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 ATHERTON, N.G. Duke Power Co.
 RECIP. NAME RECIPIENT AFFILIATION
 GLEASON, R. North Carolina, State of

SUBJECT: NPDES noncompliance notification: on 920304, sanitary treatment sys sand filter bypassed until 920305 due to over flow condition of sand filter. Personnel in process of evaluating some form of shading to control algae growth.

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DUKE POWER

March 17, 1992

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Mr. Rex Gleason
Regional Manager
Water Quality Section
Mooresville Regional Office
Division of Environmental Management
and Community Development
919 North Main Street
Mooresville, N.C. 28115

Subject: Duke Power Company
Training and Technology Center (NC0026255)
Bypass of Sanitary Treatment System Sand Filter
File: MC 702.26

Dear Sir:

Pursuant to Part II Section D(6)(c) of the Duke Power Training and Technology Center (TTC) NPDES permit (NC0026255), this is a follow-up written report to the North Carolina Department of Natural Resources and Community Development (NCNRCD) of recent noncompliances associated with the TTC's sewage treatment system. The initial telephone notification was made to Mr. Allen Hardy and Mr. Mike Parker, NCNRCD Regional Office, Mooresville, N.C., on March 4, 1992, at approximately 2:00PM by Robert Wylie of Duke Power Company.

EVENT

On Tuesday, March 4, 1992, beginning at 9:30AM and continuing to 8:00AM of March 5, 1992, the Training and Technology Center bypassed the sand filter of the sanitary treatment system. During this bypass, the flow that is normally directed to the sand filter was diverted to the Sanuril chlorinator. This bypass was necessary due to an imminent over flow condition of the sand filter.

The maximum quantity of water discharged during this 22.5 hour period was estimated to be 5400 gallons. The total suspended solids (TSS) during the time of this event was 138mg/L. The bypass condition was immediately terminated when the wastewater level of the sand filter was reduced sufficiently to prevent an overflow.

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MITIGATING FACTORS

Due to an unusually mild winter, an algal problem began developing in the waste treatment lagoon in February. This also appeared to be related to a deterioration in sand filter efficiency that was being detected. These conditions were observed by Mr. Mike Parker of NCNRCD on February 11, 1992.

Maintenance activities were scheduled for the sand filter but were delayed due to frequent rainfalls that began after February 11th and continued off and on for the rest of the month. The total rainfall during this time period was 3.84 inches. (See Attachment 1).

The period of February 29 to March 3, 1992, was characterized by unseasonably hot temperatures (a maximum of 87F was recorded), clear skies, and bright sunlight that initiated an algal bloom situation in the lagoon. This was confirmed by Chlorophyll "A" tests performed on lagoon samples. These tests showed very high counts of colonial green and blue-green algae. (See Attachment 1).

CORRECTIVE ACTIONS

On March 4, 1992, the sand filter was bypassed until the following day. Between March 4th and March 6th, the wastewater from the sand filter was pumped off and returned to the treatment lagoon, as efforts to break up any algae matting took place. These efforts included tilling and raking. However, due to the continuous flow of wastewater with large amounts of algae, the sand filter blockage began to reoccur.

When maintenance activities to the sand filter failed to improve its performance, copper sulfate was added as recommended by Mr. Parker. The copper sulfate additions were adjusted as necessary to further attack the algae. Later chlorophyll tests showed success with the treatments.

However, the flow through the sand filter was slow to improve. It was decided to replace the sand in the sand filter. While awaiting the arrival of the replacement sand, a portable filter was put in place to be used as a substitute for the sand filter on an as needed basis. The portable filter was placed into service on March 12 to allow the sand in the sand filter to drain and dry prior to scheduled replacement activities. In this alignment, water was pumped from the dosing tank, through the portable filter and to the chlorinator. During this alignment, the effluent to the dosing tank was treated with chlorine to reduce the algae and to improve the filtering process, thus reducing TSS.

Daily copper sulfate additions to the lagoon also continued. Throughout this alignment, the effluent treatment system was monitored for copper, chlorine, pH, and TSS. (See Attachment 1) The sand was removed and replaced during March 14th and 15th. The sand filter was placed back in service on March 15th.

In order to prevent algae related sand filter problems in the future, the Training and Technology Center is in the process of evaluating some form of shading to control future algae growth. Additionally, the approval to use the algicide Cutrine Plus was requested by Duke Power Company. On March 16, 1992, approval from Mr. Mike Parker was given after review by the NCNRCD Aquatic Toxicity Group. In the future, Duke Power will also be seeking approval for copper sulfate usage on an as needed basis.

Should you have any questions, please contact Norma Atherton at (704) 382-2116 or Robert Wylie at (704) 373-2028.

Sincerely,

Norma G. Atherton

Norma G. Atherton, Production Specialist III
Generation Services Department
Environmental Division

cc: G.S. Rice
J.S. Carter
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NRC Document Control Desk

TECHNICAL TRAINING CENTER
Sanitary Treatment System
Relevant Analytical Data

DATE	pH	RES. CHLORINE (mg/L)	TSS (mg/L)	COPPER (mg/L)	BOD (mg/L)
3/3/92	6.45	1.10	37	---	13.4
3/4/92	---	0.75	138	---	---
3/5/92	6.61	1.05	82	---	7.8
3/6/92	6.37	0.64	60	---	10.2
3/7/92	6.27	0.68	37	0.47	---
3/8/92	6.46	0.42	48	0.73	---
3/9/92	6.62	0.52	48	1.00	---
3/10/92	6.62	0.80	26	0.69	---
3/11/92	6.80	1.46	30	1.42	---
3/12/92	6.92	0.74	--	1.48	---
3/13/92	---	1.82	48	1.50	---
3/14/92	6.86	0.84	--	2.08	---
3/15/92	7.06	0.95	--	2.84	---
3/16/92	---	1.86	--	2.19	---
3/17/92	---	1.10	--	---	---

DATE	LOCATION	DEPTH	CHLOROPHYLL (mg/L)	MEAN
3/5/92	WT-A	0.3	1019.45	
3/5/92	WT-B	0.3	1063.15	1041.3
3/5/92	SE-A	0.3	1003.92	
3/5/92	SE-B	0.3	961.20	982.9
3/16/92	WT-A	0.3	176.22	
3/16/92	WT-B	0.3	205.59	190.9
3/16/92	SE-A	0.3	194.91	
3/16/92	SE-B	0.3	178.89	186.9

DATE	RAINFALL (in.)
2/13/92	0.05
2/15/92	0.91
2/17/92	0.28
2/18/92	0.14
2/19/92	0.03
2/23/92	0.93
2/24/92	0.06
2/25/92	1.07
2/26/92	0.37
TOTAL	3.84