00	4.00	312.10	411.97	14.98	14.98	7.98	86.00
7/12/2016	110.00	4.60	5.60	305.98	403.89	16.89	20.56	7.25	86.00
7/13/2016	110.00	4.70	4.40	312.39	412.35	17.62	16.49	7.56	90.00
7/14/2016	120.00	8.80	9.20	313.39	451.28	33.09	34.60	7.51	86.00
7/15/2016				352.27				7.62	82.00
7/16/2016				339.35				7.65	86.00
7/17/2016	120.00	5.20	11.00	345.24	497.15	21.54	45.57	7.64	86.00
7/18/2016	120.00	6.80	4.00	356.65	513.58	29.10	17.12	7.70	90.00
7/19/2016	120.00	6.80	9.60	357.50	514.80	29.17	41.18	7.60	90.00
7/20/2016	120.00	11.00	10.00	343.95	495.29	45.40	41.27	8.08	90.00
7/21/2016	110.00	9.60	12.00	349.00	460.68	40.20	50.26	7.97	90.00
7/22/2016				346.64				7.97	88.00
7/23/2016				330.78				7.64	88.00
7/24/2016	87.00	8.40	12.00	326.28	340.64	32.89	46.96	7.81	91.00

7/25/2016	1.00	1.00	410.00	85.00	8.20	11.00	323.84	334.20	31.87	42.75	7.56	86.00
7/26/2016				86.00	8.10	8.00	321.84	332.14	31.28	30.90	7.66	86.00
7/27/2016				89.00	6.60	12.00	313.70	335.03	32.37	45.17	7.56	86.00
7/28/2016				94.00	10.00	8.80	306.63	345.88	36.80	32.38	7.61	88.00
7/29/2016							311.19				7.55	80.00
7/30/2016							303.99				7.63	90.00
7/31/2016				93.00	8.10	7.20	302.77	337.89	29.43	26.16	7.52	90.00
8/1/2016				92.00	17.00	6.00	305.80	337.60	62.38	22.02	7.53	89.00
8/2/2016				95.00	15.00	7.20	181.91	207.38	32.74	15.72	7.56	89.00
8/3/2016				97.00	15.00	10.00	239.93	279.28	43.19	28.79	7.65	88.00
8/4/2016				96.00	27.00	10.00	337.47	388.77	109.34	40.50	7.51	90.00
8/5/2016							332.55				7.59	90.00
8/6/2016							335.08				7.51	92.00
8/7/2016				90.00	11.00	4.00	321.75	347.49	42.47	15.44	7.35	92.00
8/8/2016				90.00	16.00	5.20	305.73	330.19	58.70	19.08	7.56	88.00
8/9/2016				96.00	22.00	8.80	330.13	380.31	87.15	34.86	7.62	86.00
8/10/2016				89.00	31.00	6.80	340.55	363.71	126.68	27.79	7.58	84.00
8/11/2016				91.00	23.00	5.20	314.17	343.07	86.71	19.60	7.25	88.00
8/12/2016							301.97				7.37	90.00
8/13/2016							293.25				7.55	88.00
8/14/2016				97.00	6.00	4.40	304.28	354.18	21.91	16.07	7.58	90.00
8/15/2016				100.00	4.00	6.00	312.67	375.20	15.01	22.51	7.57	84.00
8/16/2016				99.00	6.00	5.60	317.78	377.52	22.88	21.35	7.67	82.00
8/17/2016				96.00	5.80	4.00	317.07	365.26	22.07	15.22	7.56	84.00
8/18/2016				85.00	7.20	5.20	371.69	379.12	32.11	23.19	7.53	86.00
8/19/2016	1.00		340.00				372.91				7.51	86.00
8/20/2016							346.01				7.60	86.00
8/21/2016				83.00	4.00	5.20	225.48	224.58	10.82	14.07	7.53	84.00
8/22/2016												
8/23/2016												

8/24/2016							223.44						
8/25/2016				94.00		4.00	9.20	270.31	304.91	12.97	29.84	7.24	80.00
8/26/2016								332.19				7.23	80.00
8/27/2016								319.35				7.61	80.00
8/28/2016				66.00		4.00	4.00	299.56	237.25	14.38	14.38	7.45	80.00
8/29/2016				62.00		6.20	4.40	325.07	241.85	24.19	17.16	7.43	82.00
8/30/2016				47.00		5.50	4.00	436.23	246.03	28.79	20.94	7.54	79.00
8/31/2016				72.00		4.50	6.00	273.04	235.91	14.74	19.66	7.45	79.00
9/1/2016				75.00		5.00	4.80	251.17	226.05	15.07	14.47	7.47	81.00
9/2/2016								278.94				7.42	81.00
9/3/2016								312.03				7.64	81.00
9/4/2016				87.00		7.00	4.00	314.41	328.24	26.41	15.09	7.63	81.00
9/5/2016				86.00		5.00	4.00	277.06	285.93	16.62	13.30	7.39	84.00
9/6/2016				87.00		4.00	6.80	292.49	305.36	14.04	23.87	7.41	84.00
9/7/2016				87.00		5.00	5.20	301.50	314.77	18.09	18.81	7.75	82.00
9/8/2016				85.00		4.00	4.00	312.74	318.99	15.01	15.01	7.79	82.00
9/9/2016								301.80				7.63	88.00
9/10/2016								296.42				7.67	86.00
9/11/2016				80.00		4.00	4.00	294.85	283.06	14.15	14.15	7.48	86.00
9/12/2016	1.00	3.00	72.00	72.00		4.20	6.40	309.52	267.43	15.60	23.77	7.70	80.00
9/13/2016				73.00		7.10	4.80	321.98	282.05	27.43	18.55	7.43	78.00
9/14/2016				76.00		8.30	8.00	341.65	311.58	34.03	32.80	7.50	78.00
9/15/2016				76.00		9.80	9.60	346.56	316.06	40.76	39.92	7.51	79.00
9/16/2016								355.79				7.49	80.00
9/17/2016								243.34				7.44	82.00
9/18/2016				69.00		6.90	6.80	257.25	213.00	21.30	20.99	7.66	81.00
9/19/2016				76.00		5.90	4.00	254.42	232.03	18.01	12.21	7.28	82.00
9/20/2016				77.00		5.30	4.00	243.27	224.78	15.47	11.68	7.40	78.00
9/21/2016				70.00		9.40	4.00	260.23	218.59	29.35	12.49	7.61	80.00
9/22/2016				69.00		5.00	8.00	303.57	251.36	18.21	29.14	7.53	81.00

9/23/2016						264.16				7.59	76.00
9/24/2016						322.32				7.66	80.00
9/25/2016			65.00	5.10	4.00	316.68	247.01	19.38	15.20	7.56	80.00
9/26/2016			62.00	4.50	4.00	302.94	225.39	16.36	14.54	7.73	78.00
9/27/2016			60.00	7.00	4.00	296.75	213.66	24.93	14.24	7.64	76.00
9/28/2016			58.00	4.40	4.00	317.25	220.81	16.75	15.23	7.40	75.00
9/29/2016			60.00	5.40	4.00	338.71	243.87	21.95	16.26	7.35	76.00
9/30/2016						300.39				7.36	75.00
10/1/2016						392.44				7.40	75.00
10/2/2016			70.00	5.00	4.00	276.23	232.03	16.57	13.26	7.51	74.00
10/3/2016			74.00	4.00	5.20	304.32	270.24	14.61	18.99	7.36	77.00
10/4/2016			71.00	4.40	4.40	300.60	256.11	15.87	15.87	7.37	75.00
10/5/2016			67.00	5.90	10.00	292.23	234.99	20.68	35.07	7.66	80.00
10/6/2016			74.00	4.00	4.40	293.25	260.41	14.08	15.48	7.65	78.00
10/7/2016						316.93				7.57	80.00
10/8/2016						319.28				7.20	78.00
10/9/2016			82.00	5.10	6.80	321.37	316.23	19.67	25.22	7.32	78.00
10/10/2016	1.70	18.00	86.00	4.00	4.00	311.95	321.93	14.97	14.97	7.47	74.00
10/11/2016			84.00	6.40	4.00	285.15	287.43	21.90	13.69	7.20	74.00
10/12/2016			86.00	6.20	4.00	266.42	274.95	19.82	12.79	7.17	77.00
10/13/2016			90.00	7.00	4.00	262.19	283.17	22.02	12.59	7.25	74.00
10/14/2016						260.70				7.21	77.00
10/15/2016						272.55				7.11	77.00
10/16/2016			90.00	4.10	8.00	337.50	364.61	16.61	32.41	7.03	77.00
10/17/2016			88.00	8.50	4.00	359.64	379.76	36.68	17.26	7.89	78.00
10/18/2016			88.00	6.90	5.20	393.74	415.79	32.60	24.57	7.17	78.00
10/19/2016			79.00	4.00	4.80	392.44	372.03	18.84	22.60	7.16	77.00
10/20/2016			74.00	4.00	8.40	355.62	315.79	17.07	35.85	7.18	75.00
10/21/2016						361.81				7.35	72.00
10/22/2016						370.31				7.51	72.00

10/23/2016		74.00		8.00	11.00	377.77	335.45		36.27	49.87	7.30	78.00
10/24/2016		72.00		4.60	7.60	369.18	318.97		20.38	33.67	7.46	74.00
10/25/2016		81.00		8.70	6.40	352.36	342.49		36.79	27.06	7.48	75.00
10/26/2016		75.00		5.60	4.00	338.87	304.98		22.77	16.27	7.90	79.00
10/27/2016		73.00		5.70	4.00	283.92	248.71		19.42	13.63	7.86	78.00
10/28/2016						277.77					8.01	73.00
10/29/2016						272.82					7.38	80.00
10/30/2016		70.00		5.70	4.40	281.33	236.32		19.24	14.85	7.28	80.00
10/31/2016		68.00		7.90	4.00	269.00	219.50		25.50	12.91	7.60	80.00
11/1/2016		60.00	78.00	4.00	10.00	319.43	229.99	298.99	15.33	38.33	7.23	78.00
11/2/2016		42.00		8.50	9.20	345.10	173.93		35.20	38.10	7.49	75.00
11/3/2016		34.00		4.00	16.00	349.41	142.56		16.77	67.09	7.46	78.00
11/4/2016						321.04					7.19	74.00
11/5/2016						258.98					7.23	79.00
11/6/2016		34.00		14.00	20.00	288.65	117.77		48.49	69.26	7.34	80.00
11/7/2016	1.00	40.00		4.00	8.30	312.92	150.20		15.02	31.17	7.21	75.00
11/8/2016		41.00	74.00	6.70	5.60	331.30	163.00	294.19	26.64	22.26	7.19	73.00
11/9/2016		42.00		4.00	4.00	372.37	167.67		17.87	17.87	7.28	72.00
11/10/2016		41.00		6.20	4.00	348.76	171.59		25.95	16.74	7.43	72.00
11/11/2016						356.48					7.43	70.00
11/12/2016						363.39					7.21	73.00
11/13/2016		35.00		5.20	4.40	358.44	150.54		22.37	18.93	7.43	77.00
11/14/2016		34.00		4.30	4.00	316.03	128.94		16.31	15.17	7.50	75.00
11/15/2016		33.00	53.00	4.00	10.00	295.91	117.18	188.20	14.20	35.51	7.44	78.00
11/16/2016		25.00		4.00	12.00	301.66	90.50		14.48	43.44	7.63	76.00
11/17/2016		20.00		4.00	4.00	326.65	78.40		15.68	15.68	7.47	78.00
11/18/2016						279.93					7.67	77.00
11/19/2016						269.52					7.48	75.00
11/20/2016		20.00		4.20	4.00	235.12	56.43		11.85	11.29	7.41	68.00
11/21/2016		27.00		7.50	8.00	263.43	85.35		24.02	25.29	7.50	69.00

11/22/2016				29.00		52.00	5.30	16.00	254.76	88.66	158.97	16.20	48.91	7.40	70.00
11/23/2016				33.00			4.30	12.00	252.00	99.79		13.00	36.29	7.50	68.00
11/24/2016				34.00			6.00	4.00	181.47	74.04		13.07	8.71	7.20	68.00
11/25/2016									168.40					7.39	75.00
11/26/2016									263.32					7.42	75.00
11/27/2016				44.00			4.00	12.00	257.34	135.88		12.35	37.06	7.59	75.00
11/28/2016				45.00			14.00	9.60	325.58	175.81		54.70	37.51	7.44	70.00
11/29/2016				47.00		57.00	5.50	4.40	311.66	175.78	213.18	20.57	16.46	7.31	73.00
11/30/2016				48.00			8.60	11.00	236.97	136.49		24.46	31.28	7.29	70.00
12/1/2016				53.00			5.10	4.40	308.42	196.16		18.88	16.28	7.24	70.00
12/2/2016									315.66					7.38	78.00
12/3/2016									258.91					7.34	80.00
12/4/2016				77.00			8.50	15.00	255.65	236.22		26.08	46.02	7.48	80.00
12/5/2016				82.00			4.00	8.80	319.01	313.91		15.31	33.69	7.56	74.00
12/6/2016				84.00		98.00	22.00	16.00	308.34	310.81	362.61	81.40	59.20	7.55	78.00
12/7/2016				81.00			7.30	16.00	225.93	219.60		19.79	43.38	8.18	75.00
12/8/2016				80.00			19.00	9.20	306.68	294.41		69.92	33.86	7.31	72.00
12/9/2016									363.48					7.33	78.00
12/10/2016									347.38					7.61	72.00
12/11/2016				73.00			4.60	4.00	348.43	305.22		19.23	16.72	7.49	70.00
12/12/2016				72.00			20.00	6.40	357.05	308.49		85.69	27.42	7.77	73.00
12/13/2016				73.00		85.00	4.80	4.80	330.53	289.54	337.14	19.04	19.04	7.66	73.00
12/14/2016				70.00			7.70	5.60	315.24	264.80		29.13	21.18	7.72	72.00
12/15/2016	1.00	2.50		66.00			5.40	4.00	288.19	228.25		18.67	13.83	7.64	72.00
12/16/2016			10.00						261.97					7.73	77.00
12/17/2016									290.29					7.42	69.00
12/18/2016				50.00			6.70	6.40	271.41	162.85		21.82	20.84	7.27	68.00
12/19/2016				42.00			7.90	5.20	250.77	126.39		23.77	15.65	8.07	72.00
12/20/2016				39.00		73.00	10.00	4.00	284.66	133.22	249.36	34.16	13.66	7.18	70.00
12/21/2016				39.00			4.00	7.20	309.31	144.76		14.85	26.72	7.51	70.00

12/22/2016					36.00				14.00	4.80	320.15	138.30		53.79	18.44	7.48	73.00
12/23/2016											276.53					7.55	70.00
12/24/2016											247.19					7.26	72.00
12/25/2016					33.00				7.70	33.00	264.41	104.71		24.43	104.71	7.19	72.00
12/26/2016					18.00				8.20	8.80	225.33	48.67		22.17	23.79	7.21	70.00
12/27/2016					12.00			63.00	5.00	14.00	227.96	32.83	172.34	13.68	38.30	7.36	69.00
12/28/2016					8.00				8.50	4.00	176.70	16.96		18.02	8.48	7.19	68.00
12/29/2016					8.00				10.00	11.00	277.51	26.64		33.30	36.63	7.33	68.00
12/30/2016											210.54					7.26	75.00
12/31/2016											186.24					7.20	75.00
Avg	*1.058*	*2.100*	*5.000*	*5.000*	*5,413.750*	*78.899*	*0.010*	*70.333*	*8.757*	*11.617*	*317.343*	*302.576*	*252.775*	*34.087*	*44.963*	*7.506*	*78.178*
Min	*1.000*	*1.000*	*5.000*	*5.000*	*10.000*	*8.000*	*0.010*	*52.000*	*4.000*	*4.000*	*168.400*	*16.963*	*158.970*	*10.823*	*8.482*	*7.030*	*7.500*
Max	*1.700*	*3.000*	*5.000*	*5.000*	##########	*120.000*	*0.010*	*98.000*	*55.000*	*67.000*	*436.230*	*514.800*	*362.608*	*248.264*	*262.466*	*8.180*	*92.000*
Sum												##########					
30-Day AVG/ Daily MAX	*40/ 89*	*21/ 46*			*400*	*155*			*20/ 40*	*25/ 50*	*636.81*	*1848.6*		*183.5/ 477*	*229.3/ 596.3*	*6/ 9*	

DMR Support Data - Plant Effluent

Start Date: 1/1/2017 - **End Date:** 12/31/2017

Date	MeCL2 (ug/l)	Chloroform (ug/l)	Toluene (ug/l)	Vinyl Chloride (ug/L)	Fecal Coliform (#/100 mL)	Ammonia (mg/L)	Phenol (mg/L)	Residual Chlorine (parts/MM)	Total Nitrogen (mg/l)	tBOD (mg/l)	TSS (mg/l)	Plant Effluent Flow (gpm)	Amonnia Load (#/day)	Total Nitrogen (#/day)	tBOD Load (#/day)	TSS Load (#/day)	pH	Temp. (°F)	Diffuser Ammonia (mg/l)	IEPA TSS (mg/l)	IEPA Ammonia (mg/l)	IEPA BOD (mg/l)
1/1/2017						5.40				5.20	5.20	140.16	9.08		8.75	8.75	7.22	75.00				
1/2/2017						3.70				4.00	5.20	229.24	10.18		11.00	14.30	7.24	69.00				
1/3/2017						1.40			40.00	4.00	4.00	226.75	3.81	108.84	10.88	10.88	7.08	72.00				
1/4/2017						1.40				4.00	5.20	213.91	3.59		10.27	13.35	7.14	68.00				
1/5/2017						1.20				5.20	8.80	261.05	3.76		16.29	27.57	7.26	70.00				
1/6/2017												242.89					7.20	74.00				
1/7/2017												231.95					7.31	73.00				
1/8/2017						5.40				4.00	5.60	242.15	15.69		11.62	16.27	7.23	72.00				
1/9/2017						4.10				4.00	5.60	256.90	12.64		12.33	17.26	7.20	72.00				
1/10/2017						5.30			50.00	6.10	12.00	287.37	18.28	172.42	21.04	41.38	7.33	74.00				
1/11/2017						4.50				6.00	5.60	279.30	15.06		20.11	18.77	7.29	74.00				
1/12/2017						6.20				4.00	13.00	251.42	18.71		12.07	39.22	7.21	74.00				
1/13/2017												246.96					7.17	74.00				
1/14/2017												221.38					7.45	74.00				
1/15/2017						4.10				4.00	6.40	206.22	10.15		9.90	15.84	7.42	74.00				
1/16/2017						10.00				4.00	8.80	233.98	28.08		11.23	24.71	7.52	75.00				
1/17/2017						15.00			54.00	4.70	8.00	279.79	50.36	181.30	15.78	26.86	7.72	75.00				
1/18/2017						27.00				5.10	7.20	302.45	97.99		18.51	26.13	7.35	75.00				
1/19/2017						29.00				6.60	4.40	294.02	102.32		23.29	15.52	7.41	75.00				
1/20/2017	1.80				10.00							251.44					7.42	68.00				
1/21/2017												371.78					7.45	72.00				
1/22/2017						36.00				7.00	12.00	339.72	146.76		28.54	48.92	7.17	72.00				
1/23/2017						31.00				6.60	6.00	357.53	133.00		28.32	25.74	7.15	76.00				
1/24/2017						36.00			73.00	4.00	4.00	386.30	166.88	338.40	18.54	18.54	7.24	75.00				
1/25/2017						42.00				5.40	4.00	353.74	178.28		22.92	16.98	7.37	77.00				
1/26/2017						49.00				4.70	4.40	278.85	163.96		15.73	14.72	7.43	76.00				

1/27/2017								251.02					7.29	74.00
1/28/2017								291.84					7.24	73.00
1/29/2017				52.00		6.20	5.20	288.22	179.85		21.44	17.98	7.21	72.00
1/30/2017				48.00		4.00	5.60	334.89	192.90		16.07	22.50	7.25	74.00
1/31/2017				43.00	96.00	7.70	10.00	402.89	207.89	464.13	37.23	48.35	7.21	70.00
2/1/2017				47.00		4.10	6.00	371.29	209.41		18.27	26.73	7.29	72.00
2/2/2017				39.00		5.50	5.60	249.35	116.70		16.46	16.76	7.22	70.00
2/3/2017								300.38					7.11	73.00
2/4/2017								236.48					7.10	72.00
2/5/2017	4.00	1.00		44.00		4.00	14.00	258.22	136.34		12.39	43.38	7.12	75.00
2/6/2017			10.00	50.00		6.70	18.00	282.23	169.34		22.69	60.96	7.14	69.00
2/7/2017				53.00	99.00	5.60	8.80	328.67	209.03	390.46	22.09	34.71	7.46	75.00
2/8/2017				46.00		6.50	7.20	346.18	191.09		27.00	29.91	7.22	72.00
2/9/2017				42.00		7.00	7.60	353.78	178.31		29.72	32.26	7.03	68.00
2/10/2017								409.04					7.09	73.00
2/11/2017								366.10					7.09	74.00
2/12/2017				27.00		5.10	4.40	370.01	119.88		22.64	19.54	7.34	75.00
2/13/2017				19.00		4.00	8.40	288.04	65.67		13.83	29.03	7.21	72.00
2/14/2017				18.00	66.00	6.30	6.00	341.51	73.77	270.48	25.82	24.59	7.32	80.00
2/15/2017				15.00		6.90	7.20	325.32	58.56		25.94	28.11	7.28	78.00
2/16/2017				19.00		4.00	4.00	341.07	77.76		16.37	16.37	7.27	77.00
2/17/2017								356.02					7.08	70.00
2/18/2017								351.16					7.22	72.00
2/19/2017				17.00		18.00	13.00	349.87	71.37		75.57	54.58	7.25	75.00
2/20/2017				21.00		4.00	14.00	353.96	89.20		16.99	59.47	7.52	79.00
2/21/2017				22.00	59.00	4.00	7.20	366.69	96.81	259.62	17.60	31.68	7.21	75.00
2/22/2017				27.00		6.10	12.00	371.74	120.44		27.21	53.53	7.16	73.00
2/23/2017				34.00		4.70	8.00	272.27	111.09		15.36	26.14	7.21	75.00
2/24/2017								332.69					7.26	72.00
2/25/2017								355.53					6.84	68.00

2/26/2017					44.00				5.40	4.00	333.83	176.26		21.63	16.02	6.93	69.00
2/27/2017					39.00				4.00	4.00	326.63	152.86		15.68	15.68	7.07	73.00
2/28/2017					48.00			65.00	4.00	4.00	353.19	203.44	275.49	16.95	16.95	7.14	79.00
3/1/2017					57.00				5.00	4.00	337.38	230.77		20.24	16.19	7.50	79.00
3/2/2017					68.00				4.00	4.00	317.54	259.11		15.24	15.24	7.35	77.00
3/3/2017											325.15					7.53	76.00
3/4/2017											314.43					7.33	76.00
3/5/2017					77.00				5.00	4.00	319.84	295.53		19.19	15.35	7.42	76.00
3/6/2017					88.00				6.50	6.00	316.60	334.33		24.69	22.80	7.44	73.00
3/7/2017					90.00			99.00	7.20	4.00	331.96	358.52	394.37	28.68	15.93	7.37	73.00
3/8/2017					94.00				9.40	4.80	339.97	383.49		38.35	19.58	7.65	73.00
3/9/2017	1.00	1.00	5.00		92.00	0.010			6.30	4.00	362.26	399.94		27.39	17.39	7.70	72.00
3/10/2017				10.00							362.65					7.28	75.00
3/11/2017											357.98					7.39	75.00
3/12/2017					94.00				8.20	4.00	365.22	411.97		35.94	17.53	7.56	75.00
3/13/2017					89.00				6.10	4.00	369.39	394.51		27.04	17.73	8.19	75.00
3/14/2017					85.00			93.00	5.10	4.00	354.39	361.48	395.50	21.69	17.01	7.79	77.00
3/15/2017					83.00				4.00	4.00	368.14	366.67		17.67	17.67	6.78	73.00
3/16/2017					87.00				5.10	9.20	373.09	389.51		22.83	41.19	7.05	75.00
3/17/2017											375.57					7.57	77.00
3/18/2017											369.78					7.76	76.00
3/19/2017					87.00				5.30	10.00	382.39	399.22		24.32	45.89	7.94	77.00
3/20/2017					87.00				4.50	11.00	419.10	437.54		22.63	55.32	7.72	79.00
3/21/2017					85.00			87.00	6.10	4.80	427.26	435.81	446.06	31.28	24.61	7.87	75.00
3/22/2017					86.00				7.10	6.40	309.09	318.98		26.33	23.74	8.31	75.00
3/23/2017					82.00				9.30	10.00	381.93	375.82		42.62	45.83	7.43	76.00
3/24/2017											351.77					7.71	77.00
3/25/2017											357.85					7.72	74.00
3/26/2017					83.00				20.00	8.00	368.16	366.69		88.36	35.34	7.77	75.00
3/27/2017					82.00				7.90	9.20	343.62	338.12		32.58	37.94	7.72	75.00

3/28/2017			86.00		94.00	6.30	8.00	363.44	375.07	409.96	27.48	34.89	7.74	79.00
3/29/2017			87.00			15.00	8.00	363.13	379.11		65.36	34.86	7.63	75.00
3/30/2017			86.00			4.50	9.20	405.20	416.17		21.88	44.73	7.64	77.00
3/31/2017								379.78					7.90	75.00
4/1/2017								368.78					7.59	75.00
4/2/2017	1.00		86.00			6.10	10.00	375.53	387.55		27.49	45.06	7.59	72.00
4/3/2017			87.00			4.10	6.40	412.64	430.80		20.30	31.69	7.59	80.00
4/4/2017			88.00		90.00	4.00	9.60	420.73	444.29	454.39	20.20	48.47	7.75	82.00
4/5/2017			86.00			9.90	10.00	437.52	451.52		51.98	52.50	7.64	79.00
4/6/2017			78.00			5.00	16.00	435.71	407.82		26.14	83.66	7.78	73.00
4/7/2017								437.05					7.59	75.00
4/8/2017								376.64					7.37	72.00
4/9/2017			74.00			8.20	20.00	372.76	331.01		35.68	89.46	7.48	75.00
4/10/2017			72.00			4.30	20.00	425.25	367.42		21.94	102.08	7.47	78.00
4/11/2017			77.00		89.00	5.00	17.00	428.54	395.97	457.68	25.71	87.42	7.39	74.00
4/12/2017			79.00			4.60	21.00	340.30	322.60		18.78	85.76	7.58	75.00
4/13/2017			82.00			6.70	22.00	360.22	354.45		28.96	95.10	7.52	74.00
4/14/2017								346.90					7.51	75.00
4/15/2017								332.15					7.50	75.00
4/16/2017			95.00			11.00	41.00	366.62	417.95		48.39	180.38	7.50	75.00
4/17/2017			96.00			9.80	28.00	387.57	446.48		45.58	130.22	7.58	75.00
4/18/2017			93.00		97.00	7.60	25.00	333.48	372.16	388.17	30.41	100.04	8.09	73.00
4/19/2017			94.00			7.20	23.00	353.29	398.51		30.52	97.51	7.40	79.00
4/20/2017			90.00			9.00	24.00	351.85	380.00		38.00	101.33	7.50	77.00
4/21/2017								344.68					7.32	73.00
4/22/2017								354.91					7.44	76.00
4/23/2017			80.00			5.90	8.60	346.21	332.36		24.51	36.56	7.49	74.00
4/24/2017			74.00			4.00	8.80	352.02	312.59		16.90	37.17	7.38	72.00
4/25/2017			73.00		80.00	4.90	15.00	350.51	307.13	336.59	20.62	63.11	7.49	72.00
4/26/2017			71.00			4.00	10.00	339.46	289.22		16.29	40.74	8.06	75.00

4/27/2017			75.00		4.80	7.60	331.55	298.40		19.10	30.24	7.35	68.00
4/28/2017							332.90					7.19	76.00
4/29/2017							496.35					7.51	74.00
4/30/2017			60.00		4.00	4.40	388.71	279.87		18.66	20.52	7.53	68.00
5/1/2017			60.00		6.70	6.40	349.50	251.64		28.10	26.84	7.57	75.00
5/2/2017			63.00	70.00	6.60	6.40	342.31	258.79	287.54	27.11	26.29	7.57	73.00
5/3/2017			64.00		6.60	4.00	327.23	251.31		25.92	15.71	7.36	73.00
5/4/2017			68.00		9.10	5.60	340.62	277.95		37.20	22.89	7.45	72.00
5/5/2017							334.63					7.54	72.00
5/6/2017							321.02					7.53	70.00
5/7/2017			91.00		7.20	5.60	344.06	375.71		29.73	23.12	7.57	74.00
5/8/2017	1.00	10.00	93.00		9.80	7.20	344.26	384.19		40.48	29.74	7.58	74.00
5/9/2017			100.00	99.00	11.00	4.80	376.75	452.10	447.58	49.73	21.70	7.70	72.00
5/10/2017			98.00		10.00	19.00	386.28	454.27		46.35	88.07	7.68	76.00
5/11/2017			100.00		16.00	6.00	372.07	446.48		71.44	26.79	8.04	76.00
5/12/2017							367.63					7.70	71.00
5/13/2017							374.35					7.67	77.00
5/14/2017			90.00		7.70	6.00	374.19	404.13		34.58	26.94	7.56	80.00
5/15/2017			97.00		13.00	10.00	371.80	432.78		58.00	44.62	7.70	80.00
5/16/2017			89.00	110.00	14.00	8.80	354.17	378.25	467.50	59.50	37.40	7.46	82.00
5/17/2017			89.00		15.00	8.80	342.63	365.93		61.67	36.18	7.66	79.00
5/18/2017			90.00		9.50	7.60	365.45	394.69		41.66	33.33	7.55	80.00
5/19/2017							370.95					7.62	75.00
5/20/2017							324.05					7.53	77.00
5/21/2017			90.00		10.00	9.20	358.91	387.62		43.07	39.62	7.17	75.00
5/22/2017			84.00		12.00	14.00	328.96	331.59		47.37	55.27	7.63	73.00
5/23/2017			83.00	97.00	5.10	5.20	353.69	352.28	411.70	21.65	22.07	8.08	73.00
5/24/2017			86.00		11.00	6.40	368.97	380.78		48.70	28.34	7.61	73.00
5/25/2017			83.00		7.90	6.40	364.13	362.67		34.52	27.97	7.40	73.00
5/26/2017							366.44					7.49	79.00

5/27/2017									365.41					7.23	80.00
5/28/2017				67.00			8.70	8.80	371.05	298.32		38.74	39.18	7.25	79.00
5/29/2017				56.00			5.50	9.60	371.28	249.50		24.50	42.77	6.97	80.00
5/30/2017				57.00		96.00	18.00	8.80	369.45	252.70	425.61	79.80	39.01	7.57	75.00
5/31/2017				56.00			9.30	9.20	375.79	252.53		41.94	41.49	7.21	79.00
6/1/2017				54.00			7.90	6.40	385.62	249.88		36.56	29.62	7.31	77.00
6/2/2017									372.12					7.18	80.00
6/3/2017									362.75					7.52	82.00
6/4/2017				48.00			5.00	10.00	374.78	215.87		22.49	44.97	7.58	80.00
6/5/2017	1.00	1.00	10.00	42.00			4.70	5.20	368.93	185.94		20.81	23.02	7.58	80.00
6/6/2017				39.00		79.00	5.00	4.80	370.71	173.49	351.43	22.24	21.35	7.58	80.00
6/7/2017				39.00			5.90	4.00	380.05	177.86		26.91	18.24	7.36	80.00
6/8/2017				32.00			4.60	6.00	389.01	149.38		21.47	28.01	7.15	80.00
6/9/2017									396.61					7.50	81.00
6/10/2017									398.96					7.43	80.00
6/11/2017				36.00			4.00	4.00	398.06	171.96		19.11	19.11	7.52	84.00
6/12/2017				34.00			5.20	6.80	359.68	146.75		22.44	29.35	7.30	82.00
6/13/2017				32.00		53.00	14.00	7.20	385.51	148.04	245.18	64.77	33.31	7.40	84.00
6/14/2017				30.00			4.00	4.00	390.76	140.67		18.76	18.76	7.42	82.00
6/15/2017				33.00			7.20	4.00	381.04	150.89		32.92	18.29	7.44	84.00
6/16/2017									384.78					7.97	82.00
6/17/2017														7.26	84.00
6/18/2017				35.00			4.60	9.60	379.92	159.57		20.97	43.77	7.18	82.00
6/19/2017				38.00			13.00	6.00	374.05	170.57		58.35	26.93	7.43	80.00
6/20/2017				36.00		68.00	9.70	7.20	286.62	123.82	233.88	33.36	24.76	7.39	80.00
6/21/2017				39.00			14.00	4.00	301.63	141.16		50.67	14.48	7.26	80.00
6/22/2017				40.00			4.00	4.00	353.00	169.44		16.94	16.94	7.40	82.00
6/23/2017									346.39					7.40	82.00
6/24/2017									341.34					7.09	82.00
6/25/2017				40.00			4.00	7.60	334.43	160.53		16.05	30.50	7.22	82.00

6/26/2017			39.00		14.00	8.00	340.77	159.48		57.25	32.71	8.03	77.00
6/27/2017			40.00	72.00	5.70	4.00	291.89	140.11	252.19	19.97	14.01	6.95	73.00
6/28/2017			42.00		12.00	5.20	302.36	152.39		43.54	18.87	7.29	75.00
6/29/2017			47.00		5.60	6.40	288.50	162.71		19.39	22.16	7.20	77.00
6/30/2017							337.77					7.47	80.00
7/1/2017							331.53					7.71	80.00
7/2/2017			39.00		9.30	4.80	313.97	146.94		35.04	16.08	7.82	80.00
7/3/2017			30.00		5.00	6.80	273.11	98.32		16.39	22.29	8.10	84.00
7/4/2017			26.00	55.00	8.60	4.00	252.53	78.79	166.67	26.06	12.12	7.76	75.00
7/5/2017			24.00		7.50	4.00	313.26	90.22		28.19	15.04	7.91	76.00
7/6/2017			23.00		5.30	4.80	358.29	98.69		27.09	20.64	7.76	82.00
7/7/2017							352.54					7.91	75.00
7/8/2017							353.72					7.49	75.00
7/9/2017			29.00		4.00	13.00	343.02	119.37		16.46	53.51	7.55	79.00
7/10/2017	2.10	10.00	33.00		14.00	6.00	339.39	134.40		57.02	24.44	7.52	77.00
7/11/2017			37.00	59.00	4.90	4.00	337.13	149.69	238.69	19.82	16.18	7.05	79.00
7/12/2017			43.00		5.80	4.00	340.38	175.64		23.69	16.34	7.74	77.00
7/13/2017			42.00		9.00	6.00	349.81	176.30		37.78	25.19	7.38	77.00
7/14/2017							407.17					7.33	82.00
7/15/2017							284.47					7.23	78.00
7/16/2017			48.00		9.50	6.80	305.10	175.74		34.78	24.90	7.13	80.00
7/17/2017			50.00		8.20	10.00	330.42	196.25		32.51	39.65	7.78	82.00
7/18/2017			53.00	78.00	12.00	5.20	353.63	224.91	331.00	50.92	22.07	7.00	84.00
7/19/2017			54.00		7.00	8.00	354.61	229.79		29.79	34.04	7.55	82.00
7/20/2017			54.00		14.00	8.00	343.70	222.72		57.74	33.00	7.59	84.00
7/21/2017							351.75					7.34	86.00
7/22/2017							386.90					7.11	84.00
7/23/2017			48.00		6.00	12.00	370.85	213.61		26.70	53.40	7.14	88.00
7/24/2017			39.00		11.00	4.00	338.92	158.61		44.74	16.27	7.19	86.00
7/25/2017			33.00	57.00	5.30	5.60	289.29	114.56	197.87	18.40	19.44	7.13	84.00

7/26/2017				31.00		7.40	5.20	284.01	105.65		25.22	17.72	7.27	86.00
7/27/2017				41.00		4.00	4.00	303.36	149.25		14.56	14.56	7.42	86.00
7/28/2017								352.13					7.42	79.00
7/29/2017								382.26					7.47	79.00
7/30/2017				68.00		11.00	6.40	374.62	305.69		49.45	28.77	7.66	79.00
7/31/2017				68.00		7.00	7.20	434.53	354.58		36.50	37.54	7.49	82.00
8/1/2017				75.00	87.00	8.50	4.00	435.84	392.26	455.02	44.46	20.92	7.53	82.00
8/2/2017				85.00		10.00	4.00	390.06	397.86		46.81	18.72	7.33	82.00
8/3/2017				80.00		8.60	7.20	384.81	369.42		30.48	33.25	7.71	81.00
8/4/2017								374.52					7.54	86.00
8/5/2017								358.88					7.66	86.00
8/6/2017				85.00		9.00	4.00	363.81	371.09		39.29	17.46	7.44	88.00
8/7/2017				80.00		10.00	13.00	384.91	369.51		46.19	60.05	7.66	68.00
8/8/2017				80.00	93.00	13.00	12.00	374.31	359.34	417.73	58.39	53.90	7.52	84.00
8/9/2017				78.00		9.00	20.00	368.18	344.62		39.76	88.36	8.03	86.00
8/10/2017				76.00		16.00	19.00	361.87	330.03		69.48	82.51	7.92	86.00
8/11/2017								366.30					7.94	84.00
8/12/2017								358.24					7.43	86.00
8/13/2017	1.00	1.70	10.00	74.00		8.60	11.00	286.32	254.25		29.55	37.79	7.86	82.00
8/14/2017				66.00		12.00	15.00	200.07	158.46		28.81	36.01	7.54	82.00
8/15/2017				59.00	80.00	7.40	11.00	248.71	176.09	238.76	22.09	32.83	7.64	81.00
8/16/2017				63.00		8.20	10.00	309.69	234.13		30.47	37.16	7.56	86.00
8/17/2017				57.00		8.30	19.00	316.82	216.70		31.56	72.23	7.58	86.00
8/18/2017								361.26					7.61	78.00
8/19/2017								322.25					7.55	78.00
8/20/2017				41.00		7.60	10.00	265.51	130.63		24.21	31.86	7.74	81.00
8/21/2017				40.00		6.00	15.00	316.38	151.86		22.78	56.95	7.45	80.00
8/22/2017				39.00	56.00	5.60	4.00	350.63	164.09	235.62	23.56	16.83	7.62	80.00
8/23/2017				37.00		9.40	6.00	358.45	159.15		40.43	25.81	7.46	78.00
8/24/2017				36.00		14.00	14.00	360.38	155.68		60.54	60.54	7.63	79.00

8/25/2017									337.77					6.90	77.00
8/26/2017									322.17					7.35	80.00
8/27/2017				45.00			11.00	35.00	334.14	180.44		44.11	140.34	7.32	81.00
8/28/2017				44.00			11.00	42.00	329.24	173.84		43.46	165.94	7.28	82.00
8/29/2017				49.00		61.00	13.00	46.00	339.92	199.87	248.82	53.03	187.64	7.46	86.00
8/30/2017				50.00			13.00	39.00	339.48	203.69		52.96	158.88	7.48	86.00
8/31/2017				51.00			8.80	14.00	336.59	205.99		35.54	56.55	7.48	86.00
9/1/2017									228.19					7.44	82.00
9/2/2017									338.05					8.07	84.00
9/3/2017				51.00			15.00	11.00	337.26	205.40		60.71	44.52	7.57	84.00
9/4/2017	1.00	7.30	10.00	52.00			18.00	9.60	331.50	206.86		71.60	38.19	7.25	81.00
9/5/2017				49.00		59.00	14.00	28.00	330.60	194.39	234.06	55.54	111.08	7.90	78.00
9/6/2017				46.00			13.00	37.00	335.85	185.39		52.39	149.12	7.36	80.00
9/7/2017				40.00			13.00	22.00	322.69	154.89		50.34	85.19	7.40	75.00
9/8/2017									360.15					7.34	77.00
9/9/2017									351.81					7.59	77.00
9/10/2017				44.00			8.40	26.00	350.55	185.09		35.34	109.37	7.58	78.00
9/11/2017				47.00			15.00	30.00	348.59	196.60		62.75	125.49	7.59	77.00
9/12/2017				56.00		68.00	12.00	38.00	350.97	235.85	286.39	50.54	160.04	7.21	80.00
9/13/2017				62.00			20.00	44.00	359.00	257.10		86.16	189.55	8.03	82.00
9/14/2017				68.00			8.70	22.00	360.87	294.47		37.67	95.27	7.58	80.00
9/15/2017									362.18					8.02	80.00
9/16/2017									351.00					7.65	84.00
9/17/2017				77.00			9.10	16.00	361.46	333.99		39.47	69.40	7.71	82.00
9/18/2017				82.00			10.00	20.00	359.30	353.55		43.12	86.23	7.85	84.00
9/19/2017				84.00		88.00	9.20	36.00	359.78	362.66	379.93	39.72	155.42	7.85	82.00
9/20/2017				82.00			6.00	48.00	359.66	353.91		25.90	207.16	7.60	84.00
9/21/2017				79.00			10.00	33.00	363.37	344.47		43.60	143.89	7.58	75.00
9/22/2017									343.87					7.68	84.00
9/23/2017									295.40					7.64	85.00

9/24/2017			80.00		9.90	10.00	315.27	302.66		37.45	37.83	7.65	85.00
9/25/2017			80.00		27.00	22.00	318.46	305.74		103.19	84.08	7.47	82.00
9/26/2017			77.00	82.00	5.40	4.00	320.46	296.11	315.33	20.77	15.38	7.87	86.00
9/27/2017			78.00		5.80	9.20	311.67	291.72		21.69	34.41	7.72	84.00
9/28/2017			75.00		8.20	10.00	321.96	289.76		31.68	38.64	7.65	80.00
9/29/2017							311.73					7.90	77.00
9/30/2017							307.13					7.47	79.00
10/1/2017			64.00		4.90	9.60	322.19	247.44		18.94	37.12	7.29	78.00
10/2/2017			55.00		11.00	14.00	333.72	220.26		44.05	56.06	7.30	82.00
10/3/2017			54.00	62.00	8.30	20.00	336.18	217.84	250.12	33.48	80.68	7.26	80.00
10/4/2017			55.00		9.60	11.00	336.31	221.96		38.74	44.39	7.83	80.00
10/5/2017			59.00		16.00	22.00	330.26	233.82		63.41	87.19	7.37	84.00
10/6/2017							324.74					7.46	79.00
10/7/2017							324.82					7.54	79.00
10/8/2017			80.00		16.00	32.00	319.84	307.05		61.41	122.82	7.32	81.00
10/9/2017	1.00	90.00	81.00		11.00	24.00	316.08	307.23		41.72	91.03	7.97	79.00
10/10/2017			84.00	94.00	9.20	26.00	333.79	336.46	376.52	36.85	104.14	7.93	82.00
10/11/2017			85.00		10.00	29.00	418.69	427.06		50.24	145.70	7.29	76.00
10/12/2017			87.00		8.10	24.00	392.16	409.42		38.12	112.94	7.34	77.00
10/13/2017							370.51					7.17	78.00
10/14/2017							392.48					7.42	80.00
10/15/2017			76.00		11.00	26.00	426.53	389.00		56.30	133.08	7.49	78.00
10/16/2017			72.00		20.00	18.00	422.86	365.35		101.49	91.34	7.46	73.00
10/17/2017			69.00	74.00	6.40	26.00	426.12	352.83	378.39	32.73	132.95	7.23	70.00
10/18/2017			70.00		17.00	24.00	417.16	350.41		85.10	120.14	7.76	72.00
10/19/2017			66.00		8.90	12.00	406.34	321.82		43.40	58.51	7.90	70.00
10/20/2017							407.91					7.79	76.00
10/21/2017							412.48					7.07	74.00
10/22/2017			58.00		5.20	21.00	412.34	286.99		25.73	103.91	7.40	78.00
10/23/2017			60.00		6.90	22.00	395.86	285.02		42.28	104.51	7.76	77.00

10/24/2017				66.00		78.00	11.00	21.00	392.96	311.22	367.81	51.67	99.03	7.62	75.00
10/25/2017				62.00			7.20	21.00	380.77	283.29		32.90	95.95	7.33	75.00
10/26/2017				67.00			11.00	18.00	345.57	277.84		45.62	74.64	7.20	75.00
10/27/2017									311.46					7.25	70.00
10/28/2017									308.38					7.28	72.00
10/29/2017				79.00			6.20	18.00	299.92	284.32		22.31	64.78	7.38	70.00
10/30/2017				79.00			8.20	22.00	337.92	320.35		33.25	89.21	7.36	76.00
10/31/2017				83.00		90.00	4.00	15.00	372.18	370.69	401.95	17.85	66.99	7.32	70.00
11/1/2017				85.00			6.60	14.00	377.47	385.02		29.90	63.41	7.52	72.00
11/2/2017				85.00			5.50	15.00	402.41	410.46		26.56	72.43	7.49	72.00
11/3/2017									350.27					7.32	78.00
11/4/2017									352.79					6.81	80.00
11/5/2017				88.00			4.00	20.00	348.81	368.34		16.74	83.71	6.98	79.00
11/6/2017				89.00			5.40	19.00	360.54	385.06		23.38	82.20	7.33	73.00
11/7/2017				85.00		100.00	5.20	16.00	359.99	367.19	431.99	22.46	69.12	7.41	69.00
11/8/2017				90.00			7.90	21.00	361.06	389.94		34.23	90.99	7.30	72.00
11/9/2017				86.00			14.00	20.00	363.32	374.95		61.04	87.20	7.28	75.00
11/10/2017									366.47					7.25	75.00
11/11/2017									366.83					7.32	75.00
11/12/2017				75.00			6.00	18.00	358.83	322.95		25.84	77.51	7.47	73.00
11/13/2017	1.00	5.30		1,000.00	80.00		5.40	30.00	351.14	337.09		22.75	126.41	7.38	76.00
11/14/2017					82.00	97.00	14.00	31.00	341.49	336.03	397.49	57.37	127.03	7.30	70.00
11/15/2017					84.00		6.00	30.00	347.11	349.89		24.99	124.96	7.12	76.00
11/16/2017					81.00		5.90	32.00	354.55	344.62		25.10	136.15	6.94	72.00
11/17/2017									351.78					7.57	73.00
11/18/2017									351.64					7.62	73.00
11/19/2017				10.00	72.00		4.00	21.00	359.02	310.19		17.23	90.47	7.46	70.00
11/20/2017					64.00		4.30	22.00	345.92	265.67		17.85	91.32	7.38	75.00
11/21/2017					61.00	73.00	6.70	20.00	366.15	268.02	320.75	29.44	87.88	7.34	75.00
11/22/2017					54.00		4.00	14.00	322.61	209.05		15.49	54.20	7.34	75.00

11/23/2017				51.00		4.00	16.00	278.16	170.23		13.35	53.41	7.10	75.00
11/24/2017								186.09					7.34	72.00
11/25/2017								194.99					7.46	70.00
11/26/2017			10.00	46.00		7.10	28.00	254.90	140.70		21.72	85.65	7.37	72.00
11/27/2017				42.00		4.90	26.00	222.37	112.07		13.08	69.38	7.19	70.00
11/28/2017				39.00		7.50	31.00	248.07	116.10		22.33	92.28	7.51	68.00
11/29/2017				39.00	55.00	4.00	22.00	253.76	118.76	167.48	12.18	66.99	7.42	68.00
11/30/2017				37.00		6.90	16.00	270.81	120.24		22.42	58.49	7.36	70.00
12/1/2017								265.64					7.22	70.00
12/2/2017								272.67					7.13	70.00
12/3/2017				31.00		4.00	10.00	305.09	113.49		14.64	36.61	7.14	82.00
12/4/2017	1.00	1.00	45.00	35.00		5.60	12.00	319.99	134.40		21.50	46.08	7.20	79.00
12/5/2017				36.00	47.00	7.00	15.00	404.75	174.85	228.28	34.00	72.66	7.16	70.00
12/6/2017				37.00		6.80	12.00	372.97	165.60		30.43	53.71	8.00	72.00
12/7/2017				38.00		8.80	15.00	331.00	150.94		34.95	59.58	7.43	70.00
12/8/2017								353.56					7.14	70.00
12/9/2017								328.92					7.32	68.00
12/10/2017				42.00		3.00	13.00	299.45	150.92		17.97	46.71	7.39	74.00
12/11/2017				45.00		4.00	22.00	294.74	159.16		14.15	77.81	7.25	73.00
12/12/2017				51.00		5.80	43.00	286.32	175.23		19.93	147.74	7.33	72.00
12/13/2017				52.00	64.00	7.00	30.00	276.24	172.37	212.15	23.20	99.45	7.06	79.00
12/14/2017				55.00		7.10	26.00	281.45	185.76		23.98	94.57	7.03	68.00
12/15/2017								281.92					7.49	73.00
12/16/2017								284.36					7.44	72.00
12/17/2017				71.00		4.40	24.00	292.60	249.30		15.45	84.27	7.59	70.00
12/18/2017				78.00		4.00	23.00	271.90	254.50		13.05	75.04	7.51	79.00
12/19/2017				82.00	90.00	4.00	25.00	316.97	311.90	342.33	15.21	95.09	7.44	77.00
12/20/2017				83.00		4.00	15.00	293.93	292.75		14.11	52.91	7.38	75.00
12/21/2017				80.00		4.00	14.00	299.67	287.68		14.38	50.34	7.43	77.00
12/22/2017								270.30					7.35	72.00

12/23/2017									274.72					7.34	70.00
12/24/2017				87.00			5.50	16.00	268.09	279.89		17.69	51.47	7.26	70.00
12/25/2017				85.00			4.00	17.00	302.01	308.05		14.50	61.61	6.84	69.00
12/26/2017				78.00		89.00	4.00	18.00	284.10	265.92	303.42	13.64	61.37	7.02	67.00
12/27/2017				71.00			4.50	14.00	199.23	169.74		10.76	33.47	7.37	68.00
12/28/2017				68.00			5.00	13.00	160.11	130.65		9.61	24.98	7.32	68.00
12/29/2017									187.94					7.52	69.00
12/30/2017									125.15					6.74	68.00
12/31/2017				66.00			4.40	13.00	184.28	145.95		9.73	28.75	6.91	68.00
Avg	*1.408*	*2.614*	*5.000*	*88.929*	*58.907*	*0.010*	*77.135*	*7.747*	*13.247*	*336.954*	*245.186*	*322.905*	*31.882*	*53.900*	*7.443*	*76.597*
Min	*1.000*	*1.000*	*5.000*	*10.000*	*1.200*	*0.010*	*40.000*	*4.000*	*4.000*	*125.150*	*3.594*	*108.840*	*8.746*	*8.746*	*6.640*	*67.000*
Max	*4.000*	*7.300*	*5.000*	*1,000.000*	*100.000*	*0.010*	*110.000*	*27.000*	*48.000*	*496.350*	*454.265*	*467.504*	*103.188*	*207.164*	*8.310*	*88.000*
Sum											##########					
30-Day AVG/ Daily MAX	*40/ 89*	*21/ 46*		*400*	*155*			*20/ 48*	*25/ 50*	*636.81*	*1848.6*		*183.5/ 477*	*229.3/ 596.3*	*6/ 9*	

DMR Support Data - Plant Effluent

Start Date: 1/1/2018 - **End Date:** 12/31/2018

Date	MeCL2 (ug/l)	Chloroform (ug/l)	Toluene (ug/l)	Vinyl Chloride (ug/L)	Fecal Coliform (#/100 mL)	Ammonia (mg/L)	Phenol (mg/L)	Residual Chlorine (parts/MM)	Total Nitrogen (mg/l)	tBOD (mg/l)	TSS (mg/l)	Plant Effluent Flow (gpm)	Amonnia Load (lb/day)	Total Nitrogen (lb/day)	tBOD Load (lb/day)	TSS Load (lb/day)	pH	Temp. (°F)	Diffuser Ammonia (mg/l)	IEPA TSS (mg/l)	IEPA Ammonia (mg/l)	IEPA BOD (mg/l)
1/1/2018						66.00				4.00	14.00	170.35	134.92		8.18	28.62	7.44	68.00				
1/2/2018												165.91					7.39	66.00				
1/3/2018						60.00				4.00	18.00	217.54	156.63		10.44	46.99	7.38	70.00				
1/4/2018						62.00				4.00	16.00	243.71	181.32		11.70	46.79	7.84	66.00				
1/5/2018												264.59					7.45	70.00				
1/6/2018												293.75					7.25	68.00				
1/7/2018						62.00				5.40	19.00	237.19	176.47		15.37	54.08	7.46	70.00				
1/8/2018	1.00				45.00	66.00				5.20	18.00	242.74	192.25		15.15	52.43	7.52	75.00				
1/9/2018						73.00			86.00	4.80	18.00	278.24	243.74	287.14	16.03	60.10	7.70	73.00				
1/10/2018						69.00				5.20	19.00	358.39	296.75		22.36	81.71	7.51	75.00				
1/11/2018						69.00				4.70	20.00	360.64	298.61		20.34	86.55	7.49	77.00				
1/12/2018												396.10					7.62	68.00				
1/13/2018												319.14					7.42	68.00				
1/14/2018						62.00				5.90	23.00	325.77	243.12		23.14	90.19	7.73	68.00				
1/15/2018						63.00				5.50	26.00	334.80	253.11		22.10	104.46	7.78	72.00				
1/16/2018						64.00			79.00	5.80	32.00	331.07	254.26	313.65	23.04	127.13	7.56	72.00				
1/17/2018						72.00				6.20	30.00	323.41	279.43		24.06	116.43	7.53	72.00				
1/18/2018						85.00				6.80	42.00	329.30	335.89		25.87	165.97	7.55	72.00				
1/19/2018												325.85					7.62	70.00				
1/20/2018												355.04					7.75	68.00				
1/21/2018						110.00				5.60	31.00	324.34	426.13		21.80	120.65	7.51	75.00				
1/22/2018						110.00				5.60	34.00	340.64	449.64		22.89	138.98	7.62	68.00				
1/23/2018						110.00			110.00	8.60	30.00	381.30	503.32	503.32	39.35	137.27	7.65	70.00				
1/24/2018						99.00				6.10	25.00	401.94	477.50		29.42	120.58	7.60	70.00				
1/25/2018						92.00				6.00	24.00	387.75	428.08		27.92	111.67	7.52	70.00				
1/26/2018												375.50					7.33	69.00				

1/27/2018								353.35					7.27	70.00
1/28/2018			96.00			8.40	27.00	338.91	390.42		34.16	109.81	7.40	70.00
1/29/2018			95.00			9.00	24.00	294.36	335.57		31.79	84.78	7.37	73.00
1/30/2018			97.00		120.00	7.20	25.00	277.41	322.91	399.47	23.97	83.22	7.52	73.00
1/31/2018			94.00			5.00	21.00	258.15	291.19		15.49	65.05	7.53	72.00
2/1/2018			93.00			5.10	18.00	259.52	289.62		15.88	56.06	7.48	70.00
2/2/2018								300.07					7.40	72.00
2/3/2018								326.09					7.52	73.00
2/4/2018			67.00			4.00	12.00	303.21	243.78		14.55	43.66	7.35	73.00
2/5/2018	1.00		65.00	150.00		7.70	15.00	291.16	227.10		26.90	52.41	7.50	68.00
2/6/2018			63.00		72.00	5.70	14.00	295.23	223.19	255.08	20.19	49.60	7.01	66.00
2/7/2018			57.00			6.90	14.00	351.30	240.29		29.09	59.02	6.95	68.00
2/8/2018			59.00			4.00	11.00	353.51	250.29		16.97	46.66	7.19	68.00
2/9/2018								340.80					7.24	69.00
2/10/2018								328.94					7.63	70.00
2/11/2018			65.00			7.00	16.00	315.34	245.97		26.49	60.55	7.54	69.00
2/12/2018			71.00			7.00	16.00	320.14	272.76		26.89	61.47	7.43	70.00
2/13/2018			70.00		85.00	9.60	18.00	330.64	277.74	337.25	38.09	71.42	7.49	72.00
2/14/2018			68.00			5.80	17.00	330.64	269.80		23.01	67.45	7.38	73.00
2/15/2018			69.00			7.00	18.00	345.41	286.00		29.01	74.61	7.39	75.00
2/16/2018								353.86					7.56	73.00
2/17/2018								386.76					7.57	71.00
2/18/2018			74.00			6.20	20.00	396.85	352.40		29.53	95.24	7.51	69.00
2/19/2018			77.00			5.60	21.00	366.21	338.38		24.61	92.28	7.44	72.00
2/20/2018			68.00		83.00	4.00	17.00	350.06	285.65	348.66	16.80	71.41	7.56	78.00
2/21/2018			74.00			7.60	18.00	342.83	304.43		31.27	74.05	7.59	70.00
2/22/2018			68.00			7.40	16.00	343.86	280.59		30.53	66.02	7.68	70.00
2/23/2018								336.16					7.56	66.00
2/24/2018								312.93					7.14	73.00
2/25/2018			67.00			4.20	10.00	274.54	220.73		13.84	32.94	7.17	72.00

2/26/2018						71.00				8.30	16.00	227.37	193.72		22.65	43.66	7.03	68.00
2/27/2018						72.00			82.00	4.70	16.00	276.61	238.99	272.18	15.60	53.11	7.31	73.00
2/28/2018						67.00				5.10	16.00	305.22	245.40		18.68	58.60	7.48	73.00
3/1/2018						68.00				7.10	22.00	314.69	256.79		26.81	83.08	7.53	72.00
3/2/2018												273.78					7.47	77.00
3/3/2018												298.18					7.45	77.00
3/4/2018						82.00				10.00	47.00	294.72	290.00		35.37	166.22	7.44	77.00
3/5/2018	1.00	1.00			3,600.00	91.00				7.50	46.00	308.73	337.13		27.79	170.42	7.47	72.00
3/6/2018						93.00			96.00	12.00	50.00	320.48	357.66	369.19	46.15	192.29	7.50	74.00
3/7/2018						100.00				8.30	47.00	294.81	353.77		29.36	166.27	7.08	72.00
3/8/2018						100.00				11.00	44.00	273.11	327.73		36.05	144.20	7.53	72.00
3/9/2018												274.87					7.55	72.00
3/10/2018												294.75					7.66	70.00
3/11/2018					200.00	110.00				8.40	37.00	288.38	380.66		29.07	128.04	7.66	72.00
3/12/2018						110.00				21.00	33.00	281.92	372.13		71.04	111.64	7.87	75.00
3/13/2018						110.00			100.00	6.70	33.00	295.26	389.74	354.31	23.74	116.92	7.78	75.00
3/14/2018						110.00				10.00	26.00	293.90	387.95		35.27	91.70	7.46	74.00
3/15/2018						110.00				6.40	11.00	287.87	379.99		22.11	38.00	7.37	77.00
3/16/2018												165.03					7.52	72.00
3/17/2018												276.00					7.34	70.00
3/18/2018	45.00	6.60	5.00	5.00	81.00	110.00	10.000			5.10	14.00	350.80	463.06		21.47	58.93	7.66	74.00
3/19/2018						110.00				4.40	12.00	330.05	435.67		17.43	47.53	7.31	75.00
3/20/2018						100.00			98.00	4.40	17.00	370.35	444.42	435.53	19.55	75.55	7.39	74.00
3/21/2018						95.00				4.40	11.00	375.31	427.85		19.82	49.54	7.46	72.00
3/22/2018						93.00				5.50	12.00	365.78	408.21		24.14	52.67	7.54	70.00
3/23/2018												316.28					7.40	73.00
3/24/2018												314.16					7.15	74.00
3/25/2018						93.00				5.00	18.00	328.14	366.20		19.69	70.88	7.53	72.00
3/26/2018						94.00				5.90	18.00	277.82	313.38		19.67	60.01	7.19	70.00
3/27/2018						97.00			95.00	4.90	18.00	278.45	324.12	317.43	16.37	60.15	7.16	70.00

3/28/2018				100.00		6.10	12.00	268.77	322.52		19.67	38.70	7.39	70.00
3/29/2018				110.00		5.40	9.20	284.56	375.65		18.44	31.42	7.48	72.00
3/30/2018								312.87					7.00	77.00
3/31/2018								325.32					7.43	77.00
4/1/2018				120.00		21.00	16.00	298.78	430.24		75.29	57.37	7.34	75.00
4/2/2018				110.00		8.50	16.00	309.53	408.58		31.57	59.43	7.46	72.00
4/3/2018				100.00	150.00	10.00	31.00	305.68	366.82	550.22	36.68	113.71	7.40	72.00
4/4/2018				92.00	130.00	20.00	22.00	306.74	338.64	478.51	73.62	80.98	7.35	72.00
4/5/2018				80.00		33.00	71.00	294.36	282.59		116.57	250.79	7.27	73.00
4/6/2018								327.06					7.44	71.00
4/7/2018								309.69					7.56	70.00
4/8/2018				69.00		16.00	30.00	304.15	251.84		58.40	109.49	7.55	72.00
4/9/2018				65.00		17.00	35.00	317.75	247.85		64.82	137.27	7.34	75.00
4/10/2018				53.00	130.00	17.00	14.00	303.84	229.70	473.99	61.98	51.05	7.20	75.00
4/11/2018				59.00		24.00	21.00	293.18	207.57		84.44	73.88	7.23	77.00
4/12/2018				59.00		26.00	20.00	304.42	215.53		94.98	73.06	7.21	77.00
4/13/2018								304.48					7.22	73.00
4/14/2018								304.54					7.25	75.00
4/15/2018				58.00		31.00	18.00	311.71	216.95		115.96	67.33	7.23	73.00
4/16/2018	140.00	14.00	270.00	60.00		26.00	10.00	321.93	231.79		100.44	38.63	7.35	70.00
4/17/2018				57.00	110.00	22.00	19.00	320.82	219.44	423.48	84.70	73.15	6.85	70.00
4/18/2018				56.00		22.00	8.00	312.32	209.88		82.45	29.98	7.49	70.00
4/19/2018				55.00		24.00	27.00	317.54	209.58		91.45	102.88	7.42	70.00
4/20/2018								322.07					7.35	74.00
4/21/2018								322.02					7.10	74.00
4/22/2018				57.00		24.00	12.00	315.20	215.60		90.78	45.39	7.22	75.00
4/23/2018				65.00		19.00	20.00	312.42	243.69		71.23	74.98	7.25	73.00
4/24/2018				70.00	130.00	14.00	24.00	320.43	269.16	499.87	53.83	92.28	7.33	73.00
4/25/2018	54.00			77.00		16.00	22.00	320.43	296.08		61.52	84.59	7.50	76.00
4/26/2018				84.00		20.00	26.00	320.43	322.99		76.90	99.97	7.53	80.00

4/27/2018							320.43					7.84	77.00
4/28/2018							320.43					7.48	77.00
4/29/2018			84.00		29.00	34.00	304.54	306.98		105.98	124.25	7.54	77.00
4/30/2018			73.00		34.00	24.00	360.39	315.70		147.04	103.79	7.53	75.00
5/1/2018			70.00	130.00	35.00	27.00	395.81	332.48	617.46	166.24	128.24	7.50	77.00
5/2/2018			61.00		23.00	36.00	385.57	282.24		106.42	166.57	7.35	77.00
5/3/2018			55.00		21.00	46.00	409.43	270.22		103.18	235.83	7.25	76.00
5/4/2018							401.15					7.38	77.00
5/5/2018							384.18					7.41	79.00
5/6/2018	3.70	90.00	47.00		18.00	20.00	384.07	216.62		82.96	92.18	7.56	76.00
5/7/2018			45.00		21.00	15.00	414.64	223.91		104.49	74.64	7.55	79.00
5/8/2018			45.00	91.00	14.00	19.00	415.12	224.16	453.31	69.74	94.65	7.51	80.00
5/9/2018			55.00		13.00	17.00	383.84	253.33		59.68	78.30	7.39	80.00
5/10/2018			60.00		15.00	9.60	377.98	272.15		68.04	43.54	7.37	80.00
5/11/2018							403.99					7.26	75.00
5/12/2018							370.84					7.30	75.00
5/13/2018			66.00		9.90	6.80	372.25	294.82		44.22	30.38	7.74	74.00
5/14/2018			65.00		9.30	4.00	382.80	298.58		42.72	18.37	7.40	76.00
5/15/2018			71.00	86.00	6.10	4.00	370.50	315.67	382.36	27.12	17.78	7.30	78.00
5/16/2018			67.00		5.50	8.00	403.57	324.55		26.64	38.75	7.46	78.00
5/17/2018			70.00		5.50	7.20	394.65	331.51		26.05	34.10	7.38	79.00
5/18/2018							388.23					7.46	79.00
5/19/2018							411.93					6.83	81.00
5/20/2018			80.00		4.00	11.00	393.37	377.64		18.88	51.92	7.63	82.00
5/21/2018			86.00		4.00	7.60	406.56	419.57		19.51	37.08	7.37	78.00
5/22/2018			82.00	92.00	4.00	7.20	412.02	405.43	454.87	19.78	35.60	7.56	76.00
5/23/2018			77.00		4.00	8.80	407.13	376.19		19.54	42.99	7.44	80.00
5/24/2018			79.00		5.80	9.20	381.43	361.60		26.55	42.11	7.68	80.00
5/25/2018							407.31					7.38	83.00
5/26/2018							406.31					7.48	82.00

5/27/2018				80.00		7.10	14.00	402.64	386.53		34.30	67.64	7.53	83.00
5/28/2018				87.00		11.00	12.00	401.29	418.95		52.97	57.79	7.56	84.00
5/29/2018				92.00	92.00	6.80	9.60	397.08	438.38	438.38	32.40	45.74	7.56	84.00
5/30/2018				92.00		6.40	19.00	407.98	450.41		31.33	93.02	7.66	83.00
5/31/2018				90.00		5.80	10.00	405.14	437.55		28.20	48.62	8.01	86.00
6/1/2018								439.69					7.71	84.00
6/2/2018								383.21					7.70	80.00
6/3/2018				92.00		4.00	6.00	394.40	435.42		18.93	28.40	7.50	80.00
6/4/2018	4.20	1.00	60,000.00	86.00		5.70	5.60	399.00	411.77		27.29	26.81	7.40	82.00
6/5/2018				90.00	96.00	6.10	7.60	390.65	421.90	450.03	28.60	35.63	7.77	82.00
6/6/2018				87.00		6.00	6.40	388.33	405.42		27.96	29.82	7.45	82.00
6/7/2018			60,000.00	87.00		13.00	16.00	398.35	415.88		62.14	76.48	7.63	84.00
6/8/2018								395.19					7.49	82.00
6/9/2018								474.88					7.56	78.00
6/10/2018				80.00		13.00	15.00	440.10	422.50		68.66	79.22	7.60	79.00
6/11/2018				79.00		8.00	10.00	439.92	417.04		42.23	52.79	7.81	81.00
6/12/2018				83.00	98.00	7.30	8.80	447.12	445.33	525.81	39.17	47.22	7.66	80.00
6/13/2018				87.00		8.10	13.00	417.13	435.48		40.55	65.07	7.57	80.00
6/14/2018			60,000.00	87.00		13.00	15.00	414.97	433.23		64.74	74.69	7.66	80.00
6/15/2018								439.69					7.59	80.00
6/16/2018								422.67					7.51	82.00
6/17/2018				60.00		28.00	19.00	428.25	308.34		143.89	97.64	7.76	85.00
6/18/2018				55.00		62.00	25.00	419.08	276.59		311.80	125.72	7.61	84.00
6/19/2018			4,800.00	50.00	130.00	66.00	24.00	353.08	211.85	550.80	279.64	101.69	7.67	82.00
6/20/2018			800.00	54.00		63.00	14.00	359.58	233.01		271.84	60.41	7.55	80.00
6/21/2018				58.00		51.00	25.00	408.31	284.18		249.89	122.49	7.54	82.00
6/22/2018				58.00				397.66	276.77				7.60	83.00
6/23/2018								408.38					7.54	85.00
6/24/2018				59.00		15.00	13.00	402.93	285.27		72.53	62.86	7.51	84.00
6/25/2018				61.00		41.00	4.80	379.62	277.88		186.77	21.87	7.57	78.00

6/26/2018		1,500.00	68.00	76.00	16.00	11.00	366.24	298.85	334.01	70.32	48.34	7.57	82.00
6/27/2018			75.00		7.10	4.40	357.72	321.95		30.48	18.89	8.06	86.00
6/28/2018			94.00		11.00	11.00	365.08	411.81		48.19	48.19	8.05	86.00
6/29/2018							375.60					8.03	86.00
6/30/2018							369.44					7.66	86.00
7/1/2018			84.00		18.00	8.40	373.83	376.82		80.75	37.68	7.69	86.00
7/2/2018	3.60	60,000.00	78.00		28.00	12.00	384.06	359.48		129.04	55.30	7.76	88.00
7/3/2018			87.00	91.00	11.00	8.00	387.76	404.82	423.43	51.18	37.22	7.60	88.00
7/4/2018			91.00		6.40	14.00	389.90	425.77		29.94	65.50	7.63	86.00
7/5/2018		60,000.00	83.00		19.00	24.00	388.89	387.33		88.67	112.00	7.74	86.00
7/6/2018							389.49					7.67	90.00
7/7/2018							378.64					7.66	90.00
7/8/2018			96.00		8.90	19.00	388.14	447.14		41.45	88.50	7.53	88.00
7/9/2018			93.00		19.00	11.00	385.90	430.66		87.99	50.94	7.51	82.00
7/10/2018		60,000.00	96.00	99.00	11.00	10.00	376.67	433.92	447.48	49.72	45.20	7.47	82.00
7/11/2018			98.00		7.20	10.00	373.41	439.13		32.26	44.81	7.81	84.00
7/12/2018			100.00		9.60	15.00	397.57	477.08		45.80	71.56	7.76	84.00
7/13/2018							393.23					7.68	84.00
7/14/2018							398.67					7.67	88.00
7/15/2018			100.00		7.90	4.00	394.61	473.53		37.41	18.94	7.67	88.00
7/16/2018			97.00		9.10	5.20	393.40	457.92		42.96	24.55	8.10	90.00
7/17/2018			93.00	85.00	7.50	4.00	400.17	446.59	408.17	36.02	19.21	7.59	88.00
7/18/2018		60,000.00	89.00		6.50	5.20	378.07	403.78		29.49	23.59	7.58	86.00
7/19/2018			87.00		4.00	16.00	398.56	416.10		19.13	76.52	7.60	86.00
7/20/2018							393.57					7.59	85.00
7/21/2018							385.19					7.53	86.00
7/22/2018			86.00		7.60	14.00	373.54	385.49		34.07	62.75	7.59	86.00
7/23/2018			76.00		18.00	20.00	370.09	337.52		79.94	88.82	7.37	86.00
7/24/2018			75.00	95.00	26.00	7.20	371.79	334.61	423.84	116.00	32.12	7.48	86.00
7/25/2018			72.00		22.00	13.00	368.91	318.74		97.39	57.55	7.42	84.00

7/26/2018			74.00			5.00	15.00	365.84	324.87		21.95	65.85	7.43	88.00
7/27/2018								378.71					7.61	80.00
7/28/2018								377.36					7.80	80.00
7/29/2018			81.00			4.00	18.00	353.07	343.18		16.95	76.26	7.56	82.00
7/30/2018			88.00			6.60	20.00	377.81	396.97		30.83	90.67	7.56	88.00
7/31/2018			84.00		110.00	12.00	8.00	370.56	373.52	489.14	53.36	35.57	7.55	86.00
8/1/2018		2,700.00	86.00			8.50	9.20	362.87	374.48		37.01	40.06	7.46	86.00
8/2/2018			81.00			5.60	29.00	369.36	359.02		24.82	128.54	7.50	84.00
8/3/2018								369.67					7.43	82.00
8/4/2018								360.32					7.48	80.00
8/5/2018			75.00			9.40	12.00	359.36	323.42		40.54	51.75	7.87	80.00
8/6/2018	0.80	3,400.00	79.00			9.70	17.00	358.56	338.02		41.50	72.74	7.95	82.00
8/7/2018			84.00		87.00	4.60	10.00	371.10	374.07	387.43	20.48	44.53	7.42	82.00
8/8/2018			91.00			4.60	11.00	427.99	467.37		23.63	56.49	7.98	82.00
8/9/2018			89.00			4.30	14.00	417.49	445.88		21.54	70.14	8.05	80.00
8/10/2018							14.00	414.28				69.60	7.99	84.00
8/11/2018													7.23	86.00
8/12/2018			74.00			4.00	5.60	363.99	323.22		17.47	24.46	7.54	86.00
8/13/2018			73.00			4.00	9.20	371.39	325.34		17.83	41.00	8.02	89.00
8/14/2018		60,000.00	75.00		88.00	4.00	4.00	366.70	330.03	387.24	17.60	17.60	7.95	82.00
8/15/2018			77.00			6.60	7.20	366.39	338.54		29.02	31.66	7.34	86.00
8/16/2018			80.00			4.30	7.60	361.00	348.56		18.63	32.92	7.42	84.00
8/17/2018								390.99					7.51	88.00
8/18/2018								388.01					7.51	86.00
8/19/2018			93.00			4.00	8.40	400.53	446.99		19.23	40.37	7.50	86.00
8/20/2018														
8/21/2018														
8/22/2018														
8/23/2018		60,000.00	100.00			7.50	6.80	333.16	399.79		29.98	27.19		
8/24/2018								334.98					8.05	78.00

8/25/2018									336.42					8.04	80.00
8/26/2018				55.00			4.40	4.00	341.17	225.17		18.01	16.38	7.22	80.00
8/27/2018				50.00			4.00	4.80	372.83	223.70		17.90	21.48	7.46	82.00
8/28/2018				49.00		58.00	4.00	4.00	398.85	234.52	277.60	19.14	19.14	7.48	82.00
8/29/2018			430.00	58.00			4.00	4.00	395.98	275.60		19.01	19.01	7.46	82.00
8/30/2018				60.00			4.50	4.00	410.59	295.62		22.17	19.71	7.58	79.00
8/31/2018									391.32					7.59	80.00
9/1/2018									388.25					7.50	79.00
9/2/2018				74.00		81.00	4.00	4.80	384.39	341.34	373.63	18.45	22.14	7.40	81.00
9/3/2018	0.80	0.80	1,700.00	77.00			4.00	7.60	405.45	374.64		19.46	36.98	7.42	80.00
9/4/2018				82.00		89.00	6.00	12.00	409.42	402.87	437.26	29.48	58.96	7.95	80.00
9/5/2018				80.00			9.50	16.00	411.17	394.72		46.87	78.94	7.40	80.00
9/6/2018				76.00			4.00	11.00	413.27	376.90		19.84	54.55	7.43	80.00
9/7/2018									432.34					8.07	81.00
9/8/2018									431.25					8.05	77.00
9/9/2018				79.00			4.00	13.00	438.22	415.43		21.03	68.36	7.94	75.00
9/10/2018				87.00			4.00	10.00	432.68	451.72		20.77	51.92	8.01	79.00
9/11/2018			1,600.00	87.00		94.00	4.50	6.80	420.33	438.82	474.13	22.70	34.30	7.96	76.00
9/12/2018				88.00			6.10	8.40	392.42	414.40		28.73	39.56	7.34	82.00
9/13/2018				87.00			9.20	16.00	398.07	415.59		43.95	76.43	7.41	82.00
9/14/2018									393.41					7.36	84.00
9/15/2018									401.50					7.25	84.00
9/16/2018				79.00			12.00	30.00	410.72	389.36		59.14	147.86	7.51	84.00
9/17/2018				83.00		2.368	14.00	35.00	406.78	405.15		68.34	170.85	7.20	82.00
9/18/2018				86.00		100.00	11.00	28.00	396.88	409.58	475.26	52.39	133.35	7.22	86.00
9/19/2018				94.00			10.00	35.00	396.14	446.85		47.54	166.38	8.02	82.00
9/20/2018				100.00			10.00	33.00	388.21	465.85		46.59	153.73	8.12	86.00
9/21/2018									387.27					8.06	84.00
9/22/2018									396.10					7.60	74.00
9/23/2018				110.00			10.00	71.00	355.82	469.68		42.70	303.16	7.62	76.00

9/24/2018			10.00	110.00		8.20	68.00	345.22	455.69		33.97	281.70	7.02	80.00
9/25/2018				110.00	130.00	11.00	78.00	348.94	460.60	544.35	46.06	326.61	7.30	82.00
9/26/2018			10.00	110.00		8.60	82.00	418.47	552.38		43.19	411.77	7.24	80.00
9/27/2018				100.00		11.00	94.00	430.28	516.34		56.80	485.36	7.23	83.00
9/28/2018								427.93					7.12	78.00
9/29/2018								421.92					7.26	70.00
9/30/2018				69.00		13.00	91.00	404.23	431.72		63.06	441.42	7.62	74.00
10/1/2018				91.00		10.00	52.00	389.76	425.62		46.77	243.21	7.89	74.00
10/2/2018				98.00	98.00	5.70	25.00	410.51	482.76	482.76	28.08	123.15	7.33	78.00
10/3/2018				91.00		8.20	19.00	390.79	426.74		38.45	89.10	7.28	78.00
10/4/2018				100.00		5.90	14.00	414.68	497.62		29.36	69.67	7.45	78.00
10/5/2018								412.82					7.88	75.00
10/6/2018								413.71					7.35	80.00
10/7/2018				86.00		11.00	37.00	427.29	440.96		56.40	189.72	7.45	81.00
10/8/2018	0.80		2,300.00	79.00		14.00	26.00	431.01	408.60		72.41	134.48	8.01	78.00
10/9/2018				70.00		7.20	30.00	425.13	357.11		36.73	153.05	7.89	76.00
10/10/2018				73.00	81.00	7.50	47.00	440.14	385.56	427.82	39.61	248.24	7.36	80.00
10/11/2018				74.00		17.00	23.00	454.20	403.33		92.66	125.36	7.40	74.00
10/12/2018								432.24					7.24	75.00
10/13/2018								391.77					7.03	73.00
10/14/2018				110.00		8.60	32.00	419.21	553.36		43.26	160.96	7.27	74.00
10/15/2018				81.00		10.00	24.00	424.72	412.83		50.97	122.32	7.30	74.00
10/16/2018				89.00		7.40	17.00	419.12	447.62		37.22	85.50	7.40	75.00
10/17/2018				94.00	100.00	6.50	22.00	130.93	147.69	157.12	10.21	34.57	7.96	75.00
10/18/2018			10.00	67.00		6.10	22.00	419.51	437.97		30.71	110.75	8.04	74.00
10/19/2018			10.00					441.97					7.70	70.00
10/20/2018								395.07						
10/21/2018				70.00		4.00	20.00	394.67	331.52		18.94	94.72	7.00	68.00
10/22/2018			10.00	68.00		5.70	23.00	421.13	343.64		28.81	116.23	7.25	70.00
10/23/2018				71.00	91.00	8.00	20.00	422.80	360.23	461.70	40.59	101.47	7.21	72.00

10/24/2018			72.00		5.90	26.00	419.28	362.25		29.69	130.82	7.26	73.00
10/25/2018			72.00		7.20	27.00	403.09	348.27		34.83	130.60	7.17	73.00
10/26/2018							378.66						
10/27/2018							412.54					7.43	68.00
10/28/2018		6,000.00	76.00		10.00	23.00	419.92	382.97		50.39	115.90	7.32	69.00
10/29/2018			78.00		9.60	20.00	426.35	399.06		49.12	102.32	7.34	70.00
10/30/2018		2,700.00	75.00		7.60	18.00	424.46	382.01		38.71	91.68	7.37	70.00
10/31/2018			83.00	92.00	9.20	19.00	434.98	433.24	480.22	46.02	99.18	7.20	60.00
11/1/2018			78.00		4.00	8.80	405.92	379.94		19.48	42.87	7.87	70.00
11/2/2018							441.99					7.14	79.00
11/3/2018							425.48					6.92	73.00
11/4/2018			69.00		6.20	43.00	402.82	333.53		29.97	207.86	7.06	70.00
11/5/2018	0.60	10.00	68.00		7.30	49.00	374.33	296.47		32.79	220.11	7.30	70.00
11/6/2018		10.00	67.00	84.00	10.00	58.00	375.99	302.30	379.00	45.12	261.69	7.40	69.00
11/7/2018			72.00		9.10	82.00	381.55	329.66		41.67	375.45	7.30	73.00
11/8/2018			79.00		19.00	78.00	370.88	351.59		84.56	347.14	7.13	72.00
11/9/2018							360.41					7.32	72.00
11/10/2018							389.55					6.90	70.00
11/11/2018			97.00		6.60	28.00	376.46	436.22		29.82	126.50	7.42	73.00
11/12/2018			94.00		8.30	46.00	398.05	449.00		39.65	219.72	7.23	77.00
11/13/2018			100.00		21.00	35.00	373.66	448.39		94.16	156.94	7.32	74.00
11/14/2018			110.00	100.00	41.00	39.00	377.90	498.83	453.48	185.93	176.86	7.90	74.00
11/15/2018			96.00		34.00	45.00	349.87	403.05		142.75	188.93	7.84	75.00
11/16/2018							338.55					7.38	69.00
11/17/2018							259.28					8.02	70.00
11/18/2018			88.00		13.00	14.00	315.55	333.22		49.23	53.01	7.57	70.00
11/19/2018			79.00		10.00	18.00	401.60	380.72		46.19	86.75	7.36	70.00
11/20/2018			73.00	95.00	11.00	12.00	341.71	299.34	389.55	45.11	49.21	6.80	68.00
11/21/2018			77.00		5.20	8.80	362.73	335.16		22.63	38.30	7.32	71.00
11/22/2018			74.00		4.00	8.40	333.25	295.93		16.00	33.59	7.31	71.00

11/23/2018									267.53					7.41	71.00
11/24/2018									320.34					7.55	77.00
11/25/2018				68.00			6.60	10.00	268.87	219.40		21.29	32.26	7.45	75.00
11/26/2018				66.00			4.00	4.00	385.64	305.43		18.51	18.51	7.57	69.00
11/27/2018				68.00		80.00	4.00	6.00	389.87	318.13	374.28	18.71	28.07	7.34	68.00
11/28/2018				74.00			4.00	4.00	405.46	360.05		19.46	19.46	7.41	69.00
11/29/2018				74.00			4.00	16.00	356.08	316.20		17.09	68.37	7.37	69.00
11/30/2018									384.37					6.98	72.00
12/1/2018									412.48					7.50	72.00
12/2/2018				69.00			4.20	14.00	432.96	358.49		21.82	72.74	7.39	75.00
12/3/2018	2.10	3.10		64.00	10.00		4.00	6.80	408.92	314.05		19.63	33.37	7.84	74.00
12/4/2018				67.00		74.00	4.00	5.60	368.65	296.39	327.36	17.70	24.77	7.66	70.00
12/5/2018				71.00			4.00	4.00	358.53	305.47		17.21	17.21	7.19	68.00
12/6/2018				68.00			5.30	4.00	395.43	322.67		25.15	18.98	8.02	73.00
12/7/2018									363.51					6.80	70.00
12/8/2018									335.69					7.40	70.00
12/9/2018				75.00			4.00	4.00	329.88	296.89		15.83	15.83	7.40	66.00
12/10/2018				83.00			4.00	4.00	332.02	330.69		15.94	15.94	7.49	70.00
12/11/2018				92.00		91.00	4.00	4.00	330.61	364.99	361.03	15.87	15.87	6.99	77.00
12/12/2018				93.00			4.00	4.00	325.02	362.72		15.60	15.60	7.61	79.00
12/13/2018				82.00			4.00	6.40	327.25	322.01		15.71	25.13	7.46	77.00
12/14/2018									318.55					7.47	70.00
12/15/2018									319.02					7.36	70.00
12/16/2018				75.00			4.00	4.00	310.26	279.23		14.89	14.89	7.27	68.00
12/17/2018				76.00	10.00		4.60	4.00	344.52	314.20		19.02	16.54	7.20	73.00
12/18/2018				79.00		80.00	4.20	4.00	334.04	316.67	320.68	16.84	16.03	7.40	73.00
12/19/2018				75.00			4.00	4.00	331.20	298.08		15.90	15.90	7.36	73.00
12/20/2018				73.00			4.00	4.00	334.40	292.93		16.05	16.05	7.46	71.00
12/21/2018									334.32					7.48	72.00
12/22/2018									341.55					7.26	71.00

12/23/2018					66.00				4.00	4.00	338.78	268.31		16.26	16.26	7.20	72.00
12/24/2018					74.00				4.00	4.00	296.00	262.85		14.21	14.21	7.31	70.00
12/25/2018					74.00			78.00	4.00	6.80	306.47	272.15	286.86	14.71	25.01	7.89	69.00
12/26/2018					74.00				4.70	4.00	273.67	243.02		15.43	13.14	7.99	70.00
12/27/2018					75.00				4.20	5.20	243.86	219.47		12.29	15.22	8.07	66.00
12/28/2018											321.24					7.97	72.00
12/29/2018											296.31					7.32	76.00
12/30/2018					69.00				4.80	10.00	350.09	298.15		20.74	43.21	7.36	68.00
12/31/2018					71.00			80.00	5.90	20.00	284.83	242.68	273.44	20.17	68.36	7.34	71.00
Avg	*18.486*	*4.417*	*5.000*	*5.000*	##########	*79.686*	*10.000*	*2.368*	*95.811*	*10.325*	*19.554*	*359.660*	*343.707*	*406.637*	*44.756*	*84.447*	*7.492*	*76.262*
Min	*0.800*	*0.800*	*5.000*	*5.000*	*10.000*	*45.000*	*10.000*	*2.368*	*58.000*	*4.000*	*4.000*	*130.930*	*134.917*	*157.116*	*8.177*	*13.136*	*6.800*	*60.000*
Max	*140.000*	*14.000*	*5.000*	*5.000*	##########	*120.000*	*10.000*	*2.368*	*150.000*	*66.000*	*94.000*	*474.880*	*553.357*	*617.464*	*311.796*	*485.356*	*8.120*	*90.000*
Sum													##########					
30-Day AVG/ Daily MAX	*40/ 69*	*21/ 46*			*499*	*155*				*20/ 40*	*25/ 50*	*636.81*	*1848.6*		*183.5/ 477*	*229.3/ 596.3*	*6/ 9*	

DMR Support Data - Plant Effluent

Start Date: 1/1/2019 - **End Date:** 6/30/2019

Date	MeCL2 (ug/l)	Chloroform (ug/l)	Toluene (ug/l)	Vinyl Chloride (ug/L)	Fecal Coliform (#/100 mL)	Ammonia (mg/L)	Phenol (mg/L)	Residual Chlorine (parts/MM)	Total Nitrogen (mg/l)	tBOD (mg/l)	TSS (mg/l)	Plant Effluent Flow (gpm)	Amonnia Load (#/day)	Total Nitrogen (#/day)	tBOD Load (#/day)	TSS Load (#/day)	pH	Temp. (°F)	Diffuser Ammonia (mg/l)	IEPA TSS (mg/l)	IEPA Ammonia (mg/l)	IEPA BOD (mg/l)
1/1/2019	0.80				10.00	35.00				4.00	15.00	312.14	131.10		14.98	56.19	7.30	70.00				
1/2/2019						74.00				4.00	33.00	281.88	250.31		13.53	111.62	7.52	71.00				
1/3/2019						78.00				4.00	12.00	307.28	287.61		14.75	44.25	7.39	72.00				
1/4/2019												367.14					7.15	68.00				
1/5/2019												389.06					7.11	72.00				
1/6/2019						79.00				5.20	14.00	396.39	375.78		24.73	66.59	7.29	71.00				
1/7/2019						70.00				5.20	11.00	400.73	336.61		25.01	52.90	7.32	77.00				
1/8/2019						54.00			86.00	4.00	14.00	398.76	258.40	411.52	19.14	66.99	7.19	77.00				
1/9/2019						48.00				4.00	8.80	398.20	229.36		19.11	42.05	7.19	75.00				
1/10/2019						38.00				4.00	20.00	385.69	175.87		18.51	92.57	7.23	75.00				
1/11/2019												355.85					7.18	68.00				
1/12/2019												317.53					7.79	68.00				
1/13/2019						36.00				4.00	12.00	325.99	140.83		15.65	46.94	7.43	68.00				
1/14/2019						43.00				4.20	4.40	281.64	145.33		14.19	14.87	7.77	70.00				
1/15/2019						54.00			83.00	5.10	26.00	290.27	188.09	289.11	17.76	90.56	7.01	70.00				
1/16/2019						55.00				5.70	5.20	280.68	185.25		19.20	17.51	7.20	70.00				
1/17/2019						54.00				5.20	12.00	208.19	134.91		12.99	29.98	7.25	68.00				
1/18/2019												221.57					7.11	68.00				
1/19/2019												338.69					7.13	68.00				
1/20/2019						56.00				6.90	19.00	375.41	252.28		31.08	85.59	7.11	68.00				
1/21/2019						58.00				9.80	26.00	312.05	217.19		36.70	97.36	7.16	68.00				
1/22/2019						57.00			71.00	6.20	8.40	291.50	199.39	248.36	21.69	29.38	7.19	68.00				
1/23/2019						58.00				4.60	8.00	277.62	193.22		15.32	26.65	7.90	72.00				
1/24/2019						54.00				5.80	11.00	274.80	178.07		19.13	36.27	7.73	70.00				
1/25/2019												255.06					7.71	70.00				
1/26/2019												275.46					7.01	72.00				

1/27/2019			66.00			4.70	8.40	302.52	239.60		17.06	30.49	7.01	73.00
1/28/2019			62.00			7.70	8.00	293.89	218.65		27.16	28.21	7.03	72.00
1/29/2019			60.00		100.00	4.00	14.00	273.45	196.88	328.14	13.13	45.94	7.13	70.00
1/30/2019			94.00			25.00	160.00	234.01	263.96		70.20	449.30	6.85	63.00
1/31/2019			66.00			7.00	18.00	272.27	215.64		22.87	58.81	6.99	60.00
2/1/2019								391.49					7.03	63.00
2/2/2019								288.11					6.86	64.00
2/3/2019			41.00			4.70	17.00	441.06	217.00		24.88	89.98	7.15	70.00
2/4/2019	3.90	10.00	41.00			4.30	17.00	398.26	195.94		20.55	81.25	7.74	74.00
2/5/2019			36.00		69.00	4.00	8.80	345.06	149.07	285.71	16.56	36.44	6.56	72.00
2/6/2019			34.00			4.00	9.60	365.04	148.94		17.52	42.05	7.06	75.00
2/7/2019			31.00			4.00	8.40	417.18	155.19		20.02	42.05	7.15	73.00
2/8/2019								403.97					7.24	72.00
2/9/2019								381.30					7.81	72.00
2/10/2019			43.00		73.00	8.60	13.00	441.40	227.76	386.67	45.55	68.86	7.04	73.00
2/11/2019			55.00			5.80	18.00	463.24	305.74		32.24	100.06	7.97	72.00
2/12/2019			62.00			8.10	11.00	268.12	199.48		26.06	35.39	8.00	72.00
2/13/2019			69.00		83.00	11.00	13.00	395.48	327.46	393.90	52.20	61.69	7.64	66.00
2/14/2019			68.00			4.80	4.00	359.48	293.34		20.71	17.26	8.15	70.00
2/15/2019								360.03					7.24	68.00
2/16/2019								321.50					7.29	68.00
2/17/2019			69.00			5.30	13.00	430.88	356.77		27.40	67.22	7.20	72.00
2/18/2019			77.00			6.90	10.00	457.28	422.53		37.86	54.87	7.08	77.00
2/19/2019			84.00		97.00	7.40	7.20	462.05	465.75	537.83	41.03	39.92	7.43	72.00
2/20/2019			94.00			6.90	7.20	468.74	528.74		38.81	40.50	7.98	72.00
2/21/2019			93.00			4.80	10.00	466.74	520.88		26.88	56.01	8.06	72.00
2/22/2019								457.30					7.94	77.00
2/23/2019								449.18					8.02	81.00
2/24/2019			80.00			13.00	8.80	456.69	438.42		71.24	48.23	7.72	77.00
2/25/2019			77.00			7.90	6.80	500.06	462.06		47.41	40.80	7.64	66.00

2/26/2019					73.00		82.00	10.00	5.60	494.92	433.55	487.00	59.39	33.26	7.42	66.00
2/27/2019					72.00			6.40	14.00	449.21	388.12		34.50	75.47	7.45	68.00
2/28/2019					76.00			8.00	12.00	466.89	425.80		44.82	67.23	7.61	68.00
3/1/2019										459.20					7.99	68.00
3/2/2019										442.11					8.13	73.00
3/3/2019					92.00			11.00	20.00	421.41	465.24		55.63	101.14	8.11	73.00
3/4/2019	1.00	0.80			96.00			18.00	23.00	443.68	511.12		95.83	122.46	7.02	77.00
3/5/2019				700.00	95.00		96.00	13.00	12.00	452.41	515.75	521.18	70.58	65.15	7.61	76.00
3/6/2019					92.00			9.80	6.00	426.06	470.37		50.10	30.68	7.56	77.00
3/7/2019					86.00			4.90	6.00	433.46	447.33		25.49	31.21	7.59	75.00
3/8/2019				60,000.00						383.61					7.62	75.00
3/9/2019										455.99					8.17	72.00
3/10/2019					82.00			7.10	12.00	510.98	502.80		43.54	73.58	7.70	70.00
3/11/2019				100.00	76.00			6.20	6.40	493.07	449.68		36.68	37.87	7.78	66.00
3/12/2019				250.00	70.00			5.20	11.00	489.33	411.04		30.53	64.59	8.10	68.00
3/13/2019				10.00	67.00			6.00	4.00	481.67	387.26		34.68	23.12	7.43	70.00
3/14/2019				10.00	71.00			5.50	13.00	495.49	422.16		32.70	77.30	7.64	73.00
3/15/2019				10.00						513.58					7.57	71.00
3/16/2019										491.49					7.59	68.00
3/17/2019					68.00			6.60	4.40	438.11	357.50		34.70	23.13	7.47	68.00
3/18/2019					68.00			5.90	13.00	424.68	346.54		30.07	66.25	7.53	70.00
3/19/2019				40.00	69.00		79.00	7.20	4.00	477.82	395.63	452.97	41.28	22.94	7.42	68.00
3/20/2019				10.00	71.00			4.60	5.60	488.16	415.91		26.95	32.80	7.54	70.00
3/21/2019					67.00			6.90	5.20	486.59	391.22		40.29	30.36	7.69	71.00
3/22/2019				10.00						375.55					7.55	68.00
3/23/2019										344.36					7.71	68.00
3/24/2019					71.00			4.00	7.60	396.45	337.78		19.03	36.16	7.75	68.00
3/25/2019				10.00	67.00			4.00	8.00	418.00	336.07		20.06	40.13	7.57	66.00
3/26/2019				36.00	61.00		62.00	4.20	7.20	401.57	293.95	298.77	20.24	34.70	7.67	65.00
3/27/2019				10.00	60.00			5.60	11.00	407.44	293.36		27.38	53.78	7.40	70.00

3/28/2019			58.00			6.00	9.60	413.67	287.91		29.78	47.65	7.38	72.00
3/29/2019		10.00						419.27					7.14	70.00
3/30/2019								427.24					7.52	70.00
3/31/2019			62.00			4.80	13.00	426.72	317.48		24.58	66.57	7.43	68.00
4/1/2019	1.50	36.00	66.00			4.20	8.40	464.36	367.77		23.40	46.81	7.66	70.00
4/2/2019			72.00		82.00	4.00	7.20	475.36	410.71	467.75	22.82	41.07	7.01	78.00
4/3/2019		10.00	67.00			4.50	12.00	463.11	372.34		25.01	66.69	6.99	70.00
4/4/2019			64.00			5.00	12.00	433.68	333.07		26.02	62.45	8.25	73.00
4/5/2019		72.00						423.78					8.09	69.00
4/6/2019								428.35					7.85	72.00
4/7/2019			67.00			4.00	9.60	425.97	342.48		20.45	49.07	7.98	72.00
4/8/2019		150.00	77.00			4.20	14.00	424.65	392.38		21.40	71.34	6.98	79.00
4/9/2019			77.00		90.00	4.10	16.00	422.13	390.05	455.90	20.77	81.05	8.04	77.00
4/10/2019		72.00	74.00			5.30	8.00	448.87	398.60		28.55	43.09	7.64	78.00
4/11/2019			78.00			4.00	10.00	463.17	433.53		22.23	55.58	6.90	77.00
4/12/2019		10.00						472.68					7.64	74.00
4/13/2019								468.05					7.49	74.00
4/14/2019			72.00			4.00	4.00	415.88	359.32		19.96	19.96	7.54	73.00
4/15/2019		10.00	70.00			5.50	8.80	451.26	379.06		29.78	47.65	8.02	68.00
4/16/2019			68.00		75.00	7.10	4.00	457.28	373.14	411.55	38.96	21.95	7.46	68.00
4/17/2019		10.00	67.00			4.70	7.20	426.17	342.64		24.04	36.82	8.04	73.00
4/18/2019			65.00			5.20	4.00	435.23	339.48		27.16	20.89	8.09	75.00
4/19/2019								438.94					8.16	75.00
4/20/2019								421.25					7.66	73.00
4/21/2019			67.00			4.00	7.20	406.51	326.83		19.51	35.12	7.84	72.00
4/22/2019		18.00	69.00			4.00	6.80	400.58	331.68		19.23	32.69	7.72	73.00
4/23/2019			74.00			5.80	5.60	371.67	330.04		25.87	24.98	7.53	74.00
4/24/2019		10.00	72.00			4.70	7.20	370.18	319.84		20.88	31.98	7.43	72.00
4/25/2019			75.00			4.20	8.00	349.92	314.93		17.64	33.59	7.73	70.00
4/26/2019		10.00						344.86					6.98	72.00

4/27/2019								366.05					7.04	72.00
4/28/2019			78.00			8.80	12.00	380.07	355.75		40.14	54.73	7.51	68.00
4/29/2019		27.00	67.00			7.60	13.00	445.01	357.79		40.58	69.42	7.55	76.00
4/30/2019			63.00		67.00	7.70	20.00	443.79	335.51	356.81	41.01	106.51	7.48	76.00
5/1/2019		10.00	55.00			8.60	6.40	473.20	312.31		48.83	36.34	7.44	76.00
5/2/2019			51.00			4.00	15.00	485.88	297.36		23.32	87.46	7.48	76.00
5/3/2019		134.00						483.46					7.42	68.00
5/4/2019								483.46					7.60	69.00
5/5/2019			63.00			8.00	14.00	479.02	362.14		45.99	80.48	7.61	74.00
5/6/2019	0.80	10.00	63.00			4.00	13.00	465.41	351.85		22.34	72.60	7.65	73.00
5/7/2019			73.00			12.00	14.00	437.08	382.88		62.94	73.43	7.57	72.00
5/8/2019		10.00	75.00			11.00	6.80	432.83	389.55		57.13	35.32	7.64	72.00
5/9/2019			80.00			6.80	8.40	434.69	417.30		35.47	43.82	7.56	73.00
5/10/2019		185.00						479.83					7.54	70.00
5/11/2019								476.62					7.02	70.00
5/12/2019			78.00			7.30	13.00	468.82	438.82		41.07	73.14	7.44	70.00
5/13/2019		10.00	75.00			4.00	6.80	446.23	401.61		21.42	36.41	7.47	72.00
5/14/2019			77.00			7.00	12.00	444.73	410.93		37.36	64.04	7.40	72.00
5/15/2019			74.00		84.00	7.20	8.80	436.84	387.91	440.33	37.74	46.13	7.57	73.00
5/16/2019			71.00			4.40	7.20	431.78	367.88		22.80	37.31	7.65	75.00
5/17/2019								426.77					7.68	75.00
5/18/2019								472.58					7.60	75.00
5/19/2019			70.00			7.20	8.40	505.04	424.23		43.64	50.91	6.95	79.00
5/20/2019			68.00			8.50	5.60	506.05	412.94		51.62	34.01	7.60	75.00
5/21/2019			62.00		76.00	8.30	6.40	530.49	394.68	483.81	52.84	40.74	7.22	72.00
5/22/2019			62.00			8.90	6.00	475.95	354.11		50.83	34.27	7.39	72.00
5/23/2019			57.00			4.60	5.20	488.10	333.86		26.94	30.46	7.75	72.00
5/24/2019								468.34					7.34	73.00
5/25/2019								448.66					7.43	77.00
5/26/2019								482.61					7.33	77.00

5/27/2019					49.00			7.30	6.00	480.49	282.53		42.09	34.60	7.42	79.00
5/28/2019					36.00			7.40	5.60	474.77	205.10		42.16	31.90	7.47	79.00
5/29/2019					22.00		47.00	4.00	4.40	484.36	127.87	273.18	23.25	25.57	7.44	75.00
5/30/2019					15.00			4.00	4.40	488.46	87.92		23.45	25.79	7.46	77.00
5/31/2019										498.75					7.26	75.00
6/1/2019										498.92					7.14	77.00
6/2/2019					6.20			4.00	4.00	456.94	34.00		21.93	21.93	7.14	76.00
6/3/2019	2.00	7.50			4.60			4.00	6.80	478.60	26.42		22.97	39.05	7.17	75.00
6/4/2019				19.70	6.60		53.00	4.00	5.20	482.79	38.24	307.05	23.17	30.13	7.25	77.00
6/5/2019					8.70			11.00	6.80	474.47	49.53		62.63	38.72	7.22	79.00
6/6/2019					8.30			4.00	5.60	468.03	46.62		22.47	31.45	7.35	79.00
6/7/2019										463.98					7.36	80.00
6/8/2019										455.31					7.55	79.00
6/9/2019					12.00			6.60	9.60	445.62	64.17		35.29	51.34	7.32	82.00
6/10/2019					15.00			4.00	11.00	390.47	70.28		18.74	51.54	7.12	78.00
6/11/2019					17.00			4.00	8.40	371.81	75.85		17.85	37.48	7.60	79.00
6/12/2019			14.00			70.00		4.00	6.40	395.29	66.41	332.04	18.97	30.36	7.66	79.00
6/13/2019			12.00					4.00	5.60	407.03	58.61		19.54	27.35	7.43	74.00
6/14/2019										443.89					7.40	74.00
6/15/2019										446.20					7.55	75.00
6/16/2019			0.39					4.00	5.60	399.30	1.87		19.17	26.83	7.49	77.00
6/17/2019			0.58					4.00	4.00	373.79	2.60		17.94	17.94	7.61	74.00
6/18/2019			0.82					4.20	4.00	347.58	3.42		17.52	16.68	7.28	76.00
6/19/2019			2.50					5.50	6.40	411.07	12.33		27.13	31.57	7.33	78.00
6/20/2019			4.40					6.00	6.00	397.81	21.00		28.64	28.64	7.43	77.00
6/21/2019										422.96					7.25	77.00
6/22/2019										428.52					7.25	77.00
6/23/2019			12.00					4.00	4.00	390.97	56.30		18.77	18.77	7.50	80.00
6/24/2019			12.00					4.00	5.20	436.56	62.86		20.95	27.24	7.47	82.00
6/25/2019			12.00					4.00	4.00	492.43	70.91		23.64	23.64	7.36	82.00

6/26/2019				7.40		77.00	4.30	4.00	506.21	44.95	467.74	26.12	24.30	7.41	84.00
6/27/2019				8.80			4.00	4.40	502.20	53.03		24.11	26.52	7.28	84.00
6/28/2019									493.17					7.46	84.00
6/29/2019									441.47					7.96	85.00
6/30/2019				9.90			4.00	8.40	467.29	55.51		22.43	47.10	7.88	88.00
Avg	*1.667*	*4.150*		*1,772.563*	*56.041*	*77.364*	*6.073*	*10.878*	*417.438*	*281.239*	*392.605*	*30.455*	*50.765*	*7.476*	*72.906*
Min	*0.600*	*0.800*		*10.000*	*0.390*	*47.000*	*4.000*	*4.000*	*208.190*	*1.869*	*248.358*	*12.991*	*14.871*	*6.560*	*60.000*
Max	*3.900*	*7.500*		*##########*	*96.000*	*100.000*	*25.000*	*160.000*	*530.490*	*528.739*	*537.826*	*95.835*	*449.299*	*8.250*	*88.000*
Sum										*##########*					
30-Day AVG/ Daily MAX	***40/ 89***	***21/ 46***		***400***	***155***		***20/ 40***	***25/ 50***	***636.81***	***1848.6***		***183.5/ 477***	***229.3/ 596.3***	***6/ 9***	

Emerald Performance Materials

Emerald Performance Materials
1550 County Road 1450 N
Henry, Illinois 61537
309-364-2311

CERTIFIED MAIL:
Illinois EPA
Division of Water Pollution Control
1021 North Grand Avenue East
Post Office Box 19276
Springfield, Illinois 62794-9276

CERTIFIED MAIL:
Mr. Jim Kaimueller
IEPA
Regional Office
5415 N.University
Peroia, IL 61614

Re: NPDES Annual Summary Report - NPDES Permit No. IL0001392

12/24/07

Dear Sirs:

Emerald Performance Materials is submitting its 2007 NPDES Annual Summary Report as was required by the PCB Order of AS 02-5 and now by its NPDES permit.

1. The IEPA issued Emerald Performance Material's its Final NPDES Permit on February 9, 2007 to be effective May 1, 2007 which included the conditions outlined in the PCB Order of AS 02-5.
2. The Henry Plant continues to use the 21 foot high-rate, multi-port diffuser that was installed on 10/4/05 into the Illinois River. Quarterly samples of the Illinois River for Ammonia Nitrogen are listed below:
    a. 3/28/07: 0.23 mg/l
    b. 9/28/07: 0.20 mg/l
    c. 12/21/07: Results pending analysis
3. Monthly DMR's have been submitted to the IEPA throughout the year with ammonia monitoring results conducted 5 times per week.
4. An annual inspection of the facility was completed on September 11, 2007 by James Kaimueller. Diffuser installation was reviewed along with the plant's Waste Treatment Access Database system.
5. The plant participated in the Pollution Prevention Program in 2007 by supporting a P2 intern.
6. One major project that was completed during the year was the removal of the BBTS scrubber which was replaced with a dust collector. This improved overall process efficiencies by preventing loss of finished BBTS product to the waste water.
7. Key projects that the plant continued to work on during 2007 which have the potential to reduce ammonia generation at the waste treatment system include the following:
    a. Investigation of a sintered filter media for the BHS filters that would not be prone to tearing and loss of BBTS product to the waste water.
    b. Continued efforts to improve acetonitrile column efficiency to meet the Miscellaneous Organic NESHAP's (MON) standard.

PETITIONER'S HEARING EXHIBIT
AS 19-002
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c. Investigation of a new process in the Netherlands called the Anammox (anaerobic ammonia oxidation) process. This is a relatively new method of treating high concentrations of ammonia anaerobically. The first commercial process was installed 2002 and was featured in the January 2007 issue of Chemical Engineering. Based on Brown and Caldwell Environmental Consultants, the bacteria cultured in this system are very slow growing and sensitive. The inhibitors in the Emerald waste stream would render the process performance unstable.

In the event additional information is needed, please contact me either by phone (309)364-9411 or by email dave.giffin@emeraldmaterials.com.

Sincerely,

David E. Giffin
HSE Manager

cc: Emerald: Jeff Brunner, Brian Denison
IEPA: James Kaminueller, Region Office.

Emerald Performance Materials

Emerald Performance Materials
1550 County Road 1450 N
Henry, Illinois 61537
309-364-2311

Illinois EPA
Division of Water Pollution Control
1021 North Grand Avenue East
Post Office Box 19276
Springfield, Illinois 62794-9276

Re: NPDES Annual Summary Report - NPDES Permit No. IL0001392

05/20/2010

Dear Sirs:

Emerald Performance Materials is submitting its 2008 NPDES Annual Summary Report as was required by its NPDES permit.

1. The IEPA issued Emerald Performance Material's its Final NPDES Permit on February 9, 2007 to be effective May 1, 2007 which included the conditions outlined in the PCB Order of AS 02-5.
2. The Henry Plant continues to use the 21 foot high-rate, multi-port diffuser that was installed on 10/4/05 into the Illinois River. Quarterly samples of the Illinois River for Ammonia Nitrogen are listed below:
   a. 3/14/08: 0.27 mg/l
   b. 6/19/08 <0.10 mg/l
   c. 9/28/08: <0.20 mg/l
   d. 12/13/08 < 0.20 mg/l
3. Monthly DMR's have been submitted to the IEPA throughout the year with ammonia monitoring results conducted 5 times per week.
4. An annual inspection of the facility was completed on September 29, 2008 by James Kammueller.
5. Key projects that the plant continued to work on during 2008 which have the potential to reduce ammonia generation at the waste treatment system include the following:
   a. Brown and Caldwell conducted training in August with waste water treatment operators to optimize the WWT system.
   b. Initiated study on the effects of Carbon Dioxide for ph buffering.
   c. Conducted Fed Batch Reactor testing to quantify any bio-inhibitions present in the system.

In the event additional information is needed, please contact me either by phone (309)364-9411 or by email mike.strabley@emeraldmaterials.com

Sincerely,

Mike Strabley
HSE Manager

cc: Emerald: Jeff Leech, Brian Denison

Emerald Performance Materials

Emerald Performance Materials
1550 County Road 1450 N
Henry, Illinois 61537
309-364-2311

CERTIFIED MAIL:
Illinois EPA
Division of Water Pollution Control
1021 North Grand Avenue East
Post Office Box 19276
Springfield, Illinois 62794-9276

CERTIFIED MAIL:
Mr. Jim Kammueller
IEPA
Regional Office
5415 N.University
Peoria, IL 61614

Re: NPDES Annual Summary Report - NPDES Permit No. IL0001392

12/22/09

Dear Sirs:

Emerald Performance Materials is submitting its 2009 NPDES Annual Summary Report as was required by its NPDES permit.

1. The IEPA issued Emerald Performance Material's its Final NPDES Permit on February 9, 2007 to be effective May 1, 2007 which included the conditions outlined in the PCB Order of AS 02-5.
2. The Henry Plant continues to use the 21 foot high-rate, multi-port diffuser that was installed on 10/4/05 into the Illinois River. Quarterly samples of the Illinois River for Ammonia Nitrogen are listed below:
    a. 3/26/09: <0.20 mg/l
    b. 6/18/09 <0.20 mg/l
    c. 9/28/09: <0.10 mg/l
    d. 11/20/09 < 0.20 mg/l
3. Monthly DMR's have been submitted to the IEPA throughout the year with ammonia monitoring results conducted 5 times per week.
4. An annual inspection of the facility was completed on September 22, 2009 by James Kammueller.
5. Key projects that the plant continued to work on during 2009 which have the potential to reduce ammonia generation at the waste treatment system include the following:
    a. Improvements to the Tertiary Butyl Amine column increasing the recovery of TBA resulting in less amine to the sewer.
    b. Utilization of carbon dioxide for pH adjustment reducing overall loading on the biotreaters. The use of CO_2 reduces the slug feeding of caustic to the system at the primary clarifier adding stability throughout the system.

In the event additional information is needed, please contact me either by phone (309)364-9411 or by email mike.strabley@emeraldmaterials.com

Sincerely,

Mike Strabley
HSE Manager

cc: Emerald: Jeff Brenner, Brian Denison
IEPA: James Kammueller, Region Office.

Emerald Performance Materials

Emerald Performance Materials
1550 County Road 1450 N
Henry, Illinois 61537
309-364-2311

CERTIFIED MAIL:
Illinois EPA
Division of Water Pollution Control
1021 North Grand Avenue East
Post Office Box 19276
Springfield, Illinois 62794-9276

CERTIFIED MAIL:
Mr. Todd Hyson
IEPA-Regional Office
5415 N.University
Peoria, IL 61614

Re: NPDES Annual Summary Report - NPDES Permit No. IL0001392

1/14/10

Dear Sirs:

Emerald Performance Materials is submitting its 2010 NPDES Annual Summary Report as was required by its NPDES permit.

1. The IEPA issued Emerald Performance Material's its Final NPDES Permit on February 9, 2007 to be effective May 1, 2007 which included the conditions outlined in the PCB Order of AS 02-5.
2. NPDES permit was modified on April 27, 2010 listing PolyOne Corporation as a co-permitee.
3. The Henry Plant continues to use the 21 foot high-rate, multi-port diffuser that was installed on 10/4/05 into the Illinois River. Quarterly samples of the Illinois River for Ammonia Nitrogen are listed below:
    a. 3/31/10: <0.20 mg/l
    b. 6/30/10 <0.20 mg/l
    c. 9/23/10: <0.20 mg/l
    d. Unable to sample in December due to the amount of ice on the river.
4. Monthly DMR's have been submitted to the IEPA throughout the year with ammonia monitoring results conducted 5 times per week.
5. An annual inspection of the facility was completed on September 23, 2010 by James Kammueller.
6. Key projects that the plant continued to work on during 2010 which have the potential to reduce ammonia generation at the waste treatment system include the following:
    a. Incorporate ammonia reduction as a metric in the employee gain sharing plan.
    b. Conduct additional testing to further determine sources of ammonia within the facility.

In the event additional information is needed, please contact me either by phone (309)364-9411 or by email mike.strabley@emeraldmaterials.com

Sincerely,

Mike Strabley
HSE Manager

cc: Emerald: Jeff Leech, Brian Denison, John McKinley

IEPA: James Kammueller, Region Office.

Emerald Performance Materials

CERTIFIED MAIL: 7010 3090 0003 0728 0105

December 20, 2011

Illinois Environmental Protection Agency
P. O. Box 19276
Springfield IL 62794-9276

Attn: Division of Water Pollution Control
Compliance Assurance Section, Mail Code #19

Re: NPDES Permit No. IL0001392 – Annual Ammonia Report

Gentlemen:

Special Condition 17 of NPDES permit No. IL0001392, requires that Emerald Performance Materials' Henry IL facility submit an annual report summarizing the activities and results of investigations required by Special Conditions 15, 16 and 18 of the permit.

Special Condition 15 requires Emerald to investigate production methods and technologies which reduce ammonia concentration in effluent from the facility's WasteWater Treatment Plant (WWTP). One source of ammonia to the WWTP is the bottoms stream from the acetonitrile recovery column in the 3114 process. It has been determined that the recovery efficiency of the column is sensitive to absolute pressure at the bottom of the column. A project was defined during the fourth quarter of 2011 to upgrade the instrumentation around the column in order to more effectively control absolute pressure. These upgrades will be implemented in 2012.

Special Condition 16 requires that Emerald evaluate any new technology or economically reasonable production methods which may reduce ammonia concentration in effluent from the WWTP. Emerald did not become aware in 2011 of any new or alternative technology that can be integrated into the facility's manufacturing processes or economically replace existing processes.

Special Condition 18 requires that Emerald quarterly monitor ammonia concentration in the Illinois River in order to demonstrate compliance with 35 IAC 302.212 and that Emerald report those results in the annual report. The results of those samples are shown below.

Sample Date	Concentration
31 March 2011	< 0.10 mg/L
30 June 2011	< 0.10 mg/L
23 September 2011	< 0.10 mg/L
15 December 2011	< 0.10 mg/L

If you have any questions, please e-mail me at **harold.crouch@emeraldmaterials.com** or call me at **309-364-9472.**

Harold Crouch

Harold Crouch, P.E.
Environmental Engineer

Emerald Polymer Additives, LLC

1550 County Road 1450 N. / Henry, IL 61537 / Phone: 309-364-2311 / Fax: 309-364-9460
www.emeraldmaterials.com

Date

Division of Water Pollution Control
Compliance Assurance Section – Mail Code 19
Illinois Environmental Protection Agency
P. O. Box 19726
Springfield IL 62794-9276

CERTIFIED MAIL: nnnn nnnn nnnn nnnn nnnn

Re: NPDES Permit No. IL0001392 – Annual Ammonia Report

Gentlemen:

Special Condition 17 of NPDES Permit No. IL0001392 requires that Emerald Performance Materials' Henry IL facility submit an annual report summarizing the activities and results of investigations required by Special Conditions 15, 16 and 18 of the Permit.

Special Condition 15 requires that Emerald "investigate production methods and technologies that generate less ammonia in the Permittee's discharge into the Illinois River."

As identified in the annual report in 2011, one source of ammonia to the WWTP is the bottoms stream from the acetonitrile recovery column in the 3114 process. It has been determined that the recovery efficiency of the column is sensitive to absolute pressure at the bottom of the column. A project was defined during the fourth quarter of 2011 to upgrade the instrumentation around the column in order to more effectively control absolute pressure. These upgrades were implemented in 2012.

In the last quarter of 2012, samples were taken from several process outfalls to determine the relative contribution of nitrogen to WWTP to help set priorities for other projects to be undertaken to look for or implement ammonia reduction to our plant effluent. Analyses of the results are still pending review.

On 28 September 2012, Emerald filed with the Illinois Pollution Control Board a petition for renewal of the adjusted ammonia standard granted by the Board on 4 November 2004. A copy of this petition was submitted to IEPA. This filing included a report by Brown & Caldwell Consulting Engineers of all known methods of reducing ammonia concentration in Emerald treated effluent, along with economic analyses of each option. The report concluded that while there were several technically feasible treatment methods, none of them were economically feasible.

Special Condition 16 states that "The permittee must perform any reasonable test of new technologically or economically reasonable production methods or materials applicable to the specialty chemicals manufacturing process, which may reduce ammonia concentration in the discharge from the Permittee's facility which the Agency specifically requests in writing that they do." No such request was issued by IEPA in 2012.

Special Condition 18 requires that "Emerald monitor ammonia nitrogen in the Illinois River on a quarterly basis to demonstrate compliance with the applicable ammonia water quality standards in accordance with 35 IAC 302.202. The results of those analyses are shown below.

Sample Date	**Concentration**
28 March 2012	< 0.10 mg/L
22 June 2012	< 0.10 mg/L
28 September 2012	1.1 mg/L
16 November 2012	< 0.10 mg/L

If you have any questions, please contact me at **Kellie.Staab@EmeraldMaterials.com** or call me at **309-364-9411**.

Kellie J. Staab, HSE Manager

Emerald Performance Materials

December 30, 2013

Division of Water Pollution Control
Compliance Assurance Section – Mail Code 19
Illinois Environmental Protection Agency
P. O. Box 19726
Springfield IL 62794-9276

CERTIFIED MAIL: 7010 3090 0003 0728 1317

Re: NPDES Permit No. IL0001392 – Annual Ammonia Report

Gentlemen:

Special Condition 17 of NPDES Permit No. IL0001392 requires that Emerald Performance Materials' Henry IL facility submit an annual report summarizing the activities and results of investigations required by Special Conditions 15, 16 and 18 of the Permit.

Special Condition 15 requires that Emerald "investigate production methods and technologies that generate less ammonia in the Permittee's discharge into the Illinois River."

As identified in the annual report in 2011, one source of ammonia to the WWTP is the bottoms stream from the acetonitrile recovery column in the 3114 process. It has been determined that the recovery efficiency of the column is sensitive to absolute pressure at the bottom of the column. A project was defined during the fourth quarter of 2011 to upgrade the instrumentation around the column in order to more effectively control absolute pressure. These upgrades were implemented in 2012. Unfortunately, the process did not run enough in 2013 to get representative numbers of any direct contribution these upgrades made. However, the overall pounds of ammonia to the river for 2013 were approximately 13,000 pounds less than in 2012.

In the last quarter of 2012, samples were taken from several process outfalls to determine the relative contribution of nitrogen to WWTP to help set priorities for other projects to be undertaken to look for or implement ammonia reduction to our plant effluent. Review of the analyses results show that one product from Building 725 was a major contributor. The process uses an excess of t-butylamine. Efforts were started to identify the true excess needed to produce quality product. Efforts will continue in 2014 to attempt to further reduce this excess which leaves the process and goes to wastewater treatment either by direct source reduction or better recovery of the t-butylamine.

On 28 September 2012, Emerald filed with the Illinois Pollution Control Board a petition for renewal of the adjusted ammonia standard granted by the Board on 4 November 2004. A copy of this petition was submitted to IEPA. This filing included a report by Brown & Caldwell Consulting Engineers of all known methods of reducing ammonia concentration in Emerald treated effluent, along with economic analyses of each option. The report concluded that while there were several technically feasible treatment methods, none of them were economically feasible. Further discussion with the IEPA has suggested several other treatment methods to be explored and Emerald has agreed to do further investigation on these methods for technical and economic feasibility.

Special Condition 16 states that "The permittee must perform any reasonable test of new technologically or economically reasonable production methods or materials applicable to the specialty chemicals manufacturing process, which may reduce ammonia concentration in the discharge from the Permittee's facility which the Agency specifically requests in writing that they do." No such request was issued by IEPA in 2013.

Emerald Polymer Additives, LLC

1550 County Road 1450 N. / Henry, IL 61537 / Phone: 309-364-2311 / Fax: 309-364-9460
www.emeraldmaterials.com

Special Condition 18 requires that "Emerald monitor ammonia nitrogen in the Illinois River on a quarterly basis to demonstrate compliance with the applicable ammonia water quality standards in accordance with 35 IAC 302.202. The results of those analyses are shown below.

Sample Date	Concentration
28 March 2013	< 0.10 mg/L
21 June 2013	< 0.10 mg/L
17 September 2013	< 0.10 mg/L
14 November 2013	0.17 mg/L

If you have any questions, please contact me at **Kellie.Staab@EmeraldMaterials.com** or call me at **309-364-9411**.

Kellie J. Staab
Sr. Environmental Specialist

Emerald Performance Materials

December 30, 2014

CERTIFIED MAIL: 7010 3090 0003 0728 1812

Division of Water Pollution Control
Compliance Assurance Section – Mail Code 19
Illinois Environmental Protection Agency
P. O. Box 19726
Springfield IL 62794-9276

Re: NPDES Permit No. IL0001392 – Annual Ammonia Report

Gentlemen:

Special Condition 17 of NPDES Permit No. IL0001392 requires that Emerald Performance Materials' Henry IL facility submit an annual report summarizing the activities and results of investigations required by Special Conditions 15, 16 and 18 of the Permit.

Special Condition 15 requires that Emerald "investigate production methods and technologies that generate less ammonia in the Permittee's discharge into the Illinois River."

In the last quarter of 2012, samples were taken from several process outfalls to determine the relative contribution of nitrogen to WWTP to help set priorities for other projects to be undertaken to look for or implement ammonia reduction to our plant effluent. Review of the analyses results show that one product from Building 725 was a major contributor. The process uses excess t-butylamine. Efforts started in 2013 were continued into 2014 to identify the optimum excess needed to result in quality production while practicing source reduction and improving t-butylamine recovery efforts. Through the end of November, 2014, the amount of ammonia as N was reduced by 53,000 lbs compared to the same time in 2013.

On 28 September 2012, Emerald filed with the Illinois Pollution Control Board a petition for renewal of the adjusted ammonia standard granted by the Board on 4 November 2004. A copy of this petition was submitted to IEPA. This filing included a report by Brown & Caldwell Consulting Engineers of all known methods of reducing ammonia concentration in Emerald treated effluent, along with economic analyses of each option. The report concluded that while there were several technically feasible treatment methods, none of them were economically feasible.

Special Condition 16 states that "The permittee must perform any reasonable test of new technologically or economically reasonable production methods or materials applicable to the specialty chemicals manufacturing process, which may reduce ammonia concentration in the discharge from the Permittee's facility which the Agency specifically requests in writing that they do." No such request was received from IEPA in 2014.

Special Condition 18 requires that "Emerald monitor ammonia nitrogen in the Illinois River on a quarterly basis to demonstrate compliance with the applicable ammonia water quality standards in accordance with 35 IAC 302.202. The results of those analyses are shown below.

Sample Date	Concentration
26 March 2014	0.20 mg/L
26 June 2014	< 0.10 mg/L
23 September 2014	< 0.10 mg/L
17 November 2014	< 0.10 mg/L

If you have any questions, please contact me at **Kellie.Staab@EmeraldMaterials.com** or call me at **309-364-9411**.

Kellie J. Staab
Sr. Environmental Specialist

Emerald Polymer Additives, LLC

1550 County Road 1450 N. / Henry, IL 61537 / Phone: 309-364-2311 / Fax: 309-364-9460
www.emeraldmaterials.com

Emerald Performance Materials

January 6, 2016

Division of Water Pollution Control
Compliance Assurance Section – Mail Code 19
Illinois Environmental Protection Agency
P. O. Box 19726
Springfield IL 62794-9276

CERTIFIED MAIL: 7015 0640 0006 8491 5235

Re: NPDES Permit No. IL0001392 – Annual Ammonia Report

Gentlemen:

Special Condition 17 of NPDES Permit No. IL0001392, issued 2/9/2007, requires that Emerald Performance Materials' Henry IL facility submit an annual report summarizing the activities and results of investigations required by Special Conditions 15, 16 and 18 of the Permit.

Special Condition 15 requires that Emerald "investigate production methods and technologies that generate less ammonia in the Permittee's discharge into the Illinois River."

In the last quarter of 2012, samples were taken from several process outfalls to determine the relative contribution of nitrogen to WWTP to help set priorities for other projects to be undertaken to look for or implement ammonia reduction to our plant effluent. Review of the analyses results show that one product from Building 725 was a major contributor. The process uses excess t-butylamine. Efforts started in 2013 were continued through 2015 to identify the optimum excess needed to result in quality production while practicing source reduction and improving t-butylamine recovery efforts. Through the end of November, 2015, the amount of ammonia as N was reduced by 15,000 lbs compared to the same time in 2014. This reduction can be attributed to both reduced production and better process management.

On 28 September 2012, Emerald filed with the Illinois Pollution Control Board a petition for another adjusted ammonia standard, similar to the one granted by the Board on 4 November 2004. A copy of this petition was submitted to IEPA. This filing included a report by Brown & Caldwell Consulting Engineers of all known methods of reducing ammonia concentration in Emerald treated effluent, along with economic analyses of each option. The report concluded that while there were several technically feasible treatment methods, none of them were economically feasible.

Special Condition 16 states that "The permittee must perform any reasonable test of new technologically or economically reasonable production methods or materials applicable to the specialty chemicals manufacturing process, which may reduce ammonia concentration in the discharge from the Permittee's facility which the Agency specifically requests in writing that they do." No requests were received from IEPA in 2015. However as part of the new Adjusted Ammonia Standard issued by the IL Pollution Control Board on April 16, 2015, Emerald has requested and received proposals for conducting additional studies such as activated carbon treatment, agricultural application, and dilution with river water.

Emerald Polymer Additives, LLC

1550 County Road 1450 N. / Henry, IL 61537 / Phone: 309-364-2311 / Fax: 309-364-9460
www.emeraldmaterials.com

Special Condition 18 requires that "Emerald monitor ammonia nitrogen in the Illinois River on a quarterly basis to demonstrate compliance with the applicable ammonia water quality standards in accordance with 35 IAC 302.202. The results of those analyses are shown below.

Sample Date	Concentration
25 March 2015	< 0.10 mg/L
25 June 2015	< 0.10 mg/L
17 September 2015	< 0.10 mg/L
19 November 2015	< 0.10 mg/L

Going forward Emerald will report according to the new Adjusted Ammonia Standard issued April 16, 2015.

If you have any questions, please contact me at **Kellie.Staab@EmeraldMaterials.com** or call me at **309-364-9411**.

Kellie J. Staab
Sr. Environmental Specialist

Emerald Performance Materials

April 27, 2016

Division of Water Pollution Control
Compliance Assurance Section – Mail Code 19
Illinois Environmental Protection Agency
P. O. Box 19726
Springfield IL 62794-9276

CERTIFIED MAIL: 7015 0640 0006 8491 6683

Re: Adjusted Standard 13-2 (NPDES Permit No. IL0001392) – Annual Report

Gentlemen:
As part of the latest Adjusted Ammonia Standard issued by the IL Pollution Control Board (AS13-2) on April 16, 2015, a condition was set that requires Emerald to "prepare and submit to the Agency annual reports summarizing its activities to comply with paragraphs 2(c) through 2(e) of the adjusted standard." This letter is being sent to comply with this requirement.

The referenced paragraphs are stated below as well as Emerald's update on activities.

2. (c). Emerald must investigate new production methods and technologies that generate less ammonia and nitrification inhibitors in Emerald's discharge. The nitrification inhibitors such as MBT are the chief cause of inhibiting nitrification in the treatment system which allows for ammonia to discharge.

RESPONSE
Process improvement activities continued in 2015 to identify the optimum excess t-butylamine (a reactant in one of our processes) needed to result in quality production while practicing source reduction and improving t-butylamine recovery. The amount of ammonia as N was reduced by greater than 18,000 lbs in 2015 compared to 2014.

2. (d). Emerald must investigate new treatment technologies and evaluate implementation of new and existing treatment technology based on current plant conditions.

RESPONSE
No new treatment technologies have been identified based on internet searches and through consultation with our network of engineers and consultants since Adjusted Standard 13-2 was issued.

2. (e). By April 16, 2018, Emerald must investigate and submit to the Illinois Environmental Protection Agency (Agency) the following studies:

i) A study evaluating the use of granulated activated carbon to treat the polymer chemicals tank waste water before it combines with non-polymer chemicals tank waste water to determine if this treatment alternative effectively removes inhibitors, including MBT, which would then allow for biological treatment. The study must include a technical feasibility evaluation and an economic reasonableness analysis;

Emerald Polymer Additives, LLC

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www.emeraldmaterials.com

ii) A study evaluating the technical feasibility and the economic reasonableness of a spray irrigation program. The studies must include an evaluation of compliance with the applicable design standards for slow rate land application of treated wastewaters (35 Ill. Adm. Code 372); and

iii) A study evaluating the addition of water from the Illinois River to the wastewater to determine the potential for subsequent single-stage nitrification in light of the potential dilution. The study must include a technical feasibility evaluation and an economic reasonableness analysis.

RESPONSE
Emerald has requested and received proposals for conducting additional studies of activated carbon treatment, spray irrigation, and addition of river water to facilitate nitrification. Consulting firms have been identified to do the studies. These studies will start in 2016 to meet the 2018 deadline.

If you have any questions, please contact Kellie Staab, Sr. Environmental Specialist via email at **Kellie.Staab@EmeraldMaterials.com** or call at **309-364-9411**.

Sincerely,

William P. Stone

William P. Stone
Plant Manager

Emerald Performance Materials

November 30, 2017

CERTIFIED MAIL: 7016 1370 0002 2632 2262

Division of Water Pollution Control
Compliance Assurance Section – Mail Code 19
Illinois Environmental Protection Agency
P. O. Box 19726
Springfield IL 62794-9276

Re: Adjusted Standard 13-2 (NPDES Permit No. IL0001392)
Annual Status Report

To Whom It May Concern:

The Henry, IL Emerald Performance Materials facility is submitting the following report to show continued compliance with the NPDES Permit No. IL0001392, specifically the Adjusted Ammonia Standard (AS13-2) found in Special Condition 16 of the above permit.

On December 1, 2016, the IL Pollution Control Board filed an Opinion and Order of the Board superseding the April 16, 2015 order. The December Order also requires Emerald to "prepare and submit to the Agency annual reports summarizing its activities to comply with paragraphs 2(c) through 2(e) of the adjusted standard." This letter is being sent to comply with this requirement.

The referenced paragraphs are stated below as well as Emerald's update on activities.

2.(c). Emerald must investigate new production methods and technologies that generate less ammonia and nitrification inhibitors in Emerald's discharge. The nitrification inhibitors such as MBT are the chief cause of inhibiting nitrification in the treatment system which allows for ammonia to discharge.

RESPONSE

Emerald has continued working towards process improvements to recover MBT in the production process. The facility engineering department is working in conjunction with production, the HSE department, and two engineering firms, as well as process improvement engineering from the Emerald corporate services to establish administrative and process controls. Any sustainable changes discovered and implemented will be provided in the 2018 report.

2.(d). Emerald must investigate new treatment technologies and evaluate implementation of new and existing treatment technology based on current plant conditions.

RESPONSE

No new treatment technologies have been identified since the last update report in 2016. Emerald will continue to investigate process improvements and wastewater treatment opportunities in 2018.

2.(e). By April 16, 2018, Emerald must investigate and submit to the Illinois Environmental Protection Agency (Agency) the following studies:

i) A study evaluating the use of granulated activated carbon to treat the polymer chemicals tank waste water before it combines with non-polymer chemicals tank waste water to determine if this treatment alternative effectively removes inhibitors, including MBT, which would then allow for biological treatment. The study must include a technical feasibility evaluation and an economic reasonableness analysis;

ii) A study evaluating the technical feasibility and the economic reasonableness of a spray irrigation program. The studies must include an evaluation of compliance with the applicable design standards for slow rate land application of treated wastewaters (35 Ill. Adm. Code 372); and

iii) A study evaluating the addition of water from the Illinois River to the wastewater to determine the potential for subsequent single-stage nitrification in light of the potential dilution. The study must include a technical feasibility evaluation and an economic reasonableness analysis.

RESPONSE

The Henry facility has contracted with engineering and consulting firms to conduct studies discussed in subsections 2.(e)(i) and 2.(e).(ii). The results of these studies will be provided in the April 2018 report.

As for the study in section 2.(e).(iii), Emerald has significant concerns regarding the consistency of the proposed spray irrigation study with federal law. This option is currently in review and an update will be provided in subsequent correspondence.

If you have any questions, please contact David Sikes, EHS&S Manager via email at **David.Sikes@emeraldmaterials.com** or call directly to his office at **309-364-9472**.

Respectfully,

Galen Hathcock
Plant Manager

Emerald Performance Materials®
Kalama Chemical

April 17, 2018

CERTIFIED MAIL: 7016 1370 0002 2632 1241

Division of Water Pollution Control
Compliance Assurance Section – Mail Code 19
Illinois Environmental Protection Agency
P. O. Box 19726
Springfield IL 62794-9276

Re: Adjusted Standard 13-2 (NPDES Permit No. IL0001392) – Update Report

To Whom It May Concern:

The Henry, IL Emerald Performance Materials facility is submitting the following report to show continued compliance with the all of requirements of Adjusted Standard 13-2, which are incorporated into NPDES Permit No. IL0001392 Special Condition 16. AS13-2 Conditions 2(c) and (d) require the plant to generally investigate new production methods and technologies that would generate less nitrification inhibitors (i.e., MBT) and new treatment technologies. AS13-2 Condition 2(e) specifically requires the plant to investigate and submit reports evaluating three alternative treatment ideas: granulated activated carbon (GAC), spray irrigation, and river water dilution.

Report as to Conditions 2(c) and (d):

The Henry facility has put together a continuous process improvement project to identify and evaluate potential modifications of the processes and product recipes to recover MBT as well as a few of the key organic nitrogen compounds that serve as the building blocks for most of Emerald's products. The team is comprised of facility personnel, consultants, and process improvement engineers from Emerald corporate services. The approaches taken by this team to evaluate process modifications and alternative treatment options to achieve the final goal of further reducing ammonia in the Emerald WWTF effluent have been unsuccessful since the issuance of AS13-2.

Report as to Condition 2(e):

Granulated Activated Carbon (GAC). The pretreatment of plant wastewater using GAC to remove mercaptobenzothiazole (MBT) was evaluated at a bench scale by Brown & Caldwell.

In the bench scale testing, B&C found that GAC would sufficiently reduce MBT concentrations to allow the microorganisms in the plant wastewater treatment system to achieve adequate nitrification. B&C also evaluated the cost of this alternative and found that its estimated cost is 20x higher than the costs incurred by municipal wastewater treatment facilities in Illinois and 11x higher than the average cost of municipal facilities nationwide. The B&C report is Attachment A. Based on these findings, Emerald does not believe GAC is economically reasonable.

Spray Irrigation/Land Application. Emerald investigated the technical feasibility of a spray irrigation (land application) program. A spray irrigation program is not a technically feasible option for the Henry facility's treated wastewater. There are two principal flaws with this option: a lack of symbiosis between wastewater treatment operations and the agricultural needs for nitrogen amendments; and regulatory restrictions. The regulatory restrictions are paramount.

Condition 2(e) of AS13-2 asks for an evaluation of spray irrigation in accordance with 35 IAC Part 372. Those regulations establish design standards and other standards for low-rate land application of secondary and tertiary treated **domestic** wastewater. Emerald's discharge is industrial wastewater and the Part 372 regulations do not allow low-rate land application of the Henry plant treated effluent. Further, presently the discharge from the plant's wastewater treatment system is not subject to regulation as solid or hazardous waste because of the RCRA exemption for wastewater discharges subject to a NPDES permit under 35 IAC 721.104(a)(2) and its federal equivalent 40 CFR 261.4(a)(2). If a portion of the wastewater stream was diverted to spray irrigation, the diverted portion might be considered land disposal of a solid waste, or possibly a hazardous waste. USEPA considered an analogous circumstance at a landfill in Kentucky in 2007 that wanted to discharge treated leachate that was high in ammonia via spray irrigation. USEPA determined that the proposal – even if it was incorporated into the landfill's NPDES permit – would be prohibited land disposal of a hazardous waste. The USEPA determination is included as Attachment B.

Even if the regulations that restrict the land application of the wastewater were revised; spray irrigation would still not be a technically feasible option because there is a lack of symbiosis between wastewater treatment operations and agricultural needs. The Henry facility continuously discharges treated effluent to the Illinois River. The mass of ammonia discharged is not constant, but rather fluctuates with production. This would require frequent analysis and adjustment of the land application rate in order to meet the nitrogen requirements of the crops. And since the nitrogen is present as dissolved ammonia, the only way to get the nutrient to the crops is via irrigation. Crop irrigation and nitrogen needs do not occur continuously during the growing season and cease altogether outside the growing season.

Land application of biosolids and other soil amendments must follow 40 CFR 503 Subpart B regulations. One of the requirements is that soil amendments must only be applied during the active growing season. In this region of Illinois, the growing season is between 175 and 180

days (at most) in duration. The wastewater effluent would have to be discharged to the Illinois River during the other 185 to 190 days when land application is restricted. Emerald owns 80 acres of land, currently leased to a local farmer, onto which the effluent could be land applied. If the 80 acres were planted with corn, which has a fairly high nitrogen demand of 110 pounds of nitrogen per acre per growing season; 8,800 pounds of nitrogen would be required (assuming 100 bushels per acre). This quantity of nitrogen could be supplied by the wastewater effluent in less than 20 days. Thus, even during the growing season, the available cropland could only receive a small portion of the Henry plant's wastewater. For this additional reason, the spray irrigation option is not technically feasible.

River Water Dilution. Treatment of plant wastewater via river water dilution was evaluated at a bench scale by B&C. In the bench scale testing, B&C found that nitrification could be achieved if the plant wastewater were diluted by 90% with river water. See Attachment A. B&C cautioned, however, that the bench scale results might not be sustainable at plant-scale due to fluctuations in MBT production that would cause inconsistent nitrification and cold weather river water temperatures which would interfere with other wastewater treatment processes that require warm wastewater. B&C also evaluated the cost of this alternative and found that its estimated cost (even without including the capital cost of constructing an additional steam boiler, as discussed below) is 40x higher than the costs incurred by municipal wastewater treatment facilities in Illinois and 21x higher than the average cost of municipal facilities nationwide. Based on the B&C report and Emerald's own evaluation, the river water dilution alternative is not technically feasible or economically reasonable. There are three reasons why this option must be rejected: the option is not likely to achieve the desired ammonia removal; the ancillary environmental impacts outweigh the benefits of any reduction in the mass of ammonia discharged; and the economic cost is prohibitive as demonstrated by B&C.

For the reasons described in the B&C report, Emerald seriously doubts that the river water dilution option can consistently achieve the ammonia reductions that were achieved in the bench scale testing. Also, diluting the facility's wastewater by a factor of almost ten will also dilute the chemicals that the microorganisms metabolize. This may compromise the efficiency of the wastewater treatment plant, hampering the microbial degradation of the other contaminants. Thus, purely from the standpoint of the wastewater discharge, the river water dilution option is not technically feasible.

This alternative would also have significant negative cross-media environmental impacts. Temperature is a critical parameter for the microorganisms that digest the organic chemicals in the wastewater. Steam is injected into the wastewater in order to ensure the temperature is maintained within the optimum range at all times of the year. Since the Illinois River temperature is much colder than the optimal treatment system temperature in late fall, winter and early spring, additional steam would have to be injected to maintain the required temperature range. The volume of river water needed to achieve nitrification on a bench scale is nearly ten times the volume of wastewater the facility typically generates and would

require the installation of a 140 million Btu per hour boiler to provide the additional steam. Assuming the boiler ran for seven months of the year, was natural gas-fired, equipped with low-NO_x burners and flue gas recirculation, it could emit as much as 38,000 metric tons of CO_2e greenhouse gases, 35 tons of nitrogen oxides, and 30 tons of carbon monoxide per year to heat the river water. The atmospheric emissions coupled with the additional heat load discharged to the Illinois River would negate any benefit associated with the potential reduction in ammonia concentration in the effluent.

If you have any questions, please contact David Sikes, HS&E Manager via email at david.sikes@emeraldmaterials.com or call at 309.364.9472.

Respectfully,

Galen Hathcock
Plant Manager

ATTACHMENT A

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Technical Memorandum

Prepared for: Emerald Performance Materials

Project Title: Henry Nitrification Evaluation

Project No.: 149470

Technical Memorandum

Subject: Evaluation of Nitrification Alternatives for Emerald-Henry, Illinois Facility

Date: April 13, 2018

To: David Sikes, Environmental, Health and Safety Manager

From: Houston Flippin, P.E., BCEE, Chief Engineer

Copy to: Charlie Gregory, Project Engineer

Prepared by: _____
Charlie Gregory, Project Engineer

Reviewed by: J. Houston Flippin
Houston Flippin, P.E., BCEE, Chief Engineer

Limitations:

This document was prepared solely for Emerald Performance Materials in accordance with professional standards at the time the services were performed and in accordance with the contract between Emerald Performance Materials and Brown and Caldwell. This document is governed by the specific scope of work authorized by Emerald Performance Materials; it is not intended to be relied upon by any other party except for regulatory authorities contemplated by the scope of work. We have relied on information or instructions provided by Emerald Performance Materials and other parties and, unless otherwise expressly indicated, have made no independent investigation as to the validity, completeness, or accuracy of such information.

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Section 1: Introduction

1.1 Background

The combined wastewater generated at the Emerald Performance Materials - Henry Plant (Emerald) has historically contained high concentrations of Total Kjeldahl Nitrogen (TKN) and ammonia-nitrogen (NH3-N), as well as a known nitrification-inhibiting compound, mercaptobenzothiazole (MBT). This known inhibitor is the compound that serves as the foundational building block of essentially all products at the Emerald Henry Plant.

Both Emerald and Mexichem are co-located at the Henry Plant having at one time been all part of the BF Goodrich Specialty Chemicals plant. Together, these two industries discharge to a shared industrial wastewater treatment facility (IWTF) operated by Emerald (see Figure 1). The wastewaters from Emerald discharge to two equalization tanks: the C-18 Tank and the PC Tank. The wastewaters from Mexichem production discharge to an equalization tank with one Mexichem wastewater (213 Centrate) stream receiving special pretreatment. The wastewaters from the two Emerald tanks, one Mexichem tank, and the Mexichem pretreated wastewater are all discharged to an onsite IWTF. In addition, waters from groundwater recovery, production area stormwater, and utility waters are also treated in the IWTF. The IWTF provides chemical conditioning, primary settling to remove solids, activated sludge treatment to remove biologically degradable materials and tertiary filtration prior to discharge to the Illinois River. The solids from primary settling, Mexichem pretreatment and the waste solids from activated sludge treatment are dewatered using a precoat filter press. The dewatered solids are disposed of off-site. Figure 1 illustrates this wastewater collection and treatment system.

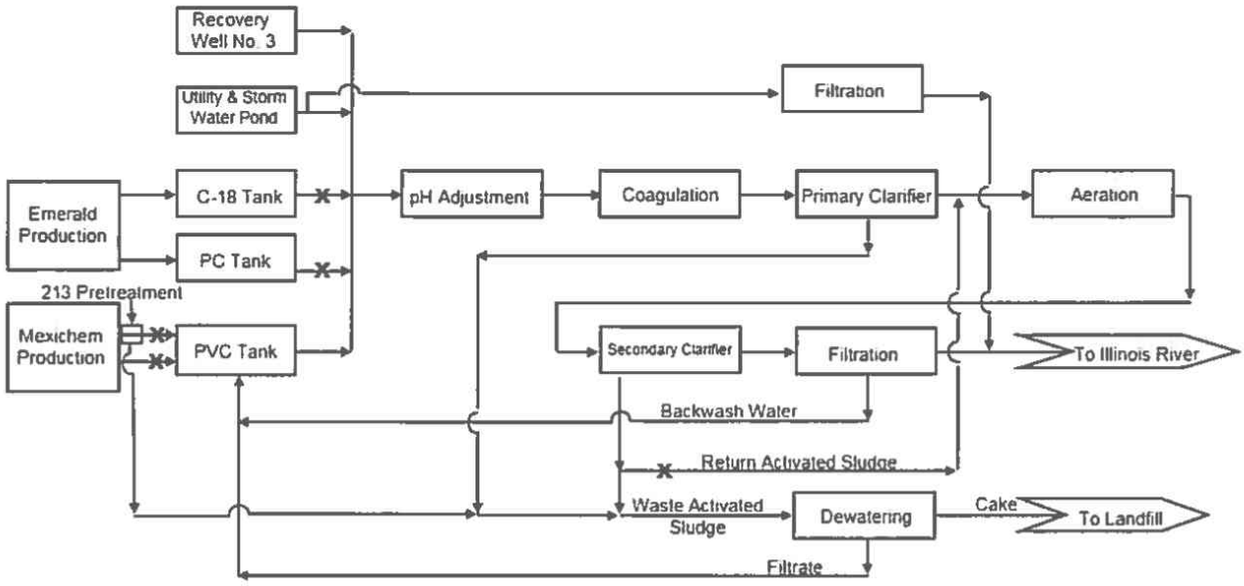


Figure 1: Block Flow Diagram of Wastestream Sources and WWTF

Due to the necessity of MBT use in Emerald's production processes, effluent NH_3-N removal at the Henry Plant is typically low. Brown and Caldwell (BC), at the request of Emerald, has conducted the studies listed below and described herein to satisfy Condition 2 (e) of Adjusted Standard 13-2 issued by the Illinois Pollution Control Board (IPCB), which has been incorporated into Special Condition 15 of the Plant's National Pollution Discharge Elimination system permit (IL0001392) issued by the Illinois Environmental Protection Agency (IEPA):

1. Provide Granular Activated Carbon (GAC) Treatment on the Polymer Chemicals (PC) wastewater to remove MBT so that nitrification can occur.
2. Provide river water dilution to the primary clarifier effluent so that MBT may be diluted and nitrification can occur.

Emerald also requested BC to investigate the technical and economic viability of each.

1.2 Scope of Work

The scope of work for these studies consisted of bench scale treatability testing and developing a preliminary design and cost estimate for each option. Laboratory testing was required to evaluate nitrification potential and feasibility. Based on the results from the bench scale tests, preliminary designs and a class 5 cost estimate were completed to investigate the economic feasibility of achieving nitrification (biological ammonia-nitrogen removal) through these two methods in comparison to NH_3-N removal technologies previously considered. Lastly, these costs were compared to the costs imposed by municipalities on industries to provide NH_3-N removal.

Section 2: Laboratory Testing

Fed Batch Reactor (FBR) testing was performed to investigate the ability for nitrification to occur in pretreated and unpretreated wastewater. During an FBR test, a wastewater is fed to a batch reactor with a fixed biomass population. This configuration allows for the fraction of wastewater in the beaker to increase over time based on a chosen food to mass (F/M) ratio. Thus, the nitrification rate as well as the fraction of wastewater inhibitory to the biomass (generally washed return activated sludge (RAS) from the Henry Plant plus dissolved solids (salt) and pure culture nitrifying bacteria (nitrifiers)) can be ascertained from the results. FBR tests were performed on five combinations of biomass and test waters to investigate the viability of GAC treatment and river water dilution in facilitating nitrification in the IWTF. Table 1 outlines the five FBR tests run during this investigation.

Table 1. FBR Tests Performed

Test	Biomass	Wastewater
FBR 1	Washed RAS + TDS Adjusted Nitrifiers	Unpretreated Primary Clarifier Effluent
FBR 2	Washed RAS + TDS Adjusted Nitrifiers	Primary Clarifier Effluent with PC and C-18 pretreated with GAC
FBR 3 (Control Rd. 1)	Washed RAS + TDS Adjusted Nitrifiers	River water with NH4Cl
FBR 4	Washed RAS + River water TDS Adjusted Nitrifiers	10% Unpretreated Primary Clarifier Effluent and 90% River water
FBR 5 (Control Rd. 2)	Washed RAS + River water TDS Adjusted Nitrifiers	River water with NH4Cl

FBR Tests 3 and 5 were run as controls containing the pure culture nitrifiers at different design total dissolved solids (TDS) values. The controls were used to obtain an uninhibited nitrification rate. FBR Test 1 was designed to investigate any possible nitrification experienced with average levels of MBT fed to the current Henry biomass with nitrifying bacteria added. FBR 2 was designed to investigate the ability for nitrification to occur in a test fed GAC treated PC wastewater. FBR Test 4 was performed to investigate if nitrification inhibition would occur if the waste stream remained unpretreated, but heavily diluted with river water.

To simulate the pretreated clarifier effluent, settling tests and GAC tests were performed on combined wastewater collected from the PC and the Cure-Rite® 18 (C-18) equalization tanks. Both these wastewaters are generated through production processes in the Emerald plant. The purpose of these tests was to identify the required solids removal system and to determine the required GAC dose to achieve a target MBT concentration of less than 15 mg/L in the PC wastewater discharge. This settled and GAC treated PC/C-18 wastewater was fed to FBR Test 2.

2.1 Return Activated Sludge (RAS) Washing

The RAS samples provided by Emerald Performance Materials were washed as they arrived at BC's Industrial Treatability Laboratory in Nashville, TN. The RAS samples were washed 8,000-fold at a pH of nine in TDS adjusted river water. After this washing, decant from the RAS was characterized to insure MBT was less than 1 mg/L, pH was adjusted to 7.2, and the decant was re-sampled to ensure MBT was at target concentrations. MBT in both samples was less than 0.04 mg/L.

2.2 Settling Tests and Granular Activated Carbon Testing (GAC)

Prior to FBR testing, settling and GAC tests were performed on the PC/C-18 WW. The settling tests were performed to size a new inclined plate separator prior to GAC treatment. This would aid in the removal of total suspended solids (TSS) prior to carbon treatment. The GAC testing was performed to quantify the GAC dosage necessary so that PC/C-18 WW would not inhibit nitrification.

The PC and C-18 waste streams were blended proportionally to the current average flow of each stream. After being blended, pH was adjusted to 10 using sodium hydroxide (NaOH). While the pH was at 10, settling tests were performed. Table 2 provides the results from the settling tests.

Table 2. Settling Test Results

HRT (gpd/ft2)	TSS (mg/L)
No Settling	127
50	9
300	63
600	65
900	63
1,200	80

The 50 gpd/ft2 test was the only settling test performed that produced a supernatant TSS of 9 mg/L, with a goal of less than 20 mg/L. This was done to mimic the expected TSS quality after treatment with an inclined plate separator. This sample was collected and analyzed for MBT. The resulting MBT is seen in Table 3 as a GAC dosage equal to 0 mg/L.

After settling tests were performed, testing was conducted on the pretreated PC/C-18 WW to determine the concentration of GAC needed to decrease the MBT concentration below 15 mg/L. Table 3 provides the dosages and MBT results from the GAC testing.

Table 3. GAC Test Results	
GAC Dosage (mg/L)	MBT (mg/L)
0	320
1,200	230
5,800	83
10,300	10[a]
14,900	18
19,400	8.4
24,000	0.99

[a] *Suspect data point.*

Results from the GAC tests show that the dosage of GAC to achieve less than 15 mg/L MBT is approximately 17,000 mg/L. In the makeup of the pretreated feed for FBR Test 2, a dosage of 20,000 mg/L was used for pretreatment of the PC/C-18 WW prior to the feed makeup. This dose was selected to provide a margin of safety in achieving adequate MBT removal. The Freundlich isotherm developed from the GAC doses is presented in Figure 2.

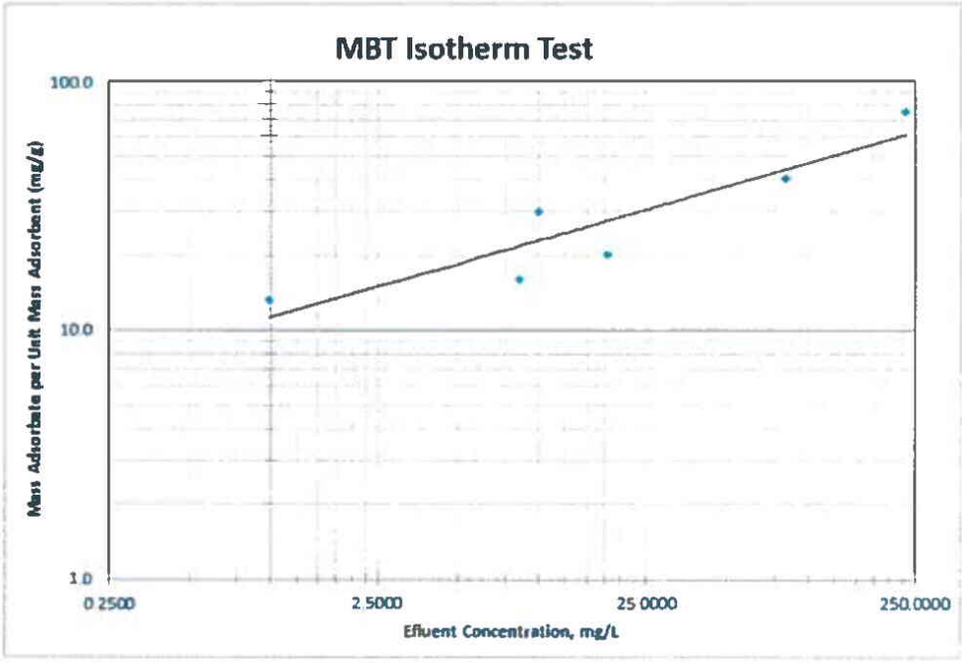


Figure 2. Freundlich Isotherm for MBT removal

Calgon Filtrasorb-300 (F-300), Calgon's most popular GAC media for industrial wastewater applications was deemed adequate and therefore used for the testing performed. Virgin F-300 was chosen for this investigation since it offers good adsorptive properties for a wide range of compounds including MBT.

When MBT is the primary compound being removed by GAC, Calgon Carbon recommends their OLC 12X40 product as being their most efficient product. The OLC 12X40 was recommended by Calgon based on GAC performance with benzotriazole (BTA) removal. BTA is similar in chemical structure to MBT. Calgon believed that removal of BTA through carbon adsorption would be similar to that of MBT. The quantity of MBT removed per mass of GAC (X/M) increase in performance was based on Figure 2 provided by Calgon. The 10 percent improvement in MBT removal assumes that a concentration of 320 mg/L MBT would exist in the PC/C-18 WW. Based on Figure 3, F-300 would have a capacity of approximately three grams of BTA/100 grams carbon. The OLC 12X40 would have an approximate capacity of 3.3 grams of BTA/100 grams carbon. This leads to the assumptions that the OLC 12X40 could potentially have a 10 percent better MBT removal compared to the F-300. In addition, the F-300 is 50 percent costlier. Based on these facts, BC assumed that the lower cost and potentially 10 percent better OLC 12X40 would be used in preparing cost estimates for full-scale application.

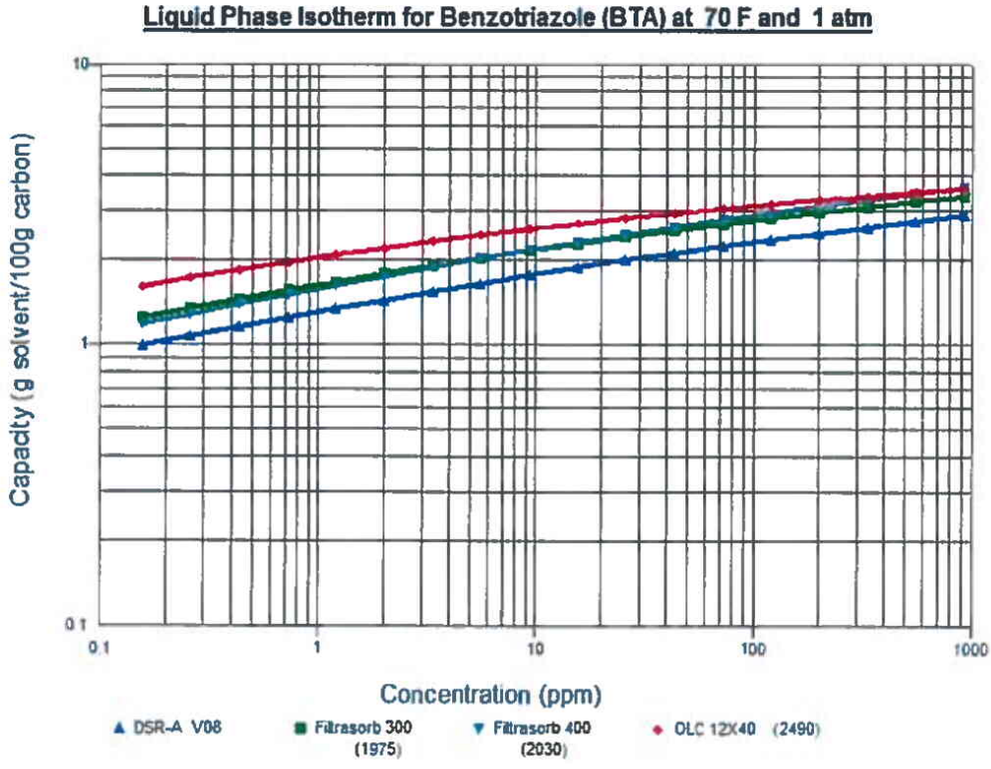


Figure 3. BTA Removal Isotherm

2.3 Feed Characterization

Following pretreatment, feeds were made for each FBR test. The feed makeup for FBR Tests 1 and 2 were based upon the current average waste stream flows experienced at the Henry facility as illustrated in Table 4. PC and C-18 wastewaters have been previously described as wastewaters that originate from Emerald production. Wastewaters from Mexichem polyvinyl chloride production were collected prior to the Polyvinyl Chloride (PVC) tank and termed PVC wastewater. Mexichem makes a product know as 213. The

product is centrifuged to remove water. The water removed is discharged to a pretreatment system that consists of chemical conditioning and gravity settling of the solids. The treated water from this process was termed 213 Centrate.

Feed 1 contained the composition of wastewaters illustrated in Table 4 and was subjected to simulated primary treatment and analyzed. This simulation consisting of coagulant addition (using FeCl3), rapid mix, flocculant addition, flocculation and gravity settling at pH 9 as practiced by the plant. Feed 2 was identical to Feed 1 except that the PC and C-18 wastewaters were treated with 20 grams per liter of F-300 GAC. The FBR control tests (Round 1 and Round 2) evaluated feeds composed of tap water, nutrients, alkalinity, and salt. The simulated river water dilution feed was composed of 90% tap water with nutrients, alkalinity, and salt. The other 10% of the feed consisted of Feed 1. The 10:1 dilution was provided in order that the FBR test could operate without nitrification inhibition at least during the beginning of the test. The characteristics of these respective streams are described in Table 5.

Table 4. Henry Waste Stream Composition

Stream	Flow (gpm)	Percent Makeup (%)
Emerald PC WW	82	18.6
Emerald C-18	1.8	0.4
Mexichem PVC WW	345	78.3
Mexichem 213 Centrate	11.7	2.7

Table 5. Feed Characterization

Test	Sample	TKN (mg/L)	NH_3-N (mg/L)	NO_x-N (mg/L)	MBT (mg/L)	cBOD (mg/L)	COD (mg/L)
FBR 1	Feed 1	60	28.1	2.13	50	63.4	890
FBR 2	Feed 2	45.8	28.2	1.68	0.09	<37.5	390
FBR 3	Control Round.1	0	78.2	0	0	NA	0
FBR 4	River Water Dilution Feed	6	108.2	0.21	5	6.3	74
FBR 5	Control Round. 2	0	100.2	0	0	NA	0

Note: TKN test does not detect all forms of organic nitrogen. The average effluent flow and NH_3-N concentration during 2017 were 0.70 million gallons per day (MGD) and 90 mg/L respectively, yielding an average NH_3-N mass of 525 lbs/day.

A Potassium phosphate (KH2PO4) buffer containing NaOH was added to the feed of each FBR to provide sufficient alkalinity for complete nitrification. Supplemental NH_3-N was added to FBR Tests 3, 4, and 5 so that nitrification rates could be established for each FBR. Using the KH2PO4 buffer also provided sufficient phosphorous for each FBR. A micronutrient broth was also added to each FBR's feed to ensure that micronutrient limitations would not exist in any FBR test. The pH in all tests was maintained between 6.7 and 7.5.

2.4 FBR Testing

Two rounds of FBR testing were performed to investigate both treatment alternatives. The first round consisted of FBR 1, FBR 2, and FBR 3. Round two consisted of FBR 4 and FBR 5. During the FBR testing, wastewater is fed to a batch reactor with a fixed biomass population. This configuration allows for the fraction of wastewater in the beaker to increase over time based on a chosen F/M ratio. Thus, the nitrification rate as well as the fraction of wastewater inhibitory to the biomass can be ascertained from the results.

The FBR tests were designed to be fed based on the F/M currently targeted at the Henry, IL facility of 0.25 day-1. This was altered for FBR Test 2 so that the flow would match the flow experienced at the current facility and not the F/M outlier due to a drop in COD from pretreatment.

All tests were provided with TDS-adjusted, pure-culture nitrifying bacteria. Nitrifiers were TDS adjusted over several days to match the TDS in the feeds. Baseline nitrification rates were generated from the TDS adjusted nitrifiers. The rates developed were:

- active nitrification rate of 1.16 mg N/mg MLVSS/day for nitrifiers at 11,300 mg/L TDS
- active nitrification rate of 0.39 mg N/mg MLVSS/day for nitrifiers at 1,650 mg/L TDS

Based on these rates, 0.27 grams of nitrifiers at a TDS of 11,300 mg/L was added to FBR Tests 1, 2, and 3. For FBR Tests 4 and 5, 2.1 grams of nitrifiers at a TDS of 1,650 mg/L were added. Prior to FBR testing, the temperature of the biomass and the pure culture nitrifiers was slowly increased to 32 °C. The rates of each individual FBR test were compared with the rates measured in the controls (mg NH_3-N removed/mg pure culture nitrifier/day).

The FBR tests progressed in the following manner:

1. The biomass (MLVSS) in each beaker was approximately the same in FBR Tests 1, 2, and 3. This was accomplished by concentrating the biomass via centrifugation to create a slurry of approximately 2.5 percent solids (25,000 mg/L) first. In FBR Tests 4 and 5, the concentration of biomass slurry was approximately 0.5 percent solids (5,000 mg/L).
2. The concentrated biomass slurry was placed in a 2-L beaker along with the nitrifiers, mixed with an overhead mixer and aerated with pure oxygen to maintain dissolved oxygen (DO) greater than 5 mg/L. The 2-L test beakers were then placed in a water bath at 32°C.
3. As the wastewater was fed to the slurry, the volume of the beaker increased. The exposure concentration of the treated wastewater to the biomass (bacteria) increased from zero percent to the target 89 percent wastewater.
4. Samples collected represented effluent samples containing a desired percentage of biologically treated feed wastewater in the presence of the biomass. The sample was centrifuged to remove solids and the biomass were returned to the reactor in order to maintain a consistent mass of biomass in the test reactor. The sample volume was recorded during every sampling event.
5. During testing, samples were collected when treated influent wastewater comprised approximately 13 percent, 26 percent, 48 percent, 72 percent and 89 percent of the collected sample. These samples were then analyzed for indications of nitrification inhibition through NH_3-N reduction and nitrate-nitrogen accumulation. Ideally, these values would be identical. In practice, the nitrification rate was calculated as the average between the ammonia-nitrogen reduction rate and the nitrate-nitrogen accumulation rate.

2.5 Results

Figures 4, 5, 6, and 7 summarize the results of the FBR testing. All tests in Round 1 and Round 2, except the unpretreated feed FBR, experienced consistent removal of NH_3-N through the end. No nitrification was observed between 13% and 60% of the treated wastewater addition for FBR 1, which is consistent with the absence of nitrification in the full-scale facility.

In Round 1, Figures 4 and 5 illustrate that nitrification did not begin until two hours into the test. At this point, 22 percent by volume of treated wastewater was present in the test. This is to be expected since the nitrifiers required some acclimation time after being washed. In a full-scale system, this would not be experienced if a viable colony of nitrifiers existed. Based on the results from NH_3-N removal and NOx-N generation, a relative nitrification rate was developed. The control reactor in Round 1 (FBR 3) had an average active nitrification rate of 1.32 mg N/mg MLVSS active nitrifier/day illustrating that the nitrifiers were uninhibited during testing. The simulated clarifier effluent with GAC pretreatment of PC and C-18 wastewaters exhibited minimal impacts on nitrification where an average active nitrification rate of 1.17 mg N/mg MLVSS/day was calculated for FBR test 2. Both rates were greater compared to the initial baseline proving that GAC treatment of the PC/C-18 wastewater would facilitate nitrification of the combined wastewater at the Henry Plant. These results indicate that without pretreatment to remove or greatly dilute MBT, no nitrification would be observed at the Henry Plant.

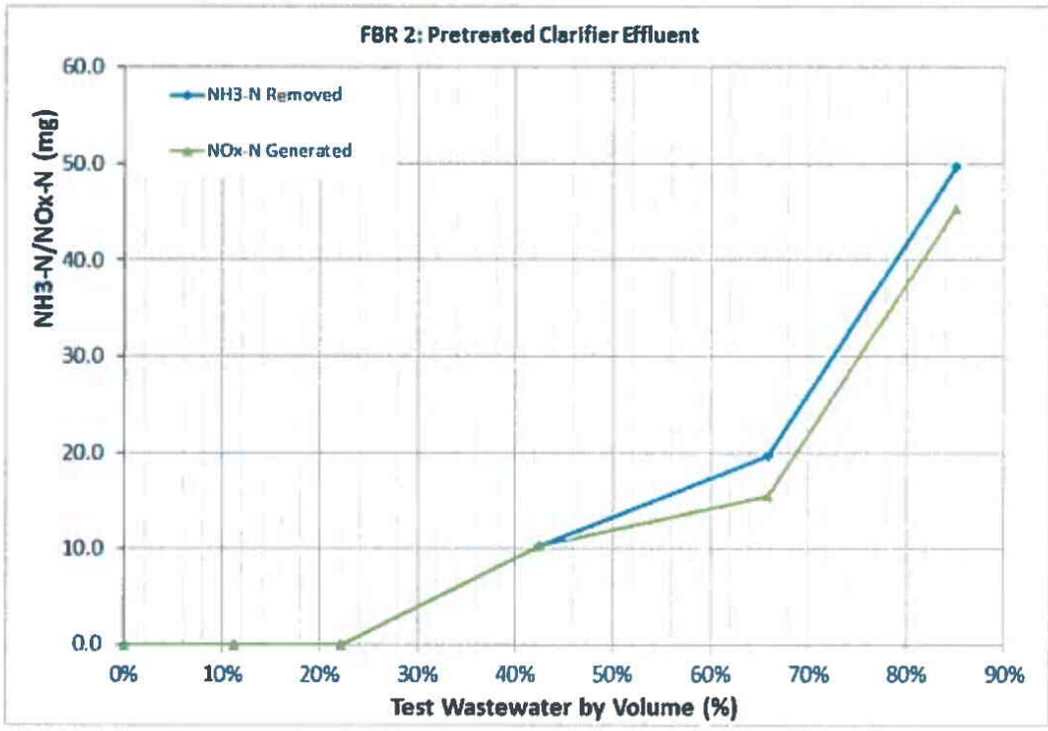


Figure 4. FBR 2 NH_3-N Removal and NO_x-N Generation

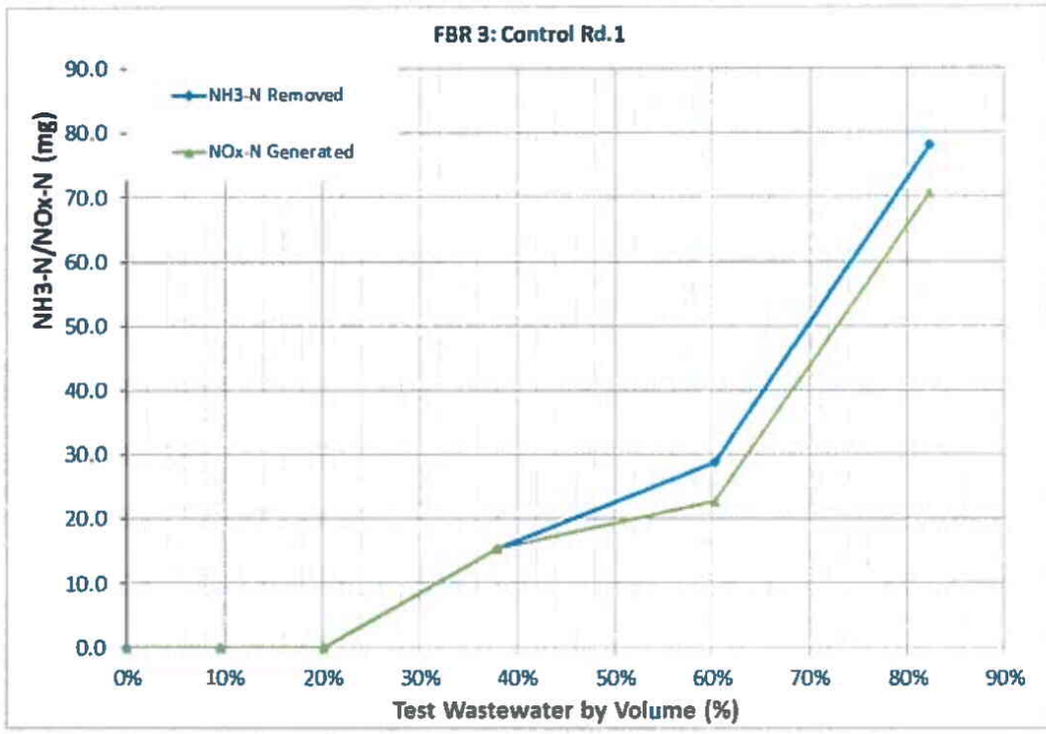


Figure 5. FBR 3 NH_3-N Removal and NOx-N Generation

In Round 2, Figures 6 and 7 depict NH_3-N degrading from the beginning of the test. NH_3-N removal was slower at the beginning of the test as the biomass began to get acclimated to the addition of each feed. In round 2, the control reactor (FBR 5 as illustrated in Figure 7) had an average nitrification rate of 0.37 mg N/mg MLVSS active nitrifier/day with an increasing rate during the tests indicating that the nitrifiers were not inhibited during the control test. Utilizing river water to dilute the unpretreated clarifier effluent (FBR 4 as illustrated in Figure 6) by 90 percent did not completely eliminate nitrification inhibition as evidenced by the 20 percent lower average nitrification rate of 0.29 mg N/mg MLVSS active/day. This inhibition was anticipated since the concentration of MBT exceeded the published nitrification inhibition threshold of 3 mg/L during the second half of the test when the test wastewater exceeded 60 percent in volume.

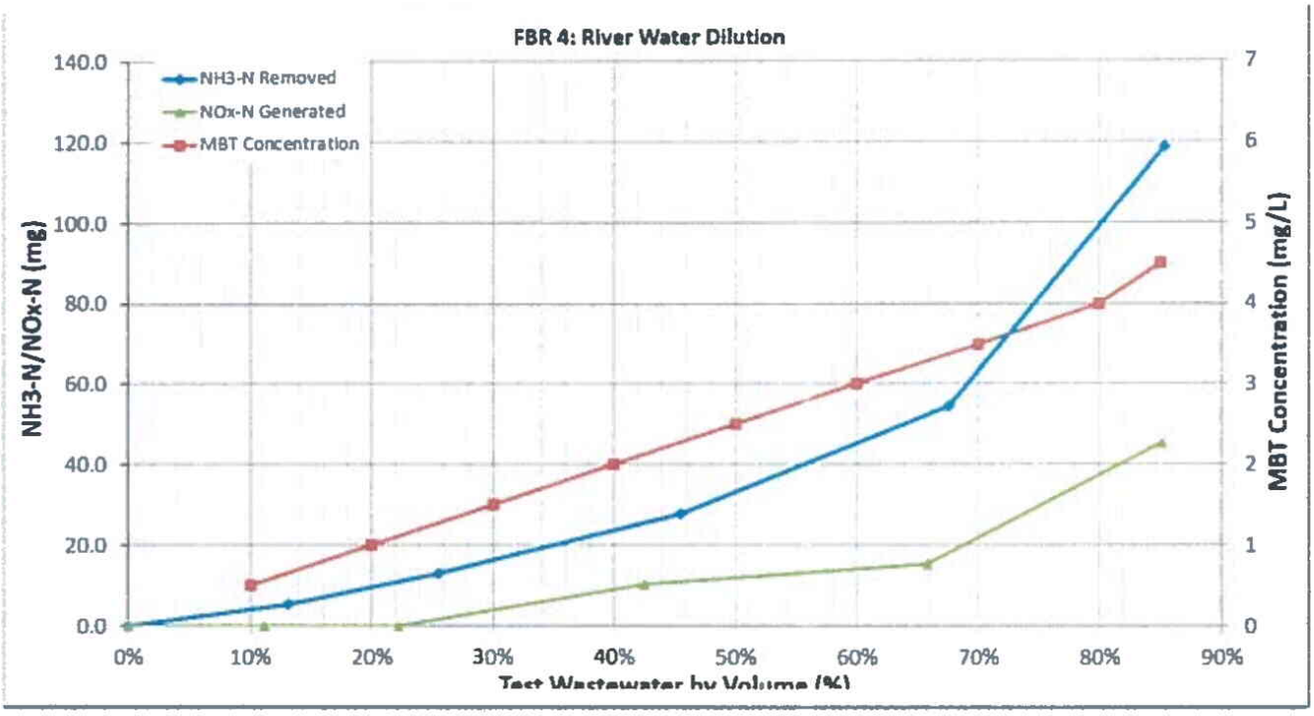


Figure 6. FBR 4 NH_3-N Removal and NOx-N Generation

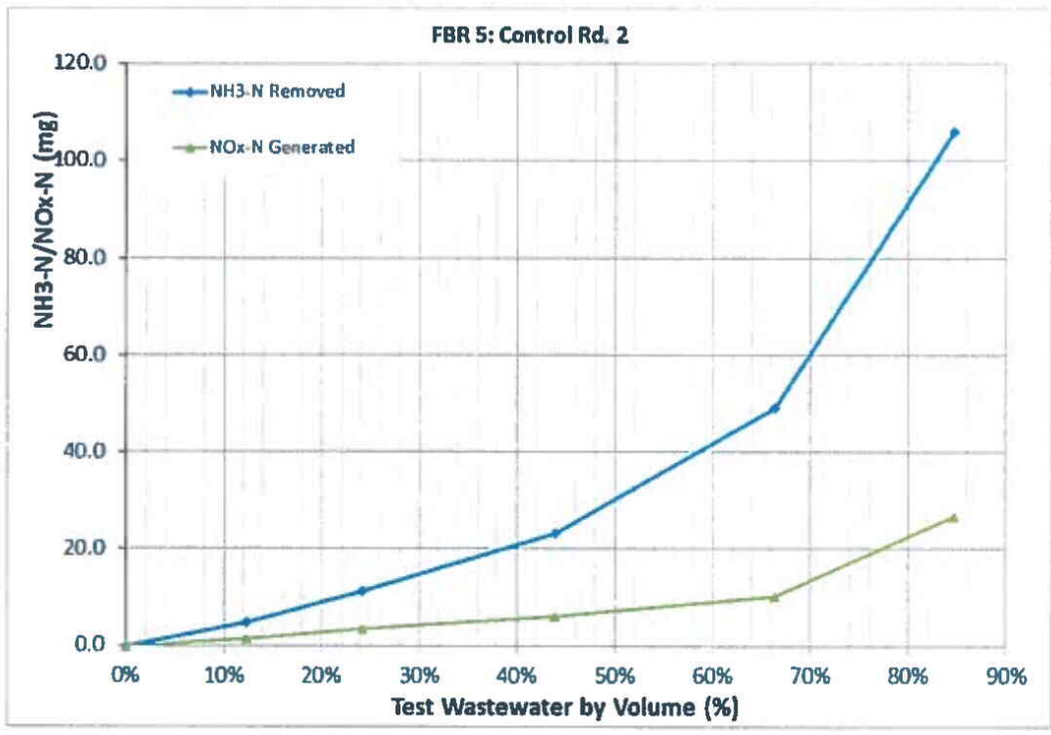


Figure 7. FBR 5 NH_3-N Removal and NOx-N Generation

Figures 6 and 8 illustrate the buildup in MBT concentration during the FBR tests. Based on published literature and previous testing performed by BC, MBT would be expected to cause nitrification inhibition at approximately 3 mg/L[1]. Based on this result, nitrification inhibition did occur at approximately 3.5 mg/L. Minimal concentrations of MBT were observed in the pretreated clarifier effluent allowing the reactor to nitrify uninhibited.

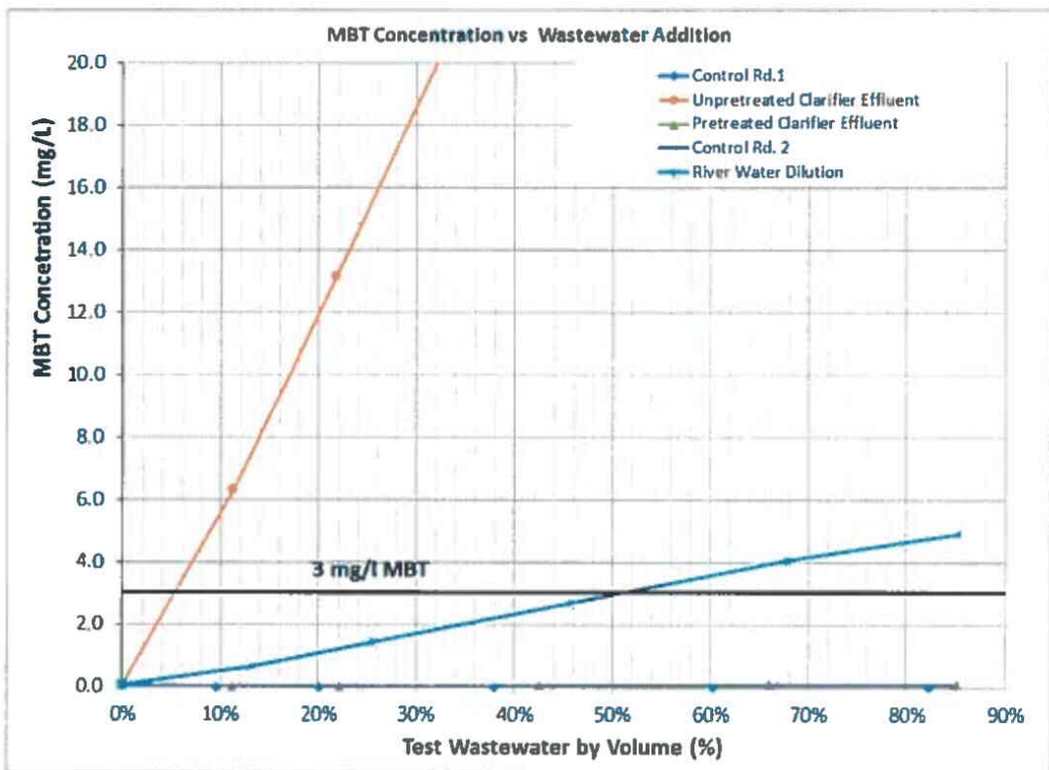


Figure 8. MBT Concentration

2.6 Summary of Treatability Testing

Based on FBR testing performed, the following conclusions were made:

- The unpretreated wastewater will continue to cause substantial nitrification inhibition due to high concentrations of MBT.
- Pretreatment of the PC/C-18 wastewater utilizing solids separation and GAC would allow the Henry Plant to nitrify in an uninhibited matter following removal of MBT from the biomass through alkaline washing.

1 Hockenbury, M.R., and C.P.L. Grady: J. Water Pollut. Control Fed., vol.49, p 768, 1977.

- Diluting the unpretreated clarifier with river water requires a river water percentage in excess of 90% for uninhibited nitrification to occur. At 90% dilution, the nitrification rate observed could be sustainable as long as the MBT concentration in the PC/C-18 wastewater remained within values tested. The sustainability of this treatment alternative, NH_3-N removal, performance is unlikely due to the inherent variability of the influent MBT concentration and the difficulty in maintaining target temperatures in the biological treatment systems while heating a large river water flow (approximately 7 MGD).
- Both the pretreatment option and the river water dilution option would allow biological nitrification. However, neither would be economically reasonable as discussed below.

Section 3: Conceptual Level Design and Cost Estimates

At the conclusion of treatability testing, BC developed conceptual designs and Class 5 cost estimates to evaluate additional equipment facility changes needed for each alternative. A Class 5 estimate is considered to be a conceptual level estimate and is performed when 0 to 2% of the design has been completed. Accuracy for a Class 5 estimate is expected to fall between -50% to +100% of the cost. Class 5 estimates are used to prepare planning level cost scopes or evaluation of alternative schemes, long range capital outlay planning and can also form the base work for the Class 5 Planning Level or Design Technical Feasibility Estimate. As a result, these estimates are intended only for use as aids in conceptual level treatment selection. In order to develop the cost estimates, the major equipment for each option were established and sized. Equipment costs were developed from vendor quotes as well as BC's cost database. The following assumptions were made in the development of the estimates:

- Adequate power is available
- Easy access to equipment installation locations
- No special requirements for electrical equipment (e.g., explosion proof)
- No buildings are included

A complete breakdown of the capital costs associated each alternative is presented in Attachment A. The major annual operating and maintenance (O&M) costs are summarized in Table 6 and Table 7.

3.1 Solids Separation and GAC treatment of PC/C-18 Wastewaters

In this alternative, wastewaters would be discharged to an inclined plate separator (lamella clarifier) sized for an average loading of 50 gpd/sq ft. BC has assumed that current pump conveying the PC/C-18 wastewater is sufficient for future use for conveying wastewater to the clarifier. The sludge from this clarifier would be discharged to the existing plate and frame filter press for dewatering. Effluent from the clarifier will be pumped to a 5,000-gallon poly holding tank that will be pumped to four GAC vessels (containing 40,000 lbs GAC each) operated in series to the existing primary treatment system. The GAC housed in the lead column would be changed approximately every seven days. Sizing of the GAC columns was based on average flow conditions. During peak conditions, the 40,000 lbs GAC vessels would be able to handle additional flow. GAC would need to be replaced more often during increased MBT loads. GAC effluent will flow from the GAC vessels to a 5,000-gallon poly tank. This tank will be used to dampen flow to the primary system, from the surge tank, flow will be pumped to the primary clarifier. A block flow diagram of this system is described in Attachment B.

Based on the new equipment and construction needed for this alternative, the expected total capital cost would be $5,274,000 with a range from $2,637,000 (-50%) to $10,548,000 (+100%). The full capital estimate is described in Attachment A.

The O&M costs only consider the incremental O&M costs associated with the upgraded equipment. If regenerated carbon is used, the X/M will decrease by approximately 30 percent based on estimates provided by Calgon Carbon and the cost of carbon would decrease 50 percent. These prices assume that exhausted carbon will be hauled to Calgon Carbon's regeneration facility in Catlettsburg, Kentucky. BC has assumed that labor costs will not increase in this alternative. Table 6 and Table 7 provides the O&M costs associated with this alternative depending on GAC selection.

Table 6. Virgin GAC (OLC12X40) Treatment O&M Costs

Parameter	Quantity	Unit Cost	Annual Cost, $/yr
Virgin Granular Activated Carbon	5,220 lbs/day	$2.00/lb	$3,811,000
Electricity	60 hp	$0.0495/kwh	$19,400
Maintenance		8% of motorized equipment cost	$33,800
Alkalinity Addition	6000 lbs/day of 50% NaOH	$250/ton	$274,000
Additional Blower Operation	70 hp	$0.0495/kwh	$22,600
Total			$4,160,000

Table 7. Regenerated GAC (DSR-A) Treatment O&M Costs

Parameter	Quantity	Unit Cost	Annual Cost, $/yr
Regenerated Granular Activated Carbon	7,540 lbs/day	$1.00/lb	$2,752,100
Electricity	60 hp	$0.0495/kwh	$19,400
Maintenance		8% of motorized equipment cost	$33,800
Alkalinity Addition	6000 lbs/day of 50% NaOH	$250/ton	$274,000
Additional Blower Operation	70 hp	$0.0495/kwh	$22,600
			$3,102,000

The O&M costs for GAC treatment is driven by the low adsorptive capabilities of MBT by carbon experienced in the bench scale testing.

The capital cost for this option is approximately $5.3 million with a present worth cost of $27 million assuming a 10-year project duration, zero salvage value, 5% interest and 2% inflation. This investment would result in an approximately 1.9 million pounds of NH_3-N being removed over the course of 10 years at an average cost of $14/pound of NH_3-N removed. This is 20-fold higher than the costs reported by the Publicly Owned Treatment Works serving Decatur, Illinois; Bloomington, Illinois and Normal. Illinois in 2015 (less than $0.70/pound of NH_3-N). This is 11-fold higher than the median cost reported by 15 reporting entities in the 2015 survey conducted by the National Association of Clean Water Agencies ($1.33 per pound of NH3-N removed). Based on this comparison, the removal of NH_3-N at the Emerald plant is not economically reasonable.

3.2 River Water Dilution System

In this alternative, all the current waste streams will remain routed as they currently are at the facility. The C-18 wastewater, PC wastewater, and PVC wastewater will all be chemically conditioned and be conveyed to the primary clarifier. From the clarifier, the waste stream will be conveyed to the aeration basin. In addition to the waste stream being routed to the aeration basin, a new lift station will be installed to pump river water from the Illinois River to provide a dilution stream to the waste water. The river water will be pumped to the aeration basin at approximately 7 MGD to dilute MBT. It is assumed that the river water requires no treatment. A steam injection will be installed to ensure that the temperature in the aeration basin will remain at 85°F year-round. This is the operating temperature to achieve the required Biochemical Oxygen Demand (BOD) removal based on historical performance. The capital cost of the steam generation and supply system was not added to the capital cost estimates due the excessive size needed for this application (a 140 million BTU/hr boiler output would be necessary which is 40-fold greater than the January 2018 consumption by the entire facility). After the aeration basin, a splitter box will be installed to split flow between three clarifiers. Two new 100-foot clarifiers will need to be installed and put into service along with the existing 60-foot clarifier. In additional to the new clarifiers, two new sludge pumps will be needed to convey the mixed liquor back to the aeration basin or to the existing belt filter press. BC has assumed for this evaluation that the current belter filter press will be sufficient for the future needs of the facility.

The supernatant from the clarifiers will also require filtration after clarification, this will require two, new sand filters (each with 1500 ft2 of filtration area). Effluent from the clarifiers will gravity flow to the new sand filter units. The filtered effluent will then be conveyed back to the Illinois River. Piping would need to be upsized throughout the facility to handle the increased flow. No additional changes would be needed for the rest of the treatment system. A block flow diagram of this system is described in Attachment B.

The sustainability of this treatment alternative NH_3-N removal performance is unlikely due to the inherent variability of the influent MBT concentration and the difficulty in maintaining target temperatures in the biological treatment systems while heating a large river water flow (approximately 7 MGD). The addition of river water would be based on percent flow and not MBT concentration. The MBT concentration in the wastewater fluctuates with production. The fluctuation would cause inconsistent nitrification and take several days to remove excess MBT concentrations from the system resulting in several days of low nitrification (high effluent NH_3-N concentrations). In addition to fluctuating MBT, the winter months would also negatively impact the treatment system if river water temperature control were not maintained. This river water (approximately 7 MGD) would have to be heated year-round to a target temperature of 85 °F from an initial temperature that varies by more than 40 °F (below 40°F to 79 °F). Steam injector would be required year-round.

Based on the new equipment and construction needed for this alternative, the expected total capital cost would be $22,600,000 with a range from $11,286,500 (-50%) to $45,146,000 (+100%) excluding the

steam supply system. The full capital estimate (excluding steam supply system) is described in Attachment A.

The O&M costs only take into account the new O&M costs associated with the upgraded equipment. BC has assumed that labor costs will not increase in this alternative. Table 8 provides the O&M costs associated with this alternative.

Table 8. River Water Dilution O&M Costs

Parameter	Quantity	Unit Cost	Annual Cost, $/yr
Electricity	260 hp	$0.0495/kwh	$136,000
Maintenance		8% of motorized equipment cost	$288,000
Steam	22,600 therms/day	$0.446/therm	$3,679,000
Alkalinity Addition	6000 lbs/day of 50% NaOH	$250/ton	$274,000
Additional Blower Operation	70 hp	$0.0495/kwh	$22,600
Total			$4,400,000

The capital cost for this option is approximately $23 million (excluding steam supply system) with a present worth cost of $54 million assuming a 10-year project duration, zero salvage value, 5% interest and 2% inflation. This investment would result in an approximately 1.9 million pounds of NH3-N being removed over the course of 10 years at an average cost of $28 per pound of NH3-N removed. This is 41-fold higher than the costs reported by the Publicly Owned Treatment Works serving Decatur, Illinois; Bloomington, Illinois and Normal. Illinois in 2015 (<$0.70 per pound of NH_3-N removed). This is 21-fold higher than the median cost reported by 15 reporting entities in the 2015 survey conducted by the National Association of Clean Water Agencies ($1.33 per pound of NH_3-N removed).

In addition to the economical unreasonableness of this alternative, this alternative would increase the heat load to the Illinois River 10-fold which would adversely impact localized water quality. It would also greatly complicate utility and treatment plant operations.

Attachment A: Capital Cost Estimate

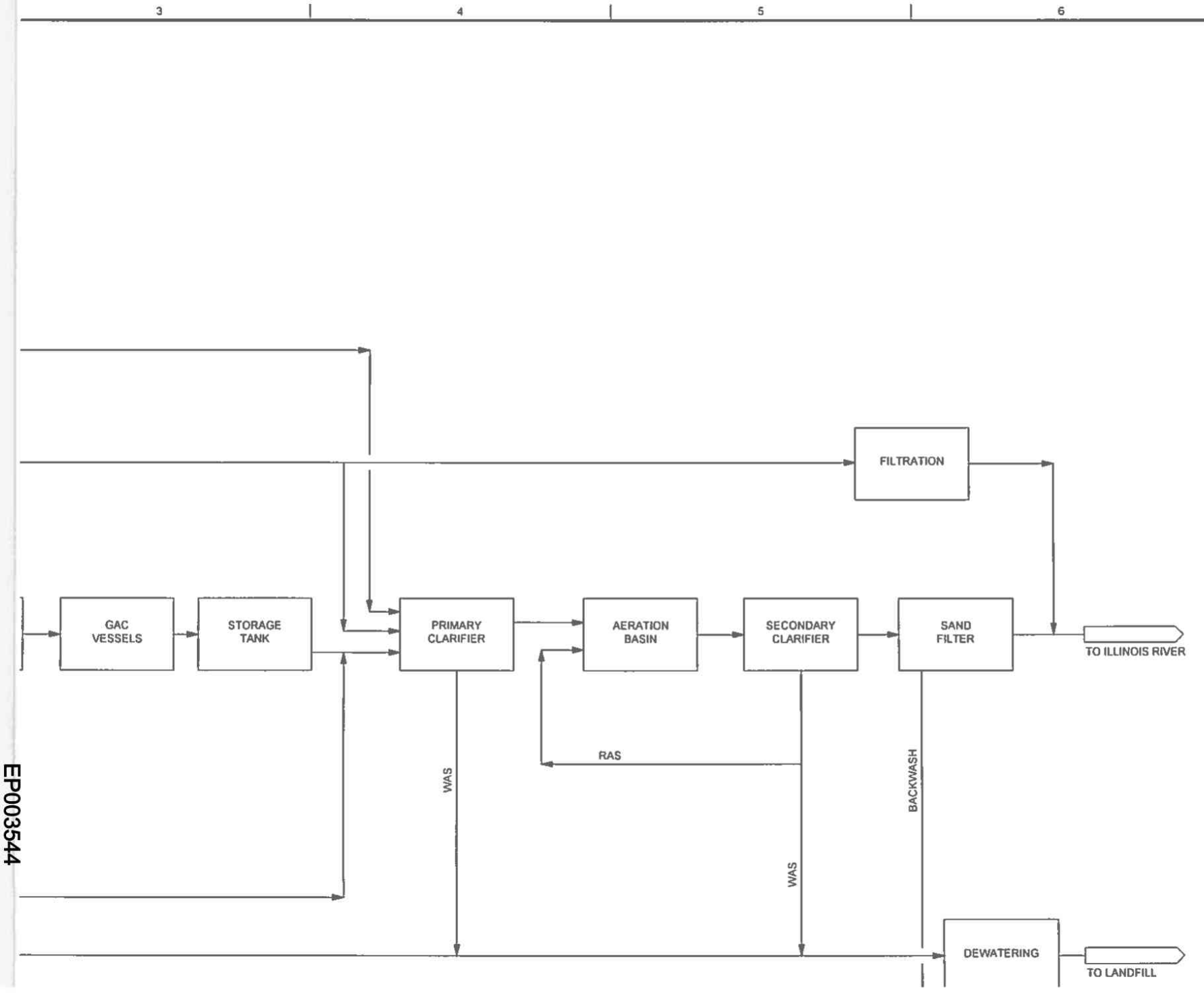
Alternative 1: Solids Separation and GAC Treatment of PC/C-18 Wastewater Class 5 Capital Cost Estimate								
Item	Qty	Unit	Labor $/unit	Materials $/unit	Subs $/unit	Equip $/unit	Total $/unit	Total Net Cost
Div 2- Sitework and Earthwork	3	%	$ 35,438	$ 12,656	$ -	$ 2,531	$ 12,656	$ 12,656
Div 3 - Concrete	8	%	$ 67,500	$ 54,000	$ -	$ 13,500	$ 54,000	$ 54,000
Div 5- Metals	5	%	$ 16,875	$ 63,281	$ -	$ 4,219	$ 63,281	$ 63,281
Div 9- Coating	2	%	$ 16,875	$ 16,875	$ -	$ -	$ 16,875	$ 16,875
Div 11 - Equipment								
Carbon Vessels (40,000 lb, series units)	2	ea	$ 16,000	$ 400,000	$ -	$ 5,000	$ 421,000	$ 842,000
Inclined Plate Separator	1	ea	$ 16,000	$ 190,000	$ -	$ 3,500	$ 209,500	$ 209,500
Inclined Plater Separator Solids Pumps	2	ea	$ 8,000	$ 25,000	$ -	$ 2,500	$ 35,500	$ 71,000
5,000 Gallon Poly Tank	2	ea	$ 8,000	$ 6,000	$ -	$ 1,000	$ 15,000	$ 30,000
GAC Feed Pump	2	ea	$ 8,000	$ 25,000	$ -	$ 2,500	$ 35,500	$ 71,000
GAC Effluent Pump	2	ea	$ 8,000	$ 25,000	$ -	$ 2,500	$ 35,500	$ 71,000
Div 11 Total	-	-	$ 48,000	$ 1,532,000	$ -	$ 33,500	$ -	$ 1,687,500
Div 15- Mechanical (piping, fittings, valves, etc.)	20	%	$ -	$ 337,500	$ -	$ -	$ 337,500	$ 337,500
Div 16- Electrical	25	%	$ -	$ -	$ 421,875	$ -	$ 421,875	$ 421,875
Base Estimate	-	-	$ 253,688	$ 2,877,313	$ 421,875	$ 72,250	$ 1,854,688	$ 2,593,688
Labor Markup	8%							$ 20,295
Material / Process Equipment Markup	8%							$ 230,185.00
Subcontractor Markup	5%							$ 21,093.75
Construction Equipment Markup	8%							$ 5,780
Sales Tax	7.3%							$ 208,605
Material Shipping and Handling	2%							$ 57,546.25
Subtotal								$ 3,137,193
Contractor General Conditions	7%							$ 219,603.49
Subtotal								$ 3,356,796

Startup, Training, O&M	1.5%	
Subtotal		$ 50,351.94
		$ 3,407,148
Contingency	25%	
Subtotal		$ 851,787.02
		$ 4,258,935
Builder's Risk, Liability Auto Insurance	2%	
Subtotal		$ 85,178.70
		$ 4,344,114
Bonds	1.5%	
Subtotal		$ 65,162
		$ 4,409,276
Engineering (Including Surveying)	15%	
Subtotal		$ 661,391
		$ 5,070,667
Project Management	4.0%	
Subtotal		$ 202,827
		$ 5,273,494
Grand Total		
Low Range (-50%)		$ 5,274,000
High Range (+100%)		$ 2,637,000
		$ 10,548,000

Alternative 2: River Water Dilution System Class 5 Capital Cost Estimate								
Item	Qty	Unit	Labor $/unit	Materials $/unit	Subs $/unit	Equip $/unit	Total $/unit	Total Net Cost
Div 2- Sitework and Earthwork	10	%	$ 139,073	$ 49,669	$ -	$ 9,934	$ 49,669	$ 49,669
Div 3 - Concrete	15	%	$ 149,006	$ 119,205	$ -	$ 29,801	$ 119,205	$ 119,205
Div 5- Metals	8	%	$ 31,788	$ 119,205	$ -	$ 7,947	$ 119,205	$ 119,205
Div 9- Coating	3	%	$ 29,801	$ 29,801	$ -	$ -	$ 29,801	$ 29,801
Div 11 - Equipment								
Lift Station (Includes Piping and pumps)	1	ea	$ 540,000	$ 2,880,000	$ -	$ 180,000	$ 3,600,000	$ 3,600,000
Clarifier (100' Diameter, Includes sludge pumps)	2	ea	$ 195,000	$ 1,040,000	$ -	$ 65,000	$ 1,300,000	$ 2,600,000
Splitter Box	1	ea	$ 5,000	$ 40,000	$ -	$ 2,000	$ 47,000	$ 47,000
Sand Filter (1500 ft^2 filtration area)	2	ea	$ -	$ -	$ 850,000	$ -	$ 850,000	$ 1,700,000
Clarifier RAS Pump	4	ea	$ 12,000	$ 38,000	$ -	$ 4,000	$ 54,000	$ 216,000
Div 11 Total	-	-	$ 935,000	$ 5,000,000	$ -	$ 312,000	$ -	$ 7,947,000
Div 15- Mechanical (piping, fittings, valves, etc.)	20	%	$ -	$ 1,589,400	$ -	$ -	$ 1,589,400	$ 1,589,400
Div 16- Electrical	25	%	$ -	$ -	$ 1,986,750	$ -	$ 1,986,750	$ 1,986,750
Base Estimate	-	-	$ 2,036,668	$ 10,905,280	$ 2,836,750	$ 610,682	$ 9,745,030	$ 11,841,030
Labor Markup	8%							$ 74,800
Material / Process Equipment Markup	8%							$ 872,422.40
Subcontractor Markup	5%							$ 141,837.50
Construction Equipment Markup	8%							$ 48,854.56
Sales Tax	7.3%							$ 790,633
Material Shipping and Handling	2%							$ 218,105.60
Subtotal								$ 13,987,683
Contractor General Conditions	7%							$ 979,137.80
Subtotal								$ 14,966,821
Startup, Training, O&M	1.5%							$ 224,502.31
Subtotal								$ 15,191,323

Contingency	20%	$ 3,038,264.59
Subtotal		$ 18,229,588
Builder's Risk, Liability Auto Insurance	2%	$ 364,591.75
Subtotal		$ 18,594,179
Bonds	1.5%	$ 278,913
Subtotal		$ 18,873,092
Engineering (Including Surveying)	15%	$ 2,830,964
Subtotal		$ 21,704,056
Project Management	4.0%	$ 868,162
Subtotal		$ 22,572,218
Grand Total		$ 22,573,000
Low Range (-50%)		$ 11,286,500
High Range (+100%)		$ 45,146,000

Attachment B: Block Flow Diagram (BFD)



EP003544

Brown AND Caldwell

Emerald Performance Materials

HENRY, ILLINOIS

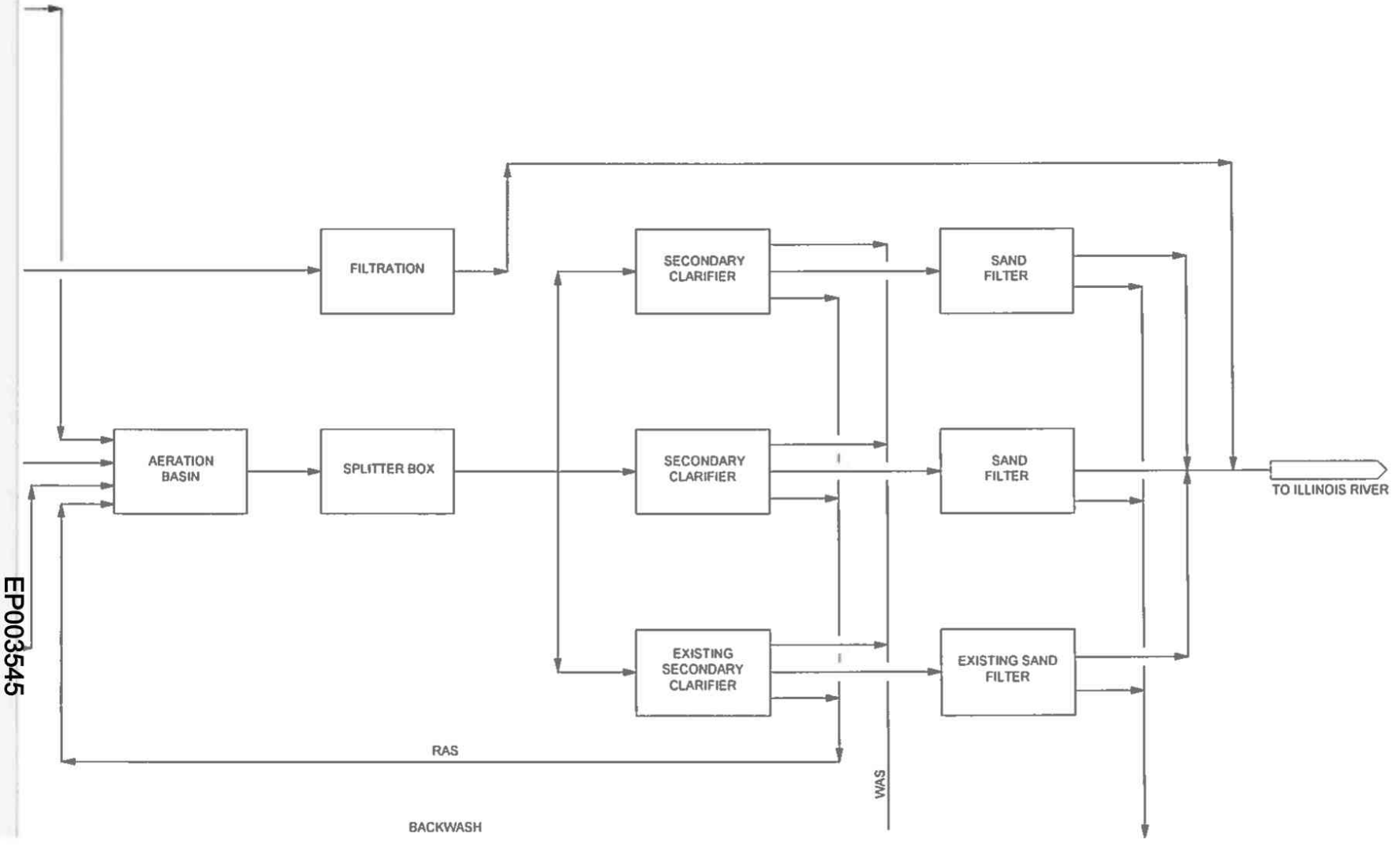
EMERALD PERFORMANCE MATERIALS

REVISIONS		
REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:

DRAWN:



EP003545

Brown AND Caldwell

Emerald Performance Materials

HENRY, ILLINOIS

EMERALD PERFORMANCE MATERIALS

REVISIONS		
REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:

DRAWN:

ATTACHMENT B

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF
SOLID WASTE AND EMERGENCY
RESPONSE

JUL 18 2007

Carolyn M. Brown, Esquire
Greenebaum Doll & McDonald PLLC
300 West Vine Street
Suite 1100
Lexington, KY 40507-1665

Dear Ms. Brown:

Thank you for your May 18, 2006 letter, on behalf of Ashland, Inc. (Ashland), in which you request clarification regarding the applicability of the Resource Conservation and Recovery Act (RCRA) regulatory program to a proposed spray irrigation system at Ashland's hazardous waste landfill located in Boyd County, Kentucky. Specifically, you ask that we clarify that the treated effluent permitted under Ashland's state National Pollutant Discharge Elimination System (NPDES) permit would be excluded from being a solid waste under 40 CFR 261.4(a)(2), even if a portion of the treated effluent is managed by spray irrigation to the cap of the hazardous waste landfill. (The regulation at 40 CFR 261.4(a)(2) excludes from the definition of solid waste wastewater discharges that are point source discharges subject to regulation under section 402 of the Clean Water Act (CWA).)

According to your letter, Ashland proposes to use the treated wastewater from the leachate collection system of the landfill for spray irrigation and maintenance of the landfill cap. The landfill leachate is classified as a listed hazardous waste with the hazardous waste code F039.

After reviewing the matter, we have determined that wastewater sprayed onto a landfill cap does not qualify for the Industrial Wastewater Discharge Exclusion under 40 CFR 261.4(a)(2). Although a portion of the effluent will continue to be discharged from Ashland's KPDES-permitted outfall to Chadwick Creek (and thus permitted under Section 402), wastewater that is diverted to land application and is not discharged to waters of the United States is not a point source discharge subject to regulation under the CWA and, therefore, does not qualify for the RCRA exclusion (even if it is part of the KPDES permit). Therefore, the wastewater remains a solid and hazardous waste. Unless it is delisted, the land application of this wastewater will constitute illegal disposal of hazardous waste. We believe a site-specific

delisting, if granted, is the most appropriate action for removing the F039 hazardous waste code and allowing the proposed spray irrigation practice to occur.

Thank you for your inquiry regarding RCRA applicability to Ashland's proposed system. All inquiries regarding applicable permit requirements should be directed to Kentucky's Hazardous Waste Program. For other questions on this letter, please contact Jeff Gaines, at (703) 308-8655, or Ross Elliott, at (703) 308-8748.

Sincerely,

Matt Hale

Matt Hale, Director
Office of Solid Waste

cc: April Webb, KDEP
John Jump, KDEP
Bruce Scott, KDEP
Jon Johnston, EPA, Region 4
Kathy Nam, EPA, OGC
Robert Dellinger, EPA, OSW
Robert Hall, EPA, OSW

GREENEBAUM DOLL & MCDONALD PLLC

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Ivan M. Diamond
Michael M. Fleishman*
Phillip D. Scott
Wm. T. Robinson III
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W. Pitman Wiseman, Jr.
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C. Christopher Mark
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Laura Devane
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D. Craig Dance
Melissa M. Burk
Mihin Nishizu
P. Blaine Grant
Sean P. Gallagher
Ann Tate Karaiskos
Andrew M. Pauschman
Bruce M. Johnson

Christie A. Moore
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W. Ashley Hess
Kevin R. Glanzmann
Lori E. Krafte
Andrew J. Schaeffer
Michael J. Black
Emily Moore Dorsey
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Andrew D. Stanberg
Kenji Tashiro
George D. Adams
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Benjamin J. Evans
Jeffrey L. Gahrug
Theodore R. Martin
F. Maria Sheffield

John Cosner Wheelock
Todd B. Logsdon
David W. Houston, IV
Steven A. Brehm
Kimberly H. Bryant
Mark A. Loyd, Jr.
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Kurt A. Scharfenberger
W. Edward Skees
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James M. Dickenson, Jr.

Shonda L. Spurlock
G. Brian Wells
Gregorio E. A. Vega
William C. Ved, Jr.
Haifang Hang
Matthew J. Ruff
Benjamin D. Allen
Peter L. Thurman
Helen A. Thompson
Nagahisa Akagi
Ross O. Cohen
Nicholas D. Dannenmayer
Sara R. Elrod
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Pamela W. Papp
Glenn D. Bellamy
W.R. "Pat" Patterson
Katherine A. Hessenbruch
Michael V. Wehrman
John F. Billings
James G. LeMaster
David L. Armstrong
W. Davidson Broaddus
Professional Service Corporation

May 18, 2006

Matt Hale
Director, Office of Solid Waste (5301W)
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, N.W.
Washington, D.C. 20460

Re: Applicability of Industrial Wastewater Discharge Exclusion

Dear Mr. Hale:

Our firm represents Ashland Inc. (Ashland) which is the owner/operator and permittee for the Route 3 Landfill in Boyd County, Kentucky. Ashland operated the Route 3 Landfill for disposal of hazardous and nonhazardous wastes from Ashland's Catlettsburg Refinery complex. Closure of the landfill was completed in October 2000. Postclosure monitoring was instituted after completion of closure, and the Kentucky Division of Waste Management issued RCRA Postclosure Permit No. KYD-000-615-898 for the landfill in May 2005. The purpose of this letter is to obtain clarification from your office as to the applicability of the RCRA regulatory program to a proposed spray irrigation system for maintenance of the landfill cap. The spray irrigation system will be covered by the Kentucky Pollutant Discharge Elimination System (KPDES) permit for the landfill as explained in more detail below.

A. Background

The Route 3 Landfill has an extensive leachate collection system including sumps. The collection lines combine and discharge to a concrete wastewater treatment tank (WWTU). The influent from the leachate collection system is classified as F039 multi-source leachate. While in

the tank, this wastewater is treated by sedimentation and aeration. In addition, a granulated activated carbon treatment system is brought on-site to polish the accumulated wastewater prior to periodic discharge to the KPDES-permitted outfall. There is also a separate treatment system for water (precipitation) collected by an underdrainage system. Both wastewater streams are treated and discharged to Chadwick Creek, pursuant to KPDES Permit No. KY0063096.

When the KPDES permit was renewed in 2005, different limitations were imposed. Ashland has discussed with the Divisions of Water and Waste Management possible amendment of the KPDES permit to allow use of the treated wastewater in a spray irrigation system for landfill cap maintenance during appropriate weather conditions while also continuing to allow discharge of the wastewater to Chadwick Creek. Ashland has undertaken extensive analysis of the wastewater as part of its evaluation of spray irrigation as an option. Testing has shown that the treated effluent is typically non-detect for F039 constituents that would be associated with the facility. In fact, ammonia appears to be the constituent that presents the greatest challenge for continued compliance with the KPDES permit -- of course, the ammonia in the effluent also makes it a good choice for cap maintenance. Although this approach would have environmental benefits in terms of reducing discharges to the creek and promoting healthy vegetation on the cap in lieu of fertilizer applications, a question has arisen as to whether the treated wastewater that is pumped from the WWTU and applied to the cap by the spray irrigation equipment may permissibly be considered excluded from the definition of solid (and thus, hazardous) waste pursuant to 40 CFR 261.4(a)(2). At a meeting in April with representatives of the Divisions and Ashland, it was decided that Ashland would submit this request in order to obtain clarification from EPA on the applicability of the exclusion for industrial wastewater discharges in this situation.

B. Regulatory Provisions

The wastewater collected in the WWTU has been classified as multi-source leachate, which is a listed hazardous waste with waste code F039.[1] However, 40 CFR 261.4(a) identifies certain materials which are not classified as a solid wastes and thus would not be hazardous wastes. Pursuant to 40 CFR 261.4(a)(2), the following are not classified as solid waste:

> Industrial wastewater discharges that are point source discharges subject to regulation under section 402 of the Clean Water Act, as amended.
>
> [*Comment*: This exclusion applies only to the actual point source discharge. It does not exclude industrial wastewaters while they are being collected , stored or

[1] Ashland has considered seeking to delist the wastewater based on analyses obtained to date which typically are non-detect for the constituents of concern.

treated before discharge, nor does it excluded sludges that are generated by industrial wastewater treatment.]

The Environmental & Public Protection Cabinet, Division of Water has been delegated authority to implement the National Pollutant Discharge Elimination System (NPDES) permitting program under Section 402 of the Clean Water Act (known as the KPDES permit program in Kentucky). As stated above, Ashland presently holds KPDES Permit No. KY0063096 for discharges of treated wastewater to Chadwick Creek. Ashland intends to seek modification of the KPDES permit to add spray irrigation as a means of managing a portion of the wastewater from the landfill as an alternative to discharge to the creek. The spray irrigation would be strictly controlled to assure that appropriate amounts were applied. The wastewater will not be able to percolate into the closed landfill due to the liner that was part of the final cap design. Ashland requests confirmation from EPA that the wastewater at the point of application from the spray irrigation system would no longer be classified as hazardous waste provided that the spray irrigation is included in the KPDES permit. Having completed closure of the landfill, Ashland obviously wants to avoid inadvertently triggering any additional hazardous waste management requirements as a result of implementation of this proposed wastewater management option.

If you have any questions regarding this letter, please do not hesitate to call. We appreciate your attention to this inquiry.

Sincerely yours,

Carolyn M. Brown

CMB/cab

cc: John G. Horne, Esq., KDEP General Counsel
April Webb, Kentucky Division of Waste Management
Dale Burton, Kentucky Division of Waste Management
Jory Becker, Kentucky Division of Water
Nigel Goulding
Joseph A. French, Esq.

707055_2

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 • (217) 782-3397
BRUCE RAUNER, GOVERNOR LISA BONNETT, DIRECTOR

(217) 524-9069

CERTIFIED MAIL # 7013 2630 0001 4706 4608
RETURN RECEIPT REQUESTED

September 25, 2015

Rec'd 9/28/2015 JRW

Emerald Performance Materials and Polyone Corporation
Attn.: Facility owner
1550 County Road 1450 North
Henry, IL 61537

Re: Violation Notice: Emerald Performance Materials and Polyone Corporation, NPDES Permit No.: IL0001392, BOW ID No.: W1230050002 Violation Notice No.: W-2015-50227

Dear Facility Owner:

This constitutes a Violation Notice pursuant to Section 31(a)(1) of the Illinois Environmental Protection Act ("Act"), 415 ILCS 5/31(a)(1), and is based upon a review of available information and an investigation by representatives of the Illinois Environmental Protection Agency ("Illinois EPA").

The Illinois EPA hereby provides notice of alleged violations of environmental laws, regulations, or permits as set forth in Attachment A to this notice. Attachment A includes an explanation of the activities that the Illinois EPA believes may resolve the specified alleged violations, including an estimate of a reasonable time period to complete the necessary activities. Due to the nature and seriousness of the alleged violations, please be advised that resolution of the violations may also require the involvement of a prosecutorial authority for purposes that may include, among others, the imposition of statutory penalties.

A written response, which may include a request for a meeting with representatives of the Illinois EPA, must be submitted via certified mail to the Illinois EPA within 45 days of receipt of this letter. If a meeting is requested, it shall be held within 60 days of receipt of this notice. The response must include information in rebuttal, explanation, or justification of each alleged violation and a statement indicating whether or not the facility wishes to enter into a Compliance Commitment Agreement ("CCA") pursuant to Section 31(a) of the Act. If the facility wishes to enter into a CCA, the written response must also include proposed terms for the CCA that includes dates for achieving each commitment and may include a statement that compliance has been achieved for some or all of the alleged violations. The proposed terms of the CCA should

PETITIONER'S HEARING EXHIBIT
AS 19-002
5

Violation Notice: Emerald Performance Materials and Polyone Corporation
Violation Notice No.: W-2015-500227

contain sufficient detail and must include steps to be taken to achieve compliance and the necessary dates by which compliance will be achieved.
The Illinois EPA will review the proposed terms for a CCA provided by the facility and, within 30 days of receipt, will respond with either a proposed CCA or a notice that no CCA will be issued by the Illinois EPA. If the Illinois EPA sends a proposed CCA, the facility must respond in writing by either agreeing to and signing the proposed CCA or by notifying the Illinois EPA that the facility rejects the terms of the proposed CCA.

If a timely written response to this Violation Notice is not provided, it shall be considered a waiver of the opportunity to respond and meet, and the Illinois EPA may proceed with referral to a prosecutorial authority.

Written communications should be directed to:

Illinois EPA – Division of Water Pollution Control
Attn: Keith Hickey / CAS#19
P.O. BOX 19276
Springfield, IL 62794-9276

All communications must include reference to this Violation Notice number, W-2015-50227.

Questions regarding this Violation Notice should be directed to Keith Hickey at 217/524-9069.

Sincerely,

Roger Callaway
Compliance Assurance Section
Division of Water Pollution Control
Bureau of Water

Attachment A

ATTACHMENT A

Violation Notice: Emerald Performance Materials and Polyone Corporation
Violation Notice No.: W-2015-500227

Questions regarding the violations identified in this attachment should be referred to Keith Hickey at (217) 524-9069.

Effluent exceedances were reported for the annual parameters Total Cynanide, Total Recoverable Phenolics, and Chlorobenzene for the monitoring period with end date of March 31, 2015. The parameters Carbonaceous BOD and Total Suspended Solids had reported exceedances for the monitoring period with end date of April 30, 2015. In addition, the parameter Carbonaceous BOD had reported exceedances for the monitoring period with end date of May 31, 2015. These are apparent violations of the Environmental Protection Act, Illinois Administrative Codes, and NPDES Permit IL0001392.

A review of information available to the Illinois EPA indicates the following violations of statutes, regulations, or permits. Included with each type of violation is an explanation of the activities that the Illinois EPA believes may resolve the violation including an estimated time period for resolution.

Effluent Violations

Review the treatment plant operations/operational procedures and evaluate the treatment equipment in order to correct the deficiencies which caused the violations. Compliance is expected to be achieved within 30 days.

Violation Date	**Violation Description**
03/31/2015	Outfall A01 Effluent – Total Cyanide, Effluent Limit Outfall A01 Effluent – Total Recoverable Phenolics, Effluent Limit Outfall A01 Effluent – Chlorobenzene, Effluent Limit
Rule/Reg.:	Section 12(a) and (f) of the Act, 415 ILCS 5/12 (a) and (f) (2014) 35 Ill. Adm. Code 304.141(a) and NPDES Permit IL0001392

Violation Date	**Violation Description**
04/30/2015	Outfall A01 Effluent – Total Suspended Solids, Effluent Limit
Rule/Reg.:	Section 12(a) and (f) of the Act, 415 ILCS 5/12 (a) and (f) (2014) 35 Ill. Adm. Code 304.141(a) and NPDES Permit IL0001392

Violation Notice: Emerald Performance Materials and Polyone Corporation
Violation Notice No.: W-2015-500227

Violation Date	Violation Description
04/30/2015	Outfall A01 Effluent – Carbonaceous BOD, Effluent Limit
05/31/2015	
Rule/Reg.:	Section 12(a) and (f) of the Act, 415 ILCS 5/12 (a) and (f) (2014) 35 Ill. Adm. Code 304.141(a) and NPDES Permit IL0001392

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 • (217) 782-2829
BRUCE RAUNER, GOVERNOR LISA BONNETT, DIRECTOR

217/524-9069

CERTIFIED MAIL # 7013 2630 0001 4706 6380
RETURN RECEIPT REQUESTED

November 18, 2015

Received
11/20/15 WPS

Emerald Performance Materials and Polyone Corporation
Attn: William Stone
1550 County Road 1450 North
Henry, IL 61537

Re: Compliance Commitment Acceptance, Violation Notice: W-2015-50227, Emerald Performance Materials and Polyone Corporation, NPDES ID#: IL0001392, BOW ID#: W1230050002

Dear Mr. Stone:

The Illinois Environmental Protection Agency ("Illinois EPA") has approved the Compliance Commitment Agreement ("CCA") for Emerald Performance Materials and Polyone Corporation. Please find enclosed an executed copy of the CCA for your records.

Failure to fully comply with the CCA may, at the sole discretion of the Illinois EPA, result in referral of this matter to the Office of the Attorney General, the State's Attorney or the United States Environmental Protection Agency.

The CCA does not constitute a waiver or modification of the terms and conditions of any license or permit issued by the Illinois EPA or any other unit or department of local, state or federal government or of any local, state or federal statute or regulatory requirement.

Questions regarding this matter should be directed to Keith Hickey at 217/524-9069. Written communications should be directed to the Illinois EPA Division of Water Pollution Control, Attn: Keith Hickey/CAS #19, P.O. Box 19276, Springfield, IL 62794-9276, and all communications shall include reference to your Violation Notice Number W-2015-50227.

Sincerely,

Roger Callaway

Roger Callaway
Compliance Assurance Section
Bureau of Water

Enclosure

4302 N. Main St., Rockford, IL 61103 (815) 987-7760
595 S. State, Elgin, IL 60123 (847) 608-3131
2125 S. First St., Champaign, IL 61820 (217) 278-5800
2009 Mall St., Collinsville, IL 62234 (618) 346-5120

9511 Harrison St., Des Plaines, IL 60016 (847) 294-4000
5407 N. University St., Arbor 113, Peoria, IL 61614 (309) 693-5462
2309 W. Main St., Suite 116, Marion, IL 62959 (618) 993-7200
100 W. Randolph, Suite 10-300, Chicago, IL 60601 (312) 814-6026

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

IN THE MATTER OF:	)	
	)	
EMERALD PERFORMANCE MATERIALS	)	
AND POLYONE CORPORATION	)	
IL0001392	)	
1550 COUNTY ROAD 1450 NORTH	)	
HENRY, IL 61537	)	
	)	
MARSHALL COUNTY	)	ILLINOIS EPA VN W-2015-50227
	)	BUREAU OF WATER
	)	

COMPLIANCE COMMITMENT AGREEMENT

I. Jurisdiction

1. This Compliance Commitment Agreement ("CCA") is entered into voluntarily by the Illinois Environmental Protection Agency ("Illinois EPA") and **Emerald Performance Materials and Polyone Corporation** ("Respondent") (collectively, the "Parties") under the authority vested in the Illinois EPA pursuant to Section 31(a)(7)(i) of the Illinois Environmental Protection Act ("Act"), 415 ILCS 5/31(a)(7)(i).

II. Allegation of Violations

2. Respondent owns and/or operates the wastewater treatment facility in Henry, Marshall County, Illinois.

3. Pursuant to Violation Notice ("VN") **W-2015-50227**, issued on **September 25, 2015**, the Illinois EPA contends that Respondent has violated the following provisions of the Act and Illinois Pollution Control Board ("Board") Regulations:

   a) **Effluent Violations** - Section 12(a) and (f) of the Act, 415 ILCS 5/12 (a) and (f) (2014) 35 Ill. Adm. Code 304.141(a) and NPDES Permit IL0001392

III. Compliance Activities

4. On **October 13, 2015**, the Illinois EPA received Respondent's responses to **VN W-2015-50227**, which included proposed terms for a CCA. The Illinois EPA has reviewed Respondent's proposed CCA terms, as well as considered whether any additional terms and conditions are necessary to attain compliance with the alleged violations cited in the VN.

5. Respondent agrees to undertake, and complete the following actions, which the Illinois EPA has determined are necessary to attain compliance with the allegations contained in **VN W-2015-50227**:

   a) On **February 21, 2015** the Respondent ceased use and will not resume use of an intermediate chemical raw material believed to contain unknown containments that increased the amount phenol and chlorobenzene above permit limits. Respondent retuned to compliance with the phenol and chlorobenzene limits on **March 19, 2015** and **March 20, 2015**.

   b) On **July 14, 2015** and **July 15, 2015** the Respondent changed testing procedures for cyanide to an allowable method under EPA Methods 4500 CN-C to remove known testing interferences and returned to compliance with the Cyanide permit limit.

   c) On **April 6, 2015** the Respondent replaced the coagulant chemical in the waste water treatment clarifier and returned to compliance with the total suspended solids permit limit on **April 8, 2015**.

   d) On **May 15, 2015** the Respondent repaired a treatment system mechanical failure that contributed to bioactivity inhibition in the biotreater tank that increased the carbonaceous BOD 5-day amount. Respondent returned to compliance with the carbonaceous BOD 5-day Permit limit on **May 26, 2015**.

   e) Once all violations are corrected and compliance is achieved, the Respondent must submit a completed statement of compliance form (Attached) certifying that all Compliance Commitment Agreement measures/events have been successfully completed. Sign and submit enclosed Compliance Statement with original signatures.

IV. Terms and Conditions

6. Respondent shall comply with all provisions of this CCA, including, but not limited to, any appendices to this CCA and all documents incorporated by reference into this CCA. Pursuant to Section 31(a)(10) of the Act, 415 ILCS 5/31(a)(10), if Respondent complies with the terms of this CCA, the Illinois EPA shall not refer the alleged violations that are the subject of this CCA, as described in Section II above, to the Office of the Illinois Attorney General or the State's Attorney of the county in which the alleged violations occurred. Successful completion of this CCA or an amended CCA shall be a factor to be weighed, in favor of the Respondent, by the Office of the Illinois Attorney General in determining whether to file a complaint on its own motion for the violations cited in VN **W-2015-50227**.

7. This CCA is solely intended to address the violations alleged in Illinois EPA VN **W-2015-50227**. The Illinois EPA reserves, and this CCA is without prejudice to, all rights of the Illinois EPA against Respondent with respect to noncompliance with any term of this CCA, as well as to all other matters. Nothing in this CCA is intended as a waiver, discharge, release, or covenant not to sue for any claim or cause of action, administrative or judicial, civil or criminal, past or future, in law or in equity, which the Illinois EPA may have against Respondent, or any other person as defined by Section 3.315 of the Act, 415 ILCS 5/3.315. This CCA in no way affects the responsibilities of Respondent to comply with any other federal, state or local laws or regulations, including but not limited to the Act, and the Board Regulations.

8. Pursuant to Section 42(k) of the Act, 415 ILCS 5/42(k), in addition to any other remedy or penalty that may apply, whether civil or criminal, Respondent shall be liable for an additional civil penalty of $2,000 for violation of any of the terms or conditions of this CCA.

9. This CCA shall apply to and be binding upon the Illinois EPA, and on Respondent and Respondent's officers, directors, employees, agents, successors, assigns, heirs, trustees. receivers, and upon all persons, including but not limited to contractors and consultants, acting on behalf of Respondent, as well as upon subsequent purchasers of Respondent's Facility.

10. In any action by the Illinois EPA to enforce the terms of this CCA, Respondent consents to and agrees not to contest the authority or jurisdiction of the Illinois EPA to enter into or enforce this CCA, and agrees not to contest the validity of this CCA or its terms and conditions.

11. This CCA shall only become effective:

    a) If, within 30 days of receipt, Respondent executes this CCA and submits it, via certified mail, to Illinois EPA Division of Water Pollution Control, Attn: Keith Hickey/CAS #19, P.O. Box 19276, Springfield, IL 62794-9276. If Respondent fails to execute and submit this CCA within 30 days of receipt, via certified mail, this CCA shall be deemed rejected by operation of law; and

    b) Upon execution by all Parties.

12. Pursuant to Section 31(a)(7.5) of the Act, 415 ILCS 5/31(a)(7.5), this CCA shall not be amended or modified prior to execution by the Parties. Any amendment or modification to this CCA by Respondent prior to execution by all Parties shall be considered a rejection of the CCA by operation of law. This CCA may only be amended subsequent to its effective date, in writing, and by mutual agreement between the Illinois EPA and Respondent's signatory to this CCA, Respondent's legal representative, or Respondent's agent.

AGREED:
FOR THE ILLINOIS ENVIRONMENTAL PROTECTION AGENCY:

BY: _____ DATE: 11/18/15
Roger Callaway, Manager
Wastewater Compliance Section
Bureau of Water

FOR RESPONDENT:

BY: _____ DATE: 11/13/15
William Stone
Plant Manager
Emerald Performance Materials
and Polyone Corporation

Emerald Performance Materials

November 23, 2015

CERTIFIED MAIL – 7015 0640 0006 8491 5198

Illinois Environmental Protection Agency
Compliance Assurance Section #19
Bureau of Water
1021 North Grand Avenue East
P.O. Box 19276
Springfield, IL 62794-9276

Re: Compliance Statement
Compliance Commitment Acceptance
Violation Notice **W-2015-50227**
Facility I.D.: Emerald Performance Materials

Dear Sirs;

As required by the Compliance Commitment Acceptance (CCA) for Violation Notice No. W-2015-50227 that was executed on November 18, 2015 by Roger Callaway of the Illinois EPA's Compliance Assurance Section, Emerald Performance Materials (Emerald) is enclosing the signed Illinois EPA Compliance Statement and certifying that Emerald has achieved compliance.

Emerald has achieved compliance with the allegation of VN W-2015-50227 by taking the actions as stated in the CCA.

If you have any further questions, please contact Kellie Staab of my staff at (309) 364-9411.

Sincerely,

William P. Stone

William P. Stone
Plant Manager

Emerald Polymer Additives, LLC

1550 County Road 1450 N. / Henry, IL 61537 / Phone: 309-364-2311 / Fax: 309-364-9460
www.emeraldmaterials.com

Illinois EPA Compliance Statement

You are required to state that you have returned to compliance with the Act and the regulations that were the subject of the violation notice (VN) (415 ILCS 5/31). The owner of the facility must acknowledge compliance and/or that all compliance commitment agreement (CCA) interim measures/events have been successfully completed and compliance has been achieved.

Please complete, sign, and return.

I William P. Stone *(print name)*, hereby certify that all violations addressed in Violation Notice (VN) number W2015-50227 have been addressed and that compliance was achieved on July 14, 2015 *(date)*.

William P. Stone
Signature

Plant Manager
Title

309-364-9487
Telephone Number

November, 23, 2015
Date

Be sure to retain copies of this document for your files. Should you need additional notification forms, please contact this office at (217)785-0561. Return this completed form to:

Illinois Environmental Protection Agency
Compliance Assurance Section #19
Bureau of Water
1021 North Grand Avenue East
P.O. Box 19276
Springfield, Illinois 62794-9276

"Any person who knowingly makes a false, fictitious, or fraudulent material statement, orally or in writing, to the Agency,.....related to or required by this Act, a regulation adopted under this Act, any federal law or regulation for which the Agency has responsibility, or any permit, term, or condition thereof, commits a Class 4 felony..." (415 ILCS 5/44(h) (8))

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
1021 North Grand Avenue East, P.O. Box 19276, Springfield, Illinois 62794-9276 • (217) 782-3397
JB Pritzker, Governor
John J. Kim, Acting Director

(217) 524-6308

CERTIFIED MAIL # 7017 2680 0001 0214 3554
RETURN RECEIPT REQUESTED

March 18, 2019

Emerald Polymer Additives, LLC
1550 County Road 1450 N
Henry, IL 61537

Re: Violation Notice: Emerald Polymer Additives, LLC – IL0001392
Violation Notice No.: W-2019-50007
BOW ID No.: W1230050002

PETITIONER'S HEARING EXHIBIT
AS 19-002
6

Dear Facility Owner:

This constitutes a Violation Notice pursuant to Section 31(a)(1) of the Illinois Environmental Protection Act ("Act"), 415 ILCS 5/31(a)(1), and is based upon a review of available information and an investigation by representatives of the Illinois Environmental Protection Agency ("Illinois EPA").

The Illinois EPA hereby provides notice of alleged violations of environmental laws, regulations, or permits as set forth in Attachment A to this notice. Attachments A and B include explanations of the activities that the Illinois EPA believes may resolve the specified alleged violations, including an estimate of a reasonable time period to complete the necessary activities. Due to the nature and seriousness of the alleged violations, please be advised that resolution of the violations may also require the involvement of a prosecutorial authority for purposes that may include, among others, the imposition of statutory penalties.

A written response, which may include a request for a meeting with representatives of the Illinois EPA, must be submitted via certified mail to the Illinois EPA within 45 days of receipt of this letter. If a meeting is requested, it shall be held within 60 days of receipt of this notice. The response must include information in rebuttal, explanation, or justification of each alleged violation and a statement indicating whether or not the facility wishes to enter into a Compliance Commitment Agreement ("CCA") pursuant to Section 31(a) of the Act. If the facility wishes to enter into a CCA, the written response must also include proposed terms for the CCA that includes dates for achieving each commitment and may include a statement that compliance has been achieved for some or all of the alleged violations. The proposed terms of the CCA should contain sufficient detail and must include steps to be taken to achieve compliance and the necessary dates by which compliance will be achieved.

Violation Notice: Emerald Polymer Additives, LLC – IL0001392
Violation Notice No.: W-2019-50007

The Illinois EPA will review the proposed terms for a CCA provided by the facility and, within 30 days of receipt, will respond with either a proposed CCA or a notice that no CCA will be issued by the Illinois EPA. If the Illinois EPA sends a proposed CCA, the facility must respond in writing by either agreeing to and signing the proposed CCA or by notifying the Illinois EPA that the facility rejects the terms of the proposed CCA.

If a timely written response to this Violation Notice is not provided, it shall be considered a waiver of the opportunity to respond and meet, and the Illinois EPA may proceed with referral to a prosecutorial authority.

Written communications should be directed to:

Illinois EPA – Division of Water Pollution Control
Attn: Cathy Siders / CAS#19
P.O. BOX 19276
Springfield, IL 62794-9276

All communications must include reference to this Violation Notice number, **W-2019-50007.**

Questions regarding this Violation Notice should be directed to **Cathy Siders at 217/524-6308.**

Sincerely,

Roger Callaway

Roger Callaway
Compliance Assurance Section
Division of Water Pollution Control
Bureau of Water

Attachments A & B

ATTACHMENT A

Violation Notice: Emerald Polymer Additives, LLC – IL0001392
Violation Notice No.: W-2019-50007

Questions regarding the violations identified in this attachment should be referred to **Cathy Siders** at **(217) 524-6308.**

A review of information available to the Illinois EPA indicates the following violations of statutes, regulations, or permits. Included with each type of violation is an explanation of the activities that the Illinois EPA believes may resolve the violation including an estimated time period for resolution.

Effluent Violations

Review the treatment plant operations/operational procedures and evaluate the treatment equipment in order to correct the deficiencies which caused the violations. Compliance is expected to be achieved within 30 days.

Violation Date	Violation Description
08/31/2018 09/30/2018 10/31/2018 11/30/2018 01/31/2019	Outfalls A01-0 Effluent – Solids, total suspended, Effluent Limit
Rule/Reg.:	Section 12(a) and (f) of the Act, 415 ILCS 5/12 (a) and (f) (2016) 35 Ill. Adm. Code 304.141(a), and NPDES Permit

Violation Date	Violation Description
08/31/2018 09/30/2018 10/31/2018	Outfalls A01-0 Coliform, fecal general, Effluent Limit
Rule/Reg.:	Section 12(a) and (f) of the Act, 415 ILCS 5/12 (a) and (f) (2016) 35 Ill. Adm. Code 304.141(a) and NPDES Permit

Failure to Comply with NPDES Permit

Establish and implement procedures to assure compliance with the monitoring, sampling, recording and reporting requirements set forth in the NPDES Permit. Compliance is expected immediately.

Violation Date	Violation Description
08/01/2018 - Present	Failure to comply with the reporting requirements of NPDES Permit #IL0001392
Rule/Reg.	Section 12 (f) of the Act, 415 ILCS 5/12(f) (2016); 35 Ill. Adm. Code 305.102(b) & 309.102(a); NPDES Permit

ATTACHMENT B

Violation Notice: Emerald Polymer Additives, LLC – IL0001392
Violation Notice No.: W-2019-50007

The Illinois EPA offers the following recommendations to assist your facility in attaining compliance with the applicable regulations related to the apparent violations in Attachment A:

1. Please submit the following delinquent permit reporting requirements with the response to the VN. The following is the link to Wastewater Compliance Forms - https://www2.illinois.gov/epa/topics/forms/water-forms/Pages/wastewater-compliance.aspx

IL0001392

Schedule Desc	Event Desc	Event Comment	Sched Date
SPECIAL CONDITION 18	Annual Facility Inspection Report		08/01/2018

Emerald Performance Materials

July 18, 2019

CERTIFIED MAIL: 9214 8901 0661 5400 0140 2801 53
RETURN RECEIPT REQUESTED

Illinois Environmental Protection Agency
Attention: Cathy Siders/CAS#19
P.O. Box 19276
Springfield, IL 62794-9276

RE: Proposed Compliance Commitment Agreement
Violation Notice, W-2019-50007
BOW ID No: W1230050002
Emerald Performance Materials LLC, IL 0001392

Dear Ms. Siders:

We received the Proposed Compliance Commitment Agreement from your office on July 5, 2019. Attached please find the signed and dated Compliance Commitment Agreement along with the signed and dated Illinois EPA Compliance Statement. Please note that all actions in Section III.5.a have been completed as of the date of this letter.

If any questions arise about this submission, please contact Lance Richards at (309) 364-9472.

Sincerely,

Galen Hathcock
Plant Director
Emerald Performance Materials, LLC

Emerald Polymer Additives, LLC

1550 County Road 1450 N. / Henry, IL 61537 / Phone: 309-364-2311 / Fax: 309-364-9460
www.emeraldmaterials.com

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 · (217) 782-3397
JB PRITZKER, GOVERNOR JOHN J. KIM, DIRECTOR

217-524-6308

July 3, 2019

CERTIFIED MAIL # 7012 0470 0001 2973 0382
RETURN RECEIPT REQUESTED

Emerald Polymer Additives, LLC
1550 County Road 1450 N
Henry, IL 61537

Re: Proposed Compliance Commitment Agreement
Violation Notice: Emerald Polymer Additives, LLC – IL0001392
Violation Notice No.: W-2019-50007
BOW ID No.: W1230050002

Dear Facility Owner:

The Illinois Environmental Protection Agency ("Illinois EPA") has reviewed the proposed Compliance Commitment Agreement ("CCA") terms submitted in a letter received **May 20, 2019, from Thompson Hine, LLP on behalf of Emerald Polymer Additives, LLC,** in response to the Violation Notice dated **March 18, 2019**. Pursuant to the authority vested in the Illinois EPA under Section 31(a)(7)(i) of the Illinois Environmental Protection Act ("Act"), 415 ILCS 5/31(a)(7)(i), attached to this letter is a proposed CCA, which contains terms and conditions that the Illinois EPA has determined are necessary in order for you to attain compliance with the Act and Illinois Pollution Control Board Regulations.

Pursuant to Section 31(a)(7.5) of the Act, 415, ILCS 5/31(a)(7.5), within 30 days of your receipt of this proposed CCA, **Emerald Polymer Additives, LLC – IL0001392** or its duly authorized representative must either (1) agree to and sign the proposed CCA, and submit the signed and dated CCA by certified mail to Illinois EPA Division of Water Pollution Control, Attn.: Cathy Siders/CAS#19, P.O. Box 19276, Springfield, IL 62794-9276; or (2) notify the Illinois EPA by certified mail that **Emerald Polymer Additives, LLC – IL0001392** rejects the proposed CCA.

The proposed CCA shall only become effective upon your timely submittal of the signed CCA as discussed above, and upon final execution by the Illinois EPA. Failure by the **Emerald Polymer Additives, LLC – IL0001392** to execute and submit the proposed CCA within 30 days of receipt shall be deemed a rejection of the CCA by operation of law. Upon timely receipt of the signed CCA, the Illinois EPA will send you a fully executed copy of the CCA for your records.

In addition, the proposed CCA is not subject to amendment or modification prior to execution by the **Emerald Polymer Additives, LLC – IL0001392** and the Illinois EPA. Any amendment or modification to the proposed CCA by Respondent prior to execution by the **Emerald Polymer Additives, LLC – IL0001392** and the Illinois EPA shall be deemed a rejection of the proposed CCA by operation of law. The proposed CCA may only be amended subsequent to its effective date, in writing, and by mutual agreement between the Illinois EPA and the **Emerald Polymer Additives, LLC – IL0001392.**

Questions regarding this matter should be directed to Cathy Siders at 217/524-6308. Written communications should be directed to:

Illinois EPA – Division of Water Pollution Control
Attn: Cathy Siders/CAS #19
P.O. Box 19276
Springfield, IL 62794-9276

Sincerely,

Roger Callaway / CAS

Roger Callaway
Compliance Assurance Section
Division of Water Pollution Control
Bureau of Water

Attachment

Cc: Joel Eagle, Thompson Hine LLP

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

IN THE MATTER OF:	)	
	)	
Emerald Polymer Additives, LLC	)	
1550 County Road 1450 N	)	
Henry, IL 61537	)	
	)	
Marshall	)	ILLINOIS EPA VN W-2019-50007
	)	BUREAU OF WATER
	)	

COMPLIANCE COMMITMENT AGREEMENT

I. Jurisdiction

1. This Compliance Commitment Agreement ("CCA") is entered into voluntarily by the Illinois Environmental Protection Agency ("Illinois EPA") and **Emerald Polymer Additives, LLC** ("Respondent") (collectively, the "Parties") under the authority vested in the Illinois EPA pursuant to Section 31(a)(7)(i) of the Illinois Environmental Protection Act ("Act"), 415 ILCS 5/31(a)(7)(i).

II. Allegation of Violations

2. Respondent owns and/or operates a Plastics Materials & Resins Facility - **Emerald Polymer Additives, LLC** in, **Henry, Marshall County, Illinois**.

3. Pursuant to Violation Notice ("VN") **W-2019-50007**, issued on **March 18, 2019**, the Illinois EPA contends that Respondent has violated the following provisions of the Act and Illinois Pollution Control Board ("Board") Regulations:

   a. **Effluent Violations** - Section 12(a) and (f) of the Act, 415 ILCS 5/12(a) and (f) (2016); 35 Ill. Adm. Code 304.141(a) and **NPDES Permit IL0001392**
   b. **Failure to Comply with NPDES Permit** – Section 12(a) and (f) of the Act, 415 ILCS 5/12(a) and (f) (2016); 35 Ill. Adm. Code 305.102(b) & 309.102(a), and **NPDES Permit IL0001392**

III. Compliance Activities

4. On **May 20, 2019**, the Illinois EPA received Respondent's response(s) to **VN W-2019-50007**, which included proposed terms for a CCA. The Illinois EPA has reviewed Respondent's proposed CCA terms, as well as considered whether any additional terms and conditions are necessary to attain compliance with the alleged violations cited in the VN.

5. Respondent agrees to undertake, and complete the following actions, which the Illinois EPA has determined are necessary to attain compliance with the allegations contained in **VN W-2019-50007**:

   a. **Emerald Polymer Additives, LLC** has taken or will take the following actions:

Task	Scheduled due date
Cleared the obstruction in the suction line for the primary clarifier and replaced the check valve.	Completed – 05/17/2019
Design and implement a preventative maintenance program	**July 31, 2019**
Hired full time Utilities Supervisor to provide continuous oversight of the WWTP	Completed – January 2019
Draft and implement SOP to more frequently run the solids press, which reduces the solids loading to the PVC Tank.	**July 31, 2019**
Obtained a wastewater expert to investigate and resolve the issue with fecal analyses and changed the fecal methodology to the approved Q-Trey test method .	Completed – 05/17/2019
Submitted the delinquent annual report and drafted a robust compliance calendar to prevent future delinquent reporting.	Completed 05/17/2019

   b. Once all violations are corrected and compliance is achieved, the Respondent must submit a completed statement of compliance form (Attached) certifying that all Compliance Commitment Agreement measures/events have been successfully completed. Sign and submit enclosed Compliance Statement with original signatures.

IV. Terms and Conditions

6. Respondent shall comply with all provisions of this CCA, including, but not limited to, any appendices to this CCA and all documents incorporated by reference into this CCA. Pursuant to Section 31(a)(10) of the Act, 415 ILCS 5/31(a)(10), if Respondent complies with the terms of this CCA, the Illinois EPA shall not refer the alleged violations that are the subject of this CCA, as described in Section II above, to the Office of the Illinois Attorney General or the State's Attorney of the county in which the alleged violations occurred. Successful completion of this CCA or an amended CCA shall be a factor to be weighed, in favor of the Respondent, by the Office of the Illinois Attorney General in determining whether to file a complaint on its own motion for the violations cited in **VN W-2019-50007**.

7. This CCA is solely intended to address the violations alleged in Illinois EPA **VN W-2019-50007**. The Illinois EPA reserves, and this CCA is without prejudice to, all rights of the Illinois EPA against Respondent with respect to noncompliance with any term of this CCA, as well as to all other matters. Nothing in this CCA is intended as a waiver, discharge, release, or covenant not to sue for any claim or cause of action, administrative or judicial, civil or criminal, past or future, in law or in equity, which the Illinois EPA may have against Respondent, or any other person as defined by Section 3.315 of the Act, 415 ILCS 5/3.315. This CCA in no way affects the responsibilities of Respondent to comply with any other federal, state or local laws or regulations, including but not limited to the Act, and the Board Regulations.

8. Pursuant to Section 42(k) of the Act, 415 ILCS 5/42(k), in addition to any other remedy or penalty that may apply, whether civil or criminal, Respondent shall be liable for an additional civil penalty of $2,000 for violation of any of the terms or conditions of this CCA.

9. This CCA shall apply to and be binding upon the Illinois EPA, and on Respondent and Respondent's officers, directors, employees, agents, successors, assigns, heirs, trustees, receivers, and upon all persons, including but not limited to contractors and consultants, acting on behalf of Respondent, as well as upon subsequent purchasers of Respondent's Facility.

10. In any action by the Illinois EPA to enforce the terms of this CCA, Respondent consents to and agrees not to contest the authority or jurisdiction of the Illinois EPA to enter into or enforce this CCA, and agrees not to contest the validity of this CCA or its terms and conditions.

Illinois EPA Compliance Statement

You are required to state that you have returned to compliance with the Act and the regulations that were the subject of the violation notice (VN) (415 ILCS 5/31). The owner of the facility must acknowledge compliance and/or that all compliance commitment agreement (CCA) interim measures/events have been successfully completed and compliance has been achieved.

Please complete, sign, and return.

I Galen Hathcock *(print name)*, hereby certify that all violations addressed in Violation Notice (VN) number W-2019-50007 have been addressed and that compliance was achieved on 7/9/2019 *(date)*.

Galen Hathcock
Signature

Site Director
Title

309-364-9487
Telephone Number

7/10/19
Date

Be sure to retain copies of this document for your files. Should you need additional notification forms, please contact this office at (217)785-0561. Return this completed form to:

Illinois Environmental Protection Agency
Compliance Assurance Section #19
Bureau of Water
1021 North Grand Avenue East
P.O. Box 19276
Springfield, Illinois 62794-9276

"Any person who knowingly makes a false, fictitious, or fraudulent material statement, orally or in writing, to the Agency,.....related to or required by this Act, a regulation adopted under this Act, any federal law or regulation for which the Agency has responsibility, or any permit, term, or condition thereof, commits a Class 4 felony..." (415 ILCS 5/44(h) (8))

11. This CCA shall only become effective:

    a. If, within 30 days of receipt, Respondent executes this CCA and submits it, via certified mail, to Illinois EPA Division of Water Pollution Control, Attn: Cathy Siders/CAS #19, P.O. Box 19276, Springfield, IL 62794-9276. If Respondent fails to execute and submit this CCA within 30 days of receipt, via certified mail, this CCA shall be deemed rejected by operation of law; and

    b. Upon execution by all Parties.

12. Pursuant to Section 31(a)(7.5) of the Act, 415 ILCS 5/31(a)(7.5), this CCA shall not be amended or modified prior to execution by the Parties. Any amendment or modification to this CCA by Respondent prior to execution by all Parties shall be considered a rejection of the CCA by operation of law. This CCA may only be amended subsequent to its effective date, in writing, and by mutual agreement between the Illinois EPA and Respondent's signatory to this CCA, Respondent's legal representative, or Respondent's agent.

AGREED:
FOR THE ILLINOIS ENVIRONMENTAL PROTECTION AGENCY:

BY: _____ DATE: _____

Roger Callaway, Manager
Wastewater Compliance Section
Bureau of Water

FOR RESPONDENT:

BY: _____ DATE: 7/10/19

EMERALD MATERIALS
1550 COUNTY ROAD 1450 N
HENRY, IL 61537-9404

9214 8901 0661 5400 0140 2801 53

RETURN RECEIPT (ELECTRONIC)

W-2019-50007

CATHY SIDERS/CAS #19
ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
PO BOX 19276
SPRINGFIELD, IL 62794-9276

CUT · FOLD HERE

Zone 2

CUT · FOLD HERE

CUT · FOLD HERE

CERTIFIED MAIL

FIRST-CLASS MAIL
Hasler
07/18/2019
US POSTAGE $006.40
ZIP 61537
011E10673344

EMERALD MATERIALS
1550 COUNTY ROAD 1450 N
HENRY, IL 61537-9404

9214 8901 0661 5400 0140 2801 53

RETURN RECEIPT (ELECTRONIC)

W-2019-50007

CATHY SIDERS/CAS #19
ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
PO BOX 19276
SPRINGFIELD, IL 62794-9276

EP003512

UNITED STATES POSTAL SERVICE

July 22, 2019

Dear MAIL MAIL:

The following is in response to your request for proof of delivery on your item with the tracking number: **9214 8901 0661 5400 0140 2801 53**.

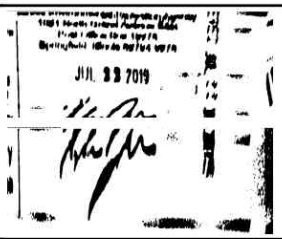
Item Details

Status:	Delivered
Status Date / Time:	July 22, 2019, 7:40 am
Location:	SPRINGFIELD, IL 62794
Postal Product:	First-Class Mail®
Extra Services:	Certified Mail™
	Return Receipt Electronic
Recipient Name:	CATHY SIDERS CAS 19

Recipient Signature

Signature of Recipient:

Address of Recipient:



Note: Scanned image may reflect a different destination address due to Intended Recipient's delivery instructions on file.

Thank you for selecting the United States Postal Service® for your mailing needs. If you require additional assistance, please contact your local Post Office™ or a Postal representative at 1-800-222-1811.

Sincerely,
United States Postal Service®
475 L'Enfant Plaza SW
Washington, D.C. 20260-0004

The customer reference information shown below is not validated or endorsed by the United States Postal Service. It is solely for customer use.

Reference ID: 9214890106615400014028015 3
W-2019-50007
CATHY SIDERS/CAS #19
Illinois Environmental Protection Agency
PO Box 19276
Springfield, IL 62794-9276
W-2019-50007 - CCA

EP003513

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 · (217) 782-3397
JB PRITZKER, GOVERNOR
JOHN J. KIM, DIRECTOR

217/524-6308

CERTIFIED MAIL # 7017 2680 0001 0206 6303
RETURN RECEIPT REQUESTED

July 24, 2019

Emerald Polymer Additives, LLC
1550 County Road 1450 N
Henry, IL 61537

Re: Compliance Commitment Acceptance
Emerald Polymer Additives, LLC – IL0001392 – W1230050002
Violation Notice: W-2019-50007

Dear Facility Owner:

The Illinois Environmental Protection Agency ("Illinois EPA") has approved the Compliance Commitment Agreement ("CCA") for **Emerald Polymer Additives, LLC – IL0001392**. Please find enclosed an executed copy of the CCA for your records.

Failure to fully comply with the CCA may, at the sole discretion of the Illinois EPA, result in referral of this matter to the Office of the Attorney General, the State's Attorney or the United States Environmental Protection Agency.

The CCA does not constitute a waiver or modification of the terms and conditions of any license or permit issued by the Illinois EPA or any other unit or department of local, state or federal government or of any local, state or federal statute or regulatory requirement.

Questions regarding this matter should be directed to **Cathy Siders at 217/524-6308**. Written communications should be directed to the Illinois Environmental Protection Agency, Bureau of Water, CAS #19, P.O. Box 19276, Springfield, IL 62794-9276, and all communications shall include reference to your Violation Notice Number **W-2019-50007**.

Sincerely,

Roger Callaway
Compliance Assurance Section
Bureau of Water

Enclosure(s)

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 · (217) 782-3397

JB PRITZKER, GOVERNOR JOHN J. KIM, DIRECTOR

217-524-6308

July 3, 2019

CERTIFIED MAIL # 7012 0470 0001 2973 0382
RETURN RECEIPT REQUESTED

Emerald Polymer Additives, LLC
1550 County Road 1450 N
Henry, IL 61537

Re: Proposed Compliance Commitment Agreement
Violation Notice: Emerald Polymer Additives, LLC – IL0001392
Violation Notice No.: W-2019-50007
BOW ID No.: W1230050002

Dear Facility Owner:

The Illinois Environmental Protection Agency ("Illinois EPA") has reviewed the proposed Compliance Commitment Agreement ("CCA") terms submitted in a letter received **May 20, 2019, from Thompson Hine, LLP on behalf of Emerald Polymer Additives, LLC,** in response to the Violation Notice dated **March 18, 2019**. Pursuant to the authority vested in the Illinois EPA under Section 31(a)(7)(i) of the Illinois Environmental Protection Act ("Act"), 415 ILCS 5/31(a)(7)(i), attached to this letter is a proposed CCA, which contains terms and conditions that the Illinois EPA has determined are necessary in order for you to attain compliance with the Act and Illinois Pollution Control Board Regulations.

Pursuant to Section 31(a)(7.5) of the Act, 415, ILCS 5/31(a)(7.5), within 30 days of your receipt of this proposed CCA, **Emerald Polymer Additives, LLC – IL0001392** or its duly authorized representative must either (1) agree to and sign the proposed CCA, and submit the signed and dated CCA by certified mail to Illinois EPA Division of Water Pollution Control, Attn.: Cathy Siders/CAS#19, P.O. Box 19276, Springfield, IL 62794-9276; or (2) notify the Illinois EPA by certified mail that **Emerald Polymer Additives, LLC – IL0001392** rejects the proposed CCA.

The proposed CCA shall only become effective upon your timely submittal of the signed CCA as discussed above, and upon final execution by the Illinois EPA. Failure by the **Emerald Polymer Additives, LLC – IL0001392** to execute and submit the proposed CCA within 30 days of receipt shall be deemed a rejection of the CCA by operation of law. Upon timely receipt of the signed CCA, the Illinois EPA will send you a fully executed copy of the CCA for your records.

In addition, the proposed CCA is not subject to amendment or modification prior to execution by the **Emerald Polymer Additives, LLC – IL0001392** and the Illinois EPA. Any amendment or modification to the proposed CCA by Respondent prior to execution by the **Emerald Polymer Additives, LLC – IL0001392** and the Illinois EPA shall be deemed a rejection of the proposed CCA by operation of law. The proposed CCA may only be amended subsequent to its effective date, in writing, and by mutual agreement between the Illinois EPA and the **Emerald Polymer Additives, LLC – IL0001392.**

Questions regarding this matter should be directed to Cathy Siders at 217/524-6308. Written communications should be directed to:

Illinois EPA – Division of Water Pollution Control
Attn: Cathy Siders/CAS #19
P.O. Box 19276
Springfield, IL 62794-9276

Sincerely,

Roger Callaway / CAS

Roger Callaway
Compliance Assurance Section
Division of Water Pollution Control
Bureau of Water

Attachment

Cc: Joel Eagle, Thompson Hine LLP

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

IN THE MATTER OF:	)	
	)	
Emerald Polymer Additives, LLC	)	
1550 County Road 1450 N	)	
Henry, IL 61537	)	
	)	
Marshall	)	ILLINOIS EPA VN W-2019-50007
	)	BUREAU OF WATER
	)	

COMPLIANCE COMMITMENT AGREEMENT

I. Jurisdiction

1. This Compliance Commitment Agreement ("CCA") is entered into voluntarily by the Illinois Environmental Protection Agency ("Illinois EPA") and **Emerald Polymer Additives, LLC** ("Respondent") (collectively, the "Parties") under the authority vested in the Illinois EPA pursuant to Section 31(a)(7)(i) of the Illinois Environmental Protection Act ("Act"), 415 ILCS 5/31(a)(7)(i).

II. Allegation of Violations

2. Respondent owns and/or operates a Plastics Materials & Resins Facility - **Emerald Polymer Additives, LLC** in, **Henry, Marshall County, Illinois**.

3. Pursuant to Violation Notice ("VN") **W-2019-50007**, issued on **March 18, 2019**, the Illinois EPA contends that Respondent has violated the following provisions of the Act and Illinois Pollution Control Board ("Board") Regulations:

   a. **Effluent Violations** - Section 12(a) and (f) of the Act, 415 ILCS 5/12(a) and (f) (2016); 35 Ill. Adm. Code 304.141(a) and **NPDES Permit IL0001392**
   b. **Failure to Comply with NPDES Permit** – Section 12(a) and (f) of the Act, 415 ILCS 5/12(a) and (f) (2016); 35 Ill. Adm. Code 305.102(b) & 309.102(a), and **NPDES Permit IL0001392**

III. Compliance Activities

4. On **May 20, 2019**, the Illinois EPA received Respondent's response(s) to **VN W-2019-50007**, which included proposed terms for a CCA. The Illinois EPA has reviewed Respondent's proposed CCA terms, as well as considered whether any additional terms and conditions are necessary to attain compliance with the alleged violations cited in the VN.

5. Respondent agrees to undertake, and complete the following actions, which the Illinois EPA has determined are necessary to attain compliance with the allegations contained in **VN W-2019-50007**:

a. Emerald Polymer Additives, LLC has taken or will take the following actions:

Task	Scheduled due date
Cleared the obstruction in the suction line for the primary clarifier and replaced the check valve.	Completed – 05/17/2019
Design and implement a preventative maintenance program	**July 31, 2019**
Hired full time Utilities Supervisor to provide continuous oversight of the WWTP	Completed – January 2019
Draft and implement SOP to more frequently run the solids press, which reduces the solids loading to the PVC Tank.	**July 31, 2019**
Obtained a wastewater expert to investigate and resolve the issue with fecal analyses and changed the fecal methodology to the approved Q-Trey test method .	Completed – 05/17/2019
Submitted the delinquent annual report and drafted a robust compliance calendar to prevent future delinquent reporting.	Completed 05/17/2019

b. Once all violations are corrected and compliance is achieved, the Respondent must submit a completed statement of compliance form (Attached) certifying that all Compliance Commitment Agreement measures/events have been successfully completed. Sign and submit enclosed Compliance Statement with original signatures.

IV. Terms and Conditions

6. Respondent shall comply with all provisions of this CCA, including, but not limited to, any appendices to this CCA and all documents incorporated by reference into this CCA. Pursuant to Section 31(a)(10) of the Act, 415 ILCS 5/31(a)(10), if Respondent complies with the terms of this CCA, the Illinois EPA shall not refer the alleged violations that are the subject of this CCA, as described in Section II above, to the Office of the Illinois Attorney General or the State's Attorney of the county in which the alleged violations occurred. Successful completion of this CCA or an amended CCA shall be a factor to be weighed, in favor of the Respondent, by the Office of the Illinois Attorney General in determining whether to file a complaint on its own motion for the violations cited in **VN W-2019-50007**.

7. This CCA is solely intended to address the violations alleged in Illinois EPA **VN W-2019-50007**. The Illinois EPA reserves, and this CCA is without prejudice to, all rights of the Illinois EPA against Respondent with respect to noncompliance with any term of this CCA, as well as to all other matters. Nothing in this CCA is intended as a waiver, discharge, release, or covenant not to sue for any claim or cause of action, administrative or judicial, civil or criminal, past or future, in law or in equity, which the Illinois EPA may have against Respondent, or any other person as defined by Section 3.315 of the Act, 415 ILCS 5/3.315. This CCA in no way affects the responsibilities of Respondent to comply with any other federal, state or local laws or regulations, including but not limited to the Act, and the Board Regulations.

8. Pursuant to Section 42(k) of the Act, 415 ILCS 5/42(k), in addition to any other remedy or penalty that may apply, whether civil or criminal, Respondent shall be liable for an additional civil penalty of $2,000 for violation of any of the terms or conditions of this CCA.

9. This CCA shall apply to and be binding upon the Illinois EPA, and on Respondent and Respondent's officers, directors, employees, agents, successors, assigns, heirs, trustees, receivers, and upon all persons, including but not limited to contractors and consultants, acting on behalf of Respondent, as well as upon subsequent purchasers of Respondent's Facility.

10. In any action by the Illinois EPA to enforce the terms of this CCA, Respondent consents to and agrees not to contest the authority or jurisdiction of the Illinois EPA to enter into or enforce this CCA, and agrees not to contest the validity of this CCA or its terms and conditions.

11. This CCA shall only become effective:

    a. If, within 30 days of receipt, Respondent executes this CCA and submits it, via certified mail, to Illinois EPA Division of Water Pollution Control, Attn: Cathy Siders/CAS #19, P.O. Box 19276, Springfield, IL 62794-9276. If Respondent fails to execute and submit this CCA within 30 days of receipt, via certified mail, this CCA shall be deemed rejected by operation of law; and

    b. Upon execution by all Parties.

12. Pursuant to Section 31(a)(7.5) of the Act, 415 ILCS 5/31(a)(7.5), this CCA shall not be amended or modified prior to execution by the Parties. Any amendment or modification to this CCA by Respondent prior to execution by all Parties shall be considered a rejection of the CCA by operation of law. This CCA may only be amended subsequent to its effective date, in writing, and by mutual agreement between the Illinois EPA and Respondent's signatory to this CCA, Respondent's legal representative, or Respondent's agent.

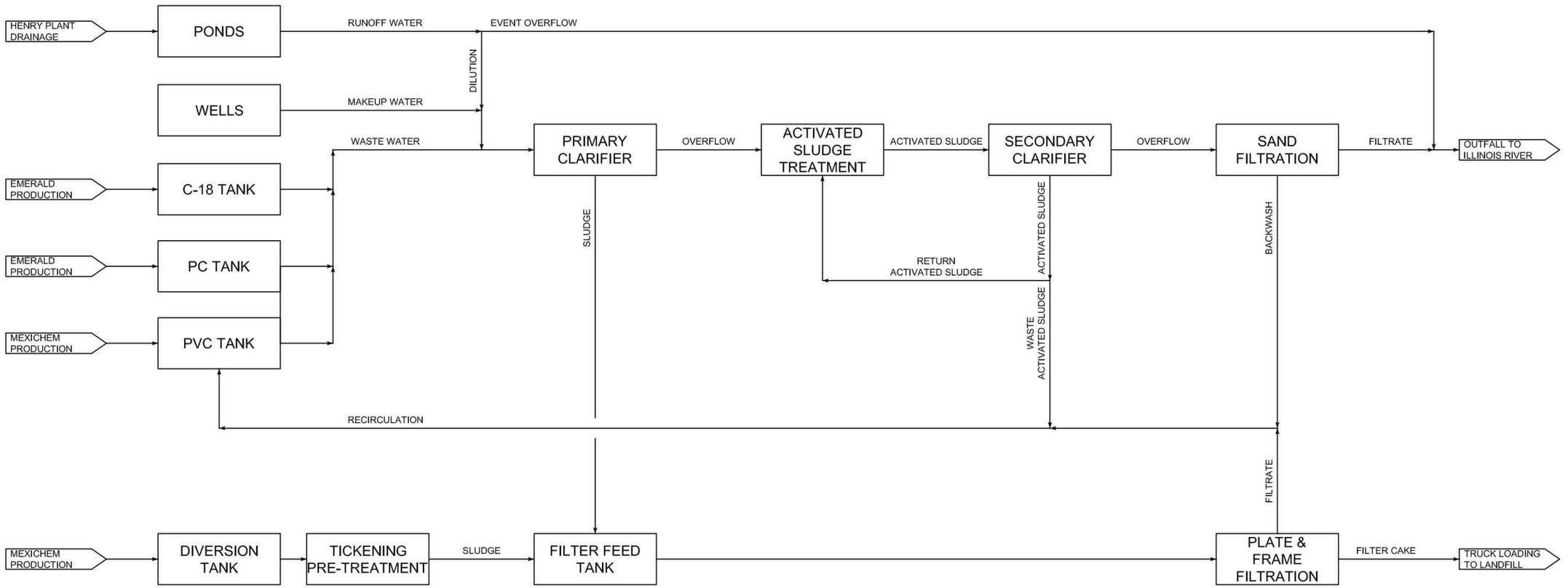
AGREED:
FOR THE ILLINOIS ENVIRONMENTAL PROTECTION AGENCY:

BY: Roger Callaway DATE: 7/24/19
Roger Callaway, Manager
Wastewater Compliance Section
Bureau of Water

FOR RESPONDENT:

BY: [signature] DATE: 7/10/19

PETITIONER'S HEARING EXHIBIT
AS 19-002
7



REVISION		
A	ORIGINAL ISSUE	12/12/2019 MND

REFERENCE DRAWINGS
GEN. ARR. _____
BILLS OF MAT. _____
DET. DRWGS. _____

Drawn By MND Traced By _____ Checked By MW/GH
Date 12/12/2019 Date _____ Date _____
Scale NONE

DEPT. 2478 | BLDG. 753 | FLR. 0
APPROVED
_____
DATE _____

HENRY PLANT
WASTE TREATMENT
BLOCK FLOW DIAGRAM
PROCESS

Emerald Performance Materials®
Kalama Chemical

D.J. No. _____
A.R. No. _____

G-101 REV. A