



Palatka Pulp and Paper Operations  
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September 1, 2009

Mr. Greg Strong  
District Director, Northeast District  
Florida Department of Environmental Protection  
7825 Baymeadows Way, Suite B200  
Jacksonville, FL 32256

RE: Response to June 1, 2009 "Letter Order" to Georgia-Pacific Palatka Mill – Legacy Solids

Dear Mr. Strong:

Attached is Georgia-Pacific's response to the request for Information from the June 1, 2009 "Letter Order". This response is specifically addressing "Legacy Solids" which is due September 1, 2009.

Georgia-Pacific looks forward to working with the Department as we continue gather information and address the remaining items in the "Letter Order". If you have questions during your review of the information provided, please don't hesitate to contact me at your convenience.

Sincerely,

A blue ink signature of Gary Frost, consisting of stylized initials and a surname.

Gary Frost  
Vice President of Operations  
Palatka Mill

A blue ink signature of Mike Curtis, consisting of stylized initials and a surname.

Mike Curtis  
Environmental Health & Safety Manager

Cc: Melissa Long – FDEP  
Khalid Al-Nahdy  
Traylor Champion – GP (Alt)  
Michael Davis – GP (Alt)  
Mike Curtis – GP (Pal)

# GEORIGIA-PACIFIC PALATKA WASTEWATER TREATMENT PLANT

## LEGACY SOLIDS STUDY

### I. INTRODUCTION

Georgia-Pacific's Palatka Mill has completed a sampling program to characterize the potential concentrations, distribution, and patterns of dioxins in the Georgia-Pacific Palatka wastewater treatment ponds. Although a suite of dioxin compounds were measured, the primary focus of this study is 2,3,7,8-TCDD, which is the dioxin compound that will be the basis of Georgia-Pacific's future permit limit. This sampling program meets the condition of the June 1, 2009 "Letter Order" issued by the Florida DEP which required an assessment of legacy solids in the wastewater treatment system<sup>1</sup>. Sampling of the ponds was completed on April 30, May 1, and July 24, 2009. An additional sample of sludge was taken from the primary clarifier on June 11, 2009. This report details the results of this sampling effort.

At the direction of Florida DEP, EPA completed sampling of the effluent from the Palatka Mill's wastewater treatment system in October, 2008 for polychlorinated dibenzo-*p*-dioxins (PCDD) and polychlorinated dibenzofurans (PCDF) compounds by utilizing a High Volume Extraction Technique. The results of the sampling led to the Florida DEP requesting Georgia-Pacific perform additional sampling associated with its wastewater treatment system.

While Georgia-Pacific has significant reservations regarding the High Volume Extraction Technique utilized by EPA (see letter dated April 4, 2008 from Terry Cole to Secretary Sole), Georgia-Pacific has taken further steps in an effort to understand whether the

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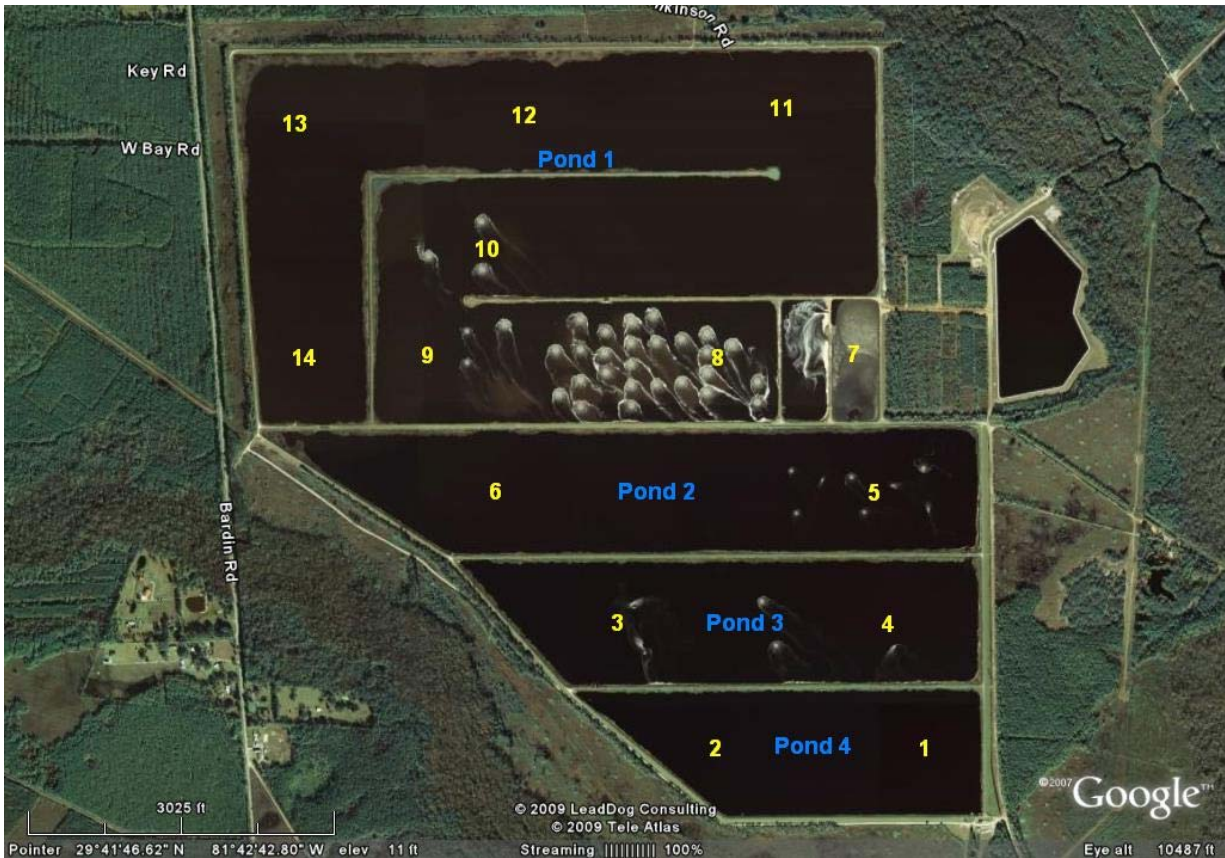
<sup>1</sup> The specific condition in the DEP letter to Gary Frost states, "GP shall sample existing sediments (legacy solids) within its wastewater treatment system ponds to determine if they are a potential source of dioxin in the wastewater discharge. GP shall submit to the Department a report detailing the sample results by September 1, 2009. If the report indicates that legacy solids are a source of dioxin in the wastewater discharge, the report shall also include a plan for remediation, bypass, or removal of such solids. Any needed remediation or removal activities shall be initiated no later than December 1, 2009."

treatment plant could be a potential source of residual dioxin in the effluent. There is a theory that residual dioxin compounds could have been deposited in the sludge at the bottom of the treatment ponds during the years that elemental chlorine was used for bleaching and that these sludges could potentially contribute dioxin to the effluent.

## **II. LEGACY SOLIDS SAMPLING PROGRAM**

A sampling program was designed to sample legacy solids from the wastewater treatment ponds. Samples of the sediment layer were collected from the bottom of each pond and a sludge depth survey was performed.

Sample locations were selected in each of the four wastewater treatment ponds and the emergency spill basin (ESB). Locations were selected to provide an adequate representation of pond areas and volume. A total of 14 sample locations were identified in the sampling plan. Due to a greater accumulation of solids, two samples were taken from each location in Pond 1 and the ESB, one from the interface of legacy solids and the water column and the other from the full legacy solids deposit. At the remaining locations, samples were collected at the interface of the legacy solids and the water column. See Figure 1 for a graphic of specific sample locations. In addition to the legacy solids sampling, one sludge sample was collected from the primary clarifier.



*Figure 1. Georgia-Pacific Palatka Wastewater Treatment Plant sampling locations*

### **III. RESULTS OF THE SAMPLING**

The results of the sampling are summarized on Table 1. Sample results have been reported as solids in parts per trillion. All samples were analyzed using high resolution gas chromatography/high resolution mass spectrometry following approved EPA methodologies and full results are reported in Appendices 3 and 4.

**Table 1 Georgia-Pacific Palatka Wastewater Treatment System  
Summary of Sampling Results**

2,3,7,8 TCDD Concentrations in Legacy Solids

Location	Sediment Interface or Core Sample	Pond Number	2,3,7,8-TCDD (PPT)	Solids Conc. (% Solids)
7	Interface	ESP	17	0.99
7	Core	ESP	2	60.84
8	Interface	1	ND	0.47
8	Core	1	5	39.97
9	Interface	1	7	0.79
9	Core	1	35	26.29
10	Interface	1	23	0.20
10	Core	1	131	1.57
11 (dup)	Interface	1	33	0.59
11	Interface	1	17	4.51
11	Core	1	345	2.29
12	Interface	1	ND	0.36
12	Core	1	ND	0.00
13	Interface	1	21	0.16
13	Core	1	3	44.70
14	Interface	1	ND	0.12
14	Core	1	1	62.18
5	Interface	2	12	0.44
6	Interface	2	11	0.60
4	Interface	3	15	0.07
4*	Interface	3	474	1.72
3	Interface	3	40	1.72
2	Interface	4	10	0.36
1	Interface	4	ND	1.99
Primary Clarifier	Sludge - Underflow	NA	ND	NA

\* Second sample collected for this location

Summary of Mass of Material in Ponds

Pond Number	1	2	3	4	Total
Mass of sludge (dry tons)	67,000	800	1200	1600	70,600
Mass of 2,3,7,8 TCDD (#)	0.0052	0.00002	0.00033	0.000026	0.0056
Percent of total mass of 2,3,7,8 TCDD (%)	93.2	0.3	6.0	0.5	

#### **IV. POTENTIAL TRANSFER ANALYSIS**

An analysis of the sediments was completed to determine if the wastewater treatment ponds' legacy solids can affect the wastewater discharge to surface waters. The following is a review of the potential transfer mechanisms evaluated.

- A. Partitioning between solids and liquids. The potential exists for the direct transfer of pollutants between the legacy solids and the water column. This feedback mechanism is likely very small due to the hydrophobic nature of the compounds of interest and the very small partitioning coefficients. This mechanism was evaluated by calculating the average pore water concentration in the sludge layers which was approximately 40 ppqt. The actual transfer of pore water to the water column would be expected to be a fraction of a percent. With the low transfer of pore water to the water column and resulting low pore water contaminate concentration, any potential impact of this mechanism on the effluent would be very low.
- B. Scouring of the pond bottom due to hydraulic mechanisms. Hydraulic scouring was evaluated under an average flow of 25 MGD and an assumed plug flow condition. Under these conditions, the resulting water velocities would be approximately 0.025 feet per second. Velocities of approximately 2 feet per second are typically considered as a velocity of concern for biological systems. Even with non-ideal plug flow conditions and higher effluent flows, hydraulic solids scouring is not likely to be a transfer mechanism of concern.
- C. Mixing due to winds. Mixing of sediment solids due to wind over the pond system was previously evaluated in an engineering assessment of the treatment

system. The review found that due to the shallow treatment ponds, mixing of the sediment solids is possible under a sustained wind condition greater than 20 mph. Curtains were installed in Pond 4 to minimize the effects of winds on the pond.

- D. Mixing due to biological degradation. Mixing of the sediment layer with the water column can occur as biological solids are degraded and gas bubbles are formed. Currently there is not a significant issue with gas releases occurring in the treatment ponds due to anaerobic degradation, but gas release from the legacy solids does occur and is a potential mechanism of pollutant transfer.

## **V. PLAN FOR REMEDIATION**

The results of the technical study indicate that there are less than three grams of dioxin in the more than sixty (60) million kilograms of solids currently in the wastewater treatment ponds, with most of the solids and dioxin being located in Pond 1. While our analysis indicates that the resuspension and release of some of those solids in our effluent under specific conditions is a possibility, it is impossible to determine whether any dioxin that might be associated with those solids would ever cause or contribute to an exceedance of our permit limit or an applicable water quality standard. Using the approved methodology for dioxin sampling, the answer would be that there is no impact to our effluent stream since we have had nondetectable levels in our final effluent discharge. Additionally, we have nondetectable levels in the effluent coming directly from our bleach plant and nondetectable levels in primary wastewater solids. These nondetectable levels were achieved as a result of approximately \$200 million dollars of manufacturing process improvements to install what EPA considers to be Best Available Technology (BAT).

While levels of dioxin in our effluent have consistently been nondetectable using approved methodologies and we comply with our applicable dioxin permit limit, we understand the Department's concern regarding the presence of dioxin detected in the high volume sampling. We also recognize that the presence of the dioxin in our legacy solids adds to that concern. However, we do not know whether the high volume sampling results are valid, and we do not know with certainty that the dioxin in the legacy solids is affecting our effluent, or if it is, whether those levels are at or above levels of concern. EPA adopted a 0.014 ppq water quality stream standard that is designed to protect human health and the environment. Based on the annual fish sampling conducted in Rice Creek and the St. Johns River, we would conclude that the level of dioxin that might remain in our effluent is not causing any environmental or health concerns. In fact, the U.S. Department of Health and Human Services in consultation with the Florida Department of Health conducted a Health Consultation on the fish from the Palatka area and concluded that "There is no apparent public health hazard from eating fish containing the levels of dioxin/furan found in fish taken from Rice Creek near the Georgia-Pacific site." (Fish in Rice Creek at the Georgia-Pacific Site, Palatka, Putnam County, Florida. October 5, 2004).

We believe that the installation of BAT noted above combined with the results of the annual fish data from the Rice Creek and St. Johns River, which were evaluated by both the U.S Department of Health and Florida Department of Health, provide a reasonable assurance to the Department that human health and the environment are not impacted by any potential dioxin remaining in our effluent discharge at levels detected by the HVE testing method.

We are preparing under the terms of the "Letter Order" an additional study that will commence prior to December 1, 2009. The study will include a technical and cost feasibility

analysis on the wastewater treatment system as a whole, targeting, among other things, reduction of particulates in the effluent and transparency (color improvements). The study will evaluate whether the current system could be modified to maximize the removal of suspended solids (including legacy solids) or minimize the resuspension of settled solids caused by wind, short circuiting or excessive hydraulic flow while minimizing the potential for color reversion to occur across our wastewater treatment system. Georgia-Pacific is also currently evaluating options to reconfigure its treatment system to reduce the color reversion that is occurring across the system. The outcome of this evaluation could have secondary implications for isolating existing ponds from service and play a part in a comprehensive WWTS strategy. The possibilities of this preliminary analysis appear promising and will likely result in proposed changes to the system, some that we can anticipate and some that we cannot. Rather than approach the treatment system on a piecemeal basis, and in view of the high level of uncertainty surrounding the potential transport and discharge levels of dioxin from the legacy solids, Georgia-Pacific's recommendation is to continue to evaluate the current data, commence the additional treatment system study and analysis prior to December 1, 2009, and then approach the treatment system and our discharge as a whole. This will ensure that we have all the relevant data and analysis in hand to inform our decision making and ensure that any necessary solutions will be as broad based as possible and result in efficient and effective resource allocation. We also hope the Department can appreciate that before making any changes we have to assure ourselves that the treatment system will allow us to maintain compliance with all our effluent limitations. Making piecemeal changes, especially changes that may not actually be required or result in any real environmental improvement or that could jeopardize our compliance in other areas, is not in anyone's best interests.

# **Appendix 1**

**Georgia-Pacific Palatka Wastewater Treatment System Sample Locations, sampling Sequence and Descriptions; and Sample Numbers.**

Location Number

Description

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**Pond 4**

- 1 Within 300 feet of the easterly berm of Pond 4 and centrally spaced between the southerly and northerly berm. Due to the shallow nature of Pond 4, only small quantities of sludge deposits were encountered. One sample was collected.
- 2 Within 300 feet of the westerly berm of Pond 4 and centrally spaced between the southerly and northerly berm. Due to the shallow nature of Pond 4, only small quantities of sludge deposits were encountered. One sample was collected.

**Pond 3**

- 3 Within 300 feet of the westerly berm of Pond 3 and centrally spaced between the southerly and northerly berm. Due to the shallow nature of Pond 3, only small quantities of sludge deposits were encountered. One sample was collected.
- 4 Within 300 feet of the easterly berm of Pond 3 and centrally spaced between the southerly and northerly berm. Due to the shallow nature of Pond 3, only small quantities of sludge deposits were encountered. Two interface samples were collected.

**Pond 2**

- 5 Within 300 feet of the easterly berm of Pond 2 and centrally spaced between the southerly and northerly berm. Due to the shallow nature of Pond 2, only small quantities of sludge deposits were encountered. One sample was collected.
- 6 Within 300 feet of the westerly berm of Pond 2 and centrally spaced between the southerly and northerly berm. During the first sampling attempt, no sludge was encountered in this location, so no sample was taken. On a subsequent sampling event, one sample was taken.

**ESB (Emergency Spill Basis)**

- 7 (A & B) Sample 7A was taken near the inlet of the ESB pond from the first 6

inches of materials. 7B was collected at the same location as 7A but was a deeper core sample.

### **Pond 1**

- 8 (A & B) Within 100 feet of the easterly berm of Pond 1 and centrally spaced between the southerly and northerly berm. This is the aeration zone of the treatment pond and only small quantities of sludge deposits were encountered. Samples were collected in one foot increments for the first two feet of materials. The top sample is noted as A and the bottom sample is noted as B.
- 9 (A & B) Within 300 feet of the westerly berm of the aeration zone of Pond 1 and centrally spaced within 300 feet southerly berm. Samples were collected in one foot increments for the first two feet of materials. The top sample is noted as A and the bottom sample is noted as B.
- 10 (A & B) Sample was collected within 300 feet beyond the aeration zone of Pond 1. Location was approximately in the center of the treatment channel. Samples were collected in one foot increments for the first two feet of materials. The top sample is noted as A and the bottom sample is noted as B.
- 11 (A & B) Sample was collected within 300 feet of the easterly berm of Pond 1 at the end of the central treatment channel. Location was approximately in the center of the treatment channel. Samples were collected in one foot increments for the first two feet of materials. The top sample is noted as A and the bottom sample is noted as B.
- 12 (A & B) Sample was collected at approximately 1/3 the pond length in the most northerly treatment channel. Location was approximately in the center of the treatment channel. Samples were collected in one foot increments for the first two feet of materials. The top sample is noted as A and the bottom sample is noted as B.
- 13 (A & B) Sample was collected within 300 feet of the westerly berm of Pond 1 in the most northerly treatment channel. Location was approximately in the center of the treatment channel. Samples were collected in one foot increments for the first two feet of materials. The top sample is noted as A and the bottom sample is noted as B.
- 14 (A & B) Sample was collected within 300 feet of the southerly berm of Pond 1 in the most westerly treatment channel. Location was approximately in the center of the treatment channel. Samples were collected on one foot increments for the first two feet of materials. The top sample is noted as A and the bottom sample is noted as B.

## **Primary Clarifier**

Primary Clarifier    A sludge sample was collected from the underflow piping as the material was being directed into the sludge dewatering pond.

## **Appendix 2**

## **SAMPLING DEPTH**

Due to expected heavy accumulation of solids in Pond 1 and ESB, the sampling plan was designed to collect two samples at each location. One sample was to be collected from the interface of the legacy solids and the water column, while a second sample was collected from the full legacy solids deposit. The first sample was collected with the clam shell sampling device and the second with a core sampler. Ponds 2 through 4 and the primary clarifier were only sampled with the clam shell sampler due to the relatively shallow depth of the solids deposit. The contaminate concentration at the water / solids interface provides important information regarding the potential for contaminate transfer across the interface. The full depth samples were taken to better understand the full contaminate inventory in the treatment system.

## **SAMPLING METHODS**

Sampling of the ponds was completed on April 30, May 1, and July 24, 2009. The sample locations were accessed by motor boat. To minimize the potential for contamination from the emissions of the internal combustion engine, the motor was shut down approximately 20 feet prior to the sampling location, and the boat floated into final position unpowered. Sludge from the primary clarifier was sampled from the underflow piping as the material was directed into the sludge dewatering pond. Sampling locations were noted along with measurement of depth of sludge. A sample was retrieved from the sediment layer via clam shell or core sampler. The sample was transferred from the sampler to a stainless steel bowl. Samples were decanted as necessary in the bowl to concentrate the solids concentration. The solids samples were then transferred to containers and shipped to Alta Analytical for analysis.

## **QUALITY ASSURANCE AND QUALITY CONTROL SAMPLES**

Quality Assurance and Quality Control (“QA/QC”) samples were collected to ensure the precision, accuracy, representativeness, comparability and completeness of the sampling and analytical procedures. In particular, samples were collected as duplicates and equipment blanks. Additionally, the sampling team consisted of two people and clean hands / dirty hands techniques were utilized. This sampling technique minimized the potential of contaminating the sample during collection.

### **1. Duplicates**

Duplicates were collected at certain randomly selected sample locations to assess the precision of the analytical laboratory. Each duplicate was treated as an original sample in every respect. This study included more than 20 samples and therefore no more than 10% of all samples were collected as split samples. The duplicate sample locations were selected to be collected from (1) Sample location 11 in Pond 1, and (2) Sample location 6 in Pond 2. A sample was not collected from location 6 due to having no material present.

### **2. Equipment Blanks**

A field blank was collected and analyzed to determine whether dioxins were introduced during or after field cleaning, or between sampling locations. One equipment blank was collected during the sampling event from final rinse water after equipment cleaning was completed. The results of the analysis demonstrated that there was no measurable cross contamination between the sampling sites.

## **Appendix 3**

## Summary of Palatka Legacy Sampling – Raw Data – Solids

	Primary Clarifer	POND 1 8B (PPT)	POND 1 9B (PPT)	POND 1 10B (PPT)	POND 1 11A (PPT)	POND 1 11B (PPT)	POND 1 13B (PPT)	POND 1 14B (PPT)	POND 3 – 4* (PPT)	POND 3 3 (PPT)	POND 4 1 (PPT)
2,3,7,8-TCDD	ND(9.9)	4.65	34.5	131	33.2	345	3.01	1.33	474	39.8	ND (10.1)
1,2,3,7,8-PeCDD	ND (49.5)	ND (4.57)	5.33	ND (63.3)	ND (22.1)	ND (43.5)	ND (4.89)	ND (4.9)	ND (42.4)	ND (48.1)	ND (50.5)
1,2,3,4,7,8-HxCDD	ND (49.5)	ND (4.57)	ND (4.93)	ND (63.3)	ND (22.1)	ND (43.5)	ND (4.89)	ND (4.9)	ND (42.4)	ND (48.1)	ND (50.5)
1,2,3,6,7,8-HxCDD	ND (49.5)	ND (4.57)	39.6	ND (63.3)	ND (22.1)	69	ND (4.89)	ND (4.9)	ND (42.4)	ND (48.1)	ND (50.5)
1,2,3,7,8,9-HxCDD	ND (49.5)	ND (4.57)	21.5	ND (63.3)	ND (22.1)	45.7	ND (4.89)	ND (4.9)	ND (42.4)	ND (48.1)	ND (50.5)
1,2,3,4,6,7,8- HpCDD	ND (49.5)	14.2	146	124	65.8	261	9.95	ND (4.9)	161	ND (48.1)	62.6
OCDD	ND (99)	133	1520	1110	552	1940	114	42.9	1260	425	575
2,3,7,8-TCDF	ND(9.9)	15.4	114	369	90.7	876	6.45	3.15	826	69.9	99.3
1,2,3,7,8-PeCDF	ND (49.5)	ND (135)	ND (4.93)	ND (63.3)	ND (22.1)	ND (43.5)	ND (4.89)	ND (4.9)	ND (42.4)	ND (48.1)	ND (50.5)
2,3,4,7,8-PeCDF	ND (49.5)	ND (135)	ND (4.93)	ND (63.3)	ND (22.1)	ND (43.5)	ND (4.89)	ND (4.9)	ND (42.4)	ND (48.1)	ND (50.5)
1,2,3,4,7,8-HxCDF	ND (49.5)	ND (135)	ND (4.93)	ND (63.3)	ND (22.1)	ND (43.5)	ND (4.89)	ND (4.9)	ND (42.4)	ND (48.1)	ND (50.5)
1,2,3,6,7,8-HxCDF	ND (49.5)	ND (135)	ND (4.93)	ND (63.3)	ND (22.1)	ND (43.5)	ND (4.89)	ND (4.9)	ND (42.4)	ND (48.1)	ND (50.5)
2,3,4,6,7,8-HxCDF	ND (49.5)	ND (135)	ND (4.93)	ND (63.3)	ND (22.1)	ND (43.5)	ND (4.89)	ND (4.9)	ND (42.4)	ND (48.1)	ND (50.5)
1,2,3,7,8,9-HxCDF	ND (49.5)	ND (135)	ND (4.93)	ND (63.3)	ND (22.1)	ND (43.5)	ND (4.89)	ND (4.9)	ND (42.4)	ND (48.1)	ND (50.5)
1,2,3,4,6,7,8- HpCDF	ND (49.5)	ND (135)	12.3	ND (63.3)	ND (22.1)	ND (43.5)	ND (4.89)	ND (4.9)	ND (42.4)	ND (48.1)	ND (50.5)
1,2,3,4,7,8,9- HpCDF	ND (49.5)	ND (135)	ND (4.93)	ND (63.3)	ND (22.1)	ND (43.5)	ND (4.89)	ND (4.9)	ND (42.4)	ND (48.1)	ND (50.5)
OCDF	ND (99)	ND (9.14)	48.6	ND (127)	ND (44.2)	ND (43.5)	ND (9.78)	ND (4.9)	ND (84.7)	ND (96.2)	ND (101)
<b>TOTAL TCDD</b>	4.8	26.4	63.5	222	123	525	5.28	2.01	664	62.9	25
<b>TOTAL PeCDD</b>	ND	8.28	47.7	54.1	66.5	184	2.22	1.84	194	12.7	27.5
<b>TOTAL HxCDD</b>	ND	26.7	284	219	108	507	14.5	6.09	257	63	70.6
<b>TOTAL HpCDD</b>	6.37	32.2	320	278	168	594	22	9.44	395	111	152
<b>TOTAL TCDF</b>	3.86	70.4	336	911	545	2	24.4	9.93	3	267	434
<b>TOTAL PeCDF</b>	ND	10.9	47.9	150	137	317	2.62	0.397	402	20.1	68.4
<b>TOTAL HxCDF</b>	5.07	2.38	24.7	33.6	36.2	62.2	0.964	0.554	70.7	4.96	3.19
<b>TOTAL HpCDF</b>	15.7	3.34	44	33.1	21.5	53.3	1.49	0.265	41.9	2.33	11.7

## **Appendix 4**

Summary of Palatka Legacy Sampling – Raw Data - Liquid

	POND 2 - SAMPLE 6 (PPQ)	POND ESB 7A (PPQ)	POND 1 8A (PPQ)	POND 1 9A (PPQ)	POND 1 10A (PPQ)	POND 1 11A DUP (PPQ)	POND 1 12A (PPQ)	POND 1 12B (PPQ)	POND 1 13A (PPQ)
2,3,7,8-TCDD	64.3	170	ND (27)	54	45.8	99.9	ND (25)	ND (24.4)	33.7
1,2,3,7,8-PeCDD	ND (50)	266	ND (135)	ND (122)	ND (122)	ND (125)	ND (125)	ND (122)	ND (125)
1,2,3,4,7,8-HxCDD	ND (50)	ND (135)	ND (135)	ND (122)	ND (122)	ND (125)	ND (125)	ND (122)	ND (125)
1,2,3,6,7,8-HxCDD	63.4	ND (135)	ND (135)	ND (122)	ND (122)	ND (125)	ND (125)	ND (122)	ND (125)
1,2,3,7,8,9-HxCDD	ND (50)	ND (135)	ND (135)	ND (122)	ND (122)	ND (125)	ND (125)	ND (122)	ND (125)
1,2,3,4,6,7,8-HpCDD	418	359	ND (135)	241	143	312	ND (125)	ND (122)	ND (125)
OCDD	4940	1240	575	2120	1200	2540	ND (250)	833	385
2,3,7,8-TCDF	141	1290	160	267	148	300	25.5	25.8	73
1,2,3,7,8-PeCDF	ND (50)	554	ND (135)	ND (122)	ND (122)	ND (125)	ND (125)	ND (122)	ND (125)
2,3,4,7,8-PeCDF	ND (50)	820	ND (135)	ND (122)	ND (122)	ND (125)	ND (125)	ND (122)	ND (125)
1,2,3,4,7,8-HxCDF	ND (50)	204	ND (135)	ND (122)	ND (122)	ND (125)	ND (125)	ND (122)	ND (125)
1,2,3,6,7,8-HxCDF	ND (50)	249	ND (135)	ND (122)	ND (122)	ND (125)	ND (125)	ND (122)	ND (125)
2,3,4,6,7,8-HxCDF	ND (50)	279	ND (135)	ND (122)	ND (122)	ND (125)	ND (125)	ND (122)	ND (125)
1,2,3,7,8,9-HxCDF	ND (50)	ND (135)	ND (135)	ND (122)	ND (122)	ND (125)	ND (125)	ND (122)	ND (125)
1,2,3,4,6,7,8-HpCDF	ND (50)	195	ND (135)	ND (122)	ND (122)	ND (125)	ND (125)	ND (122)	ND (125)
1,2,3,4,7,8,9-HpCDF	ND (50)	ND (135)	ND (135)	ND (122)	ND (122)	ND (125)	ND (125)	ND (122)	ND (125)
OCDF	135	ND (270)	ND (270)	ND (244)	ND (244)	ND (250)	ND (250)	ND (244)	ND (250)
<b>TOTAL TCDD</b>	284	5	554	792	155	616	28.3	31.1	50.3
<b>TOTAL PeCDD</b>	266	3	398	511	45.4	380	23.9	27.5	45.9
<b>TOTAL HxCDD</b>	620	1	255	448	165	537	48.4	115	82.3
<b>TOTAL HpCDD</b>	939	807	219	587	345	764	70.9	181	145
<b>TOTAL TCDF</b>	929	21	2	2	827	2	210	109	407
<b>TOTAL PeCDF</b>	242	7	701	972	196	787	47.1	16.2	73
<b>TOTAL HxCDF</b>	69.8	2	190	196	47	226	13.8	7.87	24.9
<b>TOTAL HpCDF</b>	99.5	388	13	101	ND	96.5	5.49	5.7	13.7

Table 2. Summary of Palatka Legacy Sampling – Raw Data – liquid (Cont.)

	POND 1 14A (PPQ)	POND 2 5 (PPQ)	POND 3 4 (PPQ)	POND 4 2 (PPQ)
2,3,7,8-TCDD	ND (25)	54.3	101	35.9
1,2,3,7,8-PeCDD	ND (125)	ND (147)	ND (128)	ND (167)
1,2,3,4,7,8-HxCDD	ND (125)	ND (147)	ND (128)	ND (167)
1,2,3,6,7,8-HxCDD	ND (125)	ND (147)	ND (128)	ND (167)
1,2,3,7,8,9-HxCDD	ND (125)	ND (147)	ND (128)	ND (167)
1,2,3,4,6,7,8-HpCDD	ND (125)	ND (147)	ND (128)	ND (167)
OCDD	256	735	1210	519
2,3,7,8-TCDF	33.8	81.4	153	58.4
1,2,3,7,8-PeCDF	ND (125)	ND (147)	ND (128)	ND (167)
2,3,4,7,8-PeCDF	ND (125)	ND (147)	ND (128)	ND (167)
1,2,3,4,7,8-HxCDF	ND (125)	ND (147)	ND (128)	ND (167)
1,2,3,6,7,8-HxCDF	ND (125)	ND (147)	ND (128)	ND (167)
2,3,4,6,7,8-HxCDF	ND (125)	ND (147)	ND (128)	ND (167)
1,2,3,7,8,9-HxCDF	ND (125)	ND (147)	ND (128)	ND (167)
1,2,3,4,6,7,8-HpCDF	ND (125)	ND (147)	ND (128)	ND (167)
1,2,3,4,7,8,9-HpCDF	ND (125)	ND (147)	ND (128)	ND (167)
OCDF	ND (250)	ND (294)	ND (256)	ND (333)
<b>TOTAL TCDD</b>	64.2	141	199	61.9
<b>TOTAL PeCDD</b>	34.4	27.7	69.7	31.6
<b>TOTAL HxCDD</b>	75	114	196	70.4
<b>TOTAL HpCDD</b>	111	229	302	146
<b>TOTAL TCDF</b>	317	363	698	304
<b>TOTAL PeCDF</b>	91.4	83.3	108	68.2
<b>TOTAL HxCDF</b>	28.2	27.1	10.7	4.88
<b>TOTAL HpCDF</b>	6.35	13.8	24.7	12.8