

**Monthly Operating Report
March, 2011
Concord Wastewater Treatment Plant
Operated by Woodard & Curran**

Date: April 13, 2011

To: Alan Cathcart, Concord Water & Sewer Superintendent
cc: Chris Whelan, Town Manager
Richard Reine, Director Concord Public Works

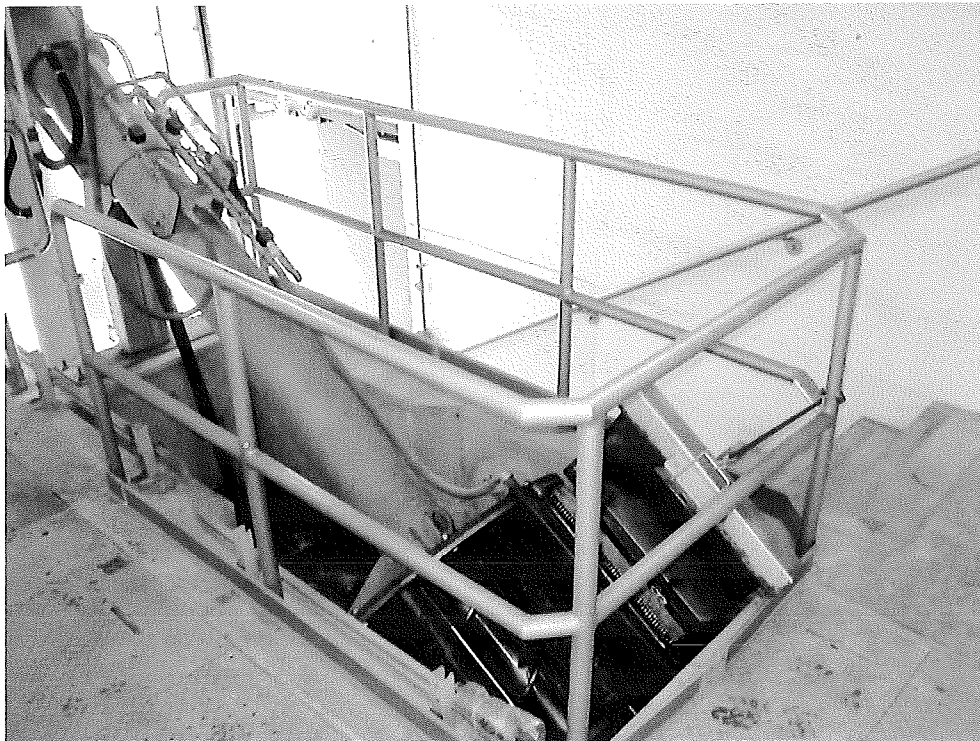
From: Michael Thompson and Staff

Key Activities This Month/Capital Program

During March all treatment processes were either operational or in ready standby. Flow through the facility in March averaged 1.783 million gallons per day (MGD) and even though this monthly average flow rate is rather high, the permit critical 12-month average flow dropped to 1.04 MGD. This is because the monthly average flow for last March (2.395 MGD) dropped out of the calculation for the 12-month average flow as this months flow rate replaced it. The permit upper limit for the 12-month average flow is 1.2 MGD.

More notable events or tasks accomplished in March include:

1.) Daily flow through the plant exceeded 2 MGD from 2/7 through 2/18. While this is nearly twice the average annual daily flow it is not very unusual for the transition from winter to spring especially considering the deep snow pack that existed this winter. The plant performed very well and easily handled this increased flow. One unusual condition we noticed and resolved was the unusual quantity of grit and small stones that arrived at the inlet end of the plant. One several occasions this material caused the headworks fine screen to fault on motor overload. This overload is set to be sensitive to even mild jams in the screen auger and it serves the purpose to alert plant staff to out of the ordinary loading on the screen. In response, plant staff manually removed approximately 100 pounds of grit and stones from the channel just upstream of the fine screen and vacuumed small stones directly out of the screen auger. We suspect that the high flows provided the extra velocity to lift this gritty material from the collection system before depositing it at the plant headworks.



The Headworks influent fine screen and auger where we saw accumulations of grit and small stones in March.

March '11 WWTP MOR

2.) On March 25, Hardik Raval and Mike Thompson met with facility neighbors to survey the area for potential odor sources. For several months now, we have been occasionally meeting with David Hill, property manager for the Guido Goldman property abutting the facility to the west. On this morning we met with Mr. Hill and two residents from 280 Great Meadows Road where they reside in a home owned by Dr Goldman located approximately 100 yards due west of the treatment plant. Hardik and Mike walked the grounds with these residents to review where they experience odor that they attribute to the plant. This includes a footpath through woods only 50 feet from the facility's backyard fence. We also walked around the facility grounds and explained the various outside processes and tanks. On this tour the two residents identified the trickling filters as exhibiting the odor they notice on occasion on their side of the fence. One common factor in these odor complaints (received and logged at the facility) is that our weather station shows the wind calm or light from the east. We will continue to monitor and evaluate/implement practical solutions that may result in a decrease in the odor impact on these nearby facility neighbors.

Maintenance Management

Following is a brief list of a portion of maintenance items completed in March:

- a) the #2 plant water pump seal and shaft sleeve were replaced and all three plant water pump regulators were serviced.
- b) a new laptop computer was installed in the basement for wireless access to the plant's SCADA system.
- c) plant staff set up staging and then inspected the #1 secondary clarifier lower bearing and dust cover in anticipation of capital repairs to this equipment in the next several months.
- d) plant staff changed out two burnt UV bulbs with new on UV bank B and reinstalled the bank in auto standby.
- e) the sludge trailer loading station flow meter in-pipe pickup probes were accessed and cleaned with a scouring pad and mild degreaser to restore a reliable flow signal.

Environmental Compliance

Parameter	Monthly Avg.	Permit Limit	Notes
Flow, MGD	1.04 MGD (12month avg)	1.2 MGD	avg. = 1.783 MGD Max. Daily Flow = 2.15 MG
BOD5 (mg/l)	4 mg/l	30 mg/l	98% average BOD removal in Mar.
TSS (mg/l)	3 mg/l	30 mg/l	98% average TSS removal in Mar.
Coliform, Geo.Mean #/100ml	1 cfu*/100ml	200 cfu/100ml	1 test on 3/3 produced 4 cfu/100ml
Phosphorus	0.20 mg/l	1.0 mg/l Nov. '10- Mar. '11	0.40 mg/l daily max. on Tue. 3/29
Total Ammonia Nitrogen	0.42 mg/l	Report Only	0.47 mg/l daily max. on Thu. 3/10

*cfu = coliform forming unit or colony.

During March, the Concord WWTP performed continuous two-stage total phosphorus (TP) removal using aluminum sulfate. First stage chemical TP treatment occurred in the secondary clarifiers and second stage TP treatment took place within the CoMag® advanced treatment process. The monthly average effluent TP concentration in March is 0.20 mg/l, thereby meeting the CWWTP's winter permit limit not to exceed 1.0 mg/l TP.

Additionally, during March all effluent disinfection was performed using ultra violet light.

Finally, over the week of March 6 the Concord WWTP conducted the 2011, first-quarter Whole Effluent Toxicity (WET) sampling event. The 48-hour LC50, a.k.a. acute toxicity test, for *Ceriodaphnia* is >100% and permit complying. The 7-day NOEC, a.k.a. chronic toxicity test, is 50%. Monitoring of chronic toxicity is a permit requirement however; there are currently no chronic toxicity limitations. A copy of the complete WET test report prepared by our contracted lab is enclosed for your review.

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Alarm Activity

This section provides the Town information on events that activate the facility's alarm response system. These events occur while the plant is unmanned and while both the plant's SCADA system and *Lexington Alarm* are monitoring the facility's alarm system. This report identifies alarm activity from the start of the calendar year to the present.

Concord WWTP Off-Hours Alarm Log

Date	Time	Alarm Source	Observations/Corrective Action/Comments
Jan. '11	NA	NA	
Feb. '11	3:00 am	Hi-Effluent turbidity	Links in process monitoring data/trends reveal an inaccurate caustic feed to CoMag effluent. Operations staff ultimately performs hotwater flush of the caustic feed system to remove solidified caustic and restore accurate caustic pumping.
Mar. '11	NA	NA	

Septage Receiving

The Concord WWTP receives septage only from in-Town sources. A total of 102,950 gallons of septage was received at the Concord WWTP in March.

WWTP Septage Receipts in gallons

	2011	2010	2009
January	44,050	32,500	10,500
February	31,750	25,750	41,250
March	102,950	171,750	83,250
April		211,500	168,250
May		125,950	150,900
June		184,950	151,450
July		90,800	138,500
August		173,250	137,750
September		182,250	203,750
October		210,250	172,400
November		194,100	155,400
December		132,750	109,600
Annual Totals:	178,500	1,735,800	1,523,000

Sludge Production

During March, 72,617 gallons of liquid sludge, equivalent to 13.89 dry tons, was transported to Upper Blackstone Water Pollution Abatement District (UBWPAD) in Millbury, Massachusetts.

WWTP Sludge Production in gallons /dry tons

	2011	2010	2009
January	98,309/16.78	89,000/15.61	107,500/16.71
February	72,916/13.5	90,000/16.81	86,000/14.13
March	72,617/13.89	90,000/15.65	99,000/17.56
April		135,000/23.57	153,000/23.94
May		97,980/15.76	170,670/24.27
June		99,000/18.28	153,000/20.83
July		99,000/16.81	126,000/20.57
August		108,000/18.61	76,376/11.81
September		106,160/17.88	126,000/21.65
October		107,558/17.31	99,000/16.03
November		142,500/21.18	99,000/16.51
December		134,750/21.73	117,000/17.79
Annual Totals:	243,842/44.17	1,298,945/219.20	1,421,546/223.58