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April 18, 2014

FOR SETTLEMENT PURPOSES ONLY PURSUANT TO Fed. R. Evid. 408.

Mr. Brandon Robers
Department of Justice
Environmental Enforcement Section
P.O. Box 7611 – Ben Franklin Station
Washington, D.C. 20044

VIA EMAIL AND USPS MAIL

Re: City of Corpus Christi: WWTP Information

Dear Mr. Robers:

As discussed in our recent negotiations meeting, the City of Corpus Christi hereby provides the updated wastewater treatment plant excursions memo and proposed Appendix for the Consent Decree. Please note that our proposed deadlines in the Appendix language for the capital improvements projects add some buffer time from the anticipated completion dates noted in the memo to allow for construction contingencies.

Please let us know if you have questions.

Sincerely,

Lauren J. Kalisek

Lauren J. Kalisek

w/P
9/E2

Enclosures (2)

cc: Mr. Mark Walters, Assistant Attorney General
Mr. Ron Olson, City of Corpus Christi
Mr. Gus Gonzalez, City of Corpus Christi
Mr. Mark Van Vleck, City of Corpus Christi
Mr. Brian Butscher, City of Corpus Christi
Mr. Bill Mahaffey, City of Corpus Christi
Mr. Barney Knight, City of Corpus Christi

Ms. Lisa Aguilar, City of Corpus Christi
Mr. Fredric P. Andes, *of Barnes & Thornburg, LLP*
Mr. Joe de la Fuente, *of the Firm*
Mr. Nathan Vassar, *of the Firm*

ATTACHMENT A

CONFIDENTIAL: SETTLEMENT DISCUSSIONS
NOT ADMISSIBLE IN COURT

City of Corpus Christi, Texas
Wastewater Treatment Plants (WWTPs)
Activities Addressing Permit Excursions
(UPDATED April 18, 2014)

Section 1 - Purpose

The purpose of this memorandum is to provide the Environmental Protection Agency (EPA) and the Department of Justice (DOJ) with additional detail regarding the City of Corpus Christi's (City) ongoing response to permit excursions occurring between December 2006 through February 2014 at its six wastewater treatment plants (WWTPs). The information contained in this memo is a follow-up to and refinement of the discussion of the City's 2014 Capital Improvements Program (2014 CIP) at the September 2013 meeting in Dallas, Texas. This memorandum focuses on current key City operational and construction activities most directly addressing permit excursions. It should be noted that not all capital projects included in the 2014 CIP are covered in this memorandum as the City is currently reviewing and reevaluating several projects contained in the 2014 CIP.

Section 2 – Overview and Background

The permitted Annual Average Flow for all six (6) WWTPs is 44.7 million gallons per day (MGD). The total permitted 2-hour Peak Flow is 172.7 MGD. Table 2-1 summarizes the flow information and current daily average permit limits for each WWTP.

Table 2-1: City of Corpus Christi Wastewater Treatment Plant Permit Limits

WWTP	Annual Average Flow	2-Hour Peak Flow	BOD	TSS	Ammonia	Entero[2]	Copper
Allison	5 MGD	15 MGD	20 mg/L	20 mg/L	12 mg/L		
Broadway[1]	10 MGD	20 MGD	20 mg/L	20 mg/L		35	0.0241 mg/L
Greenwood	8 MGD	24 MGD	10 mg/L	15 mg/L	3 mg/L	35	0.013 mg/L
Laguna Madre	3 MGD	9 MGD	20 mg/L	20 mg/L		35	
Oso	16.2 MGD	97.2 MGD	20 mg/L	20 mg/L	4 mg/L	35	
Whitecap	2.5 MGD	7.5 MGD	20 mg/L	20 mg/L		35	

[1] *Annual Average Flow of current Broadway WWTP is 10 MGD; 365 days after completion of new plant the Annual Average Flow changes to 8 MGD and 2- Hour Peak Capacity to 40 MGD (pending TCEQ approval of current permit application to increase peak capacity).*

[2] *Bacteria limits are 35 colony forming units (CFU) per 100 ml.*

For the purposes of Table 2-1, the following definitions are provided:

WWTP:	wastewater treatment plant
Annual Average Flow:	the arithmetic average of all daily flow determinations taken within the preceding 12 consecutive calendar months as defined in the City's TPDES permits
2-Hour Peak Flow:	the maximum flow sustained for a two-hour period during the period of daily discharge as defined in the City's TPDES permits
BOD:	biological oxygen demand
TSS:	total suspended solids
TPDES:	Texas Pollutant Discharge Elimination System
Ammonia:	(NH3-N) Ammonia Nitrogen concentration
Entero:	Enterococci, an indicator of bacterial contamination
Copper:	a regulated metal

Section 3 - Discussion

The permit excursions for each WWTP and how the City is addressing them are discussed below. References to "FY" in the following tables are to the City's fiscal year end which runs from October 1 to September 30.

3.1 Allison WWTP

Forty-six (46) excursions occurred at the Allison WWTP between December 2006 and February 2014. They are summarized in Table 3.1-1.

Table 3.1-1: Allison WWTP Permit Excursions

TSS		Ammonia		BOD	
Dec-07	1	July-09	2	Jan 10	1
Dec-08	1	Jan-11	2	Jan-11	1
Feb-09	2	Apr-11	3		
Jan-10	3	May-11	2		
Jan-11	2	Jun-11	1		
May-11	1	Aug-11	4		
		Nov-11	1		
		Dec-11	1		
		Feb-12	2		
		Nov-12	1		
		Jan-13	6		
		Feb-13	1		
		Dec-13	1		
		Jan-14	1		
		Feb-14	6		
Total	**10**	**Total**	**34**	**Total**	**2**

3.1.1 Operational Responses Addressing Excursions

The City is proposing to make process improvements to the Allison WWTP to operationally reduce the recent ammonia violations. The goal is to install an anoxic selector at the head end of the aeration system at the Allison WWTP, East Train. The existing tankage is well suited to make this modification. The East Train aeration system consists of six long narrow basins. The first four are configured in series plug flow and the final two operate in parallel before transfer to the clarifier. Specifically, the proposal is to close the aeration valve for the first basin and install electric mixers to keep solids in suspension and mix raw sewage and return sludge.

The term *selector* refers to the role of this chamber to select activated sludge microbes with desirable settling characteristics. The term *anoxic* refers to the absence of Dissolved Oxygen. The presence of Nitrate Nitrogen (NO_3) in the return sludge will serve to meet metabolic demands when the sludge and raw sewage are mixed. It will also serve as a denitrification zone.

Research has shown that anoxic selectors promote better settling sludge (floc forming organisms) which will allow fully nitrified effluent while retaining the suspended solids in the clarification process. This will avoid ammonia and TSS effluent limit violations. Note that the New Broadway WWTP employs anoxic selectors.

Provision for purchase of the mixing system is in the City current budget, and will be installed using in-house staff operators and electricians. The installation can take place while the basins are off-line for cleaning and rehabilitation under the current headworks contract (Allison WWTP Headworks Phase I, see below).

Although the City has not experienced a TSS violation since May 2011, it also believes that the above described measures will also provide for better settling of sludge and minimize the possibility of future TSS excursions.

3.1.2 Capital Improvements Addressing Excursions

In addition to the operational improvements discussed above, the City is completing a capital improvement project for the bar screen and grit removal system which will optimize performance of the clarifier sludge withdrawal system. A change order approved in January 2013 added the rehabilitation of the aeration system for the Allison WWTP, West Train and this construction is complete. A second change order for the East Train is scheduled for completion by the end of the year.

These change orders were developed to address ammonia issues at the Allison WWTP and are aimed at cleaning the aeration basins and improving the existing diffused air system.

Table 3.1-2: Allison WWTP Capital Improvement Project

Project Name	Allison WWTP Head Works (Phase 1) & Grit System (Phase 2) with Two Change Orders for Rehabilitation of Aeration Systems in West and East Trains
Finance Project No.	150725
Design Award	April 2009
Construction Award	September 2012 (Two Change Orders for Rehabilitation of Aeration Systems in West and East Trains 2013 and 2014)
Construction Finish	Rehabilitation of Aeration Systems West Train (complete); East Train (FY 2015)

3.2 Broadway WWTP

Nineteen(19) excursions occurred at the Broadway WWTP between December 2006 and February 2014. They are summarized in Table 3.2-1.

Table 3.2-1: Broadway WWTP Permit Excursions

Enterococci	
Oct-11	2
Feb-12	1
Mar-12	1
Apr-12	3
Nov-12	1
May-13	1
Jun-13	1
Sep-13	3
Nov-13	2
Jan-14	2
Feb-14	2
Total	**19**

3.2.1 Operational Responses Addressing Excursions

The City is completing the construction of Phase I of a new treatment plant. This Phase I work includes the construction of a new UV disinfection system as discussed in Section 3.2.2 below. The City continues to monitor operations at the existing plant to identify and address the causes of excursions until the new plant comes on-line. Once the new plant is on-line and tied to the existing outfall line, the City anticipates being able to consistently meet the Enterococci limit.

3.2.2 Capital Improvements Addressing Excursions

The Broadway treatment plant will be a new facility. Phase I of the plant is scheduled to be on-line in 2014. A summary of the project schedule is shown in Table 3.2-2.

Table 3.2-2: Broadway WWTP Capital Improvement Project

Project Name	New Broadway Wastewater Treatment Plant Phase I (including new disinfection system)
Finance Project No.	190130
Design Award	November 2006
Construction Award	October 2009
Construction Finish	Phase I FY 2014

3.3 Greenwood WWTP

Eleven (11) excursions occurred at the Greenwood WWTP between December 2006 and December 2013. They are summarized in Table 3.3-1.

Table 3.3-1: Greenwood WWTP Permit Excursions

TSS		Fecal		Peak Flow		Ammonia		Copper	
Aug-11	1	Sep-10	1	Sep-10	2	Feb-08	1	Nov-10	3
May-12	1					Sep-10	1		
						Jul-13	1		
Total	**2**	**Total**	**1**	**Total**	**2**	**Total**	**3**	**Total**	**3**

3.3.1 Operational Responses Addressing Excursions

Operational changes geared toward maintaining a more consistent solids inventory at the plant have assisted in limiting the TSS excursions.

The Fecal and Peak Flow excursions happened during a flood event that occurred on September 18 – 19, 2010, that caused storm water flows from a nearby creek to flood the ultraviolet (UV) disinfection system. After that storm, the City increased the height of the walls around the electrical control room. In addition, the City currently has the capability to raise the controls modules above flood level to protect the UV system and prevent inundation of the controls during flood events.

The February 2008 Ammonia excursion can be linked to operational issues associated with improvements occurring at the WWTP. The September 2010 excursion was due to the September 18 – 19 rain event. Since that time, operators have adjusted digester return flow to better manage ammonia loading. The most recent excursion that occurred in July 2013 coincides with, and is attributable to, two primary clarifiers being off-line for repair work. With the recent reorganization of the City's Wastewater Department, the City is in the process of applying the asset management and

preventative maintenance procedures used in its Water Department to its wastewater assets. Going forward, repair work performed on the WWTPs will include the development and implementation of detailed Project Execution Plans that will help to maintain compliance during scheduled down-time of plant components.

When the Copper excursions occurred in November 2010, the City investigated several industrial customers that discharge in the basin. Although the City's investigation did not reveal specific violators, it did develop awareness among the industrial customers of the potential harm caused by illegal discharges to the wastewater collection system and that the additional treatment costs can be passed on to the customer. Copper discharges have since reduced and typically average 0.002 mg/L, which is well below the allowable permitted daily average of 0.013 mg/L.

3.3.2 Capital Improvements Addressing Excursions

At this time no capital improvements are identified as necessary to address permit excursions at the Greenwood WWTP.

3.4 Laguna Madre WWTP

Sixteen (16) excursions occurred at the Laguna Madre WWTP between December 2006 and December 2013. They are summarized in Table 3.4-1.

Table 3.4-1: Laguna Madre WWTP Permit Excursions

Enterococci		TSS		Peak Flow	
Dec-11	1	Sep-09	2	Jul-07	1
Apr-12	1				
May-12	2				
Aug-12	2				
Sep-12	1				
Jun-13	3				
Nov-13	3				
Total	**13**	**Total**	**2**	**Total**	**1**

3.4.1 Operational Responses Addressing Excursions

Operation and maintenance staff currently perform increased maintenance of the sludge removal tubes and the telescoping valves to more effectively remove solids from the clarifier. This additional maintenance has helped reduce the solids blanket which minimizes solids carryover and prevents TSS excursions.

Similarly, the additional maintenance aids in reducing the enterococci excursions. To further improve control of enterococci, staff continues to improve chlorine metering and delivery to facilitate better chlorine dosing and disinfection to further reduce enterococci levels. Staff has also instituted a regular cleaning program for the chlorine

contact chamber including weekly cleaning of the underdrain and a more thorough cleaning of the chamber once every three weeks.

The one Peak Flow excursion occurred during a significant rain storm event when 8 inches fell on July 3, 2007 and an additional 4 inches fell on July 4, 2007. In the following year, the City rehabilitated several segments of the gravity sewer mains upstream of the Laguna Madre WWTP. Since then, daily flows, which average 1.68 MGD, are almost half of the plant's Annual Average Flow. Consequently, peak flow is not an issue at this plant.

3.4.2 Capital Improvements Addressing Excursions

The City has begun CIP planning efforts for the Laguna Madre WWTP. Under design are improvements to the chlorine disinfection system which will address enterococci. These improvements include the installation of a flow-paced peristaltic dosing pump system that will allow the operations to move away from operator-controlled dosing. The design also includes replacement of the bar screen and grit removal system, which will improve control of mixed liquor suspended solids (MLSS) and effluent TSS. A summary of the project schedule is shown in Table 3.4-2.

Table 3.4-2: Laguna Madre WWTP Capital Improvement Project

Project Name	Laguna Madre WWTP Head Works & Bar Screen Improvements (including chlorine disinfection system improvements)
Finance Project No.	E10048
Design Award	August 2012
Construction Award	FY 2014
Construction Finish	FY2016

3.5 Oso WWTP

Sixty (60) excursions occurred at the Oso WWTP between December 2006 and December 2013. They are summarized below in Table 3.5-1 (*see* page 8).

Table 3.5-1: Oso WWTP Permit Excursions

BOD		TSS		Enterococci		Ammonia	
Sep-10	1	Feb-07	1	May-11	1	Nov-13	2
		Jun-07	2	Jun-11	1	Dec-13	7
		Aug-08	1	Oct-11	1		
		Jan-10	2	Nov-11	1		
		Feb-10	2	Dec-11	2		
		Sep-10	2	Mar-12	2		
		Feb-12	1	Apr-12	4		
		Apr-12	2	May-12	4		
		May-12	1	Jun-12	4		
				Jul-12	2		
				Dec-12	2		
				Jan-13	3		
				Feb-13	2		
				Mar-13	1		
				Aug-13	3		
				Sep-13	3		
Total	**1**	**Total**	**14**	**Total**	**36**	**Total**	**9**

3.5.1 Operational Responses Addressing Excursions

The City's response to excursions at the Oso WWTP is focused on needed on-going capital projects. During construction of the CIP listed below, operators continually monitor the existing plant and make necessary operational changes to meet current permit requirements. The ammonia limit in the City's permit became effective at the end of October 2013. Recent ammonia excursions in November and December 2013 are related to the City's implementation and fine-tuning of its new breakpoint chlorination system that became operational in late October 2013. The purpose of the breakpoint chlorination system is to meet the new ammonia limit while more long term capital planning proceeds for Oso.

3.5.2 Capital Improvements Addressing Excursions

A summary of the project schedule currently underway at the Oso WWTP is shown in Table 3.5-2. The project scope includes the belt filter presses described below. The project completion date may be adjusted as elements are adjusted during construction.

Table 3.5-2: Oso WWTP Capital Improvement Project

Project Name	Oso Water Reclamation Plant Interim Ammonia Improvements (Phase 1)(BreakPoint Chlorination)
Finance Project No.	E09007 & 150755
Design Award	August 2010
Construction Award	February 2013
Construction Finish	FY2014

Oso's belt filter press improvements (as a component of the CIP project listed above titled Interim Ammonia Improvements and designated with Finance Project Numbers E09007 and 150755) became fully operational in May, 2013, resulting in more solids being removed (as demonstrated by the higher volume of sludge being generated) and reductions in TSS readings. The reduced solids inventory subsequently reduces demand for oxygen which aids in avoiding BOD excursions. Before the new belt presses were installed the plant experienced mixliquor concentrations as high a 9000 ppm. Currently the plant is running at 3000 ppm. The plant used one press under the old system. The new improvements include the use of four presses; and the plant is currently moving 1500 tons of sludge a month.

The City is in the process of identifying the appropriate capital project that will best address the enterococci excursions and anticipates final identification of the project and associated time frame for design and construction in the near future. If the final project is not identified prior to completion of the Consent Decree negotiations, the City will submit the project to EPA as a develop-and-implement component of the CD.

3.6 Whitecap WWTP

Forty-four (44) excursions occurred at the Whitecap WWTP between December 2006 and December 2013. They are summarized in Table 3.6-1.

Table 3.6-1: Whitecap WWTP Permit Excursions

Enterococci		TSS	
Jan-10	1	Jul-11	1
Apr-10	1	Aug-11	2
Sep-10	4	Nov-13	1
Nov-10	9		
Dec-10	1		
Jan-11	1		
Feb-11	2		
Jul-11	2		
Aug-11	2		
Feb-12	2		
Mar-12	1		
Apr-12	2		
Jun-12	5		
Jul-12	5		
Apr-13	1		
Feb-14	1		
Total	**40**	**Total**	**4**

3.6.1 Operational Responses Addressing Excursions

To meet enterococci limits, plant operators are currently operating the UV system at maximum capacity. This requires careful planning and regular monitoring to timely replace UV bulbs and conduct preventative maintenance to minimize excursions. The more recent April 2013 excursion is related to a contractor, hired to clean the collection main immediately upstream of the Whitecap WWTP, who allowed significant amounts of cleaning debris to pass into the treatment plant without authorization from the City. Consequently, the plant exceeded an enterococci permit limit.

To meet TSS limits, plant operators are now operating the plant in a solids retention time (SRT) control mode, which reduces solids inventory and allows the operators to better manage solids throughout the treatment process. The plant was converted to SRT in Spring 2013. The recent November 13, 2013 excursion was due to a clarifier being down for repair. As discussed previously, with the recent reorganization of the City's Wastewater Department, the City is in the process of applying the asset management and preventative maintenance procedures used in its Water Department to its wastewater assets. Going forward, repair work performed on the WWTPs will include the development and implementation of detailed Project Execution Plans that will help to maintain compliance during scheduled down-time of plant components.

3.6.2 Capital Improvements Addressing Excursions

A summary of the project schedule currently underway at Whitecap WWTP is shown in Table 3.6-2. The project scope includes building a new UV disinfection system and providing filtration to improve the effectiveness of the UV disinfection system. The project construction award and completion dates may be adjusted as project elements are adjusted during construction.

Table 3.6-2: Whitecap WWTP Capital Improvement Project

Project Name	Whitecap Wastewater Treatment Plant UV System Upgrade
Finance Project No.	E10179
Design Award	May 2012
Construction Award	FY2015*
Construction Finish	FY2017*

*Construction Award and Finish Dates are subject to change based on final design

Section 4 - Summary

The City takes its responsibility to properly operate its wastewater treatment facilities and prevent permit excursions seriously. When an excursion does occur, the City documents and reports the excursion, evaluates the circumstances, considers its options to avoid future similar excursions, and adjusts its operational activities if necessary and

appropriate. In appropriate instances, the City identifies, develops and executes a capital improvement project to prevent future excursions. Accordingly, the City is addressing each permit excursion identified in this memorandum.

Table 4-1 summarizes the identified capital projects discussed in this memorandum.

Table 4-1: Identified Capital Improvement Projects for Wastewater Treatment Plants

WWTP	CIP Title	Finance No.	Anticipated Construction Finish*
Allison	Head Works (Ph1) & Grit System (Ph2) with Two Change Orders for Rehabilitation of Aeration Systems in West and East Trains	150725	FY 2015
Broadway	New Broadway WWTP Phase I (including new disinfection system)	190130	FY 2014
Laguna Madre	Head Works & Bar Screen Improvements (including Chlorine Disinfection System Improvements)	E10048	FY2016
Oso	Interim Ammonia Improvements (Ph1) (Breakpoint Chlorination)	E09007 150755	FY2014
Oso	TBD	TBD	TBD
Whitecap	UV System Upgrade	E10179	FY2017

* Dates shown are subject to change based on project parameters.

ATTACHMENT B

Appendix _____

WWTP Capital Projects

WWTP	Project Name	Target Project Completion Date
Broadway	New Disinfection System (as part of New Broadway WWTP Phase 1)	1 year from Date of Entry
Oso	Interim Ammonia Improvements (Phase 1) (Breakpoint Chlorination)	1 year from Date of Entry
Allison	Two Change Orders for Rehabilitation of Aeration Systems in West and East Trains (as part of Headworks and Grit System Improvements)	2 Years from Date of Entry
Laguna Madre	Chlorine Disinfection System Improvements (as part of Headworks and Bar Screen Improvements)	3 years from Date of Entry
Whitecap	UV System Upgrade	4 years from Date of Entry