BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF:	)	
	)	
Petition of Noveon, Inc.	)	
	)	**AS 02-5**
	)	
for an Adjusted Standard from	)	
35 Ill. Adm. Code 304.122	)	

NOTICE OF FILING

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PLEASE TAKE NOTICE that on **Thursday, April 15, 2004**, we filed the attached **Support Requested By Illinois EPA for Data Referenced By Houston Flippin** with the Illinois Pollution Control Board, a copy of which is herewith served upon you.

Respectfully submitted,

NOVEON, INC.

By: _____
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THIS FILING IS SUBMITTED ON RECYCLED PAPER

SUPPORT REQUESTED BY ILLINOIS EPA FOR DATA REFERENCED BY HOUSTON FLIPPIN ON PAGES 12 AND 13 OF HIS TESTIMONY

2.0 METHODS AND MATERIALS

Phase I consisted of characterization and batch treatability testing of the five major wastestreams and the primary clarifier effluent to evaluate their impact on biohydrolysis and nitrification by activated sludge. A summary of the flow contributions by the individual wastestreams is presented in Table 2-1.

2.1 Wastestream Sampling, Preparation, and Characterization

BF Goodrich collected grab samples of the contents of the PVC Tank, the PC Tank, the Pond, C-18 Tank, Well No. 3 discharge, and primary clarifier effluent on September 28, 1995 and shipped them by overnight courier to ECKENFELDER INC.'s laboratory in Nashville, Tennessee. All samples (except primary clarifier effluent) were subjected to the chemical coagulation and sedimentation procedure provided in the WWTF as described below.

1. Adjustment to pH 9.5 standard units (s.u.) using either sodium hydroxide (NaOH) or sulfuric acid (H_2SO_4).

2. Addition of 300 ppm $FeCl_3$ followed by a rapid mix time of 4 minutes.

3. Addition of 1 ppm anionic polymer (DREWFLOC® 2205 manufactured by Drew Industrial Division of Ashland Chemicals) followed by a rapid mix time of 4 minutes.

4. Re-adjustment to pH 9.3 ($\pm$0.2) standard units using either NaOH or H_2SO_4.

5. Gentle mixing (flocculation) for 18 minutes.

6. Settling for 90 minutes.

7. Decanting of supernatant for subsequent characterization and testing.

The primary clarifier effluent and pretreated samples of the PVC Tank contents, PC Tank contents, Pond Water, Well No. 3 discharge, and C-18 Tank contents were then split into two aliquots. One aliquot was preserved and analyzed for total carbonaceous biochemical oxygen demand (TCBOD), total chemical oxygen demand (TCOD), total Kjeldahl nitrogen (TKN), ammonia-nitrogen (NH_3-N), nitrite-nitrogen (NO_2-N), nitrate-nitrogen (NO_3-N), morpholine,

TABLE 2-1

WASTESTREAM ORIGIN AND FLOW CONTRIBUTION

Wastestream Origin	Flow Rate		
	Average (gpm)	Range (gpm)	Contribution[a] (%)
Discharge from Pond	35	25 to 100	4 to **16**[b]
Well No. 3	7	7 to 11	1 to **2**
Discharge from C-18 Tank	7	2 to 14	0 to **2**
Discharge from PVC Tank	450	330 to 490	54 to **80**
Discharge from PC Tank	110	90 to 140	15 to **23**
Combined Wastestream (i.e., Primary Clarifier Effluent)	609	454 to 755	

[a]Range of contribution to primary clarifier effluent based on a combined average primary clarifier effluent flowrate of 609 gpm.
[b]Bold type indicates target peak flow contribution used in batch treatability tests.

and total alkalinity. The methods of preservation and analysis for these parameters are summarized in Table 2-2. The remaining aliquot of primary clarifier effluent and of the pretreated wastestreams was kept refrigerated until used in the batch biohydrolysis test and the first set of batch nitrification tests.

BF Goodrich also collected grab samples of primary clarifier effluent, the PVC Tank contents, and PC Tank contents on October 19, 1995 and shipped them via overnight courier to ECKENFELDER INC.'s laboratory in Nashville, Tennessee. The PVC Tank contents and the PC Tank contents were pretreated in the same manner as described above. The primary clarifier effluent and the pretreated PVC and PC Tank contents were split into two aliquots. One aliquot was preserved and analyzed for TCBOD, TCOD, TKN, NH_3-N, and combined nitrite- plus nitrate-nitrogen (NO_2-N plus NO_3-N). The remaining aliquot was refrigerated until used in the second set of batch nitrification tests.

BF Goodrich recorded the flows of all wastestreams at the time of sampling. These flows were coupled with wastestream characterization data to calculate the flow and load contribution of each wastestream to the combined wastestream as monitored at the primary clarifier effluent.

2.2 Biomass Preparation

Two types of biomass were used in the treatability testing as illustrated in Figure 2-1: BF Goodrich biomass and "nitrifier-rich" biomass. BF Goodrich biomass was used in both the batch biohydrolysis test and the batch nitrification tests. The nitrifier-rich biomass had been cultured in ECKENFELDER INC.'s laboratory for over two years and was used only in the batch nitrification tests. Both biomasses were acclimated to test conditions of >3 mg/L DO, pH 7.7 $\pm$0.2 standard units, 22 $\pm$2°C (for batch biohydrolysis tests), and 32 $\pm$2°C (for batch nitrification tests) as described below.

BF Goodrich collected grab samples of primary clarifier effluent and return activated sludge (RAS) on September 28, 1995 and October 19, 1995, and shipped them to ECKENFELDER INC.'s laboratory in Nashville, Tennessee. Upon arrival, the RAS was aerated at >3 mg/L DO for 1.0 hour to "freshen" the biomass. During aeration, the RAS was adjusted to pH 7.7 standard units using NaOH. Aeration was then shut off and the mixed liquor was allowed to settle for one hour. Sixty percent of the initial volume was decanted and replaced with primary clarifier effluent which had been spiked with 35 mg P/L using phosphoric acid (H_3PO_4). Aeration was then restored and the RAS was aerated for 24 hours at a mixed liquor DO and pH of >3 mg/L and

TABLE 3-1

SUMMARY OF WASTESTREAM CHARACTERIZATION RESULTS

Sample Collection Date	Parameter	Wastestream Origin					
		PVC Tank[a]	PC Tank[a]	Pond[a]	Well No. 3[a]	C-18 Tank[a]	Primary Clarifier Effluent
9-28-95	Flow, gpm	377	109	14	7	10	517
	Flow, % of Primary Clarifier Effluent	73	21	3	1.4	1.9	--
10-19-95	Flow, gpm	412	98	9	7	8	534
	Flow, % of Primary Clarifier Effluent	77	18	2	1.3	1.5	--
	Flow, %, Evaluated During Treatability Studies	8 to 80	0.2 to 23	15 to 16	1.7 to 1.8	1.7 to 1.8	0.8 to 85
9-28-95	Total Alkalinity, mg/L	340	1,120	30	510	4,300	550
9-28-95	TCBOD, mg/L	131	1,998	4	52	6,390	669
	TCBOD, %[b]	14	63	0	0	18	(95)[c]
10-19-95	TCBOD, mg/L	114	1,140	NA[d]	NA	NA	390
	TCBOD, %	23	54	NA	NA	NA	(77)
9-28-95	TCOD, mg/L	410	4,900	25	90	17,200	1,840
	TCOD, %	16	56	0	0	18	(90)
10-19-95	TCOD, mg/L	545	5,800[e]	NA	NA	NA	1,350
	TCOD, %	31	79	NA	NA	NA	(110)
9-28-95	TKN, mg/L	81	290	<1	10	820	150
	TKN, %	39	41	0	0	11	(91)
10-19-95	TKN, mg/L	59	270	NA	NA	NA	100
	TKN, %	46	50	NA	NA	NA	(96)
9-28-95	NH_3-N, mg/L	50	31	0.6	3	280	51
	NH_3-N, %	71	13	0	0	1	(85)
10-19-95	NH_3-N, mg/L	39	42	NA	NA	NA	39
	NH_3-N, %	77	20	NA	NA	NA	(97)
9-28-95	Morpholine, mg/L	37	418	<1	16	1,880	169
	Morpholine, %	16	52	0	0	22	(90)
9-28-95	NO_2-N, mg/L	<0.1	<0.1	0.2	<0.1	7.6	<0.1
	NO_2-N, %	NC[f]	NC	NC	NC	NC	(NC)
9/28/95	NO_2-N + NO_3-N, mg/L	0.1	11	28	0.3	13	0.1
	NO_2-N + NO_3-N, %	73	>100	>100	4	1	(>100)
10-19-95	NO_2-N + NO_3-N, mg/L	<0.1	11	NA	NA	NA	<0.1
	NO_2-N + NO_3-N, %	77	>100	NA	NA	NA	(>100)

TABLE 3-1 (Continued)

SUMMARY OF WASTESTREAM CHARACTERIZATION RESULTS

Sample Collection Date	Parameter	Wastestream Origin					
		PVC Tank[a]	PC Tank[a]	Pond[a]	Well No. 3[a]	C-18 Tank[a]	Primary Clarifier Effluent
9-28-95	Organic Nitrogen[g], mg/L	31	259	0	7	540	99
	Organic Nitrogen, %	23	55	0	0	11	(89)
10-19-95	Organic Nitrogen, mg/L	20	228	NA	NA	NA	61
	Organic Nitrogen, %	25	69	NA	NA	NA	(94)

[a]Characterization following sample pretreatment described in Section 2.1.
[b]Contribution of individual wastestreams to measured primary clarifier effluent load.
[c]Values in parentheses represent percentage calculated by summing contributions of individual wastestreams.
[d]Not analyzed.
[e]Value determined by BFG at time of sampling.
[f]Not calculable.
[g]Calculated as difference between TKN and NH_3-N concentrations.

Wastestream	PVC Tank	PC Tank	C-18 Tank	Well No. 3	Total	
Table 2-1						
Average Flowrate, gpm	450	110	7	42	609	
Maximum, gpm	**490**	**140**	**14**	**111**	**755**	Essentially used these maximums as future maximums.
Minimum, gpm	330	90	2	32	454	
Factor	**0.89**	**0.97**	**0.86**	**1.10**		Factor used to scale to future based on discussions with Noveon.
Factored Average	**401**	**107**	**6**	**46**	**560**	
Factored Maximum						
Table 3-1						
9/28/2004 Flow, gpm	377	109	10	21	517	
10/19/2004 Flow, gpm	412	98	8	16	534	
Average	395	104	9	19	526	
Maximum						
Factor						
Factored Average						
Factored Maximum						
Presented Average, gpm	**401**	**107**	**6**	**46**	**560**	
Presented Maximum, gpm	**499**	**150**	**15**	**105**	**769**	
Table 3-1						
9/28/2004 TCBOD, mg/l	131	1998	6390	20		
10/19/2004 TCBOD, mg/L	114	1140	NA	NA		
Average, mg/L	123	1569	6390	20		
Maximum, mg/L	131	1998	6390	20		
9/28/2004 TCBOD, lbs/day	593	2613	767	5	3978	
10/19/2004 TCBOD, lbs/day	564	1341				
Average (9/28-10/19), lbs/day	578	1977	767	5	3327	
Design Average, lbs/day	589	2015	460	11		Design Ave.Flow X Ave. Meas. Conc.
Factor	1.35	1.23	0.86	1.36		Factor used to scale to future based on discussions with Noveon.
Design Maximum, lbs/day	784	3596	1150	25		Design Max.Flow X Max. Meas. Conc.
Factor	1.66	0.90	0.77	0.60		Factor used to scale to future based on discussions with Noveon.
Presented Average, lbs/day	795	2485	395	15	3690	
Presented Maximum, lbs/day	1300	3250	880	15	5445	
9/28/2004 TCOD, mg/l	410	4900	17200	47		
10/19/2004 TCOD, mg/L	545	5800	NA	NA		
Average, mg/L	478	5350	17200	47		
Maximum, mg/L	545	5800	17200	47		
9/28/2004 TCOD, lbs/day	1855	6409	2064	12	10340	
10/19/2004 TCOD, lbs/day	2694	6821				
Average (9/28-10/19), lbs/day	2275	6615	2064	12	10966	
Design Average, lbs/day	2298	6869	1238	26	10431	Design Ave.Flow X Ave. Meas. Conc.
Factor	1.15	1.21	1.07	1.93		Factor used to scale to future based on discussions with Noveon.

Wastestream	PVC Tank	PC Tank	C-18 Tank	Well No. 3	Total	
Design Maximum, lbs/day	3263	10440	3096	59		Design Max.Flow X Max. Meas. Conc.
Factor	1.33	1.04	0.95	0.84		Factor used to scale to future based on discussions with Noveon.
Presented Average, lbs/day	2650	8280	1320	50	12300	
Presented Maximum, lbs/day	4330	10840	2940	50	18160	
9/28/2004 TKN, mg/l	81	290	820	4		
10/19/2004 TKN, mg/L	59	270	NA	NA		
Average, mg/L	70	280	820	4		
Maximum, mg/L	81	290	820	4		
9/28/2004 TKN, lbs/day	366	379	98	1	845	
10/19/2004 TKN, lbs/day	292	318				
Average (9/28-10/19), lbs/day	329	348	98	1	777	
Design Average, lbs/day	337	360	59	2	758	Design Ave.Flow X Ave. Meas. Conc.
Factor	1.36	1.37	1.39	1.36		Factor used to scale to future based on discussions with Noveon.
Design Maximum, lbs/day	485	522	148	5		Design Max.Flow X Max. Meas. Conc.
Factor	1.32	1.33	1.34	1.39		Factor used to scale to future based on discussions with Noveon.
Presented Average, lbs/day	459	494	82	3	1038	
Presented Maximum, lbs/day	640	693	198	7	1538	
9/28/2004 NH3-N, mg/l	50	31	280	1.2		
10/19/2004 NH3-N, mg/L	39	42	NA	NA		
Average, mg/L	45	37	280	1		
Maximum, mg/L	50	42	280	1.2		
9/28/2004 TCBOD, lbs/day	226	2461	6935	0	9622	
10/19/2004 TCBOD, lbs/day	193	49				
Average (9/28-10/19), lbs/day	210	1255	6935	0	8400	
Design Average, lbs/day	214	47	20	1	282	Design Ave.Flow X Ave. Meas. Conc.
Factor	1.38	1.32	1.34	1.51		Factor used to scale to future based on discussions with Noveon.
Design Maximum, lbs/day	299	76	50	2		Design Max.Flow X Max. Meas. Conc.
Factor	1.37	1.15	1.31	1.98		Factor used to scale to future based on discussions with Noveon.
Presented Average, lbs/day	295	62	27	1	385	
Presented Maximum, lbs/day	411	87	66	3	567	

CERTIFICATE OF SERVICE

The undersigned certifies that a copy of the foregoing **Notice of Filing** and **Support Requested By Illinois EPA for Data Referenced By Houston Flippin** was filed by hand delivery with the Clerk of the Illinois Pollution Control Board and served upon the parties to whom said Notice is directed by

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on Thursday, April 15, 2004.